Cisco Product Quick Reference Guide

For enterprises, service providers, and small and medium-sized businesses



An overview of Cisco products and solutions for every part of your business

Summer/Fall 2008

Introduction

Cisco Product Quick Reference Guide

For enterprises, service providers, and small and medium-sized businesses

Welcome to the Summer/Fall 2008 edition of the Cisco Product Quick Reference Guide. It presents a complete portfolio of Cisco products, services, and solutions for every part of your business.

The Cisco Product Quick Reference Guide is your tool for matching today's business challenges with industry-leading products, services, and solutions from Cisco. A compact, portable, and easy-to-use reference tool, the guide summarizes information about many of Cisco's products and services sold through our channel partners. Inside the guide you will find a wealth of information, including brief product and service overviews, important features, technical specifications, part numbers, and ordering information.

This guide is published primarily to support Cisco partners, resellers, sales account teams, those studying for Cisco certification, end-user customers, and networking professionals who need a broad, high-level overview of current Cisco products and services—particularly when they lack an Internet connection. It is also ideal for customers who need to determine what Cisco solution best fits their needs.

What's New in this Edition?

This edition of the Cisco Product Quick Reference Guide covers many new offerings, including Cisco Nexus Series Switches, Cisco Application Control Engines (ACEs), Cisco uBR7225 Universal Broadband Routers, Cisco Unified Mobile Communicator, Cisco Unified Communications 500 Series for Small Business, Cisco ASR 1000 Series Aggregation Services Routers, Cisco Catalyst 4500 E- Series Switches, Cisco Aironet 1250 Series Access Points, Cisco Video Assurance Management Solution (VAMS), Cisco TelePresence Systems, Cisco Digital Media Systems, Cisco Services, and much more.

For More Information

For questions or comments, or to order a copy of the Cisco Product Quick Reference Guide, visit http://www.cisco.com/go/guide. You may also register in the Cisco Product Quick Reference Guide Document Center and receive access to download the guide (s).

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Cisco Documentation

You can have a comprehensive library of Cisco product documentation anytime, anywhere by purchasing a copy of the Product Documentation DVD. The DVD is an excellent portable medium that helps you install, configure, maintain, and support your Cisco hardware and software. The DVD also contains an archive of field notices, alerts, troubleshooting tips, and much more. The DVD (Part Number DOC-DOCDVD=) is available as a single unit or one-year subscription.

Visit the Product Documentation Store at: http://www.cisco.com/go/marketplace/docstore. Find new and revised documents highlighted each month within the Cisco Product Documentation publication "What's New" section: http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html.

Product Warranty Information

All Cisco hardware and software products are covered for a minimum of 90 days. Some products have longer coverage. All Cisco warranties apply to the Customer or Original Owner (the individual who purchased the product for their own use), also referred to as the End User.

Warranty[1]	Entitlement Descriptions
Cisco Standard 90-day Hardware Warranty, Software Warranty and License Agreement (78-523-vvrr)	· Hardware Warranty: Ninety (90) days—Replacement of Hardware: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. · Software Warranty: Ninety (90) days—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. · Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) · Guest access to Cisco.com
90-day Limited Hardware Warranty (78-5236-vvrr)	· Hardware Warranty: Ninety (90) days—Replacement of Hardware: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. · Software Warranty: Ninety (90) days—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions; Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco); Guest access to Cisco.com
One-year Limited Hardware Warranty (78-10747-vvrr)	· Hardware Warranty: One (1) year—Replacement of Hardware: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. · Software Warranty: Ninety (90) days—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. · Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) · Guest access to Cisco.com

Limited Lifetime Hardware Warranty (78-6310-vvrr)	· Hardware Warranty: As long as the original End User continues to own or use the Product, provided that: fan and power supply warranty is limited to five (5) years. In the event of discontinuance of product manufacture, Cisco warranty support is limited to five (5) years from the announcement of discontinuance—Replacement of Hardware: Cisco or its service center will use commercially reasonable efforts to ship a replacement part within ten (10) working days after receipt of the RMA request. Actual delivery times may vary depending on Customer location. · Software Warranty: Ninety (90) days—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. · Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) · Guest access to Cisco.com
End User Software License Agreement and Software Warranty (78-3621-vvrr)	· Software Warranty: Ninety (90) days—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. · End User License Agreement terms, limitations, restrictions, and export, transfer, and use controls · Guest access to Cisco.com
5-years Limited Hardware and 1-year Limited Software Warranty, (78-13712-vvrr)	· Hardware Warranty: Five (5) years—Replacement of Hardware: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location. · Software Warranty: One (1) year—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. · Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) · Guest access to Cisco.com
5-years Limited Hardware and 5-year Limited Software Warranty[2], (78-13712-vvrr)	· Hardware Warranty: Five (5) years—Replacement of Hardware: Cisco or its service center will use commercially reasonable efforts to ship a replacement part for delivery within fifteen (15) working days after receipt of the defective product at Cisco's site. Actual delivery times of replacement products may vary depending on Customer location. · Software Warranty: Five (5) years—The media on which the Software is furnished will be free of defects in materials and workmanship under normal use; The Software substantially conforms to the Documentation; Software is provided "AS IS"; and in no event does Cisco warrant that the Software is error free or that Customer will be able to operate the Software without problems or interruptions. · Both hardware and software warranties commence from the date of shipment to customer (and in case of resale by a Cisco reseller, commencing not more than ninety (90) days after original shipment by Cisco) · Guest access to Cisco.com

1. "vv" and "rr" suffixes of the warranty document numbers represent the revision and version numbers respectively.
2. The Cisco Limited 5-Year Hardware and 5-year Software Warranty is available only to qualified World Wide Service Providers which Cisco defines as owners and operators of the world's collection of voice-oriented Public Switched Telephone Networks (PSTNs).

For More Information

For more information about Cisco Product Warranties, visit:
http://www.cisco.com/en/US/products/prod_warranties_listing.html.

Partner and Customer Support

Pre- and Post-Sales Contact Information	
Presales—Partner/ Reseller Helpline	800 553-6387 408 526-7208 http://CiscoPartner.custhelp.com/
Post-sales—Technical Assistance Center (TAC)	800 553-2447 (United States) 408-526-7209 (United States) +32-2-704-5555 (Europe) 800-805 227 (Australia) +61 2 8446 7411(Asia/Pacific) http://www.cisco.com/warp/public/687/Directory/DirTAC.shtml
Technical Support E-mail Addresses	
English/Spanish	tac@cisco.com
Hanzi (Chinese)	chinese-tac@cisco.com
Kanji (Japanese)	japan-tac@cisco.com
Hangul (Korean)	korea-tac@cisco.com
Service Support Center (SSC)	cs-support@cisco.com http://www.cisco.com/public/scc/ · Pre- and post-sales quoting assistance · Contract registration and access · Tool issues and navigation · SCC/SMS3 troubleshooting help · Contract Management Assistance · SCC registration/virtual registration
Distributor SMARTnet Teams	
Westcon-Comstor Group	smartnetgroup@comstor.com; 800-955-9590 x 5143
D&H	licensedesk@dandh.com; 800-340-1001
ScanSource	ciscoservice@scansource.com; 800-944-2439
Ingram Micro	myciscoteam@ingrammicro.com; 800-456-8000 x 76799
Tech Data	teamcisco@techdata.com; 800-237-8931 x *72101

Helpful Cisco Websites

Partner Resources	
Register with Cisco.com	Register to gain access to Cisco tools and information, also a prerequisite for partner-level access; http://tools.cisco.com/RPF/register/register.do
Partner Central	http://www.cisco.com/web/partners/index.html
Customized Partner Intelligence Newsletter	A specially-customized partner newsletter featuring information that's most relevant to each partner company's particular business and technology needs. This newsletter helps Cisco highlight its most important partner offerings based on a personalized preference profile that each partner creates. Subscribe now: http://www.cisco.com/web/partners/news/index.html
Channel Partner Tools Index	http://www.cisco.com/web/partners/tools
Partner Self-Service	Tools for managing company data—Including contacts, locations, and access http://tools.cisco.com/WWChannels/GETLOG/login.do
Partner Locator	Locate a qualified channel partner identified on the basis of specific criteria http://tools.cisco.com/WWChannels/LOCATR/jsp/partner_locator.jsp
Distributor Locator	Locate a Cisco distributor in any country http://tools.cisco.com/WWChannels/LOCATR/jsp/distributor_locator.jsp
Channel Account Manager (CAM) Locator	Search for a CAM assigned to a specific partner http://tools.cisco.com/WWChannels/CAMLOC/jsp/cam_locator.jsp
Channel Partner Program	http://www.cisco.com/web/partners/pr11/index.html
Marketing Resources	Take advantage of the tools and resources needed to effectively market your company http://www.cisco.com/en/US/partners/pr61/marketing.html

Partner Help Online—Direct FAQ access	http://ciscopartner.custhelp.com/
SMB Smart Designs	Validated Commercial Solutions that are primarily designed for partner success. They incorporate comprehensive solution implementation best practices in an easy to follow format to streamline the installation process, reduce deployment risk and increase partner profitability. http://www.cisco.com/web/partners/sell/smb/tools_and_resources/validated_commercial_solutions.html
Steps to Success	Steps to Success provides a step-by-step customer engagement model and associated resources that enable you to sell, deliver, and support Cisco advanced technology business solutions. http://www.cisco.com/web/partners/tools/steps-to-success/index.html
Services and Support Resources	
Register with Cisco.com	Register to gain access to Cisco tools and information: http://tools.cisco.com/RPF/register/register.do
End-of-Sale and End-of-Life Products	http://www.cisco.com/en/US/products/prod_end_of_life.html
Return a Product	http://www.cisco.com/web/ordering/cs_info/or3/o32/Return_a_Product/WWRL_HOME.html
RMAService Order Tools	This site provides tools and resources to streamline your service and parts logistics inquiries; http://tools.cisco.com/serviceordertools/svosubmit/tools.do
Cisco Services	Find detailed information about the services you need to protect and grow your technology investment; http://www.cisco.com/go/services
Cisco Support Online	Easily access online documentation, technical tools and resources from Cisco Support Online; http://www.cisco.com/go/support
Cisco Service Finder	Match the right support service to the right product with the Cisco Service Finder http://www.cisco-servicefinder.com/
Cisco Support Wiki	Share information and collaborate in real time with users around the globe. Find the most up-to-date information on Cisco products and services http://supportwiki.cisco.com
Cisco Technical Services Newsletter	Get a free subscription to a monthly newsletter with current updates on technical documentation, field notices and security alerts, as well as technical articles written by Cisco engineers and technical tips from your peers. Sign up for the Technical Services Newsletter at http://www.cisco.com/go/tsnews
Trainings and Other Resources	
Training Resources	http://www.cisco.com/web/learning/index.html
Cisco Networking Academy	Global e-learning program offers students an opportunity to pursue IT curricula through online instructor-led training and hands-on lab exercises. Learn more at http://www.cisco.com/web/learning/netacad/index.html
Cisco Career Certifications	The widely respected Cisco Career Certifications and Training programs bring valuable, measurable rewards to network professionals, their managers, and the organizations that employ them. Learn more at http://www.cisco.com/go/learnnetspace
Cisco Networking Professionals Connection	Join your fellow networking professionals to discuss and share information on Cisco products and solutions; http://www.cisco.com/go/netpro/
Cisco Press Bookstore	The only authorized publisher of Cisco, giving you access to industry experts and educators. Provides networking, business, and certification titles for your unique learning needs. http://www.cisco.com/go/marketplace
Cisco Marketplace	The one stop shop for Cisco merchandise, including Cisco collateral and product documentation, logo merchandise, Cisco Press books, and software. http://www.cisco.com/go/marketplace
Cisco Validated Designs	Consists of systems and solutions that are designed, tested, and documented to facilitate faster, more reliable and more predictable customer deployments. http://www.cisco.com/go/cvd

Chapter 1: Routing

Routing at a Glance

Product	Features	Page
INTEGRATED SERVICES ROUTERS		
Cisco 800 Series Router	Integrated services routers allow small offices to operate secure concurrent services, including firewall, VPNs, and wireless LANs at broadband speeds. · Wireless support—Optional IEEE 802.11 b/g on Cisco 850 and 870 Series · Enhanced security features including Stateful Inspection Firewall and hardware-assisted encryption · Advanced features with threat defense capabilities, Intrusion Prevention System (IPS), and quality of service (QoS) for voice over IP (VoIP), (Cisco 870 Series) · Demilitarized zone (DMZ), dial backup, & out-of-band management (Cisco 870 Series) · Cisco Router and Security Device Manager (SDM) GUI tool for simple and advanced configuration	1–6
Cisco 1800 Series Integrated Services Routers	Cisco 1800 Series Integrated Services Routers, in both modular and fixed architectures, offer a wide variety of LAN and WAN options. Network interfaces on the Cisco 1841 are field-upgradable for flexibility and to accommodate future technologies. These routers offer the following benefits: · Fixed-configuration models offer 10/100 Ethernet, asymmetric DSL (ADSL) over ISDN, ADSL over basic telephone service, or G.SHDSL WAN interfaces with integrated ISDN Basic Rate Interface (BRI) (Cisco 1801, 1802, 1803, and 1812 models) or analog modem (Cisco 1811) backup interfaces. · Wireless LAN (WLAN) access using IEEE 802.11 a/b/g is available for all models of the Cisco 1800 Series. · Unified Communications available with Cisco 1861 model	1–7
Cisco 2800 Series Integrated Services Routers	Cisco 2800 Series Integrated Services Routers are optimized for the secure, wire-speed delivery of concurrent data, voice, and video services for small and medium-sized business (SMB) and enterprise branch routing. They offer the following benefits: · These routers offer superior performance, with multiple services enabled for 1 to 6 T1/E1 links. · Advanced security features include Stateful Firewall, intrusion prevention system (IPS), VPN, and Cisco Network Admission Control (NAC). · Built-in encryption uses Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES). · Integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs) provide wireless support. · Wireless LAN controller modules are a component of the Cisco Unified Wireless Network.	1–15
Cisco 3200 Series Rugged Integrated Services Routers	These rugged, high-performance integrated services routers are designed for use in mobile and outdoor fixed environments to support voice, video, and data applications over Ethernet, serial, fiber (select 3270 models), & multiple types of wireless interfaces. · Industrial-grade components allow for extended operating temperature ranges from -40°F to 165°F (–40 to 74°C) (for configurations w/out fiber interfaces) · Rugged enclosures provide passive conduction cooling, alleviating the need for fans. · The Cisco 3200 Series enclosure systems support wired interfaces, including RJ-45, asynchronous serial, synchronous serial (Cisco 3270 only), and universal serial bus (USB) (Cisco 3270 only). · Wireless support is through integrated IEEE 802.11a/b/g wireless bridge and access-point modes. The routers offer (optional) integrated 4.9-GHz licensed support for use in public-safety applications. · The routers are designed to industry-standard PC/104+ design for embedding routing applications in custom enclosure designs. · The routers support enhanced security, quality of service (QoS), and mobility features using Cisco IOS Software. · The Cisco 3200 Series supports IP telephony services using Cisco Unified Communications Manager Express (UCME).	1–21

Cisco 3800 Series Integrated Services Routers	Cisco 3800 Series Integrated Services Routers offer very high performance and densities with the ability to run concurrent data, security, voice, and advanced services at wire speeds up to T3/E3. • These routers offer high availability and resiliency with online insertion and removal (OIR); redundant system and inline power options are available. • High-speed HWICs free network-module slots for other services. • The routers provide enhanced security. • Expanded default and maximum memory capacity with Error Correction Code (ECC) double data rate (DDR) synchronous dynamic RAM (SDRAM) memory detects and corrects SDRAM errors without user intervention. • Integrated IEEE 802.11 a/b/g standalone access-point HWICs provide wireless support. • Wireless LAN controller modules are a component of the Cisco Unified Wireless Network.	1–24
AGGREGATION ROUTERS		
Cisco ASR 1000 Series Aggregated Services Router	• Cisco ASR 1002, ASR 1004, and ASR 1006 chasses that support various shared-port-adapter (SPA) densities and modular route processors (Cisco ASR 1000 Series Route Processor 1 [RP1]) and forwarding processors (Cisco ASR 1000 Series Embedded Services Processor 5 (ESP5) and Cisco ASR 1000 Series ESP10) • Up to 15 Mpps forwarding performance plus the ability to add services by purchasing feature licenses (Cisco IOS Software redundancy, Network-Based Application Recognition (NBAR) and Cisco IOS Flexible Packet Matching (FPM), session border controller (SBC), broadband aggregation, firewall, and IP Security [IPSec]) • Support for a wide variety of enterprise and service provider features and deployments	1–29
Cisco 7200 Series Routers	This optimized OC-3/Gigabit Ethernet WAN-edge router provides intelligent services, high modularity, high performance, investment protection, and scalability in a small form factor. • Modular, 1-rack unit (1RU) or 3RU chassis • 1-, 4-, or 6-slot models for port and service adapters • 1 I/O slot (for 4- and 6-slot models) • Choice of system processors (network processing engines [NPEs]) for up to 2-Mpps performance (Cisco 7201 comes with built-in NPE) • Built-in Gigabit Ethernet connectivity—Copper or fiber (three ports on Cisco uBR7200 Series NPE-G2 Network Processing Engine or four ports on the Cisco 7201) The router offers a wide variety of LAN and Cisco Product Quick Reference Guide WAN options, including Ethernet, Fast Ethernet, Gigabit Ethernet, Token Ring, serial, ISDN, High-Speed Serial Interface (HSSI), ATM, and Packet over SONET, as well as voice support including IP-to-IP gateway (session border controller) and quality of service (QoS).	1–33
Cisco 7300 Series Routers	• Cisco 7304—This network edge router delivers high-performance IP services at optical speeds for service providers and enterprise networks. • Cisco 7301—This broadband and WAN edge router provides intelligent services, port-adapter modularity, high performance, investment protection, and scalability in a 1-rack unit (1RU) form factor.	1–36
Cisco 7600 Series Routers	Cisco 7600 Series Integrated Services Routers consolidate WAN, metropolitan-area network (MAN), and LAN in a single platform. They offer the following benefits: • Backplane bandwidth scales from 32 to 720 Gbps, and performance from 30 to more than 400 Mpps with new Cisco Catalyst 6500 Series Supervisor Engine 720 or RSP720 engine and distributed forwarding line cards. • The routers offer high-volume aggregation of service-enabled Ethernet. • A wide range of WAN and MAN interfaces are available, from N x DS-0, T1, and T3 to OC-192 with line-rate services. Support technologies include serial, high-speed serial, Channelized, Packet over SONET/SDH (PoS), ATM, and Ethernet. • These routers are ideal for service provider edge, MAN, and triple-play (data, voice, and video) deployments and high-end enterprise solutions. • These routers support Cisco Catalyst 6500 Series line cards and Cisco 7500 and Cisco 7200 port adapters. • The routers support a broad range of advanced services modules, such as IP Security (IPSec) shared port adapter (SPA), distributed denial of service (DDoS), firewall services modules (FWSMs), and application control engines (ACEs) (server load balancing).	1–38
SERVICE AGGREGATION ROUTERS		
Cisco 10700 Series Routers	Service provider-class metropolitan (metro) edge services router • Offers optimized building block for the next-generation metro Ethernet and IP access networks • Equipped with either twenty-four 10/100 or four Gigabit Ethernet and eight Fast Ethernet ports for customer access and OC-48c/STM-16c Dynamic Packet Transport/Resilient Packet Ring (DPT/RPR) technology or Packet over SONET (PoS) for metro optical connectivity • Supports IEEE 802.17 standard-compliant RPR technology	1–43

Cisco XR 12000 and 12000 Series Routers	The Cisco XR 12000 and 12000 Series Routers are service provider-class multiservice-edge routers that help customers transition toward a converged IP network infrastructure. These routers offer the following benefits: • The routers support edge-optimized line cards, maximizing the value of line-rate edge applications with 10-G uplinks while sustaining line-rate performance. • Up to nine chassis options are available, with new power supply and blower enhancements supporting a portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs). • The extensive portfolio of line cards and SPAs support Packet over SONET/SDH (PoS), ATM, Ethernet, Dynamic Packet Transport/Resilient Packet Ring (DPT/RPR) and copper, and channelized physical interfaces. • The routers offer service-related enhancements (Layer 3 VPN [L3VPN], L2VPN, and quality of service [QoS]) that help ensure traffic differentiation while meeting the strictest customer service-level agreements.	1–44

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

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For more information about all services, see Chapter 10, "Services".

Cisco Routers Port Matrix

	800 Series	1800 Series	2800 Series	3200 Series	3800 Series	ASR 1000Series	7200/7301 Series	7304 Series	7600 Series	10700 Series	12000 Series
Fixed Ports Only	X			X							
Fixed & Modular Ports		X	X		X	X	X	X	X		X
Modular Ports Only										X	
LAN Ports											
10-Mbps Ethernet						X	X		X	X	
10-Mbps Ethernet (fiber)						X	X		X		
100-Mbps Ethernet		X	X	X	X	X	X		X	X	X
100-Mbps Ethernet (fiber)				X[1]	X	X	X	X	X	X	X
10/100-Mbps Ethernet	X	X	X	X	X	X	X	X	X	X	X
10/100 Mbps Switch Port	X	X	X	X	X				X		
Cable DOCSIS 2.0	X	X	X		X						
Token Ring					X		X	X[2]			
ATM			X		X		X	X			
Gigabit Ethernet			X[3]	X[1]	X	X	X	X	X	X	X
10 Gigabit Ethernet						X			X		X
Wireless LAN											
Integrated Standalone Access Point	X	X	X	X	X						
Wireless LAN Controller Module			X		X						
3G Wireless LAN HWIC		X[4]	X	X							
WAN Ports											
Sync Serial		X	X	X[1]	X	X	X	X	X		

Sync Serial w/ CSU		X	X		X			X				
ISDN BRI (S/T)	X	X	X		X		X					
ISDN BRI (U)		X	X		X		X					
ISDN PRI/Ch T1			X		X		X					
ISDN PRI w/ CSU			X		X		X					
Async		X	X	X	X							
Analog/POTS			X		X							
Integrated Modems		X	X	X	X							
Integrated Modem WICs		X	X		X							
HSSI				X	X		X	X	X			
DS3			X		X		X	X	X			X
ATM OC-3							X	X	X			X
ATM OC-12								X	X			X
ATM			X		X		X	X	X			
ATM - T1/E1			X		X		X	X	X			
POS OC-x/STM-x						X	X	X	X			X
DPT/RPR OC-12/STM-4												X
DPT/RPR OC-48/STM-16									X	X		X
DPT/RPR OC-192/STM-64												X
ADSL, ADSL 2+, G.SHDSL	X	X	X									
ADSL over ISDN	X	X	X		X							
G.SHDSL	X	X	X		X							
IDSL		X	X		X							
DPT										X		X
Voice Over IP (VoIP)												
Analog Voice Interfaces		X[5]	X		X							
Digital Voice Interfaces		X[5]	X		X		X		X			
ISDN BRI Digital Voice Interfaces		X[5]	X		X							
Integrated Switching												
Integrated 4-port Switch	X			X								
Integrated 8-port Switch		X[6]		X[1]								
Integrated 4-port Switch HWIC		X[4]	X		X							
Integrated 9-port Switch HWIC			X		X							
Integrated 16-port Switching			X[7]		X							
Integrated 24-port Switching			X[8]		X							
Integrated 36-port Switching			X[9]		X							
Integrated 48-port Switching			X		X							
Power over Ethernet (PoE)	X	X	X		X							
Application Acceleration (WAAS)												
Wide Area Application Acceleration Modules			X		X							
Security VPN												
IPS	X	X	X		X		X		X			
IPS Advanced Integration Module		X[4]	X		X							
IPS Network Module			X		X							
Network Admission Control Network Module			X		X							
Encryption Advanced Integration Modules	X	X	X	X	X				X			
Encryption Service Adapter						X	X		X			
Application eXtension Platform (AxP)												
Advanced Integration Module		X[4]	X		X							
Network Module			X		X							

1. Cisco 3271 Router only
2. Cisco 7301 Router only
3. Supported on the Cisco 2691 only

4. Cisco 1841 only
5. Cisco 1861 only
6. Except Cisco 1841
7. Cisco 2811, 2821, and 2851 only
8. Cisco 2821 and 2851 only
9. Supported on Cisco 2851 only

Memory Information for Routers

Router	Memory Type	Slots	Default Memory	Max Memory	Default Configuration (Notes)
815	Flash	1	32 MB	64 MB	
	DRAM	1		128 MB	
851, 857	Flash	1	20 MB	20 MB	20 MB On board
	DRAM	1	64 MB	64 MB	64 MB On board
871, 876, 877, 878	Flash	1	24 MB or 28 MB[1]	52 MB	20MB On board + 4MB or 8MB* Mini Flash
	DRAM	1	128 MB	256 MB	128 MB On board + 128MB DIMM module * Advanced IP Services image includes 28MB flash
1800 Series	Flash	1	32 MB	128 MB	External compact flash
	DRAM	1	128 MB	384 MB	128 MB on motherboard, plus one slot
2800 Series	DRAM (2801)		128 MB	384 MB	Slot 0 = 128 MB, Slot 1 = Empty
	DRAM (2811)		256 MB	768 MB	Slot 0 = 256MB, Slot 1 = Empty
	DRAM (2821)		256 MB	1 GB	Slot 0 = 256MB, Slot 1 = Empty
	DRAM (2851)		256 MB	1 GB	Slot 0 = 256MB, Slot 1 = Empty
	Compact Flash (2801)		64 MB	128 MB	Single 64 MB Compact Flash default
	Compact Flash (2811)		64 MB	256 MB	Single 64 MB Compact Flash default
	Compact Flash (2821)		64 MB	256 MB	Single 64 MB Compact Flash default
	Compact Flash (2851)		64 MB	256 MB	Single 64 MB Compact Flash default
3200 Series	Flash (3230)		32 MB	32 MB	
	Flash (3250)		32 MB	32 MB	
	Flash (3270)		64 MB	64 MB	
	DRAM (3230)		128 MB	128 MB	
	DRAM (3250)		128 MB	128 MB	
	DRAM (3270)		256 MB	256 MB	
3800 Series	Flash (External Compact Flash)	1	64 MB	256 MB	Single 64 MB Compact Flash default
	DDR SDRAM (ECC)	2	256 MB	1 GB	Slot 0 = 256MB, Slot 1 = Empty
ASR 1000 Series	ASR1002 DRAM		4 GB	4 GB	
	RP1 DRAM		2 GB	2 GB	
	ESP5 DRAM		1 GB	1 GB	
	ESP10 DRAM		2 GB	2 GB	
	ASR1002 eUSB		8 GB	8 GB	
7200 Series	Flash for 7201	1	256 MB	256 MB	
	Flash (PCMCIA) (for IO controller card; IO controller card required for NPE-400)	2	64 MB	128 MB	
	Flash for NPE-G1 (Compact Flash)				
	Flash for NPE-G2 (Compact Flash)	1	64 MB	256 MB	
	DRAM (NPE-400)	1	256 MB	256 MB	
	DRAM (NPE-G1)				
	DRAM (NPE-G2)	2	128 MB	512 MB	
	DRAM for 7201	2	256 MB	512 MB	
		2	256 MB	1 GB	
		1	1 GB	2 GB	
		1	1 GB	2 GB	
7301 Series	Flash (CFM)	1	64 MB	512 MB	
	DRAM	1	256 MB	1 GB	
7304 NPE-G100	Flash (CFM)	1	256 MB	256 MB	
	DRAM	1	512 MB	512 MB	
	Flash (CFM)	1	256 MB	256 MB	
7304 NSE-150	DRAM	1	1 GB	1 GB	
			2 GB	2 GB	

7600 Series	Flash (PCMCIA)	1	16 MB	512 MB	
	DRAM (Sup 2)	1	128 MB	512 MB	
	DRAM (MSFC2)	1	128 MB	512 MB	
	DRAM (PFC2)	1	128 MB	256 MB	
	DRAM (Sup720-3B)	1	512 MB	512 MB	
	DRAM (Sup720-3BXL)	1	1 GB	1 GB	
10700 Series	Flash (Internal)	1	64 MB	64 MB	Maximum memory is configured with No Option
	SDRAM RP	1	512 MB	512 MB	
	Packet Buffer	1	64 MB	64 MB	
XR 12000/ 12000 Series	Flash (PCMCIA)	2	48 MB	4 MB	
	SDRAM (PRP-1)	1	512 MB	1 GB	Route Memory
	SDRAM (PRP-2)	1	2 GB	4 GB	Route Memory
	DRAM (Line Cards)	1/2	128-256 MB	256 MB-2 GB	

1. Advanced IP Services image includes 28MB flash

Cisco 800 Series Routers



The Cisco 800 Series Router provides enhanced network security, wireless LAN, and proven reliability through Cisco IOS Software for small offices and telecommuters. It connects users to the Internet or to a corporate LAN through asymmetric DSL (ADSL2+), ADSL over ISDN, G.SHDSL, Cable DOCSIS 2.0, or with an Ethernet WAN port connected to an external broadband modem.

This router is ideal for companies with Cisco IOS Software-based networks that want to add telecommuters or very small branch offices. It is also ideal for service providers that offer value-added services to small offices and for value-added resellers (VARs) that are familiar with Cisco IOS Software and want to profitably service small-office customers.

Ideal for Companies that Need These Features

- Ethernet LAN ports and a variety of WAN connectivity, including: ISDN Basic Rate Interface (BRI), ADSL, and G.SHDSL
- Advanced security and wireless LAN

Key Features

- Fixed-configuration support for several types of WAN connections
- Optional standalone IEEE 802.11 b/g wireless LAN access point for Cisco 850 and 870 Series
- Standard security with access control lists (ACLs), Port Address Translation (PAT) and Network Address Translation (NAT), Password Authentication Protocol (PAP) and Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MS-CHAP), Lock and Key, and generic routing encapsulation (GRE) tunneling
- Enhanced security with Stateful Inspection Firewall, IP Security (IPSec) encryption (Triple Digital Encryption Standard [3DES]) and Advanced Encryption Standard (AES) encryption on Cisco 850 and 870 Series; the Cisco 870 Series also includes security features such as intrusion prevention systems (IPSs), 802.1x, Dynamic Multipoint VPN (DMVPN), Easy VPN, and URL filtering
- Out-of-band management and dial backup with an external modem through the auxiliary or console port on the Cisco 870 Series Routers
- Dial backup through the integrated ISDN port on the Cisco 876
- X.25 over D-channel support on the Cisco 876
- DMZ interface on all Cisco 870 Routers; optional external power injector for Power over Ethernet (PoE) on Cisco 870 Routers
- Integrated 4-port 10/100 Ethernet switch on Cisco 850 and 870 Series
- Bandwidth-optimization features such as compression, bandwidth on demand, dial-on-demand routing (DDR), Always-On Dynamic ISDN (AODI), and X.25 over D channel (Cisco 876)

Specifications

Feature	851	857	871	876	877	878
Fixed LAN Port Connections	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch	4-port 10/100 Ethernet switch

Fixed WAN Port Connections	1-port 10/100 Ethernet	1-port ADSL, ADSL 2/2+	1-port 10/100 Ethernet	1-port ADSL-over-ISDN, 1-port ISDN S/T (ADSL, ADSL 2/2+)	1-port ADSL over POTS (ADSL, ADSL 2/2+)	1-port G.SHDSL
Wireless LAN	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)	IEEE 802.11 b/g ("W" model)
Wireless Antenna	Single fixed antenna	Single fixed antenna	Dual removable antennas	Dual removable antennas	Dual removable antennas	Dual removable antennas
Maximum VPN Tunnels	5	5	10	10	10	10
NAC	No	No	Yes	Yes	Yes	Yes
URL Filtering	No	No	Yes	Yes	Yes	Yes
Stateful Firewall	Yes	Yes	Yes	Yes	Yes	Yes
Inline IPS	No	No	Yes	Yes	Yes	Yes

Selected Part Numbers and Ordering Information

Cisco 800 Series Routers	
CISCO815-VPN/K9	Cisco 815 ISR, NA DOSCIS Compliant, with Security
CISCO851-K9	Cisco 851 Ethernet to Ethernet Router
CISCO851W-G-A-K9	Cisco 851 Ethernet to Ethernet Wireless Router; Americas
CISCO851W-G-E-K9	Cisco 851 Ethernet to Ethernet Wireless Router; Europe
CISCO851W-G-J-K9	Cisco 851 Ethernet to Ethernet Wireless Router; Japan
CISCO857-K9	Cisco 857 ADSL Router
CISCO857W-G-A-K9	Cisco 857 ADSL Wireless Router; U.S. and Americas
CISCO857W-G-E-K9	Cisco 857 ADSL Wireless Router; Europe
CISCO871-K9	Cisco 871 Ethernet to Ethernet Router
CISCO871W-G-A-K9	Cisco 871 Ethernet to Ethernet Wireless Router; U.S./Americas
CISCO871W-G-E-K9	Cisco 871 Ethernet to Ethernet Wireless Router; Europe
CISCO871W-G-J-K9	Cisco 871 Ethernet to Ethernet Wireless Router; Japan
CISCO876-K9	Cisco 876 ADSL over ISDN Router
CISCO876W-G-E-K9	Cisco 876 ADSL over ISDN Wireless Router
CISCO877-K9	Cisco 877 ADSL Router
CISCO877W-G-A-K9	Cisco 877 ADSL Wireless Router: U.S./Americas
CISCO877W-G-E-K9	Cisco 877 ADSL Wireless Router; Europe
CISCO878-K9	Cisco 878 G.SHDSL Router
CISCO878W-G-A-K9	Cisco 878 G.SHDSL Wireless Router; U.S./Americas
CISCO878W-G-E-K9	Cisco 878 G.SHDSL Wireless Router; Europe
Cisco 800 Series Memory Options	
MEM870-4F=	Cisco 870 Series 4 MB Flash spare
MEM870-8F=	Cisco 870 Series 8 MB Flash spare
MEM870-16F=	Cisco 870 Series 16 MB Flash spare
MEM870-32F=	Cisco 870 Series 32 MB Flash spare
MEM870-64D=	Cisco 870 Series 64 MB SDRAM spare
MEM870-128D=	Cisco 870 Series 128 MB SDRAM spare
Cisco 800 Series Accessories	
800-ILPM-4	4 port 802.3af capable Inline power module for 800 Routers
PWR-850-870-WW1=	Cisco 850/870 Series, AC Power Supply Spare
Cisco 800 Series Basic Maintenance	
CON-SNT-PKG1	Cisco 800 Series SMARTnet Maintenance (8x5xNBD)

For More Information

For more information about the Cisco 800 Series, visit: http://www.cisco.com/go/800.

Cisco 1800 Series Integrated Services Routers



Cisco 1800 Series offers three classes of routers to meet the diverse needs of small enterprise branch offices and small and medium-sized businesses (SMBs).

The Cisco 1861 Integrated Services Router is a unified communications solution that provides voice, data, voicemail, Automated-Attendant, video,

and security capabilities while integrating with existing desktop applications such as calendar, e-mail, and customer relationship management (CRM) programs.

Both the Cisco 1800 Fixed and Modular Routers are designed for secure data connectivity through Frame Relay, leased-line, or broadband access, and wireless LANs. The routers feature secure, fast, and high-quality delivery of multiple, concurrent services. Cisco 1841 offers flexible WAN connectivity options where Cisco 1801, 1802, 1803, 1811, and 1812 offer secure data connectivity in a small, fixed form factor.

Ideal for Companies that Need These Features

- Cisco 1801, 1802, and 1803 Integrated Services Routers—Secure data access through broadband DSL; Primary WAN access through asymmetric DSL (ADSL) over basic telephone service (Cisco 1801), ADSL over ISDN (Cisco 1802), or G.SHDSL (Cisco 1803); ADSL 2/2+ capability on Cisco 1801 and 1802 Routers; Backup WAN interface using ISDN Basic Rate Interface (BRI) ; Integrated 8-port managed 10/100 Ethernet switch; Integrated IEEE 802.11 a/b/g wireless LAN ("W" models)
- Cisco 1811 and 1812 Integrated Services Routers—Secure data access at broadband rates; Ability to use 10/100 Ethernet as a WAN access connecting to external DSL or cable modem; Ability to use backup WAN interface with V.92 analog modem (Cisco 1811) or ISDN BRI (Cisco 1812); Integrated 8-port managed 10/100 Ethernet switch; Integrated IEEE 802.11 a/b/g wireless LAN ("W" models)
- Cisco 1841 Integrated Services Router—Secure data access solution for customer environments up to T1, E1, or xDSL WAN rates with services turned on; Modularity for flexibility in WAN configurations; Support for a broad array of WAN services; Comprehensive security features
- Cisco 1861 Integrated Services Routers—Integrated Cisco Unified Communications Manager Express or Cisco Unified Survivable Remote Site Telephony for call processing; Cisco Unity Express for voice messaging and automated attendant; Integrated LAN switching with Power over Ethernet (PoE) expandable through Cisco Catalyst Switches; Support for a range of HWICs; Built-in hardware encryption enabled through optional security image; Comprehensive security features

Key Features

- Cisco 1800 Series Integrated Services Routers are available with an IEEE 802.11 a/b/g standalone wireless access point for "W" models of Cisco 1801 through Cisco 1812 models, and for a high-speed WAN interface card access point (HWIC-AP) for the Cisco 1841.
- The modular Cisco 1841 provides flexibility with an internal advanced-integration-module (AIM) slot designated for higher-speed VPNs and future applications. Several slot types are available to add future connectivity and services on an "integrate-as-you-grow" basis.
- The fixed-configuration Cisco 1801 through 1812 models have an integrated 8-port 10/100 Ethernet switch with Power over Ethernet (PoE). An optional 4-port switch HWIC is available for the Cisco 1841.
- These routers support the latest Cisco IOS Software-based quality-of-service (QoS) bandwidth management features.
- The routers offer advanced device management using Cisco Router and Security Device Manager (SDM).
- A high-performance processor supports concurrent deployment of high-performance, secure data services with headroom for future applications.
- Integrated hardware-based encryption acceleration offers a cryptography accelerator as standard integrated hardware that can be enabled with optional Cisco IOS Software for Triple Digital Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption support.
- A security performance-enhanced feature set offers an intrusion prevention system (IPS), Cisco Network Admission Control (NAC), and firewall functions.
- These routers allow LAN segmentation using VLANs.
- An integrated standard power supply offers easier router platform installation and management.

Specifications

Feature	Cisco 1861 Series	Cisco 1841 Series	Cisco 1800 Series Fixed-Configuration Routers
Form factor	Desktop, 1.5 rack unit (RU)	Desktop, 1-rack-unit (1RU) height (4.75 cm high with rubber feet)	Desktop, 1-rack-unit (1-RU) high (4.75-cm high with rubber feet)
Target Applications	Small Office Unified Communications, Data and Security	Secure data with frame relay or leased line access (T1/E1)	Secure data with broadband access and backup WAN
Chassis	Metal	Metal	Metal
Wall-mountable	Yes	Yes	Yes
Rack-mountable	Yes (optional rackmount kit is required)	Yes (optional 19-in rackmount kit is required)	Yes (optional 19-in. rack-mount kit required)

Dimensions (W x D)	• 2.625 x 10.5 x 11.05 in. • (6.67 x 26.67 x 28.07 cm)	13.5 x 10.8 in. (34.3 x 27.4 cm); Height without rubber feet: 1.73 in. (4.39 cm); Height with rubber feet: 1.87 in. (4.75 cm)	12.74 x 9.7 in. (32.36 x 24.64 cm); Height without rubber feet: 1.75 in. (4.45 cm); Height with rubber feet: 1.89 in. (4.80 cm)
Weight	8 lb (3.63 kg)	Maximum: 6.2 lb. (2.8 kg); with interface cards and modules; Minimum: 6.0 lb. (2.7 kg) (no interface cards and modules)	Maximum: 6.1 lb. (2.8 kg)
DRAM	• Cisco IOS Software: 256 MB • Voice messaging: 512 MB	Synchronous dual in-line memory module (DIMM) DRAM	Synchronous dual in-line memory module (DIMM) SDRAM (1 DIMM slot)
DRAM capacity		Default: 128 MB; Maximum: 384 MB	Default: 128 MB; Maximum: 384 MB
Flash memory	• Cisco IOS Software: 128 MB • Voice messaging: 1 GB; Compact Flash	External removable compact Flash	External removable Compact Flash
Flash memory capacity		Default: 32 MB; Maximum: 128 MB	Default: 32 MB; Maximum: 128 MB
Modular slots - total	One (HWIC)	Two	None
Modular slots (WAN)	One (HWIC)	Two	None
Modular slots (HWICs)	One (HWIC)	Two	None
Modular slots (voice)	Supports voice but as integrated feature, no modules	None: The Cisco 1841 does not support voice	None: The Cisco 1800 Series does not support voice
VoIP support	Onboard support analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications. This feature is not upgradable. Onboard voice ports integrated into the system by default include interfaces for PSTN; PBX; and key system connections, including FXS, FXO, and BRI.	Voice-over-IP (VoIP) pass-through only	Same as 1841
ADSL Port	• Cisco 1861/1841: ADSL over POTS, ADSL over ISDN via WAN Interface Card • Cisco 1800 Series Fixed-Configuration Routers: One ADSL over POTS port on Cisco 1801. One ADSL over ISDN on Cisco 1802. The Cisco 1801 supports ADSL over POTS standards G.992.1 G.DMT and ANSI T1.413 DMT Issue 2. The Cisco 1802 supports ADSL over ISDN standards ETSI 101-388, U-R2, and G.992.1 G.DMT. The Cisco 1801 is interoperable with the following DSLAMs: Cisco 6130 and Cisco 6260 IP DSL switches; Alcatel (ASAM 1000 and 7300); Lucent Stinger (24- and 72-port line cards); ECI HiFocus (16- and 32-port line cards); The Cisco 1802 is interoperable with the following DSLAMs: Cisco 6260; Alcatel (ASAM 1000 and 7300); Siemens (XpressLink 2.0 and XpressLink 2.1); Lucent Stinger (48-port line cards); ECI HiFocus (16- and 32-port line cards)		
G.SHDSL Port	G.SHDSL 2- and 4-wire support via WAN Interface Card	G.SHDSL 2- and 4-wire support via WAN Interface Card	One G.SHDSL port on Cisco 1803 supports either 2-wire mode or 4-wire mode. The Cisco 1803 supports the same standards as the Cisco G.SHDSL WIC and is based on ITU Recommendation G.991.2 (accepted worldwide).
G.SHDSL DSLAM Interoperability	• Cisco 1841 Series: The WIC-1SHDSL-V3 in 2-wire mode is interoperable with the following DSLAMs • Cisco 6000 Series IP DSL switches; Alcatel ASAM 7300 (12- and 24-port line cards); ECI HiFocus SAM 2401 (16-port Metalink-based line cards); Lucent Stinger FS (32- and 48-port line cards); CopperEdge 200 DSLAM (24-port line cards); The WIC-1SHDSL-V3 in 4-wire mode is interoperable with the following DSLAMs: Alcatel ASAM 7300 (12- and 24-port line cards); CopperEdge 200 DSLAM (24-port line cards) • Cisco 1800 Series Fixed-Configuration Routers: The Cisco 1803 in 2-wire mode is interoperable with the following DSLAMs: Cisco 6000 Series IP DSL switches; Alcatel ASAM 7300 (12- and 24-port line cards); ECI HiFocus SAM 2401 (16-port Metalink-based line cards); Lucent Stinger FS (32- and 48-port line cards); CopperEdge 200 DSLAM (24-port line cards); The Cisco 1803 in 4-wire mode is interoperable with the following DSLAMs: Alcatel ASAM 7300 (12- and 24-port line cards); CopperEdge 200 DSLAM (24-port line cards)		
Onboard Ethernet ports	• 1 10/100 Fast Ethernet • 8 10-/100-Mbps LAN • 1 10/100 Ethernet expansion port	Two 10/100	10/100BASE-T ports for WAN connection supporting DSL and cable modems and Ethernet access services. (One port is available on Cisco 1801, 1802, and 1803. Two ports are available on Cisco 1811 and

Integrated Ethernet Switch Ports	• 1 10/100 Fast Ethernet • 8 10-/100-Mbps LAN • 1 10/100 Ethernet expansion port	Optional via 4-port Ethernet switch HWIC, up to 15 VLANs	Eight 10/100BASE-T fully managed switch ports with 802.1Q VLAN and 802.3af PoE support. Up to 8 VLANs
Onboard USB ports	None	One (1.1)	Two (USB 2.0) on Cisco 1811 and 1812 only. The Cisco 1801, 1802, and 1803 do not offer USB support.
ISDN S/T BRI Port	Two ports on the BRI SKUs	Optional via WAN Interface Card	One ISDN S/T BRI port on Cisco 1801, 1802, 1803, and 1812
V.92 Analog Modem Port	None	Optional via WAN Interface Card (1 or 2 ports)	One analog modem port on Cisco 1811
Console port	One: up to 115.2 kbps	One: up to 115.2 kbps	One—up to 115.2 kbps
Auxiliary port	Virtual AUX port	One: up to 115.2 kbps	One—up to 115.2 kbps
Onboard AIM slots	None	One (internal)	None
Packet-voice-DSP-module (PVDM) slots on motherboard	No slots: Onboard support analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications. This feature is not upgradable.	None: The Cisco 1841 does not support voice	None: The Cisco 1800 Series does not support voice
Integrated H/W-based encryption on motherboard	Yes	Yes	Yes
IPSec Tunnels		100 with on-board encryption, 800 with VPN AIM	50
IPSec VPN Performance		40 Mbps 3DES @ 1400 byte packets	40 Mbps 3DES @ 1400 byte packets
Encryption support in software and hardware by default	IPsec DES; 3DES; and AES 128, 192, and 256 cryptology by using an optional security image	DES, 3DES, AES 128, AES 192, AES 256	DES, 3DES, AES 128, AES 192, AES 256
Cisco IOS Firewall Performance		100 Mbps @ 1400 byte packets	100 Mbps @ 1400 byte packets
Wireless LAN Hardware	None	Optional IEEE 802.11 a/b/g or IEEE 802.11 b/g via HWIC	IEEE 802.11 a/b/g on wireless models
Wireless LAN features	None	IEEE 802.11a/b/g; Automatic rate selection for 802.11a/11b/11g; Field-replaceable antennae; External antenna; Antenna diversity; Wi-Fi Certified for WPA-Personal and WPA-Enterprise; Default antenna gain—2.2 dBi	IEEE 802.11a/b/g; Automatic rate selection for 802.11a/11b/11g; Field-replaceable antennae; External antenna; Antenna diversity; Wi-Fi Certified for WPA-Personal and WPA-Enterprise; Default antenna gain—2.2 dBi
Data Rates Supported	N/A	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Range	None		Range—Indoor 1 Mbps at 320 ft.
Wireless LAN Software Features	None		Maximize throughput or maximize range option; Software-configurable transmit power; Support for Wi-Fi Multimedia (WMM); Quality of Service (QoS) for WLANs

Wireless LAN Security Features	• Cisco 1861 Series: None • Cisco 1841 Series: IEEE 802.1X per-user, per-session mutual authentication with a variety of extensible authentication protocol (EAP) types including Cisco LEAP, Protected Extensible Authentication Protocol (PEAP), and EAP-Transport Layer Security (EAP-TLS). Preshared Key (PSK) Authentication; MAC authentication/filter encryption; WPA Temporal Key Integrity Protocol (TKIP) with support for per-packet key hashing, message integrity check; Static and dynamic wired equivalent privacy (WEP) keys of 40 bits and 128 bits; Additional security features: IEEE 802.1X local authentication; Configurable limit for the number of wireless clients; Configurable RADIUS accounting for wireless clients • Cisco 1800 Series Fixed-Configuration Routers: IEEE 802.1X per-user, per-session mutual authentication with a variety of extensible authentication protocol (EAP) types including Cisco LEAP, Protected Extensible Authentication Protocol (PEAP), and EAP-Transport Layer Security (EAP-TLS). Preshared Key (PSK) Authentication; MAC authentication/filter encryption; WPA Temporal Key Integrity Protocol (TKIP) with support for per-packet key hashing, message integrity check; Static and dynamic wired equivalent privacy (WEP) keys of 40 bits and 128 bits; Additional security features: IEEE 802.1X local authentication; Configurable limit for the number of wireless clients; Configurable RADIUS accounting for wireless clients		
SSIDs	None	8	8
Wireless LAN	None	Supported by CiscoWorks 2000, CiscoView and Router, and Security Device Management (SDM)	Supported by CiscoWorks 2000, CiscoView and Router, and Security Device Management (SDM)
Management Features	GUI-based network management	GUI-based network management for wireless interface is provided	GUI-based network management for wireless interface is provided
Cisco IOS Software default image	Cisco IOS Software 12.4(11)XW or Higher Releases	IP BASE -12.4(1)	12.3(8)YI
Cisco IOS Software default Image	SP Services K9	IP Base (security and broadband bundles have image upgrades)	Advanced IP services (without voice services) except Cisco 1801 which comes with Cisco IOS IP Broadband
User Support	Up to 8 UC users	Up to 50 users (recommended)	Up to 50 users (recommended)
Routing Protocols	BGP, EIGRP, OSPF, RIPv1, RIPv2	BGP, EIGRP, OSPF, RIPv1, RIPv2	BGP, EIGRP, OSPF, RIPv1, RIPv2
Routed Protocols	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)	IPv4, IPv6 unicast only (Internetwork Packet Exchange [IPX], IBM SNA, AppleTalk supported with optional Advanced Enterprise Services Feature Set)
QoS Protocols	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition	Weighted Fair Queuing (WFQ), Class-Based WFQ (CBWFQ), Weighted Random Early Detection (WRED), Committed Access Rate (CAR), Resource Reservation Protocol (RSVP), Network-Based Application Recognition
Internal system power supply	Yes	Yes	Yes
Power over Ethernet (PoE) power supply	Internal	None	None
Redundant power supply	No	No	No
DC power support	No	No	No
AC input voltage	100 to 240 VAC	100 to 240 VAC	100 to 240 VAC
Frequency	50 to 60 Hz	50 to 60 Hz	50 to 60 Hz
AC input current	4 to 2A (100 to 240V)	1.5A maximum	1.5A maximum
Output power	80W	50W (maximum)	50W (maximum)
PoE Support	Supported	Not supported	Supported on 10/100 Ethernet switch ports with optional PoE kit
PoE Standards		None	IEEE 802.3af, Cisco Prestandard PoE
External PoE Power Supply	Supported Internally	None	80W external power supply
System Power Dissipation		153 BTU/hr.	153 BTU/hr.

Operating temp	32 to 104°F (0 to 40°C)	32 to 104×F (0 to 40×C)	32º to 104ºF (0º to 40ºC)
Operating humidity	10 to 85% noncondensing operating; 5 to 95 noncondensing, nonoperating	10 to 85% non condensing operating; 5 to 95% non condensing, non operating	10 to 85 percent non condensing operating; 5 to 95 percent non condensing, non operating
Non operating Temp	4 to 149°F (-20 to 65°C)	-4 to 149ºF (-25 to 65ºC)	-4º to 149ºF (-25 to 65ºC)
Operating altitude	· 104°F (40°C) at sea level · 87.8°F (31°C) at 6,000 ft (1800m) · 77°F (25°C) at 10,000 ft (3000m) · Note: De-rate 34.7°F (1.5°C) per 1,000 ft	10,000 feet (3000 meters) @ 77ºF (25ºC)	10,000 ft. (3000m) at 77ºF (25ºC)
Noise level	Normal operating temperature: <78°F (25.6°C): 34 dBA · ->78°F (25.6°C) through <104°F (40°C): 37 dBA · ->104°F (40°C): 42 dBA	Normal operating temperature: <78º F/25.6ºC: 34 dBA; >78ºF/25.6ºC through; 104ºF/40ºC	<80ºF (27ºC): 34 dBA; >80ºF (27ºC) through <104ºF (40ºC): 36 dBA; >104ºF (40ºC): 42 dBA
Safety	· IEC 60950-1 · AS/NZS 60950.1 · CAN/CSA-C22.2 No. 60950-1 · EN 60950-1 · UL 60950-1	UL60950-1; CAN/CSA 60950-1; AS 3260; EN60950-1	UL 60950; CAN/CSA C22.2 No. 60950; IEC 60950-1; EN 60950-1; AS/NZS 60950
EMI		EN 55022, 1998, class A; CISPR22, 1997, class A; CFR47, Part 15, Subpart B, 1995, class A; EN61000-3-2 Harmonic Current Emission (only for equipment >75W but <16A); EN61000-3-3 Voltage Fluctuation and Flicker (only for equipment £16A)	CFR 47 Part 15, Class A; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548; lass A; VCCI Class A; EN 300386; EN61000-3-2; EN61000-3-3
Immunity	· Cisco 1861 Series: EN 55024; EN 300-386; EN 61000-6-2; EN 50082-1; EN 55024 (CISPR 24) · Cisco 1841 Series: CISPR24, 1997 ITE-Immunity characteristics, Limits and methods of measurement; EN 55024,1998 ITE-Immunity characteristics, Limits and methods of measurement; EN50082-1, 1997 Electromagnetic compatibility Generic immunity standard, Part 1 EN 300 386, 1997 Telecommunications network equipment EMC requirements; The requirements are covered by the following standards: IEC 61000-4-2:1995 Immunity to Electrostatic Discharges; IEC 61000-4-3:1995 Immunity to Radio Frequency Electromagnetic Fields; IEC 61000-4-4:1995 Immunity to Electrical Fast Transients; IEC 61000-4-5:1995 Immunity to Power Line Transients (Surges); IEC 61000-4-6:1996 Immunity to Radio Frequency Induced Conducted Disturbances; IEC 61000-4-11:1995 Immunity to Voltage Dips, Voltage Variations, and Short Voltage Interruptions · Cisco 1800 Series Fixed-Configuration Routers: EN300386; EN55024(CISPR24); EN61000-4-2; EN61000-4-3; EN41000-4-4; EN41000-4-5; EN41000-4-6; EN41000-4-8; EN41000-4-11; EN50082-1; EN61000-6-2; ITU-T K.21		
Network homologation	· Cisco 1841 Series: USA: TIA-968-A, T1.TRQ.6-2001; Canada: CS-03; European Union: RTTE Directive 5/99; Argentina: CTR 21; Australia: AS/ACIF S002, S003, S016, S031, 3043; Brazil: 225-540-788, CTR3, 225-100-717 Edition 3, NET 001/92 1990; China: ITU-G.992.1, ITU-G.992.1, ITU-G.991.2, CTR3, ITU I.431 1993; Hong Kong: HKTA 2033, HKTA 2033, HKTA 2014, HKTA 2017 Issue 3 2003, HKTA 2011 Issue 1, HKTA 2011 Issue 2, HKTA 2013 Issue 1; India: I_DCA_18_02_Jun_99-199, S/ISN-01/02 Issue 1999 S/ISN-02 1 1998, IR/PRI-01/02 Issue 1 1998, S/INT-2W/02 MAY 2001, S/INT-2W/02 MAY 2001; Israel: U.S. approval accepted; Japan: Technical condition (DoC acceptance in process); Korea: U.S. approval accepted; Mexico: U.S. approval accepted; New Zealand: PTC 270/272, CTR 3, ACA 016 Revision 4 1997, PTC 200; Singapore: IDA TS ADSL1 Issue 1, IDA TS ADSL 2, IDA TS HDSL, IDA TS ISDN 1 Issue 1 1999, IDA TS ISDN 3 Issue 1 1999, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4, IDA TS PSTN 1 Issue 4; South Africa: U.S. approval accepted; Taiwan: U.S. approval accepted · Cisco 1800 Series Fixed-Configuration Routers: Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC, and relevant Technical Basis for Regulation (TBRs). For specific information, refer to the data sheet for the specific interface card. Homologation requirements vary by country and interface type. For specific country information, refer to the online approvals database. Cisco 1801, 1802, 1803, and 1812 ISDN BRI S/T: TIA-968-A; IC CS-03 Part VI; JATE Technical Requirements; TBR3; S031		

Selected Part Numbers and Ordering Information

Cisco 1861	
C1861-SRST-F/K9	Cisco 1861, 8-User SRST license, 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-SRST-B/K9	Cisco 1861, 8-User /SRST license, 2 BRI trunks (BRI), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN

C1861-SRST-C-F/K9	Cisco 1861, 8-User SRST & CUE license, 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-SRST-C-B/K9	Cisco 1861, 8-User SRST & CUE license, 2 BRI trunks (BRI), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-UC-4FXO-K9	Cisco 1861, 8-user CME, CUE, Phone Licenses, 4 PSTN trunks (FXO), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
C1861-UC-2BRI-K9	Cisco 1861, 8-user CME, CUE, Phone Licenses, 2 BRI trunks (BRI), 4 Analog ports (FXS), 8 PoE ports, 1 HWIC slot for WAN
Cisco 1861 HWICs Supported in the HWIC Slot	
T1/E1 WAN Interface Card	
HWIC-1T1/E1	1-Port T1/E1 with Integrated CSU/DSU HWIC for only 1861
Serial WAN Interface Cards	
HWIC-1SER	1-Port Serial HWIC for only 1861
HWIC-2SER	2-Port Serial HWIC for only 1861
Wireless WAN Interface Cards	
HWIC-3G-CDMA-S	3G WWAN HWIC-EVDO Rev A/Rel 0/1xRTT-800/1900MHz
HWIC-3G-CDMA-V	3G WWAN HWIC-EVDO Rev A/Rel 0/1xRTT-800/1900MHz
HWIC-3G-GSM	3GWWAN HWIC-HSDPA/UMTS/EDGE/GPRS-850/900/1800/1900/2100MHz
DSL WAN Interface Cards	
HWIC-2SHDSL	G.shdsl HWIC with Annex F & G support
HWIC-4SHDSL	G.shdsl HWIC with IMA support
HWIC-1ADSL	1-port ADSLoPOTS HWIC, Annex A
HWIC-1ADSLI	1-port ADSLoISDN HWIC, Annex B
HWIC-ADSL-B/ST	Dual-port HWIC with ADSL over POTS and ISDN BRI ports (Supported from Q3CY08)
HWIC-ADSLI-B/ST	Dual-port HWIC with ADSL over ISDN and ISDN BRI ports (Supported from Q3CY08)
Cable WAN Interface Cards	
HWIC-CABLE-D-2	1-Port DOCSIS 2.0 Cable HWIC
HWIC-CABLE-E/J-2	1-Port Euro/J-DOCSIS 2.0 Cable HWIC
Cisco 1800 Series (Modular) Integrated Services Routers	
CISCO1841	Modular Router w/2xFE, 2 WAN slots, 32 FL/128 DR
CISCO1841-T1	1841 bundle w/WIC-1DSU-T1-V2, IP Base, 32FL/128DR
Cisco 1800 Series (Fixed) Integrated Services Routers	
CISCO1801	ADSL/POTS router w/IOS IP Broadband
CISCO1801/K9	ADSL/POTS Router with Firewall/IPS and IPSEC 3DES
CISCO1801-M	ADSL over POTS Annex M Router
CISCO1801-M/K9	ADSL over POTS Annex M Router
CISCO1802	ADSL/POTS router w/IOS IP Broadband
CISCO1802/K9	ADSL/ISDN Router with Firewall/IPS and IPSEC 3DES
CISCO1803/K9	G.SHDSL Router with Firewall/IPS and IPSEC
CISCO1811/K9	Dual Ethernet Security Router with V.92 Modem Backup
CISCO1812/K9	Dual Ethernet Security Router with ISDN S/T Backup
Cisco 1800 Series (Fixed Wireless) Integrated Services Router	
CISCO1801W-AG-C/K9	ADSL/POTS Router with 802.11a+g China Compliant and Security
CISCO1801W-AG-E/K9	ADSL/POTS Router with 802.11a+g ETSI Compliant and Security
CISCO1801W-AG-N/K9	ADSL/POTS Router with 802.11a+g Australia/NZ Compliant and Security
CISCO1802W-AG-E/K9	ADSL/ISDN Router with 802.11a+g ETSI Compliant and Security
CISCO1803W-AG-A/K9	G.SHDSL Router with 802.11a+g FCC Compliant and Security
CISCO1803W-AG-E/K9	G.SHDSL Router with 802.11a+g ETSI Compliant and Security
CISCO1811W-AG-A/K9	Security Router with 802.11a+g FCC Compliant and Analog B/U
CISCO1811W-AG-C/K9	Security Router with 802.11a+g China Compliant and Analog B/U
CISCO1811W-AG-N/K9	Security Router with 802.11a+g Australia/NZ Compliant and Analog B/U
CISCO1812W-AG-C/K9	Security Router with 802.11a+g China Compliant and ISDN S/T
CISCO1812W-AG-E/K9	Security Router with 802.11a+g ETSI Compliant and ISDN S/T
Cisco 1800 Series (modular) Security bundles	
CISCO1841-SEC/K9	1841 Security Bundle,Adv.Security,64FL/256DR
CISCO1841-HSEC/K9	1841 Security bundle w/AIM-VPN,Adv.IP Svcs,64FL/256DR
CISCO1841-T1SEC/K9	1841 Security Bundle w/ WIC-1DSU-T1-V2, Adv.Sec.,64FL,256DR
Cisco 1800 Series (modular) Broadband bundles	
CISCO1841-ADSL	1841 ADSLoPOTS Bdle, IP Broadband,32FL/128DR
CISCO1841-ADSL-DG	1841 ADSLoPOTS w/dying gasp Bundle, IP Broadband, 32FL/128DR
CISCO1841-ADSLI	1841 ADSLoISDN Bundle, IP Broadband, 32FL/128DR
CISCO1841-SHDSL-V3	1841 G.shdsl 4-wire Bundle, includes WIC-1SHDSL-V3,IP Broadband, 32 MB flash/128 MB DRAM
CISCO1841-ADSL2	1841 bundle, HWIC-1ADSL, IP BB, 32F/128D
CISCO1841-ADSL2-B	1841 bundle, HWIC-ADSL-B/ST,IP BB,32F/128D
Cisco 1841 WAN Interface Cards	
WIC-1T	1-Port Serial WAN Interface Card

WIC-2T	2-Port Serial WAN Interface Card
WIC-2A/S	2-Port Async/Sync Serial WAN Interface Card
WIC-1AM	One-port Analog Modem WAN Interface Card
WIC-2AM	Two-port Analog Modem WAN Interface Card
WIC-1DSU-56K4	1-port 4-WIRE 56/64 KBPS WAN Interface Card
WIC-1ADSL	1-port ADSL WAN Interface Card
WIC-1ADSL-DG	1-port ADSLoPOTS WIC with Dying Gasp
WIC-1ADSL-I-DG	1-port ADSLoISDN Wan Interface Card
WIC-1SHDSL-V3	1-Port G.SHDSL WIC with 2- and 4-wire support
WIC-1B-S/T-V3	1-Port ISDN WAN Interface Card (dial and leased line)
WIC-1B-U-V2	1-Port ISDN BRI NT-1 WIC
WIC-BLANK-PANEL=	Blank WAN Interface Card Panel
WIC-1DSU-T1-V2	Updated 1-Port T1/Fractional T1 DSU/CSU WAN Interface Card
Cisco 1841 High Speed WAN Interface Cards	
HWIC-1ADSL	1-port ADSLoPOTS HWIC
HWIC-1ADSLI	1-port ADSLoISDN HWIC
HWIC-ADSL-B/ST	2-port HWIC w/ 1-port ADSLoPOTS and 1-port ISDN BRI-S/T
HWIC-ADSLI-B/ST	2-port HWIC w/ 1-port ADSLoISDN and 1-port ISDN BRI-S/T
HWIC-4ESW	4-port 10/100 Ethernet switch interface card
HWIC-4A/S	4-Port Async/Sync Serial HWIC
HWIC-8A/S-232	8-Port Async/Sync Serial HWIC, EIA-232
HWIC-8A	8-Port Async HWIC
Cisco 1841 Wireless HWICs and Accessories	
HWIC-AP-G-A	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for the Americas (FCC config)
HWIC-AP-G-E	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Europe (ETSI config)
HWIC-AP-G-J	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Japan (TELEC config)
HWIC-AP-AG-A	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for the Americas (FCC config)
HWIC-AP-AG-E	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Europe (ETSI config)
HWIC-AP-AG-J	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Japan (TELEC config)
AIR-ANT4941	2.2 dBi Cisco Aironet 2.4 GHz Swivel mount dipole
AIR-ANT5959	2 dBi Cisco Aironet 2.4 GHz Diversity omni-directional ceiling mount patch
AIR-ANT1728	5.2dBi Cisco Aironet 2.4 GHz Omni-directional ceiling mount
AIR-ANTM2050D-R	(2.2 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Swivel mount dipole antenna
AIR-ANTM5560P-R	(5.5 dBi Cisco 2.4 Ghz and 6.0 dBi 5 GHz) Dual band Wall-mount patch antenna
AIR-ANTM4050V-R	(4.0 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Diversity Ceiling-mount omnidirectional antenna
AIR-CAB020LL-R	20-ft. (6m) low-loss cable with RP-TNC connectors
AIR-CAB050LL-R	50-ft. (15m) low-loss cable with RP-TNC connectors
AIR-CAB100ULL-R	100 ft. (30m) ultra-low-loss cable with RP-TNC connectors
AIR-CAB150ULL-R	150-ft. (46m) ultra-low-loss cable with RP-TNC connector
Cisco 1841 Multiflex Voice/WAN Interface Cards	
VWIC-1MFT-E1	1-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1	2-Port RJ-48 Multiflex Trunk - E1
VWIC-2MFT-E1-DI	2-Port RJ-48 Multiflex Trunk - E1 With Drop and Insert
VWIC-1MFT-T1	1-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1	2-Port RJ-48 Multiflex Trunk - T1
VWIC-2MFT-T1-DI	2-Port RJ-48 Multiflex Trunk - T1 With Drop and Insert
VWIC-1MFT-G703	1-Port RJ-48 Multiflex Trunk - G.703
VWIC-2MFT-G703	2-Port RJ-48 Multiflex Trunk - G.703
VWIC2-1MFT-T1/E1	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VWIC2-2MFT-T1/E1	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1
VWIC2-1MFT-G703	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
VWIC2-2MFT-G703	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703
Cisco 1841 Advanced Integration Modules	
AIM-VPN/BPII-PLUS	DES/3DES/AES VPN Encryption/Compression
Cisco 1800 Series Flash Memory Options	
MEM1800-32CF=	32MB Cisco 1800 Compact Flash spare
MEM1800-64CF=	64MB Cisco 1800 Compact Flash Memory spare
MEM1800-128CF=	128MB Cisco 1800 Compact Flash Memory spare
MEM1800-32U64CF	32 to 64MB Cisco 1800 Compact Flash factory upgrade
MEM1800-64U128CF	64 to 128 MB Cisco 1800 Compact Flash factory upgrade
MEM1800-32U128CF	32 to 128 MB Cisco 1800 Compact Flash factory upgrade
Cisco 1800 Series USB Memory Options	
MEMUSB-64FT=	64MB USB Flash Token for Cisco 1800/2800/3800 series spare
MEMUSB-128FT=	128MB USB Flash Token for Cisco 1800/2800/3800 series spare
MEMUSB-256FT=	256MB USB Flash Token for Cisco 1800/2800/3800 series spare

Cisco 1800 Series DRAM Memory Options	
MEM1841-64D=	64MB SODIMM DRAM for Cisco 1841 spare
MEM1841-128D=	128MB SODIMM DRAM for the Cisco 1841 spare
MEM1841-256D=	256MB SODIMM DRAM for the Cisco 1841 spare
MEM1841-128U192D	128 to 192MB SODIMM DRAM factory upgrade for the Cisco 1841
MEM1841-128U256D	128 to 256MB SODIMM DRAM factory upgrade for the Cisco 1841
MEM1841-128U384D	128 to 384MB SODIMM DRAM factory upgrade for the Cisco 1841
MEM1841-256U384D	256 to 384MB SODIMM DRAM factory upgrade for the Cisco 1841
Cisco 1800 Series Spares and Accessories	
PWR-184X-AC=	Cisco 184X AC standard power supply spare
ACS-184X=	Accessory Kit for Cisco 184X spare
ACS-1841-RM-19=	Rackmount kit for 1841 spare
SW-CONFIG-1800-001	Configuration of software via CCO for 1800 series
CX-CUSTOM-BUILD	Please complete this P.O. via CX Tool
Cisco 1800 Series (modular) Software CD Feature Packs	
CD18-AISK9=	CISCO 1841 ADVANCED IP SERVICES Feature Pack spare
CD18-ASK9=	CISCO 1841 ADVANCED SECURITY Feature Pack spare
CD18-AESK9=	CISCO 1841 ADVANCED ENTERPRISE SERVICES Feature Pack spare
CD18-BB=	CISCO 1841 IP Broadband Feature Pack spare
CD18-EB=	CISCO 1841 ENTERPRISE BASE Feature Pack spare
CD18-ESK9=	CISCO 1841 ENTERPRISE SERVICES Feature Pack spare
CD18-IPB=	CISCO 1841 IP BASE Feature Pack spare
CD18-SPSK9=	CISCO 1841 SP SERVICES Feature Pack spare
184-SW-SPARECD	Cisco 184X Series Software Spare CD
Cisco 1800 Series IOS Upgrade Licenses	
FL18-AISK9-AESK9=	Cisco 1841 Adv IP Ser to Adv Ent Ser Upgrade SW feature lic spare
FL18-ASK9-AISK9=	Cisco 1841 Adv Sec to Adv IP Ser Upgrade SW feature lic spare
FL18-EB-ESK9=	Cisco 1841 Ent Base to Ent Ser Upgrade SW feature lic spare
FL18-ESK9-AESK9=	Cisco 1841 Ent Ser to Adv Ent Ser Upgrade SW feature lic spare
FL18-SPSK9-AISK9=	Cisco 1841 SP Ser to Adv IP Ser Upgrade SW feature lic spare
FL18-SPSK9-ESK9=	Cisco 1841 SP Ser to Ent Ser Upgrade SW feature lic spare
FL18-IPB-ASK9=	Cisco 1800 IP BASE to Adv Sec Upgrade SW feature lic spare
FL18-IPB-EB=	Cisco 1800 IP BASE to Ent Base Upgrade SW feature lic spare
FL18-CB=	Corvil Bandwidth Feature License for 1800 Series spare
Cisco 1800 (Fixed) Series DRAM Memory Options	
MEM180X-128U256D	128 to 256MB SODIMM DRAM factory upgrade for the Cisco 180X
MEM181X-128U256D	128 to 256MB SODIMM DRAM factory upgrade for the Cisco 181X
MEM180X-128D=	128MB SODIMM DRAM for the Cisco 1841 spare
MEM181X-128D=	128MB SODIMM DRAM for the Cisco 181X spare
Cisco 1800 (Fixed) Series PoE Options	
POE-180X=	802.3af PoE Module, 80W Power Supply and Cable spare
POE-181X=	802.3af PoE Module, 80W Power Supply and Cable spare
Cisco 1800 (Fixed) Series Rack Mount Kit	
ACS-1800-RM-19=	19 inch Rack Mount Kit for Cisco 180X / 181X spare
Cisco 1800 (fixed & mod)-802.11 a/g Antennae Options-Spares	
AIR-ANTM2050D-R=	2.2dBi/2.4Ghz,5.0dBi/5GHz DualBand Dipole Antenna spare
AIR-ANTM4050V-R=	4.0dBi/2.4Ghz,5.0 dBi/5GHz Dual Band Ceiling Mount Antenna spare
AIR-ANTM5560P-R=	5.5 dBi/2.4Ghz,6.0 dBi/5GHz Dual Band Wall Mount Antenna spare

For More Information

For more information about the Cisco 1800 Series Integrated Services Routers, visit:
http://www.cisco.com/go/ISR.

Cisco 2800 Series Integrated Services Routers



The Cisco 2800 Series Integrated Services Routers offer performance improvements, increased security and voice performance, wireless support new embedded service options, and increased slot performance and density. These routers maintain support for most existing interface cards and modules available for the Cisco 1700 and 2600 Series Routers. Comprising four platforms (the Cisco 2801, Cisco 2811, Cisco 2821, and Cisco 2851 Integrated Services Routers), the Cisco 2800 Series features the ability to deliver multiple, high-quality, simultaneous services at wire speed at up to multiple T1, E1, and xDSL connections.

Ideal for Companies that Need These Features

- Performance and densities for concurrent data, security, voice, and advanced services up to multiple T1, E1, and xDSL connections
- VPN connections (or plan to migrate to them over time)
- Integrated security services that enable network device protection, threat defense, secure connectivity, and endpoint protection and control
- Secure integrated call processing, voicemail, flexible telephony interfaces, redundancy for centralized call processing, or robust digital-signal-processor (DSP) support, including local conferencing and transcoding
- Wireless support through integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs)
- Wireless LAN controller modules (components of the Cisco Unified Wireless Network)
- Integrated Layer 2 switching capability in densities from 4 to 48 ports and the ability to use Cisco StackWise connectivity

Key Features

- Cisco 2800 Integrated Services Routers offer a modular architecture; a wide variety of LAN and WAN options are available. Network interfaces can be upgraded in the field to accommodate future technologies. Several types of slots are available to add connectivity and services in the future on an "integrate-as-you-grow" basis.
- The routers provide embedded hardware cryptography accelerators, which when combined with an optional Cisco IOS Software upgrade facilitate WAN link security and VPN services.
- Integrated dual Fast Ethernet or Gigabit Ethernet ports provide two 10/100 Ethernet ports on the Cisco 2801 and 2811 models and two 10/100/1000 Ethernet ports on the Cisco 2821 and 2851 models.
- The routers offer high-speed WAN interface card (HWIC) slots with enhanced functions, including wireless LAN (WLAN) access points, dual advanced-integration-module (AIM) slots, and packet-voice-DSP-module (PVDM) slots on the motherboard.
- IP telephony solutions facilitate an all-in-one voice-over-IP (VoIP) solution with Cisco Unified Communications Manager Express, telephony interfaces, and Cisco Unity Express for voicemail and Automated-Attendant functions.
- Onboard hardware-based encryption for Digital Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) and onboard slots for PVDMs all include high-speed Ethernet interfaces.
- The routers support an optional dedicated security AIM.
- Easy VPN eases administration and management of point-to-point VPNs by pushing new security policies from a single headend to remote sites.
- Digital-signal-processor (DSP) modules deliver support for analog and digital voice, conferencing, transcoding, and secure Real-Time Transport Protocol (RTP) applications.
- Cisco Network Admission Control (NAC), a Cisco Self-Defending Network initiative, seeks to dramatically improve the ability of networks to identify, prevent, and adapt to threats by allowing network access only to compliant and trusted endpoint devices.
- The routers offer an optional integrated power supply for distribution of Power over Ethernet (PoE).
- The routers provide real-time clock support.

Specifications

Feature	Cisco 2801	Cisco 2811	Cisco 2821	Cisco 2851
Fixed USB 1.1 ports	1	2	Same As Cisco 2811	Same As Cisco 2811
Onboard LAN ports	2 - 10/100	Same As Cisco 2811	2 - 10/100/1000	Same As Cisco 2821
Onboard AIM (internal) slot	2	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Interface card slots	4 slots; 2 slots support HWIC, WIC, VIC, or VWIC type modules 1 slot supports WIC, VIC, or VWIC type modules 1 slot supports VIC or VWIC type modules	4 slots, each slot can support HWIC, WIC, VIC, or VWIC type modules		
Network-module slot	No	1 slot, supports NM and NME type modules	1 slot, supports NM, NME and NME-X type modules	1 slot, supports NM, NME, NME-X, and NME-XD type modules
Extension Voice Module Slot	0	Same As Cisco 2801	1	Same As Cisco 2821
PVDM (DSP) slots on motherboard	2	Same As Cisco 2801	3	Same As Cisco 2821
Integrated hardware-based encryption	Yes	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801

Optional PoE	Yes, requires AC-IP system power supply	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Console port (up to 115.2 kbps)	1	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Auxiliary port (up to 115.2 kbps)	1	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Minimum Cisco IOS Software release	12.3(8)T4	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Rack mounting	Yes, 19-inch	Yes, 19- and 23-in. options	Same As Cisco 2811	Same As Cisco 2811
Wall mounting	No	Yes	Same As Cisco 2801	Same As Cisco 2801
AC input voltage	100 to 240 VAC	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
AC input frequency	47-63 Hz	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
AC input current	2A (110V); 1A (230V)	Same As Cisco 2801	3A (110V); 2A (230V)	Same As Cisco 2821
AC input surge current	50A maximum, one cycle (-48V power included)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
AC-IP max in-line power distribution	120W	160W	240W	360W
AC-IP input current	4A (110V); 2A (230V)	Same As Cisco 2801	8A (110V); 4A (230V)	Same As Cisco 2821
AC-IP input surge current	50A maximum, one cycle (–48V power included)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
DC input voltage	No DC Power Option available	24 to 60 VDC, autorunning positive or negative	Same As Cisco 2811	Same As Cisco 2811
DC input current	No DC Power Option available	8A (24V) 3A (60V) Startup current 5A<10 ms	12A (24V) 5A (60V) Startup current 50A<10 ms	Same As Cisco 2821
Power dissipation—AC without PoE support	150W (511 BTU/hr.)	170W (580 BTU/hr.)	280W (955 BTU/hr.)	Same As Cisco 2821
Power dissipation—AC with PoE-IP phones	180W (612 BTU/hr.)	160W (546 BTU/hr.)	240W (819 BTU/hr.)	Same As Cisco 2821
Power dissipation—DC	Not applicable	180W (614 BTU/hr.)	300W (1024 BTU/hr.)	Same As Cisco 2821
Redundant Power Support (RPS)	No	External only, connector for RPS provided by default	Same As Cisco 2811	Same As Cisco 2811
Recommended RPS unit	No RPS option	Cisco RPS-675 Redundant Power System	Same As Cisco 2811	Same As Cisco 2811
Operating temp	32 to 104ºF; (0 to 40ºC)	Same As Cisco 2801	Same As Cisco 2801	Same As Cisco 2801
Operating humidity	10 to 85% non condensing	5 to 95%, non condensing	Same As Cisco 2811	Same As Cisco 2811
Non operating temp	N/A	–4 to 149ûF (–20 to 65ûC)	Same As Cisco 2811	Same As Cisco 2811
Dimensions (H x W x D)	1.72 x 17.5 x 16.5 in. (43.7 x 445 x 419 mm.)	1.75 x 17.25 x 16.4 in. (44.5 x 438.2 x 416.6 mm.)	3.5 x 17.25 x 16.4 in. (88.9 x 438.2 x 416.6 mm.)	Same As Cisco 2821
Rack height	1 rack unit (1RU)	1 rack unit (1RU)	2RU	Same As Cisco 2821
Weight (configured)	13.7 lb. (6.2 kg)	14 lb. (6.4 kg)	25 lb. (11.4 kg)	Same As Cisco 2821
Noise level (min/max)	39 dBA for normal operating temperature (<90ûF/32.2ûC) 53.5 dBA (@ maximum fan speed)	47 dBA for normal operating temperature (<90ûF/32.2ûC) 57 dBA (@ maximum fan speed)	44 dBA for normal operating temperature (<90ûF/32.2ûC) 53 dBA (@ maximum fan speed)	
Safety	UL 60950; CAN/CSA C22.2 No. 60950; IEC 60950; EN 60950-1; AS/NZS 60950			
Immunity	EN300386; EN55024/CISPR24; EN50082-1; EN61000-6-2			
EMC	FCC Part 15; ICES-003 Class A; EN55022 Class A; CISPR22 Class A; AS/NZS 3548 Class A; VCCI Class A EN 300386; EN61000-3-3; EN61000-3-2			
TELCOM	Telecom compliance standards depend upon country and interface type. Interfaces comply with FCC Part 68, CS-03, JATE Technical Conditions, European Directive 99/5/EC and relevant TBRs. See the datasheet for the specific interface card.			

Selected Part Numbers and Ordering Information

Cisco 2800 Series Router	
CISCO2801	Integrated services router with AC power, 2FE, 4 Interface Card Slots, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software

CISCO2801-AC-IP	Integrated services router with AC power including Inline power distribution capability, 2FE, 4 Interface Card Slots, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811	Integrated services router with AC power, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811-AC-IP	Integrated services router with AC power including Inline power distribution capability, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2811-DC	Integrated services router with DC power, 2FE, 1 NME, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821	Integrated services router with AC power, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 2 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2821-DC	Integrated services router with DC power, 2GE, 1 NME-X, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2851	Dual Gigabit Ethernet integrated services router with AC power, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2851-AC-IP	Integrated services router with AC power including inline power distribution capability, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
CISCO2851-DC	Integrated services router with DC power, 2GE, 1 NME-XD, 1 EVM, 4 HWICs, 3 PVDM slots, 2 AIMs, and Cisco IOS IP Base Software
Cisco 2800 Series Security Bundles	
CISCO2801-SEC/K9	2801 Security Bundle,Adv Security,64F/256D
CISCO2801-HSEC/K9	2801 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
CISCO2811-SEC/K9	2811 Security Bundle,Adv Security,64F/256D
CISCO2811-HSEC/K9	2811 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
CISCO2821-SEC/K9	2821 Security Bundle,Adv Security,64F/256D
CISCO2821-HSEC/K9	2821 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
CISCO2851-SEC/K9	2851 Security Bundle,Adv Security,64F/256D
CISCO2851-HSEC/K9	2851 Bundle w/AIM-VPN/SSL-2,Adv. IP Serv,10 SSL lic,64F/256D
Cisco 2800 Series Voice Bundles	
CISCO2801-V/K9	2801 Voice Bundle,PVDM2-8,SP Serv,64F/256D
CISCO2801-CCME/K9	2801 Voice Bundle w/ PVDM2-8,FL-CCME-24, SP Serv,64F/256D
CISCO2801-SRST/K9	2801 Voice Bundle w/ PVDM2-8,FL-SRST-24,SP Serv,64F/256D
CISCO2811-V/K9	2811 Voice Bundle,PVDM2-16,SP Serv,64F/256D
CISCO2811-CCME/K9	2811 Voice Bundle w/ PVDM2-16,FL-CCME-36,SP Serv,64F/256D
CISCO2811-SRST/K9	2811 Voice Bundle w/ PVDM2-16,FL-SRST-36,SP Serv,64F/256D
CISCO2821-V/K9	2821 Voice Bundle,PVDM2-32,SP Serv,64F/256D
CISCO2821-CCME/K9	2821 Voice Bundle w/ PVDM2-32,FL-CCME-48,SP Serv,64F/256D
CISCO2821-SRST/K9	2821 Voice Bundle w/ PVDM2-32,FL-SRST-48,SP Serv,64F/256D
CISCO2851-V/K9	2851 Voice Bundle,PVDM2-48,SP Serv,64F/256D
CISCO2851-CCME/K9	2851 Voice Bundle w/ PVDM2-48,FL-CCME-96,SP Serv,64F/256D
CISCO2851-SRST/K9	2851 Voice Bundle w/ PVDM2-48,FL-SRST-96,SP Serv,64F/256D
Cisco 2800 Series Secure Voice Bundles	
C2801-VSEC-CCME/K9	2801 VSEC Bundle w/PVDM2-8,FL-CCME-24,Adv IP Serv,64F/256D
C2801-VSEC-SRST/K9	2801 VSEC Bundle w/PVDM2-8,FL-SRST-24,Adv IP Serv,64F/256D
C2811-VSEC-CCME/K9	2811 VSEC Bundle w/PVDM2-16,FL-CCME-36,Adv IP Serv,64F/256D
C2811-VSEC-SRST/K9	2811 VSEC Bundle w/PVDM2-16,FL-SRST-36,Adv IP Serv,64F/256D
C2821-VSEC-CCME/K9	2821 VSEC Bundle w/PVDM2-32,FL-CCME-48,Adv IP Serv,64F/256D
C2821-VSEC-SRST/K9	2821 VSEC Bundle w/PVDM2-32,FL-SRST-48,Adv IP Serv,64F/256D
C2851-VSEC-CCME/K9	2851 VSEC Bundle w/PVDM2-48,FL-CCME-96,Adv IP Serv,64F/256D
C2851-VSEC-SRST/K9	2851 VSEC Bundle w/PVDM2-48,FL-SRST-96,Adv IP Serv,64F/256D
C2801-VSEC/K9	2801 Voice Security Bundle,PVDM2-8,Adv IP Serv,64F/256D
C2811-VSEC/K9	2811 Voice Security Bundle,PVDM2-16,Adv IP Serv,64F/256D
C2821-VSEC/K9	2821 Voice Security Bundle,PVDM2-32,Adv IP Serv,64F/256D
C2851-VSEC/K9	2851 Voice Security Bundle,PVDM2-48,Adv IP Serv,64F/256D
CISCO2801-V3PN/K9	2801 V3PN bdl,AIM-VPN,PVDM2-8,FL-CCME-24,Adv IPServ,64F/256D
CISCO2811-V3PN/K9	2811 V3PN bdle w/AIM-VPN,PVDM2-16,CCME-36,AdvIPServ,64F/256D
CISCO2821-V3PN/K9	2821 V3PN bdle w/AIM-VPN,PVDM2-32,CCME-48,AdvIPServ,64F/256D
CISCO2851-V3PN/K9	2851 V3PN bdle w/AIM-VPN,PVDM2-48,CCME-72,AdvIPServ,64F/256D
C2821-BIAB-24/K9	CISCO2821-AC-IP,24-port switch,AIM-CUE,PVDM2-32,AISK9
Cisco 28512800 WAN Optimization Bundles	
CISCO2821-AA/K9	Cisco 2821 Basic Wan Optimization Bundle
CISCO2821-SAA/K9	Cisco 2821 Secure Wan Optimization Bundle
CISCO2851-AA/K9	Cisco 2851 Basic Wan Optimization Bundle
CISCO2851-SAA/K9	Cisco 2851 Secure Wan Optimization Bundle
Ethernet Switching Network Modules	

NME-16ES-1G	EtherSwitch Service Mod 16 10/100T + 1 GE,IP Base
NME-16ES-1G-P	EtherSwitch Service Mod 16 10/100T POE + 1 GE,IP Base
NME-X-23ES-1G	EtherSwitch Service Mod 23 10/100T + 1 GE POE, IP Base
NME-X-23ES-1G-P	EtherSwitch Service Mod 23 10/100T POE + 1 GE POE, IP Base
NM-16ESW	16-port 10/100 Cisco EtherSwitchÆ Network Module
NM-16ESW-1GIG	16-port 10/100 Cisco EtherSwitch Network Module with 1 Gigabit Ethernet (1000BASE-T) port
NM-16ESW-PWR	16-port 10/100 Cisco EtherSwitch Network Module with in-line power support
NM-16ESW-PWR-1GIG	16-port 10/100 Cisco EtherSwitch Network Module with in-line power and Gigabit Ethernet
NMD-36ESW	36-port 10/100 Cisco EtherSwitch High-Density Services Module (HDSM)
NMD-36ESW-2GIG	36-port 10/100 Cisco EtherSwitch HDSM with 1 Gigabit Ethernet (1000BASE-T) port
NMD-36ESW-PWR	36-port 10/100 Cisco EtherSwitch HDSM with in-line power support
NMD-36ESW-PWR-2G	36-port 10/100 Cisco EtherSwitch HDSM with in-line power and Gigabit Ethernet
NME-XD-24ES-1S-P	24 10/100 w/ POE + 1 SFP + Cisco StackWise interfaces
NME-XD-48ES-2S-P	48 10/100 w/ POE + 2 SFP
Serial Connectivity Network Modules	
NM-1T3/E3	1-port clear-channel T3/E3 network module
NM-1HSSI	1-port High-Speed Serial Interface (HSSI) network module
NM-4A/S	4-port asynchronous/synchronous serial network module
NM-8A/S	8-port asynchronous/synchronous serial network module
NM-16A/S	16-port asynchronous/synchronous serial network nodule
NM-16A	16-port asynchronous serial network module
NM-32A	32-port asynchronous serial network module
Channelized T1/E1 and ISDN Network Modules	
NM-1CE1T1-PRI	1-port Channelized E1/T1/ISDN PRI network module
NM-2CE1T1-PRI	2-port Channelized E1/T1/ISDN PRI network module
NM-4B-S/T	4-port ISDN BRI network module (S/T interface)
NM-4B-U	4-port ISDN BRI network module with integrated Network Termination 1 (NT1) (U interface)
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)
NM-8B-U	8-port ISDN BRI network module with integrated NT1 (U interface)
ATM Network Modules	
NM-1A-T3	1-port DS-3 ATM network module
NM-1A-E3	1-port E3 ATM network module
Analog Dialup and Remote Access Network Modules	
NM-8AM-V2	8-port analog modem network module with v.92
NM-16AM-V2	16-port analog modem network module with v.92
Voice Network Modules and Accessories	
NM-HD-1V	1-slot IP Communications voice and fax network module
NM-HD-2V	2-slot IP Communications voice and fax network module
NM-HD-2VE	2-slot IP Communications enhanced voice and fax network module
NM-HDA-4FXS	High-density analog voice and fax network module with 4 FXS slots
NM-HDV2	IP Communications high-density voice and fax network module
NM-HDV2-1T1/E1	1-port T1/E1 IP Communications high-density voice and fax network module
NM-HDV2-2T1/E1	2-port T1/E1 IP Communications high-density voice and fax network module
NM-HDV=	High-density voice and fax network module (single VIC slot)
NM-HDV-1T1-12	1-port 12-channel T1 voice and fax network module
NM-HDV-1T1-24	1-port 24-channel T1 voice and fax network module
NM-HDV-1T1-24E	Single-port 24-enhanced-channel T1 voice and fax network module
NM-HDV-2T1-48	2-port 48-channel T1 voice and fax network module
NM-HDV-1E1-12	1-port 12-channel E1 voice and fax network module
NM-HDV-1E1-30	1-port 30-channel E1 voice and fax network module
NM-HDV-1E1-30E	1-port 30-enhanced-channel E1 voice and fax network module
NM-HDV-2E1-60	2-port 60-channel E1 voice and fax network module
NM-HDV-1J1-30	1-port 30-channel J1 high-density voice network module
NM-HDV-1J1-30E	1-port 30-enhanced-channel J1 high-density voice network module
NM-HDV-FARM-C36	36-port transcoding and conferencing DSP farm
NM-HDV-FARM-C54	54-port transcoding and conferencing DSP farm
NM-HDV-FARM-C90	90-port transcoding and conferencing DSP farm
Application Network Modules	
NM-CE-BP-40G-K9	Cisco Content Engine Network Module, basic performance, 40-GB IDE hard disk
NM-CE-BP-80G-K9	Cisco Content Engine Network Module, basic performance, 80-GB IDE hard disk
NM-CIDS-K9	Cisco IDS Network Module
NM-CUE	Cisco Unity Express Voice-Mail Network Module; price includes 12-mailbox license
NM-CUE-EC	Cisco Unity Express Network Module Enhanced Capacity; price includes 12-mailbox license
NM-NAM	Cisco Series Network Analysis Module Network Module
NM-AON-K9	Cisco 2600/2800/3700/3800 Series AON Network Module

Wireless LAN Controller Modules	
NM-AIR-WLC6-K9	WLAN Controller Module for up to 6 lightweight access points 28/38xx ISR
NME-AIR-WLC8-K9	WLAN Controller Module for up to 8 lightweight access points 28/38xx ISR
NME-AIR-WLC12-K9	WLAN Controller Module for up to 12 lightweight access points 28/38xx ISR
Circuit Emulation Service over IP (CESoIP) Network Modules	
NM-CEM-4SER	4-port serial CESoIP network module
NM-CEM-4T1E1	4-port T1/E1 CESoIP network module
Extension Voice Modules	
EVM-HD-8FXS/DID	High-density voice and fax extension module - 8 FXS or DID
Ethernet Switching HWICs	
HWIC-4ESW	4-port single-wide 10/100BASE-T Ethernet switch HWIC
HWIC-D-9ESW	9-port double-wide 10/100BASE-T Ethernet switch HWIC
HWIC-4ESW-POE	4-port Ethernet switch HWIC, PoE capable
HWIC-D-9-ESW-POE	9-port Ethernet switch HWIC, PoE capable
Gigabit Ethernet HWICs	
HWIC-1GE-SFP	GigE High Speed WIC With One SFP Slot
Wireless HWICs and Accessories	
HWIC-AP-G-A	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for the Americas (FCC config)
HWIC-AP-G-E	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Europe (ETSI config)
HWIC-AP-G-J	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Japan (TELEC config)
HWIC-AP-AG-A	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for the Americas (FCC config)
HWIC-AP-AG-E	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Europe (ETSI config)
HWIC-AP-AG-J	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Japan (TELEC config)
AIR-ANT4941	2.2 dBi Cisco Aironet 2.4 GHz Swivel mount dipole
AIR-ANT5959	2 dBi Cisco Aironet 2.4 GHz Diversity omni-directional ceiling mount patch
AIR-ANT1728	5.2dBi Cisco Aironet 2.4 GHz Omni-directional ceiling mount
AIR-ANTM2050D-R	(2.2 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Swivel mount dipole antenna
AIR-ANTM5560P-R	(5.5 dBi Cisco 2.4 Ghz and 6.0 dBi 5 GHz) Dual band Wall-mount patch antenna
AIR-ANTM4050V-R	(4.0 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Diversity Ceiling-mount omnidirectional antenna
AIR-CAB020LL-R	20-ft. (6m) low-loss cable with RP-TNC connectors
AIR-CAB050LL-R	50-ft. (15m) low-loss cable with RP-TNC connectors
AIR-CAB100ULL-R	100 ft. (30m) ultra-low-loss cable with RP-TNC connectors
AIR-CAB150ULL-R	150-ft. (46m) ultra-low-loss cable with RP-TNC connector
Serial WICs and HWICs	
HWIC-4T	4-Port Serial HWIC
HWIC-4A/S	4-Port Async/Sync Serial HWIC
HWIC-8A/S-232	8-Port Async/Sync Serial HWIC, EIA-232
HWIC-8A	8-Port Async HWIC
HWIC-16A	16-Port Async HWIC
WIC-1T	1-port high-speed serial WIC
WIC-2T	2-port high-speed serial WIC
WIC-2A/S	2-port asynchronous/synchronous serial WIC
CSU/DSU WICs	
WIC-1DSU-T1-V2	1-port T1/Fractional-T1 DSU/CSU WIC
WIC-1DSU-56K4	1-port 4-wire 56-/64-kbps CSU/DSU WIC
ISDN BRI WICs and HWICs	
WIC-1B-U-V2	1-port ISDN BRI with integrated NT1 (U interface)
WIC-1B-S/T-V3	1-port ISDN BRI with S/T interface
HWIC-ADSL-B/ST	HWIC w/ADSLoPOTS and ISDN BRI ports
HWIC-ADSLI-B/ST	HWIC w/ADSLoISDN and ISDN BRI ports
DSL WICs and HWICs	
WIC-1ADSL	1-port asymmetric DSL (ADSL) over basic-telephone-service WIC
WIC-1ADSL-DG	1-port ADSL over basic telephone service with dying-gasp WIC
WIC-1ADSL-I-DG	1-port ADSL over ISDN with dying-gasp WIC
HWIC-1ADSL	1-port ADSLoPOTS HWIC
HWIC-1ADSLI	1-port ADSLoISDN HWIC
HWIC-ADSL-B/ST	HWIC w/ADSLoPOTS and ISDN BRI ports
HWIC-ADSLI-B/ST	HWIC w/ADSLoISDN and ISDN BRI ports
WIC-1SHDSL-V3	1-port G.shdsl WIC (two or four wire)
HWIC-CABLE-D-2	1-Port DOCSIS 2.0 Cable HWIC
Analog Modem WICs	
WIC-1AM	1-port analog modem WIC
WIC-2AM	2-port analog modem WIC
WIC-1AM-V2	1-port analog modem WIC
WIC-2AM-V2	2-port analog modem WIC

T1, E1, and G.703 Multiflex Trunk Voice Cards and WICs	
VWIC2-1MFT-T1/E1=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1 spare
VWIC2-2MFT-T1/E1=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1 spare
VWIC2-1MFT-G703=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703 spare
VWIC2-2MFT-G703=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703 spare
EC-MFT-32=	32-Channel Multiflex Trunk Dedicated ECAN Module spare
EC-MFT-64=	64-Channel Multiflex Trunk Dedicated ECAN Module spare
VWIC-1MFT-T1	1-port RJ-48 multiflex trunk - T1
VWIC-2MFT-T1	2-port RJ-48 multiflex trunk - T1
VWIC-2MFT-T1-DI	2-port RJ-48 multiflex trunk - T1 with drop and insert
VWIC-1MFT-E1	1-port RJ-48 multiflex trunk - E1
VWIC-1MFT-G703	1-port RJ-48 multiflex trunk - G.703
VWIC-2MFT-E1	2-port RJ-48 multiflex trunk - E1
VWIC-2MFT-E1-DI	2-port RJ-48 multiflex trunk - E1 with drop and insert
VWIC-2MFT-G703	2-port RJ-48 multiflex trunk - G.703
VICs	
VIC-2DID	2-port DID voice and fax interface card
VIC-1J1	1-port digital VIC (J1) for Japan
VIC-4FXS/DID	4-port FXS or DID VIC
VIC2-2FXS	2-port VIC - FXS
VIC2-2FXO	2-port VIC - FXO (universal)
VIC2-4FXO	4-port VIC - FXO (universal)
VIC2-2E/M	2-port VIC - E&M
VIC2-2BRI-NT/TE	2-port VIC card - BRI (NT and TE)
AIMs	
AIM-ATM	High-performance ATM SAR AIM
AIM-ATM-1T1=	High Performance ATM AIM/T1 Bundle AIM-ATM spare
AIM-ATM-1E1=	High Performance ATM AIM/E1 Bundle AIM-ATM spare
AIM-ATM-4T1=	AIM-ATM with 2 VWIC-2MFT-T1 spare
AIM-ATM-4E1	AIM- ATM with 2 VWIC-2MFT-E1
AIM-COMPR2-V2	Data-compression AIM
AIM-CUE	Cisco Unity Express Voice-Mail AIM
AIM-VPN/EPII-PLUS	Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM
AIM-VPN/SSL-1	DES/3DES/AES/SSL VPN Encryption/Compression
AIM-VPN/SSL-2	DES/3DES/AES/SSL VPN Encryption/Compression
AIM-VPN/SSL-3	DES/3DES/AES/SSL VPN Encryption/Compression
PVDM Support on Motherboard Slots	
PVDM2-8	8-channel fax and voice DSP module
PVDM2-16	16-channel fax and voice DSP module
PVDM2-32	32-channel fax and voice DSP module
PVDM2-48	48-channel fax and voice DSP module
PVDM2-64	64-channel fax and voice DSP module
PVDM2-12DM	12 Port Digital Modem Module
PVDM2-24DM	24 Port Digital Modem Module
PVDM2-36DM	36 Port Digital Modem Module

For More Information

For more information about the Cisco 2800 Series Integrated Services Routers, visit:
http://www.cisco.com/go/2800.

Cisco 3200 Series Rugged Integrated Services Routers



The Cisco 3200 Rugged ISR is a rugged router that uses Cisco IOS Software to provide access, mobility, and interoperability across multiple wired and wireless networks. The Cisco 3200 Rugged Router has a flexible, compact form factor that is ruggedized to withstand harsh environments. It offers highly secure data, voice, and video communications in mobile and outdoor embedded networks. For mobile applications, standards-based Mobile IP delivers transparent roaming across multiple wireless networks capable of covering wide geographic areas. The components can also be placed in customized enclosures or existing outdoor infrastructure to connect proprietary network devices with an IP network.

Ideal for Companies that Need These Features

- Rugged routers for outdoors or inside vehicles where deployments require extra ruggedness to withstand high temperature ranges, shock and vibration, and moist or dusty environments
- Embedded routers for use with third-party custom enclosures
- Mobile applications where customers need transparent connectivity across multiple wireless networks

Key Features

- The hardware architecture of the Cisco 3200 Rugged Router can be embedded in different system designs.
- The Cisco 3200 Rugged Router allows for designs in unique environments for mobile or fixed outdoor networks.
- PC/104-Plus architecture allows for the use of off-the-shelf third-party components for use with the Cisco 3230 Rugged Router.
- Extended temperature ranges of -40ºF to +185ºF (–40 to +85ºC) are possible. (Temperature ranges for completed solutions depend on hardware configuration variables, including enclosures and third-party components.)
- The Cisco 3200 Rugged Router meets MIL-STD-810F and Society of Automotive Engineers (SAE) standards.
- The routers provide flexibility for deployment in many different environments where space, heat dissipation, and low power consumption are critical factors.
- The router design allows for added functions by stacking Cisco interface or third-party component cards into a hardware configuration.
- Third-party cards can give added use to provide various LAN or WAN functions, including security, computing, global positioning system (GPS), and cellular connectivity.
- Multiple LAN and WAN devices can be connected to standard 10/100 Ethernet or serial interfaces.
- IEEE 802.1 1a/b/g access points or bridge modes can be integrated with the rugged router.
- Integrated 2.4, 4.9, and 5-GHz wireless are configured as a bridge for WAN connectivity or as access points for wireless LAN connectivity.
- Cisco Unified Communications Manager Express supports up to 24 phones (Cisco 3230 and 3250 models) and 48 phones (Cisco 3270) for IP telephony services.
- Mobile IP offers transparent roaming for mobile networks, establishing a transparent Internet connection regardless of location or movement.
- IOS Firewall protection provides perimeter security when using public networks.
- Triple Digital Encryption Standard (3DES) and Advanced Encryption Standard (AES) encryption provide for highly secure VPNs when transmitting and receiving data over public networks.
- Intrusion detection monitors potential malicious activity within the network.

Specifications

Feature	Cisco 3230	Cisco 3270
Fixed USB 2.0 ports	0	2
Onboard Fast Ethernet (FE) ports	1 - 10/100	2 – 10/100
Onboard Copper Gigabit Ethernet Ports	N/A	2 – 10/100/1000 on C3271MARC-TP 1 – 10/100/1000 on C3271MARC-FO-TP
Onboard Fiber Optic ports	N/A	1 – C3271MARC-FO-TP
SFP	N/A	LX – Single Mode 1000 SX – Multi-mode 1000
Enclosure Slots	7	14
Integrated hardware-based encryption	N/A	Yes
Console port	1–DB9	1–RJ45
Auxiliary port	1	1
Minimum Cisco IOS Software release	12.3(11)T	12,4(6)XE
Rack mounting	No	No
Wall mounting	Yes	Yes
DC input current	9-32VDC	9-32VDC
AC input current	No AC Power Option available	No AC Power Option available
Operating temp (Enclosure systems)	-40ºF to 165ºF; (-40ºC to 74ºC)	-40ºF to 165ºF; (-40ºC to 74ºC) (-40ºC to +65º with Fiber option version)
Operating humidity	95 percent (± 4 percent) relative humidity	95 percent (± 4 percent) relative humidity
Non operating temp	-40ºF to 185ºF; (-40ºC to 85ºC)	-40ºF to 185ºF; (-40ºC to 85ºC)
Dimensions (H x W x D)	Height: 14.99 cm (5.89 in.) Width: 17.27 cm (6.82 in.) Depth: 20.32 cm (7.80 in.)	Height: 14.99 cm (5.89 in.) Width: 17.27 cm (6.82 in.) Depth: 41.66 cm (16.4 in.) (for Cisco 3270 fiber-optic model)

Weight (configured)	14.5 lbs (6.441 kg) (includes enclosure, MARC, SMIC, FESMIC, Mobile Router Power Card [MRPC], and 2 WMICs)	18.9 lb (8.6 kg) (enclosure with Cisco 3270 router card, MRPC, SMIC, FESMIC, and 3 WMICs)
EMC	47 CFR Part 15: 2002; CISPR22: 1993 [Inc amd 1 & 2]; CISPR22: 1997; EN300386: 2001; EN50082-1: 1992; EN50082-1: 1997; EN55022: 1994 [Inc amd 1 & 2]; EN55022: 1998; EN61000-3-2: 2000; EN61000-3-3: 1995; Resolution 237: 2000	
Immunity	CISPR24: 1997 [+ amd 1: 2001]; EN300386: 2001; EN301 489-17: 2000; EN301 489-1: 2000; EN50082-1: 1992; EN50082-1: 1997; EN55024: 1998 [+ amd 1: 2001]; EN61000-3-2: 2000; EN61000-3-3: 1995; EN61000-6-1: 2001; Resolution 237: 2000	

Selected Part Numbers and Ordering Information

Cisco 3200 Rugged Enclosure Bundles	
C3230ENC-K9	3230 bundle w/ rugged enclosure fully assembled with no WMICs
C3230ENC-1WMIC-K9	3230 bundle w/ rugged enclosure fully assembled with (1) WMIC (WMIC is selectable option)
C3230ENC-2WMIC-K9	3230 bundle w/ rugged enclosure fully assembled with (2) WMICs (WMICs are selectable options)
C3230ENC-3WMIC-K9	3230 bundle w/ rugged enclosure fully assembled with (3) WMICs (WMICs are selectable options)
C3230ENC-1W-49-K9	3230 bundle w/ rugged enclosure fully assembled with (1) 4.9GHz WMIC for U.S.
C3230ENC-24-49-K9	3230 bundle w/ rugged enclosure fully assembled with (1) 2.4GHz & (1) 4.9GHz WMIC for U.S.
C3230ENC-2W24-49K9	3230 bundle w/ rugged enclosure fully assembled w/ (2) 2.4GHz WMICs & (1) 4.9GHz WMIC for US
C3230ENC-3W-49-K9	3230 bundle w/ rugged enclosure fully assembled with (3) 4.9GHz WMICs for U.S.
C3230ENC-2WMICE-K9	3230 bundle w/ rugged enclosure fully assembled with (2) 2.4GHz WMICs for most of Europe
C3230ENC-3WMICE-K9	3230 bundle w/ rugged enclosure fully assembled with (3) 2.4GHz WMICs for most of Europe
C3230ENC-2WJ-K9	3230 bundle w/ rugged enclosure fully assembled with (2) 2.4GHz WMICs for Japan
C3230ENC-2WJ10-K9	3230 bundle w/ rugged enclosure fully assembled with (2) 2.4GHz WMICs for Japan (10mW)
C3270ENC-FO-K9	Cisco 3270 bundle w/enclosure, Fiber
C3270ENC-1W-FO-K9	Cisco 3270 bundle w/enclosure, Fiber & 1WMIC
C3270ENC-2W-FO-K9	Cisco 3270 bundle w/enclosure, Fiber & 2WMIC
C3270ENC-3W-FO-K9	Cisco 3270 bundle w/enclosure, Fiber & 3WMIC
C3270ENC-K9	Cisco 3270 bundle w/enclosure, 2GE
C3270ENC-1W-K9	Cisco 3270 bundle w/enclosure, 2GE & 1WMIC
C3270ENC-2W-K9	Cisco 3270 bundle w/enclosure, 2GE & 2WMIC
C3270ENC-3W-K9	Cisco 3270 bundle w/enclosure, 2GE & 3WMIC
Cisco 3200 Card Bundles	
CISCO3220	Contains CISCO3220MARC, CISCO3201TSMIC, CISCO3201TFESMIC
C3220-1-WMIC-K9	Contains CISCO3220MARC, CISCO3201TSMIC, CISCO3201TFESMIC, plus C3201WMIC-x-K9 selectable option
C3230-K9	3230 bundle with MARC, 4-port SMIC, & 4-port FESMIC (no WMICs)
C3230-1WMIC-K9	3230 bundle with (1) WMIC (WMIC is selectable option)
C3230-2WMIC-K9	3230 bundle with (2) WMICs for N. America (WMICs are selectable options)
C3230-3WMIC-K9	3230 bundle with (3) WMICs (WMIC are selectable options)
C3230-1W-49-K9	3230 bundle with (1) 4.9GHz WMIC for U.S.
C3230-24-49-K9	3230 bundle with (1) 2.4GHz WMIC for N. America & (1) 4.9GHz WMIC for U.S.
C3230-2W24-49-K9	3230 bundle with (2) 2.4GHz WMICs for N. America & (1) 4.9GHz WMIC for u.S.
C3230-3W-49-K9	3230 bundle with (3) 4.9GHz WMICs for U.S.
C3230-2WMICE-K9	3230 bundle with (2) 2.4GHz WMICs for most of Europe
C3230-3WMICE-K9	3230 bundle with (3) 2.4GHz WMICs for most of Europe
C3230-2WMICJ-K9	3230 bundle with (2) 2.4GHz WMICs for Japan
C3230-2WMICJ10-K9	3230 bundle with (2) 2.4GHz WMICs (10mW) for Japan
C3231-1WMIC-K9	Contains C3231MARC, CISCO3201FESMIC, C3201WMIC-E-K9
C3231-K9	Contains C3231MARC, CISCO3201FESMIC
C3231TP-1WMIC-K9	Contains C3231MARC-TP, C3201FESMIC-TP, C3201MRPC-TP, (1) C3201WMIC-TPxK9 (WMIC is selectable option)
C3231TP-2WMIC-K9	Contains C3231MARC-TP, C3201FESMIC-TP, C3201MRPC-TP, (2) C3201WMIC-TPxK9 (WMIC is selectable option)
Cisco 3200 Spare Cards	
CISCO3251MARC	Cisco 3250 Mobile Access Router Card (used with all C3230 bundles)
C3271MARC-TP=	Cisco 3270 2GE router w/thermal plates
C3271MARC-FO-TP=	Cisco 3270 Fiber router w/thermal plates
CISCO3201SMIC=	Serial Mobile Interface Card
CISCO3201FESMIC=	Fast Ethernet Switching Mobile Interface Card
C3201WMIC-A-K9=	802.11b/g Wireless Mobile Interface Card for North America
C3201WMIC-E-K9=	802.11b/g Wireless Mobile Interface Card for Most of Europe
C3201WMIC-J-K9=	802.11b/g Wireless Mobile Interface Card for Japan
C3201WMIC-J10-K9=	802.11b/g Wireless Mobile Interface Card for Japan (10mW)

C3201LAP-A-K9=	802.11b/g LWAPP Wireless Mobile Interface Card for N. America
C3201LAP-E-K9=	802.11b/g LWAPP Wireless Mobile Interface Card for EMEA
C3202WMIC-A49K9=	4.9GHz Wireless Mobile Interface Card
C3205WMIC-A-K9=	5GHz WMIC for N. America
C3205WMIC-E-K9=	5GHz WMIC for Europe
Cisco 3200 Mobile Interface Cards (with Thermal Plates	
C3251MARC-TP	Mobile Access Router Card
C3201SMIC-TP=	Serial Mobile Interface Card
C3201FESMIC-TP=	Fast Ethernet Switching Mobile Interface Card
C3201WMIC-TPAK9=	802.11b/g Wireless Mobile Interface Card for North America
C3201WMIC-TPEK9=	802.11b/g Wireless Mobile Interface Card for Most of Europe
C3201WMIC-TPJK9=	802.11b/g Wireless Mobile Interface Card for Japan
C3201WMIC-TPJ10K9=	802.11b/g Wireless Mobile Interface Card for Japan (10mW)
C3201LAP-TPA-K9=	802.11b/g LWAPP Wireless Mobile Interface Card for N. America
C3201LAP-TPE-K9=	802.11b/g LWAPP Wireless Mobile Interface Card for EMEA
C3202WMIC-PTA49K9=	4.9GHz Wireless Mobile Interface Card
C3205WMIC-TPEK9=	5GHz Wireless Mobile Interface Card for Europe
C3205WMIC-TPEK9=	5GHz Wireless Mobile Interface Card for N. America
C3201MRPC-TP=	Cisco 3200 Series Mobile Router Power Card
C3230ASY-KIT=	Cisco 3200 Series Rugged Enclosure for Cisco 3230 Series Bundle (requires assembly)
GLC-LX-SM-RGD=	1,000mbps Single Mode Rugged SFP
GLC-SX-MM-RGD=	1,000mbps Multi-Mode Rugged SFP

For More Information

For more information about the Cisco 3200 Series Rugged Integrated Services Routers, visit: http://www.cisco.com/go/3200.

Cisco 3800 Series Integrated Services Routers



The Cisco 3800 Series Integrated Services Routers constitute the flagship platform in a portfolio of next-generation routers that integrate advanced technologies, adaptive services, wireless support, and secure enterprise communications.

These new routers offer the performance and reliable packet delivery necessary to efficiently deliver mission-critical network capabilities, including real-time applications such as voice over IP (VoIP), business video, and collaborative communications. Architectural enhancements include embedded security processing, significant platform performance and memory improvements, and new high-density interface types.

Ideal for Companies that Need These Features

- Cisco 3825 Integrated Services Router—Low density (up to 88 ports), integrated 10/100 switching; up to 360W Cisco Inline Power, or Power over Ethernet (PoE); Integrated onboard security acceleration for IP Security (IPSec) for improved IPSec performance and an integral part of Cisco Self-Defending Network, which facilitate network device protection, threat defense, secure connectivity, and endpoint protection and control. Cisco 3825 Integrated Services Routers are ideal for medium- to large-sized branch offices and businesses that can support concurrent data, security, voice, and advanced services at wire speed up to one-half T3/E3 rates.
- Cisco 3845 Integrated Services Router—Same features as above plus Higher availability and resiliency (such as redundant system and inline power, online-insertion-and-removable (OIR) components, and field-replaceable components such as the CPU motherboard and fan assembly). Cisco 3845 Integrated Services Routers are ideal for medium- to large-sized branch offices and businesses, providing very high performance and densities for concurrent data, security, voice, and advanced services with the ability to run at wire speed up to T3/E3.

Key Features

- Cisco IOS Firewall provides stateful, application-based filtering (context-based access control); per-user authentication and authorization; real-time alerts; a transparent firewall; and an IPv6 firewall.
- The Cisco 3845 Integrated Services Routers offer VPN services, including Data Encryption Standard (DES), Triple DES (3DES), and Advanced Encryption Standard (AES) 128, 192, and 256 cryptology support. They support embedded hardware-based VPN acceleration on the motherboard, and (optional) higher-

performance AIM-based security acceleration with Layer 3 compression. The routers support up to 1800 tunnels with the VPN module, Cisco Easy VPN (remote and server), and Dynamic Multipoint VPN (DMVPN).
- The 3800 Series routers support Multiprotocol Label Switching (MPLS) VPNs. Specific provider-edge capabilities include Virtual Route Forwarding (VRF) firewall and VRF IP Security (IPSec).
- Onboard universal-serial-bus (USB) 1.1 port(s) offer future support for secure token and flash memory.
- More than 700 intrusion-prevention-system (IPS) signatures are supported in Cisco IOS Software, with the ability to load and enable selected IPS signatures. More than 1000 IPS signatures are available with the optional high-performance intrusion-detection-system (IDS) network module.
- Onboard URL filtering with an optional content-engine network module is provided. Local URL filtering occurs in Cisco IOS Software based on the external server.
- Cisco Router and Security Device Manager (SDM) comes standard on all Cisco 3800 Series Integrated Services Routers.
- Integrated IEEE 802.11 a/b/g standalone access-point high-speed WAN interface cards (HWICs) provide wireless support.
- Wireless LAN (WLAN) controller modules are a component of the Cisco Unified Wireless Network.
- The routers support IP phones through an optional integrated power supply with inline power. Standard 802.3af support derives from 360W of inline power.
- The routers offer analog voice support for up to 88 foreign-exchange-station (FXS) and 56 foreign-exchange-office (FXO) ports and digital voice support for up to 720 calls. The motherboard has 4 packet-voice-DSP-module (PVDM) slots. Finally, the routers support local conferencing and transcoding.
- Cisco Communications Manager Express software on these routers supports up to 240 phones; Cisco Survivable Remote Site Telephony (SRST) supports up to 720 phones.
- The routers have up to 120 mailboxes using a Cisco Unity Express network module.
- Voice interfaces support FXS, FXO, Direct Inward Dial (DID), Ear & Mouth (E&M), Centralized Automated Message Accounting (CAMA), Basic Rate Interface (BRI), T1, E1, J1, Primary Rate Interface (PRI), Q.SIG, and channel associated signaling (CAS).

Specifications

Feature	Cisco 3825	Cisco 3845
Network Module Slots	2	4
Advanced Integration Module (AIM) Slots	2	Same As Cisco 3825
High speed WAN Interface Card (HWIC) Slots	4	Same As Cisco 3825
10/100/1000 GE Ports	2	Same As Cisco 3825
Small Form Pluggable (SFP) ports	1	Same As Cisco 3825
Onboard PVDM slots	4	Same As Cisco 3825
WAN Network Modules	Yes	Same As Cisco 3825
ATM AIM Modules	Yes	Same As Cisco 3825
Voice/Fax Network Modules	Yes	Same As Cisco 3825
WAN Interface Card (WIC) Modules	Yes	Same As Cisco 3825
Multiflex Voice/WAN Interface Cards	Yes	Same As Cisco 3825
Voice Interface Card (VIC) Modules	Yes	Same As Cisco 3825
Modem Modules	Yes	Same As Cisco 3825
EtherSwitch Modules	Yes, HWIC and Network Modules	Same As Cisco 3825
Performance with Services	Up to 14 T1/E1's	Up to T3
VPN/Security Advanced Integration Modules (AIM)	Yes, AIM-VPN/EPII-PLUS	Yes, AIM-VPN/EPII-PLUS
Content Engine Network Modules	Yes	Same As Cisco 3825
Flash Memory (External)	64 MB (default) -256 MB (optional)	Same As Cisco 3825
DRAM Memory	256 MB (default) - 1024 MB (max)	Same As Cisco 3825
Power Supply	AC, AC +POE, DC, external redundant AC	AC, DC, internal redundant AC + POE
Dimensions (H x W x D)	3.5 x 17.1 x 14.7 in.	5.25 x 17.25 x 16 in.

Selected Part Numbers and Ordering Information

Cisco 3800 Series Integrated Services Routers	
CISCO3825	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power
CISCO3825-AC-IP	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE

CISCO3825-DC	Cisco 3825 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power
CISCO3845	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and AC power
CISCO3845-AC-IP	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 4 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, AC Power, and PoE
CISCO3845-DC	Cisco 3845 Integrated Services Router with 2 Gigabit Ethernet, 1 SFP, 2 NME, 4 HWIC, 2 AIM, Cisco IOS IP Base software, and DC power
Cisco 3800 Series Secure Voice Bundles	
CISCO3845-V3PN/K9	Cisco 3845 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/HPII-PLUS, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-V3PN/K9	Cisco 3825 V3PN Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/EPII-PLUS, FL-CCME (168 users), 128 MB Flash/512 MB DRAM
C3845-VSEC/K9	Cisco 3845 Voice Security Bundle, PVDM2-64,Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC/K9	Cisco 3825 Voice Security Bundle, PVDM2-64,Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-CCME/K9	Cisco 3845 VSEC Bundle, PVDM2-64, FL-CCME-240, Adv IP Services, 128MB Flash/512MB DRAM
C3825-VSEC-CCME/K9	Cisco 3825 VSEC Bundle, PVDM2-64, FL-CCME-168, Adv IP Services, 128MB Flash/512MB DRAM
C3845-VSEC-SRST/K9	Cisco 3845 VSEC Bundle, PVDM2-64, FL-SRST-240, Adv IP Services,128MB Flash/512MB DRAM
C3825-VSEC-SRST/K9	Cisco 3825 VSEC Bundle, PVDM2-64, FL-SRST-168, Adv IP Services, 128MB Flash/512MB DRAM
Cisco 3800 Series Security Bundles	
CISCO3845-SEC/K9	Cisco 3845 Security Bundle with IOS Advanced Security, 64MB Flash/256 MB DRAM
CISCO3845-HSEC/K9	Cisco 3845 Security Bundle with IOS Advanced IP Services, AIM-VPN/HPII Plus, 128MB Flash/512 MB DRAM
CISCO3825-SEC/K9	Cisco 3825 Security Bundle with IOS Advanced Security, 64MB Flash/256MB DRAM
CISCO3825-HSEC/K9	Cisco 3825 Security Bundle with IOS Advanced IP Services, AIM-VPN/EPII Plus, 128MB Flash/512 MB DRAM
Cisco 3800 Series Voice Bundles	
CISCO3845-V/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM
CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (240 users), 64 MB Flash/256 MB DRAM
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/ 256 MB DRAM
CISCO3825-V/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, 64 MB Flash/256 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (168 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
Cisco 3800 Series WAAS Optimization Bundles	
CISCO3825-WAE/K9	Cisco 3825, NME-WAE-502/K9,WAAS Trans,IPBase,128F/512D
CISCO3845-WAE/K9	Cisco 3845, NME-WAE-502/K9,WAAS Trans,IPBase,128F/512D
Ethernet Switching Network Modules	
NME-16ES-1G-P=	EtherSwitch Service Mod 16 10/100T POE + 1 GE,IP Base
NME-X-23ES-1G-P=	EtherSwitch Service Mod 23 10/100T POE + 1 GE POE, IP Base
NM-16ESW	16-port 10/100 Cisco EtherSwitch Network Module
NM-16ESW-1GIG	16-port 10/100 Cisco EtherSwitch Network Module with 1 Gigabit Ethernet (1000BASE-T) port
NM-16ESW-PWR	16-port 10/100 Cisco EtherSwitch Network Module with in-line power support
NM-16ESW-PWR-1GIG	16-port 10/100 Cisco EtherSwitch Network Module with in-line power and Gigabit Ethernet
NMD-36ESW	36-port 10/100 Cisco EtherSwitch High-Density Services Module (HDSM)
NMD-36ESW-2GIG	36-port 10/100 Cisco EtherSwitch HDSM with 1 Gigabit Ethernet (1000BASE-T) port
NMD-36ESW-PWR	36-port 10/100 Cisco EtherSwitch HDSM with in-line power support
NMD-36ESW-PWR-2G	36-port 10/100 Cisco EtherSwitch HDSM with in-line power and Gigabit Ethernet
NME-XD-24ES-1S-P	24 10/100 w/ POE + 1 SFP + Cisco StackWise interfaces
NME-XD-48ES-2S-P	48 10/100 w/ POE + 2 SFP
Serial Connectivity Network Modules	
NM-1T3/E3	1-port clear-channel T3/E3 network module
NM-1HSSI	1-port High-Speed Serial Interface (HSSI) network module
NM-4A/S	4-port asynchronous/synchronous serial network module
NM-8A/S	8-port asynchronous/synchronous serial network module
NM-16A/S	16-port asynchronous/synchronous serial network nodule
NM-16A	16-port asynchronous serial network module
NM-32A	32-port asynchronous serial network module
NM-4T	4-Port Serial Network Module
Channelized T1/E1 and ISDN Network Modules	
NM-1CE1T1-PRI	1-port Channelized E1/T1/ISDN PRI network module
NM-2CE1T1-PRI	2-port Channelized E1/T1/ISDN PRI network module
NM-8CE1T1-PRI	8 port channelized T1/E1 and PRI network module
NM-4B-S/T	4-port ISDN BRI network module (S/T interface)

NM-4B-U	4-port ISDN BRI network module with integrated Network Termination 1 (NT1) (U interface)
NM-8B-S/T	8-port ISDN BRI network module (S/T interface)
NM-8B-U	8-port ISDN BRI network module with integrated NT1 (U interface)
ATM Network Modules and Transceiver Modules	
NM-1A-T3	1-port DS-3 ATM network module
NM-1A-E3	1-port E3 ATM network module
NM-1A-T3E3	1-Port DS3/E3 ATM Network Module
NM-1A-OC3-POM	ATM OC3 module with single POM (SFP) slot
SFP-OC3-MM	OC3/STM1 SFP, Multi-mode fiber
SFP-OC3-IR1	OC3/STM1 SFP, Single-mode fiber, Intermediate Reach
SFP-OC3-LR1	OC3/STM1 SFP, Single-mode fiber, Long Reach (40km)
Analog Dialup and Remote Access Network Modules	
NM-8AM-V2	8-port analog modem network module with v.92
NM-16AM-V2	16-port analog modem network module with v.92
Digital Modem and Remote Access Network Modules	
NM-6DM	6 Port Digital Modem Network Module
NM-12DM	12 Port Digital Modem Network Module
NM-18DM	18 Port Digital Modem Network Module
NM-24DM	24 Port Digital Modem Network Module
NM-30DM	30 Port Digital Modem Network Module
MICA-6MOD=	6 Port Digital Modem Module, Spare
LAN/WAN Mixed Media Network Modules	
NM-1FE1R2W	1 10/100 Ethernet 1 4/16 Token-Ring 2 WAN Card Slot NM
NM-1FE2W-V2	1 10/100 Ethernet with 2 WAN Card Slot Network Module
NM-1FE2W-V2	2 10/100 Ethernet with 2 WAN Card Slot Network Module
NM-1GE	1 Port Gigabit Ethernet Network Module
Voice Network Modules and Accessories	
NM-HD-1V	1-slot IP Communications voice and fax network module
NM-HD-2V	2-slot IP Communications voice and fax network module
NM-HD-2VE	2-slot IP Communications enhanced voice and fax network module
NM-HDA-4FXS	High-density analog voice and fax network module with 4 FXS slots
NM-HDV2	IP Communications high-density voice and fax network module
NM-HDV2-1T1/E1	1-port T1/E1 IP Communications high-density voice and fax network module
NM-HDV2-2T1/E1	2-port T1/E1 IP Communications high-density voice and fax network module
NM-HDV=	High-density voice and fax network module (single VIC slot)
NM-HDV-1T1-12	1-port 12-channel T1 voice and fax network module
NM-HDV-1T1-24	1-port 24-channel T1 voice and fax network module
NM-HDV-1T1-24E	Single-port 24-enhanced-channel T1 voice and fax network module
NM-HDV-2T1-48	2-port 48-channel T1 voice and fax network module
NM-HDV-1E1-12	1-port 12-channel E1 voice and fax network module
NM-HDV-1E1-30	1-port 30-channel E1 voice and fax network module
NM-HDV-1E1-30E	1-port 30-enhanced-channel E1 voice and fax network module
NM-HDV-2E1-60	2-port 60-channel E1 voice and fax network module
NM-HDV-1J1-30	1-port 30-channel J1 high-density voice network module
NM-HDV-1J1-30E	1-port 30-enhanced-channel J1 high-density voice network module
NM-HDV-FARM-C36	36-port transcoding and conferencing DSP farm
NM-HDV-FARM-C54	54-port transcoding and conferencing DSP farm
NM-HDV-FARM-C90	90-port transcoding and conferencing DSP farm
Application Network Modules	
NME-WAE-302/K9	WAAS Network Module for ISR, 512MB RAM, 80GB HDD
NME-WAE-502/K9	WAAS Network Module For 2800, 3800 ISR - 1GB RAM, 120GB HDD
NME-WAE-522/K9	WAAS Network Module For 3800 ISR - 2GB RAM, 160GB HDD
NME-TPO	Network Capacity Expansion NME for Cisco 3800 ISRs
NM-CE-BP-40G-K9	Cisco Content Engine Network Module, basic performance, 40-GB IDE hard disk
NM-CE-BP-80G-K9	Cisco Content Engine Network Module, basic performance, 80-GB IDE hard disk
NM-CIDS-K9	Cisco IDS Network Module
NM-CUE	Cisco Unity Express Voice-Mail Network Module; price includes 12-mailbox license
NM-CUE-EC	Cisco Unity Express Network Module Enhanced Capacity; price includes 12-mailbox license
NME-NAM-80S	Cisco ISR Network Analysis Module Network Module
NME-NAC-K9	Cisco NAC Network Module for 2800, 3800 ISR
NME-VMSS-16	Cisco Video Management and Storage System NME16 Ports
NME-IPS-K9	Cisco IPS NM for 2811, 2821, 2851 and 3800
NME-UMG	Cisco Unified Messaging Gateway
NME-VMSS-16	Cisco Video Management and Storage System HP NME16 Ports
NME-VMSS-HP16	Cisco Video Management and Storage System NME16 Ports

NME-VMSS-HP32	Cisco Video Management and Storage System HP NME32 Ports
NM-AON-K9	Cisco 2600/2800/3700/3800 Series AON Network Module
Wireless LAN Controller Modules	
NM-AIR-WLC6-K9	WLAN Controller Module for up to 6 lightweight access points 28/38xx ISR
NME-AIR-WLC8-K9	WLAN Controller Module for up to 8 lightweight access points 28/38xx ISR
NME-AIR-WLC12-K9	WLAN Controller Module for up to 12 lightweight access points 28/38xx ISR
Wireless HWICs and Accessories	
HWIC-3G-CDMA-S	3G WWAN HWIC-EVDO Rev A/Rel 0/1xRTT-800/1900MHz
HWIC-CDMA-CDMA-V	3G WWAN HWIC-EVDO Rev A/Rel 0/1xRTT-800/1900MHz
HWIC-3G-GSM	3GWWAN HWIC-HSDPA/UMTS/EDGE/GPRS-850/900/1800/1900/2100MHz
HWIC-AP-G-A	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for the Americas (FCC config)
HWIC-AP-G-E	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Europe (ETSI config)
HWIC-AP-G-J	Cisco 802.11 B/G Access Point High Speed Wan Interface Card for Japan (TELEC config)
HWIC-AP-AG-A	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for the Americas (FCC config)
HWIC-AP-AG-E	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Europe (ETSI config)
HWIC-AP-AG-J	Cisco 802.11 A/B/G Access Point High Speed Wan Interface Card for Japan (TELEC config)
AIR-ANT4941	2.2 dBi Cisco Aironet 2.4 GHz Swivel mount dipole
AIR-ANT5959	2 dBi Cisco Aironet 2.4 GHz Diversity omni-directional ceiling mount patch
AIR-ANT1728	5.2dBi Cisco Aironet 2.4 GHz Omni-directional ceiling mount
AIR-ANTM2050D-R	(2.2 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Swivel mount dipole antenna
AIR-ANTM5560P-R	(5.5 dBi Cisco 2.4 Ghz and 6.0 dBi 5 GHz) Dual band Wall-mount patch antenna
AIR-ANTM4050V-R	(4.0 dBi Cisco 2.4 Ghz and 5.0 dBi 5 GHz) Dual band Diversity Ceiling-mount omnidirectional antenna
AIR-CAB020LL-R	20-ft. (6m) low-loss cable with RP-TNC connectors
AIR-CAB050LL-R	50-ft. (15m) low-loss cable with RP-TNC connectors
AIR-CAB100ULL-R	100 ft. (30m) ultra-low-loss cable with RP-TNC connectors
AIR-CAB150ULL-R	150-ft. (46m) ultra-low-loss cable with RP-TNC connector
Circuit Emulation Service over IP (CESoIP) Network Modules	
NM-CEM-4SER	4-port serial CESoIP network module
NM-CEM-4T1E1	4-port T1/E1 CESoIP network module
Extension Voice Modules	
EVM-HD-8FXS/DID	High-density voice and fax extension module - 8 FXS or DID
Ethernet Switching and Routed Port HWICs	
HWIC-1FE	1-port 10/100 Routed port HWIC
HWIC-2FE	2-port 10/100 Routed port HWIC
HWIC-4ESW	4-port single-wide 10/100BASE-T Ethernet switch HWIC
HWIC-D-9ESW	9-port double-wide 10/100BASE-T Ethernet switch HWIC
HWIC-4ESW-POE	4-port Ethernet switch HWIC, PoE capable
HWIC-D-9-ESW-POE	9-port Ethernet switch HWIC, PoE capable
Gigabit Ethernet HWICs	
HWIC-1GE-SFP	GigE High Speed WIC With One SFP Slot
Serial WICs and HWICs	
HWIC-4T	4-Port Serial HWIC
HWIC-4T1/E1	4 port clear channel T1/E1 HWIC
HWIC-1T1/E1	T1/E1 HWIC with integrated CSU/DSU
HWIC-1CE1T1-PRI	1 port channelized T1/E1 and PRI HWIC
HWIC-2CE1T1-PRI	1 port channelized T1/E1 and PRI HWIC
HWIC-CABLE-D-2=	1-Port DOCSIS 2.0 Cable Modem HWIC
HWIC-CABLE-E/J-2	1-Port Euro/J-DOCSIS 2.0 Cable Modem HWIC
HWIC-4A/S	4-Port Async/Sync Serial HWIC
HWIC-8A/S-232	8-Port Async/Sync Serial HWIC, EIA-232
HWIC-8A	8-Port Async HWIC
HWIC-16A	16-Port Async HWIC
WIC-1T	1-port high-speed serial WIC
WIC-2T	2-port high-speed serial WIC
WIC-2A/S	2-port asynchronous/synchronous serial WIC
CSU/DSU WICs	
WIC-1DSU-T1-V2	1-port T1/Fractional-T1 DSU/CSU WIC
WIC-1DSU-56K4	1-port 4-wire 56-/64-kbps CSU/DSU WIC
ISDN BRI WICs	
WIC-1B-U-V2	1-port ISDN BRI with integrated NT1 (U interface)
WIC-1B-S/T-V3	1-port ISDN BRI with S/T interface
DSL WICs and HWICs	
WIC-1ADSL	1-port asymmetric DSL (ADSL) over basic-telephone-service WIC
HWIC-ADSLI-B/ST	2-port HWIC w/ 1-port ADSLoISDN and 1-port ISDN BRI-S/T

WIC-1ADSL-DG	1-port ADSL over basic telephone service with dying-gasp WIC
WIC-1ADSL-I-DG	1-port ADSL over ISDN with dying-gasp WIC
HWIC-1ADSL	1-port ADSLoPOTS HWIC
HWIC-1ADSLI	1-port ADSLoISDN HWIC
WIC-1SHDSL-V3	1-port G.shdsl WIC (two or four wire)
Analog Modem WICs	
WIC-1AM	1-port analog modem WIC
WIC-2AM	2-port analog modem WIC
T1, E1, and G.703 Multiflex Trunk Voice Cards and WICs	
VWIC2-1MFT-T1/E1=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1 spare
VWIC2-2MFT-T1/E1=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - T1/E1 spare
VWIC2-1MFT-G703=	1-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703 spare
VWIC2-2MFT-G703=	2-Port 2nd Gen Multiflex Trunk Voice/WAN Int. Card - G.703 spare
EC-MFT-32=	32-Channel Multiflex Trunk Dedicated ECAN Module spare
EC-MFT-64=	64-Channel Multiflex Trunk Dedicated ECAN Module spare
VWIC-1MFT-T1	1-port RJ-48 multiflex trunk - T1
VWIC-2MFT-T1	2-port RJ-48 multiflex trunk - T1
VWIC-2MFT-T1-DI	2-port RJ-48 multiflex trunk - T1 with drop and insert
VWIC-1MFT-E1	1-port RJ-48 multiflex trunk - E1
VWIC-1MFT-G703	1-port RJ-48 multiflex trunk - G.703
VWIC-2MFT-E1	2-port RJ-48 multiflex trunk - E1
VWIC-2MFT-E1-DI	2-port RJ-48 multiflex trunk - E1 with drop and insert
VWIC-2MFT-G703	2-port RJ-48 multiflex trunk - G.703
VICs	
VIC-2DID	2-port DID voice and fax interface card
VIC-1J1	1-port digital VIC (J1) for Japan
VIC-4FXS/DID	4-port FXS or DID VIC
VIC2-2FXS	2-port VIC - FXS
VIC2-2FXO	2-port VIC - FXO (universal)
VIC2-4FXO	4-port VIC - FXO (universal)
VIC2-2E/M	2-port VIC - E&M
VIC2-2BRI-NT/TE	2-port VIC card - BRI (NT and TE)
AIMs	
AIM-ATM	High-performance ATM SAR AIM
AIM-ATM-1T1=	High Performance ATM AIM/T1 Bundle AIM-ATM spare
AIM-ATM-1E1=	High Performance ATM AIM/E1 Bundle AIM-ATM spare
AIM-ATM-4T1=	AIM-ATM with 2 VWIC-2MFT-T1 spare
AIM-ATM-4E1	AIM- ATM with 2 VWIC-2MFT-E1
AIM-COMPR4	Data-compression AIM
AIM-CUE	Cisco Unity Express Voice-Mail AIM
AIM-IPS-K9	Cisco IPS AIM for 1841, 2800 and 3800
AIM-TPO-1	Network Capacity Expansion for Cisco 1800/2800/3800 ISRs
AIM-TPO-2	Network Capacity Expansion for Cisco 1800/2800/3800 ISRs
AIM-VPN/EPII-PLUS	Enhanced-performance DES, 3DES, AES, and compression VPN encryption AIM
PVDM Support on Motherboard Slots	
PVDM2-8	8-channel fax and voice DSP module
PVDM2-16	16-channel fax and voice DSP module
PVDM2-32	32-channel fax and voice DSP module
PVDM2-48	48-channel fax and voice DSP module
PVDM2-64	64-channel fax and voice DSP module

For More Information

For more information about the Cisco 3800 Series Integrated Services Routers, visit: http://www.cisco.com/go/3800.

Cisco ASR 1000 Series Aggregated Services Router

The Cisco ASR 1000 Series Aggregated Services Routers are the newest addition to the Cisco routing portfolio. The product family consists of three different versions: the Cisco ASR 1002 Router, the Cisco ASR 1004 Router, and the Cisco



ASR 1006 Router. All three models use the new, innovative, and powerful Cisco QuantumFlow Processor and are optimized for both service provider and enterprise deployments.

The Cisco ASR 1000 Series delivers multiple services embedded in the Cisco QuantumFlow Processor at wire speeds of up to 10 Gbps. The services supported on the Cisco Packet QuantumFlow Processor include security services (for example, encryption and firewall), quality of service (QoS), Network-Based Application Recognition (NBAR), Cisco IOS Flexible Packet Matching (FPM), broadband aggregation, and session border controller, among others.

With the separation of the control and data planes in the Cisco ASR 1000 Series Router architecture, software redundancy (on the Cisco ASR 1002 and 1004 models) and hardware redundancy (on the Cisco ASR 1006 Router) are provided. Additionally, the modular Cisco IOS XE Software that is introduced with the Cisco ASR 1000 Series facilitates In Service Software Upgrade (ISSU). I/O connectivity is provided through shared port adapters (SPAs), which are housed in the carrier card.

From a price-to-performance perspective, the Cisco ASR 1000 Series Router solution fits well between the Cisco 7200 and Cisco 7300 Series and the Cisco 7600 and Cisco Catalyst 6000 Series Switches, thus dramatically enhancing the Cisco midrange routing portfolio.

Ideal for Companies that Need These Features

- Cisco ASR 1002—Support for three SPAs; Integrated 10-Gigabit Ethernet carrier card SIP10; Integrated route processor (Cisco ASR 1000 Series Route Processor 1 [RP1]); Support for 1 forwarding engine (Cisco ASR 1000 Series Embedded Services Processor 5 [ESP5] or ESP10); Built-in four 1-Gigabit Ethernet ports ; Cisco IOS Software redundancy and In Service Software Upgrade (ISSU); WAN services aggregation ; Integrated edge services (for example, IP Security [IPSec], firewall, session border controller [SBC], and Network Based Application Recognition [NBAR]); Managed customer premises equipment (CPE); Layer 2 Tunneling Protocol access concentrator (LAC) or Layer 2 Tunneling Protocol network server (LNS); Layer 3 VPN (L3VPN); Route reflector
- Cisco ASR 1004—Support for eight SPAs; Support for two carrier cards (SIP10), each with 4 SPA slots; Support for one route processor (Cisco ASR 1000 Series RP1); Support for one forwarding engine (Cisco ASR 1000 Series ESP10); Cisco IOS Software redundancy and ISSU; WAN services aggregation ; Integrated edge services (for example, IPSec, firewall, SBC, and NBAR); Managed CPE; LAC or LNS; L3VPN; Route reflector
- Cisco ASR 1006—Support for 12 SPAs; Support for three carrier cards (SIP10), each with 4 SPA slots; Support for up to two route processors (Cisco ASR 1000 Series RP1); Support for up to two forwarding engines (Cisco ASR 1000 Series ESP10); In-box hardware redundancy (dual ESP and route processor); WAN services aggregation ; Integrated edge services (for example, IPSec, firewall, SBC, and NBAR); Managed CPE; LAC or LNS; L3VPN; Route reflector

Key Features

- Compact form factor—The Cisco ASR 1000 Series offers up to 10-Gigabit Ethernet throughput in compact 2-rack unit (2RU), 4RU, and 6RU form factors.
- Modularity—Cisco offers a choice of three chasses that support 3, 8, or 12 SPAs, a selection of forwarding processors providing up to 10-Gigabit Ethernet throughput, and a growing range of LAN and WAN interfaces. Carrier cards, SPAs, route processors, and forwarding processors are all modular and fully upgradable as future generations are released (with the exception of carrier card and route processor on the Cisco ASR 1002, which are integrated).
- Integrated services—Services can be enabled either at the time of ordering or after the router is already deployed. Encryption, Cisco IOS Software redundancy, firewall, SBC, and Flexible Packet Inspection (FPI, including NBAR and FPM) can all be enabled by purchasing feature licenses with no need for hardware upgrades.
- High availability—Cisco offers in-box engine redundancy on the Cisco ASR 1006 and Cisco IOS Software redundancy on the Cisco ASR 1002 and 1004 models.
- Common SPAs—SPAs are shared with the Cisco Catalyst 6500 and Catalyst 7600 Series, simplifying sparing and protecting customer investment in interfaces.

Specifications

Feature	ASR1002	ASR1004	ASR1006
Fixed Ports	4 GEs	0	0
Carrier Card Slots	integrated	2	3
Shared Port Adapter Slots	3	8	12
Forwarding Rate	Up to 15 Mpps	Up to 15 Mpps	Up to 15 Mpps
System DRAM Memory	4 GB (default); 4 GB (max.)	2 GB (default); 4 GB (max.)	2 GB (default); 4 GB (max.)
Minimum Cisco IOS Release	IOS XE 2.1.0	IOS XE 2.1.0	IOS XE 2.1.0
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default
Chassis Height	2 RU	4 RU	6 RU

Rack Mountable	Yes	Yes	Yes
Dimensions (H x W x D)	3.5 x 17.2 x 22 in.	7.0 x 17.2 x 22 in.	10.5 x 17.2 x 22 in.
Airflow	Front-to-back	Front-to-back	Front-to-back

Selected Part Numbers and Ordering Information

Cisco ASR 1000 Chassis	
ASR1002	Cisco ASR1002 chassis,4 built-in GE, Dual P/S,4GB DRAM
ASR1002=	Cisco ASR1002 chassis,4 built-in GE, 4GB DRAM, spare
ASR1004	Cisco ASR1004 chassis, Dual P/S
ASR1004=	Cisco ASR1004 chassis, spare
ASR1006	Cisco ASR1006 chassis, Dual P/S
ASR1006=	Cisco ASR1006 chassis, spare
Cisco ASR 1000 Embedded Services Processor	
ASR1000-ESP5	ASR1K Embedded Services Processor,5Gbps,ASR1002 only
ASR1000-ESP5=	ASR1K Embedded Services Processor,5Gbps,ASR1002 only, spare
ASR1000-ESP10	Cisco ASR1000 Embedded Services Processor, 10Gbps
ASR1000-ESP10=	Cisco ASR1000 Embedded Services Processor, 10Gbps, Spare
Cisco ASR 1000 Route Processor	
ASR1000-RP1	Cisco ASR1000 Route Processor 1, 2GB DRAM
ASR1000-RP1=	Cisco ASR1000 Route Processor 1, 2GB DRAM, Spare
Cisco ASR 1000 SPA Interface Processor	
ASR1000-SIP10	Cisco ASR1000 SPA Interface Processor 10
ASR1000-SIP10=	Cisco ASR1000 SPA Interface Processor 10,Spare
Cisco ASR 1000 RP Memory: RP1	
M-ASR1K-RP1-2GB	Cisco ASR1000 RP1 2GB DRAM
M-ASR1K-RP1-2GB=	Cisco ASR1000 RP1 2GB DRAM, spare
M-ASR1K-RP1-4GB	Cisco ASR1000 RP1 4GB DRAM
M-ASR1K-RP1-4GB=	Cisco ASR1000 RP1 4GB DRAM, spare
Cisco ASR 1000 USB Memory Options	
MEMUSB-1024FT	1GB USB Flash Token for Cisco ASR 1000 Series
MEMUSB-1024FT=	1GB USB Flash Token for Cisco ASR 1000 Series, spare
Cisco ASR 1000 Licenses	
FLASR1-IOSRED-RTU=	SW Redundancy Right-To-Use Feat Lic for ASR1000 Series, spare
FLASR1-IOSRED-RTU	SW Redundancy Right-To-Use Feat Lic for ASR1000 Series
FLASR1-IPSEC-RTU=	Encryption Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-IPSEC-RTU	Encryption Right-To-Use Feature Lic for ASR1000 Series
FLASR1-FW-RTU=	Firewall Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-FW-RTU	Firewall Right-To-Use Feature Lic for ASR1000 Series
FLASR1-FPI-RTU=	Flex. Pack Insp. Right-To-Use Feat Lic,ASR1000 Series, spare
FLASR1-FPI-RTU	Flex. Pack Insp. Right-To-Use Feat Lic,ASR1000 Series
FLASR1-BB-RTU=	Broadband Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-BB-RTU	Broadband Right-To-Use Feature Lic for ASR1000 Series
FLASR1-BB-4K=	Broadband 4K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-4K	Broadband 4K Sessions Feature Lic for ASR1000 Series
FLASR1-BB-16K=	Broadband 16K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-16K	Broadband 16K Sessions Feature Lic for ASR1000 Series
FLASR1-BB-32K=	Broadband 32K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-BB-32K	Broadband 32K Sessions Feature Lic for ASR1000 Series
FLASR1-SBC-RTU=	SBC Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-SBC-RTU	SBC Right-To-Use Feature Lic for ASR1000 Series
FLASR1-SBC-H248=	H248 Right-To-Use Feature Lic for ASR1000 Series, spare
FLASR1-SBC-H248	H248 Right-To-Use Feature Lic for ASR1000 Series
FLASR1-SBC-4K=	SBC 4K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-SBC-4K	SBC 4K Sessions Feature Lic for ASR1000 Series
FLASR1-SBC-16K=	SBC 16K Sessions Feature Lic for ASR1000 Series, spare
FLASR1-SBC-16K	SBC 16K Sessions Feature Lic for ASR1000 Series
SPA Support	
Cisco ASR 1000 Shared Port Adapters	
SPA-8XCHT1/E1	Cisco 8-Port Channelized T1/E1 Shared Port Adapter
SPA-4XCT3/DS0	Cisco 4-Port Channelized T3 (DS0) Shared Port Adapter
SPA-2XCT3/DS0	Cisco 2-Port Channelized T3 (DS0) Shared Port Adapter
SPA-2XT3/E3	Cisco 2-Port Clear Channel T3/E3 Shared Port Adapter
SPA-4XT3/E3	Cisco 4-Port Clear Channel T3/E3 Shared Port Adapter

SPA-4XT-SERIAL	Cisco 4-Port Serial Interface Shared Port Adapter
SPA-4X1FE-TX-V2	Cisco 4-Port 10BASE-T/100BASE Fast Ethernet Shared Port Adapter, V-2
SPA-8X1FE-TX-V2	Cisco 8-Port 10BASE-T/100BASE Fast Ethernet Shared Port Adapter, V-2
SPA-2X1GE-V2	Cisco 2-Port Gigabit Ethernet Shared Port Adapter, Version 2
SPA-5X1GE-V2	Cisco 5-Port Gigabit Ethernet Shared Port Adapter, Version 2
SPA-8X1GE-V2	Cisco 8-Port Gigabit Ethernet Shared Port Adapter, Version 2
SPA-10X1GE-V2	Cisco 10-Port Gigabit Ethernet Shared Port Adapter, Version 2
SPA-1X10GE-L-V2	Cisco 1-Port 10 Gigabit Ethernet Shared Port Adapter, Version 2
SPA-2XOC3-POS	Cisco 2-Port OC3c/STM-1c POS Shared Port Adapter
SPA-4XOC3-POS	Cisco 4-Port OC3c/STM-1c POS Shared Port Adapter
SPA-1XOC12-POS	Cisco 1-Port OC12c/STM-4c POS Shared Port Adapter

For More Information

For more information about the Cisco ASR 1000 Series, visit: http://www.cisco.com/go/asr1000.

Cisco 7000 Series Port Adapter Compatibility Matrix

Port Adapter	7201	7204VXR	7206VXR	7301	7304 Carrier Card	7600
ATM Port Adapters						
PA-A3-8T1IMA 8-port ATM inverse Mux T1 port adapter	X	X	X	X	X	X
PA-A3-8E1IMA: 8-port ATM inverse Mux E1 (120 ohm) port adapter	X	X	X	X	X	X
PA-A6-OC3MM/SMI/SML: 1-port ATM OC-3 multimode, intermediate and long range port adapter	X	X	X	X	X[1]	X
PA-A6-T3 or E3: 1-port ATM DS3 (E3) port adapter	X	X	X	X	X[1]	X
Ethernet Port Adapters						
PA-2FE-TX/FX: 2-port Fast Ethernet 100Base-TX/FX port adapter	X	X	X	X	X	X
PA-4E: 4-port Ethernet 10BASE-T port adapter		X	X	X	X	
PA-8E: 8-port Ethernet 10BASE-T port adapter	X	X	X	X	X	
PA-GE: Gigabit Ethernet port adapter	X	X	X		X	
Serial Port Adapters						
PA-4E1G/75: 4-port E1 G.703 serial port adapter (120 ohm/balanced)	X	X	X	X	X	
PA-4E1G/120: 4-port E1 G.703 serial port adapter (120 ohm/balanced)	X	X	X	X	X	X
PA-4T+: 4-port serial port adapter, enhanced	X	X	X	X	X	X[2]
PA-8T-XXX: 8-port serial, 232, V.35, X.21 port adapter		X	X	X	X	X[2]
High-speed Serial Port Adapters						
PA-H: 1-port HSSI port adapter	X	X	X	X	X	X[2]
PA-2H: 2-port HSSI port adapter	X	X	X	X	X	X[2]
PA-E3: 1-port E3 serial port adapter with E3 DSU	X	X	X	X	X	X[2]
PA-2E3: 2-port E3 serial port adapter with E3 DSUs	X	X	X	X	X	X[2]
PA-T3+: 1-port T3 serial port adapter, enhanced	X	X	X	X	X	X[2]
PA-2T3+: 2-port T3 serial port adapter, enhanced		X	X	X	X	X[2]
PA-T3/E3-EC: 1-Port Clear-Channel T3 or E3 Enhanced Capability	X	X	X	X	X	X[2]
PA-2T3/E3-EC: 2-Port Clear-Channel T3 or E3 Enhanced Capability	X	X	X	X	X	X[2]
Multichannel Serial Port Adapters						
PA-8B-S/T: 8-port BRI port adapter, S/T interface		X	X	X		

PA-MC-2T(1): 2-port multichannel T1 port adapter with integrated CSU/DSUs	X	X	X	X	X	
PA-MC-4T(1): 4-port multichannel T1 port adapter with integrated CSU/DSUs	X	X	X	X	X	X
PA-MC-8TE1+: 8-port multichannel T1/E1 8PRI port adapter	X	X	X	X	X	X
PA-MC-2E1/120: 2-port multichannel E1 port adapter with G.703 120 ohm interface	X	X	X	X	X	X
PA-MC-E3: 1-port multichannel E3 port adapter	X	X	X	X	X	X
PA-MC-T3-E3: 1-port multichannel T3 port adapter enhanced capability	X	X	X	X	X	X
PA-MC-2T3-E3: 2-port multichannel T3 port adapter enhanced capability	X	X	X	X	X	X
PA-MC-STM-1MM: 1-port multichannel STM-1 multimode port adapter	X	X	X	X	X	X
PA-MC-STM-1SMI: 1-port multichannel STM-1 single mode port adapter	X	X	X	X	X	X
PA-MCX-2TE(1): 2-port MIX-enabled multichannel T1/E1 with CSU/DSU	X	X	X			
PA-MCX-4TE(1): 4-port MIX-enabled multichannel T1/E1 with CSU/DSU	X	X	X			
PA-MCX-8TE(1): 8-port MIX-enabled multichannel T1/E1 with CSU/DSU	X	X	X			
SONET Port Adapters						
PA-POS-2OC3: 2-port OC-3/STM1 POS port adapter	X	X	X	X	X	X
PA-POS-1OC3: 1 Port Packet/SONET OC3/STM1 port adapter	X	X	X	X	X	X
Other Port Adapters and Service Adapters						
PA-4C-E: 1-port-enhanced ESCON channel port adapter		X	X			
C7200-VSA: VPN Services Adapter for the Cisco 7200		X	X	X		
SA-VAM2+: VPN acceleration module 2+	X[3]	X	X			
PA-VXC-2TE1+: 2-port T1/E1 high-capacity enhanced-voice PA		X	X	X		
PA-VXB-2TE1+: 2-port T1/E1 moderate-capacity enhanced-voice PA		X	X	X		
PA-VXA-1TE1-24+: 1-port T1/E1 digital voice port adapter with 24 channels		X	X			
PA-VXA-1TE1-30+: 1-port T1/E1 digital voice port adapter with 30 channels		X	X			
PA-4R-DTR: 4-port dedicated Token Ring, 4/16 Mbps, HDX/FDX		X	X			

1. Support in 12.2(31)SB
2. Native
3. (12.4 (6th release)T

Cisco 7200 Series Routers



The Cisco 7200 Series Routers (Cisco 7201, Cisco 7204VXR, and Cisco 7206VXR) deliver an exceptional price-to-performance ratio, versatility, and feature richness in a compact form factor. The Cisco 7200 is an optimized integrated services aggregation OC-3/Gigabit Ethernet edge router that is ideal as a WAN aggregator for the service provider (small point of presence [POP]) or enterprise edge, as an enterprise WAN gateway, as high-end managed customer premises equipment (CPE), for IBM data center connectivity, or as a small core router. With the hardware-supported IP Security (IPSec) encryption module as well as robust firewall and Virtual Route Forwarding (VRF)-aware IPSec with Network Address Translation (NAT) support, the Cisco 7200 Series is ideal for integrated security services. The Cisco 7200 also supports gatekeeper and IP-to-IP gateway functions. Modularity combined with a low initial price point helps guarantee both investment protection and maximum return on investment, allowing customers to upgrade or redeploy their Cisco 7200 Series Router as their network needs change.

Ideal for Companies that Need These Features

- Cisco 7201—1-slot chassis; Built-in Cisco uBR7200 Series NPE-G2 Network Processing Engine with up to 2 Mpps; WAN services aggregation (for example, Multiprotocol Label Switching [MPLS] provider edge traffic segmentation); Integrated edge services (for example, integrated security); IP-to-IP gateway—Highest capacity of call support in Cisco router portfolio; Multiservice Interchange (MIX)-enabled bus for data, voice, and video applications
- Cisco 7204VXR Router—4-slot chassis; Modular processor—400 kpps, 1 Mpps, or 2 Mpps (Cisco uBR7200 Series NPE-400, Cisco 7304 NPE-G100, and Cisco 7304 NPE-G200 Network Processing Engines) ; 1.8-Gbps backplane (with Cisco 7304 NPE); WAN services aggregation (for example, MPLS provider edge traffic segmentation); Integrated edge services (for example, integrated security); IP-to-IP gateway—Highest capacity of call support in Cisco router portfolio; MIX-enabled bus for data, voice, and video applications
- Cisco 7206VXR Router—6-slot chassis; Modular processor—400 kpps, 1 Mpps, or 2 Mpps (Cisco uBR7200 Series NPE-400, Cisco 7304 NPE-G100, and Cisco 7304 NPE-G200 Network Processing Engines); 1.8-Gbps backplane (with Cisco 7304 NPE-G200); WAN services aggregation (for example, MPLS provider edge traffic segmentation); IP-to-IP gateway—Highest capacity of call support in Cisco router portfolio; MIX-enabled bus for data, voice, and video applications

Key Features

- Compact form factor—The router offers up to six port adapters in a fully modular 3RU form factor; seven port adapters with a port adapter jacket card; choice of a 1-slot, and a 1RU chassis with built-in Cisco 7304 NPE-G200.
- Modularity—The router has choices of 1-, 4-, and 6-slot chassis, a selection of processors providing up to 2 Mpps, an extensive range of LAN and WAN interfaces with up to 48 ports per chassis, and single or dual power supplies. Chassis are expandable to an additional slot by using an I/O slot as a port or service adapter slot by using the port adapter jacket card.
- Exceptional value—The router offers superior price-to-performance ratio supporting high-speed media and high-density configurations with up to 2 million packets per second processing at a competitive price point.
- Feature richness—The router supports Cisco IOS Software and enhancements for high-performance network services. It offers industry-leading network services, including MPLS; route reflectors; broadband aggregation; the Cisco IOS Intelligent Services Gateway; QoS; service management; IBM data center; storage-area-network application; security; voice, video, and data support; and gatekeeper and IP-to-IP gateway (session border controller) support.
- Connectivity and flexibility—The router provides high port density and an extensive range of LAN and WAN media.
- Common port adapters—Port adapters are shared with the Cisco 7300 and 7600 Series (with the Cisco FlexWAN Module), simplifying sparing and protecting customer investment in interfaces.

Specifications

Feature	Cisco 7201	Cisco 7204VXR	Cisco 7206VXR
Fixed Ports	4 GEs	0	0
Expansion Slots	1	4 (5 with port adapter jacket card[1] utilizing the I/O slot)	6 (7 with port adapter jacket card utilizing the I/O slot)
WAN Port Adapters	DS0 to OC-3	DS0 to OC-3	Same as 7204VXR
Forwarding Rate	Up to 2 Mpps	Up to 2 Mpps	Up to 2 Mpps
Backplane Capacity	N/A	1.8 Gbps (with NPE-G2)	Same as 7204VXR
Flash (Compact) Memory	256 MB (default and max.)	For NPE-G2: 256 MB (default and max.) For NPE-G1: 64 MB (expandable to 256 MB)	Same as 7204VXR
Flash (PCMCIA) Memory (I/O Controller Card required for NPE-400)	N/A	64 MB (expandable to 128 MB)	Same as 7204VXR
System DRAM Memory	1 GB (default); 2 GB (max.)	NPE-G2: 1 GB (default); 2 GB (max.) NPE-G1: 512 MB (default); 1 GB (max.) NPE-400: 256 MB (default); 512 MB (max.)	Same as 7204VXR
Minimum Cisco IOS Release	• Cisco 7201: 12.4(4)XD7; 12.2(31)SB4 • Cisco 7204VXR: NPE-G2: 12.4(4)XD (based on 2nd release of 12.4T), fifth release of 12.4T (and later), fourth release of 12.2SB (and later), first release of 12.5 mainline (and later): NPE-G1: 12.2(4)BW, 12.2(15)B, 12.2(14)S, 12.2(14)SU, 12.2(15)T, 12.1(14)E, 12.3(1), 12.3(2)T, 12.0(28)S, 12.3(1a)B (and later): NPE-400: 12.0(14)S, 12.1(3)E, 12.1(5)T, 12.2(1)T, 12.2(1) (and later) Cisco 7206VXR: Same as 7204VXR		

Internal Power Supply	Dual AC or Dual DC – By default	AC or DC, dual option	Same as 7204VXR
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, for AC or DC	Same as 7204VXR
Chassis Height	1 RU	3 RU	Same as 7204VXR
Rack Mountable	Yes	Yes, up to 16 per rack	Same as 7204VXR
Dimensions (H x W x D)	1.75 x 19 x 16.9 in.	5.25 x 16.8 x 17 in.	Same as 7204VXR

1. Jacket Card par t number: C7200-JC-PA

Selected Part Numbers and Ordering Information

Cisco 7200 Series Chassis	
CISCO7201	CISCO 7201 router, with built-in dual power supplies, NPE-G2, and IP Software
CISCO7204VXR	Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/IP Software
CISCO7206VXR	Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/IP Software
Cisco 7200 Series Processors	
NPE-G2=	Cisco 7200 Network Processing Engine NPE-G2 including 1 GB default DRAM and 256 MB default flash memory, Spare
NPE-G1=	Cisco 7200 Network Processing Engine NPE-G1 including 512 MB default DRAM and 64 MB default flash memory, Spare
NPE-400=	Cisco 7200 Network Processing Engine NPE-400 including 256 MB default DRAM and 64 MB default flash memory, Spare
Cisco 7200 Series Input/Output Controller	
C7200-I/O-2FE/E=	Cisco 7200 Input/Output Controller with Dual 10/100 Ethernet, Spare
C7200-I/O-GE+E=	Cisco 7200 Input/Output Controller with GE and Ethernet, Spare
C7200-I/O=	Cisco 7200 Input/Output Controller, Spare
Cisco 7201 Memory	
MEM-7201-1GB=	Cisco 7201 Series 1GB Memory Spare
MEM-7201-2GB=	Cisco 7201 Series 2GB Memory Spare
MEM-7201-FLD256=	Cisco 7201 Compact Flash Disk, 256 MB Spare
Cisco 7200 Memory: NPE-G2	
MEM-NPE-G2-2GB=	2 GB memory module for the Cisco 7200 Network Processing Engine NPE-G2, Spare
MEM-NPE-G2-FLD256=	256 MB Compact Flash for the Cisco 7200 Network Processing Engine NPE-G2, Spare
Cisco 7200 Processor Memory: NPE-G1	
MEM-NPE-G1-512MB=	Two 256MB memory modules (512MB total) for the Cisco 7200 Network Processing Engine NPE-G1, Spare
MEM-NPE-G1-1GB=	Two 512MB memory modules (1GB total) for the Cisco 7200 Network Processing Engine NPE-G1, Spare
MEM-NPE-G1-FLD64=	64MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1, Spare
MEM-NPE-G1-FLD128=	128MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1, Spare
MEM-NPE-G1-FLD256=	256MB Compact Flash Disk for the Cisco 7200 Network Processing Engine NPE-G1, Spare
Cisco 7200 Memory: NPE-400	
MEM-NPE-400-256MB=	256MB Memory for NPE-400 in 7200 Series, Spare
MEM-NPE-400-512MB=	512MB Memory for NPE-400 in 7200 Series, Spare
Cisco 7200 NPE Bundles	
7206VXR/NPE-G2	7206VXR with NPE-G2 includes 3GigE/FE/E Ports and IP SW
7206VXR/NPE-G1	7206VXR with NPE-G1 includes 3GigE/FE/E Ports and IP SW
C7206VXR/400/GE	7206VXR with NPE-400 and GE+E I/O controller
C7206VXR/400/2FE	7206VXR with NPE-400 and I/O Controller with 2 FE/E Ports
Cisco 7200 MPLS/IPv6 Bundles	
7206-IPV6/ADSVC/K9	Cisco 7206VXR IPv6/Adv. Ent. Services with NPE-G2
Cisco 7200 Security Bundles	
7206VXRG2/VSAVPNK9	7206VXR chassis, NPE-G2, C7200-VSA Security Module, 256 MB Flash, 1GB DRAM, IOS ADVANCED SECURITY, SDM
7206VXRG2/2+VPNK9	7206VXR chassis, NPE-G2, SA-VAM2+ Security Module, Port Adapter Jacket Card, 256 MB Flash, 1 GB DRAM, IOS ADVANCED SECURITY, SDM
7206VXRG1/2+VPNK9	7206VXR, NPE-G1, SA-VAM2+, AC pwr, 512 sys mem, SDM
7206VXR400/2+VPNK9	7206VXR, NPE-400, SA-VAM2+, AC pwr, 512 sys mem, SDM
Cisco 7200 Voice Bundles	
C7206VXR/VOICE/400	7206VXR w/ NPE-400, Voice PA (PA-VXC-2TE1+), I/O contlr w/ 2FE
Cisco 7200 Broadband Bundles	
CISCO7206-BB	Cisco 7206 Broadband Bundle NPE-G1 includes 3GigE/FE/E Ports
Cisco 7200 CPE Bundle	
7204VXR/CPE	7204VXR w/ NPE-225, 2 FE I/O, choice of specified WAN PA

Cisco 7200 Channel Bundles	
CISCO7204VXR-CH	Cisco 7204VXR, 4-slot chassis, 1 AC Supply w/ IP Software
CISCO7206VXR-CH	Cisco 7206VXR, 6-slot chassis, 1 AC Supply w/ IP Software
Cisco 7200 Series Accessories	
RCKMNT-7201=	Rack Mount kit for Cisco 7201 Spare
ACS-7200-RMK=	Cisco 7200 Rackmount Kit and Cable Management Bracket
IO-CONTROLR-BLANK=	7200 IO Controller Blank for use with NPE-G1 or NPE-G2
MAS-7200-CBLMGMT =	Cisco NPE-G1/NPE-G2 Cable Management Bracket
MAS-7200PSCOVER=	Cisco 7200 Redundant Power Supply Cover
MAS-72KBLANK=	Cisco 7200 Series Blank Card Carrier
MAS-72KSLOTDIV=	Cisco 7200 Series Port Adapter Divider (Spare)
PKG-7200=	Cisco 7200 Spare System Packaging Material
C7200-PKG-JC=	7200VXR Jacket Card Packaging, Spare

For More Information

For more information about the Cisco 7200 Series, visit: http://www.cisco.com/go/7200.

Cisco 7300 Series Routers



The Cisco 7300 Series Routers are optimized for flexible, high-performance IP/Multiprotocol Label Switching (MPLS) services at the network, WAN, and broadband edge, where service providers and enterprises link together. The Cisco 7304 is ideally applied as a high-end customer premises equipment (CPE) or as an Internet gateway router. Architected for network high availability and multiprotocol support, it supports the broad set of existing Cisco 7000 Series port adapters with the Cisco 7304 Port Adapter Carrier Card while also supporting the new shared port adapters (SPAs) with the Cisco 7304 Multiservice Carrier Card (MSC). The Cisco 7301 is targeted at principal application areas within a service provider network in a compact, single-rack form factor coupled with a broad set of interfaces and Cisco IOS Software features. It packs high performance of up to 1 Mpps in a space- and power-efficient form factor that includes a single Cisco 7000 Series port adapter slot and 3 onboard Gigabit Ethernet (copper or optical) or Fast Ethernet ports.

Ideal for Companies that Need These Features

- Cisco 7301—Compact, power-efficient 1RU form factor; Three times the performance increase over the Cisco 7401; Single Cisco 7000 Series port adapter slot
- Cisco 7304—Highly modular price- and performance-optimized platform, rich in IP services; High-performance connectivity—DS-1 through OC48/STM16 with 3.5-Mpps performance; Built-in Gigabit Ethernet connectivity; Support for SPAs; Multiprotocol routing—IP, Internetwork Packet Exchange (IPX), AppleTalk, and DLSw; Compact size, high availability and optimal cooling

Key Features

- Cisco 7301—This router offers up to 1 Mpps processing performance; Pluggable Gigabit Ethernet optics (Small Form-Factor Pluggables [SFPs]); 3 fixed 10-/100-/1000-Mbps ports (RJ-45 or SFP optics) directly on the processor; Full Cisco IOS Software feature support; Up to 1 GB of available DRAM; up to 256 MB of removable Compact Flash memory; Front-to-back airflow and single-sided management
- Cisco 7304—This router has a compact modular form factor with 4RU and 4 port adapter slots per chassis; Ideal for broadband aggregation, IPv6 gateway, managed services, switching at the customer edge (Multiprotocol Label Switching-customer edge [MPLS-CE]), cost-effective route reflector, enterprise network, secure Internet gateway, large-branch-office router, and network-appliance router application areas within service provider networks; Comes with a choice of two route processors: Cisco 7304 NSE-150 Network Services Engine and Cisco 7300 NPE-G100 Network Processing Engine; the Cisco 7304 NSE-150 offers Cisco Parallel Express Forwarding-based performance; Provides hardware-accelerated services such as Cisco Parallel Express Forwarding, NetFlow v8, and Turbo Access Control List (ACL); Offers up to 3.5-Mpps performance for Cisco Parallel Express Forwarding-accelerated services with the Cisco 7304 NSE-150 Network Processing Engine; Provides four onboard Gigabit Ethernet interfaces per Cisco 7304 NSE-150 and three Gigabit Ethernet interfaces per Cisco 7300 NPE-G100; offers up to 1-Mpps performance; Provides system redundancy—Optional dual processors and dual AC or DC power supplies increase network availability; Cisco 7304 NSE-150 engine offers unmatched price-to-performance ratio—Cisco Parallel Express Forwarding technology delivers hardware-accelerated network services with up to 3.5-Mpps forwarding rate; improved performance and scalability with 800-MHz microprocessor and 2-Gb main memory; and high platform port density with up to 4 onboard Gigabit Ethernet ports.

Specifications

Feature	Cisco 7301	Cisco 7304
Fixed Ports	Three Gigabit Ethernet ports	NPE-G100: 3 Gigabit Ethernet Ports NSE-150: 4 Gigabit Ethernet Ports
Expansion Slots	1	4
WAN Interface Range	DS-1 to OC-3	DS-1 to OC-48
Forwarding Rate	Up to 1 Mpps	NSE-150: Up to 3.5Mpps NPE-G100: Up to 1 Mpps
Backplane Capacity	1.2 Gbps	16 Gbps
Flash PCMCIA Memory	64 MB (expandable to 256 MB)	NPE-G100: 256 MB NSE-150: 256MB
System DRAM Memory	256 MB (expandable to 1 GB)	NPE-G100: 1 GB NSE-150: 2 GB
Min Cisco IOS Release	12.2(11)YZ	NPE-G100: 12.2(20)S NSE-150: 12.2(31)SB2
Internal Power Supply	AC or DC	Same as 7301
RPS Support	Yes, for AC or DC	Same as 7301
Chassis Height	1 RU	4 RU
Rack Mountable	Yes, up to 40 per rack	Yes, up to 11 per rack
Dimensions (H x W x D)	1.73 x 17.3 x 13.87 in. (4.39 x 43.94 x 35.23 cm.)	7 x 17.2 x 20.5 in. (17.78 x 43.69 x 52.07 cm.)

Selected Part Numbers and Ordering Information

Cisco 7304 System	
CISCO7304=	Cisco 7300, 4-slot chassis
CISCO7304-G100	4-slot chassis, NPE-G100, 1 Power Supply
CISCO7304-G100-CH	Channel bundle:chassis,G100,PWR-AC,MEM-1GB,CFM-256,IOS,FAN
CISCO7304-NSE-150	4-slot chassis, NSE-150, 1 Power Supply, 2GB Memory
CISCO7304CH-NSE150	Channel bundle: chassis, NSE-150,PWR-AC, IOS IP PLUS,FAN
Cisco 7304 Processors	
7304-NPE-G100=	Cisco 7304 NPE-G100 w/1GB SDRAM, 256MB Flash, (3)GE/FE/E
7304-NPE-G100/2	Redundant 7304 NPE-G100 w/1GB SDRAM, 256MB Flash, (3)GE/FE/E
7300-NSE-150/2	Redundant Cisco 7304 NSE-150 w/2GB SDRAM, 256MB Flsh, (4)GE
7300-NSE-150	Cisco 7304 NSE-150 w/2GB SDRAM, 256MB Flsh, (4)GE
7300-NSE-150=	Cisco 7304 NSE-150 w/2GB SDRAM, 256MB Flsh, (4)GE
Cisco 7304 Power Supplies	
7300-PWR-DC=	Cisco 7304 DC Power Supply Spare
7300-PWR-AC=	Cisco 7304 AC Power Supply Spare
7300-PWR/2-DC	Cisco 7304 Redundant DC Power Supply Option
7300-PWR/2-AC	Cisco 7304 Redundant AC Power Supply Option
Cisco 7304 Memory Options	
7300-MEM-512=	512MB SDRAM for 7304 NSE-100, spare
7304-MEM-G100-1GB=	1GB SDRAM for NPE-G100, spare
Cisco 7304 Series Compact Flash Options	
7304-I/O-CFM-256M=	Cisco 7304 Compact Flash Memory, 256MB
Cisco 7304 Line Cards	
7300-1OC48POS-SMI=	1-port OC48 POS line card for Cisco 7304 w/ Single-mode IR
7300-2OC3ATM-MM=	2-port OC3 ATM line card for Cisco 7304 w/ Multi-mode
7300-2OC3ATM-SMI=	2-port OC3 ATM line card for Cisco 7304 w/ Single-mode IR
SPA-4FE-7304=	4-port 10/100 Fast Ethernet Shared Port Adapter
SPA-2GE-7304=	2-port Half-Height Gigabit Ethernet Shared Port Adapter
7300-1OC12ATM=	1xOC12 ATM Line Card
Cisco 7304 Carrier Cards	
7300-CC-PA=	7304 Carrier Card for 7200 Series Port Adapters
7304-MSC-100=	Cisco 7304 SPA Modular Services Carrier Card
ATTEN-KIT-PA=	Port Adapter Attenuator Kit, 75 ohm, 3 to 20db
Cisco 7304 Accessories	
7300-HALFSLOTBLNK=	Cisco 7304 Half-slot Blank card, spare
7300-4RU/RCKBRKT=	Cisco 7304 chassis Rackmount Bracket Spare
7300-CNTR-SPTUM=	Cisco 7304 Center Septum Spare
Cisco 7304 Cables	
CAB-SC=	MT-RJ to SC Duplex Single Mode Converter Cable
Cisco 7301 System	
CISCO7301=	Cisco 7301 chassis, 256MB memory, A/C power,64MB Flash

CISCO7301-BB	Cisco7301,512MB Mem,16K license,64MB Flash, A/C power, IP/IOS
CISCO7301-BB-8K	7301, 256M SDRAM, 8K Sub Broadband Feature License
CISCO7301BB-1G	7301, 1 G Mem,64MB Fl, AC Pwr, IP IOS, up to 16k sub BBA lic
CISCO7301BB-8K-1G	7301,1 G Mem, 64MB Fl, AC Pwr, IP IOS, up to 8k sub BBA lic
CISCO7301/ITP/BUN	ITP Signaling Gateway Bundle
CISCO7301-2AC=	Cisco 7301 chassis with Dual AC Power Supply-Spare
CISCO7301-2DC48=	Cisco 7301 chassis with Dual DC 48 Power Supply Spare
CISCO7301/2+VPNK9	7301, VAM2+, AC pwr, 512 sys mem, SDM
Cisco 7301 Power Supplies	
PWR-7301-AC	Cisco 7301 AC Power Supply Option
PWR-7301/2-AC	Cisco 7301 Dual AC Power Supply Option
PWR-7301/2-DC48	Cisco 7301 Dual DC48 Power Supply Option
Cisco 7301 Memory Options	
MEM-7301-1GB=	1GB memory upgrade for 7301-Spare
MEM-7301-512MB=	512MB memory upgrade for 7301-Spare
MEM-7301-256MB=	256MB memory upgrade for Cisco 7301-Spare
Cisco 7301 Series Compact Flash Options	
MEM-7301-FLD64=	Compact Disk Flash for 7301,64MB option-Spare
MEM-7301-FLD128=	Compact Disk Flash for 7301, 128MB option-Spare
MEM-7301-FLD256=	Compact Disk Flash for 7301, 256MB Option-Spare
Cisco 7301 Accessories	
RCKMNT-7301=	Rack mount kits for 7301

For More Information

For more information about the Cisco 7300 Series, visit: http://www.cisco.com/go/7300.

Cisco 7600 Series Routers



The Cisco 7600 Series Routers combine optical WAN and metropolitan-area network (MAN) networking and high-volume Ethernet aggregation with a focus on the delivery of high-touch services for the IP and Multiprotocol Label Switching (MPLS) edge. These routers combine Layer 2 and Layer 3 networking capabilities with a high-bandwidth, high-performance architecture, including hardware-based forwarding of Multiprotocol Label Switching (MPLS), IPv4, and IPv6. Cisco 7600 Series form factors include the Cisco 7604, 7606, 7609, and 7613 models. Each router can deliver DS-0 to OC-192 WAN and n x 10-Mbps Ethernet to n x 10-Gigabit Ethernet connectivity into service provider edge, MAN, and enterprise networks for a variety of triple-play (data, voice, and video) and aggregation solutions.

Ideal for Companies that Need These Features

- Cisco 7604—Four-slot (horizontal) chassis; 320-Gbps backplane bandwidth[1]; 30-Mpps forwarding rate[1]; and Network Equipment Building Standards (NEBS) compliance
- Cisco 7606—Six-slot (horizontal) chassis; 480-Gbps backplane bandwidth[1]; 30-Mpps forwarding rate[1]; and NEBS compliance
- Cisco 7609—Nine-slot (vertical) chassis; 720-Gbps backplane bandwidth[1]; 30-Mpps forwarding rate[1]; and NEBS compliance
- Cisco 7609-S—Nine-slot (vertical) chassis; 720-Gbps backplane bandwidth[1]; 30-Mpps forwarding rate[1]; and NEBS compliance
- Cisco 7613—Thirteen-slot (horizontal) chassis; 720-Gbps backplane bandwidth[1]; 30-Mpps forwarding rate[1]; and NEBS compliance

Key Features

- Cisco 7600 Series Routers provide up to 30-Mpps central or up to 400-Mpps distributed forwarding with hardware-accelerated IPv4, IPv6, and Multiprotocol Label Switching (MPLS).
- The modular routers are scalable from 32- to 720-Gbps switch fabric.
- These routers represent one of the widest, most complete ranges of WAN interfaces in the industry, with DS-0 to OC-192 connectivity.

1. Bandwidth and forwarding rate numbers assume Sup720 Engine

- Using the Cisco 7600 Series/Catalyst 6500 Series Enhanced FlexWAN Module, Cisco 7000 Series port adapters are shared with the Cisco 7200, 7300, 7400, and 7500 models, simplifying sparing and protecting customer investment in interfaces.
- Cisco 7600 Series Routers support Cisco Catalyst 6500 LAN interfaces, offering n x 10-Mbps Ethernet to 10 Gbps.

Specifications

Feature	Cisco 7604	Cisco 7606	Cisco 7609	Cisco 7613
Fixed Ports	SFP & 10/100/1000 (Sup720)	Same as Cisco 7604	Same as Cisco 7604	Same as Cisco 7604
Expansion Slots	4 (horizontal)	6 (horizontal)	9 (vertical)	13 (horizontal)
WAN Interface Range	DS0 to OC-192	Same as Cisco 7604	Same as Cisco 7604	Same as Cisco 7604
Processor	Supervisor720-3B Supervisor720-3BXL Supervisor 32	Same as Cisco 7604	Same as Cisco7604	Same as Cisco 7604
Forwarding Rate	Up to 30 Mpps	Same as Cisco 7604	Same as Cisco 7604	Same as Cisco 7604
Backplane Capacity	320 Gbps	480 Gbps	720 Gbps	720 Gbps
Flash PCMCIA Memory	up to 512MB	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
System DRAM Memory	512MB on Sup720-3B 1G on Sup720-3BXL	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Internal Power Supply	AC or DC	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
RPS Support	Yes	Same as Cisco 7603	Same as Cisco 7603	Same as Cisco 7603
Chassis Height	5 RU	7 RU	20 RU	18 RU
Rack Mountable	Yes, up to 10 per rack	Yes, up to 6 per rack	Yes, up to 2 per rack	Yes, up to 2 per rack
Dimensions (H x W x D)	7 x 17.37 x 21.75 in.	12.25 x 17.37 x 21.75 in.	36.75 x 17.2 x 20.7 in.	33.3 x 17.2 x 18.1 in.

Selected Part Numbers and Ordering Information

Cisco 7613 Systems	
CISCO7613	Cisco 7613 chassis
CISCO7613/EHA1	Bundle: Cisco Enhanced Home Agent R1 for 7613 (600k Sessions)
CISCO7613=	Spare CISCO7613 chassis, equipped with High-speed FAN2
7613-S323B-8G-P	Cisco 7613 chassis, 13-slot, SUP32-8GE-3B, PS
7613-S323B-8G-R	Cisco 7613 chassis, 13-slot, Redundant SUP32-8GE-3B and PS
7613-S323B-10G-P	Cisco 7613 chassis, 13-slot, SUP32-2X10GE-3B, PS
7613-S323B-10G-R	Cisco7613 chassis,13-slot, Redundant SUP32-2X10GE-3B and PS
7613-SUP720XL-PS	Cisco 7613 13-slot, SUP720-3BXL and PS
7613-2SUP720XL-2PS	Cisco 7613 13-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7613-SUP7203B-PS	Cisco 7613 chassis, 13-slot, SUP7203B, Power Supply
7613-2SUP7203B-2PS	Cisco 7613 chassis, 13-slot, 2 SUP7203B, 2 Power Supply
7613-VPN+-K9	Cisco 7613 IPSec VPN System Bundle
Cisco 7609 Systems	
CISCO7609	Cisco 7609 chassis
CISCO7609/EHA1	Bundle: Cisco Enhanced Home Agent R1 for 7609 (300k Sessions)
7609-DC-BUN	Enhanced 7609, SUP2/MSFC2, 4000W(2.7-4kW)DC P/S,512MB DRAM
7609-DC-BUN-2500W	Enhanced 7609 chassis, SUP2/MSFC2, 2500W DC P/S, 512MB DRAM
7609-DC-BUN-2PS	7609, Sup2, 2 4000W DC P/S
7609-S323B-8G-P	Cisco 7609 chassis, 9-slot, SUP32-8GE-3B, PS
7609-S323B-8G-R	Cisco 7609 chassis, 9-slot, Redundant SUP32-8GE-3B and PS
7609-S323B-10G-P	Cisco 7609 chassis, 9-slot, SUP32-2X10GE-3BB, PS
7609-S323B-10G-R	Cisco 7609 chassis, 9-slot, Redundant SUP32-2X10GE-3B and PS
7609-SUP720XL-PS	Cisco 7609 9-slot, SUP720-3BXL and PS
7609-2SUP720XL-2PS	Cisco 7609 9-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7609-SUP7203B-PS	Cisco 7609 chassis, 9-slot, SUP7203B, Power Supply
7609-2SUP7203B-2PS	Cisco 7609 chassis, 9-slot, 2 SUP7203B, 2 Power Supply
7609-VPN+-K9	Cisco 7609 IPSec VPN System Bundle
Cisco 7606 Systems	
CISCO7606	Cisco 7606 chassis
7606-S323B-8G-P	Cisco 7606 chassis, 6-slot, SUP32-8GE-3B, PS

7606-S323B-8G-R	Cisco 7606 chassis, 6-slot, Redundant SUP32-8GE-3B and PS
7606-S323B-10G-P	Cisco 7606 chassis, 6-slot, SUP32-2X10GE-3B, PS
7606-S323B-10G-R	Cisco 7606 chassis, 6-slot, Redundant SUP32-2X10GE-3B and PS
7606-SUP720XL-PS	Cisco 7606 6-slot, SUP720-3BXL and PS
7606-2SUP720XL-2PS	Cisco 7606 6-slot, Redundant System, 2 SUP720-3BXL and 2 PS
7606-SUP7203B-PS	Cisco 7606 chassis, 6-slot, SUP7203B, Power Supply
7606-2SUP7203B-2PS	Cisco 7606 chassis, 6-slot, 2 SUP7203B, 2 Power Supply
CISCO7606-CHASS	Cisco 7606 chassis
7606-VPN+-K9	Cisco 7606 IPSec VPN System Bundle
Cisco 7604 Systems	
CISCO7604	Cisco 7604 chassis
7604-S323B-8G-P	Cisco 7604 chassis, 4-slot, SUP32-8GE-3B, PS
7604-S323B-8G-R	Cisco 7604 chassis, 4-slot, Redundant SUP32-8GE-3B and PS
7604-S323B-10G-P	Cisco 7604 chassis, 4-slot, SUP32-2X10GE-3B, PS
7604-S323B-10G-R	Cisco 7604 chassis, 4-slot, Redundant SUP32-2X10GE-3B and PS
7604-SUP7203B-PS	Cisco 7604 chassis, 4-slot, SUP720-3B, PS
7604-2SUP7203B-2PS	Cisco 7604 chassis, 4-slot, 2 SUP720-3B, 2 PS
7604-SUP720XL-PS	Cisco 7604 chassis, 4-slot, SUP720-3BXL, PS
7604-2SUP720XL-2PS	Cisco 7604 chassis, 4-slot, 2SUP720-3BXL, 2 PS
7604-VPN+-K9	Cisco 7604 IPSec VPN System Bundle
Cisco 7600 Optical Services Modules (OSMs)	
OSM-1CHOC12/T1-SI=	1-port CHOC-12/CHSTM-4 OSM IR, to DS0 and T1/E1, w/4GE
OSM-12CT3/T1=	12-port Channelized DS-3 to DS-1/DS-0
OSM-1CHOC12/T3-SI=	1-port CHOC-12/CHSTM-4 OSM, to T3/E3, SM-IR, with 4 GE
OSM-2OC12-ATM-MM+=	Enhanced 2-port OC12/STM4 ATM OSM+, MM, with 4 GE
OSM-2OC12-ATM-SI+=	Enhanced 2-port OC12/STM4 ATM OSM+, SI, with 4 GE
OSM-2OC48/1DPT-SS=	2-port OC-48/STM-16 POS/DPT OSM, SM-SR, with 4 GE
OSM-2OC48/1DPT-SI=	2-port OC-48/STM-16 POS/DPT OSM, SM-IR, with 4 GE
OSM-2OC48/1DPT-SL=	2-port OC-48/STM-16 POS/DPT OSM, SM-LR, with 4 GE
OSM-1OC48-POS-SS+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-SR, w/ 4 GE
OSM-1OC48-POS-SI+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-IR, w/ 4 GE
OSM-1OC48-POS-SL+=	Enhanced 1-port OC-48/STM-16 SONET/SDH OSM, SM-LR, w/ 4 GE
OSM-2+4GE-WAN+=	Enhanced OSM with 4 GE WAN ports and 2 GE LAN ports, Spare
OSM-2+4GE-5PACK+	5 Pack of OSM-2+4GE-WAN+
Cisco 7600 FlexWAN Module	
WS-X6582-2PA=	Cisco7600/Catalyst6500 Enhanced FlexWAN, Fabric-enabled
Cisco 7600 Ethernet Modules	
WS-X6548V-GE-TX=	Catalyst 6500 48-port fab-enabled 10/100/1000 inline pwr mod
WS-X6548-GE-TX=	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module
WS-X6548-GE-45AF=	Catalyst 6500 PoE 802.3af 10/100/1000 48-port(RJ45)CEF256 card
WS-X6524-100FX-MM=	Catalyst 6500 24-port 100FX, MT-RJ, fabric-enabled
WS-X6408A-GBIC=	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)
WS-X6196-RJ-21=	Catalyst 6500 96-Port 10/100 Upgradable - PoE 802.3af
WS-X6196-21AF=	Catalyst 6500 96-Port, PoE 802.3af 10/100 - RJ-21
WS-X6148X2-RJ-45=	Catalyst 6500 96-Port 10/100 (RJ45), Upgradable to PoE 802.3af
WS-X6148X2-45AF=	Catalyst 6500 PoE 802.3af 10/100, 96-Port (RJ-45) line card
WS-X6148V-GE-TX=	Catalyst 6500 48-port 10/100/1000 Inline Power Module, RJ-45
WS-X6148-RJ45V=	Catalyst 6500 48-port 10/100 Inline Power, RJ-45
WS-X6148-RJ-45=	Catalyst 6500 48-Port 10/100, Upgradable to Voice, RJ-45
WS-X6148-RJ21V=	Catalyst 6500 48-port 10/100 Inline Power Module, RJ-21
WS-X6148-RJ-21=	Catalyst 6500 48-Port 10/100 Upgradable to Voice, RJ-21
WS-X6148-GE-TX=	Catalyst 6500 48-port 10/100/1000 GE Mod., RJ-45
WS-X6148-GE-45AF=	Catalyst 6500 PoE 802.3af 10/100/1000, 48 port (RJ45) line card
WS-X6148-FE-SFP=	Catalyst 6500 48 port 100Base-X module (require SFP)
WS-X6148A-RJ-45=	Catalyst 6500 48-Port 10/100 w/TDR, Upgradable - PoE 802.3af
WS-X6148A-GE-TX=	Catalyst 6500 48-port 10/100/1000 w/Jumbo Frame, RJ-45
WS-X6148A-GE-45AF=	Catalyst 6500 48-Port PoE 802.3af 10/100/1000, w/Jumbo Frame
WS-X6148A-45AF=	Catalyst 6500 48-Port PoE 802.3af 10/100,card w/TDR
WS-X6148-45AF=	Catalyst 6500 PoE 802.3af 10/100, 48 port(RJ45) line card
WS-X6148-21AF=	Catalyst 6500 PoE 802.3af 10/100, 48 port (RJ21) line card
WS-F6K-DFC=	Dist Fwd Card for 65xx, 6816 Modules used with SUP2
WS-X6516-GBIC=	EOS:01/15/06(PB 2970)C6500 16p GigE Mod: Fabric-Enabled, spare
WS-X6516A-GBIC=	Catalyst 6500 16-port GigE Mod, fabric-enabled (Req. GBICs)
WS-X6816-GBIC=	Catalyst 6500 16-port GigE mod, 2 fab I/F, (Req GBICs, DFC/DFC3)
WS-X6548-RJ-21=	Catalyst 6500 48-port 10/100, RJ-21, fabric-enabled

WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar
WS-X6516-GE-TX=	Catalyst 6500 16-port 10/100/1000 GE Module, Cross-Bar, spare
WS-X6748-GE-TX=	Catalyst 6500 48-port 10/100/1000 GE Mod: fabric enabled, RJ-45
WS-X6724-SFP=	Catalyst 6500 24-port GigE Mod: fabric-enabled (Req. SFPs)
WS-X6748-SFP=	Catalyst 6500 48-port CEF720 GigE Module (Req. SFPs)
WS-X6704-10GE=	Catalyst 6500 4-port 10 Gigabit Ethernet Module (req. XENPAKs)
Cisco 7600 Services Modules	
SPA-IPSEC-2G=	Cisco 7600 / Catalyst 6500 IPSec VPN SPA - DES/3DES/AES
SPA-IPSEC-SSC400-1	Cisco 6500/7600 IPSec VPN SPA Bundle 1 (system only)
SPA-IPSEC-SSC400-2	Cisco 6500/7600 IPSec VPN SPA Bundle 2 (system only)
WS-SVC-ADM-1-K9=	Catalyst 6500 Cisco Anomaly Detection Module
WS-SVC-AGM-1-K9=	Catalyst 6500 Cisco Anomaly Guard Module
WS-SVC-CMM	Communication Media Module
WS-SVC-CMM-24FXS=	24-Port FXS Interface Port Adapter
WS-SVC-CMM-6E1=	6-Port E1 Interface Port Adapter
WS-SVC-CMM-6T1=	6-Port T1 Interface Port Adapter
WS-SVC-CMM-ACT=	Adhoc Conferencing and Transcoding PA
WS-SVC-CMM-BLANK=	CMM module Blank Panel Cover
WS-SVC-CMM=	Communication Media Module
WS-SVC-IDS2-BUN-K9	600M IDSM-2 Mod for Cat
WS-SVC-IDS2BUNK9=	IDSM-2 600M mod spare
WS-SVC-IPSEC-1=	IPSec VPN Security Module for 6500 and 7600 series
WS-SVC-FWM-1-K9=	Firewall blade for 6500 and 7600, VFW License Separate
WS-SVC-NAM-1=	Catalyst 6500 Network Analysis Module-1
WS-SVC-NAM-2=	Catalyst 6500 Network Analysis Module
WS-SVC-PSD-1=	Persistent Storage Device
WS-SVC-WLAN-1-K9=	Wireless LAN Services Module, CEF256
WS-X6066-SLB-APC=	Catalyst 6500/7600 Content Switching Module
WS-X6066-SLB-S-K9=	Content Switching Module with SSL daughter card
WS-SVC-SSL-1-K9=	SSL Module for Catalyst 6500
WS-SVC-SSL-CSM-K9=	Catalyst 6500 SSL and CSM Bundle
WS-SVC-MWAM-1=	Multi-Processor WAN Application Module
WS-SVC-CSG-1=	Content Services Gateway
WS-SVC-WEBVPN-K9=	SSL VPN Module for Catalyst 6500
SC-ADM-4.0-K9	Cisco Traffic Anomaly Detector Module MVP-OS R4.0 Software
Wireless LAN Controller Modules	
WS-SVC-WISM-1-K9	Cisco Wireless Services Module (WiSM)
WS-SVC-WISM-1-K9=	Spare Cisco Wireless Services Module (WiSM)
Cisco 7600 Spares and Accessories	
12-MINISMB/BNC-M	12 pair (12Tx/12Rcv) 10ft. Mini-SMB to BNC-Male
12-MINISMB/BNC-F	12 pair (12Tx/12Rcv) 10 ft. Mini-SMB to BNC female
12-MINISMB/OPEN	12 pair (12Tx/12Rcv) 25 meter Mini-SMB to Open-Ended cable
MINISMB/BNC-M=	One Pair (1Tx/1Rcv) 10ft. Mini-SMB to BNC-Male
MINISMB/BNC-F=	One Pair (1Tx/1Rcv) Mini-SMB to BNC-Female Cables
MINISMB/OPEN=	One Pair (1Tx/1Rcv) 25 meter Mini-SMB to Open ended cable
CVPN6500FIPS/KIT=	Kit (instructions, labels, shield) to config 6500 for FIPS
CAB-AC15A-90L-US=	Spare 15A AC Pwr Cord, left-angle (US)
CAB-AC10A-90L-UK=	Spare 10A AC Pwr Cord, left-angle (UK)
CAB-AC10A-90L-IT=	Spare 10A AC Pwr Cord, left-angle (Italy)
CAB-AC10A-90L-EU=	Spare 10A AC Pwr Cord, left-angle (Europe)
CAB-AC16A-CH=	16A AC Power Cord For China
CAB-AC10A-90L-AU=	Spare 10A AC Pwr Cord, left-angle (Australia)
FAN-MOD-6HS=	High Speed Fan Module for CISCO7606 chassis
FAN-MOD-09=	Fan Mod CISCO7609 (2 required) / Catalyst 6509-NEB-A (1 required)
WS-C6K-13SLT-FAN2=	High Speed Fan Tray, Spare, for Catalyst 6513 / Cisco 7613
KIT-MNTG-CG-6=	Mounting Kit and Cable Guide For CISCO7606
KIT-MNTG-CG-4=	Mounting Kit and Cable Guide For CISCO 7604 and 6504-E
KIT-MNTG-09=	Mounting Kit For CISCO7609/Catalyst 6509-NEB-A chassis
PWR-1900-AC/6=	1900W AC Power Supply for C7606
PWR-1900-AC/6/2	Redundant 1900W AC Pwr Sup CISCO7606
PWR-1900-DC/2	Redun.1900W DC Power Supply for Cisco7606
PWR-1900-DC=	1900W DC Power Supply for Cisco7606
WS-CDC-2500W/2	Catalyst 6000 Second 2500W DC Power Supply
WS-CDC-2500W=	Catalyst 6000 2500W DC Power Supply, Spare
WS-CAC-3000W=	Catalyst 6500 3000W AC power supply (spare)

WS-CAC-4000W-INT=	4000W AC Power Supply, International (cable included)
WS-CAC-4000W-US=	4000Watt AC Power Supply for US (cable attached)
WS-CAC-6000W=	Catalyst 6500 6000W AC Power Supply
PEM-DC=	Spare DC Power Entry Module for Cisco7606
PEM-DC/2	Redun. DC Power Entry Module for Cisco7606
PEM-20A-AC=	Power Entry Module CISCO7606
PEM-20A-AC/2	Redun. AC Power Entry Module for CISCO7606 (1900W PS)
7606-PEM-CVR	Cisco 7606 PEM Cover
CAB-GSR16-US=	Cisco 12016 GSR AC Power Supply Cord, US Spare
CAB-GSR16-EU=	Cisco 12016 GSR AC Power Supply Cord, Europe Spare
CAB-AC-C6K-TWLK=	Power Cord, 250Vac 16A, twist lock NEMA L6-20 plug, US
CAB-AC-2500W-EU=	Power Cord, 250Vac 16A, Europe
CAB-AC-2500W-INT=	Power Cord, 250Vac 16A, INTL
CAB-AC-2500W-ISRL=	Power Cord,250VAC,16A,Israel
WS-C6509-NEB-FAN2	Catalyst 6509-NEB High Speed Fan Tray
WS-C6509-NEB-RACK=	Catalyst C6509-NEB chassis Rack Mount and Cable Org., Spare
WS-C6K-VTT=	Catalyst 6000 VTT Module, Spare
WS-C6K-VTT-E=	Catalyst 6500 E-series VTT Modules
CAB-AC16A-90L-IN=	16A AC right angle pwr cord -International
CLK-7600=	Spare Clock card for Cisco 7603, Cisco 7606 or Cisco 7609 (FRU)
WS-X6K-SLOT-CVR=	Catalyst 6000 Blank Line Card Slot Cover
WS-X6K-SLOT-CVR-E=	Catalyst 6500 Enhanced chassis line card slot cover
CABLETRAY-09=	Cable Tray Assembly for Cisco 7609/Catalyst 6509-NEB-A
1900W-DC	1900 W DC Option for 7606 Bundle
2700W-AC	2700 W AC Power Supply for 7604
2700W-AC/6	2700 W AC Power Supply for 7606
2700W-DC/6	2700 W DC Power Supply for 7606
PWR-2700-AC=	2700W AC power supply for CISCO7606
4000W-AC-INT	4000W AC Power Supply, International (cable attached)
4000W-DC	4000W DC PS for 7609/7613 chassis -Not orderable as spare
PWR-4000-DC=	4000W DC Pwr Supply for Cisco 7609/13 and Catalyst 6509/13
CVR-4000DC-TERM=	Terminal Cover Kit for PWR-4000-DC
FLTRASSM-09=	Filter cage assm Cisco 7609/WS-C6509-NEB-A, no filter inserts
FLTRINSERTS-09=	Set -five (5) replacement Filter inserts for FLTRASSM-09=
INTAKEPNL-09=	Air intake panel (rqd for 7609/6509-NEB-A air filter)
PWR-2700-DC=	2700W DC power supply for CISCO7606
2700W-DC	2700 W DC Power Supply for 7604
3000W-AC	3000W AC Power Supply (select cable)
CVPN7600FIPS/KIT=	Kit (instructions, labels, shield) to config 7600 for FIPS
PWR-2700-AC/4=	2700W AC Power Supply for Cisco 7604/6504-E
PWR-2700-DC/4=	2700W DC Power Supply for Cisco 7604/6504-E
FAN-MOD-4HS=	High-Speed Fan Module for Cisco 7604/6504-E chassis
7600-SIP-200=	Cisco 7600 Series SPA Interface Processor-200
Cisco 7600 Memory Options	
MEM-S2-256MB=	Catalyst 6500 256MB DRAM on the Supervisor (SUP2), Spare
MEM-S2-512MB=	Catalyst 6500 512MB DRAM on the Supervisor(SUP2 or 720)Spare
MEM-S2UMSFC2-512MB	Catalyst 6500 512MB DRAM on the MSFC2 for S2UMSFC2
MEM-MSFC2-512MB=	Catalyst 6500 512MB DRAM on the MSFC2 or SUP720 MSFC3, Spare
MEM-OSM-64M=	64MB ECC Memory for Optical Services Modules
MEM-OSM-128M=	128 MB ECC Memory for Optical Services Modules
MEM-OSM-256M=	256 MB ECC Memory for Optical Services Modules
MEM-OSM-512M=	512 MB ECC Memory for Optical Services Modules
MEM-C6K-WAN-64M	FlexWAN Module Memory for Cisco 7600/Catalyst 6500, 64MB
MEM-C6K-WAN-128M=	FlexWAN Module Memory for Cisco 7600/Catalyst 6500, 128MB, Spare
MEM-DFC-128MB=	Catalyst 6500 128MB DRAM for DFC, Spare
MEM-DFC-256MB=	Catalyst 6500 256MB DRAM for DFC, Spare
MEM-DFC-512MB=	Catalyst 6500 512MB DRAM for DFC, Spare
MEM-C6K-ATA-1-64M=	Catalyst 6500 Sup2, ATA Type1 Flash Mem Card, 64MB Spare
MEM-C6K-FLC16M=	Catalyst 6500 Sup1/Sup1A/Sup2, PCMCIA Flash Mem Card, 16MB Spare
MEM-C6K-FLC24M=	Catalyst 6500 Sup1/Sup1A/Sup2, PCMCIA Flash Mem Card, 24MB Spare
MEM-C6K-CPTFL64M=	Catalyst 6500 Sup720/Sup32 Compact Flash Mem 64MB
MEM-C6K-CPTFL128M=	Catalyst 6500 Sup720/Sup32 Compact Flash Mem 128MB
MEM-C6K-CPTFL256M=	Catalyst 6500 Sup720/Sup32 Compact Flash Mem 256MB
MEM-C6K-CPTFL512M=	Catalyst 6500 Sup720/Sup32 Compact Flash Mem 512MB
MEM-CC-WAN-512M=	512MB memory for Enhanced FlexWAN Module

MEM-CC-WAN-256M=	256 MB Memory Module for Enhanced FlexWAN Module
MEM-SIP-200-512M=	512MB Memory for 7600 SIP-200
MEM-SIP-200-1G	1 GB Memory for 7600 SIP-200
MEM-SIP-200-1G=	1 GB Memory for 7600 SIP-200
MEM-MWAM-512MB	MWAM 512MB Memory Option
MEM-MWAM-1GB	MWAM 1GB Memory Option

For More Information

For more information about the Cisco 7600 Series Routers, visit: http://www.cisco.com/go/7600.

Cisco 10700 Series Routers

The Cisco 10700 Series includes the Cisco 10720 Router, a high-performance Internet router that is a principal building block in the metropolitan IP network. It allows service providers to offer their customers innovative and differentiated IP services at optical speeds.

Ideal for Companies that Need These Features

This product is ideal for customers who already use Dynamic Packet Transport (DPT) technology in their network, most likely with the DPT cards on the Cisco 12000 Router:

- High-performance IP services as part of their business strategy by extending IP further out into the network
- Simple, scalable, reliable features of Dynamic Packet Transport (DPT) technology while maximizing fiber usage
- Metro Ethernet services such as Layer 2 and Layer 3 VPN with Fast Ethernet and Gigabit Ethernet hand-off to the customer and 50-ms restoration over dark fiber using DPT
- IEEE 802.17-standard-compliant Resilient Packet Ring (RPR) technology

Key Features

- Support for IP, Multiprotocol Label Switching (MPLS), and Layer 2 Tunneling Protocol Version 3 (L2TPv3) features at 2 Mpps
- Layer 2 VPN—L2TPv3 and Ethernet over MPLS (EoMPLS); Layer 3 VPN MPLS VPN, and MPLS VPN over IP
- Security—Access control lists (ACLs), Unicast Reverse Path Forwarding (URPF), Control Plane Policing, and Bidirectional Forwarding Detection (BFD)
- Spatial Reuse Protocol (SRP) or 802.17 Resilient Packet Ring (RPR) with <50-ms restoration time
- Multicast support including Protocol Independent Multicast single mode (PIM SM), PIM dense mode (PIM DM), and Multiprotocol Border Gateway Protocol (MBGP)
- Quality of service (QoS)—Modular QoS command-line interface (CLI); 8 queues per port
- Ethernet—MDI-MDI-X support, 10/100 speed autonegotiation, HDX-FDX negotiation, and time delay reflectometry (TDR) for 10/100BASE-TX
- Hot Standby Router Protocol (HSRP) and Multiple HSRP (MHSRP)
- Optical receive power monitoring support on OC-48/STM-16 interfaces and Gigabit Ethernet
- MIBs—Simple Network Management Protocol (SNMP), Spatial Reuse Protocol (SRP), SONET, Cisco Etherlike, and Open Shortest Path First (OSPF)
- Suitable for other applications—Internet data center applications, intra-point of presence (POP) aggregation, cable multisystem operator (MSO) internetworking, and voice-over-IP (VoIP) aggregation

Specifications

Feature	Cisco 10700 Series
Security Features	Including AAA, RADIUS authentication, TACACS+, and encrypted passwords
Management	Cisco IOS CLI; TACACS+ and RADIUS; Configuration and administration features including Telnet and Cisco Discovery Protocol (CDP); Serial (aux) and console ports for local and remote administration; Remote software download via TFTP and RCP; IP over DCC for remote management of the Cisco ONS 15104 OC-48/STM-16 Optical Regenerator, where applicable

Physical Interfaces	Uplink Modules: 2-port single-mode OC-48c/STM16c DPT (SR 2 km (1.2 miles), IR 15 km (9.3 miles), LR1 40km (24 miles) and LR2 80km (50miles) Interface Modules—The Cisco 10720 Internet Router has two dedicated slots for interface modules—modules are not interchangeable or hot swappable: • Upper slot is dedicated for DPT or POS Uplink module equipped with two physical ports of OC-48c/STM16c that provide an aggregate bandwidth of approximately 5 Gbps. The cards are available in two four versions of optics, short reach (SR) and intermediate reach (IR), Long Reach1 (LR1) and Long Reach2 (LR2) with two small form-factor OC-48 ports with LC connectors. • A third option for the upper slot is the CON-AUX module, which is a depopulated uplink card equipped with Console and Auxiliary ports only; this allows the configuration of the 10720 as an "Ethernet Router" allowing the use of one or more of the Ethernet ports in the lower slot for network connectivity • New Uplink module that supports 2XOC48/STM16 RPR/DPT with pluggable optics. This is Cisco's first IEEE 802.17-compliant RPR module. This module can be optionally configured in SRP mode, thus making it backward compatible with existing DPT deployments • Lower slot is dedicated for 24-port Fast Ethernet module—available in TX (100 m reach), FX-MM (2 km reach) or FX-SM (15 km reach). The TX module is equipped with RJ-45 connectors while the FX-SM and FX-MM modules are equipped with MT-RJ connectors. • Also available is a combination 4 Gigabit Ethernet with Small Form Factor Plug-able (SFP) Optics available in SX 550m, LH 10km, ZH 70km and Copper plus an additional 8 Ports of Fast Ethernet 10/100 TX Copper ports.
Dimensions (H x W x D)	3.5 x 17.25 x 18.25 in. (8.9 x 43.81 x 46.35 cm)

Selected Part Numbers and Ordering Information

Cisco 10700 Series	
CISCO10720-AC-A	Cisco 10720 Internet Router with dual AC power supply
CISCO10720-DC-A	Cisco 10720 Internet Router with dual DC Power Supply
10720-FE-TX	24-port 10/100 Ethernet Access ModuleRJ45 connectors
10720-GE-FE-TX-B	4-port 100Mbps SFP GE with 8-ports of 10/100 Ethernet TX-RJ45
SFP-GE-S	GE SFP - Short Reach 550M LC connectors
SFP-GE-L	GE SFP - Intermediate Reach 10KM LC connectors
CWDM-SFP-1470	Longwave 1470 nm laser, single mode - Gray
CWDM-SFP-1490	Longwave 1490 nm laser, single mode - Violet
CWDM-SFP-1510	Longwave 1510 nm laser, single mode - Blue
CWDM-SFP-1530	Longwave 1530 nm laser, single mode - Green
CWDM-SFP-1550	Longwave 1550 nm laser, single mode - Yellow
CWDM-SFP-1570	Longwave 1570 nm laser, single mode - Orange
CWDM-SFP-1590	Longwave 1590 nm laser, single mode - Red
CWDM-SFP-1610	Longwave 1610 nm laser, single mode - Brown
SFP-GE-T	GE SFP - 1000BaseT
10720-MEM-512=	512MB RP Memory
10720-RPR-SFP	OC-48c/STM-16c RPR/SRP Uplink Module supporting SFPs
SFP-OC48-SR	OC-48c/STM-16c Short Reach (2KM) pluggable SFP
SFP-OC48-IR1	OC-48c/STM-16c Intermediate Reach1 (15KM) pluggable SFP
SFP-OC48-LR2	OC-48c/STM-16c Long Reach2 (80KM) pluggable SFP

For More Information

For more information about the Cisco 10720 Router, visit: http://www.cisco.com/go/10700.

Cisco XR 12000 and 12000 Series Routers

The Cisco XR 12000 and 12000 Series Routers compose a portfolio of intelligent routing solutions that scale from 2.5 to n x 10Gpbs capacity per slot, facilitating carrier-class IP/Multiprotocol Label Switching (MPLS) networks and accelerating the evolution to IP next-generation networks.



Key Features

- The Cisco XR 12000 and 12000 Series Routers deliver up to 1.28-Tbps switching capacity with wire-speed feature performance, scalability, and graceful hardware and software upgrade paths.
- These routers offer full forward compatibility for all line cards and the portfolio of shared port adapters (SPAs) and SPA interface processors (SIPs).
- The routers scale to the edge, supporting backbone- or edge-optimized line cards in the same chassis.

- The routers maximize the value of line-rate edge applications with 10-G uplinks.
- IP quality of service (QoS) and congestion-control implementation facilitates real-time services such as voice over IP (VoIP) and video. The distributed architecture and class-of-service features of the routers, such as priority-based congestion control (Weighted Random Early Detection [WRED]) and dedicated Low Latency Queuing (Modified Deficit Round Robin [MDRR]), along with virtual output queuing (Virtual Output Queuing [VOQ]), eliminate head-of-line blocking (HOL) and maintain packet sequence integrity under all conditions.
- Non-service-affecting online insertion and removal (OIR) of components (including switch fabric cards) and front accessibility reduce downtime and simplify maintenance.
- Cisco Nonstop Forwarding (NSF) and Cisco Stateful Switchover (SSO) eliminate single points of failure, help maintain system performance, and prevent service interruption; packet forwarding remains uninterrupted before, during, and after a route-processor switchover.

Specifications

Feature	Cisco XR 12000/ 12000	Cisco XR 12000/ 12000 Series 10-Slot Chassis	Cisco XR 12000/ 12000 Series 6-Slot Chassis	Cisco XR 12000/ 12000 Series 4-Slot Chassis
Slot Capacity	16 slots	10 slots	6 slots	4 slots
Aggregate Switching Capacity	12016: 80 Gbps; 12416: 320 Gbps; 12816: 1280 Gbps	12010: 50 Gbps; 12410: 200 Gbps; 12810: 800 Gbps	12006: 30 Gbps; 12406: 120 Gbps	12404: 80 Gbps
Full-Duplex Throughput Per	12016: 2.5 Gbps/slot 12416: 10 Gbps/slot 12816: 40 Gbps/slot	12010: 2.5 Gbps/slot 12410: 10 Gbps/slot 12810: 40 Gbps/slot	12006: 2.5 Gbps/slot 12406: 10 Gbps/slot	12404: 10 Gbps/slot
Dimensions (H x W x D)	71.5 x 17.25 x 22.0 in (181.6 x 184.2[1] x 55.9 cm) 72.5 x 18.75 x 24.0 in.[2] (43.8 x 47.6 x 61.0 cm)[3]	37.5 x 19 x 22.0 in. (95.25 x 48.26 x 55.9 cm); 24.0 in. (61.0 cm)	18.5 in. (47.0 cm) chassis width 17.3 in. (43.9 cm) 18.9 in. (48.0 cm) chassis depth 28.0 in. (71.1 cm)	8.75 in. (22.23 cm) chassis width 17.38 in. (44.15 cm) 18.9 in. (48.01 cm) chassis depth 27.5 in. (69.85 cm)
Weight	140 lb. (64 kg)[4]; 390 lb. (177 kg)[5]	125 lb. (57 kg)[4]; 275 lb. (125 kg)[5]	18.5 in. (47.0 cm); chassis width: 17.3 in (43.9 cm) 18.9 in. (48.0 cm) chassis depth: 28.0 in. (71.1 cm)	8.75 in. (22.23 cm); chassis width: 17.38 in (44.15 cm) 18.9 in. (48.01 cm) chassis depth: 27.5 in. (69.85 cm)
Chassis Per Rack	One	Two	Four	Eight
Software Components (Per Base System)	Cisco IOS XR or Cisco IOS Software Operating System; Cisco Express Forwarding for distributed packet forwarding			
Compatibility	12800—Line cards that support 2.5-, 5-, 10-, or 20-Gbps capability; 12400—Line cards that support 2.5-, 5- or 10-Gbps capability; 12000—Line cards that support 2.5-Gbps capability			
Protocols	IPv4, MPLS, BGPv4, IS-IS, OSPFv2.0, RIPv2, IGMP, DVMRP, and PIM DX/SX			
Connectivity	Packet over SONET/SDH (POS), Ethernet, ATM, copper (DS-3/E3), Channelized (CT3, ChOC-3/ CHSTM1, ChOC-12/CHSTM4, ChOC-48/CHSTM16); see Cisco IOS XR Software release notes for specific connectivity support on the Cisco XR 12000 Series			

1. With AC input power shelf or DC input power shelf, front covers installed
2. Including chassis rack-mount flanges
3. Including cable-management system and front cover
4. Chassis only, including power shelf for 16-slot chassis
5. Chassis fully configured, using all card slots, AC or DC power shelf for 16-slot chassis, & AC or DC input power supplies

Selected Part Numbers and Ordering Information

Cisco XR 12000 16-Slot Systems	
XR-12416/320-AC	Cisco XR 12000 16-slot chassis w/ 3 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2
XR-12416/320-AC4	Cisco XR 12000 16-slot chassis w/ 4 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2
XR-12416/320-DC	Cisco XR 12000 16-slot chassis w/ 4 DC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2
Cisco 12000 16-Slot Systems	
GSR16/80-AC-8R	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
GSR16/320-AC	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
12816/1280-AC3	Cisco 12000 16-slot chassis w/ 3 AC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, and 1 PRP-1
GSR16/80-AC4-8R	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
GSR16/320-AC4	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
12816/1280-AC4	Cisco 12000 16-slot chassis w/ 4 AC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, & 1 PRP-1

GSR16/80-DC-8R	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 80-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
GSR16/320-DC	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 320-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2
12816/1280-DC	Cisco 12000 16-slot chassis w/ 4 DC power supplies, 1280-Gbps fabric (2 CSC & 3 SFC cards), 2 blowers, 2 alarms, & 1 PRP-1
Cisco XR 12000 10-Slot Systems	
XR-12410/200-AC	Cisco XR 12000 10-slot chassis w/ 2 AC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1
XR-12410/200-DC	Cisco XR 12000 10-slot chassis w/ 2 DC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1
Cisco 12000 10-Slot Systems	
12010-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 50-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
12010-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 50-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
GSR10/200-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
GSR10/200-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 200-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
12810/800-AC	Cisco 12000 10-slot chassis w/ 2 AC power supplies, 800-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
12810/800-DC	Cisco 12000 10-slot chassis w/ 2 DC power supplies, 800-Gbps fabric (2 CSC & 5 SFC cards), 1 blower, 2
Cisco XR 12000 6-Slot Systems	
XR-12406/120-AC	Cisco XR 12000 6-slot chassis w/ 1 AC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
XR-12406/120-DC	Cisco XR 12000 6-slot chassis w/ 1 DC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
Cisco 12000 6-Slot Systems	
12006-AC	Cisco 12000 6-slot chassis w/ 2 AC power supplies, 30-Gbps fabric (2 CSC & 3 SFC cards), 1 blower, 2
12006-DC	Cisco 12000 6-slot chassis w/ 2 DC power supplies, 30-Gbps fabric (2 CSC & 3 SFC cards), 1 blower, 2
GSR6/120-AC	Cisco 12000 6-slot chassis w/ 1 AC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
GSR6/120-DC	Cisco 12000 6-slot chassis w/ 1 DC power supply, 120-Gbps fabric (1 CSC & 3 SFC cards), 1 blower, 2
Cisco XR 12000 4-Slot Systems	
XR-12404/80-AC	Cisco XR 12000 4-slot chassis w/ 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-2
XR-12404/80-DC	Cisco XR 12000 4-slot chassis w/ 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-2
Cisco 12000 4-Slot Systems	
GSR4/80-AC	Cisco 12000 4-slot chassis w/ 2 AC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-1
GSR4/80-DC	Cisco 12000 4-slot chassis w/ 2 DC power supply, 80-Gbps fabric (consolidated switch fabric, clock scheduler, & alarm card), 1 blower, & 1 PRP-1
Cisco 12000 Series Line Cards	
12DS3-SMB	DS3 line card, 12 ports
12E3-SMB	E3 line card, 12 ports
16OC3X/POS-I-LC-B	16 PORT OC3 w/ extended features Release B
16OC3X/POS-M-MJ-B	GSR 16-port OC3/POS MM Eng3 release B
1X10GE-ER-SC	Cisco 12000 1-Port 10GE Card, 1550nm serial, 40km, SC
1X10GE-LR-SC	Cisco 12000 1-Port 10GE Card, 1310nm serial, 10km, SC
2CHOC3/STM1-IR-SC	Channelized OC3/STM1 -> DS1/E1, 2 ports Intermediate Reach
2OC192/POS-IR-SC	Cisco Two-port OC192c/STM64c POS Line Card 1550nm IR, SC
2OC192/POS-SR-SC	Cisco Two-port OC192c/STM64c POS Line Card 1310 nm SR, SC
2OC192/POS-VSR	Cisco Two-port OC192c/STM64c POS Line Card 850nm VSR, MTP
4CHOC12/DS3-I-SCB	4 PORT CHANNELIZED OC12 B
4GE-SFP-LC	4 port-GE line card for Cisco 12000
4OC12X/ATM-IR-SC	4-port OC12/STM4 ATM SM-IR ISE LC w/ SC connector
4OC12X/ATM-MM-SC	4-port OC12/STM4 ATM MM ISE LC w/ SC connector
4OC12X/POS-I-SC-B	4 PORT OC12 POS B
4OC12X/POS-M-SC-B	4-port OC12/POS Eng3 Multi-mode
4OC12X/SRP-IR-LC	4 port OC-12c/STM-4c SRP ISE Line Card, 1310nm IR, LC
4OC12X/SRP-XR-LC	4 port OC-12c/STM-4c SRP ISE Line Card, 1550nm XR, LC
4OC3X/ATM-IR-SC	4-port OC3/STM1 ATM SM-IR ISE LC w/ SC connector
4OC3X/ATM-MM-SC	4-port OC3/STM1 ATM MM ISE LC w/ SC connector
4OC3X/POS-IR-LC-B	GSR 4-port OC3/POS IR Eng3 release B
4OC3X/POS-LR-LC-B	GSR 4-port OC3/POS LR Eng3 release B
4OC3X/POS-MM-MJ-B	GSR 4-port OC3/POS MM Eng3 release B
4OC48E/POS-LR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH LR w/ SC
4OC48E/POS-SR-SC	Edge 4 Port OC-48c/STM-16c SONET/SDH SR w/ SC
4OC48/SRP-SFP	4 Port OC48c/STM16c SRP Line card, SFP Optics
6CT3-SMB	Channelized T3 for the GSR
6DS3-SMB-B	6DS3-SMB-B w/ ECC
6E3-SMB	E3 line card, 6 ports
8FE-FX-SC-B	GSR 8-port 100baseFX, SC connector, version B
8FE-TX-RJ45-B	8-port 100baseTX, RJ45 connector type, version B
8OC3X/POS-IR-LC-B	GSR 8-port OC3/POS IR Eng3 release B
8OC3X/POS-MM-MJ-B	GSR 8-port OC3/POS MM Eng3 release B

CHOC12/DS1-IR-SC	GSR12000 Channelized OC12/STM4 to DS1 (Engine3 based)
CHOC48/DS3-SR-SC	1 port Channelized OC-48 to DS3
EPA-3GE-SX/LH-LC	Cisco 12000 3-Port GE Port Adapter for EPA-GE/FE-BBRD
EPA-GE/FE-BBRD	Cisco 12000 Modular GE Baseboard w/ 1GE and 3 EPA Slots
LC-1OC12/ATM-MM	1 port OC12/STM4 ATM Line Card, Multi-Mode
LC-1OC12/ATM-SM	1 port OC12/STM4 ATM Line Card, Single-Mode
LC-1OC12/POS-MM	1 port OC12/STM4 Packet Over SONET/SDH Line Card, Multi-Mode
LC-1OC12/POS-SM	1port OC12/STM4 Packet Over SONET/SDH Line Card, Single-Mode
OC192E/POS-IR-SC	1 Port OC192c/STM64c POS Edge Card, 1550nm IR, SC
OC192E/POS-LR-SC	OC192/STM64 Packet over Sonet Long Reach w/ SC
OC192E/POS-SR-SC	1 Port OC192c/STM64c POS Edge Card, 1310nm SR, SC
OC192E/POS-VSR	1 Port OC192c/STM64c POS Edge Card, VSR Optics
OC192/SRP-IR-PR	Two OC192/SRP-IR-SC Linecards With One CBL-SRP-OC192 Cable
OC192/SRP-IR-SC	1 Port OC192c/STM64c SRP Linecard, 1550nm IR, SC
OC192/SRP-SR-PR	Two OC192/SRP-SR-SC Linecards With One CBL-SRP-OC192 Cable
OC192/SRP-SR-SC	1 Port OC192c/STM64c SRP Linecard, 1310nm SR, SC
OC192/SRP-VSR	1 Port OC192c/STM64c SRP Linecard, 850nm VSR, MTP
OC192/SRP-VSR-PR	Two OC192/SRP-VSR Linecards With One CBL-SRP-OC192 Cable
OC48/SRP-LR-B-PR	Two OC48/SRP-LR-SC-B Line Cards w/ MATE Cable
OC48/SRP-LR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Long Reach
OC48/SRP-SR-B-PR	Two OC48/SRP-SR-SC-B Line Cards w/ MATE Cable, GSR
OC48/SRP-SR-SC-B=	OC48 SRP Rev-B Line Card, Single Mode, Short Reach, GSR
OC48X/POS-LR-SC	Concatenated OC48 w/ extended features long reach
OC48X/POS-SR-SC	1 port OC48 POS Extended features
12000-SIP-400	Cisco 12000 Series SPA Interface Processor-400
12000-SIP-400=	Cisco 12000 Series SPA Interface Processor-400, spare
12000-SIP-401=	Cisco 12000 Multirate 2.5G IP Service (Modular) SPA Interface Processor, spare
12000-SIP-501=	Cisco 12000 Multirate 5G IP Service (Modular) SPA Interface Processor, spare
12000-SIP-601=	Cisco 12000 Multirate 10G IP Service (Modular) SPA Interface Processor, spare

For More Information

For more information about the Cisco XR 12000 and 12000 Series Routers, visit:
http://www.cisco.com/go/12000.

Chapter 2: LAN Switching

LAN Switching Products at a Glance

Product	Features	Page
MODULAR SWITCHING		
Cisco Catalyst 4500 Series Switches	· Integrated intelligent Layer 2–4 services for secure unified communications, high resiliency, and simplified operations in enterprise LAN access, small Layer 3 distribution, small- and medium-sized businesses (SMBs), and branch offices · Advanced network control with predictable performance, granular quality of service (QoS), advanced security, and Web-based network management · Extensive Power over Ethernet (PoE) support, 15.4W IEEE 802.3af, 20W for 802-11n access points, and up to 30W of PoE per port for future high-power devices · IPv6 in hardware · Up to 388 ports of Fast Ethernet or Gigabit Ethernet and up to thirty-four 10-Gigabit Ethernet ports · High-performance Layer 2–4 switching at speeds up to 320 Gbps and 250 Mpps	2–3
Cisco Catalyst 6500 Series Switches	· Highest port density for 10 Gigabit Ethernet, 1 Gigabit Ethernet, Fast Ethernet, and Power over Ethernet (PoE) ports · Scalable up to 720 Gbps of switching capacity with packet throughput scalable to 450 Mpps for IPv4 (>200 Mpps for IPv6) in standalone mode; scales up to 1.44 Tbps and 840 Mpps when using Cisco Catalyst 6500 Virtual Switching System technology · Multigigabit service modules for integrated security, network management, and Layer 4–7 switching · Integrated wireless LAN controller supporting up to 300 access points per module for a total of 1500 access points	2–12
FIXED CONFIGURATION		
Cisco Catalyst Express 500 and Cisco Catalyst Express 520 Series Switches	These standalone Layer 2 switches offer: · Fast Ethernet and Gigabit Ethernet connectivity · Up to twenty-four 10/100 ports with optional Power-over-Ethernet (PoE) or twelve 10/100/1000 ports · Up to 24 ports of Gigabit Ethernet · GUI-based management and configuration	2–17
Cisco Catalyst 2950 Series Switches	· Cisco Catalyst 2950 Series Switches offer the following Layer 2-, 3-, and 4-based services: Advanced quality of service (QoS), security, high availability, and STP enhancements. · The switches offer wire-speed performance. · The switches provide gigabit-interface-converter (GBIC)-based uplink ports for media flexibility.	2–19
Cisco Catalyst 2960 Series Switches	· These LAN Base switches offer intelligent Layer 2+ services for enhanced security, quality of service (QoS), and availability for the network edge. · LAN Lite switches offer entry-level Layer 2 features with scalable management. · 8-, 24- and 48-port configurations with Fast Ethernet, Power over Ethernet (PoE), and Gigabit Ethernet connectivity are available.	2–22
Cisco Catalyst 3560 Series Switches	· These switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. · They offer Fast Ethernet and Gigabit Ethernet connectivity. · They offer up to forty-eight 10/100/1000 ports plus 4 Small Form-Factor Pluggable (SFP) ports.	2–24
Cisco Catalyst 3560-E Series Switches	· Cisco Catalyst 3560-E Series Switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. · They offer Gigabit Ethernet and 10-Gigabit Ethernet connectivity. · They offer up to forty-eight 10/100/1000 ports plus two 10-Gigabit Ethernet ports per switch. · These switches provide a Cisco TwinGig Converter Module for migrating uplinks from Gigabit Ethernet to 10 Gigabit Ethernet. · These switches offer field-replaceable and -upgradable power supplies and fan. · Configurations with up to 15.4 watts (Class 3) of Power over Ethernet (PoE) on all 48 ports are available.	2–26

Cisco Catalyst 3750 Series Switches	• These stackable, fixed-configuration switches with Cisco StackWise technology and a 32-Gbps interconnect provide a unified, resilient system of up to nine switches. • The switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. • They offer Fast Ethernet and Gigabit Ethernet connectivity. • The switches offer up to forty-eight 10/100/1000 ports plus 4 SFP ports per stackable switch. • The integrated wireless LAN (WLAN) controller supports 25 or 50 access points per card and up to 4 cards for a total of 200 access points.	2–29
Cisco Catalyst 3750-E Series Switches	• These stackable, fixed-configuration switches with Cisco StackWise Plus technology and a 64-Gbps interconnect provide a unified, resilient system of up to nine switches. • The switches offer Layer 2–4 switching and intelligent services with dynamic IP routing and IPv6. • They offer Gigabit Ethernet and 10-Gigabit Ethernet connectivity. • The switches offer up to forty-eight 10/100/1000 ports plus two 10-Gigabit Ethernet ports per stackable switch. • They provide a Cisco TwinGig Converter Module for migrating uplinks from Gigabit Ethernet to 10 Gigabit Ethernet. • The switches offer field-replaceable and -upgradable power supplies and fan. • These switches are fully backward-compatible with the Cisco Catalyst 3750 Series Switches.	2–32
Cisco Catalyst 4948 Series Switches	• The Cisco Catalyst 4948 Series Switches are data center top-of-rack optimized switches with emphasis on buffering for high throughput and full mesh traffic profiles. They offer: • Layer 2–4 switching and intelligent services with dynamic IP routing • Up to forty-eight 10/100/1000 ports with 4 Small Form-Factor Pluggable (SFP) ports or forty-eight 10/100/1000 ports with two 10-Gigabit Ethernet ports • Dual, hot-swappable internal AC or DC power supplies • Hot-swappable fan trays	2–35
Cisco Catalyst 4900M Series Switches	• Data center top-of-rack optimized switch with 2 half module slots; emphasis on buffering for high throughput and full mesh traffic profiles; very low packet size independent latency • Layer 2 - 4 switching and intelligent services with dynamic IP routing and IPv6 • Up to 40 10/100/1000 ports, up to 24 ports of 10 GbE, up to 32 GbE SFP ports (via Twingig converter with 8-port 10 GbE modules) • Dual, hot-swappable internal AC or DC power supplies • Hot-swappable fan trays	2–36

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business. For more information about Cisco Advanced Services, visit http://www.cisco.com/go/techservices.

For more information about all services, see Chapter 10, "Services".

Cisco LAN and MAN Products Port Matrix

	Modular Switches		Fixed Switches								
	Cisco Catalyst 4500	Cisco Catalyst 6500	Cisco Catalyst Express 500/520	Cisco Catalyst 2950	Cisco Catalyst 2960	Cisco Catalyst 3560	Cisco Catalyst 3560-E	Cisco Catalyst 3750	Cisco Catalyst 3750-E	Catalyst 4948	Catalyst 4900M
Fixed Ports Only			X	X	X	X				X	
Fixed and Modular Ports							X	X	X		X
Modular Ports Only	X	X									
100BASE-FX Switched	X	X		X	X	X	X	X	X	X	X
10/100 Autosensing Switched	X	X	X	X	X	X	X	X	X		
10/100/1000BaseT	X	X	X	X	X	X	X	X	X	X	X
Gigabit Ethernet	X	X	X	X	X	X	X	X	X	X	X
10 Gigabit Ethernet	X	X					X	X	X	X	X
Integrated PoE	X	X	X		X	X	X	X	X		
Integrated Service Modules: Firewall Services, Intrusion Detection, Network Analysis (NAM), Wireless (WiSM), Application Control Engine (ACE). Voice Gateway (CMM), Anomaly Detection and Guard, IPSec VPN (SSC-400)		X									
WAN Modules: SIP/SPA, Enhanced FlexWAN		X									

Cisco Catalyst 4500 Series Switches



The Cisco Catalyst 4500 Series is a medium-density modular switch delivering robust intelligent services for unified communications deployments. The simple centralized architecture, media flexibility, and scalability of the Cisco Catalyst 4500 Series deliver maximum investment protection with backward and forward compatibility across several generations dating back to 1999, maximizing return on investment while minimizing recurring operational expenses.

The Cisco Catalyst 4500 E-Series is a high-performance next-generation extension of the Cisco Catalyst 4500 Series Switches. It builds on Cisco Catalyst 4500 Series architecture offering higher services, features, flexibility, and performance while continuing to maximize investment protection across the Cisco Catalyst 4500 Series Switches.

The Cisco Catalyst 4500 Series extends intelligence and operational simplicity to the network edge (wiring closet) for unified communications with intelligent network services, sophisticated quality of service (QoS), predictable performance, advanced security, up to 30 watts of PoE, and comprehensive management features. The Cisco Catalyst 4500 Series delivers high levels of integrated resiliency in both hardware and software, minimizing costly downtime for both planned and unplanned network outages and helping maximize workforce productivity.

The Cisco Catalyst 4500 Series Supervisor Engine 6-E is the latest supervisor engine offering an intelligent, highest-performance Catalyst 4500 supervisor engine optimized for customers deploying unified communications networks.

Ideal for Companies that Need These Features

Supervisors

- Cisco Catalyst 4500 Series Supervisor Engine 6-E—Designed for high-density enterprise wiring closets, medium-sized core, distribution, and branch-office collapsed core; it offers the following: Offers high-performance Layer 2, 3, and 4 switching (320-Gbps capacity, 250 mpps); Enables 24 Gbps per slot when deployed in the Cisco Catalyst 4500 E-Series chassis; Offers high-performance IPv6 in hardware; Optimized

for simultaneous IPv4 and IPv6 deployments or migration; Supports classic and E-Series chassis; Simultaneously supports classic and E-Series line cards in same chassis; Supports twin gigabit converter module; Supports dynamic QoS, security, and IPv6 resource optimization

- Cisco Catalyst 4500 Supervisor Engine V-10GE—Designed for high-density enterprise wiring closets and branch-office collapsed core; it offers the following: Supports high-performance Layer 2, 3, and 4 switching; Offers compatibility with future versions with two 10-Gigabit Ethernet and four Gigabit Ethernet uplinks; Supports integrated NetFlow; Supports all Cisco Catalyst 4500 chassis
- Cisco Catalyst 4500 Series Supervisor Engine V—Designed for enterprise wiring closets and branch-office collapsed core; it offers the following: Supports high-performance Layer 2, 3, and 4 switching; Supports Gigabit Ethernet uplinks; Supports classic and E-Series chassis; Offers NetFlow option with daughter card; Supports all Cisco Catalyst 4500 chassis
- Cisco Catalyst 4500 Series Supervisor Engine IV—Designed for entry-level Layer 3 enterprise wiring closets and small branch-office collapsed core; it offers the following: Supports entry-level Layer 2, 3, and 4 switching; Supports Gigabit Ethernet uplinks; Supports Cisco Catalyst 4507R-E, 4507-R, 4506-E, 4506, 4503-E, and 4503 model chassis
- Cisco Catalyst 4500 Series Supervisor Engine II-Plus-10GE—Designed for Layer 2 high-density enterprise wiring closets; it offers the following: Supports high-performance Layer 2 switching and services; Offers compatibility with future versions with two 10-Gigabit Ethernet and four Gigabit Ethernet uplinks; Supports Cisco Catalyst 4507R-E, 4507-R, 4506-E, 4506, 4503-E, and 4503 model chassis
- Cisco Catalyst 4500 Series Supervisor Engine II-Plus—Designed for Layer 2 enterprise wiring closets; it offers the following: Supports high-performance Layer 2 switching and services; Supports Gigabit Ethernet uplinks; Supports Cisco Catalyst 4507R-E, 4507-R, 4506-E, 4506, 4503-E, and 4503 model chassis
- Cisco Catalyst 4500 Series Supervisor Engine II-Plus-TS—Designed for low-density, Layer 2 small access layer and branch-office deployments; it offers the following: Supports entry-level Layer 2 switching and services; Provides twelve 10/100/1000 PoE and 8 Small Form-Factor Pluggable (SFP) ports built onto the supervisor engine; Supports Cisco Catalyst 4503-E and 4503 chassis only

Chassis

- Cisco Catalyst 4510R-E Switch—High performance, port density, high availability (ISSU) through redundant supervisor engines (when these features are crucial to customer success); Support for both classic and E-Series line cards; Port density up to three hundred eighty-eight 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or up to 34 10-Gigabit Ethernet ports; Up to 320-Gbps nonblocking switching fabric, 250-Mpps forwarding rate using the Supervisor Engine 6-E, or up to 24-Gbps per-slot bandwidth except the last 3 slots, which provide 6 Gbps per slot
- Cisco Catalyst 4507R-E Switch—Network resiliency and high availability (ISSU) through redundant supervisor engines (when these features are crucial to customer success); Support for both classic and E-Series line cards; Port density up to two hundred forty-four 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or up to 34 10-Gigabit Ethernet ports; Up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E
- Cisco Catalyst 4506-E Switch—Port density up to two hundred forty-four 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or thirty-two 10-Gigabit Ethernet ports; Support for both classic and E-Series line cards; Support for up to 280-Gbps, 210-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E
- Cisco Catalyst 4503-E Switch—Port density up to one hundred eight 10/100 (RJ-45 with or without PoE), 10/100 (RJ-21 with or without PoE), 100BASE-FX, 100BASE-LX-10, 100BASE-BX-D, 1000BASE-X, 10/100/1000BASE-T (with or without PoE), or 14 10-Gigabit Ethernet ports; Support for both classic and E-Series line cards; Up to 136-Gbps, 102-Mpps, or 24-Gbps per-slot bandwidth when used with the Supervisor Engine 6-E

Note: Compatible sparing between Cisco Catalyst 4510R-E, Catalyst 4507R-E, Catalyst 4506-E, and Catalyst 4503-E chassis provides investment protection with common supervisor engines, power supplies, and switching line cards.

Key Features

- Investment protection—Evolutionary centralized modular architecture provides maximum backward compatibility across several generations of Cisco Catalyst 4500 Series Switches. Upgrading all system ports to higher-level functions and features are easy with a simple supervisor-engine upgrade.
- Flexible options—Modular 3- and 6-slot single supervisor chassis and 7- and 10-slot redundant supervisor chassis support numerous connectivity and service configurations with 24-GB per-slot capacity.
- Nonstop communications—Redundant supervisor engines offer In Service Software Upgrade (ISSU) and Nonstop Forwarding/Stateful Switchover (NSF/SSO) with 50-ms failover; redundant power supplies offer power circuit redundancy; and hot-swappable fan trays are designed with redundant fans.

- Comprehensive security—These switches support integrated Cisco Network Admission Control (NAC) and 802.1x, hardware-based Control Plane Policing (CoPP); integrated man-in-the-middle and denial-of-service (DoS) attack mitigation; NetFlow; access control lists (ACLs), and Secure Shell (SSH) Protocol.
- Comprehensive management—These switches support CiscoWorks, Cisco Network Assistant, Remote Switched Port Analyzer (RSPAN), Cisco IOS Embedded Event Manager (EEM), IPSLA, Time Domain Reflectometer (TDR), and NetFlow.
- High port density—These switches offer up to 384 Fast Ethernet or Gigabit Ethernet ports or thirty-four 10-Gigabit Ethernet ports.
- IP communications—Cisco prestandard, up to 15.4w IEEE 802.3af support, 20w for 802.1 1n support and up to 30 watts per port for future applications

Specifications

Classic 4500 Chassis				
Features	**WS-C4503**	**WS-C4506**	**WS-C4507R**	**WS-C4510R**
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet GBIC/SFP density	104	240	240	384
10 GE X2 port density	2	2	2	2
10/100/1000 density	108	240	240	384
10/100 density	108	240	240	384
100BASE-FX, LX-10, BX-D density	96	240	240	384
Rack Unit (RU)	7	10	11	14
Backplane Capacity	64 Gbps	100 Gbps	100 Gbps	136 Gbps
Stackable	No	No	No	No
Power Over Ethernet (PoE) Support	Up to 15.4W on every port	Up to 15.4W on every port	Up to 15.4W on every port	Up to 15.4W on every port
1+1 Power Supply Protection	Yes	Yes	Yes	Yes
Hot-Swappable Power Supplies	Yes	Yes	Yes	Yes
Max. watt power consumption				
AC Internal	4,200	4,200	4,200	4,200
AC External with power shelf	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500
DC Internal	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500
Max. number of Class 3 devices (15.4W) Max. power supplies				
AC Internal	108	240	240	270
AC External with power shelf	108	240	240	364
DC Internal	108	240	240	384
Unit weight (chassis only)	31.25 lbs. (14.18 kgs.)	40.5 lbs. (18.37 kgs)	44.25 lbs. (20.07 kgs)	51.50 lbs. (23.36 kgs)
Dimensions (H x W x D)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm)
4500 E-Series Chassis				
Features	**WS-C4503-E**	**WS-C4506-E**	**WS-C4507R-E**	**WS-C4510R-E**
Slots	3	6	7	10
Redundant Supervisor Option	No	No	Yes	Yes
Gigabit Ethernet GBIC/SFP density	104	244	248 with Dual Sup 6-Es and 4xTwinGigs	392 with Dual Sup 6-Es and 4xTwinGigs
10 GE X2 port density	14	32	34	34
10/100/1000 density	108	240	240	384
10/100 density	96	240	240	384
100BASE-FX, LX-10, BX-D density	96	240	240	384
Rack Unit (RU)	7	10	11	14
Backplane Capacity using Supervisor 6-E	136 Gbps	280 Gbps	280 Gbps	320 Gbps
Stackable	No	No	No	No
Enhanced Power Over Ethernet (ePoE) Support	Up to 20W of PoE – 37 ports can be enabled @ 20W[1]	Up to 20W of PoE – 37 ports can be enabled @ 20W[1]	Up to 20W of PoE – 37 ports can be enabled @ 20W[1]	Up to 20W of PoE – 37 ports can be enabled @ 20W [1]
Power Over Ethernet Plus (PoEP) Support (after software upgrade on premium linecard)	Up to 30W of PoE – 25 ports can be enabled @ 30W[1]	Up to 30W of PoE – 25 ports can be enabled @ 30W [1]	Up to 30W of PoE – 25 ports can be enabled @ 30W [1]	Up to 30W of PoE – 25 ports can be enabled @ 30W[1]
1+1 Power Supply Protection	Yes	Yes	Yes	Yes
Hot-Swappable Power Supplies	Yes	Yes	Yes	Yes
Max. watt power consumption				

AC Internal	4,200	4,200	4,200	4,200
AC External with power shelf	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500	1,400 + power shelf = 7,500
DC Internal	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500	1,400 + UPS = 7,500
Max. number of Class 3 devices (15.4W) Max. power supplies				
AC Internal	108	240	240	270
AC External with power shelf	108	240	240	364
DC Internal	108	240	240	384
Unit weight (with Fan Tray)	32.25 lbs. (14.63 kgs.)	40.50 lbs. (18.37 kgs)	44.50 lbs. (20.19 kgs)	54.50 lbs. (24.73 kgs)
Dimensions (H x W x D)	12.25 x 17.31 x 12.50 in (31.12 x 43.97 x 31.70 cm)	17.38 x 17.31 x 12.50 in (44.13 x 43.97 x 31.70 cm)	19.19 x 17.31 x 12.50 in (48.74 x 43.97 x 31.70 cm)	24.35 x 17.31 x 12.50 in. (61.84 x 43.97 x 31.70 cm)
Supervisor Engines				
Features	**Supervisor 6-E (WS-X45-Sup6-E)**	**Supervisor V - 10GE (WS-X4516 -10GE)**	**Supervisor V (WS-X4516)**	**Supervisor IV (WS-X4515)**
Chassis supported	All	All	All	4503-E, 4506-E, 4507R-E, 4503, 4506, 4507R
Enhanced Layer 3 option	yes	yes	yes	yes
Total bandwidth (Gbps)	320	136	96	64
Packets per second (Mpps)	250 (IPv4) 125 (IPv6)	102	72	48
CPU MHz	1300	800	400	333
NetFlow	no	included	option	option
Onboard memory (DRAM)	512 MB upgradable to 1 GB	512 MB	512 MB	512 MB
On-Board Flash	128 MB	64 MB	64 MB	64 MB
Compact Flash Support	Yes	Yes	Yes	Yes
Switching Capacity & Throughput	320 Gbps, 250 Mpps	136 Gbps, 102 Mpps	96 Gbps, 72 Mpps	64 Gbps, 48 Mpps
Multilayer Switching	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing	Enhanced L2/3/4 Services & Routing
(E)IGRP, OSPF, IS:IS, BGP	EIGRP, OSPF, BGP, RIPv1/2	Yes	Yes	Yes
Supervisor Redundancy	4507R, 4510R, 4507R-E, and 4510R-E only	4507R and 4510R Only	4507R and 4510R Only	4507R Only
QoS	8Q/Port, MQC, Dynamic Tx Queue sizing, policing, shaping, congestion avoidance with DBL marking	4Q/Port, policing, shaping, congestion avoidance	4Q/Port, policing, shaping, congestion avoidance	4Q/Port, policing, shaping, congestion avoidance
CPU	1300 MHz	800 MHz	400 MHz	333 MHz
NetFlow Support	No	Yes (Built-in functionality; no Daughter Card Required)	Yes (Optional Daughter Card)	Yes (Optional Daughter Card)
ISL	No	Yes	Yes	Yes
ACLS	Yes	Yes	Yes	Yes
IP FIB entries	256K	128K	128K	128K
MAC Addresses	55K Unicast, 16K Multicast	32K Unicast, 16K Multicast	32K Unicast, 16K Multicast	32K Unicast 16K Multicast

1. With a maximum 750W per slot

Selected Part Numbers and Ordering Information

Catalyst 4500 E-Series—Chassis	
WS-C4503-E	Catalyst 4500 E-Series 3-Slot Chassis, fan, no ps
WS-C4506-E	Catalyst 4500 E-Series 6-Slot Chassis, fan, no ps
WS-C4507R-E	Catalyst 4500 E-Series 7-Slot Chassis, fan, no ps, Red Sup Capable
WS-C4510R-E	Catalyst 4500 E-Series 10-Slot Chassis, fan, no ps, Red Sup Capable
WS-C4503-E-S2+48	Catalyst 4503-E Data Bundle, 1 x 1000AC, 1 x S2+, 1 x WS-X4148-RJ

WS-C4503-E-S2+48V	Catalyst 4503-E PoE Bundle, 1 x 1300AC, 1 x S2+,1 x WS-X4248-RJ45V
WS-C4507R-E-S2+96	Catalyst 4507R-E Data Bundle, 1x 1000AC, 1 x S2+, 2 x WS-X4148-RJ
WS-C4507R-E-S2+96V	Catalyst 4507R-E PoE Bundle, 1 x 2800AC, 1 x S2+, 2xWS-X4248-RJ45V
Catalyst 4500—Chassis	
WS-C4510R	Catalyst 4500 Chassis (10-Slot), fan, no p/s, Red Sup Capable
WS-C4507R	Catalyst 4500 Chassis (7-Slot), fan, no p/s, Red Sup Capable
WS-C4506	Catalyst 4500 Chassis (6-Slot), fan, no p/s
WS-C4503	Catalyst 4500 Chassis (3-Slot), fan, no p/s
WS-C4506-S2+96	Catalyst 4506 Bundle, 1x 1000AC, 1x S2+, 2x WS-X4148-RJ
WS-C4506-S4-AP25	Catalyst 4506 Bundle, 1x 1000AC, 1x S4, 1x WS-X4306-GB, 1x4402-25
WS-C4506-S4-AP50	Catalyst 4506 Bundle, 1x 1000AC, 1x S4, 1x WS-X4306-GB, 1x4402-50
Catalyst 4500 PoE Enabled Power Supplies	
PWR-C45-4200ACV	Catalyst 4500 4200W AC dual input Power Supply (Data + PoE)
PWR-C45-4200ACV/2	Catalyst 4500 4200W AC dual input Power Supply (Data + PoE)
PWR-C45-4200ACV=	Catalyst 4500 4200W AC dual input Power Supply (Data + PoE)
PWR-C45-2800ACV	Catalyst 4500 2800W AC Power Supply (Data and PoE)
PWR-C45-2800ACV=	Catalyst 4500 2800W AC Power Supply (Data and PoE)
PWR-C45-2800ACV/2	Catalyst 4500 2800W AC Power Supply (Data and PoE)
PWR-C45-1300ACV	Catalyst 4500 1300W AC Power Supply (Data and PoE)
PWR-C45-1300ACV/2	Catalyst 4500 1300W AC Power Supply (Data and PoE)
PWR-C45-1300ACV=	Catalyst 4500 1300W AC Power Supply (Data and PoE)
PWR-C45-1400DC-P	Catalyst 4500 1400W DC Power Supply w/Int PEM
PWR-C45-1400DC-P=	Catalyst 4500 1400W DC Power Supply w/Int PEM (Spare)
PWR-C45-1400DC-P/2	Catalyst 4500 1400W DC Power Supply Redundant w/Int PEM
WS-P4502-1PSU	Catalyst 4500 Aux. Power Shelf (2 slot), incl. one PWR-4502
PWR-4502	Catalyst 4500 Aux. Power Shelf Redundant Power Supply
Catalyst 4500 Non-PoE Power Supplies	
PWR-C45-1400AC	Catalyst 4500 1400W AC Power Supply (Data Only)
PWR-C45-1400AC/2	Catalyst 4500 1400W AC Power Supply Redundant (Data Only)
PWR-C45-1400AC=	Catalyst 4500 1400W AC Power Supply (Data Only) (Spare)
PWR-C45-1000AC	Catalyst 4500 1000W AC Power Supply (Data Only)
PWR-C45-1000AC=	Catalyst 4500 1000W AC Power Supply (Data Only) Spare
PWR-C45-1000AC/2	Catalyst 4500 1000W AC Power Supply Redundant (Data Only)
PWR-C45-1400DC	Catalyst 4500 1400W DC Triple Input SP Power Supply-data only
PWR-C45-1400DC=	Catalyst 4500 1400W DC Triple Input SP Power Supply-data only
PWR-C45-1400DC/2	Catalyst 4500 1400W DC Triple Input SP Power Supply-data only
Catalyst 4500 E-Series Supervisor Engine	
WS-X45-SUP6-E	Catalyst 4500 E-Series Sup 6-E, 2x10GE(X2) w/ Twin Gig
WS-X45-SUP6-E/2	Catalyst 45xxR E-Series Sup 6-E, 2x10GE(X2) w/ Twin Gig
WS-X45-SUP6-E=	Catalyst 4500 E-Series Sup 6-E, 2x10GE(X2) w/ Twin Gig
Catalyst 4500 Supervisor Engines	
WS-X4516-10GE	Catalyst 4500 Supervisor V-10GE, 2x10GE (X2) and 4x1GE (SFP)
WS-X4516-10GE=	Catalyst 4500 Supervisor V-10GE, 2x10GE (X2) and 4x1GE (SFP)
WS-X4516-10GE/2	Catalyst 45xxR Supervisor V-10GE,2x10GE (X2) and 4x1GE (SFP)
WS-X4516	Catalyst 4500 Supervisor V (2 GE), Console (RJ-45)
WS-X4516=	Catalyst 4500 Supervisor V (2 GE), Console (RJ-45)(Spare)
WS-X4516/2	Catalyst 45xxR Redundant Supervisor V (2 GE), Console (RJ-45)
WS-X4515	Catalyst 4500 Supervisor IV (2 GE), Console (RJ-45)
WS-X4515=	Catalyst 4500 Supervisor IV, 2 GE, Console (RJ-45)(Spare)
WS-X4515/2	Catalyst 4507R Redundant Supervisor IV,(2 GE), Console (RJ-45)
WS-X4013+10GE	Catalyst 4500 Sup II+10GE, 2x10GE (X2) and 4x1GE (SFP)
WS-X4013+10GE=	Catalyst 4500 Sup II+10GE, 2x10GE (X2) and 4x1GE (SFP)
WS-X4013+10GE/2	Catalyst 4507R Sup II+10GE, 2x10GE(X2) and 4x1GE (SFP)
WS-X4013+	Catalyst 4500 Supervisor II-Plus (IOS), 2GE, Console (RJ-45)
WS-X4013+=	Catalyst 4500 Supervisor II-Plus (IOS), 2GE, Console (RJ-45)
WS-X4013+/2	Catalyst 4507R Redundant Sup II-Plus,(2GE), Console (RJ-45)
WS-X4013+TS	Catalyst 4503 SupII-Plus-TS, 12 10/100/1000 PoE+8 SFP slots
WS-X4013+TS=	Catalyst 4503 SupII-Plus-TS, 12 10/100/1000 PoE+8 SFP slots
WS-F4531	Catalyst 4500 NetFlow Services Card (Sup IV/V)
WS-F4531=	Catalyst 4500 NetFlow Services Card (Sup IV/V) (Spare)
Catalyst 4500 E-Series Line Cards	
WS-X4648-RJ45V-E	Catalyst 4500 E-Series 48-Port PoE 802.3af 10/100/1000(RJ45)
WS-X4648-RJ45V-E=	Catalyst 4500 E-Series 48-Port PoE 802.3af 10/100/1000(RJ45)
WS-X4624-SFP-E=	Catalyst 4500 E-Series 24-Port GE (SFP)
WS-X4606-X2-E	Catalyst 4500 E-Series 6-Port 10GbE (X2)

WS-X4606-X2-E=	Catalyst 4500 E-Series 6-Port 10GbE (X2)
WS-X4648-RJ45V+E	Catalyst 4500 E-Series 48-Port Premium PoE 10/100/1000
Catalyst 4500 10/100 Line Cards	
WS-X4148-RJ	Catalyst 4500 10/100 Auto Module, 48-Ports (RJ-45)
WS-X4148-RJ=	Catalyst 4500 10/100 Auto Module, 48-Ports (RJ-45) (Spare)
WS-X4124-RJ45	Catalyst 4500 10/100 Module,24-Ports(RJ45)
WS-X4124-RJ45=	Catalyst 4500 10/100 Module, 24-Ports(RJ45)
WS-X4148-RJ21	Catalyst 4500 10/100 Module, 48-Ports Telco (4xRJ21)
WS-X4148-RJ21=	Catalyst 4500 10/100 Module, 48-Ports Telco (4xRJ21)(spare)
WS-X4248-RJ21V	Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ21)
WS-X4248-RJ21V=	Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ21)
WS-X4248-RJ45V	Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ45)
WS-X4248-RJ45V=	Catalyst 4500 PoE 802.3af 10/100, 48-Ports (RJ45)
WS-X4224-RJ45V	Catalyst 4500 10/100 PoE 802.3af 24-ports (RJ45)
WS-X4224-RJ45V=	Catalyst 4500 PoE 802.3af 10/100 24-ports (RJ45)
WS-X4232-GB-RJ	Catalyst 4500 32-10/100 (RJ-45),2-GE(GBIC)
WS-X4232-GB-RJ=	Catalyst 4500 32-10/100 (RJ-45),2-GE(GBIC)
WS-X4232-RJ-XX	Catalyst 4500 10/100 Module,32-ports(RJ45)+Modular uplinks
Catalyst 4500 10/100/1000 Line Cards	
WS-X4548-GB-RJ45	Catalyst 4500 Enhanced 48-Port 10/100/1000 Base-T (RJ-45)
WS-X4548-GB-RJ45=	Catalyst 4500 Enhanced 48-Port 10/100/1000 Base-T (RJ-45)
WS-X4548-GB-RJ45V	Catalyst 4500 PoE 802.3af 10/100/1000, 48-Ports (RJ45)
WS-X4548-GB-RJ45V=	Catalyst 4500 PoE 802.3af 10/100/1000, 48-Ports (RJ45)
WS-X4524-GB-RJ45V	Catalyst 4500 PoE 802.3af 10/ 100/1000 24-ports (RJ45)
WS-X4524-GB-RJ45V=	Catalyst 4500 PoE 802.3af 10/ 100/1000 24-ports (RJ45)
WS-X4506-GB-T	Catalyst 4500 6-Port 10/100/1000 PoE or SFP (Optional)
WS-X4506-GB-T=	Catalyst 4500 6-Port 10/100/1000 PoE or SFP (Optional)
WS-X4424-GB-RJ45	Catalyst 4500 24-port 10/100/1000 Module (RJ45)
WS-X4424-GB-RJ45=	Catalyst 4500 24-port 10/100/1000 Module (RJ45) (Spare)
Catalyst 4500 100 Base-X FE Line Cards	
ME-X4248-FE-BX=	ME-X4248-FE-SFP and GLC-FE-100BX-D48
WS-X4248-FE-SFP	Catalyst 4500 48-Port 100BASE-X (SFPs Optional)
WS-X4248-FE-SFP=	Catalyst 4500 48-Port 100BASE-X (SFPs Optional)
WS-X4124-FX-MT	Catalyst 4500 FE Switching Module, 24- 100FX (MTRJ)
WS-X4124-FX-MT=	Catalyst 4500 FE Switching Module, 24- 100FX (MTRJ) (Spare)
WS-X4148-FE-BD-LC	Catalyst 4500 FE Module, 48-Port BX-D (LC) (1550)
WS-X4148-FE-BD-LC=	Catalyst 4500 FE Module, 48-Port BX-D (LC) (1550) (Spare)
WS-X4148-FX-MT	Catalyst 4500 FE Switching Module, 48-100FX MMF(MTRJ)
WS-X4148-FX-MT=	Catalyst 4500 FE Switching Module, 48-100FX MMF(MTRJ) (Spare)
WS-U4504-FX-MT	Catalyst 4500 4-port 100FX(MTRJ) Uplink for WS-X4232-RJ-XX
Catalyst 4500 1000 Base-X GE Line Cards	
WS-X4306-GB	Catalyst 4500 Gigabit Ethernet Module, 6-Ports (GBIC)
WS-X4306-GB=	Catalyst 4500 Gigabit Ethernet Module, 6-Ports (GBIC) (Spare)
WS-X4506-GB-T	Catalyst 4500 6-Port 10/100/1000 PoE or SFP (Optional)
WS-X4506-GB-T=	Catalyst 4500 6-Port 10/100/1000 PoE or SFP (Optional)
WS-X4302-GB	Catalyst 4500 Gigabit Ethernet Module, 2-Ports (GBIC)
WS-X4302-GB=	Catalyst 4500 Gigabit Ethernet Module, 2-Ports (GBIC)
WS-X4418-GB	Catalyst 4500 GE Module, Server Switching 18-Ports (GBIC)
WS-X4418-GB=	Catalyst 4500 GE Module, Server Switching 18-Ports (GBIC)
WS-X4448-GB-SFP	Catalyst 4500 48-Port 1000Base-X (SFPs Optional)
WS-X4448-GB-SFP=	Catalyst 4500 48-Port 1000Base-X (SFPs Optional)
Catalyst 4500 Transceiver Modules	
WS-G5483=	1000BASE-T GBIC
WS-G5484	1000BASE-SX Short Wavelength GBIC (Multimode only)
WS-G5486	1000BASE-LX/LH long haul GBIC (singlemode or multimode)
WS-G5487	1000Base-ZX extended reach GBIC (singlemode)
GLC-T	1000BASE-T SFP
GLC-T24	24 GLC-T SFP
GLC-SX-MM	GE SFP, LC connector SX transceiver
GLC-LH-SM	GE SFP, LC connector LX/LH transceiver
GLC-FE-100BX-D48	48 units of GLC-FE-100BX-D
GLC-FE-100BX-D	100BASE-BX10-D SFP
GLC-FE-100BX-U	100BASE-BX10-U SFP
GLC-FE-100FX	100BASE-FX SFP for FE port
GLC-FE-100FX24	24 units of GLC-FE-100FX

GLC-FE-100FX48	48 units of GLC-FE-100FX
GLC-FE-100LX	100BASE-LX SFP for FE port
GLC-FE-100LX48	48 units of GLC-FE-100LX
GLC-BX-D	1000BASE-BX SFP, 1490NM
GLC-BX-U	1000BASE-BX SFP, 1310NM
GLC-ZX-SM=	1000BASE-ZX SFP
X2-10GB-CX4	10GBASE-CX4 X2 Module
X2-10GB-SR	10GBASE-SR X2 Module
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LX4	10GBASE-LX4 X2 Module
X2-10GB-LR	10GBASE-LR X2 Module
Catalyst 4500 E-Series Memory Options	
MEM-X45-512MB-E	Catalyst 4500 512MB to 1GB SDRAM Upgrade for Sup6-E
MEM-X45-512MB-E=	Catalyst 4500 512MB to 1GB SDRAM Upgrade for Sup6-E
Catalyst 4500 Memory Options	
MEM-C4K-FLD64M	Catalyst 4500 IOS-based Supervisor, Compact Flash, 64MB Option
MEM-C4K-FLD64M=	Catalyst 4500 IOS-based Supervisor, Compact Flash, 64MB Spare
MEM-C4K-FLD128M	Catalyst 4500 IOS-based Supervisor, Compact Flash, 128MB Option
MEM-C4K-FLD128M=	Catalyst 4500 IOS-based Supervisor, Compact Flash, 128MB Spare
MEM-C4K-256-SDRAM=	256 DIMM DRAM for Supervisor II-Plus-10GE
MEMC4K-U512D-SDRAM	512 DIM DRAM Factory Upgrade for Supervisor II-Plus-10GE
MEMC4K-512D-SDRAM=	512 DIMM DRAM for Supervisor II-Plus-10GE and V-10GE
Catalyst 4500 E-Series Accessories	
WS-X4593-E=	Catalyst 4503-E Fan Tray (Spare)
WS-X4596-E=	Catalyst 4506-E Fan Tray (Spare)
WS-X4597-E=	Catalyst 4507R-E Fan Tray (Spare)
WS-X4582-E=	Catalyst 4510R-E Fan Tray (Spare)
WS-X4K-CLOCK-E=	Catalyst 4507R-E/4510R-E Clock Module (Spare)
WS-X4590-E=	Catalyst 4507R-E/4510R-E Fabric Redundancy Module
C4K-SLOT-CVR-E	Catalyst 4500 E-Series Family Slot Cover
C4K-SLOT-CVR-E=	Catalyst 4500 E-Series Family Slot Cover (Spare)
WS-X4503E-23CNTR=	C4503 E Center Mount 23 Inch Rack Kit L/R C
WS-X4506E-23CNTR=	C4506 E Center Mount 23 Inch Rack Kit L/R C
WS-X4507E-23CNTR=	C4507R E Center Mount 23 Inch Rack Kit L/R C
WS-X4510E-23CNTR=	C4510R E Center Mount 23 Inch Rack Kit L/R C
Catalyst 4500 Accessories	
WS-X4593=	Catalyst 4503 Fan Tray (Spare)
WS-X4596=	Catalyst 4506 Fan Tray (Spare)
WS-X4597=	Catalyst 4507R Fan Tray (Spare)
WS-X4598=	Catalyst 4510R 23 inch Rackmount
WS-X4581=	Catalyst 4510R 19 inch Rackmount
WS-X4582=	Catalyst 4510R Fan Tray (Spare)
WS-X4583=	Catalyst 4503 19 Inch Rackmount
WS-X4584=	Catalyst 4503 23 Inch Rackmount
WS-X4585=	Catalyst 4506 19 Inch Rackmount
WS-X4586=	Catalyst 4506 23 Inch Rackmount
WS-X4587=	Catalyst 4507R 19 Inch Rackmount
WS-X4588=	Catalyst 4507R 23 Inch Rackmount
WS-X4590=	Catalyst 4507R/4510R Fabric Redundancy Module
WS-X4503-23CNTR=	C4503 Center Mount 23 Inch Rack Kit L/R
WS-X4503-FILTER=	C4503 Center Mount 23 Inch Filter (1 Set)
WS-X4506-23CNTR=	C4506 Center Mount 23 Inch Rack Kit L/R
WS-X4506-FILTER=	C4506 Center Mount 23 Inch Filter (1 Set)
WS-X4507-23CNTR=	C4507R Center Mount 23 Inch Rack Kit L/R
WS-X4507-FILTER=	C4507R Center Mount 23 Inch Filter (1 Set)
WS-X4510-23CNTR=	C4510R Center Mount 23 Inch Rack Kit L/R
WS-X4510-FILTER=	C4510R Center Mount 23 Inch Filter (1 Set)
C4K-SLOT-CVR=	Catalyst 4000 Family Slot Cover (Spare)
C4K-SLOT-CVR-E	Catalyst 4500 E-Series Family Slot Cover
C4K-UPLINK-CVR	Catalyst 4000 UPLINK COVER
C4K-UPLINK-CVR=	Catalyst 4000 UPLINK COVER (SPARE)
CAB-AC-2800W-EU	Europe Power Cord
CAB-AC-2800W-EU=	Europe Power Cord
CAB-AC-2800W-INT	International Power Cord
CAB-AC-2800W-INT=	International Power Cord

CAB-AC-2800W-TWLK	U.S. Power Cord, Twist Lock, NEMA 6-20 Plug
CAB-AC-2800W-TWLK=	U.S. Power Cord, Twist Lock, NEMA 6-20 Plug
CAB-AC-2800W-6-20	Non-locking NEMA Cord For The 2800WAC PS
CAB-AC-2800W-6-20=	Non-Locking NEMA Cord For The 2800WAC PS
CAB-AS3112-C15-AU	AS-3112 to IEC-C15 8ft Aus
CAB-US515P-C19-US	NEMA 5-15 to IEC-C19 13ft US
CAB-US515P-C19-US=	NEMA 5-15 to IEC-C19 13ft US
CAB-L520P-C19-US	NEMA L5-20 to IEC-C19 6ft US
CAB-L520P-C19-US=	NEMA L5-20 to IEC-C19 6ft US
CAB-L620P-C19-US	NEMA L6-20 to IEC-C19 14ft US
CAB-L620P-C19-US=	NEMA L6-20 to IEC-C19 14ft US
CAB-US620P-C19-US	NEMA 6-20 to IEC-C19 13ft US
CAB-US620P-C19-US=	NEMA 6-20 to IEC-C19 13ft US
CAB-CEE77-C19-EU	CEE 7/7 to IEC-C19 13ft Europe
CAB-CEE77-C19-EU=	CEE 7/7 to IEC-C19 13ft Europe
CAB-I309-C19-INT	IEC-309 to IEC-C19 13ft Int
CAB-I309-C19-INT=	IEC-309 to IEC-C19 13ft Int
CAB-A3112-C19-AUS	AS-3112 to IEC-C19 14ft Aus
CAB-A3112-C19-AUS=	AS-3112 to IEC-C19 14ft Aus
CAB-C2316-C19-IT=	CEI 23-16 to IEC-C19 14ft Italy
CAB-C2316-C19-IT	CEI 23-16 to IEC-C19 14ft Italy
CAB-BS1363-C19-UK	BS-1363 to IEC-C19 14ft UK
BLANK-PWR-4502=	Catalyst 4500 Blank p/s Cover for Aux. Power Shelf
CAB-BS1363-C15-UK	BS-1363 to IEC-C15 8ft UK
CAB-BS1363-C15-UK=	BS-1363 to IEC-C15 8ft UK
CAB-BS1363-C19-UK=	BS-1363 to IEC-C19 14ft UK
CAB-BS546-C15-SA	BS 546 to IEC-C15 6ft South Africa, India
CAB-BS546-C19-SA	BS 546 to IEC-C19 14ft South Africa, India
CAB-4502-DC-2M	Catalyst 4500 2 meter DC Cable set for Aux Power Shelf
CAB-4502-DC-2M=	Catalyst 4500 2 meter DC Cable set for Aux Power Shelf
CAB-4502-DC-60CM	Catalyst 4500 60cm DC Cable set for Aux Power Shelf
CAB-4502-DC-60CM=	Catalyst 4500 60cm DC Cable set for Aux Power Shelf
CAB-4502AC-EU	AC Power cord for PWR-4502 (Europe)
CAB-4502AC-EU=	AC Power cord for PWR-4502 (Europe)
CAB-4502AC-UK	AC Power cord for PWR-4502 (UK)
CAB-4502AC-UK=	AC Power cord for PWR-4502 (UK)
CAB-4502AC-US	L6-20 AC Power cord for PWR-4502 (North America)
CAB-4502AC-US=	AC Power cord for PWR-4502 (North America)
WS-X4571=	Catalyst 4500 Connection Strap for Aux. Power Shelf
CAB-ACS-10	AC Power Cord (Swiss) 10A
CAB-ACS-10=	AC Power Cord (Swiss) 10A
CAB-ACS-16	AC Power Cord (Swiss) 16A
CAB-ACS-16=	AC Power Cord (Swiss) 16A
CAB-S132-C19-ISRL	S132 to IEC-C19 14ft Israeli
CAB-S132-C19-ISRL=	S132 to IEC-C19 14ft Israeli
CAB-C2316-C15-IT	CEI 23-16 to IEC-C15 8ft Italy
CAB-CEE77-C15-EU	CEE 7/7 to IEC-C15 8ft Europe
CAB-CEE77-C15-EU=	CEE 7/7 to IEC-C15 8ft Europe
CAB-IR2073-C15-AR	IRSM 2073 to IEC-C15 8ft Argen
CAB-IR2073-C19-AR	IRSM 2073 to IEC-C19 14ft Argen
CAB-IR2073-C19-AR=	IRSM 2073 to IEC-C19 14ft Argen
CAB-SABS-C15-IND	SABS 164-1 to IEC-C15 India
CAB-SABS-C15-IND=	SABS 164-1 to IEC-C15 India
CAB-SABS-C19-IND	SABS 164-1 to IEC-C19 India
CAB-SABS-C19-IND=	SABS 164-1 to IEC-C19 India
CAB-US515-C15-US	NEMA 5-15 to IEC-C15 8ft US
CAB-US515-C15-US=	NEMA 5-15 to IEC-C15 8ft US
BLANK-PWR-4502	Catalyst 4500 Blank p/s Cover for Aux. Power Shelf
CAB-US520-C19-US	NEMA 5-15 to IEC-C19 14ft US
CAB-US520-C19-US=	NEMA 5-15 to IEC-C19 14ft US
WS-X4500-PS01=	Plastic cover for Catalyst 4500 power shelf (WS-P4502-1)
CWDM GBIC Solution for Catalyst 4500	
CWDM-GBIC-1470=	1000BASE-CWDM 1470 nm GBIC (single mode only)
CWDM-GBIC-1490=	1000BASE-CWDM 1490 nm GBIC (single mode only)
CWDM-GBIC-1510=	1000BASE-CWDM 1510 nm GBIC (single mode only)

CWDM-GBIC-1530=	1000BASE-CWDM 1530 nm GBIC (single mode only)
CWDM-GBIC-1550=	1000BASE-CWDM 1550 nm GBIC (single mode only)
CWDM-GBIC-1570=	1000BASE-CWDM 1570 nm GBIC (single mode only)
CWDM-GBIC-1590=	1000BASE-CWDM 1590 nm GBIC (single mode only)
CWDM-GBIC-1610=	1000BASE-CWDM 1610 nm GBIC (single mode only)
CWDM-MUX8A=	8-channels CWDM MUX/DEMUX Module
CWDM-OADM1-1470=	Dual single channel OADM Module (1470nm)
CWDM-OADM1-1490=	Dual single channel OADM Module (1490nm)
CWDM-OADM1-1510=	Dual single channel OADM Module (1510nm)
CWDM-OADM1-1530=	Dual single channel OADM Module (1530nm)
CWDM-OADM1-1550=	Dual single channel OADM Module (1550nm)
CWDM-OADM1-1570=	Dual single channel OADM Module (1570nm)
CWDM-OADM1-1590=	Dual single channel OADM Module (1590nm)
CWDM-OADM1-1610=	Dual single channel OADM Module (1610nm)
CWDM-OADM4-1=	4-channels CWDM OADM Module (1470, 1490, 1510, 1530)
CWDM-OADM4-2=	4-channels CWDM OADM Module (1550, 1570, 1590, 16100)
WDM-1300-1550-S=	1300nm/1550nm WDM splitter cable
CWDM-CHASSIS-2=	2 Slot Chassis for CWDM Mux Plug in Modules
WDM-SFP-2CH-CONV=	2-channel WDM SFP-based transponder
CWDM-MUX-4-SF1=	Single Fiber 4-Channel Mux/Demux
CWDM-MUX-4-SF2=	Single Fiber 4-Channel Mux/Demux
EWDM-MUX8=	8-channels EWDM MUX/DEMUX Module
EWDM-OADM4=	4-channels EWDM OADM Module
EWDM-OADM2=	2-channels EWDM OADM Module
EWDM-OA=	EWDM Optical Amplifier
CWDM GBIC Solution for Catalyst 4500	
CWDM-GBIC-1470=	1000BASE-CWDM 1470 nm GBIC (single mode only)
CWDM-GBIC-1490=	1000BASE-CWDM 1490 nm GBIC (single mode only)
CWDM-GBIC-1510=	1000BASE-CWDM 1510 nm GBIC (single mode only)
CWDM-GBIC-1530=	1000BASE-CWDM 1530 nm GBIC (single mode only)
CWDM-GBIC-1550=	1000BASE-CWDM 1550 nm GBIC (single mode only)
CWDM-GBIC-1570=	1000BASE-CWDM 1570 nm GBIC (single mode only)
CWDM-GBIC-1590=	1000BASE-CWDM 1590 nm GBIC (single mode only)
CWDM-GBIC-1610=	1000BASE-CWDM 1610 nm GBIC (single mode only)
CWDM-MUX8A=	8-channels CWDM MUX/DEMUX Module
CWDM-OADM1-1470=	Dual single channel OADM Module (1470nm)
CWDM-OADM1-1490=	Dual single channel OADM Module (1490nm)
CWDM-OADM1-1510=	Dual single channel OADM Module (1510nm)
CWDM-OADM1-1530=	Dual single channel OADM Module (1530nm)
CWDM-OADM1-1550=	Dual single channel OADM Module (1550nm)
CWDM-OADM1-1570=	Dual single channel OADM Module (1570nm)
CWDM-OADM1-1590=	Dual single channel OADM Module (1590nm)
CWDM-OADM1-1610=	Dual single channel OADM Module (1610nm)
CWDM-OADM4-1=	4-channels CWDM OADM Module (1470, 1490, 1510, 1530)
CWDM-OADM4-2=	4-channels CWDM OADM Module (1550, 1570, 1590, 16100)
WDM-1300-1550-S=	1300nm/1550nm WDM splitter cable
CWDM-CHASSIS-2=	2 Slot Chassis for CWDM Mux Plug in Modules
WDM-SFP-2CH-CONV=	2-channel WDM SFP-based transponder
CWDM-MUX-4-SF1=	Single Fiber 4-Channel Mux/Demux
CWDM-MUX-4-SF2=	Single Fiber 4-Channel Mux/Demux
EWDM-MUX8=	8-channels EWDM MUX/DEMUX Module
EWDM-OADM4=	4-channels EWDM OADM Module
EWDM-OADM2=	2-channels EWDM OADM Module
EWDM-OA=	EWDM Optical Amplifier

For More Information

For more information about the Cisco Catalyst 4500 Series, visit: http://www.cisco.com/go/catalyst4500.

Cisco Catalyst 6500 Series Switches



The Cisco Catalyst 6500 Series continues to be one of the industry's most innovative switching platforms, delivering very high levels of availability, integrated security, virtualization, enhanced manageability, IP communications, wireless, and applications support to enterprise customers, medium-sized businesses, and service providers. The feature richness, flexibility, density, and scalability of this product line set the standard for converged data, voice, and video networks, and facilitate outstanding operational efficiency and investment protection.

Ideal for Companies that Need These Features

- Cisco Catalyst 6509-E Switch—9 slots; Front-access power supplies; Ideal for use in the wiring closet, distribution, core, data center, and WAN edge.
- Cisco Catalyst 6506-E Switch—6 slots; Front-access power supplies; Medium-form factor chassis for the wiring closet, distribution, core, data center, and WAN edge.
- Cisco Catalyst 6504-E Switch—4 slots; Rear-access power supplies; Small form factor, high performance, chassis sharing interface modules and supervisor engines with larger chassis for common sparing; Suitable for small and medium-sized enterprise core or distribution, or the metro or enterprise WAN edge.
- Cisco Catalyst 6503-E Switch—3 slots; Rear-access power supplies; Low-density, wiring-closet chassis sharing interface modules and supervisor engines with larger chassis for common sparing
- Cisco Catalyst 6513 Switch—13 slots; Front-access power supplies; High-capacity chassis for Ethernet connectivity, with slots to spare for services modules providing network security and management
- Cisco Catalyst 6509-V-E Switch—9 slots with vertical orientation; Front-access power supplies; Integrated cable management for high-density cabling environments; Front-to-back airflow optimized for high-density data center deployments
- Cisco Catalyst 6500 Virtual Switching Supervisor Engine 720-10G—Cisco Catalyst 6500 Virtual Switching System (VSS) technology; Two integrated line-rate 10-Gigabit Ethernet uplinks and 720-Gbps switching fabric; High-bandwidth deployments: core, distribution, aggregation, and data center access. It is compatible with all Cisco Catalyst 6500 chassis (except the Cisco Catalyst 6503 Switch.)
- Cisco Catalyst 6500 Series Supervisor Engine 720—Integrated switching fabric capable of 720 Gbps; High-bandwidth deployments: core, distribution, aggregation, and data center access. It is compatible with all Cisco Catalyst 6500 chassis.)
- Cisco Catalyst 6500 Supervisor Engine 32 PISA—Multigigabit stateful Network Based Application Recognition (NBAR) for proactive application recognition; Hardware-accelerated Cisco IOS Flexible Packet Matching (FPM) for worm detection; 32-Gbps shared bus switching architecture; Ideal for wiring closet access and the WAN edge. It is compatible with all Cisco Catalyst 6500 chassis.
- Cisco Catalyst 6500 Supervisor Engine 32—32-Gbps shared-bus switching architecture; Ideal for wiring closet access. It is compatible with all Cisco Catalyst 6500 chassis.

Key Features

- Cisco IOS Software modularity—The Cisco Catalyst 6500 Series reduces planned and unplanned downtime while boosting operational efficiency. Modular subsystems run as independent processes, facilitating subsystem In Service Software Upgrades (ISSUs). Faults within modular subsystems are isolated from all other processes, and can be restarted without losing state (stateful process restarts).
- Cisco IOS Embedded Event Manager (EEM)—The Cisco IOS EEM automates proactive administrative tasks and network reactions to unexpected events to further enhance operational efficiency.
- Maximum PoE scalability—The Cisco Catalyst 6500 Series supports up to 409 Class 3 devices; it leads the industry in PoE port density and accelerates deployment of PoE-enabled devices such as IP telephones and wireless access points. Cisco Intelligent Power Management allocates the optimal amount of power per device.
- Cisco Catalyst 6500 Virtual Switching Supervisor Engine 720-10G—The Virtual Switching System (VSS) technology, built upon this supervisor engine, facilitates easy-to-use, reliable, and scalable switching for enterprise core, distribution, data center, and server access. VSS delivers a system performance of up to 1.44 Tbps by unifying two physical switches into a single, logical entity offering optimized network convergence, load balancing, and manageability. The supervisor engine can be used in standalone mode to deliver up to 48 Mpps of centralized and 450 Mpps of distributed switching performance, building the foundation for the Cisco Catalyst 6500 Virtual Switching System 1440.
- Cisco Catalyst 6500 Series Supervisor Engine 720—This supervisor engine is optimized for high-bandwidth needs of the enterprise core, distribution, and data centers; it delivers up to 720-Gbps switch-fabric bandwidth and more than 400 Mpps of switching performance. Throughput is increased with support for line cards with Cisco Express Forwarding and distributed Cisco Express Forwarding IPv6 and Multiprotocol Label Switching (MPLS) are supported in hardware. The switch supports the following Layer 3 routing protocols:

Routing Information Protocol (RIP), Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Intermediate System-to-Intermediate System (IS-IS), and Border Gateway Protocol (BGP).

- Cisco Catalyst 6500 Supervisor Engine 32 PISA—This supervisor engine is optimized for oversubscribed wiring closet deployments and the WAN edge, where application intelligence is critical. The Programmable Intelligent Services Accelerator (PISA) technology used on this supervisor engine provides hardware-accelerated Deep Packet Inspection using Network Based Application Recognition (NBAR) and Cisco IOS Flexible Packet Matching (FPM). This intelligence provides greater visibility into critical applications and prevents the spread of worms and viruses. Multiple uplink configurations are available (refer to information about the Cisco Catalyst 6500 Supervisor Engine 32).
- Cisco Catalyst 6500 Supervisor Engine 32—This supervisor engine is optimized for oversubscribed wiring closet deployments; it incorporates a 32-Gbps shared bus architecture with support for up to 15 Mpps of switching performance. Centralizing Layer 2 and Layer 3 forwarding, the supervisor engine is available in two models: 8-port Gigabit Ethernet uplinks or 2-port 10-Gigabit Ethernet uplinks.
- Various integrated service modules allow multigigabit throughput of services such as firewall, intrusion detection, anomaly detection, content switching (load balancing), network analysis, wireless integration (up to 1500 access points), voice gateway, and so on. These services provide industry-leading service integration into the Cisco Catalyst 6500.

Specifications

Feature	WS-C6503-E	WS-C6504-E	WS-C6506-E	WS-C6509-E	WS-C6509-V-E	WS-C6513
Modular Slots	3	4	6	9	9	13
Gigabit Ethernet SFP density	98	146	242	386	386	410
10 Gigabit Ethernet XENPAK/X2 port density	34	50	82	130	130	84
10/100/1000 density	97	145	241	385	385	577
10/100 density	192	288	480	768	768	1152
100BASE-FX density	98	146	242	386	386	578
Max. watt power consumption (redundant mode)						
AC Internal[1]	1,400	2,700	6,000	8,700	8,700	8,700
DC Internal	950	2,700	4,000	4,000	4,000	4,000
Max. number of 10/100/1000 Class 3 devices (15.4W) Max. power supplies						
AC Internal	48	110	240	384	384	265
WAN Interfaces	DS0 to OC-192					
Available Bandwidth	Scalable to 240 Gbps	Scalable to 320 Gbps	Scalable to 480 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps	Scalable to 720 Gbps
Throughput	Scalable to 131Mpps	Scalable to 179Mpps	Scalable to 275Mpps	Scalable to 419Mpps	Scalable to 419Mpps	Scalable to 457Mpps
Redundant Supervisor	Yes					
Hot-Swappable Power Supplies	Yes					
VLAN Maximum	4096					
EtherChannel Capable	Yes; up to 8 links of Fast Ethernet, Gigabit Ethernet or 10GE.					
Management Capabilities	CiscoWorks 2000, RMON, Encapsulated Remote Switched Port Analyzer (ERSPAN), SNMP, Telnet, BOOTP, and Trivial File Transfer Protocol (TFTP)					
Rack Unit (RU)	4	5	12	15	21	20
Dimensions (H x W x D)	7 x 17.5 x 21.7 in. (17.8 x 44.1 x 55.2 cm.)	8.7 x 17.5 x 21.6 in. (22.2 x 44.5 x 55.2 cm.)	19.2 x 17.5 x 18.2 in. (48.8 x 44.5 x 46.0 cm.)	24.5 x 17.5 x 18.2 in. (62.2 x 44.5 x 46.0 cm.)	36.75 x 17.2 x 20.7 in. (93.3 x 43.1 x 53.3 cm.)	33.3 x 17.3 x 18.1 in. (84.6 x 43.7 x 46.0 cm.)
Unit weight (chassis only)	33 lbs. (15.0 kgs.)	40 lbs. (18.1 kgs.)	50 lbs. (22.7 kgs.)	60 lbs. (27.3 kgs.)	121 lbs. (54.9 kgs.)	98 lbs. (45.0 kgs.)
Supervisor Engines	**Virtual Switching Supervisor Engine 720-10G (VS-S720-10G-3C=) (VS-S720-10G-3CXL=)**			**Supervisor Engine 720 (WS-SUP720-3BXL) (WS-SUP720-3B)**		
Chassis supported	All (except 6503 non-E)			All		
Bandwidth per slot	40 Gbps			40 Gbps		
Total bandwidth	720 Gbps			720 Gbps		
Packets per second	48 Mpps centralized; 457 Mpps distributed; 840 Mpps VSS configuration			30 Mpps centralized; 425 Mpps distributed		
MAC addresses supported	96K Max./80K effective			64K Max./32K effective		
Routes supported	256,000 (3C); 1,000,000 (3CXL)			256,000 (3B); 1,000,000 (3BXL)		
Onboard memory (DRAM)	1 GB			Up to 1GB		
Supervisor Engines	**Supervisor Engine 32-PISA (WS-S32-GE-PISA=) (WS-S32-10GE-PISA=)**			**Supervisor 32 (WS-SUP32-10GE-3B) (WS-SUP32-GE-3B)**		

Chassis supported	All	All
Hardware Accelerated Network Based Application Recognition (NBAR)	✓ (approx 2 Gbps)	N/A
Hardware Accelerated Flexible Packet Matching (FPM)	✓ (approx 2 Gbps)	N/A
Total bandwidth	32 Gbps	32 Gbps
Packets per second	15 Mpps	15 Mpps
MAC addresses supported	64K Max./32K effective	64K Max./32K effective
Routes supported	256,000	256,000
Onboard Memory (DRAM)	Up to 1GB	Up to 1 GB

1. Redundant Mode

Selected Part Numbers and Ordering Information

Catalyst 6500 Chassis	
WS-C6503-E	Catalyst 6500 Enhanced 3-slot chassis,4RU,no PS, no Fan Tray
WS-C6504-E	Catalyst 6500 Enhanced 4-slot chassis,5RU,no PS, no Fan Tray
WS-C6506-E	Catalyst 6500 Enhanced 6-slot chassis,12RU,no PS, no Fan Tray
WS-C6509-E	Catalyst 6500 Enhanced 9-slot chassis,15RU,no PS, no Fan Tray
WS-C6509-V-E	Catalyst 6500 Enhanced 9-slot Chassis (Vertical), No PS, Fan
WS-C6513	Catalyst 6500 13-slot chassis,20RU,no PS, no Fan Tray
Supervisor Engines	
VS-S720-10G-3CXL=	Catalyst 6500 Supervisor 720 with 2 ports 10GbE MSFC3 PFC3CXL
VS-S720-10G-3C=	Catalyst 6500 Supervisor 720 with 2 ports 10GbE MSFC3 PFC3C
WS-SUP720-3BXL=	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3BXL
WS-SUP720-3B=	Catalyst 6500/Cisco 7600 Supervisor 720 Fabric MSFC3 PFC3B
WS-S32-10GE-PISA=	Catalyst 6500 Supervisor 32 with PISA and 2 ports 10GbE
WS-S32-GE-PISA=	Catalyst 6500 Supervisor 32 with PISA and 8 GE uplinks
WS-SUP32-10GE-3B=	Catalyst 6500 Supervisor 32 with 2 ports 10GbE and PFC3B
WS-SUP32-GE-3B=	Catalyst 6500 Supervisor 32 with 8 GE uplinks and PFC3B
Virtual Switching Supervisor Engine 720-10G Bundles	
VS-C6504E-S720-10G	Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6506E-S720-10G	Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6509E-S720-10G	Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6509VE-S720-10G	Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
VS-C6513-S720-10G	Catalyst Chassis+Fan Tray+Sup720-10G; IP Base ONLY; NO VSS
Supervisor Engine 32-PISA Bundles	
WS-C6503E-S32P10GE	Catalyst 6503E chassis, WS-S32-10GE-PISA, Fan Tray (req.P/S)
WS-C6504E-S32P10GE	Catalyst 6504E chassis, WS-S32-10GE-PISA, Fan Tray (req.P/S)
WS-C6506E-S32P10GE	Catalyst 6506E chassis, WS-S32-10GE-PISA, Fan Tray (req.P/S)
WS-C6509E-S32P10GE	Catalyst 6509E chassis, WS-S32-10GE-PISA, Fan Tray (req.P/S)
WS-C6513-S32P10GE	Catalyst 6513 chassis, WS-S32-10GE-PISA, Fan Tray (req.P/S)
WS-C6503E-S32P-GE	Catalyst 6503E chassis, WS-S32-GE-PISA, Fan Tray (req.P/S)
WS-C6504E-S32P-GE	Catalyst 6504E chassis, WS-S32-GE-PISA, Fan Tray (req.P/S)
WS-C6506E-S32P-GE	Catalyst 6506E chassis, WS-S32-GE-PISA, Fan Tray (req.P/S)
WS-C6509E-S32P-GE	Catalyst 6509E chassis, WS-S32-GE-PISA, Fan Tray (req.P/S)
WS-C6513-S32P-GE	Catalyst 6513 chassis, WS-S32-GE-PISA, Fan Tray (req.P/S)
Supervisor Engine 32 Bundles	
WS-C6503E-S32-10GE	Catalyst 6503E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
WS-C6504-E-S32-10GE	Catalyst 6504-E Chassis + Fan Tray + Sup32-10GE
WS-C6506E-S32-10GE	Catalyst 6506E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
WS-C6509E-S32-10GE	Catalyst 6509E chassis, WS-SUP32-10GE-3B, Fan Tray (req.P/S)
WS-C6513-S32-10GE	Catalyst 6513 chassis, WS-SUP32-10GE-3B, Fan Tray (req. P/S)
WS-C6503E-S32-GE	Cisco Catalyst 6503E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
WS-C6504E-S32-GE	6504-E Chassis + Fan Tray + Sup32-GE
WS-C6506E-S32-GE	Cisco Catalyst 6506E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
WS-C6509E-S32-GE	Cisco Catalyst 6509E, WS-SUP32-GE-3B, Fan Tray (req. P/S)
WS-C6513-S32-GE	Cisco Catalyst 6513, WS-SUP32-GE-3B, Fan Tray (req. P/S)
Advanced Technology Bundles	
WS-C6504-E-VPN+-K9	Cisco Catalyst 6504E IPSec VPN SPA Security System
WS-C6506-E-VPN+-K9	Cisco Catalyst 6506E IPSec VPN SPA Security System
WS-C6509-E-VPN+-K9	Cisco Catalyst 6509E IPSec VPN SPA Security System

WS-C6513-VPN+-K9	Cisco Catalyst 6513 IPSec VPN SPA Security System
WS-C6503-E-FWM-K9	Cisco Catalyst 6503E Firewall Security System
WS-C6506-E-FWM-K9	Cisco Catalyst 6506E Firewall Security System
WS-C6509-E-FWM-K9	Cisco Catalyst 6509E Firewall Security System
WS-C6513-FWM-K9	Cisco Catalyst 6513 Firewall Security System
WS-C6504E-ACE20-K9	ACE20 4G 6504E Bundle
WS-C6509E-ACE20-K9	ACE20 8G 6509E Bundle
WS-C6504-E-WISM	Catalyst 6504-E WiSM bundle(SUP720-3B,WiSM, Fan Tray, (2) P/S)
WS-C6509-E-WISM	Catalyst 6509-E WiSM bundle(SUP720-3B,WiSM, Fan Tray, no P/S)
10 Gigabit Ethernet	
WS-X6716-10GE=	Catalyst 6500 16-port 10 Gigabit Ethernet Module (requires X2s)
WS-X6708-10GE=	Catalyst 6500 8-port 10 Gigabit Ethernet Module (requires X2s)
WS-X6704-10GE=	Catalyst 6500 4-port 10 Gigabit Ethernet Module (req. XENPAKs)
Gigabit Ethernet	
WS-X6748-SFP=	Catalyst 6500 48-port CEF720 GigE Module (Req. SFPs)
WS-X6724-SFP=	Catalyst 6500 24-port GigE Mod: fabric-enabled (Req. SFPs)
WS-X6816-GBIC=	Catalyst 6500 16-port GigE mod, 2 fab I/F, (Req GBICs, DFC/DFC3)
WS-X6516A-GBIC=	Catalyst 6500 16-port GigE Mod, fabric-enabled (Req. GBICs)
WS-X6408A-GBIC=	Catalyst 6000 8-port GE, Enhanced QoS (Req. GBICs)
10/100/1000 Ethernet	
WS-X6748-GE-TX=	Catalyst 6500 48-port 10/100/1000 GE Mod: fabric enabled, RJ-45
WS-X6148A-GE-TX=	Catalyst 6500 48-port 10/100/1000 w/Jumbo Frame, RJ-45
WS-X6148A-GE-45AF=	Catalyst 6500 48-Port PoE 802.3af 10/100/1000, w/Jumbo Frame
WS-X6548-GE-TX=	Catalyst 6500 48-port fabric-enabled 10/100/1000 Module
WS-X6548-GE-45AF=	Catalyst 6500 PoE 802.3af 10/100/1000 48-port(RJ45)CEF256 card
10/100 Ethernet	
WS-X6148A-RJ-45=	Catalyst 6500 48-Port 10/100 w/TDR, Upgradeable - PoE 802.3af
WS-X6148A-45AF=	Catalyst 6500 48-Port PoE 802.3af 10/100,card w/TDR
WS-X6148X2-RJ-45=	Catalyst 6500 96-Port 10/100 (RJ45), Upgradeable to PoE 802.3af
WS-X6148X2-45AF=	Catalyst 6500 PoE 802.3af 10/100, 96-Port (RJ-45) line card
WS-X6196-RJ-21=	Catalyst 6500 96-Port 10/100 Upgradeable - PoE 802.3af
WS-X6196-21AF=	Catalyst 6500 96-Port, PoE 802.3af 10/100 - RJ-21
WS-X6148-RJ21V=	Catalyst 6500 48-port 10/100 Inline Power Module, RJ-21
WS-X6548-RJ-45=	Catalyst 6500 48-port 10/100, RJ-45, x-bar
100FX Ethernet	
WS-X6148-FE-SFP=	Catalyst 6500 48 port 100Base-X module (require SFP)
Service Modules	
WS-SVC-WISM-1-K9=	Wireless Service Module (WiSM) for up to 300 Lightweight APs
ACE20-MOD-K9=	Application Control Engine 20 Hardware (requires Software)
WS-X6066-SLB-S-K9=	Content Switching Module with SSL daughter card
WS-X6066-SLB-APC=	Catalyst 6500/7600 Content Switching Module
WS-SVC-SSL-1-K9=	SSL Module for Catalyst 6500
WS-SVC-FWM-1-K9=	Firewall blade for 6500 and 7600, VFW License Separate
WS-SVC-IDS2BUNK9=	IDSM-2 600M mod spare
WS-SVC-ADM-1-K9=	Catalyst 6500 Cisco Anomaly Detection Module
WS-SVC-AGM-1-K9=	Catalyst 6500 Cisco Anomaly Guard Module
WS-SVC-NAM-1=	Catalyst 6500 Network Analysis Module-1
WS-SVC-NAM-2=	Catalyst 6500 Network Analysis Module
7600-SSC-400=	Cisco 7600 / Catalyst 6500 Services SPA Carrier Card
SPA-IPSEC-2G=	Cisco 7600 / Catalyst 6500 IPSec VPN SPA - DES/3DES/AES
SPA-IPSEC-SSC400-1	Cisco 6500/7600 IPSec VPN SPA Bundle 1 (system only)
SPA-IPSEC-SSC400-2	Cisco 6500/7600 IPSec VPN SPA Bundle 2 (system only)
WS-SVC-WEBVPN-K9=	SSL VPN Module for Catalyst 6500
WS-SVC-CMM=	Communication Media Module
WS-SVC-CMM-6E1=	6-Port E1 Interface Port Adapter
WS-SVC-CMM-6T1=	6-Port T1 Interface Port Adapter
WS-SVC-CMM-ACT=	Adhoc Conferencing and Transcoding PA
WS-SVC-CMM-24FXS=	24-Port FXS Interface Port Adapter
WS-SVC-CMM-BLANK=	CMM module Blank Panel Cover
802.3af Upgrades	
WS-F6K-48-AF=	C6k 802.3af PoE & ePoE daughter card: 6x48x-GETX,6148A-RJ45
WS-F6K-FE48X2-AF=	C6k PoE 802.3af Voice Card (WS-X6148X2-RJ-45 and -RJ-21)
WS-X6148-45AF-UG=	C6500 802.3af upgrade for 6148-RJ-45 (trade-in order only)
WS-X6148-21AF-UG=	Catalyst 6500 - PoE 802.3af upgrade - 6148-RJ-21
WAN Interface Modules	

7600-SIP-600=	Cisco 7600 Series SPA Interface Processor-600
7600-SIP-400=	Cisco 7600 Series SPA Interface Processor-400
7600-SIP-200=	Cisco 7600 Series SPA Interface Processor-200
WS-X6582-2PA=	Cisco7600/Catalyst6500 Enhanced FlexWAN, Fabric-enabled
Optics/Transceivers 10 Gigabit Ethernet	
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LR=	10GBASE-LR X2 Module
X2-10GB-LRM=	10GBASE-LRM X2 Module
X2-10GB-LX4=	10GBASE-LX4 X2 Module
X2-10GB-SR=	10GBASE-SR X2 Module
X2-10GB-CX4=	10GBASE-CX4 X2 Module
XENPAK-10GB-LW=	10GBASE-LW XENPAK Module
DWDM-XENPAK-xx.xx=	10GBASE-DWDM 15xx.xxnm XENPAK (100GHz ITU grid)
WDM-XENPAK-REC=	Receive-Only WDM XENPAK
XENPAK-10GB-ZR=	10GBASE-ZR XENPAK Module
XENPAK-10GB-ER(+)=	10GBASE-ER XENPAK Module
XENPAK-10GB-LR(+)=	10GBASE-LR XENPAK Module
XENPAK-10GB-LRM=	10GBASE-LRM XENPAK Module
XENPAK-10GB-LX4=	10GBASE-LX4 XENPAK Module
XENPAK-10GB-SR=	10GBASE-SR XENPAK Module
XENPAK-10GB-CX4=	10GBASE-CX4 XENPAK Module
Optics/Transceivers Gigabit Ethernet	
DWDM-SFP-xxxx=	DWDM SFP 15xx.xx nm SFP (100 GHz ITU grid)
CWDM-SFP-xxxx=	CWDM xxxx NM SFP Gigabit Ethernet and 1G/2G FC
GLC-BX-D=	1000BASE-BX SFP, 1490NM
GLC-BX-U=	1000BASE-BX SFP, 1310NM
GLC-ZX-SM=	1000BASE-ZX SFP
GLC-LH-SM=	GE SFP, LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-T=	1000BASE-T SFP
DWDM-GBIC-xx-xx=	1000BASE-DWDM 15xx.xxnm GBIC (100GHz ITU grid)
WDM-GBIC-REC=	xWDM Receive-Only GBIC
CWDM-GBIC-xxxx=	1000BASE-CWDM xxxx nm GBIC (single mode only)
WS-G5487=	1000Base-ZX extended reach GBIC (singlemode)
WS-G5486=	1000BASE-LX/LH long haul GBIC (singlemode or multimode)
WS-G5484=	1000BASE-SX Short Wavelength GBIC (Multimode only)
WS-G5483=	1000BASE-T GBIC
Optics/Transceivers Fast Ethernet	
GLC-FE-100BX-U=	100BASE-BX10-U SFP
GLC-FE-100BX-D=	100BASE-BX10-D SFP
GLC-FE-100ZX=	100BASE-ZX SFP (80km)
GLC-FE-100EX=	100BASE-EX SFP (40km)
GLC-FE-100LX=	100BASE-LX SFP for FE port
GLC-FE-100FX=	100BASE-FX SFP for FE port
Rack Mount Kits and Accessories	
KIT-MNTG-CG-3=	Mounting Kit and Cable Guide For Cisco 7603/Catalyst 6503 chassis
KIT-MNTG-CG-4=	Mounting Kit and Cable Guide For Cisco 7604 and 6504-E
WS-C6X06-RACK=	Catalyst 6x06 Rack Mount Kit and Cable Organizer, Spare
WS-C6X09-RACK=	Catalyst 6x09 Rack Mount Kit and Cable Organizer, Spare
WS-C6509-E-RACK=	Catalyst 6509-E Rack Mount Kit
WS-C6513-RACK=	Catalyst 6513 Rack Mount Kit and Cable Organizer, Spare
WS-C6597=	Catalyst C6506/9 23in Center Rack Mount Kit
WS-6513-RACK-MNT=	23in Rack Mount Kit for 6513
KIT-MNTG-09=	Mounting Kit For CISCO7609/Catalyst 6509-NEB-A chassis
CABLETRAY-09=	Cable Tray Assembly for Cisco 7609/Catalyst 6509-NEB-A
WS-F6K-48X2-SPLTR=	Spare - Y-Type Splitter Bar for WS-X6148X2-RJ-45
Power Supplies AC	
PWR-1400-AC=	1400W AC pwr/sup for CISCO7603 and Catalyst WS-C6503 chassis
PEM-20A-AC+=	PwrEntryMod use w/1400W AC P/S for Cisco 7603, WS-C6503
PWR-2700-AC/4=	2700W AC Power Supply for Cisco 7604/6504-E
WS-CAC-3000W=	Catalyst 6500 3000W AC power supply (spare)
WS-CAC-6000W=	Catalyst 6500 6000W AC Power Supply
WS-CAC-8700W-E=	Catalyst 6500 8700W Enhanced AC Power Supply
Power Supplies DC	
PWR-950-DC=	Spare 950W DC P/S for Cisco 7603/Catalyst 6503

PEM-DC/3=	Spare DC Power Entry Mod for Cisco7603/Catalyst 6503
PWR-2700-DC/4=	2700W DC Power Supply for Cisco 7604/6504-E
WS-CDC-2500W=	Catalyst 6000 2500W DC Power Supply, Spare
PWR-4000-DC=	4000W DC Pwr Supply for CISCO7609/13 and Catalyst 6509/13

For More Information

For more information about the Cisco Catalyst 6500 Family, visit: http://www.cisco.com/go/catalyst6500.

Cisco Catalyst Express 500 and Catalyst Express 520 Series Switches



The Cisco Catalyst Express 500 and Catalyst Express 520 Series switches are custom-built for growing small- and medium-sized businesses (SMBs), providing an easy-to-manage, secure network foundation optimized for data, wireless, and IP communications for organizations with up to 250 employees.

Ideal for Companies that Need These Features

- Power-over-Ethernet (PoE) ports
- Ability to upgrade from unmanaged switches or hubs
- GUI-based configuration and management

These switches are ideal for customers who are deploying switching solutions in networks with fewer than 250 users, wireless networks, or IP communications solutions. The Cisco Catalyst Express 520 Series is preconfigured to support Cisco Smart Business Communications System [SBCS] phone deployments.

Key Features

- Cisco IOS Software support—Cisco IOS Software ships with all Cisco Catalyst Express switches.
- Power over Ethernet (PoE)—Four-, 8-, and 24-port PoE configurations provide full 15.4W simultaneously on all ports and can power connected IP phones, wireless access points, IP video cameras, and other devices directly over the Ethernet connection, simplifying deployment and eliminating the need and cost of installing separate power supplies for connected endpoints.
- Robust network security—These switches provide security at the device level with Secure Sockets Layer (SSL) and Simple Network Management Protocol (SNMP) encryption, and at the network level with the Cisco Network Assistant security slider, which offers three preconfigured security levels.
- Optimized quality of service (QoS) with Cisco Smartports—Cisco Smartports technology matches the appropriate class-of-service (CoS) and differentiated-services-code-point (DSCP) values to the specific Cisco device connected to the Cisco Catalyst Express switch. This setup simplifies the deployment of IP communications and wireless LAN (WLAN) solutions by automatically detecting these applications and optimizing network QoS and security settings to support them.
- Easy installation and configuration—The embedded Device Manager and the free, downloadable Cisco Network Assistant and Cisco Configuration Assistant provide easy-to-use GUIs and Cisco Smartports technology to eliminate the complexity that typically accompanies configuration and simplify the management, troubleshooting, and ongoing optimization of the solutions.
- The Cisco Catalyst Express switches allow centralized management of small and medium-sized business (SMB) networks, including Cisco Catalyst switches, integrated services routers, and Cisco Unified IP Phones, using a single IP address. Management can be done locally or remotely, using a Secure Sockets Layer (SSL) connection.
- High performance—The solutions provide nonblocking, wire-speed switching on all ports to increase network availability and bandwidth, as well as features to manage port congestion and preserve performance.
- Cisco offers a limited lifetime hardware warranty on these switches.

Specifications

Feature	CE500-24TT	CE500-24LC	CE500-24PC	CE500G-12TC
Forwarding bandwidth (Gbps)	8.8	8.8	8.8	24
Packets per second (Mpps)	6.6	6.6	6.6	18
MAC addresses supported	8,000	8,000	8,000	8,000
Onboard memory (DRAM MB)	32	32	32	32
Gigabit Ethernet GBIC/SFP density	0	2	2	4
10/100/1000 density	2	2	2	12

10/100 density	24	24	24	0
Max. watt power consumption	30	110	460	45
PoE: Max. 802.3af Class 3 devices (15.4W)	0	4	24	0
PoE: Max. 802.3afClass 2 devices (7.3W)	0	4	24	0
AC/DC support	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 9.9 in. (4.39 x 44.45 x 25.15 cm.)	1.73 x 17.5 x 9.9 in. (4.39 x 44.45x 25.15 cm.)	1.73 x 17.5 x 14.4 in. (4.39 x 44.45x 36.58 cm.)	1.73 x 17.5 x 9.9 in. (4.39 x 44.45x 25.15 cm.)
Unit weight	8 lbs. (3.7 kgs.)	8 lbs. (3.7 kgs.)	12 lbs. (5.5 kgs.)	8 lbs (3.7 kgs.)
Feature	**CE520-24TT**	**CE520-24LC**	**CE520-24PC**	**CE520-8P**
Forwarding bandwidth (Gbps)	8.8	8.8	8.8	3.6
Packets per second (Mpps)	6.6	6.6	6.6	3.2
MAC addresses supported	8,000	8,000	8,000	8,000
Onboard memory (DRAM MB)	32	32	32	32
Gigabit Ethernet GBIC/SFP density	0	2	2	1
10/100/1000 density	2	2	2	0
10/100 density	24	24	24	8
Max. watt power consumption	30	110	460	204
PoE: Max. 802.3af Class 3 devices (15.4W)	0	4	24	8
PoE: Max. 802.3afClass 2 devices (7.3W)	0	4	24	8
AC/DC support	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 9.9 in. (4.39 x 44.45 x 25.15 cm)	1.73 x 17.5 x 9.9 in. (4.39 x 44.45 x 25.15 cm)	1.73 x 17.5 x 9.9 in. (4.39 x 44.45 x 25.15 cm)	1.73 x 10.6 x 9.1 in. (4.4 x 27 x 23 cm)
Unit weight	8 lb (3.7 kg)	8 lb (3.7 kg)	8 lb (3.7 kg)	5 lb (2.3 kg)

Selected Part Numbers and Ordering Information

Cisco Catalyst Express 500 Series	
WS-CE500-24TT	24 10/100 and 2 10/100/1000BT uplinks, GUI software
WS-CE500-24LC	24 10/100 (4 PoE) and 2 10/100/1000BT or SFP uplinks, GUI
WS-CE500-24PC	24 10/100 (24PoE) and 2 10/100/1000BT or SFP uplinks, GUI sw
WS-CE500G-12TC	8 10/100/1000BT and 4 10/100/1000BT or SFPs, GUI software
Cisco Catalyst Express 520 Series	
WS-CE520-24-TT-K9	12 10/100 and 2 10/100/1000BT uplinks, GUI managed
WS-CE520-24LC-K9	24 10/100 (4 PoE) and 2 10/100/1000BT or SFP uplinks, GUI managed
WS-CE520-24PC-K9	24 10/100 (24PoE) and 2 10/100/1000BT or SFP uplinks, GUI managed
WS-CE520-8PC-K9	8 10/100 PoE and 1 10/100/1000BT or SFP uplink. GUI managed
WS-CE520-24TC-K9	24 10/100/1000BT ports and 2 10/100/1000 or SFP ports. GUI managed
SFPs	
GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBU switches
GLC-FE-100FX	100BASE-FX SFP for FE port
GLC-LH-SM=	GE SFP,LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-FE-100LX	100BASE-LX SFP for FE port
GLC-FE-100BX-U	100BASE-BX10-U SFP
GLC-FE-100BX-D	100BASE-BX10-D SFP
RPS	
RPS-2300 (select PoE models only)	Redundant Power System 2300
CAB-RPS2300	Cable compatible with Catalyst Express
C3K-PWR-750WAC	For 24 ports of Class 3 PoE (15.4W/port)

For More Information

For more information about the Cisco Catalyst Express 500 Switches, visit: http://www.cisco.com/go/catalystexpress500.

Cisco Catalyst 2950 Series Switches



The Cisco Catalyst 2950 Series Switches are fixed-configuration, standalone, and stackable switches that provide wire-speed Fast Ethernet and Gigabit Ethernet connectivity for small, midsize service provider and industrial networks. When a Cisco Catalyst 2950 Switch is combined with a Cisco Catalyst 3550 Series Switch, the solution can facilitate IP routing from the edge to the core of the network. These Intelligent Ethernet switches come with Enhanced Image (EI) software configuration only.

In addition to the range of Intelligent Ethernet switches, the Cisco Catalyst 2950 Series also includes switches with Standard Image (SI) software configuration only and are standalone, fixed-configuration, managed 10/100 switches with Gigabit uplinks (part numbers 2950SX-48, 2950T-48, and 2950SX-24 only) providing user connectivity for small to midsize networks. These wire-speed desktop switches come with Standard Image (SI) software features and offer Cisco IOS Software functions for basic data, video, and voice services at the edge of the network.

Ideal for Companies that Need These Features

- Cisco Catalyst 2950 Series Switches with Enhanced Image (EI) Software—Layer 2-, 3-, and 4-based services: Advanced quality of service (QoS), security, high availability, and STP enhancements; Wire-speed performance; Cisco Network Assistant; Stackable infrastructure; Gigabit interface converter (GBIC)-based uplink ports for media flexibility
- Cisco Catalyst 2950G-48-EI Switches—Desktop connectivity; High port density
- Cisco Catalyst 2950G-24-EI Switches—Desktop connectivity; Medium port density
- Cisco Catalyst 2950G-24-EI-DC Switches—Network Equipment Building Standards (NEBS) compliance; Medium port density; (These switches are ideal for telco or data-center-networking [DCN] environments.)
- Cisco Catalyst 2950G-12-EI Switches—Low port density; (These switches are ideal for desktop connectivity.)
- Cisco Catalyst 2950T-48 Switches—High port density; High-speed uplink connectivity with 2 fixed 10/100/1000 ports
- Cisco Catalyst 2950T-24 Switches—High-speed uplink connectivity with 2 fixed 10/100/1000 ports ; Low price per port
- Cisco Catalyst 2950C-24 Switches—High-speed uplink connectivity over extended distances with 2 fixed 100BASE-FX connections using MT-RJ connectors; Low price per port
- Cisco Catalyst 2950 Series Switches with Standard Image (SI) Software—Wire-speed, high-performance switches for delivering 10-/100-Mbps speed connectivity to desktop PCs, servers, and other systems; Layer 2-based quality-of-service (QoS) and security features; Cisco Network Assistant (These switches are ideal for desktop connectivity.)
- Cisco Catalyst 2950-12 Switches—Low port density
- Cisco Catalyst 2950-24 Switches—Medium port density
- Cisco Catalyst 2950SX-48 Switches—High port density; High-speed uplink connectivity with 2 fixed 1000BASE-SX ports
- Cisco Catalyst 2950SX-24 Switches—High-speed uplink connectivity with 2 fixed 1000BASE-SX ports ; Medium port density

Key Features

- Cisco Network Assistant offers centralized management and configuration of Cisco networks to simplify deployment and ongoing maintenance by taking advantage of Cisco Smartports technology. This PC-based network-management application is optimized for networks with 20 devices or fewer.
- Cisco Catalyst 2950 Series Switches offer wire-speed performance in connecting end stations to the LAN.
- These switches provide intelligent services such as advanced quality of service (QoS), rate limiting, security filters, and multicast management to the network edge -- while maintaining the simplicity of traditional LAN switching.
- These switches are ideal for small and midsize networks.
- These switches offer sophisticated multicast management with Internet Group Management Protocol (IGMP) Snooping.
- These switches offer scalability and high-availability features.
- These switches support the Cisco Redundant Power System 675 (RPS 675).

Specifications

Feature	2950G-48-EI	2950G-24-EI	2950G-24-EI-DC	2950G-12-EI	2950T-24

Fixed Ports	48 port 10/100 autosensing & 2 GBIC-based Gigabit Ethernet ports	24 port 10/100 autosensing & 2 GBIC ports	24 port 10/100 autosensing & 2 GBIC ports and DC Power	12 port 10/100 autosensing & 2 GBIC ports	26-port (24 10/100 autosensing & 2 ports 1000BaseT
Forwarding Bandwidth	13.6 Gbps	8.8 Gbps	8.8Gbps	6.4Gbps	8.8 Gbps
Forwarding Rate	10.1 Mpps	6.6 Mpps	6.6 Mpps	4.8 Mpps	6.6 Mpps
Full-Duplex Capabilities	All Ports	All Ports	All Ports	All Ports	All Ports
VLAN Maximum	250-port-based VLANs	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
FEC	Yes	Yes	Yes	Yes	Yes
802.1Q	Yes	Yes	Yes	Yes	Yes
Security	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.1 1x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto), BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard				
Multicast	IGMP Snooping, IGMP filtering, Multicast VLAN Registration	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
QoS	802.1P, 4 egress queues, Weighted Round Robin, Strict Priority Scheduling, Expedite Queuing, Policing, Marking, Layer 3 and 4 Services, Auto QoS				
Management Capabilities	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS, RSPAN				
Software Image	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)	Enhanced Image (EI)
Flash Memory	8 MB	8 MB	8 MB	8 MB	8 MB
CPU DRAM	16 MB	16 MB	16 MB	16 MB	16 MB
Embedded RMON	History, Events, Alarms, Statistics	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
Dimensions (H x W x D)	1.72 x 17.5 x 13 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.72 x 17.5 x 9.52 in.	1.75 x 17.5 x 16 in.

Feature	**2950T-48**	**2950-24**	**2950-12**	**2950SX-12**	**2950SX-48**
Fixed Ports	50-port (48 10/100 autosensing & 2 ports 10/100/1000) T-12: 2 fixed 10/100/1000 uplink ports	24-port 10/100 autosensing	12-port 10/100 autosensing	26-port (24 10/100 autosensing & 2 ports1000BaseSX) C-12:2 fixed 100BASE-FX multimode uplink ports; S-12: 2 fixed 100BASE-LX single-mode uplink ports	50-port (48 10/100 autosensing & 2 ports 1000BASE-SX) 12 10/100 ports
Forwarding Bandwidth	13.6 Gbps	4.8 Gbps	2.4 Gbps	8.8 Gbps	13.6 Gbps
Forwarding Rate	13.6 Mpps	3.6 Mpps	1.8 Mpps	6.6 Mpps	13.6 Mpps
Full-Duplex Capabilities	All Ports	All Ports	All Ports	All Ports	All Ports
VLAN Maximum	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs	64-port-based VLANs
FEC	Yes	Yes	Yes	Yes	Yes
802.1Q	Yes	Yes	Yes	Yes	Yes
Security	Port Security, with MAC aging, Private VLAN Edge, 802.1 1x, RADIUS, TACACS+, BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard				
Multicast	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
QoS	802.1P, 4 egress queues, WRR, Strict Priority Scheduling				
Software Image	Standard Image (SI)	Standard Image (SI)	Standard Image (SI)	Standard Image (SI)	Standard Image (SI)
Flash Memory	8 MB	8 MB	8 MB	8 MB	8 MB
CPU DRAM	16 MB	16 MB	16 MB	16 MB	16 MB
Management Capabilities	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS	Same as 2950-24	Same as 2950-24	Same as 2950-24

Embedded RMON	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI	Same as 2950G-48-EI
Dimensions (H x W x D)	1.75 x 17.5 x 13 in.	1.75 x 17.5 x 11.8 in.	1.75 x 17.5 x 9.52 in.	1.75 x 17.5 x 9.52 in.	1.75 x 17.5 x 13 in.

Feature	**2950C-24**
Fixed Ports	26-port (24 10/100 autosensing & 2 ports100BaseFX)
Forwarding Bandwidth	5.2 Gbps
Forwarding Rate	3.9 Mpps
Full-Duplex Capabilities	All Ports
VLAN Maximum	250-port-based VLANs
FEC	Yes
802.1Q	Yes
Security	Port Security, with MAC aging, Private VLAN Edge, ACL, 802.1 1x, IBNS, SSH, RADIUS, TACACS+, SNMPv3 (crypto), BPDU Guard, BPDU Scheduling, SPAN for Intrusion Detection, Spanning Tree Root Guard
Multicast	Same as 2950G-48-EI
QoS	802.1P, 4 egress queues, Weighted Round Robin, Strict Priority Scheduling,
Management Capabilities	Express Setup, SPAN for Intrusion Detection, L2 Trace Route, VLAN 1 minimization, Auto configuration, SNMP, Telnet, RMON, CWSI, (CLI)-based out-of-band, embedded CMS, RPSAN
Software Image	Enhanced Image (EI)
Flash Memory	8 MB
CPU DRAM	16 MB
Embedded RMON	Same as Cisco Catalyst 2950G-48-EI
Dimensions (H x W x D)	1.75 x 17.5 x 11.8 in.

Selected Part Numbers and Ordering Information

Cisco Catalyst 2950 Series Switches	
WS-C2950G-48-EI	Cisco Catalyst 2950G-48 switch with 48 10/100 ports and 2 Gigabit Interface Converter (GBIC)-based GE ports, Enhanced Image
WS-C2950G-24-EI	Cisco Catalyst 2950G-24 switch with 24 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950G-24-EI-DC	Cisco Catalyst 2950G-24-DC switch with 24 10/100 ports, 2 GBIC ports and DC Power, Enhanced Image
WS-C2950G-12-EI	Cisco Catalyst 2950G-12 switch with 12 10/100 ports and 2 GBIC ports, Enhanced Image
WS-C2950T-24	Cisco Catalyst 2950C-24T switch with 24 10/100 ports and two fixed 1000BaseT Uplink ports, Enhanced Image
WS-C2950C-24	Cisco Catalyst 2950C-24 switch with 24 10/100 ports and two fixed 100BaseFX Uplink ports, Enhanced Image
WS-C2950SX-48-SI	Cisco Catalyst 2950SX-48 switch with 48 10/100 ports and two fixed 1000BASE-SX Uplink ports, Standard Image
WS-C2950T-48-SI	Cisco Catalyst 2950T-48 switch with 48 10/100 ports and two fixed 10/100/1000 Uplink ports, Standard Image
WS-C2950SX-24	Cisco Catalyst 2950SX-24 switch with 24 10/00 ports and two fixed 1000BaseSX Uplink ports, Standard Image
WS-C2950-24	Cisco Catalyst 2950-24 switch with 24 10/100 ports, Standard Image
WS-C2950-12	Cisco Catalyst 2950-12 switch with 12 10/100 ports, Standard Image
Gigabit Interface Converters (GBICs)	
WS-X3500-XL	GigaStack GBIC Gigabit Ethernet stacking GBIC and 50 cm cable
WS-G5484=	1000BaseSX GBIC short wavelength GBIC (multimode fiber only)
WS-G5486=	1000BaseLX/LH GBIC long wavelength/long haul GBIC (single or multimode fiber)
WS-G5487=	1000BaseZX GBIC extended-reach GBIC (single mode fiber only)
WS-G5483=	1000BaseT GBIC- Gigabit-Ethernet-over-copper GBIC
Redundant Power System (RPS)	
PWR675-AC-RPS-N1=	675W Redundant Power Supply with 1 connector cable
VAB-RPS-1414=	1.2 meter cable for Cisco RPS 300 to external device connection
Cables/Accessories	
CAB-RPS-1614=	1 RPS 675 connector cable 16/14
CAB-GS-50CM	50 centimeter cable for GigaStack GBIC
STK-RACKMOUNT-1RU=	Rack mount kit for 1 RU versions of Cisco Catalyst 2950, 3500 XL, 2900 XL, 1900, and FastHub 400 switches
Packaged SMARTnet 8x5xNBD Maintenance Contract	

CON-SNT-PKG3	Packaged SMARTnet 8x5xNBD Maintenance for the Cisco Catalyst 2950G-12, 2950-24 and 2950-12
CON-SNT-PKG4	Packaged SMARTnet 8x5xNBD Maintenance for the Cisco Catalyst 2950G-24 and 2850G-24-DC
CON-SNT-PKG6	Packaged SMARTnet 8x5xNBD Maintenance for the Cisco Catalyst 2950G-48

For More Information

For more information about the Cisco Catalyst 2950 Series Switches, visit:
http://www.cisco.com/go/catalyst2950.

Cisco Catalyst 2960 Series Switches



The Cisco Catalyst 2960 Series Switches are fixed-configuration switches offering Fast Ethernet, Power over Ethernet (PoE), and Gigabit Ethernet connectivity with intelligent LAN services for midmarket and branch-office networks. The Cisco Catalyst 2960 LAN Base Switches offer enhanced security, quality of service (QoS), and availability, and the Cisco Catalyst 2960 LAN Lite Switches offer entry-level features with scalable management and easy troubleshooting.

Three compact models offer a small footprint and silent operation yet deliver the enterprise feature set; they are ideal for applications outside the wiring closet such as office workspaces, classrooms, and micro branch offices where space is a premium.

Ideal for Companies that Need These Features

- Intelligent services at entry-level functions
- QoS, enhanced security, and availability
- Easy deployment and management of their networks

The Cisco Catalyst 2960 Series Switches are ideal for situations where space is a constraint.

Key Features

- Power over Ethernet (PoE)—Cisco Catalyst 2960 Series Switches offer 370W PoE, which simplifies IP telephony, wireless, and video surveillance deployments. It also provides intelligent power-management features.
- Security—Network security is enabled through a wide range of authentication methods, data-encryption technologies, and Cisco Network Admission Control (NAC) based on users, ports, and MAC addresses.
- Availability—The 802.1S/W standard facilitates standards-based fault tolerance, load balancing, and rapid recovery. Flexlink provides sub-100-msec convergence, and Per-VLAN Spanning Tree Plus (PVST+) increases available bandwidth by allowing traffic on redundant links.
- Quality of service (QoS)—Network control and bandwidth optimization are achieved through advanced QoS, granular rate limiting, access control lists (ACLs), and multicast services.
- Management—Cisco Network Assistant is a GUI-based management tool for configuration management and troubleshooting. Cisco Smartports automatically detects connected Cisco devices and recommends preset configurations for the switch port connected to the device.

Specifications

Features	WS-C2960-8TC-L	WS-C2960-24TC-L	WS-C2960-24TT-L	WS-C2960-48TC-L
Forwarding bandwidth (Gbps)	16	16	16	16
Packets per second (Mpps)	2.7	6.6	6.6	10.1
MAC addresses supported	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	1	2	0	2
10/100/1000 density	1	2	2	2
10/100 density	8	24	24	48
100BASE-FX density	0	0	0	0
Max. watt power consumption	20	30	30	45
AC/DC support	AC only	AC only	AC only	AC only

Dimensions (H x W x D)	1.73 x 10.6 x 6.4 in. (4.4 x 27 x 16.3 cm)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)
Unit weight	3 lbs. (1.4 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)
Features	**WS-C2960G-8TC-L**	**WS-C2960-48TT-L**	**WS-C2960G-24TC-L**	**WS-C2960G-48TC-L**
Forwarding bandwidth (Gbps)	32	16	32	32
Packets per second (Mpps)	11.9	10.1	35.7	39
MAC addresses supported	8,000	8,000	8,000	8,000
Onboard memory (DRAM)	64 MB	64 MB	64 MB	64 MB
Gigabit Ethernet GBIC/SFP density	1	0	4	4
10/100/1000 density	7	2	24	48
10/100 density	0	48	0	0
100BASE-FX density	0	0	0	0
Max. watt power consumption	30	45	75	140
AC/DC support	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 10.6 x 8.1 in. (4.4 x 27 x 20.5 cm)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)
Unit weight	3 lbs. (1.4 kgs.)	8 lbs. (3.6 kgs.)	10 lbs. (4.5 kgs.)	12 lbs. (5.4 kgs.)
Features	**WS-C2960-24-S**	**WS-C2960-24TC-S**	**WS-C2960-48TC-S**	
Forwarding bandwidth (Gbps)	16	16	16	
Packets per second (Mpps)	3.6	6.5	10.1	
MAC addresses supported	8,000	8,000	8,000	
Onboard memory (DRAM)	64 MB	64 MB	64 MB	
Gigabit Ethernet GBIC/SFP density	0	2	2	
10/100/1000 density	0	2	22	
10/100 density	24	24	48	
100BASE-FX density	0	0	0	
Max. watt power consumption	30	30	45	
AC/DC support	AC only	AC only	AC only	
Dimensions (H x W x D)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	
Unit weight	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	8 lbs. (3.6 kgs.)	
Features	**WS-C2960PD-8TT-L**	**WS-C2960-24LT-L**	**WS-C2960-24PC-L**	
Forwarding bandwidth (Gbps)	16	16	16	
Packets per second (Mpps)	2.7	6.5	6.5	
MAC addresses supported	8,000	8,000	8,000	
Onboard memory (DRAM)	64 MB	64 MB	64 MB	
Gigabit Ethernet GBIC/SFP density	0	0	2	
10/100/1000 density	1	2	2	
10/100 density	8	24	24	
100BASE-FX density	0	0	0	
PoE: Max. 802.3af Class 3 devices (15.4W)	0	8	24	
PoE: Max. 802.3af Class 2 devices (7.3W)	0	8	24	
Max. watt power consumption	11W	175W (dissipated power 51W)	470W (dissipated power 100W)	
AC/DC support	No internal power supply; DC input	AC only	AC only	
Dimensions (H x W x D)	1.73 x 10.6 x 8.1 in. (4.4 x 27 x 20.5 cm)	1.73 x 17.5 x 9.3 in. (4.4 x 44.5 x 23.6 cm.)	1.73 x 17.5 x 12.9 in. (4.4 x 44.5 x 32.8 cm.)	
Unit weight	3 lbs. (1.4 kgs.)	8 lbs. (3.6 kgs.)	10 lbs. (4.5 kgs.)	

Selected Part Numbers and Ordering Information

Cisco Catalyst 2960 Series LAN Base Switches	
WS-C2960PD-8TT-L	8 10/100 + 1 1000BT (PoE input) LAN Base Image
WS-C2960-8TC-L	8 10/100 + 1 T/SFP LAN Base Image
WS-C2960-24PC-L	24 10/100 PoE + 2T/SFP LAN Base Image
WS-C2960-24TC-L	24 10/100 + 2T/SFP LAN Base Image
WS-C2960-24LT-L	24 10/100 (8 PoE) + 2 1000BT LAN Base Image
WS-C2960-24TT-L	24 10/100 + 2 1000BT LAN Base Image
WS-C2960-48TC-L	48 10/100 + 2 T/SFP LAN Base Image
WS-C2960-48TT-L	10/100 Ports + 2 1000BT LAN Base Image
WS-C2960G-8TC-L	7 10/100/1000, 1 T/SFP LAN Base Image
WS-C2960G-24TC-L	24 10/100/1000, 4 T/SFP LAN Base Image
WS-C2960G-48TC-L	48 10/100/1000, 4 T/SFP LAN Base Image
Cisco Catalyst 2960 Series LAN Lite Switches	
WS-C2960-24-S	24 10/100 LAN Lite Image
WS-C2960-24TC-S	24 10/100 + 2T/SFP LAN Lite Image
WS-C2960-48TC-S	48 10/100 + 2T/SFP LAN Lite Image
SFPs	
GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBU switches
GLC-FE-100FX	100BASE-FX SFP for FE port
GLC-LH-SM=	GE SFP,LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-FE-100LX	100BASE-LX SFP for FE port
GLC-FE-100BX-U	100BASE-BX10-U SFP
GLC-FE-100BX-D	100BASE-BX10-D SFP
GLC-ZX-SM=	1000BASE-ZX SFP
RPS	
PWR-RPS2300	RPS2300 redundant power supply with 1 connector cable

For More Information

For more information about Cisco Catalyst 2960 Series Switches, visit: http://www.cisco.com/go/catalyst2960.

Cisco Catalyst 3560 Series Switches



The Cisco Catalyst 3560 Series Switches are fixed-configuration switches combining Gigabit Ethernet connectivity and Power over Ethernet (PoE) for small enterprise LAN access and branch office deployments.

Ideal for Companies that Need These Features

- Cisco Catalyst 3560 Series Switches—Enhanced business productivity, resiliency, security, and scalability; quick deployment and easy management of their networks; deployments of IP telephony, wireless, or Gigabit to the Desktop (GTTD)
- Cisco Catalyst 3560-24TS Switches—Low-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560-48TS Switches—Medium-density access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560-24PS Switches—Low-density access, Power over Ethernet (PoE), Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560-48PS Switches—Medium-density access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560G-24TS Switches—Low-density 10/100/1000 access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560G-24PS Switches—Low-density 10/100/1000 access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560G-48TS Switches—Medium-density 10/100/1000 access, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3560G-48PS Switches—Medium-density 10/100/1000 access, PoE, Layer 2+ or Layer 3 features, and one or more fiber uplinks

Key Features

- Availability—The Cisco Catalyst 3560 Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant links; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches provide 370W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments; intelligent power-management features; and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—The switches support advanced routing protocols such as Open Shortest Path First (OPSF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) to increase network scale; equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM); Virtual Route Forwarding Lite (VRFLite) to secure traffic; and IPv6.
- QoS—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities. Express setup facilitates quick and easy setup through a Web interface, and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.

Specifications

Features	WS-C3560-24TS	WS-C3560-48TS	WS-C3560-24PS	WS-C3560-48PS
Forwarding bandwidth (Gbps)	32	32	32	32
Packets per second (Mpps)	6.5	13.1	6.5	13.1
MAC addresses supported	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/16 MB	128/16 MB
Gigabit Ethernet GBIC/SFP density	2	4	2	4
10/100/1000 density	0	0	0	0
10/100 density	24	48	24	48
PoE: Max. 802.3af Class 3 devices (15.4W)	0	0	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	0	0	24	48
AC/DC support	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)
Unit weight	8.5 lbs. (3.9 kgs.)	9.1lbs. (4.1 kgs.)	11.3 lbs. (5.1 kgs.)	13.2 lbs. (6.0 kgs.)
Features	**WS-C3560G-24TS**	**WS-C3560G-48TS**	**WS-C3560G-24PS**	**WS-C3560G-48PS**
Forwarding bandwidth (Gbps)	32	32	32	32
Packets per second (Mpps)	38.7	38.7	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000
Onboard memory (DRAM/Flash)	128/32 MB	128/32 MB	128/32 MB	128/32 MB
Gigabit Ethernet GBIC/SFP density	4	4	4	4
10/100/1000 density	24	48	24	48
10/100 density	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	0	0	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	0	0	24	48
Dimensions (H x W x D)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)
Unit weight	12 lbs. (5.4 kgs.)	13.5 lbs. (6.1 kgs.)	14 lbs. (6.4 kgs.)	15.5 lbs. (7.0 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 3560 Series 10/100/1000 Workgroup Switches[1]

WS-C3560G-48PS-S	48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-48PS-E	48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-24PS-S	24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3560G-24PS-E	24 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3560G-48TS-S	48 10/100/1000T + 4 SFP Standard Image
WS-C3560G-48TS-E	48 10/100/1000T + 4 SFP Enhanced Image
WS-C3560G-24TS-S	24 10/100/1000T + 4 SFP Standard Image
WS-C3560G-24TS-E	24 10/100/1000T + 4 SFP Enhanced Image
Cisco Catalyst 3560 Series 10/100 Workgroup Switches	
WS-C3560-48PS-S	48 10/100 PoE + 4 SFP Standard Image
WS-C3560-48PS-E	48 10/100 PoE + 4 SFP Enhanced Image
WS-C3560-24PS-S	24 10/100 PoE + 2 SFP Standard Image
WS-C3560-24PS-E	24 10/100 PoE + 2 SFP Enhanced Image
WS-C3560-48TS-S	48 10/100 + 4 SFP Standard Image
WS-C3560-48TS-E	48 10/100 + 4 SFP Enhanced Image
WS-C3560-24TS-S	24 10/100 + 2 SFP Standard Image
WS-C3560-24TS-E	24 10/100 + 2 SFP Enhanced Image
IOS Upgrades	
CD-3560-EMI=	Enhanced Multilayer Image upgrade for 3560 10/100 models
CD-3560G-EMI=	Enhanced Multilayer Image upgrade for 3560 GE models
3560-AISK9-LIC-B=	Advanced IP Services for 3560 FE models running SMI
3560-AISK9-LIC-S=	Advanced IP Services upgrade for 3560 FE models running EMI
3560G-AISK9-LIC-B=	Advanced IP Services upgrade for 3560 GE models running SMI
3560G-AISK9-LIC-S=	Advanced IP Services upgrade for 3560 GE models running EMI
SFPs	
GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBU switches
GLC-LH-SM=	GE SFP,LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
CAB-SFP-50CM=	Cisco Catalyst 3560 SFP Interconnect Cable, 50cm
RPS 2300	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, No Power Supply 3
C3K-PWR-1150WAC	Cisco Catalyst 3750-E / 3560-E / RPS 2300 1150WAC power supply
C3K-PWR-750WAC	Cisco Catalyst 3750-E / 3560-E / RPS 2300 750WAC power supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300=	Spare RPS Cable for Cisco Redundant Power System 2300
CAB-RPS2300-E=	Spare RPS Cable RPS 2300 Catalyst 3750E/3560E Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300

1. S=IP Base; E=IP Services

For More Information

For more information about the Cisco Catalyst 3560 Series, visit: http://www.cisco.com/go/catalyst3560.

Cisco Catalyst 3560-E Series Switches



The Cisco Catalyst 3560-E Series is an enterprise-class line of standalone wiring closet switches that ease the deployment of secure converged applications. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with uplinks that easily upgrade from 1 to 10 Gigabit Ethernet, these switches enhance worker productivity by enabling applications such as IP telephony, wireless, and video.

Ideal for Companies that Need These Features

- Cisco Catalyst 3560-E Series Switches—Enhanced business productivity, resiliency, security, and scalability; Quick deployment and easy management of their networks; Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD); 1- to 10-Gigabit Ethernet upgradable uplinks
- Cisco Catalyst 3560E-24TD Switches—Low-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-48TD Switches—Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-24PD Switches—Low-density access, PoE, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-48PD Switches—Medium-density access, PoE, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-48PD Full Power—Medium-density 10/100/1000 access, full 15.4W of PoE on every port, Layer 2+ or Layer 3 features, PoE, and 1 or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-48TD Switches—Medium-density access, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-12SD Switches—Low-density Gigabit Ethernet fiber aggregation, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3560E-12D Switches—Low-density 10-Gigabit Ethernet fiber aggregation and Layer 2+ or Layer 3 features

Key Features

- Availability—The Cisco Catalyst 3560-E Series Switches offer fault tolerance, load balancing, and rapid recovery; increased available bandwidth with Per VLAN Spanning Tree Plus (PVST+) by allowing traffic on redundant link; and sub-100-millisecond convergence with Flexlink technology.
- Power over Ethernet (PoE)—The switches offer 1150W PoE, which simplifies IP telephony, wireless, and video-surveillance deployments. It provides intelligent power-management features and PoE combined with Fast Ethernet or Gigabit Ethernet.
- Layer 3—Advanced routing protocols such as Open Shortest Path First (OPSF), Enhanced Interior Gateway Routing Protocol (EIGRP), and Policy Based Routing (PBR) increase network scale. The switches provide equal cost routing as well as multicast routing such as Protocol Independent Multicast (PIM), Virtual Route Forwarding Lite (VRFLite) to secure traffic, and IPv6.
- Quality of service (QoS)—Traffic shaping smooths a sudden traffic flow outburst without dropping packets; shaped Round Robin guarantees bandwidth to mission-critical applications; and Scavenger Queuing protects against worms overloading resources.
- Management—Cisco Smartports quicken and simplify configuration of advanced Cisco Catalyst intelligent capabilities; express setup facilitates quick and easy setup through a Web interface; and resource templates help tailor switch resources for the application.
- Security—Dynamic Host Configuration Protocol (DHCP) Snooping allows only trusted ports to relay DHCP messages, eliminating rogue DHCP servers. Cisco Network Admission Control (NAC) prevents the propagation of costly worms and viruses; Dynamic ARP Inspection and IP Source Guard prevent against man-in-the-middle attacks; 802.1x and Identity-Based Network Services allow only authorized persons on the network; and port security prevents MAC address flooding attacks.
- The switches provide field-replaceable and -upgradable power supplies and fan.
- The switches provide a Cisco TwinGig Converter Module for migrating uplinks from 1 Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10 Gigabit Ethernet (X2).

Specifications

Features	WS-C3560E-24TD	WS-C3560E-48TD	WS-C3560E-24PD	WS-C3560E-48PD	WS-C3560-48PD Full Power
Forwarding bandwidth (Gbps)	64	64	64	64	64
Packets per second (Mpps)	6.5	13.1	6.5	13.1	13.1
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
Onboard memory (DRAM/ Flash)	128/32 MB	128/32 MB	128/16 MB	128/16 MB	128/16 MB
10/100/1000 density	24	48	24	48	48
10/100 density	24	48	24	48	48
PoE: Max. 802.3af Class 3 devices (15.4W)	24	48	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	24	48	24	48	48
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	AC and DC

Dimensions (H x W x D)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.5 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.73 x 17.5 x 21.7 in. (4.45 x 44.5 x 55.2 cm.)
Unit weight	17.9 lbs. (8.1 kgs.)	18.8lbs. (8.6kgs.)	18.3 lbs. (8.3kgs.)	19.2 lbs. 8.75kgs.)	20.9 lbs. (9.5 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 3560-E Series 10/100/1000 Workgroup Switches[1]	
WS-C3560E-24TD-S	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-24TD-S	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-24TD-E	Cisco Catalyst 3560E 24 10/100/1000+2*10GE(X2),265W,IPS s/w
WS-C3560E-48TD-S	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3560E-48TD-E	Cisco Catalyst 3560E 48 10/100/1000+2*10GE(X2),265W,IPS s/w
WS-C3560E-24PD-S	Cisco Catalyst 3560E 24 10/100/1000 PoE+2*10GE(X2),750W,IPB s/w
WS-C3560E-24PD-E	Cisco Catalyst 3560E 24 10/100/1000 PoE+2*10GE(X2),750W,IPS s/w
WS-C3560E-48PD-S	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),750W,IPB s/w
WS-C3560E-48PD-E	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),750W,IPS s/w
WS-C3560E-48PD-SF	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),1150W,IPB s/w
WS-C3560E-48PD-EF	Cisco Catalyst 3560E 48 10/100/1000 PoE+2*10GE(X2),1150W,IPS s/w
WS-C3560E-12SD-S	Catalyst 3560E 12 SFP + 2*10GE(X2), IPB s/w
WS-C3560E-12SD-E	Catalyst 3560E 12 SFP + 2*10GE(X2), IPS s/w
WS-C3560E-12D-S	Catalyst 3560E 12*10GE(X2), IPB s/w
WS-C3560E-12D-E	Catalyst 3560E 12*10GE(X2), IPS s/w
Cisco Catalyst 3560-E Series Product Activation Keys	
3560E-AISK9LCBQTY	Advanced IP Services for 3560 E, upgrade from IP Base
3560E-AISK9LCSQTY	Advanced IP Services for 3560 E, upgrade from IP Services
3560E-IPSLCB-QTY	IP Services for 3560 E, upgrade from the IP Base Feature Set
Power Supplies	
C3K-PWR-265WAC=	Cisco Catalyst 3750-E/3560-E 265WAC power supply
C3K-PWR-265WDC=	Cisco Catalyst 3750-E/3560-E 265WDC power supply
C3K-PWR-750WAC=	Cisco Catalyst 3750-E/3560-E/RPS 2300 750WAC power supply
C3K-PWR-1150WAC=	Cisco Catalyst 3750-E/3560-E/RPS 2300 1150WAC power supply
C3K-BLWR-60CFM=	Fan Module for the Cisco Catalyst 3750-E/3560-E
RPS 2300	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, No Power Supply 3
C3K-PWR-1150WAC	Cisco Catalyst 3750-E / 3560-E / RPS 2300 1150WAC power supply
C3K-PWR-750WAC	Cisco Catalyst 3750-E / 3560-E / RPS 2300 750WAC power supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300=	Spare RPS Cable for Cisco Redundant Power System 2300
CAB-RPS2300-E=	Spare RPS Cable RPS 2300 Catalyst 3750E/3560E Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300
TwinGig Converter Module	
CVR-X2-SFP=	TwinGig Converter Module
SFPs for the Cisco Catalyst 3560-E Series	
GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBU switches
GLC-LH-SM=	GE SFP, LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
GLC-BX-D=	1000BASE-BX SFP, 1490NM
GLC-BX-U=	1000BASE-BX SFP, 1310NM
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
X2 for Cisco Catalyst 3750-E Series	
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LR=	10GBASE-LR X2 Module

X2-10GB-SR=	10GBASE-SR X2 Module
LC to SC Cables for the Cisco Catalyst 3750-E Series	
CSS5-CABLX-LCSC=	CSS11500 10-Meter Fiber Single Mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-Meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-Meter Fiber Multimode SX LC-to-SC Connectors

1. S=IP Base; E=IP Services

For More Information

For more information about the Cisco Catalyst 3560-E Series Switches, visit:
http://www.cisco.com/go/catalyst3560E.

Cisco Catalyst 3750 Series Switches



The Cisco Catalyst 3750 Series Switch is an innovative product for midsize organizations and enterprise branch offices. Featuring Cisco StackWise technology, the switch improves LAN operating efficiency by combining ease of use and the highest resiliency available for stackable switches.

Ideal for Companies that Need These Features

- Cisco Catalyst 3570 Series Switches—Enhanced business productivity, resiliency, security, and scalability; Quick deployment and easy management of their networks; Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD)
- Cisco Catalyst 3750-24TS Switches—Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3750-24PS Switches—Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, Power over Ethernet (PoE), and one or more fiber uplinks
- Cisco Catalyst 3750-48TS Switches—Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst 3750-48PS Switches—Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more fiber uplinks
- Cisco Catalyst 3750G-24T Switches—Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with stacking capability without any uplinks
- Cisco Catalyst 3750G-24TS-1U Switches—Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability and fiber uplinks in a 1-rack unit (1RU) form factor
- Cisco Catalyst 3750G-24TS Switches—Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability and fiber uplinks in a 1.5RU form factor
- Cisco Catalyst 3750G-24PS Switches—Low-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability, PoE, and fiber uplinks
- Cisco Catalyst 3750G-48TS Switches—Medium-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability and fiber uplinks
- Cisco Catalyst 3750G-48PS Switches—Medium-density Layer 2+ or Layer 3 GTTD or Ethernet aggregation with switch stacking capability, PoE, and fiber uplinks
- Cisco Catalyst 3750G-12S/SD Switches—Aggregation of wiring-closet switches with optical connectivity and stacking
- Cisco Catalyst 3750-24FS Switches—Low-density access using 100BASE-FX fiber connections with switch stacking capability, basic Layer 3 features, and one or more fiber uplinks
- Cisco Catalyst WS-C3750G-24WS-S25 Switches—Integrated wireless LAN (WLAN) controller functions into Cisco Catalyst 3750G Series Switches (This switch supports 25 access points.)
- Cisco Catalyst WS-C3750G-24WS-S50 Switches—Integrated WLAN controller functions into Cisco Catalyst 3750G Series Switches (This switch supports 50 access points.)

Key Features

The Cisco Catalyst 3560-E Series Switches offer the same features as the Cisco Catalyst 3560 Series plus:

- Cisco StackWise technology—One IP address and one command-line interface (CLI) simplify management. A 32-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy and Layer 3 uplink resilience as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.

- Wireless—The integrated wireless LAN (WLAN) controller delivers centralized security policies, intrusion protection, RF management, QoS and Layer 3 fast secure roaming for WLANs. This WLAN controller is part of the Cisco Unified Wireless Network.

Specifications

Features	WS-C3750-24TS	WS-C3750-48TS	WS-C3750-24PS	WS-C3750-48PS	WS-C3750-24FS
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	6.5	13.1	6.5	13.1	6.5
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	0	0	0	0	0
Gigabit Ethernet GBIC/ SFP density	2	4	2	4	2
10 GE XENPAK/X2 port density	0	0	0	0	0
10/100/1000 density	0	0	0	0	0
10/100 density	24	48	24	48	0
100BASE-FX density	0	0	0	0	24
Max. watt power consumption	50	75	495	540	125
PoE: Max. 802.3af Class 3 devices (15.4W)	0	0	24	24	0
PoE: Max. 802.3af Class 2 devices (7.3W)	0	0	24	48	0
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 11.8 in. (4.4 x 44.5 x 30.1 cm.)
Unit weight	8 lbs. (3.6 kgs.)	9.1 lbs. (4.1 kgs.)	11.3 lbs. (5.1 kgs.)	13.2 lbs. (6.0 kgs.)	9.15 lbs. (4.15 kgs.)

Features	WS-C3750G -24T	WS-C3750G -24TS-1U	WS-C3750G -48TS	WS-C3750G-24PS	WS-C3750G-48PS
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	35.7	38.7	38.7	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	0	0	0	0	0
Gigabit Ethernet GBIC/ SFP density	0	4	4	4	4
10 GE XENPAK/X2 port density	0	0	0	0	0
10/100/1000 density	24	24	48	24	48
10/100 density	0	0	0	0	0
100BASE-FX density	0	0	0	0	0
PoE: Max. 802.3af Class 3 devices (15.4W)	0	0	0	24	24
PoE: Max. 802.3af Class 2 devices (7.3W)	0	0	0	24	48
AC/DC support	AC only	AC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)	1.73 x 17.5 x 14.9 in. (4.4 x 44.5 x 37.8 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)

Unit weight	10 lbs. (4.6 kgs.)	12 lbs. (5.5 kgs.)	14 lbs. (6.4 kgs.)	13.5 lbs. (6.1 kgs.)	15.5 lbs. (7.0 kgs.)
Features	**WS-C3750G -12S**	**WS-C3750G -12S-SD**	**WS-C3750G -16TD**	**WS-C3750G-24WS-S25**	**WS-C3750G-24WS-S50**
Forwarding bandwidth (Gbps)	32	32	32	32	32
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	32	32	32	32	32
Packets per second (Mpps)	17.8	17.8	35.7	38.7	38.7
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	20,000	20,000	11,000	11,000	11,000
Onboard memory (DRAM)	128 MB	128 MB	128 MB	128 MB	128 MB
10 GE density	0	0	1	0	0
Gigabit Ethernet GBIC/SFP density	12	12	0	2	2
10 GE XENPAK/X2 port density	0	0	1	0	0
10/100/1000 density	0	0	16	24	24
10/100 density	0	0	0	0	0
Max. watt power consumption	120	72	180	255	255
AC/DC support	AC only	DC only	AC only	AC only	AC only
Dimensions (H x W x D)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 17.5 x 12.8 in. (4.4 x 44.5 x 32.6 cm.)	1.73 x 17.5 x 16.1 in. (4.4 x 44.5 x 40.9 cm.)	2.59 x 17.5 x 11.6 in. (6.6 x 44.5 x 29.5 cm)	2.59 x 17.5 x 11.6 in. (6.6 x 44.5 x 29.5 cm)
Unit weight	10 lbs. (4.6 kgs.)	9 lbs. (4.08 kgs.)	12.5 lbs. (5.7 kgs.)	21 lbs. (9.5 kgs.)	21 lbs. (9.5 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 3750 Series Ethernet Switches	
WS-C3750G-24T-S	24 10/100/1000T Standard Multilayer Image
WS-C3750G-24T-E	24 10/100/1000T Enhanced Multilayer Image
WS-C3750G-24TS-S	24 10/100/1000 + 4 SFP Std Multilayer; 1.5RU
WS-C3750G-24TS-E	24 10/100/1000 + 4 SFP Enhcd Multilayer;1.5RU
WS-C3750G-24TS-S1U	24 10/100/1000 + 4 SFP Std Multilayer;1RU
WS-C3750G-24TS-E1U	24 10/100/1000 + 4 SFP Enh Multilayer;1RU
WS-C3750G-24PS-S	24 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-24PS-E	24 10/100/1000T PoE + 4 SFP Enhanced Image
SWLC3750-25-K9	IP BASE W/O CRYPTO WITH WEB BASED DEV MGR
Wireless LAN	
WS-C3750G-24WS-S25	3750G Integrated Wireless LAN Controller
WS-C3750G-24WS-S50	Integrated Wireless LAN Controller
Ethernet Switches	
WS-C3750G-48TS-S	48 10/100/1000T + 4 SFP Standard Multilayer
WS-C3750G-48TS-E	48 10/100/1000T + 4 SFP Enhanced Multilayer
WS-C3750G-48PS-S	48 10/100/1000T PoE + 4 SFP Standard Image
WS-C3750G-48PS-E	48 10/100/1000T PoE + 4 SFP Enhanced Image
WS-C3750G-16TD-S	16 10/100/1000BT+ 10GE (req XENPAK) Std Image
WS-C3750G-16TD-E	16 10/100/1000BT+ 10GE (req XENPAK) Enh Image
WS-C3750G-12S-S	12 SFP Standard Multilayer Image
Cisco Catalyst 3750 Series 10/100 Workgroup Switches	
WS-C3750-24FS-S	24 100BaseFX + 2 SFP Standard Multilayer Image
WS-C3750-24PS-S	24 10/100 PoE + 2 SFP Standard Image
WS-C3750-24PS-E	24 10/100 PoE + 2 SFP Enhanced Image
WS-C3750-24TS-S	24 10/100 + 2 SFP Standard Multilayer Image
WS-C3750-24TS-E	24 10/100 + 2 SFP Enhanced Multilayer Image
WS-C3750-48PS-S	48 10/100 PoE + 4 SFP Standard Image
WS-C3750-48PS-E	48 10/100 PoE + 4 SFP Enhanced Image
WS-C3750-48TS-S	48 10/100 + 4 SFP Standard Multilayer Image
WS-C3750-48TS-E	48 10/100 + 4 SFP Enhanced Multilayer Image
Cisco Catalyst 3750 Series OADM Modules	

CWDM-OADM1-1470=	Dual single channel OADM Module (1470nm)
CWDM-OADM1-1490=	Dual single channel OADM Module (1490nm)
CWDM-OADM1-1510=	Dual single channel OADM Module (1510nm)
CWDM-OADM1-1530=	Dual single channel OADM Module (1530nm)
CWDM-OADM1-1550=	Dual single channel OADM Module (1550nm)
CWDM-OADM1-1570=	Dual single channel OADM Module (1570nm)
CWDM-OADM1-1590=	Dual single channel OADM Module (1590nm)
CWDM-OADM1-1610=	Dual single channel OADM Module (1610nm)
CWDM-OADM4-1=	4-channels CWDM OADM Module (1470, 1490, 1510, 1530)
CWDM-OADM4-2=	4-channels CWDM OADM Module (1550, 1570, 1590, 16100)
WDM-1300-1550-S=	1300nm/1550nm WDM splitter cable
IOS Upgrades	
CD-3750-EMI=	Enhanced Multilayer Image upgrade for 3750 FE models
CD-3750G-EMI=	Enhanced Multilayer Image upgrade for 24-port 3750 GE models
CD-3750G-48EMI=	Enhanced Multilayer Image upgrade for 48-port 3750 GE models
3750-AISK9-LIC-B=	Advanced IP Services upgrade for 3750 FE models running SMI
3750-AISK9-LIC-S=	Advanced IP Services upgrade for 3750 FE models running EMI
3750G-AISK9-LIC-B=	Advanced IP Services upgrade for 3750 GE models running SMI
3750G-AISK9-LIC-S=	Advanced IP Services upgrade for 3750 GE models running EMI
3750G48-AISK9LC-B=	Advanced IP Services upgrade for 3750G-48 running SMI
3750G48-AISK9LC-S=	Advanced IP Services upgrade for 3750G-48 running EMI
SFPs	
GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBU switches
GLC-LH-SM=	GE SFPLC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
XENPAKs	
XENPAK-10GB-ER	10GBASE-ER XENPAK Module
XENPAK-10GB-ER=	10GBASE-ER XENPAK Module
C3-XENPAK10GB-LR=	10GBASE-LR XENPAK Module for Cisco Catalyst 3750
RPS 2300	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, No Power Supply 3
C3K-PWR-1150WAC	Cisco Catalyst 3750-E / 3560-E / RPS 2300 1150WAC power supply
C3K-PWR-750WAC	Cisco Catalyst 3750-E / 3560-E / RPS 2300 750WAC power supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300=	Spare RPS Cable for Cisco Redundant Power System 2300
CAB-RPS2300-E=	Spare RPS Cable RPS 2300 Catalyst 3750E/3560E Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300

For More Information

For more information about the Cisco Catalyst 3750 Series Switches, visit:
http://www.cisco.com/go/catalyst3750.

Cisco Catalyst 3750-E Series Switches



The Cisco Catalyst 3750-E Series with Cisco StackWise Plus technology is an enterprise-class line of stackable wiring-closet switches. Combining 10/100/1000 and Power over Ethernet (PoE) configurations with upgradable 1- to 10-Gigabit Ethernet uplinks, Cisco Catalyst 3750-E Switches help enhance worker productivity by enabling applications such as IP telephony, wireless, and video.

Ideal for Companies that Need These Features

- Cisco Catalyst 3570-E Series Switches—Enhanced business productivity, resiliency, security, and scalability; Quick deployment and easy management of their networks; 1- to 10-Gigabit Ethernet upgradable uplinks; Deployment of IP telephony, wireless, or Gigabit to the Desktop (GTTD)
- Cisco Catalyst 3750E-24TD Switches—Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3750E-24PD Switches—Low-density access with switch stacking capability, Layer 2+ or Layer 3 features, Power over Ethernet (PoE), and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3750-48TD Switches—Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3750-48PD Switches—Medium-density access with switch stacking capability, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks
- Cisco Catalyst 3750G-48PD full-power switches—Medium-density access with switch stacking capability, full 15.4W of PoE on every port, Layer 2+ or Layer 3 features, PoE, and one or more 10-Gigabit Ethernet fiber uplinks

Key Features

The Cisco Catalyst 3750-E Series Switches offer the same features as the Cisco Catalyst 3560 Series plus:

- Cisco StackWise Plus technology: One IP address and one command-line interface (CLI) simplify management. A 64-Gbps resilient architecture speeds convergence, and 1:N stack master redundancy and Layer 3 uplink resilience as well as cross-stack Cisco EtherChannel technology and quality of service (QoS) increase availability. Autoconfiguration and Cisco IOS Software version check and update accelerate deployment, and hot add and delete of switches keep the stack running.
- The Cisco TwinGig Converter Module facilitates migrating uplinks from 1-Gigabit Ethernet (Small Form-Factor Pluggable [SFP]) to 10-Gigabit Ethernet (X2) field-replaceable and -upgradable power supplies and fan tray.
- The Cisco Catalyst 3750-E Series Switches are fully backward-compatible with the Cisco Catalyst 3750 Series Switches.

Specifications

Features	WS-C3750E-24TD	WS-C3750E-48TD	WS-C3750E-24PD	WS-C3750E-48PD	WS-C3750E-48PD Full Power
Forwarding bandwidth (Gbps)	68	68	68	68	68
Maximum stack members	9	9	9	9	9
Total stack bandwidth (Gbps)	64	64	64	64	64
Packets per second (Mpps)	6.5	13.1	6.5	13.1	6.5
MAC addresses supported	12,000	12,000	12,000	12,000	12,000
Routes supported	11,000	11,000	11,000	11,000	11,000
10 GE density	2	2	2	2	2
10 GE XFP	2	2	2	2	2
10/100/1000 density	24	48	24	48	48
10/100 density	24	48	24	48	48
100BASE-FX density	0	0	0	0	24
Max. watt power consumption	50	75	495	540	125
PoE: Max. 802.3af Class 3 devices (15.4W)	24	48	24	48	48
PoE: Max. 802.3af Class 2 devices (7.3W)	24	48	24	48	48
AC/DC support	AC and DC	AC and DC	AC and DC	AC and DC	AC and DC
Dimensions (H x W x D)	1.75 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)	1.75 x 17.5 x 18.1 in. (4.45 x 44.5 x 46.0 cm.)
Unit weight	17.9 lbs. (8.1 kgs.)	18.3 lbs. (8.3 kgs.)	18.8 lbs. (8.6 kgs.)	19.2 lbs. (8.75 kgs.)	20.9 lbs. (9.5 kgs.)

Selected Part Numbers and Ordering Information

Catalyst 3560-E Series 10/100/1000 Workgroup Switches[1]	
WS-C3750E-24TD-S	Catalyst 3750E 24 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3750E-24TD-S	Catalyst 3750E 24 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3750E-24TD-E	Catalyst 3750E 24 10/100/1000+2*10GE(X2),265W,IPS s/w

WS-C3750E-48TD-S	Catalyst 3750E 48 10/100/1000+2*10GE(X2),265W,IPB s/w
WS-C3750E-48TD-E	Catalyst 3750E 48 10/100/1000+2*10GE(X2),265W,IPS s/w
WS-C3750E-24PD-S	Catalyst 3750E 24 10/100/1000 PoE+2*10GE(X2),750W,IPB s/w
WS-C3750E-24PD-E	Catalyst 3750E 24 10/100/1000 PoE+2*10GE(X2),750W,IPS s/w
WS-C3750E-48PD-S	Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2),750W,IPB s/w
WS-C3750E-48PD-E	Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2),750W,IPS s/w
WS-C3750E-48PD-SF	Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2),1150W,IPB s/w
WS-C3750E-48PD-EF	Catalyst 3750E 48 10/100/1000 PoE+2*10GE(X2),1150W,IPS s/w
Catalyst 3750-E Series Product Activation Keys	
3750E-IPS-LIC-B=	IP Services for 3750-E 24 ports, upgrade from IP Base
3750E48-IPS-LIC-B=	IP Services for 3750-E 48 ports, upgrade from IP Base
3750E-AISK9-LIC-B=	Advanced IP Services for 3750-E 24ports, upgrade IP Base
3750E-AISK9-LIC-S=	Advanced IP Services for 3750-E 24ports, upgrade IP Svs
3750E48-AISK9LC-B=	Advanced IP Services for 3750-E 48ports, upgrade IP Base
3750E48-AISK9LC-S=	Advanced IP Services for 3750-E 48ports, upgrade IP Svs
Power Supplies	
C3K-PWR-265WAC=	Catalyst 3750-E/3560-E 265WAC power supply
C3K-PWR-265WDC=	Catalyst 3750-E/3560-E 265WDC power supply
C3K-PWR-750WAC=	Catalyst 3750-E/3560-E/RPS 2300 750WAC power supply
C3K-PWR-1150WAC=	Catalyst 3750-E/3560-E/RPS 2300 1150WAC power supply
C3K-BLWR-60CFM=	Fan Module for the Catalyst 3750-E/3560-E
RPS 2300	
PWR-RPS2300	Cisco Redundant Power System 2300 and Blower, No Power Supply 3
C3K-PWR-1150WAC	Catalyst 3750-E / 3560-E / RPS 2300 1150WAC power supply
C3K-PWR-750WAC	Catalyst 3750-E / 3560-E / RPS 2300 750WAC power supply
ACC-RPS2300=	Spare Accessory Kit for Cisco Redundant Power System 2300
BLNK-RPS2300=	Spare Bay Insert for Cisco Redundant Power System 2300
CAB-RPS2300=	Spare RPS Cable for Cisco Redundant Power System 2300
CAB-RPS2300-E=	Spare RPS Cable RPS 2300 Catalyst 3750E/3560E Switches
BLWR-RPS2300=	Spare 45CFM Blower for Cisco Redundant Power System 2300
TwinGig Converter Module	
CVR-X2-SFP=	TwinGig Converter Module
SFPs for the Catalyst 3560-E Series	
GLC-GE-100FX=	100FX SFP on GE SFP ports for DSBU switches
GLC-LH-SM=	GE SFP, LC connector LX/LH transceiver
GLC-SX-MM=	GE SFP, LC connector SX transceiver
GLC-T=	1000BASE-T SFP
GLC-ZX-SM=	1000BASE-ZX SFP
GLC-BX-D=	1000BASE-BX SFP, 1490NM
GLC-BX-U=	1000BASE-BX SFP, 1310NM
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
X2 for Catalyst 3750-E Series	
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-LR=	10GBASE-LR X2 Module
X2-10GB-SR=	10GBASE-SR X2 Module
LC to SC Cables for the Catalyst 3750-E Series	
CSS5-CABLX-LCSC=	CSS11500 10-Meter Fiber Single Mode LX LC-to-SC Connectors
CSS5-CABSX-LC=	CSS11500 10-Meter Fiber Multimode SX LC Connectors
CSS5-CABSX-LCSC=	CSS11500 10-Meter Fiber Multimode SX LC-to-SC Connectors

1. S=IP Base; E=IP Services

For More Information

For more information about the Cisco Catalyst 3750-E Series Switch, visit:
http://www.cisco.com/go/catalyst3750E.

Cisco Catalyst 4948 Series Switches



The Cisco Catalyst 4948 Series Switches are Layer 2–4 fixed-configuration switches that offer high-performance, rack-optimized server switching for data centers of all sizes. The Cisco Catalyst 4948 Series offers high performance, low latency in a compact 1-rack unit (1RU) form factor.

Ideal for Companies that Need These Features

- Cisco Catalyst 4948—48 ports of Gigabit Ethernet switching in 1 rack unit (1RU) with dual power supplies; Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance
- Cisco Catalyst 4948-10GE—48 ports of Gigabit Ethernet switching in 1RU with dual power supplies; Nonblocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet performance with 10-Gigabit Ethernet uplinks

Key Features

- The Cisco Catalyst 4849 low-latency and wire-speed switching.
- The switches offer up to forty-eight 10/100/1000 ports with 4 Small Form-Factor Pluggable (SFP) ports or forty-eight 10/100/1000 ports with two 10-Gigabit Ethernet
- The switches have redundant internal AC or DC power supplies with a hot-swappable fan tray.
- SFP or X2 flexibility on fiber port interfaces covers a wide range of cabling distances.

Specifications

Feature	WS-C4948	WS-C4948-10GE
Forwarding bandwidth (Gbps)	96	136
Maximum stack members	0	0
Total stack bandwidth (Gbps)	0	0
Packets per second (Mpps)	72	102
MAC addresses supported	32,768	55,000
Routes supported	32,000	32,000
Onboard memory (DRAM)	256 MB	256 MB
10 GE density	0	2
Gigabit Ethernet GBIC/SFP density	4	0
10 GE XENPAK/X2 port density	0	2
10/100/1000 density	48	48
10/100 density	0	0
Max. watt power consumption	300	300
AC/DC support	AC/DC	AC/DC
Dimensions (H x W x D)	1.75 x 17.3 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)	1.75 x 17.3 x 16.1 in. (4.45 x 43.91 x 40.99 cm.)
Unit weight	16.5 (7.48 kgs.)	16.5 (7.48 kgs.)

Selected Part Numbers and Ordering Information

Cisco Catalyst 4900 Switch Series	
WS-C4948-S	Cisco Catalyst 4948, IPB s/w, 48-Port 10/100/1000+4 SFP, 1 AC p/s
WS-C4948-E	Cisco Catalyst 4948, ES s/w, 48-Port 10/100/1000+4 SFP, 1 AC p/s
WS-C4948	Cisco Catalyst 4948, optnl sw, 48-Port 10/100/1000+4 SFP, no p/s
WS-C4948-10GE	Cisco Catalyst 4948, optnl sw, 48*10/100/1000+2*10GE(X2), no p/s
WS-C4948-10GE-S	Cisco Catalyst 4948, IPB s/w, 48*10/100/1000+2*10GE(X2), 1 AC p/s
WS-C4948-10GE-E	Cisco Catalyst 4948, ES Image, 48*10/100/1000+2*10GE(X2), 1 AC p/s
Transceiver Modules	
GLC-T	1000BASE-T SFP
GLC-SX-MM	GE SFP, LC connector SX transceiver
GLC-LH-SM	GE SFP, LC connector LX/LH transceiver
GLC-BX-D	1000BASE-BX SFP, 1490NM
GLC-BX-U	1000BASE-BX SFP, 1310NM
GLC-ZX-SM	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC

CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
DWDM-SFP-xx.xx=	1000BASE-X DWDM (100GHz) SFPs
X2-10GB-CX4	10GBASE-CX4 X2 Module
X2-10GB-ER=	10GBASE-ER X2 Module
X2-10GB-SR	10GBASE-SR X2 Module
X2-10GB-LX4	10GBASE-LX4 X2 Module
X2-10GB-LRM	10GBASE-LRM X2 Module
X2-10GB-LR	10GBASE-LR X2 Module
Accessories	
PWR-C49-300AC=	Cisco Catalyst 4948 300-Watt AC Power Supply (Spare)
PWR-C49-300AC/2	Cisco Catalyst 4948 300-Watt AC Power Supply Redundant
PWR-C49-300DC=	Cisco Catalyst 4900 300-Watt DC Power Supply (Spare)
PWR-C49-300DC/2	Cisco Catalyst 4900 300-Watt DC Power Supply Redundant
WS-X4991=	Cisco Catalyst 4948 Fan Tray (Spare)
C4948-ACC-KIT=	Cisco Catalyst 49xx spare accessory kit
C4948-BKT-KIT=	Cisco Catalyst 49xx front and rear mount brackets

For More Information

For more information about the Cisco Catalyst 4900 Series, visit: http://www.cisco.com/go/catalyst4900.

Cisco Catalyst 4900M Series Switches

The Cisco Catalyst 4900M Series Switches are Layer 2–4 fixed-configuration switches that offer high-performance, rack-optimized server switching for data centers of all sizes. The Cisco Catalyst 4900 Series offers high performance, low packet size independent latency, and media flexibility in a compact 2RU form factor.



Ideal for Companies that Need These Features

- Flexibility of GbE and 10GbE ports in the same switch
- Full media flexibility for GbE and 10GbE fiber connectivity (copper, short reach multimode fiber, up to long reach/ DWDM on singlemode fiber)
- Sub 3us packet size independent low latency
- Up to 24 ports of 10 Gigabit Ethernet and up to 40 ports of Gigabit Ethernet in 2RU with dual power supplies
- Non-blocking Layer 2, 3, and 4 10/100/1000 Gigabit Ethernet, 1000BASE-X, and 10-Gigabit Ethernet performance

Key Features

- The Cisco Catalyst 4900M Series Switches provide packet size independent low-latency and wire-speed switching.
- The switches offer up to forty 10/100/1000 ports and up to twenty-four 10-Gigabit Ethernet ports (X2).
- The switches have redundant internal AC or DC power supplies with a hot-swappable fan tray.
- SFP or X2 flexibility on fiber port interfaces covers a wide range of cabling distances.

Specifications

Feature	WS-C4900M
Forwarding bandwidth (Gbps)	320
Maximum stack members	0
Total stack bandwidth (Gbps)	0
Packets per second (Mpps)	250
MAC addresses supported	55,000
Routes supported	256,000
Onboard memory (DRAM)	512MB
10 GbE density	24
Gigabit Ethernet GBIC/SFP density	32
10 GbE XENPAK/X2 port density	24
10/100/1000 density	40

10/100 density	0
Max. watt power consumption	1000
AC/DC support	AC/DC
Dimensions (H x W x D)	3.5 x 17.2 x 17.9in (89 x 437 x 455 cm)
Unit weight	25 to 39 (11.3 to 17.6kgs)

Selected Part Numbers and Ordering Information

Catalyst 4900M Switch Series	
WS-C4900M	Catalyst 4900M 8-port base system
WS-X4904-10GE	Catalyst 4900M 4 port 10GE half card with X2 interfaces
WS-X4908-10GE	Catalyst 4900M 8 port 10GE half card with X2 interfaces
WS-X4920-GB-RJ45	Catalyst 4900M 20-port 10/100/1000 RJ-45 half card
S49MES-12240XO=	Cisco CAT4900M IOS ENTERPRISE SERVICES W/O CRYPTO
S49MESK9-12240XO=	Cisco CAT4900M IOS ENTERPRISE SERVICES SSH
Transceiver Modules	
GLC-T	1000BASE-T SFP
GLC-SX-MM	GE SFP, LC connector SX transceiver
GLC-LH-SM	GE SFP, LC connector LX/LH transceiver
GLC-BX-D	1000BASE-BX SFP, 1490NM
GLC-BX-U	1000BASE-BX SFP, 1310NM
GLC-ZX-SM	1000BASE-ZX SFP
CWDM-SFP-1470=	CWDM 1470 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1490=	CWDM 1490 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1510=	CWDM 1510 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1530=	CWDM 1530 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1550=	CWDM 1550 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1570=	CWDM 1570 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1590=	CWDM 1590 NM SFP Gigabit Ethernet and 1G/2G FC
CWDM-SFP-1610=	CWDM 1610 NM SFP Gigabit Ethernet and 1G/2G FC
DWDM-SFP-xx.xx=	1000BASE-X DWDM (100GHz) SFPs
X2-10GB-CX4	10GBASE-CX4 X2 Module
X2-10GB-ER	10GBASE-ER X2 Module
X2-10GB-SR	10GBASE-SR X2 Module
X2-10GB-LX4	10GBASE-LX4 X2 Module
X2-10GB-LRM	10GBASE-LRM X2 Module
X2-10GB-LR	10GBASE-LR X2 Module
Accessories	
CVR-X2-SFP=	TwinGig Converter (for WS-X4908-10GE only)
PWR-C49M-1000AC	Catalyst 4900M AC Power Supply
WS-X4992=	4900M spare fan tray

For More Information

For more information about the Cisco Catalyst 4900M Series, visit: http://www.cisco.com/go/catalyst4900.

Chapter 3: Wireless LAN

Wireless LAN at a Glance

Product	Features	Page
SMB WIRELESS		
Cisco 521 Wireless Express Access Point	· Part of the Cisco Mobility Express Solution, this flexible, cost-effective wireless solution is designed specifically for small and medium-sized businesses (SMBs). · This single-band 802.11g access point offers business-class management, security, and scalability. · The access point offers high-performance wireless connectivity for offices and similar environments. · The access point operates in either standalone mode or controller-based modes with the Cisco 500 Series Wireless Express Mobility Controller to accommodate a diverse range of deployment and business mobility requirements.	3–4
Cisco 526 Wireless Express Mobility Controller	· Part of the Cisco Mobility Express Solution, this flexible, cost-effective wireless solution is designed specifically for SMBs. · This controller automatically optimizes a basic wireless network and supports advanced mobility services on top of that network. · It supports Secure Guest Access and optimized voice over wireless LAN (WLAN). · A single controller can support up to six Cisco 521 Access Points, and each network can have up to two controllers.	3–6
ENTERPRISE WIRELESS		
Cisco Aironet 1250 Series Access Points	· The first enterprise-class access points to support the IEEE 802.11n draft 2.0 standard, these access points offer combined data rates of up to 600 Mbps to give users mobile access to high-bandwidth data, voice, and video applications regardless of their location. · Multiple-input, multiple-output (MIMO) technology provides reliable and predictable wireless LAN (WLAN) coverage. · The Cisco Aironet 1250 can improve user experience for both existing 802.11a/b/g clients and new 802.11n clients. · The access point is designed with a modular platform to make field upgrades easy and to support emerging and future wireless technologies.	3–8
Cisco Aironet 1240 AG Series Access Points	· Rugged enterprise-class Cisco Aironet 1240 AG Series Access Points are designed for indoor industrial deployments and installations that require antenna versatility. · These access points are ideal for factories, warehouses, and retailers. · The broad operating temperature range and UL 2043 certification for plenum rating requirements set by local fire codes support installation of these access points in environmental air spaces. · Link-roll flexibility allows these access points to perform as wireless bridges between access points for backhaul to the network.	3–11
Cisco Aironet 1130 AG Series Access Points	· With two high-performance radios with integrated antennas, Cisco Aironet 1130 AG Access Points provide simultaneous support for the 802.11a and 802.11g standards, offering 108 Mbps of capacity for growing wireless LANs (WLANs). · This cost-compelling solution is ideal for high-capacity, high-security, enterprise-class WLANs. · The solution is ideal for easy deployment offices and similar facilities.	3–13

Cisco Aironet 1520 Series Access Points	· Cisco Aironet 1520 Lightweight Outdoor Mesh Access Point enables cost-effective and scalable deployment of a secure outdoor wireless LANs. · Designed for municipal Wi-Fi deployments for public access, public safety, or managed services, and for enterprise campus outdoor Wi-Fi extensions. · The Cisco 1522 Aironet Access Point provides dual-radio support (802.11a, 802.11b/g) and the Cisco 1524 provides modular radio support (802.11a, 802.11b/g, and licensed 4.9-GHz public safety) · Improved 802.11g radio sensitivity and range performance with Maximal Ratio Combining (MRC) · Multiple uplink options (Gigabit Ethernet-10/100/1000BASE-T and Fiber Small Form-Factor Pluggable (SFP) interfaces) · Multiple power options (Power over Ethernet [PoE], 480-VAC streetlight power, 12 VDC, and internal battery backup power) · 802.3af-compliant PoE interface to connect IP devices · NEMA 4X-certified enclosure · LED status indicators	3–15
Cisco Aironet 1400 Series Wireless Bridge	· Cisco Aironet 1400 Series Wireless Bridges support both point-to-point and point-to-multipoint configurations. · Range and throughput of these bridges support data rates up to 54 Mbps. · Enhanced security mechanisms are based on 802.11 standards. · The ruggedized enclosure is optimized for harsh outdoor environments with an extended operating temperature range.	3–18
Cisco Aironet 1300 Series Access Points	· Cisco Aironet 1300 Series configurable for access point, bridge, or workgroup bridge roles · Support for both point-to-point or point-to-multipoint configurations · Industry leading range and throughput, supporting 802.11 b/g 2.4 GHz with data rates up to 54 Mbps · Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range · Integrated or optional external antennas for flexibility in deployment	3–20
Cisco Aironet Wireless LAN Client Adapters	· Cisco Aironet 802.11a/b/g CardBus Wireless LAN Client Adapter, with the Cisco Wireless Security Suite and support for Wi-Fi Protected Access (WPA), offer secure network communications. · These comprehensive utilities provide flexible, easy configuration and management. · These tools provide high-performance 54-Mbps connectivity in the 2.4- and 5-GHz bands. · The range and throughput of these tools are exceptional. · The tools have a world mode for international roaming.	3–22
Cisco Secure Services Client	· The Cisco Secure Services Client is a software application that allows businesses of all sizes to deploy a single 802.1x authentication framework across endpoint devices to enable access to both wired and wireless networks. · The Cisco Secure Services Client supports the Federal Information Processing Standards (FIPS). · The product offers a simple end-user experience (two-click connect, integrated and automated VPN, and automated access to the network). · Cisco Secure Services Client offers central provisioning of users' access profiles.	3–23
Cisco 4400 Series Wireless LAN Controller	· The Cisco 4400 Series Wireless LAN Controller is ideal for enterprise WLAN deployments that require system-level security, scalability, and RF management. · The controller uses the LWAPP to centrally control Cisco Aironet lightweight access points for WLAN performance optimization and automated network resiliency. · The controller is available with 2 Gigabit Ethernet ports to support 12, 25, and 50 access points or with 4 Gigabit Ethernet ports to support 100 access points.	3–25
Cisco 2100 Series Wireless LAN Controller	· The Cisco 2100 Series Wireless LAN Controller is ideal for branch, retail, and small and medium-sized business (SMB) wireless LAN (WLAN) deployments that require system-level security, scalability, and RF management. · The controller uses the Lightweight Access Point Protocol (LWAPP) to centrally control Cisco Aironet® lightweight access points for WLAN performance optimization and automated network resiliency. · The controller supports 6, 12, or 25 lightweight access points, making it a cost-effective solution for enterprise branch offices, retail, and SMBs.	3–26

Cisco 3300 Series Mobility Services Engine	• The Cisco 3300 Series Mobility Services Engine transforms existing wireless LANs (WLANs) into comprehensive mobility networks through a uniform way of mobility services delivery. • The mobility services engine integrates with the Cisco Unified Wireless Network and Cisco Unified Communications Solutions to build on existing business mobility investments. • This extensible platform supports a suite of software with the ability to scale services through clustering. The software suite includes a context-aware, adaptive wireless intrusion prevention system (IPS), a secure client manager, and mobile intelligent roaming. • The open application programming interface (API) of the mobility services engine helps enable Cisco partners to develop business-relevant mobility applications.	3–27
Cisco Context-Aware Software	• Cisco Context-Aware Software offers advanced and scalable context-aware mobility services to simultaneously track thousands of Wi-Fi devices. • The software provides transparent integration with existing networks and applications for faster adoption. Cisco offers an open application programming interface (API) with the context-aware mobility software, making it easier for technology partners to integrate their applications and for customers to choose the right application over the right network for particular users. • Context-aware mobility software allows businesses to find the contextual information they need right away. For example, with sensors, the system can send an alert when the temperature of perishable goods exceeds a certain threshold. • The software reduces complexity with its centralized management and visualization features. Corporations can gain more complete and accurate insight into the business.	3–29
Cisco Wireless Control System	• Offers an enterprise-class management platform for simplified, easy-to-use management of the Cisco Unified Wireless Network • Provides a wide range of tools for monitoring, configuring, managing, controlling, troubleshooting, and securing the wireless LAN (WLAN) infrastructure, client devices, and the RF environment • Provides a centralized platform for managing a complete network of Cisco® wireless LAN controllers, Cisco Aironet® lightweight access points, Cisco Mobility Services Engine (MSE), Cisco Wireless Location Appliances, and the environment for voice over WLAN (VoWLAN) phones • Supports easy migration of standalone (autonomous) access points to operate as lightweight access points through a migration tool and enhanced monitoring capabilities • Simplifies WLAN planning, deployment, and operations • Supports secure wired and wireless guest access • Interfaces with Cisco Spectrum Expert to detect Wi-Fi and RF interference • Manages Cisco MSE to support mobility services such as context-aware mobility, mobile intelligent roaming, adaptive wireless IPS, and secure client manager.	3–30
Cisco Wireless Control System Navigator	• Offers an aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network • Centralizes the operational control and management of multiple Cisco WCS management platforms	3–32
Cisco Wireless Location Appliance	• The Cisco Wireless Location Appliance offers advanced and scalable location tracking that simultaneously tracks up to 2500 wireless users and devices to within a few meters of their physical location indoors and to the closest access points outdoors. • The appliance offers integrated location tracking using existing unified wireless infrastructure, minimizing capital expenditures and helping ensure better wireless LAN (WLAN) visibility. • The appliance supports integration with a customizable set of location-based applications through tight and transparent integration with the appliance open application programming interface (API). • This appliance is part of the Cisco Location Solution that supports chokepoint-based notifications as well as receipt of telemetry, battery, and emergency group information from Cisco Compatible Extensions Wi-Fi tags.	3–33
CiscoWorks Wireless LAN Solution Engine (WLSE) and CiscoWorks Wireless LAN Solution Engine Express	This hardware-based wireless LAN (WLAN) management solution provides template-based configurations with user-defined groups to effectively manage a large number of standalone (autonomous) access points and wireless bridges. It also: • Monitors IEEE 802.1X authentication server availability • Enhances security management through misconfiguration detection on standalone access points and wireless bridges	3–34
Cisco Configuration Assistant	• Cisco Configuration Assistant is comprehensive, GUI-based configuration and management software for the Cisco Smart Business Communications System. • Cisco Configuration Assistant automatically discovers and dynamically configures Cisco 521 Access Points and Cisco 526 Mobility Controllers to simplify and accelerate wireless network setup.	3–35

Cisco Spectrum Expert Wi-Fi	• This spectrum analyzer tool offers visibility into the RF layer of wireless networks so that organizations can determine the causes of interference problems and optimize network performance. • Active Devices offers comprehensive lists of all access points, temporary networks, and interferer devices (for example, microwave ovens, cordless phones, wireless security cameras, Bluetooth devices, and RF jammers). • Channel Summary, Devices View, and Device Finder details visibility of RF activity, effect on the wireless network, and the location of devices causing wireless interference.	3–35
Cisco Aironet Antennas and Accessories	• Cisco offers a wide array of options of antennas and accessories. • FCC-approved directional and omnidirectional antennas are available. • Low-loss cable, mounting hardware, and other accessories are available.	3–37

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business. For more information about Cisco Advanced Services, visit http://www.cisco.com/go/techservices.

For more information about all services, see Chapter 10, "Services".

Cisco 521 Wireless Express Access Point



The Cisco 521 Wireless Express Access Point is a single-band 802.11g access point that features business-class management, security, and scalability. It offers high-performance wireless connectivity in offices and similar environments in small and medium-sized businesses. Cisco 521 Wireless Express Access Points can operate in standalone mode or controller-based mode with the Cisco 500 Series Wireless Express Mobility Controller to accommodate a diverse range of deployment and business mobility requirements.

Ideal for Companies that Need These Features

- An affordable, entry-level wireless solution through standalone access points
- Compliance with the latest Wi-Fi standards
- Investment protection: Standalone access points can be upgraded to a controller-based solution at a later date.
- Transparent integration with the Cisco Smart Business Communications System

Key Features

- An IEEE 802.11g radio provides 54-Mbps capacity and backward compatibility with older 802.11b clients.
- The industry-leading radio design provides robust signals over long distances and mitigates the effects of multipath signal propagation for more consistent coverage.
- Variable transmit power settings allow tuning of access-point coverage to accommodate various requirements; a low-dBm setting supports closer spacing of access points in high-density deployments.
- Integrated antennas allow quick deployment of the complete system without external antennas; the antennas provide omnidirectional coverage for offices and similar RF environments.
- The Cisco 512 Wireless Express Access Point complies with IEEE 802.11i security standards and is Wi-Fi Protected Access (WPA) and WPA2 certified. It facilitates hardware-assisted Advanced Encryption Standard (AES) encryption to provide high security without performance degradation.
- The access point is orderable as a standalone access point or as a controller-based access point.
- The Cisco 521 Wireless Express Access Point is Wi-Fi certified.

Specifications

Features	Cisco 521 Wireless Express Access Point
Data Rates Supported	802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Network Standard	IEEE 802.11b and 802.11g
Uplink	Autosensing 802.3 10/100BASE-T Ethernet
Frequency Band and Operating	Americas (FCC)—A: 2.412 to 2.462 GHz; 11 channels Europe (ETSI)—E:2.412 to 2.472 GHz; 13 channels Japan-P (TELEC 2 (Japan2) Cnfg) 2.412 to 2.484 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM)
Nonoverlapping Channels	802.11b/g: Up to 3
Receive Sensitivity (Typical)	802.11g—1 Mbps: –93 dBm; 2 Mbps: –91 dBm; 5.5 Mbps: –88 dBm; 6 Mbps: –86 dBm; 9 Mbps: –85 dBm; 11 Mbps: –85 dBm; 12 Mbps: –84 dBm;18 Mbps: –83 dBm; 24 Mbps: –79 dBm; 36 Mbps: –77 dBm; 48 Mbps: –72 dBm; 54 Mbps: –70 dBm
Available Transmit Power Settings[1]	802.11b: Complementary Code Keying (CCK)—20 dBm (100 mW);17 dBm (50 mW);14 dBm (25 mW); 11 dBm (12 mW); 8 dBm (6 mW); 5 dBm (3 mW); 2 dBm (2 mW); –1 dBm (1 mW) 802.11g: OFDM—17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12 mW); 8 dBm (6 mW); 5 dBm (3 mW); 2 dBm (2 mW); –1 dBm (1 mW)
Range[2]	Indoor (distance across open office environment) 802.11g—100 ft (30 m) @ 54 Mbps; 175 ft (53 m) @ 48 Mbps; 250 ft (76 m) @ 36 Mbps; 275 ft (84 m) @ 24 Mbps; 325 ft (100 m) @ 18 Mbps; 350 ft (107 m) @ 12 Mbps; 360 ft (110 m) @ 11 Mbps; 375 ft (114 m) @ 9 Mbps; 400 ft (122 m) @ 6 Mbps; 420 ft (128 m) @ 5.5 Mbps; 440 ft (134 m) @ 2 Mbps; 450 ft (137 m) @ 1 Mbps Outdoor 802.11g—120 ft (37 m) @ 54 Mbps; 350 ft (107 m) @ 48 Mbps; 550 ft (168 m) @ 36 Mbps; 650 ft (198 m) @ 24 Mbps; 750 ft (229 m) @ 18 Mbps; 800 ft (244 m) @ 12 Mbps; 820 ft (250 m) @ 11 Mbps; 875 ft (267 m) @ 9 Mbps; 900 ft (274 m) @ 6 Mbps; 910 ft (277 m) @ 5.5 Mbps; 940 ft (287 m) @ 2 Mbps; 950 ft (290 m) @ 1 Mbps
Antennas	2.4 GHz; Gain: 3.0 dBi; Horizontal beam width: 360°
Status LEDs	• External: Status LED indicates operating state, association status, error/warning condition, boot sequence, and maintenance status • Internal:Ethernet LED indicates activity over the network
Dimensions (H x W x D)	7.5 x 7.5 x 1.3 in. (19.1 x 19.1 x 3.3 cm)
Weight	1.5 lb (0.67 kg)
Environmental	32 to 104°F (0 to 40°C) 10 to 90% humidity (noncondensing)
System Memory	32 MB RAM 16 MB flash
Input Power	100 to 240 VAC; 50 to 60 Hz (power supply) 36 to 57 VDC (device)
Power Draw	9.9W maximum
Warranty	1 Year
Wi-Fi- Certification	
Compliance	**Standards** • Safety—UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1; NIST FIPS 140-2 Level 2 validation • Radio Approvals—FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, en 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); AS/NZS 4268.2003 (Australia and New Zealand) • EMI and Susceptibility (Class B)—FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe) • Security— 802.11i, WPA2, WPA; 802.1X; AES, TKIP; FIPS 140-2 Pre-Validation List; Common Criteria (when running Cisco IOS Software) • Other— IEEE 802.11g; FCC Bulletin OET-65C; RSS-102
System Requirements	
Access Utilizing	**Description**
Browser	Using the web browser management GUI requires a computer running Internet Explorer Version 6.0 or newer, or Netscape Navigator Version 7.0 or newer.
Power over Ethernet (PoE)	Power sourcing equipment (PSE) compliant with Cisco Inline Power or IEEE 802.3af, and providing at least 12.2W at 48 VDC.

Security

Standalone Access Point

Security	Encryption	Authentication
No security	None	Open
WEP	WEP	Open
LEAP	Dynamic-WEP	Open-EAP Network-EAP
WPA	TKIP	Open-EAP Network-EAP
WPA-PSK	TKIP	WPA-PSK
WPA2	AES CCMP	Open-EAP Network-EAP
WPA2-PSK	AES CCMP	WPA-PSK
MAC	None	Open, MAC
MAC and EAP	Dynamic WEP	Open, MAC, Network-EAP

Controller-Based Access Point

Security	Encryption	Authentication
No security	None	Open
WEP	WEP/shared	Open
EAP	WEP	802.1x
WPA	TKIP/AES	802.1x
WPA-PSK	TKIP/AES	WPA-PSK
WPA2	TKIP/AES	802.1x
WPA2-PSK	TKIP/AES	WPA2-PSK

1. Maximum power setting will vary by channel and according to individual country regulations.
2. Ranges and actual throughput vary based on numerous environmental factors so individual performance may differ.

Selected Part Numbers and Ordering Information

AIR-AP521G-x-K9	Standalone mode; Cisco IOS® Software
AIR-LAP521G-x-K9	Controller mode; requires the Cisco Wireless Express Mobility Controller Regulatory domains: (x=regulatory domain) A=FCC, E=ETSI, P=Japan2 Customers are responsible for verifying approval for use in their individual countries. To verify approval and to identify the regulatory domain that corresponds to a particular country, visit: http://www.cisco.com/go/aironet/compliance.

For More Information

For more information about the Cisco 521 Wireless Express Access Point, visit:
http://www.cisco.com/go/mobilityexpress.

Cisco 526 Wireless Express Mobility Controller



The Cisco 526 Wireless Express Mobility Controller is a network appliance that automatically optimizes the basic wireless network and supports advanced mobility services on top of that network. The Cisco Mobility Express solution brings together the Cisco 526 Controller and the Cisco 521 Wireless Express Access Point as a flexible, cost-effective wireless solution specifically designed to meet the needs of small and medium-sized businesses.

The Cisco 526 Wireless Express Mobility Controller harnesses the power of Cisco Lightweight Access Point Protocol (LWAPP) technology, best-in-class automatic radio optimization, mobility performance, and multi-access-point management. On top of the basic transport layer, the controller supports Cisco Secure Guest Access and voice-over-WLAN advanced mobility services.

Ideal for Companies that Need These Features

- Centralized management for easier access-point configuration and updating
- Dynamic RF management for optimal coverage without extensive site surveys
- Advanced mobility features such as Cisco Secure Guest Access and voice over Wi-Fi

Key Features

- The Cisco 526 Wireless Express Mobility Controller supports Cisco LWAPP technology to communicate between access points and controllers for simplified deployment and management and to automate functions required for a pervasive WLAN end-user experience.
- The controller is mobility services-ready; it supports Cisco Secure Guest Access and voice-over-WLAN optimization.
- Multi-access point radio resource management coordinates access points in real time to optimize radio coverage and capacity while avoiding points of interference.
- The controller supports industry-standard authentication mechanisms, including Wireless Equivalent Privacy (WEP), MAC Filtering, WPA, WPA2, WebAuth, and Extensible Authentication Protocol (EAP) to facilitate scalable security architectures and minimize interoperability problems.
- The controller supports up to eight Service Set Identifiers (SSIDs) or VLANs, thereby allowing one physical WLAN infrastructure to be shared as a virtual wired or wireless network.

Specifications

Features	Cisco 526 Wireless Express Mobility Controller
Physical interfaces	2 10/100 Ethernet ports for uplink and management; 2 USB console ports (future expansion); 1 RJ-45 serial port for direct console access
Wired/Switching/ Routing	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, and IEEE 802.1Q VLAN tagging
Management Options	Cisco Configuration Assistant software (recommended); Embedded Web-based device manager; Command-line interface for troubleshooting (SHO/DEBUG only) using Telnet, SSH, or console port access
Security/ Authentication Standards	None/Open, WEP/Open, MAC Filtering, WPA/Open with EAP, WPA/Network EAP, WPAPSK/Open with; EAP, WPA-PSK/Network EAP, WPA-TKIP, WPA2/AES CCMP. ; Web-auth with Open, WPA-PSK, WPA2-PSK, WEP; Supported EAP types include PEAP, LEAP, EAP-TLS, EAP-GTC, and EAP-SIM
RADIUS Authentication	IEEE 802.1X RADIUS authentication; external RADIUS server required
Multiple Service Set Identifiers (SSIDs)	8 SSIDs supported (each access point may support multiple SSIDs) 1 SSID broadcast in SSID beacon
Support for Cisco Secure Guest Access	Allows for creation of guest SSID/VLAN through Cisco Configuration Assistant, and creation of guest user accounts and configuration of login page using Cisco Configuration Assistant.
Support for Voice-over-Wireless LAN Optimization	Delivers quality of service, call admission control, fast inter-access point hand-off, and other optimization features to improve the quality of a wireless voice infrastructure.
Warranty	1 Year
Physical and Environmental	Dimensions: 2.7" H x 10.6" W x 7.0" D (6.9 x 27 x 18\7.8 cm); Weight: 4.8 lbs. (2.8 kg); Temperature—Operating: 32 to 140°F (0 to 40°C); Storage: -13 to 158°F (-25 to 70°C); Humidity—Operating: 10-90% noncondensing; Storage: up to 95%; Input power: 100 to 240 VAC, 50/60 Hz; Heat dissipation: 75 BTU per hour maximum
Regulatory Compliance	UL 60950-1; CAN CSA C22.2 No. 60950-1; IEC 60950-1; EN 60950-1; EN 60950:2000; EMI and susceptibility (Class B); U.S. FCC Part 15.107 and 15.109; Canada ICES-003; Japan VCCI; Europe EN55022, EN 55024

Selected Part Numbers and Ordering Information

AIR-WLC526-K9	Cisco 526 Wireless Express Mobility Controller for up to 6 Cisco 500 Series Wireless Express APs
ASA5505-RACK-MNT=	Rack Mount Kit (works with AIR-WLC526-K9) securely mounts up to two units in a standard 19" equipment rack, including power supplies and cable management
ASA5505-WALL-MNT=	Wall Mount Kit (works with AIR-WLC526-K9) securely mounts one unit to a wall or other surface.
AIR-AP521G-x-K9	Cisco 521 Wireless Express Access Point (Standalone)
AIR-LAP521G-x-K9	Cisco 521 Wireless Express Access Point (Controller mode)

For More Information

For more information about the Cisco 526 Wireless Express Mobility Controller, visit:

http://www.cisco.com/go/mobilityexpress.

Cisco Aironet 1250 Series Access Points



The Cisco Aironet 1250 Series Access Points are the first enterprise-class access point to support the IEEE 802.11n draft 2.0 standard. The 802.11n standard offers combined data rates of up to 600 Mbps to give users mobile access to high-bandwidth data, voice, and video applications regardless of their location. Through the use of MIMO technology, 802.11n also provides reliable and predictable wireless LAN (WLAN) coverage to improve the end-user experience for both existing 802.11a/b/g clients and new 802.11n clients.

The robust Cisco Aironet1250 Series Access Points are a modular platform designed to be easily field-upgradable to support a variety of wireless capabilities. This modularity allows businesses to deploy existing wireless technologies today with the confidence that their network investment will extend to support emerging and future wireless technologies.

The Cisco Aironet 1250 Series are rugged indoor access points designed for both office and challenging RF environments. They are ideal for factories, warehouses, hospitals, and large retail establishments. These modular, robust wireless access points are designed for easy field upgrades, facilitating support of a variety of wireless capabilities. They allow you deploy existing wireless technologies with confidence that your network will support emerging and future wireless technologies.

Ideal for Companies that Need These Features

- A high-capacity and high-security WLAN that provides network reliability for mission-critical applications
- A rugged enterprise-class access point designed for indoor industrial deployments and installations that require antenna versatility

Key Features

Cisco Aironet 1250 Series Access Points are the first business-class access points to be Wi-Fi 802.11n draft 2.0 certified. These modular wireless access points provide reliable and predictable WLAN coverage to improve the end user's experience with both existing
802.11a/b/g clients and new 802.11n clients. With these wireless access points, you can:

- Augment throughput for high-bandwidth wireless applications
- Protect your investment in wireless networking
- Increase network reliability for mission-critical applications

These wireless access points provide a robust, modular platform designed for easy field upgrades, facilitating support of a variety of wireless capabilities. They let you deploy existing wireless technologies with confidence that your network will support emerging and future wireless technologies. This platform delivers:

- Data rates of 300 Mbps per radio
- Multiple-input, multiple-output technology for enhanced reliability
- 2.4- and 5-GHz radio modules
- Tested interoperability with leading 802.11n devices

Specifications

Software	• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode). • Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode). • Cisco Unified Wireless Network Software Release 4.2 or later.
Draft 802.11n Version 2.0 (and Related) Capabilities	• 2x3 MIMO with two spatial streams • Maximal Ratio Combining (MRC) • Legacy beam forming (hardware supports this capability; not yet enabled in software) • 20-and 40-MHz channels • PHY data rates up to 300 Mbps • Packet aggregation: A-MPDU (Tx/Rx), A-MSDU (Tx/Rx) • 802.11 DFS (Bin 5) • Cyclic Shift Diversity (CSD) support

Data Rates Supported

802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps

802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps

802.11n data rates (2.4 GHz and 5 GHz):

MCS Index[1]	GI[2] = 800ns		GI = 400ns	
	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)	20-MHz Rate (Mbps)	40-MHz Rate (Mbps)
0	6.5	13.5	7.2	15
1	13	27	14.4	30
2	19.5	40.5	21.7	45
3	26	54	28.9	60
4	39	81	43.3	90
5	52	108	57.8	120
6	58.5	121.5	65	135
7	65	135	72.2	157.5
8	13	27	14.4	30
9	26	54	28.9	60
10	39	81	43.3	90
11	52	108	57.8	120
12	78	162	86.7	180
13	104	216	115.6	240
14	117	243	130	270
15	130	270	144.4	300

Frequency Band and 20-MHz Operating Channels

- A (Americas (FCC))—2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz, 8 channels (excludes 5.600 to 5.640 GHz); 5.745 to 5.825 GHz; 5 channels
- C (China)—2.412 to 2.472 GHz; 13 channels; 5.745 to 5.825 GHz; 5 channels
- E (ETSI)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.700 GHz, 11 channels
- I (Israel)—2.412 to 2.472 GHz, 13 channels; 5.180 to 5.320 GHz; 8 channels
- K (Korea)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.500 to 5.620 GHz, 7 channels; 5.745 to 5.805 GHz, 4 channels
- N (Non-FCC)—2.412 to 2.462 GHz; 11 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels
- P (Japan2)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels
- S (Singapore)—2.412 to 2.472 GHz; 13 channels; 5.180 to 5.320 GHz; 8 channels; 5.745 to 5.825 GHz; 5 channels
- T (Taiwan)—2.412 to 2.462 GHz; 11 channels; 5.280 to 5.320 GHz; 3 channels; 5.500 to 5.700 GHz, 11 channels; 5.745 to 5.825 GHz; 5 channels

NOTE: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Maximum Number of Non-Overlapping Channels

2.4 GHz—802.11b/g:20 MHz: 3; 802.11n: 20 MHz: 3, 40 MHz: 1

5 GHz—802.11a: 20 MHz: 21; 802.11n: 20 MHz: 21. 40 MHz: 9

NOTE: This varies by regulatory domain. Refer to the product documentation for specific details for each regulatory domain.

Receive Sensitivity

802.11a: -86 dBm @ 6 Mb/s; -85 dBm @ 9 Mb/s; -82 dBm @ 12 Mb/s; -81 dBm @ 18 Mb/s; -80 dBm @ 24 Mb/s; -79 dBm @ 36 Mb/s; -74 dBm @ 48 Mb/s; -73 dBm @ 54 Mb/s

802.11b: -90 dBm @ 1 Mb/s; -89 dBm @ 2 Mb/s; -87 dBm @ 5.5 Mb/s; -85 dBm @ 11 Mb/s

802.11g: -87 dBm @ 6 Mb/s; -86 dBm @ 9 Mb/s; -83 dBm @ 12 Mb/s; -82 dBm @ 18 Mb/s; -81 dBm @ 24 Mb/s; -80 dBm @ 36 Mb/s; -75 dBm @ 48 Mb/s; -74 dBm @ 54 Mb/s

5-GHz: 802.11n (HT20): -85 dBm @ MC0; -84 dBm @ MC1; -83 dBm @ MC2; -82 dBm @ MC3; -79 dBm @ MC4; -74 dBm @ MC5; -73 dBm @ MC6; -72 dBm @ MC7; -85 dBm @ MC8; -84 dBm @ MC9; -83 dBm @ MC10; -82 dBm @ MC11; -79 dBm @ MC12; -74 dBm @ MC13; -73 dBm @ MC14; -72 dBm @ MC15

5-GHz: 802.11n (HT40): -85 dBm @ MC0; -84 dBm @ MC1; -83 dBm @ MC2; -79 dBm @ MC3; -76 dBm @ MC4; -71 dBm @ MC5; -70 dBm @ MC6; -69 dBm @ MC7; -85 dBm @ MC8; -84 dBm @ MC9; -83 dBm @ MC10; -79 dBm @ MC11; -76 dBm @ MC12; -71 dBm @ MC13; -70 dBm @ MC14; -69 dBm @ MC15

2.4-GHz: 802.11n (HT20); -86 dBm @ MC0; -85 dBm @ MC1; -84 dBm @ MC2; -83 dBm @ MC3; -80 dBm @ MC4; -75 dBm @ MC5; -74 dBm @ MC6; -73 dBm @ MC7; -86 dBm @ MC8; -85 dBm @ MC9; -84 dBm @ MC10; -83 dBm @ MC11; -80 dBm @ MC12; -75 dBm @ MC13; -74 dBm @ MC14; -73 dBm @ MC15

2.4-GHz: 802.11n (HT40); -86 dBm @ MC0; -85 dBm @ MC1; -84 dBm @ MC2; -80 dBm @ MC3; -77 dBm @ MC4; -72 dBm @ MC5; -71 dBm @ MC6; -70 dBm @ MC7; -86 dBm @ MC8; -85 dBm @ MC9; -84 dBm @ MC10; -80 dBm @ MC11; -77 dBm @ MC12; -72 dBm @ MC13; -71 dBm @ MC14; -70 dBm @ MC15

Maximum Transmit Power

2.4GHz: 802.11b; 23 dBm with 1 antenna; 802.11g; 20 dBm with 1 antenna; 802.11n (HT20); 17 dBm with 1 antenna; 20 dBm with 2 antennas; 802.11n (HT40); 17 dBm with 1 antenna; 20 dBm with 2 antennas

5GHz: 802.11a; 17 dBm with 1 antenna; 802.11n non-HT duplicate (802.11a duplicate) mode; 17 dBm with 1 antenna; 802.11n (HT20); 17 dBm with 1 antenna; 20 dBm with 2 antennas; 802.11n (HT40); 17 dBm with 1 antenna; 20 dBm with 2 antennas

NOTE: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.

Available Transmit Power Settings	2.4 GHz: 23 dBm (200 mW); 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (3.13 mW); 2 dBm (1.56 mW); -1 dBm (0.78 mW) 5 GHz: 20 dBm (100 mW); 17 dBm (50 mW); 14 dBm (25 mW); 11 dBm (12.5 mW); 8 dBm (6.25 mW); 5 dBm (3.13 mW); 2 dBm (1.56 mW); -1 dBm (0.78 mW)
NOTE: The maximum power setting will vary by channel and according to individual country regulations. Refer to the product documentation for specific details.	
Antenna Connectors	· 2.4-GHz: 3 RP-TNC connectors · 5-GHz: 3 RP-TNC connectors
Interfaces	· 10/100/1000 autosensing (RJ-45) · Management console port (RJ45)
Indicators	Status LED indicates operating state, association status, error/warning condition, boot sequence, and maintenance status; Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radio, status.
Modularity	· Number of radio module slots: 2 · Available radio modules
Dimensions (W x L x H)	· AP (without mounting bracket): 8.12 x 9.52 x 2.35 in. (20.62 x 24.18 x 5.97 cm) · AP (with mounting bracket): 8.12 x 9.52 x 2.75 in. (20.62 x 24.18 x 6.99 cm)
Weight	AP with 2 radios installed: 5.1 lbs (2.31 kg); AP chassis: 2.1 lbs (0.95 kg); 2.4 GHz radio: 1.5 lbs (0.68 kg); 5 GHz radio: 1.5 lbs (0.68 kg)
Environmental	Non-operating (storage) temperature: -40 to 185°F (-40 to 85°C; Operating temperature: -4 to +131°F (-20 to +55°C; Operating humidity: 10 to 90 percent (non-condensing)
System Memory	64 MB DRAM; 32 MB flash
Input Power Requirements	AP1250: 36 to 57 VDC; Power Supply and Power Injector: 100 to 240 VAC; 50 to 60 Hz
Powering Options	Cisco Catalyst switch port capable of sourcing 18.5W or greater; Cisco AP1250 Power Injector (AIR-PWRINJ4); Cisco AP1250 Local Power Supply (AIR-PWR-SPLY1); 802.3af switch (AP1250 with single radio only)
Power Draw	· AP1250 with two RM1252 radio modules installed: 16.9 W · AP1250 with one RM1252 radio module installed: 12.95 W NOTE: For an AP1250 with two radios, 16.9 W is the maximum power required at the access point (powered device). When deployed using PoE, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 1.6W, bringing the total system power draw (access point + cabling) to 18.5 W. A similar consideration applies for an AP1250 with one radio.
Warranty	90 days
Compliance	Standards · Safety: UL 60950-1; CAN/CSA-C22.2 No. 60950-1; UL 2043; IEC 60950-1; EN 60950-1 · Radio approvals: FCC Part 15.247, 15.407; RSS-210 (Canada); EN 300.328, EN 301.893 (Europe); ARIB-STD 33 (Japan); ARIB-STD 66 (Japan); ARIB-STD T71 (Japan); AS/NZS 4268.2003 (Australia and New Zealand); EMI and susceptibility (Class B); FCC Part 15.107 and 15.109; ICES-003 (Canada); VCCI (Japan); EN 301.489-1 and -17 (Europe); EN 60601-1-2 EMC requirements for the Medical Directive 93/42/EEC · Security: 802.11i, WPA2, WPA; 802.1X; AES, TKIP · Other: FCC Bulletin OET-65C; RSS-102
Wireless Network Standards and Wi-Fi Certification	· IEEE Standard: IEEE 802.11a; IEEE 802.11b; IEEE 802.11g; IEEE 802.11n draft 2.0; IEEE 802.11h; IEEE 802.11d · Security: WPA™: Enterprise, Personal; WPA2™: Enterprise, Personal · EAP Type(s): EAP-Transport Layer Security (TLS); EAP-Tunneled TLS(TTLS)/ Microsoft Challenge Handshake Authentication Protocol Version 2 (MSCHAPv2); Protected EAP (PEAP)v0/EAP-MSCHAPv2; PEAPv1/EAP-Generic Token Card (GTC); EAP-SIM · Multimedia: WMM™

1. MCS Index: The Modulation and Coding Scheme (MCS) index determines the number of spatial streams, the modulation, the coding rate, and data rate values.
2. GI: A Guard Interval (GI) between symbols helps receivers overcome the effects of multipath delays.

Selected Part Numbers and Ordering Information

AIR-AP1252AG-A-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; FCC configuration
AIR-AP1252AG-C-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; China configuration
AIR-AP1252AG-E-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; ETSI configuration
AIR-AP1252AG-I-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; Israel configuration
AIR-AP1252AG-K-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; Korea configuration
AIR-AP1252AG-N-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; Non-FCC configuration
AIR-AP1252AG-P-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; Japan2 configuration
AIR-AP1252AG-S-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; Singapore config

AIR-AP1252AG-T-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Autonomous AP; 6 RP-TNC; Taiwan configuration
AIR-AP1252G-A-K9	802.11g/n-draft 2.0 2.4-GHz Modular Autonomous AP; 3 RP-TNC; FCC configuration
AIR-AP1252G-E-K9	802.11g/n-draft 2.0 2.4-GHz Modular Autonomous AP; 3 RP-TNC; ETSI configuration
AIR-AP1252G-P-K9	802.11g/n-draft 2.0 2.4-GHz Modular Autonomous AP; 3 RP-TNC; Japan2 configuration
AIR-LAP1252AG-A-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC FCC configuration
AIR-LAP1252AG-C-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC China configuration
AIR-LAP1252AG-E-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC ETSI configuration
AIR-LAP1252AG-I-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC Israel configuration
AIR-LAP1252AG-K-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC Korea configuration
AIR-LAP1252AG-N-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC Non-FCC configuration
AIR-LAP1252AG-P-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC Japan2 configuration
AIR-LAP1252AG-S-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC Singapore configuration
AIR-LAP1252AG-T-K9	802.11a/g/n-draft 2.0 2.4/5-GHz Modular Unified AP; 6 RP-TNC Taiwan configuration
AIR-LAP1252G-A-K9	802.11g/n-draft 2.0 2.4-GHz Modular Unified AP; 3 RP-TNC; FCC configuration
AIR-LAP1252GN-E-K9	802.11g/n-draft 2.0 2.4-GHz Modular Unified AP; 3 RP-TNC; ETSI configuration
AIR-LAP1252GN-P-K9	802.11g/n-draft 2.0 2.4-GHz Modular Unified AP; 3 RP-TNC; Japan2 configuration
AIR-RM1252A-A-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; FCC configuration; spare
AIR-RM1252A-C-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; China configuration; spare
AIR-RM1252A-E-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; ETSI configuration; spare
AIR-RM1252A-I-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; Israel configuration; spare
AIR-RM1252A-K-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; Korea configuration; spare
AIR-RM1252A-N-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; Non-FCC configuration; spare
AIR-RM1252A-P-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; Japan2 configuration; spare
AIR-RM1252A-S-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; Singapore configuration; spare
AIR-RM1252A-T-K9=	802.11a/n-draft 2.0 5-GHz Radio Module; 3 RP-TNC; Taiwan configuration; spare
AIR-RM1252G-A-K9=	802.11g/n-draft 2.0 2.4-GHz Radio Module; 3 RP-TNC; FCC configuration; spare
AIR-RM1252G-E-K9=	802.11g/n-draft 2.0 2.4-GHz Radio Module; 3 RP-TNC; ETSI configuration; spare
AIR-RM1252G-P-K9=	802.11g/n-draft 2.0 2.4-GHz Radio Module; 3 RP-TNC; Japan2 configuration; spare
AIR-AP1250=	Modular Autonomous AP Platform (no radio modules); Spare
AIR-LAP1250=	Modular Unified AP Platform (no radio modules); Spare
AIR-AP1250MNTGKIT=	1250 Series Ceiling, Wall Mount Bracket kit; Spare

For More Information

For more information about Cisco Aironet 1250 Series Access Points, visit: http://www.cisco.com/go/wireless.

Cisco Aironet 1240AG Series Access Points



Cisco Aironet 1240 AG Series IEEE 802.11a/b/g Access Points deliver the versatility, high capacity, security, and enterprise-class features demanded by wireless LAN (WLAN) customers. They are designed specifically for challenging RF environments such as factories, warehouses, and large retail establishments that require the antenna versatility associated with connectorized antennas, a rugged metal enclosure, and a broad operating temperature range. The Cisco Aironet 1240 AG Series provides local as well as inline power, including support for IEEE 802.3af Power over Ethernet (PoE). These access points are ideal for factories, warehouses and retailers.

Ideal for Companies that Need These Features

- Rugged enterprise-class access point designed for indoor industrial deployments and installations that require antenna versatility
- Link-roll flexibility to allow the access point to perform as a wireless bridge between access points for backhaul to the network

Key Features

- The Cisco Aironet 1240 AG Series Access Points have integrated 802.11a/b/g radios.
- They are available in an 802.11g-only version for countries that do not allow 5 GHz.
- Connectors offer a variety of both 2.4- and 5-GHz antennas.
- These access points are orderable as autonomous or lightweight access points.
- They can be configured to function as an access point or bridge, enabling a broad array of applications.
- Four power options offer deployment flexibility and cost savings: 802.3af, Cisco Power over Ethernet (PoE), Cisco Power Injector, or a local power supply.

Specifications

Software	• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode) • Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode) • Cisco Unified Wireless Network Software Release 4.2 or later
Data Rates Supported	802.11a: 6, 9, 12, 18, 24, 36, 48, 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Network Standards	IEEE 802.11a/b/g
Uplink	Autosensing 802.3 10/100BASE-T Ethernet
Frequency Band and Operating Channels	Americas (FCC): 2.412 to 2.462 GHz-11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels; China: 2.412 to 2.472 GHz-13 channels, 5.725 to 5.825 GHz-4 channels; ETSI: 2.412 to 2.472 GHz-13 channels, 5.15 to 5.725 GHz-19 channels; Japan (TELEC): 2.412 to 2.472 GHz-13 channels Orthogonal Frequency Division Multiplexing (OFDM), 2.412 to 2.484 GHz-14 channels Complementary Code Keying (CCK), 5.15 to 5.25 GHz-4 channels; North America: 2.412 to 2.462 GHz-11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz-12 channels; Singapore: 2.412 to 2.472 GHz-13 channels, 5.15 to 5.25 GHz and 5.725 to 5.825 GHz-8 channels; Taiwan: 2.412 to 2.462 GHz-11 channels, 5.25 to 5.35 GHz and 5.725 to 5.825 GHz-8 channels
Non-Overlapping Channels	802.11a: 12 channels (FCC; other regulatory domains support different numbers of 802.11a channels) FCC currently supports 12 non-overlapping channels, with potentially up to 23 channels via a future firmware release depending on FCC rules; 802.11b/g: 3 channels
Receive Sensitivity	802.11a: 6 Mbps: -87 dBm; 9 Mbps: -87 dBm; 12 Mbps: -85 dBm; 18 Mbps: -84 dBm; 24 Mbps: -81 dBm; 36 Mbps: -78 dBm; 48 Mbps: -73 dBm; 54 Mbps: -72 dBm 802.11g: 6 Mbps: -90 dBm; 9 Mbps: -84 dBm; 12 Mbps: -82 dBm; 18 Mbps: -80 dBm; 24 Mbps: -77 dBm; 36 Mbps: -73 dBm; 48 Mbps: -72 dBm; 54 Mbps: -72 dBm
Range[1]	Indoor-802.11a: 85 ft (26 m) @ 54 Mbps; 150 ft (46 m) @ 48 Mbps; 210 ft (64 m) @ 36 Mbps; 230 ft (70 m) @ 24 Mbps; 260 ft (79 m) @ 18 Mbps; 280 ft (85 m) @ 12 Mbps; 310 ft (94 m) @ 9 Mbps; 330 ft (100 m) @ 6 Mbps; 802.11g: 105 ft (32 m) @ 54 Mbps; 180 ft (55 m) @ 48 Mbps; 260 ft (79 m) @ 36 Mbps; 285 ft (87 m) @ 24 Mbps; 330 ft (100 m) @ 18 Mbps; 355 ft (108 m) @ 12 Mbps; 365 ft (111 m) @ 11 Mbps; 380 ft (116 m) @ 9 Mbps; 410 ft (125 m) @ 6 Mbps; 425 ft (130 m) @ 5.5 Mbps; 445 ft (136 m) @ 2 Mbps; 460 ft (140 m) @ 1 Mbps; Outdoor-802.11a: 100 ft (30 m) @ 54 Mbps; 300 ft (91 m) @ 48 Mbps; 425 ft (130 m) @ 36 Mbps; 500 ft (152 m) @ 24 Mbps; 550 ft (168 m) @ 18 Mbps; 600 ft (183 m) @ 12 Mbps; 625 ft (190 m) @ 9 Mbps; 650 ft (198 m) @ 6 Mbps; 802.11g: 120 ft (37 m) @ 54 Mbps; 350 ft (107 m) @ 48 Mbps; 550 ft (168 m) @ 36 Mbps; 650 ft (198 m) @ 24 Mbps; 750 ft (229 m) @ 18 Mbps; 800 ft (244 m) @ 12 Mbps; 820 ft (250 m) @ 11 Mbps; 875 ft (267 m) @ 9 Mbps; 900 ft (274 m) @ 6 Mbps; 910 ft (277 m) @ 5.5 Mbps; 940 ft (287 m) @ 2 Mbps; 950 ft (290 m) @ 1 Mbps;
Antenna	2.4 GHz: Dual RP-TNC connectors; 5 GHz: Dual RP-TNC connectors
LEDs	Status LED indicates operating state, association status, error/warning condition, boot sequence, and maintenance status: Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radio, status
Dimensions (H x W x D)	6.6 x 8.5 x 1.1 in. (16.76 x 21.59 x 2.79 cm)
Weight	2.0 lbs
Environmental	Non operating (storage) temperature: 40 to 185ûF (-40 to 85ûC); Operating temperature:-4 to +131ûF (-20 to +55ûC) Operating/noncondensing humidity: 10 to 90 percent
System Memory	32 MB RAM; 16 MB flash
Input Power Requirements	100 to 240 VAC; 50 to 60Hz (power supply); 36 to 57 VDC (device)
Power Draw	Local power; 802.3 AF switches; Cisco legacy PoE switches; Cisco Aironet power Injectors (PWRINJ3 and PWRINJ-FIB); Third-party PoE devices (must meet input power and power draw requirements)
Power Draw	12.95W[2] maximum
Warranty	One year

1. Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ
2. The maximum power required at the powered device. If the access point is being used in a PoE configuration, the power drawn from the power sourcing equipment will be higher by some amount dependent on the length of the interconnecting cable. This additional power may be as high as 2.45W, bringing the total system power draw (access point + cabling) to 15.4W.

Selected Part Numbers and Ordering Information

Cisco Aironet 1240AG Series Access Point	
AIR-AP1242AG-A-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; FCC configuration
AIR-AP1242AG-C-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; China configuration
AIR-AP1242AG-E-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; ETSI configuration
AIR-AP1242AG-I-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; Israel configuration
AIR-AP1242AG-J-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; Japan configuration

AIR-AP1242AG-K-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; Korea configuration
AIR-AP1242AG-N-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; North America configuration (not FCC)
AIR-AP1242AG-P-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; Japan2 configuration
AIR-AP1242AG-S-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; Singapore configuration
AIR-AP1242AG-T-K9	802.11a/g Non-modular Cisco IOS access point; RP-TNC; Taiwan configuration
AIR-LAP1242AG-A-K9	802.11ag Non-modular LWAPP access point; RP-TNC; FCC configuration
AIR-LAP1242AG-C-K9	802.11ag Non-modular LWAPP access point; RP-TNC; China configuration
AIR-LAP1242AG-E-K9	802.11ag Non-modular LWAPP access point; RP-TNC; ETSI configuration
AIR-LAP1242AG-I-K9	802.11ag Non-modular LWAPP access point; RP-TNC; Israel configuration
AIR-LAP1242AG-K-K9	802.11ag Non-modular LWAPP access point; RP-TNC; Korea configuration
AIR-LAP1242AG-N-K9	802.11ag Non-modular LWAPP access point; RP-TNC; North America configuration (not FCC)
AIR-LAP1242AG-P-K9	802.11ag Non-modular LWAPP access point; RP-TNC; Japan2 configuration
AIR-LAP1242AG-S-K9	802.11ag Non-modular LWAPP access point; RP-TNC; Singapore configuration
AIR-LAP1242AG-T-K9	802.11ag Non-modular LWAPP access point; RP-TNC; Taiwan configuration
Cisco Aironet 1240G Series Access Point	
AIR-AP1242G-A-K9	802.11g non-modular Cisco IOS access point; RP-TNC; FCC configuration
AIR-AP1242G-E-K9	802.11g non-modular Cisco IOS access point; RP-TNC; ETSI configuration
AIR-AP1242G-P-K9	802.11g non-modular Cisco IOS access point; RP-TNC; Japan2 configuration
AIR-LAP1242G-A-K9	802.11g non-modular LWAPP access point; RP-TNC; FCC configuration
AIR-LAP1242G-E-K9	802.11g non-modular LWAPP access point; RP-TNC; ETSI configuration
AIR-LAP1242G-P-K9	802.11g non-modular LWAPP access point; RP-TNC; Japan2 configuration

For More Information

For more information about Cisco Aironet 1240AG Series Access Points, visit:
http://www.cisco.com/go/wireless.

Cisco Aironet 1130AG Series Access Points



The Cisco Aironet 1130 AG Access Points package high capacity, high security, and enterprise-class features to deliver wireless LAN (WLAN) access for a low total cost of ownership. Designed for WLAN coverage in offices and similar RF environments, these unobtrusive access points features integrated antennas and dual IEEE 802.11a/g radios for robust and predictable coverage, delivering a combined capacity of 108 Mbps. These competitively priced access points are ready to install and easy to manage, reducing the cost of deployment and ongoing maintenance. Cisco Aironet 1130 AG Access Points are available in a lightweight version, an autonomous version that can be field-upgraded to lightweight operation, and a single-band 802.11g version for use in regulatory domains that do not allow 802.11a 5-GHz operation. Two high-performance radios provide simultaneous support for the 802.11a and 802.11g standards, offering 108-Mbps capacity for an organization's growing WLAN.

Ideal for Companies that Need These Features

- A high-capacity and high-security WLAN in the enterprise office
- A low-profile access point that blends into the environment and is easy to deploy

Key Features

- IEEE 802.11a and 802.11g radios with simultaneous dual-band support provide 108-Mbps capacity. The Cisco Aironet 1130 AG Access Point works with dual-band clients to optimize usage of network bandwidth while providing backward compatibility with 802.11b clients. These access points comply with 802.11i security standards and are Wi-Fi Protected Access 2 (WPA2) certified. The access points incorporate Advanced Encryption Standard (AES) encryption in hardware.
- These access points are available in an 802.11g-only version for countries that do not allow 5 GHz.
- They provide robust signals to long distances and mitigate the effects of multipath signal propagation for more consistent coverage.
- Access points that support either Cisco IOS Software or the Lightweight Access Point Protocol (LWAPP) are available. These access points use radio and network management features for simplified deployment, along with built-in omnidirectional antennas that provide robust and predictable wireless LAN (WLAN) coverage for offices and similar RF environments.
- Variable transmit power settings allows access-point coverage to be tuned for differing requirements.
- Integrated 4.5-dBi antennas provide ready-to-use access points without external antennas; they are specifically designed to provide omnidirectional coverage for offices and similar RF environments. A low 0.5-mW setting supports closer spacing of access points in high-density deployments.
- These access points are Wi-Fi Certified.

Specifications

Data rates supported	802.11a: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps; 802.11g: 1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, and 54 Mbps
Software	• Cisco IOS Software Release 12.4(10b)JA or later (Autonomous Mode) • Cisco IOS Software Release 12.4(10b)JX or later (Unified Mode) • Cisco Unified Wireless Network Software Release 4.2 or later
Network standard	IEEE 802.11a, 802.11b and 802.11g
Uplink	Autosensing 802.3 10/100BaseT Ethernet
Non-overlapping channels	802.11a—Up to 19; 802.11b/g—3
SNMP compliance	MIB I and MIB II
Antennas	2.4 GHz: Gain 3.0 dBi, Horizontal Beamwidth 360°; 5 GHz: Gain 4.5 dBi, Horizontal Beamwidth 360°
Frequency band and Operating Channels	• Americas (FCC): 2.412 to 2.462 GHz; 11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz; 12 channels • China: 2.412 to 2.472 GHz; 13 channels, 5.725 to 5.825 GHz; 4 channels • ETSI: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.725 GHz; 19 channels • Israel: 2.432 to 2.472 GHz; 9 channels, 5.15 to 5.35 GHz, 8 channels • Japan (TELEC): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM), 2.412 to 2.484 GHz; 14 channels Complementary Code Keying (CCK), 5.15 to 5.25 GHz; 4 channels • Japan-P (TELEC 2 (Japan2) Cnfg): 2.412 to 2.472 GHz; 13 channels Orthogonal Frequency Division Multiplexing (OFDM), 5.15 to 5.35 GHz, 8 channels • Korea: 2.412 to 2.472 GHz; 13 channels, 5.15 to 5.35, 5.46 to 5.72, 5.725 to 5.825, 19 channels • North America: 2.412 to 2.462 GHz; 11 channels, 5.15 to 5.35, 5.725 to 5.825 GHz; 12 channels • Singapore: 2.412 to 2.472 GHz, 13 channels, 5.15 to 5.35 GHz, 8 channels and 5.725 to 5.825 GHz, 12 channels • Taiwan: 2.412 to 2.462 GHz, 11 channels, 5.25-5.35 GHz, 5.725 to 5.825, 7 channels
Receive sensitivity	802.11a— 6 Mbps: -87 dBm, 9 Mbps: -86 dBm, 12 Mbps: -85 dBm, 18 Mbps: -84 dBm, 24 Mbps: -80 dBm, 36 Mbps: -78 dBm, 48 Mbps: -73 dBm, 54 Mbps: -71 dBm; 802.11g—1 Mbps: -93 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -88 dBm, 6 Mbps: -86 dBm, 9 Mbps: -85 dBm, 11 Mbps: -85 dBm, 12 Mbps: -84 dBm, 18 Mbps: -83 dBm, 24 Mbps: -79 dBm, 36 Mbps: -77 dBm, 48 Mbps: -72 dBm, 54 Mbps: -70 dBm
Available transmit power settings	802.11a: OFDM: 50 mW (17 dBm), 32 mW (15 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); 802.11g: CCK—100 mW (20 dBm), 50 mW (17 dBm), 25 mW (14 dBm), 12 mW (11 dBm), 6 mW (8 dBm), 3 mW (5 dBm), 2 mW (2 dBm), 1 mW (-1 dBm); OFDM—50 mW (17 dBm), 25 mW (14 dBm), 10 mW (11 dBm), 5 mW (8 dBm), 3 mW (5 dBm), 1 mW (2 dBm), 1 mW (-1 dBm) Maximum power setting will vary by channel and according to individual country regulations.
Range	Indoor (Distance across open office environment): 802.11a: 80 ft (24 m) @ 54 Mbps, 150 ft (45 m) @ 48 Mbps, 200 ft (60 m) @ 36 Mbps, 225 ft (69 m) @ 24 Mbps, 250 ft (76 m) @ 18 Mbps, 275 ft (84 m) @ 12 Mbps, 300 ft (91 m) @ 9 Mbps, 325 ft (100 m) @ 6 Mbps; 802.11g: 1000 ft (30 m) @ 54 Mbps, 175 ft (53 m) @ 48 Mbps, 250 ft (76 m) @ 36 Mbps, 275 ft (84 m) @ 24 Mbps, 325 ft (100 m) @ 18 Mbps, 350 ft (107 m) @ 12 Mbps, 360 ft (110 m) @ 11 Mbps, 375 ft (114 m) @ 9 Mbps, 400 ft (122 m) @ 6 Mbps Outdoor: 802.11a: 100 ft (30 m) @ 54 Mbps, 300 ft (91 m) @ 48 Mbps, 425 ft (130 m) @ 36 Mbps, 500 ft (152 m) @ 24 Mbps, 550 ft (168 m) @ 18 Mbps, 600 ft (183 m) @ 12 Mbps, 625 ft (190 m) @ 9 Mbps, 650 ft (198 m) @ 6 Mbps; 802.11g: 120 ft (37 m) @ 54 Mbps; 350 ft (107 m) @ 48 Mbps; 550 ft (168 m) @ 36 Mbps; 650 ft (198 m) @ 24 Mbps; 750 ft (229 m) @ 18 Mbps; 800 ft (244 m) @ 12 Mbps; 820 ft (250 m) @ 11 Mbps; 875 ft (267 m) @ 9 Mbps; 900 ft (274 m) @ 6 Mbps; 910 ft (277 m) @ 5.5 Mbps; 940 ft (287 m) @ 2 Mbps; 950 ft (290 m) @ 1 Mbps Ranges and actual throughput vary based upon numerous environmental factors so individual performance may differ.
Compliance	Customers are responsible for verifying approval for use in their country; see http://www.cisco.com/go/aironet/compliance.
Security architecture client authentication and encryption (Cisco Wireless Security Suite supporting WPA and WPA2)	Security Standards: WPA, WPA2 (802.11i), Cisco TKIP, Cisco message integrity check (MIC), IEEE 802.11 WEP keys of 40 bits and 128 bits 802.1X EAP types: EAP-FAST, PEAP-GTC, PEAP-MSCHAP, EAP-TLS, EAP-TTLS, EAP-SIM, Cisco LEAP Encryption: AES-CCMP encryption (WPA2), TKIP (WPA), Cisco TKIP, WPA TKIP, IEEE 802.11 WEP keys of 40 bits and 128 bits
Status LEDs	• External: Status LED indicates operating state, association status, error/warning condition, boot sequence and maintenance status • Internal: Ethernet LED indicates activity over the Ethernet, status; Radio LED indicates activity over the radios, status
Dimensions (H x W x D)	7.5 x 7.5 x 1.3 in. (19.1 x 19.1 x 3.3 cm)
Weight	1.5 lbs. (0.67 kg)
Environmental	32-104º F (0-40º C); 10-90% humidity (non-condensing)
System Memory	32 MB RAM; 16 MB FLASH
Input Power Req	100-240 VAC 50-60Hz (power supply); 36-57 VDC (device)
Power Draw	12.2 watts, max
Warranty	One year

Selected Part Numbers and Ordering Information

Cisco Aironet 1130AG Series Access Point	
AIR-AP1131AG-A-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Israel Cnfg
AIR-AP1131AG-C-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Korea Cnfg
AIR-AP1131AG-E-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Japan2 Cnfg
AIR-AP1131AG-I-K9	802.11a/g Non-modular IOS AP; Integrated Antennas, Israel Cnfg
AIR-AP1131AG-J-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Singapore Cnfg
AIR-AP1131AG-K-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Korea Cnfg
AIR-AP1131AG-N-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Taiwan Cnfg
AIR-AP1131AG-P-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Japan2 Cnfg
AIR-AP1131AG-S-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Singapore Cnfg
AIR-AP1131AG-T-K9	802.11a/g Non-modular IOS AP; Integrated Antennas; Taiwan Cnfg
AIR-LAP1131AG-A-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; FCC Cnfg
AIR-LAP1131AG-C-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; China Cnfg
AIR-LAP1131AG-E-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; ETSI Cnfg
AIR-LAP1131AG-I-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; Israel Cnfg
AIR-LAP1131AG-K-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; Korea Cnfg
AIR-LAP1131AG-N-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; N. America Cnfg (not FCC)
AIR-LAP1131AG-P-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; Japan2 Cnfg
AIR-LAP1131AG-S-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; Singapore Cnfg
AIR-LAP1131AG-T-K9	802.11a/g Non-modular LWAPP AP; Integrated Antennas; Taiwan Cnfg
Cisco Aironet 1130G Series Access Point	
AIR-AP1131G-A-K9	802.11g Non-modular IOS AP; Integrated Antennas; Israel Cnfg
AIR-AP1131G-E-K9	802.11g Non-modular IOS AP; Integrated Antennas; Japan2 Cnfg
AIR-AP1131G-P-K9	802.11g Non-modular IOS AP; Integrated Antennas; Japan2 Cnfg
AIR-LAP1131G-A-K9	802.11g Non-modular LWAPP AP; Integrated Antennas; FCC Cnfg
AIR-LAP1131G-E-K9	802.11g Non-modular LWAPP AP; Integrated Antennas; ETSI Cnfg
AIR-LAP1131G-P-K9	802.11g Non-modular LWAPP AP; Integrated Antennas; Japan2 Cnfg

For More Information

For more information about the Cisco Aironet 1130AG Series Access Points, visit:
http://www.cisco.com/go/wireless.

Cisco Aironet 1524 Lightweight Outdoor Wireless Mesh Access Point



The Cisco Aironet 1524 Lightweight Outdoor Mesh Access Point allows cost-effective deployment of secure outdoor WLANs that scale to meet current and future demands for mobility. The Cisco Aironet 1524 is a multiradio mesh access point, designed for municipal Wi-Fi deployments for public access and public safety applications.

The Cisco Aironet 1524 is preconfigured with three radios compliant with IEEE 802.11a, 802.11b/g, and 4.9-GHz public safety standards. Various uplink connectivity options are supported, such as Gigabit Ethernet (10/100/1000) and Small Form-Factor Pluggable (SFP) for fiber interfaces. Supported power options include 480 VAC, 12 VDC, Power over Ethernet (PoE), and internal battery backup. It also employs the Cisco Adaptive Wireless Path Protocol (AWPP) to form a dynamic wireless mesh network between remote access points while delivering secure, high-capacity wireless access to any Wi-Fi-compliant client device.

The modular design of the Cisco Aironet 1524 Lightweight Outdoor Mesh Access Point creates a flexible platform that can allow separate mesh access networks within the device. By dedicating multiple separate radios to access, the Cisco Aironet 1524 creates a very robust and secure mesh infrastructure capable of simultaneously supporting public and private applications.

Ideal for Companies that Need These Features

- Municipal and public safety wireless outdoor networks
- An outdoor wireless network within a campus area
- Outdoor infrastructure for mobile users

Key Features

Key features and benefits of the platform include the following:

- Modular radio support (802.11a, 802.11b/g, and licensed 4.9-GHz public safety)
- Upgradability to new radio technologies
- Improved 802.11g radio sensitivity and range performance with Maximal Ratio Combining (MRC)
- Multiple uplink options (Gigabit Ethernet-10/100/1000 and fiber SFP interfaces)
- Multiple power options (Power over Ethernet [PoE], 480 VAC streetlight power, 12 VDC, and internal battery backup power)
- 802.3af-compliant PoE interface to connect IP devices
- National Electrical Manufacturers Association (NEMA) 4X certified enclosure
- LED status indicators

Specifications

Wireless standards	Multi-radio configuration—802.11a; 802.11b/g; Public safety 4.9 GHz (5, 10, 20 MHz channels)			
Media Access Protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)			
Data rates and modulation	• 802.11a 5.8 GHz: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, Orthogonal Frequency Division Multiplexing (OFDM) • 802.11b: 11, 5.5, 2, 1 Mbps, Direct Sequence Spread Spectrum (DSSS) • 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, OFDM 802.11a 4.9 GHz—5 MHz: 13.5, 12, 9, 6, 4.5, 3, 2.25, 1.5 Mbps; 10 MHz: 27, 24, 18, 12, 9, 6, 4.5, 3 Mbps; 20 MHz: 54, 48, 36, 24, 18, 12, 9, 6 Mbps			
Multi-radio option—Frequency band and operating channels	**Regulatory version**	**802.11a 5.8GHz**	**802.11b/g**	**4.9 GHz**
	-A	5.725–5.850 GHz 16 channels (five nonoverlapping channels)	2.412–2.462 GHz 11 channels (three nonoverlapping channels)	4.940 – 4.990 GHz 5 MHz channel width 10 channels (10 nonoverlapping channels) 10 MHz channel width 5 channels (five nonoverlapping channels) 20 MHz channel width 2 channels (two nonoverlapping channels)
Transmit power (Maximum transmit power will vary by channel, data rate, and individual country regulations)	Maximum: • 2.4 GHz: 28 dBm • 4.9 GHz: 26 dBm • 5.8 GHz: 28 dBm			
Receive sensitivity (typical)	802.11a 5.8 GHz: 6 Mbps: –91 dBm; 9 Mbps: –90 dBm; 12 Mbps: –89 dBm; 18 Mbps: –86 dBm; 24 Mbps: –84 dBm; 36 Mbps: –80 dBm; 48 Mbps: –76 dBm; 54 Mbps: –73 dBm 802.11b: 1 Mbps: –96 dBm; 2 Mbps: –96 dBm; 5.5 Mbps: –95dBm; 11 Mbps: –92 dBm 802.11g with MRC: 1 Mbps: –96 dBm; 2 Mbps: –96 dBm; 5.5 Mbps: –95 dBm ; 6 Mbps: –91 dBm; 9 Mbps: –91 dBm; 11 Mbps: –92 dBm; 12 Mbps: –91 dBm; 18 Mbps: –90 dBm; 24 Mbps: –89 dBm; 36 Mbps: –86 dBm; 48 Mbps: –80 dBm; 54 Mbps: –80 dBm 802.11a 4.9 GHz, 5MHz: 1.5 Mbps: –93 dBm; 2.25 Mbps: –93 dBm; 3 Mbps: –93 dBm; 4.5 Mbps: –92 dBm; 6 Mbps: –88 dBm; 9 Mbps: –85 dBm; 12 Mbps: –80 dBm; 13.5 Mbps: –79 dBm; 802.11a 4.9 GHz, 10 MHz; 3 Mbps: –92 dBm; 4.5 Mbps: –92 dBm; 6 Mbps: –91 dBm; 9 Mbps: –89 dBm; 12 Mbps: –86 dBm; 18 Mbps: –82 dBm; 24 Mbps: –78 dBm; 27 Mbps: –77 dBm; 802.11a 4.9 GHz, 20 MHz; 6 Mbps: –89 dBm; 9 Mbps: –89 dBm; 12 Mbps: –88 dBm; 18 Mbps: –86 dBm; 24 Mbps: –83 dBm; 36 Mbps: –80 dBm; 48 Mbps: –75 dBm; 54 Mbps: –74 dBm			
Network interface	• 10/100/1000 Gigabit Ethernet, autosensing • Fiber SFP			
Networking features	• 16 Basic SSIDs • HTTP Webpage redirect			
Management	• LWAPP-based • Managed by Cisco wireless LAN controller and Cisco Wireless Control System (WCS)			
Security	• Wireless bridging/mesh: X.509 digital certificates; MAC address authentication; Hardware-assisted AES encryption • Wireless access: 802.11i, 802.1X authentication, including EAP-PEAP, EAP-TLS, EAP-TTLS, Cisco LEAP; Hardware-assisted AES, WPA, Temporal Key Integrity Protocol-Message Identity Check (TKIP-MIC) encryption; VPN pass-through; IP Security (IPsec), Layer 2 Tunneling Protocol (L2TP) (MAC address filtering)			
Compliance	Safety—UL 60950; CAN/CSA-C22.2 No. 60950; IEC 60950; EN 60950 Radio approvals—FCC Part 15.247, 90.210; FCC Bulletin OET-65C; RSS-210; RSS-102 AS/NZS 4268.2003 EMI and susceptibility—FCC part 15.107, 15.109; ICES-003			
Dimensions	12.0 in x 7.8 in x 6.4 in. (30.48 cm x 19.81 cm x 16.26 cm) (including antenna mount)			

Weight	18 lbs (8.20 kg)
Operating temperature	–40 to 55°C (–40 to 131°F) plus Solar Loading
Storage temperature	–50 to 85°C (–58 to 185°F)
Environmental ratings	• IP67 • NEMA 4X
Wind resistance	• Up to 100 MPH sustained winds • Up to 165 MPH wind gusts
Immunity	<= 5 mJ for 6kV/3kA @ 8/20 ms waveform; ANSI/IEEE C62.41; EN61000-4-5 Level 4 AC Surge Immunity; EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity; EN61000-4-3 Level 4 EMC Field Immunity; EN61000-4-2 Level 4 ESD Immunity; EN60950 Overvoltage Category IV
Power options	90 - 480 VAC, 47–63 Hz; Power over Ethernet: 48 VDC, +/–10 percent; 12 VDC; Internal battery backup

Selected Part Numbers and Ordering Information

AIR-LAP1524PS-A-K9	Cisco Aironet 1524AG Lightweight Outdoor Mesh Access Point, Public Safety (4.9 GHz, 5.8 GHz, 2.4 GHz), FCC configuration

For More Information

For more information about the Cisco Aironet 1524 Lightweight Outdoor Mesh Access Point, visit: http://www.cisco.com/go/wireless.

Cisco Aironet 1522 Lightweight Outdoor Wireless Mesh Access Point



The Cisco Aironet 1522 Lightweight Outdoor Wireless Mesh Access Point is a high-performance outdoor wireless mesh product for a cost-effective, scalable, and secure deployment in outdoor environments such as municipalities, public safety environments, and oil and gas or other outdoor enterprises.

The Cisco Aironet 1522 delivers design innovation for radio versatility and provides flexibility for deploying wireless mesh networks in dynamic environments.

The Cisco Aironet 1522 wireless broadband platform operates with Cisco wireless LAN (WLAN) controllers and Cisco Wireless Control System (WCS) software, centralizing critical functions of WLANs to provide scalable management, configuration, and security and transparent mobility between indoor and outdoor environments.

Ideal for Companies that Need These Features

- Municipal and public safety wireless outdoor networks
- An outdoor wireless network within a campus area
- Outdoor infrastructure for mobile users

Key Features

- Versatile—The platform facilitates mobility services that allow rapid development and integration of radio technology.
- Extensible—The platform allows the broadband wireless infrastructure to easily and securely extend services to third-party devices such as IP cameras and automated meter readers in the harshest environmental conditions.
- Fortified—The platform provides a very high standard of security with a secure, rugged enclosure and the Cisco Self-Defending Network architecture.

Specifications

Wireless Standards	802.11a; 802.11b/g, 4.9 GHz Public Safety
Media Access Protocol	Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA)
Date Rates and Modulation	802.11a: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, Orthogonal Frequency Division Multiplexing (OFDM); 802.11b: 11, 5.5, 2, 1 Mbps, Direct Sequence Spread Spectrum (DSSS); 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps, OFDM
Frequency Band and Operating Channels	• 802.11a: 5.725–5.850 GHz 5 channels; 5.725–5.850 GHz 5 channels • 802.11b/g: 2.412–2.462 GHz; 11 channels; 2.412–2.462 GHz; 11 channels • Regulatory Version: -A; -N

Transmit Power[1]	· Maximum: 802.11a: 28 dBm; 802.11b: 24 dBm; 802.11g: 24 dBm · Available power settings are at the following percentages of the above maximum transmit power: 100, 50, 25, 12.5, 6.25
Receive Sensitivity	· 802.11a: 6 Mbps: -87 dBm; 9 Mbps: -87 dBm; 12 Mbps: -86 dBm; 18 Mbps: -84 dBm; 24 Mbps: -80 dBm; 36 Mbps: -76 dBm; 48 Mbps: -72 dBm; 54 Mbps: -71 dBm; · 802.11b: 1 Mbps: -90 dBm; 2 Mbps: -89 dBm; 5.5 Mbps: -87dBm; 11 Mbps: -84 dBm; · 802.11g: 6 Mbps: -88 dBm; 9 Mbps: -87 dBm; 12 Mbps: -87 dBm; 18 Mbps: -84 dBm; 24 Mbps: -80 dBm; 36 Mbps: -78 dBm; 48 Mbps: -72 dBm; 54 Mbps: -71 dBm;
Network Interface	802.3u 10/100 Ethernet, autosensing
Networking Features	16 Broadcast SSIDs; HTTP web page re-direct
Management	LWAPP-based; Managed by Cisco Wireless LAN Controller
Security	· Wireless Bridging/Mesh: X.509 digital certificates; MAC address authentication; Hardware-assisted AES encryption · Wireless Access: 802.11i; 802.1x authentication, including EAP-SIM, EAP-PEAP, EAP-TLS, EAP-TTLS, Cisco LEAP; Hardware-assisted AES, WPA, Temporal Key Integrity Protocol-Message Identity Check (TKIP-MIC) encryption; VPN passthrough; IPSec, L2TP; MAC address filtering
Compliance	Customers are responsible for verifying approval for use in their country. See http://www.cisco.com/go/aironet/compliance to verify approval and to identify the regulatory domain that corresponds to a particular country. All regulatory domains may not have been approved. As they are approved, the part numbers will be available on the Global Price List.
Dimensions	15.0ï x 7.3ï x 5.7ï (25.4 cm x 18.5 cm x 14.5 cm) (including antenna mount)
Weight	18 lbs. (8.20 kg) for basic access point to 26 lbs. (11.8 kg) for fully configured access point and mounting bracket
Operating Temperature	-30 to 55žC (-22 to 131žF)
Storage Temperature	-50 to 85žC (-58 to 185žF)
Environmental Ratings	IP66; NEMA 4
Immunity	<= 5 mJ for 6kV/3kA @ 8/20 ms waveform; ANSI/IEEE C62.41; EN61000-4-5 Level 4 AC Surge Immunity; EN61000-4-4 Level 4 Electrical Fast Transient Burst Immunity; EN61000-4-3 Level 4 EMC Field Immunity; EN61000-4-2 Level 4 ESD Immunity; EN60950 Overvoltage Category IV
Power	95-260 VAC, 47-63 Hz; Power over Ethernet: 48 VDC, +/-10 percent

1. Maximum transmit power will vary by channel, data rate, and individual country regulations

Selected Part Numbers and Ordering Information

AIR-LAP1522AG-A-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, FCC config
AIR-LAP1522AG-N-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Non-FCC config
AIR-LAP1522AG-E-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, ETSI config
AIR-LAP1522AG-K-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Korea config
AIR-LAP1522AG-C-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, China config
AIR-LAP1522AG-P-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Japan config
AIR-LAP1522AG-S-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Singapore config
AIR-LAP1522AG-T-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Taiwan config
AIR-LAP1522PC-A-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Power over cable, FCC config
AIR-LAP1522PC-N-K9	Cisco Aironet 1522AG Lightweight Outdoor Mesh Access Point, Power over cable, Non-FCC config

For More Information

For more information about the Cisco Aironet 1522 Lightweight Outdoor Wireless Mesh Access Point, visit: http://www.cisco.com/go/wireless.

Cisco Aironet 1400 Series Wireless Bridge

The Cisco Aironet 1400 Series Wireless Bridge creates a benchmark for wireless bridging by providing a high-performance and feature-rich solution for connecting multiple LANs in a metropolitan area. It offers deployment personnel a flexible, easy-to-use solution while also meeting security requirements of WAN professionals.



Ideal for Companies that Need These Features

- A cost-effective, high-bandwidth way to connect networks in multiple locations within a metropolitan area
- A rapid payback period and a lower total cost of ownership than a leased line
- High-performance data rates of 54 Mbps at point-to-point ranges of 7.5 miles and point-to-multipoint ranges of two miles

Key Features

- Cisco Aironet 1400 Series Wireless Bridges support both point-to-point and point-to-multipoint configurations.
- Industry-leading range and throughput of these bridges support data rates up to 54 Mbps.
- Enhanced security mechanisms are based on 802.11 standards.
- The ruggedized enclosure, with an extended operating temperature range, is optimized for harsh outdoor environments.
- Integrated or optional external antennas offer flexibility in deployment.
- The bridges are designed specifically for ease of installation and operation.

Specifications

Feature	AIR-BR1410A-A-K9	AIR-BR1410A-A-K9-N	Power Injector LR
Frequency band	5.725 to 5.825 GHz (FCC UNII 3)		
Wireless modulation	Coded Orthogonal Frequency Division Multiplexing (COFDM)		
Media access protocol	Carrier Sense Multiple Access with Collision Avoidance (CSMA/CA)		
Modulation	BPSK @ 6 and 9 Mbps, QPSK @ 12 and 18 Mbps, 16-QAM @ 24 and 36 Mbps, 64-QAM @ 48 and 54 Mbps		
Non-overlapping channels	4		
Receive sensitivity (10% PER with 3200byte packets)	6 Mbps: -83 dBm, 9 Mbps: -83 dBm,12 Mbps: -81 dBm, 18 Mbps: -80 dBm, 24 Mbps: -77 dBm, 36 Mbps: -74 dBm, 48 Mbps: -70 dBm, 54 Mbps: -68 dBm		
Maximum Operational Receive Level	-19 dBm		
Maximum Survivable Receive Level	0 dBm		
Available transmit power settings	250 mW (24 dBm), 200 mW (23 dBm), 155 mW (22 dBm), 125 mW (21 dBm), 60 mW (18 dBm), 30 mW (15 dBm), 15 mW (12 dBm) Maximum power setting will vary according to individual country regulations		
Point-to-point range1	75 miles (13 km) @ 54 Mbps, 16 miles (26 km) @ 9 Mbps	12 miles (19 km) @ 54 Mbps, 23 miles (37 km) @ 9 Mbps, (Antennas are 28 dBi dish)	
Point-to-multipoint range (sector antenna at root)2	2 miles (3 km) @ 54 Mbps, 8 miles (13 km) @ 9 Mbps	4 miles (7 km) @ 54 Mbps, 11 miles (18 km) @ 9 Mbps, (Non-root antenna is 28 dBi dish)	
Antenna	Captured Linear Polarization; 22.5dBi gain: 10 E-plane by 12 H-plane beamwidth	One N-Type connector for professional installations (antennas sold separately)	
Security	Cisco Wireless Security Suite—Authentication: 802.1x support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys ; Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits Pre-standard TKIP WEP enhancements: key hashing (per packet keying) and Message Integrity Check (MIC)		
SNMP compliance	v1 and v2		
Status LEDs	Four LEDs: Install, Radio, Status, Ethernet		Four LEDs: Power ON, Injector status, LAN Ethernet status, Bridge Ethernet status
RSSI port	BNC connector DC Voltage port (0VDC to 2.7 VDC)		NA
Uplink	100 Mbps over dual coaxial cables		10/100BaseT Ethernet
Configuration support	Telnet, HTTP, FTP, TFTP, SNMP	Telnet, HTTP, FTP, TFTP, SNMP	NA
Compliance	Customers are responsible for verifying approval for use in their country. Please see http://www.cisco.com/go/aironet/compliance to verify approval and to identify the regulatory domain that corresponds to a particular country. All regulatory domains may not have been approved. As they are approved, the part numbers will be available on the Global Price List. individual country regulations)		
Dimensions (H x W x D)	11.4 x 11.4 x 4.2 in. (29 x 29 x 11 cm)	11.6 x 11.6 x 3.6 in. (29 x 29 x 9 cm)	6.7 x 6.3 x 1.3 in (17 x 16 x 3 cm)
Weight	11 lbs. (5 kg)	10 lbs. (5 kg)	1.4lbs. (0.6kg)
Operational temperature	-30 to +55ºC (-22 to +131ºF)		0 to +50C (32 to 122F)
Storage temperature	-40 to +85ºC (-40 to +185ºF)		-40 to +70C (-40 to +158F)
Operational altitude	4206 m (13,800 ft.)		
Storage altitude	4877 m (16,000 ft.)		
Humidity	0 to 100% (condensing)		0 to 90% (non-condensing)
Vibration	0.001 G2/Hz from 5 - 100 Hz		

Storage vibration		0.01 G2/Hz from 5 - 100 Hz	
Enclosure	Aluminum with environmentally sealed plastic radome	NEMA-4, aluminum	Metal case
AC power	Not Required as uses DC voltage from Power Injector		100 to 240 VAC, +/- 10% (power supply)
DC power		48 VDC +/-2V	
Warranty		One year	

Selected Part Numbers and Ordering Information

AIR-BR1410A-A-K9	Aironet 1410 Wireless Bridge with 22.5 dBi Antenna, FCC Config
AIR-BR1410A-E-K9	Aironet 1410 Integrated Metro Bridge, European Config
AIR-BR1410A-K-K9	Aironet 1410 Integrated Metro Bridge, Korean Config
AIR-BR1410A-Z-K9	Aironet 1410 Integrated Metro Bridge, Pacific Config
AIR-BR1410A-A-K9-N	Aironet 1410 Wireless Bridge w/ N-Type Connector, FCC Config

For More Information

For more information about the Cisco Aironet 1400 Series Wireless Bridges, visit:
http://www.cisco.com/go/wireless.

Cisco Aironet 1300 Series Access Points



The Cisco Aironet 1300 Series Access Points are an 802.11g access point and bridge that provides high-speed and cost-effective wireless connectivity between multiple fixed or mobile networks and clients.

Ideal for Companies that Need These Features

- Configurable for access point, bridge, or workgroup bridge roles
- Support for both point-to-point or point-to-multipoint configurations
- Industry leading range and throughput, supporting data rates up to 54 Mbps
- Enhanced security mechanisms based on 802.1X standards
- Ruggedized enclosure optimized for harsh outdoor environments with extended operating temperature range

Key Features

- Network connections within a campus area; outdoor infrastructure for mobile networks and users; public access for outdoor areas
- Supports temporary networks for portable or military operations
- Supports the 802.11g standard providing 54-Mbps data rates with secure technology while maintaining full backward compatibility with legacy 802.11b devices
- Easy maintenance and installation by integrating it with your wired network via SWAN solution
- Investment protection with future Cisco IOS Software upgrades
- The Cisco Unified Wireless Network simplifies wireless LAN deployment and management by providing clear visibility and dynamic control of the RF environment
- Operates as a wireless bridge, access point, or a workgroup bridge
- Provides ongoing savings of leased-line expenses, a method to connect networks despite physical barriers such as lakes or highways, and rapid deployment of network connections
- Wi-Fi Certified in Access Point mode

Specifications

Features	Cisco Aironet 1300 Series
Compatibility	• Access Point—Compatible with any Wi-Fi Certified client device for basic capability; Compatible with Cisco Aironet clients and Cisco Compatible clients for extended capability • Workgroup Bridge—Supports operation with Cisco Aironet access points and Cisco bridges
Air interface standard[1]	IEEE 802.11b or IEEE 802.11g
Frequency band	2.412 to 2.462 GHz (FCC); 2.412 to 2.472 GHz (ETSI); 2.412 to 2.472 GHz (TELEC)

Wireless modulation	• 802.11b—Direct Sequence Spread Spectrum (DSSS): Differential Binary Phase Shift Keying (DBPSK) at 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) at 2 Mbps; Complementary Code Keying (CCK) at 5.5 and 11 Mbps • 802.11g—Orthogonal Frequency Divisional Multiplexing (OFDM): BPSK at 6 and 9 Mbps; QPSK at 12 and 18 Mbps; 16-quadrature amplitude modulation (QAM) at 24 and 36 Mbps; 64-QAM at 48 and 54 Mbps
Media access protocol	Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA)
Operating channels	802.11b/g—ETSI: 13; Americas: 11; TELEC (Japan): 13
Lightweight Access Point Protocol	A network protocol for lightweight access points that also provides for centralized management.
Non-overlapping channels	3
Security	• Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and message, Integrity Check (MIC), AES-ready • Access Point: Authentication: 802.1X support including LEAP, PEAP, EAP Message Digest 5 (EAP MD5), EAP TLS, and EAP FAST to yield mutual authentication and dynamic per-user, per-session encryption keys; • Encryption: Cisco TKIP and WPA TKIP; key hashing (per-packet keying) and MIC; AES-ready • Workgroup-Bridge—Authentication: 802.1X support including LEAP to yield mutual authentication and dynamic per-user, per-session encryption keys; Encryption: Cisco TKIP, key hashing (per-packet keying) and MIC, AES-ready
SNMP compliance	Versions 1 and 2

1. Bridge mode has enhancements to the standard to allow longer-range bridging communication

Feature	**AIR-BR1310G-x-K9**	**AIR-BR1310G-x-K9-R**
Available transmit power settings[1]	802.11b: 100 mW (20 dBm), 50 mW (17 dBm), 30 mW (15 dBm), 20 mW (13 dBm), 10 mW (10 dBm), 5 mW (7 dBm), 1 mW (0 dBm); 802.11g: 30 mW (15 dBm); 20 mW (13 dBm); 10 mW (10 dBm); 5 mW (7 dBm); 1 mW (0 dBm)	
Maximum operational receive level	-20 dBm	
Maximum survivable receive level	10 dBm	
Receive sensitivity (10 percent with 3200-byte packets)	1 Mbps: -94 dBm, 2 Mbps: -91 dBm, 5.5 Mbps: -89 dBm, 11 Mbps: -85 dBm; 6 Mbps: -90 dBm, 9 Mbps: -89 dBm; 12 Mbps: -86 dBm, 18 Mbps: -84 dBm; 24 Mbps: -81 dBm, 36 Mbps: -77 dBm; 48 Mbps: -73 dBm, 54 Mbps: -72 dBm	
Access-point role (Outdoor range)	Americas: 865 feet (260 meters) at 54 Mbps, 3465 feet (1055 meters) at 11 Mbps; ETSI: 150 feet (45 meters) at 54 Mbps, 775 feet (235 meters) at 11 Mbps; TELEC: 485 feet (145 meters) at 54 Mbps, 1095 feet (330 meters) at 11 Mbps Note: Access Point with 13 dBi integrated antenna and Cisco clients	Americas: 350 feet (105 meters) at 54 Mbps, 1410 feet (430 meters) at 11 Mbps; ETSI: 195 feet (60 meters) at 54 Mbps, 630 feet (190 meters) at 11 Mbps; TELEC: 195 feet (60 meters) at 54 Mbps, 445 feet (135 meters) at 11 Mbps Note: Access Point with 5.2dBi patch antenna and Cisco clients
Bridge role (Point-to-point range)[2]	Americas: 1.3 miles (2 km) at 54 Mbps, 9 miles (15 km) at 11 Mbps; EMEA: 0.2miles (0.36Km) at 54 Mbps, 2.3 miles (3.5 km) at 11 Mbps; TELEC: 0.7 miles (1.1Km) at 54 Mbps, 3.2 miles (5 km) at 11 Mbps Note: 13 dBi integrated antenna at root and non-root bridge	Americas: 4.5 miles (7 km) at 54 Mbps, 14 miles (23 km) at 11 Mbps; EMEA 5.5 miles (9 km) at 11 Mbps; TELEC: 4.5 miles (7 km) at 54 Mbps, 12 miles (20 km) at 11 Mbps Note: 21-dBi dish antenna at root and non-root bridge
Bridge role (Point-to-multipoint range)	Americas: 1.1 miles (1.8 km) at 54 Mbps, 8 miles (13 km) at 11 Mbps; EMEA: 0.25 miles (0.4Km) at 54 Mbps, 1.1 miles (1.8 km) at 11 Mbps; TELEC: 0.8 miles (1.3Km) at 54 Mbps, 3.6 miles (5.8 km) at 11 Mbps Note: 14-dBi sector antenna at root and 13dBi integrated antenna at non-root	Americas: 2.0 miles (3.3 km) at 54 Mbps, 10 miles (16 km) at 11 Mbps; EMEA: 2.5 miles (4 km) at 11 Mbps; TELEC: 2.0 miles (3.3 km) at 54 Mbps; 9.0 miles (14 km) at 11 Mbps Note: 14-dBi sector at root and 21-dBi dish at non-root
Features	**AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R**	**AIR-PWRINJ-BLR2 and AIR-PWRINJ-BLR2T**
Dimensions (H x W x D)	8 x 8.1 x 3.12 in. (20.3 x 20.57 x 7.87 cm)	4.62 x 4.76 x 1.07 in. (11.73 x 12.09 x 2.71 cm)
Weight	2.5 lb (1.25 kg)	2 lb (1 kg)
Operational temperature	-22½ to 131½ºF (-30½ to 55½ºC)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Storage temperature	-40½ to 185½ºF (-40½ to 85½ºC)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Operational altitude	13,800 ft (4206 m)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R

Storage altitude	16,000 ft (4877 m)	Same As AIR-BR1310G-x-K9 and AIR-BR1310G-x-K9-R
Humidity	0 to 100% at 100½ºF (38½ºC) (condensing)	0 to 90% at 100½F (38½C) (non-condensing)
Warranty	One Year	

1. Maximum power setting will vary according to individual country regulations
2. The distances referenced here are approximations and should be used for estimation purposes only.

Selected Part Numbers and Ordering Information

Cisco Aironet 1300 Series	
AIR-BR1310G-X-K9	2.4 GHz (802.11g) Outdoor Access Point /Bridge with integrated patch antenna
AIR-BR1310G-X-K9-R	2.4 GHz (802.11g) Outdoor Access Point /Bridge with RP-TNC type connector
AIR-LAP1310G-X-K9	2.4 GHz (802.11g) Outdoor Lightweight Access Point /Bridge with integrated patch antenna
AIR-LAP1310G-X-K9	2.4 GHz (802.11g) Outdoor Lightweight Access Point /Bridge with RP-TNC type connector

For More Information

For more information about the Cisco Aironet 1300 Series Access Points, visit:

http://www.cisco.com/go/wireless.

Cisco Aironet Wireless LAN Client Adapters

The Cisco Aironet Wireless LAN Client Adapters provide high-performance 54-Mbps connectivity in the 2.4- and 5-GHz bands that combines the freedom of wireless connectivity with the performance, security, and manageability that businesses require.



Ideal for Companies that Need These Features

- Ability to operate in a mixed-mode environment
- Mobility within the enterprise to increase productivity, as an addition or alternative to wired networks, or the need for flexibility for frequent LAN wiring changes
- Support for Cisco Compatible Extensions with a Cisco product

Key Features

- The Cisco Aironet 802.11a/b/g CardBus Wireless LAN Client Adapters secure network communications using the Cisco Secure Wireless Solution.
- The tools include the Cisco Aironet Desktop Utility, Cisco Aironet System Tray Utility (STU), and Cisco Aironet Client Administration Utility (CAU).
- World mode is used for international roaming.
- The adapter tools offer exceptional range and throughput.
- The adapter tools support single 802.11b coverage, single 802.11g coverage, single 802.11a coverage, dual-mode 802.11a/g coverage, or tri-mode 802.11a/b/g coverage.
- The adapter tools are Wi-Fi Certified, and they support for the Wi-Fi Protected Access (WPA) protocol.
- PCI adapter that offers optimal placement for maximum performance using a dual-band 2.4- or 5-GHz 1-dBi effective gain antenna has a 2-meter cable.
- The PCI adapter provides a low-profile form factor and 2-meter cable length to provide flexibility for installation in low-profile devices, such as slim desktops and point-of-sale (POS) devices.
- The tools support Cisco Compatible Extensions Version 5 and earlier.

Specifications

Feature	Cisco Aironet 802.11a/b/g Wireless CardBus Adapter	Cisco Aironet 802.11a/b/g Wireless PCI Adapter
Form Factor	CardBus Type II	Standard and Low Profile Type II PCI
Interface	32-bit CardBus with standard 68-pin connector; PC-Card Rev. 7.0 compliant	Standard PCI Interface, PCI Rev. 2.3 compliant
Data Rates Supported	1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54 Mbps	
Network Standard	IEEE 802.11a/b/g	
Operating Voltage	3.3 V (±0.3 V)	
Media Access Protocol	Carrier-Sense Multiple Access w/ Collision Avoidance (CSMA/CA)	
Wireless Medium	802.11g: Direct Sequence Spread Spectrum (DSSS) and Orthogonal Frequency Divisional Multiplexing (OFDM); 802.11a: OFDM	

Modulation	• 802.11b: DSSS--Differential Binary Phase Shift Keying (DBPSK) @ 1 Mbps; Differential Quadrature Phase Shift Keying (DQPSK) @ 2 Mbps; Complementary Code Keying (CCK) @ 5.5 and 11 Mbps • 802.11g and 802.11a: OFDM--BPSK @ 6 and 9 Mbps; QPSK @ 12 and 18 Mbps; 16-Quadrature Amplitude Modulation (QAM) @ 24 and 36 Mbps; 64-QAM @ 48 and 54 Mbps	
Frequency Bands	2.40 to 2.4897 GHz; 5.15 to 5.35 GHz (FCC UNII 1 and UNII 2); 5.725 to 5.85 GHz (FCC UNII 3); 5.15 to 5.35 GHz (ETSI); 5.470 to 5.725 (ETSI); 5.15 to 5.25 GHz (Japan)	
Range (With 2.2 dBi dipole antenna for 802.11g and 802.11b and 6 dBi gain patch for 802.11a)	• 802.11a—Indoor: 45 ft (13 m)@ 54 Mbps, 110 ft (33 m) @ 18 Mbps, 165 ft (50 m) @ 6 Mbps; Outdoor: 100 ft (30 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (304 m) @ 6 Mbps • 802.11b/g—Indoor: 90 ft (27 m) @ 54 Mbps, 180 ft (54m) @ 18 Mbps, 160 ft (48 m) @ 11 Mbps, 300 ft (91 m) @ 6 Mbps, @ 410 ft (124 m); Outdoor: 250 ft (76 m) @ 54 Mbps, 600 ft (183 m) @ 18 Mbps, 1000 ft (304 m) @ 11 Mbps, 1300 ft (396 m) @ 6 Mbps, 2000 ft (610 m) @ 1 Mbps	
Antenna	Integrated diversity dual-band 2.4/5 GHz antenna	
Security Architecture Client Authentication (Cisco Wireless Security Suite)	• Authentication: WPA and 802.1X support for Cisco LEAP, PEAP-GTC, PEAP-MSCHAPv2, and EAP-TLS; MAC address and by standard 802.11 authentication mechanisms • Encryption: Support for static and dynamic IEEE 802.11 WEP keys of 40 bits and 128 bits; Cisco TKIP and WPA TKIP encryption enhancements: key hashing (per-packet keying), message integrity check (MIC) and broadcast key rotation	
Drivers	Windows XP and Windows 2000	
Dimensions (H x W x D)	0.19 x 2.05 x 4.46 in. (4.80 x 52.08 x 113.35 mm.)	3.12205 x 4.72 in. (79.3 x 119.9 mm.)
Weight	1.6 oz (44.0g)	Standard (frame) PCI w/Antenna: 3.64 oz. (103.2 g), Standard (frame) PCI w/o Antenna: 1.92 oz. (54.7 g), Low Profile PCI w/Antenna: 3.43 oz. (97.5 g), Low Profile PCI w/o Antenna: 1.72 oz. (49.0 g)
Warranty	One Year	One Year

Selected Part Numbers and Ordering Information

AIR-CB21AG-A-K9	802.11a/b/g Cardbus Adapter; FCC Cnfg
AIR-CB21AG-P-K9	802.11a/b/g Cardbus Adapter; Japan2 Cnfg
AIR-CB21AG-A-K9-40	802.11a/b/g Cardbus Adapter; FCC Cnfg; 40PK
AIR-CB21AG-E-K9	802.11a/b/g Cardbus Adapter; ETSI Cnfg
AIR-CB21AG-J-K9	802.11a/b/g Cardbus Adapter; TELEC Cnfg
AIR-CB21AG-W-K9	802.11a/b/g Cardbus Adapter; Rest of World Cnfg
AIR-PI21AG-A-K9	802.11a/b/g Low Profile PCI Adapter; FCC Cnfg
AIR-PI21AG-A-K9-10	802.11a/b/g Low Profile PCI Adapter; FCC Cnfg; 10PK
AIR-PI21AG-E-K9	802.11a/b/g Low Profile PCI Adapter; ETSI Cnfg
AIR-PI21AG-J-K9	802.11a/b/g Low Profile PCI Adapter; TELEC Cnfg
AIR-PI21AG-W-K9	802.11a/b/g Low Profile PCI Adapter; Rest of World Cnfg

For More Information

For more information about the Cisco Aironet Wireless LAN Client Adapters, visit:

http://www.cisco.com/go/wireless.

Cisco Secure Services Client

The Cisco Secure Services Client is a software application that allows businesses of all sizes to deploy a single authentication framework across endpoint devices to enable access to both wired and wireless networks. The solution delivers simplified management, robust security, and lower total cost of ownership. Through a simplified and scalable deployment mechanism, IT administrators can deploy and manage the Cisco Secure Services Client across the enterprise. The software client manages the user and device identity and the network access protocols required for secure access. The Cisco Secure Services Client uses the IEEE 802.1X authentication standard to provide a robust first line of defense against unauthorized network intrusions.

Ideal for Companies that Need These Features

- Centralized and secured management of Wi-Fi devices
- Control of users' access policies
- Identity-based access
- FIPS support
- Simple end-user experience (two-click connect, automated VPN, and automated access to network)

Key Features

- Automatic VPN feature—Cisco IP Security (IPsec) VPN and Secure Computing Soft Token are integrated in the Cisco Secure Services Client.
- FIPS 140-2 Level 1-compliant solution—FIPS drivers (ordered separately) are available.
- Cisco enterprise deployment mechanism—A unified .xml file allows for client provisioning; the single provisioning schema is independent of hardware. The administrator can now easily create an .msi file containing the .xml and .exe files for installation, and then deploy the files using standard deployment tools such as Microsoft Active Directory, Microsoft Short Message Service (SMS), and Altiris.
- Filtering of unwanted Service Set Identifiers (SSIDs)—This feature decreases the number of available networks for users and enforces corporate security policies for end users.
- Enforcing wired over wireless—This feature allows you to disable the wireless interface when a wired connection is present, and it eliminates unwanted wireless bridging to a wired network.
- Policy Enforcement Manager—The Policy Enforcement Manager enforces an 802.1X identity-based network security framework and configures and enforces access policies to protect corporate resources and assets.
- Network Profile Manager—Using the administrator console, administrators can define preconfigurations, lock down client features, and deploy end-user profiles for enterprise, travel, and home connections. The Network Profile Manager provides network entitlement rights for employees, guests, and suppliers with different levels of security.
- Credential Manager—The Credential Manager facilitates Windows single sign-on (SSO) capabilities, including device and user authentication, user-based authentication sessions, and credential challenges.
- Secure network access—This feature allows for authenticated access to 802.1X wired and wireless LANs. Cisco Secure Services Client is compatible with Wi-Fi-certified devices; it supports all Wi-Fi encryption modes: Wired Equivalent Privacy (WEP), Wi-Fi Protected Access-personal mode (WPA-personal mode), WPA2-personal mode, WPA-enterprise mode, WPA2-enterprise mode, Dynamic WEP (802.1X), Advanced Encryption Standard (AES), and Temporal Key Integrity Protocol (TKIP). It also supports a wide selection of Extensible Authentication Protocol (EAP) types; protects user privacy with EAP "anonymous" access; and integrates with Cisco Trust Agent, providing strong Layer 2 802.1X-based Network Admission Control (NAC) support. In addition, it is compatible with the Cisco Secure Access Control Server (ACS).
- Access management and automated configuration control—This enterprise deployment mechanism, available through a unified .xml file, delivers user-access policies to any port accessed by users. It centrally deploys Microsoft Active Directory machine or user group profiles, and facilitates automatic configuration of VLANs, in addition to offering comprehensive SSO support for the Windows login environment.
- Flexible selection of user credentials—User passwords and Windows passwords are interactive. User credentials are checked with RSA SecurID tokens; one-time password (OTP) tokens; Smartcards (Axalto, Gemplus, SafeNet iKey, and Alladin); and X.509 certificates.

Specifications

Operating systems	**Windows XP, Windows 2000**
EAP protocols	EAP-Message Digest 5 (MD5), EAP-Transport Layer Security (TLS), EAP-Tunneled TLS (TTLS), Cisco LEAP, EAP-Flexible Authentication via Secure Tunneling (FAST), Protected Extensible Authentication Protocol (PEAP)
EAP-TTLS	Password Authentication Protocol (PAP), Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MSCHAP), MSCHAPv2, EAP-MD5
EAP-PEAP	EAP-MSCHAPv2, EAP-TLS, and EAP-Generic Token Card (EAP-GTC)
Encryption support	WEP, WPA, WPA2, WPA-Pre-Shared Key (WPA-PSK), WPA2-PSK, Dynamic WEP (802.1X), AES, TKIP
Media support	Wired Ethernet 802.3 and Wi-Fi 802.1 1a, 802.1 1b, 802.1 1g
Switch interoperability	Any 802.1X-compatible Wi-Fi access point and wired Ethernet switch
Authentication, authorization, and accounting (AAA) interoperability	Supports standard RADIUS servers such as Cisco Secure ACS and Microsoft Internet Authentication Service (IAS)
Windows SSO	Active Directory machine and user authentication
Enterprise deployment	Export network profiles and lock user interface
Integrated VPN	Automatic VPN and Secure Computing Soft Token require the following software to be preinstalled: • Cisco IPSec VPN Version 4.8 or later • Secure Computing Soft Token Version 2.1 or later
FIPS solution	Meets Federal Information Processing Standard 140-2 Level 1. • Requires the purchase of separate drivers for a complete FIPS 140-2 Level 1 client solution. Driver part numbers are AIR-SSCFIPS-DRV (see ordering guide for more detail). • Supports Intel, Broadcom, and Atheros Wi-Fi chipsets • FIPS mode includes support for EAP-TLS, EAP-FAST, and PEAP association methods.

Selected Part Numbers and Ordering Information

AIR-SC5.0-XP2K	SW Client 5.0 for Win XP/2K for wired/wireless devices
AIR-SC5.0-XP2K-L1	Specified seat count up to 250
AIR-SC5.0-XP2K-L2	Specified seat count in range 251–1000
AIR-SC5.0-XP2K-L3	Specified seat count in range 1001–2500
AIR-SC5.0-XP2K-L4	Specified seat count in range 2501–5000
AIR-SC5.0-XP2K-L5	Specified seat count in range 5001–10,000
AIR-SC5.0-XP2K-L6	Specified seat count in range 10,001–25,000
AIR-SC5.0-XP2K-L7	Specified seat count in range 25,001–50,000
AIR-SC5.0-XP2K-L8	Specified seat count in range 50,001–100,000

For More Information

For more information about the Cisco Secure Services Client, visit:
http://www.cisco.com/en/US/products/ps7034/index.html.

Cisco 4400 Series Wireless LAN Controller



The Cisco 4400 Series Wireless LAN Controller provides system-wide WLAN functions for medium to large-sized facilities. By automating WLAN configuration and management functions, network managers have the control, security, redundancy, and reliability needed to cost-effectively scale and manage their wireless networks as easily as they scale and manage their traditional wired networks. The Cisco 4400 Series Wireless LAN Controller works in conjunction with Cisco Aironet lightweight access points, the Cisco Wireless Control System (WCS), Cisco Wireless Location Appliance, and the Cisco Mobility Services Engine to support business-critical wireless data, voice, and video applications. It provides real-time communication between lightweight access points and other WLAN controllers to deliver centralized security policies, wireless intrusion prevention system (IPS) capabilities, award-winning RF management, QoS, and mobility.

Ideal for Companies that Need These Features

- Enterprise scalability—Scalable architecture that provides business-critical wireless services for locations of all sizes
- Integrated radio resource management (RRM)—An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- Enterprise reliability—Automated recovery from lightweight access point and WLAN controller failures to maximize the availability of the wireless network

Key Features

- Component of Cisco lightweight AP solution
- Enterprise scalability
- Zero-configuration deployment
- Multilayered security
- Rogue AP detection, location, and containment
- Mobility management

Specifications

Features	Cisco 4400 Series Wireless LAN Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11h, 802.11n
Data RFCs	RFC 768 UDP, RFC 791 IP, RFC 792 ICMP,RFC 793 TCP, RFC 826 ARP, RFC 1122 Requirements for Internet Hosts, RFC 1519 CIDR, RFC 1542 BOOTP, RFC 2131 DHCP
Security Standards	Wi-Fi Protected Access (WPA); IEEE 802.11i (WPA2, RSN); RFC 1321 MD5 Message-Digest Algorithm; RFC 2104 HMAC: Keyed Hashing for Message Authentication; RFC 2246 TLS Protocol Version 1.0; RFC 3280 X.509 PKI Certificate and CRL Profile
Encryption	WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys); Secure Sockets Layer (SSL) and TLS: RC4 128-bit and RSA 1024- and 2048-bit; AES: CCM, CCMP
AAA	IEEE 802.1X; RFC 2548 Microsoft Vendor-Specific RADIUS Attributes; RFC 2716 PPP EAP-TLS; RFC 2865 RADIUS Authentication; RFC 2866 RADIUS Accounting; RFC 2867 RADIUS Tunnel Accounting; RFC 2869 RADIUS Extensions; RFC 3576 Dynamic Authorization Extensions to RADIUS; RFC 3579 RADIUS Support for EAP; RFC 3580 IEEE 802.1X RADIUS Guidelines; RFC 3748 Extensible Authentication Protocol; Web-based authentication

Management	SNMP v1, v2c, v3; RFC 854 Telnet; RFC 1155 Management Information for TCP/IP-Based Internets; RFC 1156 MIB; RFC 1157 SNMP; RFC 1213 SNMP MIB II; RFC 1350 TFTP; RFC 1643 Ethernet MIB; RFC 2030 SNTP; RFC 2616 HTTP; RFC 2665 Ethernet-Like Interface types MIB; RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions; RFC 2819 RMON MIB; RFC 2863 Interfaces Group MIB; RFC 3164 Syslog; RFC 3414 User-Based Security Model (USM) for SNMPv3; RFC 3418 MIB for SNMP; RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs; Cisco private MIBs
Management Interfaces	Web-based: HTTP/HTTPS; Command-line interface: Telnet, SSH, serial port
Interfaces and Indicators	Uplink: 2 (4402) or 4 (4404) 1000Base-X mini-GBIC transceiver slots (SFP): –LED indicators: link, activity; Service Port: 10/100 Mbps Ethernet (RJ45): LED indicators: link, activity; Utility Port: 10/100/1000 Mbps Ethernet (RJ45): LED indicators: link, activity; Expansion Slots: 1 (4402) or 2 (4404); Console Port: RS232 (DB-9 male, DTE interface); Other Indicators: Status, Alarm, Power Supply 1, Power Supply 2
Regulatory Compliance	CE Mark; Safety: UL 60950-1:2003, EN 60950:2000; EMI and susceptibility (Class A): U.S.: FCC Part 15.107 and 15.109, Canada: ICES-003, Japan: VCCI, Europe: EN 55022, EN 55024

Selected Part Numbers and Ordering Information

AIR-WLC4402-12-K9	4400 Series WLAN Controller for up to twelve Cisco Aironet access points
AIR-WLC4402-25-K9	4400 Series WLAN Controller for up to twenty-five Cisco Aironet access points
AIR-WLC4402-50-K9	4400 Series WLAN Controller for up to fifty Cisco Aironet access points
AIR-WLC4404-100-K9	4400 Series WLAN Controller for up to one-hundred Cisco Aironet access points

For More Information

For more information about the Cisco 440 Series WLANs, visit: http://www.cisco.com/go/wireless.

Cisco 2100 Series Wireless LAN Controller



Cisco wireless LAN (WLAN) controllers are responsible for systemwide WLAN functions such as security policies, intrusion prevention, RF management, quality of service (QoS), and mobility. They work in conjunction with Cisco lightweight access points and the Cisco Wireless Control System (WCS) to support business-critical wireless applications. From voice and data services to location tracking, Cisco WLAN controllers provide the control, scalability, and reliability that network managers need to build secure, enterprise-scale wireless networks, from branch offices to main campuses.

The Cisco 2100 Series Wireless LAN Controllers support up to six, twelve or twenty-five access points, making it a cost-effective solution for retail, enterprise branches and small and medium businesses. These controllers come with eight Ethernet ports, two of which can provide power directly to Cisco lightweight access points.

Ideal for Companies that Need These Features

- An enterprise scalable architecture that provides business-critical wireless services for retail and small and medium-sized businesses
- An intelligent RF control plane for self-configuration, self-healing, and self-optimization
- A system that can be deployed without modifying existing routing and switching infrastructures or touching access points

Key Features

- Component of Cisco lightweight access point solution
- Business-class RF security and WLAN security policy monitoring
- Simplified network deployment, operations, and management to help reduce overall operational expenses
- Integration with the Cisco PCI security-compliant reference design

Specifications

Features	Cisco 2106 Series Wireless LAN Controller
Wireless	IEEE 802.11a, 802.11b, 802.11g, 802.11d, 802.11h, 802.11n
Wired/Switching	IEEE 802.3 10BASE-T, IEEE 802.3u 100BASE-TX specification, and IEEE 802.1Q VLAN tagging
Data RFCs	RFC 768 UDP, RFC 791 IP, RFC 792 ICMP, RFC 793 TCP, RFC 826 ARP, RFC 1122 Requirements for Internet Hosts, RFC 1519 CIDR, RFC 1542 BOOTP, RFC 2131 DHCP

Security Standards	Wi-Fi Protected Access (WPA), IEEE 802.11i (WPA2, RSN), RFC 1321 MD5 Message-Digest Algorithm, RFC 2104 HMAC: Keyed Hashing for Message Authentication, RFC 2246 TLS Protocol Version 1.0, RFC 3280 X.509 PKI Certificate and CRL Profile
Encryption	"WEP and TKIP-MIC: RC4 40, 104 and 128 bits (both static and shared keys), Secure Sockets Layer (SSL) and TLS: RC4 128-bit and RSA 1024- and 2048-bit, AES: CCM, CCMP
AAA	IEEE 802.1X, RFC 2548 Microsoft Vendor-Specific RADIUS Attributes, RFC 2716 PPP EAP-TLS, RFC 2865 RADIUS Authentication, RFC 2866 RADIUS Accounting, RFC 2867 RADIUS Tunnel Accounting, RFC 2869 RADIUS Extensions, RFC 3576 Dynamic Authorization Extensions to RADIUS, RFC 3579 RADIUS Support for EAP, RFC 3580 IEEE 802.1X RADIUS Guidelines, RFC 3748 Extensible Authentication Protocol, Web-based authentication
Management	SNMP v1, v2c, v3, RFC 854 Telnet, RFC 1155 Management Information for TCP/IP-Based Internets, RFC 1156 MIB, RFC 1157 SNMP, RFC 1213 SNMP MIB II, RFC 1350 TFTP, RFC 1643 Ethernet MIB, RFC 2030 SNTP, RFC 2616 HTTP, RFC 2665 Ethernet-Like Interface types MIB, RFC 2674 Definitions of Managed Objects for Bridges with Traffic Classes, Multicast Filtering, and Virtual LAN Extensions, RFC 2819 RMON MIB, RFC 2863 Interfaces Group MIB, RFC 3164 Syslog, RFC 3414 User-Based Security Model (USM) for SNMPv3, RFC 3418 MIB for SNMP, RFC 3636 Definitions of Managed Objects for IEEE 802.3 MAUs, Cisco private MIBs
Management Interfaces	Designed for use with Cisco Wireless Control System, Web-based: HTTP/HTTPS individual device manager, Command-line interface: Telnet, SSH, serial port
Interfaces and Indicators	Console port: RS-232 (DB-9 male/RJ-45 connector included); Network: Eight 10/100 Mbps Ethernet (RJ-45) including two 802.3af PoE ports rated for use with Cisco Aironet lightweight access points; LED indicators: Link Activity (each 10/100 port), Power, Status, Alarm, Access Point Joined
Regulatory Compliance	CE Mark, Safety: UL 60950-1:2003, EN 60950:2000, EMI and susceptibility (Class B): U.S.: FCC Part 15.107 and 15.109, Canada: ICES-003; Japan: VCCI, Europe: EN 55022, EN 55024
Temperature	• Temperature: Operating: 32 to 104ûF (0 to 40ûC), Storage: -13 to 158ûF (-25 to 70ûC) • Humidity: Operating humidity: 10 to 95 percent, noncondensing • Storage humidity: Up to 95 percent, Heat Dissipation: 92 BTU/hour
Dimensions (W x D x H)	1.75 x 7.89 x 6.87 in. (4.45 x 20.04 x 17.45 cm)
Weight	4.0 lb (1.81 kg) with power supply
Power	Input power: 100 to 240 VAC; 50/60 Hz

Selected Part Numbers and Ordering Information

AIR-WLC2106-K9	Cisco 2106 Series Wireless LAN Controller for up to six Cisco Aironet access points
AIR-WLC2112-K9	Cisco 2112 Series Wireless LAN Controller for up to twelve Cisco Aironet access points
AIR-WLC2125-K9	Cisco 2125 Series Wireless LAN Controller for up to twenty-five Cisco Aironet access points

For More Information

For more information about the Cisco 2100 Series WLANs, visit: http://www.cisco.com/go/wireless.

Cisco 3300 Series Mobility Services Engine



The Cisco 3300 Series Mobility Services Engine is an open platform that provides a new approach for the delivery of mobility services to enable mobile business applications. A combination of hardware and software, the mobility services engine is an appliance-based solution that supports a suite of software services to provide centralized and scalable service delivery. It transforms the wireless LAN (WLAN) into a mobility network by abstracting the application layer from the network layer, effectively allowing for the delivery of mobile applications across different types of networks, including Wi-Fi, Ethernet, cellular, WiMAX, and RFID.

To deliver true business mobility, IT must take a practical approach focused on unifying networks, managing the wave of mobile devices, and enabling mobile application development. The Cisco 3300 Series Mobility Services Engine is at the heart of this mobility architecture evolution. It provides an open application programming interface (API) that allows a broader ecosystem of partners to access network intelligence to develop industry-relevant mobility solutions. An extension of the Cisco Unified Wireless Network, the mobility services engine integrates with Cisco Unified Communications and Cisco compatible devices to deliver a comprehensive approach to business mobility, an approach that extends applications to the right device at the right time, no matter which network is being used.

Ideal for Companies that Need These Features

- Platform for rapid delivery of services and applications
- Unification of multiple access networks to help ensure more transparent application delivery
- Scalability, manageability, and flexibility for service delivery

- Investment protection of the existing Cisco Unified Wireless Network

Key Features

- Extensible platform for rapid delivery of services and applications—This platform allows the abstraction of services and applications from the control and data planes so that each may evolve independently; The solution offers a common framework for hosting multiple mobility services; An open application programming interface (API) supports third-party and partner application development.
- Ecosystem of application partners—This ecosystem delivers mobility solutions targeted at various industries, including healthcare, retail, education, and manufacturing.
- Scalability—Multiple services can be deployed on a single Cisco 3300 Series Mobility Services Engine or a single service can span multiple mobility services engines.
- Manageability—The Cisco 3300 Series Mobility Services Engine serves as a single point of integration for the various value-added services; All mobility services are managed centrally through integration with the Cisco Wireless Control System.
- Flexibility—The Cisco 3300 Series Mobility Services Engine is an extensible platform capable of supporting a variety of services configurations to meet business requirements. The architecture facilitates the inclusion of newer technology standards as and when they become available.
- Return on investment—The Cisco 3300 Series Mobility Services Engine integrates with the Cisco Unified Wireless Network to provide network intelligence, including contextual information to optimize business applications. This architecture builds upon the existing investment in Cisco wireless and mobility solutions and provides a platform that is both flexible and scalable to meet evolving business mobility requirements.

Specifications

Product	• Context-Aware software to track up to 18,000 devices • Adaptive Wireless Intrusion Prevention System software to track up to 18,000 devices
Processor	(2) Quad-Core Intel Xeon Processors 2.33 GHz
Memory	8-GB PC2-5300 (4 x 2 GB)
Hard Disk	(2) Hot-swappable 147-GB Serial ATA-150 / SAS-300 MBps
Removable Media	DVD/CD-RW Combo drive
Ports	Serial—One 9-pin connector; RJ-45—Two RJ-45 connectors for connection to two Gigabit Network Adapters; 4 USB 2.0 Ports—(1) front, (1) internal, and (2) rear accessible ports; 2 PS2 ports—One mouse and one keyboard; 1 VGA port; 1 iLO 2 remote management port
Connectivity	Network—Two embedded Multifunction Gigabit Network Adapters with TCP/IP Offload Engine
Management	SNMP v1, v2c, and v3
Management Interface	Cisco WCS Mobility Services v.5.2 or greater running Internet Explorer 6.0/Service Pack 1 or later
Network Devices	Cisco 2100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst® 6500 Series Wireless Services Module, Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet® lightweight access points
Programming Interfaces	SOAP/XML APIs
Form Factor	1U Rack form factor 1.75 inches (4.45 cm) width, 27.75 inches (70.5 cm) depth
Physical Dimensions	Height: 1.70 in. (4.32 cm); Width: 16.78 in. (42.62 cm); Depth: 27.25 in. (69.22 cm); Weight: 39.5 lbs (17.92 kg) maximum
Power	• AC power supply wattage: 852W • AC power supply voltage: 100–120V at 50–60 Hz; 200–240V at 50–60 Hz • Redundant Power Supplies
Cooling Fans	Total of 9 fans, N+1 fan redundancy
Environmental	• Operating temperature: 50 to 95°F (10–35°C) at sea level • Nonoperating: –40 to 158°F (–40 to 70°C) Maximum rate of change is 20°C/hr (36°F/hr)
Approvals and Compliance	Safety UL 60950; CAN/CSA -C22.2 No. 60950; EN60950; IEC 60950: EMC FCC Part 15 (CFR 47) Class A; ICES-003 Class A; EN 55022 Class A; CISPR22 Class A; AS/NZS 3548 Class A; VCCI Class A; EN 55024; EN 50082-1

Selected Part Numbers and Ordering Information

AIR-MSE-3350-K9	Cisco 3300 Series Mobility Services Engine

For More Information

For more information about the Cisco 3300 Series Mobility Services Engine, visit http://www.cisco.com/go/MSE or contact your local Cisco account representative.

Cisco Context-Aware Software

The Cisco Context-Aware Mobility Solution provides the ability to capture and integrate into business processes detailed contextual information about parameters such as location, temperature, and the availability of an asset. The integration of contextual information with business-process applications is fast becoming the next level of true enterprise mobility. With the Cisco Context-Aware Mobility Solution, mobile users can go beyond anytime, anywhere connectivity to automatically having the right device, the right application, and the right environment while on the go. They can now answer business-critical questions about both mobile assets and the users of those assets, to improve their organization's profitability.

Ideal for Companies that Need These Features

- Advanced and scalable context-aware mobility services that simultaneously track thousands of Wi-Fi devices
- Context-aware information integrated into business processes (The Cisco Context-Aware Software supports integration with customizable business applications through tight and transparent integration with the open application programming interface (API).
- Context-aware services are available in indoor, high-ceiling indoor, and outdoor environments.
- Integrated context-aware services using existing Cisco Unified wireless-enabled infrastructure, to minimize capital expenditures and help ensure better wireless LAN (WLAN) visibility

Key Features

- Scalability—Cisco Context-Aware Software can track up to 18,000 assets simultaneously, including Wi-Fi clients and assets with Wi-Fi tags.
- Multiple context-aware engines—The modular design of the software allows for the use of the context-aware engine for clients and the context-aware engine for tags simultaneously or separately for the estimation of location.
- Multiple location technologies—Clients and tags can be tracked in indoor, high-ceiling indoor, and outdoor environments. Tracking is done using the Received Strength Signal Indicator (RSSI)-based RF fingerprinting technology for indoor environments and Time Difference of Arrival (TDOA) technology for outdoor and high-ceiling environments. The Cisco Context-Aware Mobility Service Module also supports the use of chokepoints for applications requiring high fidelity and deterministic context-aware information.
- Open platform for business applications—To facilitate the deployment of context-aware based applications in the enterprise, the context-aware mobility software allows for the integration of business applications through a rich and open Simple Object Access Protocol (SOAP)- or Extensible Markup Language (XML)-based application programming interface (API).
- Alerts and notifications—Alerts and notifications can be customized by the user based on business policy requirements.
- Deployment planning optimization—The process of planning and deployment of data, voice, and context-aware services is made simpler by the identification of coverage holes for the particular deployment scenario.
- Enhanced security—Detection of rogue access points and devices is made simpler by providing the location of these devices.
- Information-exchange configuration—Information-exchange configuration allows for control of which layer of information gets forwarded from the Cisco Unified Network controller to the Cisco Context-Aware Mobility Service Module. This control helps reduce the amount of contextual information gathered and transmitted across the network.
- Historical data—Historical data on the elements being tracked is collected and stored. This information can be used for drawing up trends and troubleshooting, among other uses.
- Scalable license management—The license management of the Cisco Context-Aware Software allows for flexibility in the type and quantity of licenses purchased to match the various scenarios. The licenses are additive (up to 18,000 assets tracked) and thus provide for growth of the system.

Specifications

Features	Cisco Context-Aware Software
Hardware requirements	Cisco Mobility Services Engine 3350
Network Management	Cisco WCS v.5.1 or greater running Internet Explorer 6.0/Service Pack 1 or later
Programming Interfaces	SOAP/XML APIs
Database	Integrated Solid Flow Engine Structured Query Language (SQL)

Selected Part Numbers and Ordering Information

AIR-CAS-3KC-K9	Context-Aware Engine for Clients License for 3K Clients

AIR-CAS-6KC-K9	Context-Aware Engine for Clients License for 6K Clients
AIR-CAS-12KC-K9	Context-Aware Engine for Clients License for 12K Clients
AIR-CAS-3KT-K9	Context-Aware Engine for Tags License for 3K Tags
AIR-CAS-6KT-K9	Context-Aware Engine for Tags License for 6K Tags
AIR-CAS-12KT-K9	Context-Aware Engine for Tags License for 12K Tags
AIR-MSE-3350-K9	Cisco 3300 Series Mobility Services Engine

For More Information

For more information about Cisco Context-Aware Software, visit: http://www.cisco.com/go/wireless.

Cisco Wireless Control System

The Cisco Wireless Control System (WCS) is the industry-leading platform for WLAN planning, configuration, management, and mobility services. It provides a powerful foundation that allows IT managers to design, control, and monitor enterprise wireless networks from a centralized location, simplifying operations and reducing total cost of ownership (TCO). With Cisco WCS, network administrators have a single solution for RF prediction, policy provisioning, network optimization, troubleshooting, user tracking, security monitoring, VoWLAN configuration, and WLAN systems management. Robust graphical interfaces make WLAN deployment and operations simple and cost-effective. Detailed trending, inventory, performance, security, device, and analysis reports make Cisco WCS vital to ongoing network operations.

The platform supports built-in secure guest access and interfaces with the Cisco Wireless Location Appliance to deliver real-time asset tracking. It interfaces with Cisco Spectrum Expert to detect Wi-Fi and RF interference. It also manages the Cisco Mobility Services Engine (MSE) to support mobility services such as context-aware mobility, mobile intelligent roaming, adaptive wireless IPS, and secure client manager.

Ideal for Companies that Need These Features

- A centralized platform for managing a complete network of Cisco wireless LAN controllers, Cisco Aironet lightweight access points, Cisco Aironet standalone access points, Cisco Wireless Location Appliances, and Cisco MSE.
- WLAN planning tools to increase the effectiveness of WLAN design and deployment, including VoWLAN and location services
- Real-time security monitoring with intrusion detection systems (IDSs) and intrusion prevention systems (IPSs)
- Simplified client troubleshooting
- Secure, cost-effective wired and wireless guest access
- Quick and simple bulk configuration of controllers
- Detection of Wi-Fi and RF interference
- Virtual domain partitioning of the network to allow individual IT administrators management access to only the segments of the wireless network under their responsibility

Key Features

- The Cisco WCS intuitive GUI, supports easy configuration, monitoring, and troubleshooting wireless networks with minimal training.
- Hierarchical maps support quick access to different geographies, campuses, buildings, floors, and regions for better visibility and control.
- The Cisco WCS migration tool and enhanced monitoring capabilities allow for easy migration of standalone (autonomous) access points to operate as lightweight access points.
- The solution provides WLAN planning tools for effective and efficient WLAN design and deployment.
- The solution provides extensive on-demand and automated reports for the entire system, including performance, access points, clients, security, the RF environment, and alarms.
- Virtual domains support access control by limiting access for individual IT administrators to only those network segments that are under their individual responsibility.
- Managed service providers can easily manage multiple customer WLANs directly from a single Cisco WCS platform with virtual domains.
- A client troubleshooting tool allows for quick and easy client troubleshooting using simple step-by-step methods.
- The solution integrates with Cisco Spectrum for investigating Wi-Fi and RF interference sources within the vicinity of the Cisco lightweight access points.
- The Cisco WCS offers integrated location tracking to protect assets and increase WLAN security.
- The solution provides policy management templates for easy creation and enforcement across an entire enterprise.

- Secure guest access allows organizations to keep its wireless networks secure while providing customers, vendors, and partners with controlled access to the WLAN.
- The solution offers complete wireless intrusion protection and detection of rogue devices.
- The Cisco WCS provides simple, hands-off software upgrades and scalable configuration templates.
- The solution supports converting an existing CiscoWorks Wireless LAN Solution Engine (WLSE; models 1130-19 and 1133) to operate as a Cisco WCS to reduce capital expenditures.

Specifications

Features	Cisco Wireless Control System (WCS)
Minimum Server Requirements	• Windows 2003 SP1 or greater; Redhat Linux AS/ES v5.0 (Releases 4.2.x or 5.0 or later); Redhat Linux AS/ES v4.0 (Release 4.2 and later); VMware ESX Server 3.0.1 or later. (Minimum hardware requirements for a dedicated and guaranteed VMware server: Intel® Xeon Quad CPU; 3.15 GHz, 8 GB RAM, 200 GB HDD); • Cisco WCS High-End Server: 3000 lightweight access points, 1250 standalone access points, 750 wireless LAN controllers, Two Intel® Dual Core CPU; 3.0 GHz, 8 GB RAM, 200 GB HDD; • Cisco WCS Standard Server: 2000 lightweight access points, 1000 standalone access points, 150 wireless LAN controllers, Intel® Dual Core CPU; 3.2 GHz, 4 GB RAM, 80 GB HDD; • Cisco WCS Low-End Server: 500 lightweight access points, 200 standalone access points, 50 wireless LAN controllers, Intel® CPU; 3.06 GHz, 2 GB RAM, 30 GB HDD; • CiscoWorks WLSE Models 1130-19 or 1133 running Cisco WCS: 1500 lightweight access points, 100 wireless LAN controllers, Intel Pentium 4 CPU; 3 GHz, 3 GB RAM, 38 GB HDD
Minimum Client Requirements	Internet Explorer 6.0/SP1 or later
Management	SNMP v1, v2c, v3 and TACACS+
Managed Devices	Cisco 2000, 2100, 4100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points, Cisco Aironet lightweight outdoor mesh access points, Cisco Wireless Location Appliance, Cisco Mobility Services Engine, and monitoring of selected Cisco Aironet standalone access points
Database	Integrated Solid Flow Engine SQL

Selected Part Numbers and Ordering Information

WCS-APBASE-50	Cisco WCS Base License for 50 APs, Windows/Linux
WCS-APBASE-100	Cisco WCS Base License for 100 APs, Windows/Linux
WCS-APBASE-500	Cisco WCS Base License for 500 APs, Windows/Linux
WCS-APLOC-50	Cisco WCS with Location License for 50 APs, Windows/Linux
WCS-APLOC-100	Cisco WCS with Location License for 100 APs, Windows/Linux
WCS-APLOC-500	Cisco WCS with Location License for 500 APs, Windows/Linux
WCS-WLSE-UPG-K9	Converting Existing CiscoWorks WLSE to Cisco WCS (Only supported on Linux platform for CiscoWorks WLSE Models 1130-19 and 1133)
WCS-WLSE-APB-50	Cisco WCS Base License for WLSE conversion supporting 50 APs, Linux
WCS-WLSE-APB-100	Cisco WCS Base License for WLSE conversion supporting 100 APs, Linux
WCS-WLSE-APB-500	Cisco WCS Base License for WLSE conversion supporting 500 APs, Linux
WCS-WLSE-APB-1000	Cisco WCS Base License for WLSE conversion supporting 1000 APs, Linux
WCS-WLSE-APB-2500	Cisco WCS Base License for WLSE conversion supporting 2500 APs, Linux
WCS-WLSE-APL-50	Cisco WCS Location License for WLSE conversion supporting 50 APs, Linux
WCS-WLSE-APL-100	Cisco WCS Location License for WLSE conversion supporting 100 APs, Linux
WCS-WLSE-APL-500	Cisco WCS Location License for WLSE conversion supporting 500 APs, Linux
WCS-WLSE-APL-1000	Cisco WCS Location License for WLSE conversion supporting 1000 APs, Linux
WCS-WLSE-APL-2500	Cisco WCS Location License for WLSE conversion supporting 2500 APs, Linux
WCS-LOC-UPG-K9	Upgrading Existing Cisco WCS Base to Cisco WCS Location; Supports tracking a single Wi-Fi device on demand or expanded location capabilities by adding a Cisco Wireless Location Appliance; Cisco WCS Location must be selected to support deployment of a Cisco Wireless Location Appliance.
WCS-APLOC-UPG-50	Cisco WCS Location Upgrade License supporting 50 APs, Windows/Linux
WCS-APLOC-UPG-100	Cisco WCS Location Upgrade License supporting 100 APs, Windows/Linux
WCS-APLOC-UPG-500	Cisco WCS Location Upgrade License supporting 500 APs, Windows/Linux
WCS-ENT-K9	Enterprises licenses for large-scale deployments; Supports expanded location capabilities by adding a Cisco Wireless Location Appliance. 10,000 and 50,000 enterprises licenses include Cisco WCS Navigator license
WCS-ENT-1000	Cisco WCS Enterprise License with Location for 1000 access points, Windows/Linux on Multiple Cisco WCS Servers
WCS-ENT-2500	Cisco WCS Enterprise License with Location for 2500 access points, Windows/Linux on Multiple Cisco WCS Servers

WCS-ENT-10000	Cisco WCS Enterprise License with Location for 10,000 access points, Windows/Linux on Multiple Cisco WCS Servers. Includes Cisco WCS Navigator
WCS-ENT-50000	Cisco WCS Enterprise License with Location for 50,000 access points, Windows/Linux on Multiple Cisco WCS Servers. Includes Cisco WCS Navigator
AIR-WCS-DEMO-K9	Cisco WCS Demonstration License (This license is only available from http://www.cisco.com/go/license. After requesting the license, go to Cisco Wireless Software Center (login required) to download Cisco WCS software.
AIR-WCS-DEMO-K9	Free Cisco WCS full featured, location-enabled, 30 day demonstration license supporting ten lightweight access points

For More Information

For more information about the Cisco Wireless Control System, visit:
http://www.cisco.com/en/US/products/ps6305/index.html

Cisco Wireless Control System Navigator

The Cisco Wireless Control System (WCS) Navigator delivers an aggregated platform for enhanced scalability, manageability, and visibility of large-scale implementations of the Cisco Unified Wireless Network. This solution gives network administrators cost-effective, easy access to information from multiple, geographically dispersed Cisco WCS management platforms.

The navigator supports partitioning of the unified wireless network at the management plane. It runs on a server platform with an embedded database.

Ideal for Companies that Need These Features

- Ability to manage up to 20 geographically dispersed Cisco WCS management platforms with up to 30,000 Cisco Aironet lightweight access points from a single management console
- Ability to partition the unified wireless network at the management plane
- Ability to conduct centralized and quick searches across the entire network, multiple Cisco WCS management platforms, and all devices
- Ability to partition Cisco WCS platforms to restrict selected users to a single Cisco WCS platform or group of Cisco WCS platforms to support access control based on a variety of criteria, including geography, departments, and managed services customers

Key Features

- Intuitive GUI—The Cisco Wireless Control System Navigator supports easy configuration and monitoring of multiple Cisco WCS management platforms with minimal training.
- Real-time network monitoring is possible with the Cisco WCS Navigator.
- A network summary screen displays outstanding alarms, fault summaries, client counts, and status counts of all connected Cisco WCS management platforms and devices.
- With a secure single sign-on feature, individual users do not need to be created on each Cisco WCS management platform.
- Automated browser redirect automatically redirects to the corresponding Cisco WCS management platform detail page on searches or displays.
- With the navigator, you can perform centralized and quick searches across the entire network, multiple Cisco WCS management platforms, and all devices.
- You can track client locations and Wi-Fi and rogue devices across the entire network.
- The solution offers simplified setup and configuration.
- You can cost-effectively view indoor and outdoor WLANs from a single management console.
- You can automatically generate and schedule detailed inventory reports and then export them by e-mail message or CSV file.

Specifications

Features	Cisco Wireless Control System Navigator
Minimum server requirements	Windows 2003 SP1 or greater, or Redhat Linux AS/ES v4.0 High-End Server: Intel® Xeon Quad CPU; 3.15 GHz, 8-GB RAM, and 200-GB HDD
Minimum client requirements	Internet Explorer 6.0 with SP1 or later
Management	SNMP v1, v2c, and v3
Managed devices	Up to 20 Cisco WCS management platforms with manageability of up to 30,000 Cisco Aironet lightweight access points
Database	Integrated Solid FlowEngine Structured Query Language (SQL)

Selected Part Numbers and Ordering Information

WCS-NAV-20	Cisco WCS Navigator License to support 20 Cisco WCS management platforms

For More Information

For more information about Cisco Wireless Control System Navigator, visit:
http://www.cisco.com/en/US/products/ps7305/index.html

Cisco Wireless Location Appliance



The Cisco Wireless Location Appliance is the industry's first location solution that simultaneously tracks thousands of devices from directly within the WLAN infrastructure, bringing the power of a cost-effective, high-resolution location solution to critical applications such as high-value asset tracking, network location services such as RF capacity management, troubleshooting, and location-based security and business policy enforcement.

Ideal for Companies that Need These Features

- Advanced and scalable location tracking that simultaneously tracks thousands of wireless users and devices to within a few meters of their physical location indoors and to the closest access point outdoors
- Integrated location tracking using existing Cisco Unified wireless-enabled infrastructure, minimizing capital expenditures and helping ensure better WLAN visibility
- Part of the Cisco location solution that supports integration with customizable, location-based applications through tight and transparent integration with the open application programming interface (API) of the appliance
- Support for chokepoint-based notifications as well as receipt of telemetry, battery, and emergency group information from Cisco Compatible Extensions Wi-Fi tags

Key Features

- Increased location accuracy—The Cisco Wireless Location Appliance uses the Cisco patent-pending RF fingerprinting technology to determine the location of wireless devices. Cisco provides the only WLAN infrastructure that correlates known RF characteristics of a building, such as multipath or attenuation, with real-time user information to track mobile devices within a few meters
- Audit trails and database maintenance—Up to 30 days of location and statistical wireless device information can be archived and replayed to help customers understand and optimize their business processes
- Scalability—Up to 2500 wireless clients and Wi-Fi tags can be tracked simultaneously helping ensure that location services can be applied to an entire enterprise environment
- Lowered total cost of ownership—Lowered total cost of ownership reduces operating expenses by using the existing Cisco WLAN network infrastructure in conjunction with the location appliance. This feature results in a more cost-effective solution than proprietary or single-purpose location tracking solutions because standard 802.11 components that do not require dedicated access points for location tracking or independent management system are used.
- Chokepoint-based notifications—High-accuracy deterministic location-based notifications are triggered by Cisco Compatible Extensions Wi-Fi tags as they come within range of a chokepoint
- Location-based applications—Applications such as E911, asset management, enterprise resource planning (ERP) tools, and workflow and automation systems can take advantage of location-based information. Receipt of specialized telemetry, emergency group and battery notifications from properly enabled Cisco Compatible Extensions Wi-Fi tags allows implementation of specialized location-based applications
- Cisco Wireless Location Appliance Application Programming Interface (API) program—Customers and partners can interface with the Cisco Wireless Location Appliance open API to create customized location applications and solutions using Simple Object Access Protocol (SOAP) or eXtensible Markup Language (XML) protocols.
- Cisco Compatible Extension program for Wi-Fi tags—This program allows customers to benefit from the latest innovation and technology advancements offered by Cisco technology partners. It also offers improved consistency and interoperability among Cisco Compatible Extensions technology partners.

Specifications

Features	Cisco Wireless Location Appliance
Memory	1-GB memory

Ports	Serial: One 9-pin connector, RJ-45: Two RJ-45 connectors for connection to two 10/100/1000 Ethernet controllers, 2 USB ports: One USB connector in front and one in back, 2 PS2 ports: One mouse and one keyboard, 2 VGA ports: One in front and one in back
Connectivity	Network: Two 10/100/1000 (RJ-45) ports
Management	SNMP v1, v2c, and v3
Network Management	Cisco WCS v.3.0 or greater running Internet Explorer 6.0/Service Pack 1 or later
Network Devices	Cisco 2100, 4100 and 4400 Series Wireless LAN Controllers; Cisco Catalyst 6500 Series Wireless Services Module (WiSM), Cisco Catalyst 3750G Integrated Wireless LAN Controller, Cisco Wireless LAN Controller Module (WLCM and WLCM-E) for Integrated Services Routers; Cisco Aironet lightweight access points Wi-Fi enabled laptops, PDAs, voice over Wi-Fi handsets, Cisco Compatible client devices, Cisco client devices, non-Wi-Fi mobile devices equipped with active Wi-Fi tags, or Cisco Compatible Extensions Wi-Fi tags (tags supplied by Cisco partners) 125 kHz-based chokepoints using AeroScout Exciters or WhereNet
Programming Interfaces	SOAP/XML APIs
Dimensions (H x W x D)	1.68 x 16.8 x 23 in. (4.27 x 42.7 x 58.4 cm)
Weight	28.6lbs (13kg) maximum
Power	AC power supply wattage: 230W; AC power supply voltage: 100-120V at 50-60Hz; 200-240V at 50-60Hz
Environmental	Operating Temperature: 50 to 95ºF (10-35ºC); Storage Temperature: -40 to 149ºF (-40º-65ºC)
Approvals and Compliance	Safety UL 60950, CAN/CSA -C22.2 No. 60950, EN60950, IEC 60950: EMC FCC Part 15 (CFR 47) Class A, ICES-003 Class A, EN 55022 Class A, CISPR22 Class A, AS/NZS 3548 Class A, VCCI Class A, EN 55024, EN 50082-1

Selected Part Numbers and Ordering Information

AIR-LOC2710-L-K9	Cisco 2700 Series Wireless Location Appliance (May 2006 Model Release)

For More Information

For more information about the Cisco Wireless Location Appliance, visit:
http://www.cisco.com/en/US/products/ps6386/index.html.

CiscoWorks Wireless LAN Solution Engine (WLSE) and CiscoWorks Wireless LAN Solution Engine Express

CiscoWorks Wireless LAN Solution Engine (WLSE) is a centralized network management solution for managing standalone access points in the Cisco wireless LAN infrastructure. CiscoWorks WLSE Express is an integrated security and management solution for managing Cisco Aironet standalone access points located in one or multiple locations.

Ideal for Companies that Need These Features

- Template-based configuration and management of Cisco Aironet standalone access points and wireless bridges
- Simplified deployment and reduced operational complexity for standalone access points and wireless bridges
- Remote branch-office deployments with limited WAN bandwidth, and an integrated and embedded user authentication and authorization server (CiscoWorks WLSE Express)

Key Features

- CiscoWorks WLSE is a management component for Cisco Aironet standalone (autonomous) access points and wireless bridges.
- Simplified deployment—Device (access point or bridge)-specific settings such as host name, radio power, and channel can be imported into CiscoWorks WLSE and WLSE Express through a comma-separated value (CSV) file, with unique Ethernet MAC address mapping that supports automatic application of device-specific settings without touching each access point.
- Enhancements to the Site Survey wizard—Specific RF settings such as channel and power can be applied to devices based on a schedule.
- Friendly to rogue reclassification—You can periodically monitor for changes in the status of rogue access points that are marked "friendly" to alert the administrator in case location or received signal strength indicator (RSSI) values change.

- Authentication—CiscoWorks WLSE supports popular Extensible Authentication Protocol (EAP) types, including Cisco LEAP, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (EAP-FAST), and EAP-Transport Layer Security (EAP-TLS).
- CiscoWorks WLSE Express—The standard version supports up to 500 users and 50 Cisco Aironet access points.
- CiscoWorks WLSE Express—The license-upgraded version supports up to 1000 users and 100 Cisco Aironet access points.
- CiscoWorks WLSE manages up to 2500 Cisco Aironet access points operating autonomously for network management and up to 1800 access points when RF management is turned on.

Selected Part Numbers and Ordering Information

CWWLSE-1133-19-K9	CiscoWorks WLSE 2.15; includes the Cisco 1133 hardware platform and wireless LAN management software version 2.15
CWWLSE-2.15-SWUP-K9	Software only upgrade kit for customers with CiscoWorks 1133 running CiscoWorks WLSE 2.x to 2.15
CWWLSE-1030-K9	CiscoWorks WLSE Express 2.15 includes the CiscoWorks 1030 hardware platform and CiscoWorks WLSE Express Release 2.15
CWWLSE-2.15EXLCUK9	CiscoWorks WLSE Express 2.15 license upgrade option from 50 Cisco Aironet access points with a maximum of 500 users upgraded to 100 Cisco Aironet access points with a maximum of 1000 users.

For More Information

For more information about the CiscoWorks WLSE, visit: http://www.cisco.com/go/wlse.

Cisco Configuration Assistant

Cisco Configuration Assistant is an integral component of the Cisco Smart Business Communications System. Built for small and medium-sized business networks, this PC-based, easy-to-use network configuration and management tool simplifies the task of configuring, deploying, and administering Cisco network solutions. With a simple GUI, Cisco Configuration Assistant discovers all devices in the network and dynamically configures all routers, switches, and wireless access points and controllers. After the network is deployed, Cisco Configuration Assistant can be used to generate status reports, synchronize passwords, and upgrade software across all Cisco network devices.

Key Features

- Holistic, network-level insight through multiple network views
- Simplified topology mapping and deployment through dynamic discovery
- Clear separation of services through VLAN highlighting
- Improved network visibility with continual health monitoring
- Simplified network status reporting
- Enhanced security for configuration and monitoring activities
- Increased staff efficiency through simplified software updates

System Requirements

Features	Cisco Configuration Assistant System Requirements
Operating System	Windows XP Professional (Service Pack 1 or later) or Windows Vista Ultimate
Disc Space	200 MB
Hardware	PC with Pentium IV
Memory	512 MB
PC Hardware	1 GHz
Screen Resolution	1024 x 768

For More Information

For more information about the Cisco Configuration Assistant, visit: http://www.cisco.com/go/sbcs.

Cisco Spectrum Expert Wi-Fi

The Cisco Spectrum Expert Wi-Fi integrates with the Cisco Unified Wireless Network to deliver real-time spectrum intelligence for Wi-Fi networks. This industry-leading solution detects, classifies, and locates sources of RF interference in the unlicensed 2.4- and 5-GHz bands. The Cisco Wireless Control System (WCS) works in conjunction with Cisco Spectrum Expert Wi-Fi to provide visibility into non-Wi-Fi

interference sources that may cause wireless performance degradation. You can determine the source of the interference with Cisco Spectrum Expert Wi-Fi, allowing your business to remove, move, shield, adjust, or replace the interference source. Your organization can troubleshoot its wireless networks to determine the root causes of interference problems and optimize network performance.

Ideal for Companies that Need These Features

- Troubleshoot interference causing performance loss or connection drops
- Locate specific devices that are causing interference, by name and by type
- Ensure access points are providing reliable coverage with spectrum performance audits
- Secure a network by locating non-Wi-Fi rogue devices
- See hacked or rogue Wi-Fi devices that other intrusion detection systems/intrusion protection systems (IDSs/IPSs) do not detect
- Locate unauthorized devices such as Bluetooth radios and video cameras
- Determine if neighbors are interfering with the Wi-Fi network

Key Features

The Cisco Spectrum analysis tool monitors the airwaves in your wireless network and allows you to:

- Quickly and accurately determine Wi-Fi spectrum health and sources of interference
- Manage channel capacity and quality at the physical layer
- Quickly eliminate interference sources

Specifications

Cisco Spectrum Expert Wi-Fi Specifications	
Dimensions	Unit sizes: Cardbus Type II and Express Card 54 mm; Unit weight: 1.65 oz and 1.35 oz; Shipping weight: 1 lb; Operating temperature: 32F to 131F; Storage temperature: -4F to 149F
Analyzer Specification	Displayed average noise level: -124 dBm; Reference level: -150 (min) to +10 (max) dBm; 512 MB capture limit; Frequency stability: +/-20 ppm; Max safe input level: 0 dBm; Amplitude accuracy: =/- 2.5 dBm; Public safety: 4.9 GHz; Frequency span at 2.4 GHz: 0.03 (min) to 100 (max) MHz; Frequency span at 5 GHz: 0.03 (min) to 975 (max) MHz; Center frequency resolution: 10 kHz; Resolution bandwidth: 0.01 (min) to 5 (max) MHz; Sweep time RTFFT mode: 6.4 us; Sweep time PvT mode: 10 ms (max); Trigger delay (ms): -10 (min) to +10 (max); Power consumption: -3.3V @ 425 mA or 1.4 watts
Classifier Specification	802.11a/bg via onboard or external Wi-Fi chipset; Bluetooth SCO, ACL; DECT cordless phones TDD cordless phones; Analog cordless phones; Analog video (NTSC, PAL, SECAM); Microwave ovens; Generic classifiers; Radar
Application Specifications	
Minimum system requirements	Microsoft Vista or Windows XP SP2; Processor: 1 GHz or equivalent; 150 MB hard drive available storage space; 800 x 600 display
Interoperability	Cisco WCS 4.2 Later
Cisco Spectrum Expert Antenna Specifications	
Frequency Range	2.4-2.5 GHz, 4.9-5.9 GHz
Gain	5 dBi
Polarization	Linear

Selected Part Numbers and Ordering Information

Cisco Spectrum Expert Wi-Fi Product and Service	
AIR-CSCO-SE-WIFI-C	Cisco Spectrum Expert Wi-Fi (CardBus)—Includes CardBus adapter, omni antenna with clip, and quick start guide with software download instructions. A single Cisco Spectrum Expert Software seat can only be used with one Cisco Spectrum Expert Sensor Wi-Fi.
CON-SNT-SEWIFICB	Cisco Spectrum Expert Wi-Fi (CardBus)—SMARTnet next business day service[1]
Cisco Spectrum Expert Wi-Fi Antenna Spare	
AIR-ANT-SE-WIFI-D=	2.4-2.5 and 4.9-5.9 GHz Directional Antenna, Spare—Spare Directional antenna for Cisco Spectrum Expert Wi-Fi
AIR-ANT-SE-WIFI-O=	2.4-2.5 and 4.9-5.9 GHz Omni Antenna, Spare—Spare Omni antenna for Cisco Spectrum Expert Wi-Fi

1. Includes advanced replacements next business day, 24-hour Cisco Technical Assistance Center (TAC) access, and software downloads.

A Cisco WCS Spectrum Intelligence license is required to operate Cisco Spectrum Expert Wi-Fi with Cisco WCS. The following table provides the part numbers for the Cisco WCS Spectrum Intelligence license for Cisco Spectrum Expert Wi-Fi.

WCS-ADV-K9	Family SKU for WCS Advance License Products—Top-level SKU for Cisco WCS advance feature licenses
WCS-ADV-SI-SE-10	Cisco WCS Spectrum Intelligence License for 10 Sensors—License option compatible with Cisco WCS 4.2 or later configured with Base and/or Location license.
WCS-ADV-SI-SE-10=	Cisco WCS Spectrum Intelligence License for 10 Sensors, Spare—Spare license compatible with Cisco WCS 4.2 or later configured with Base and/or Location license.

License Pack Guidelines

Customers can purchase the Cisco Spectrum Intelligence license for Cisco Spectrum Expert Wi-Fi in two ways. Customers who wish to purchase all WCS advanced feature licenses, including the Cisco Spectrum Intelligence license, for use on a single WCS host should purchase the Cisco WCS advanced feature pack (WCS-ADV-K9) and then specify the option for the Cisco Spectrum Intelligence license (WCS-ADV-SI-SE-10). Customers who wish to purchase licenses that can be used across multiple WCS hosts should purchase Cisco Spectrum Intelligence license spares (WCS-ADV-SI-SE-10).

- WCS-ADV-K9—The Cisco WCS advanced feature license pack includes license keys for advanced features, including Cisco Spectrum Intelligence. The license pack may only be used on a single WCS host.
- WCS-ADV-SI-SE-10—This part number represents the option for the Cisco Spectrum Intelligence advanced feature as part of the Cisco WCS advanced feature license pack (WCS-ADV-K9). Customers must specify this part number when ordering Cisco Spectrum Intelligence as part of the combined WCS advanced feature license pack.
- WCS-ADV-SI-SE-10=—Users who wish to purchase multiple licenses to be deployed across numerous WCS hosts should purchase the Cisco Spectrum Intelligence license as a spare unit (WCS-ADV-SI-SE-10=). If a customer orders more than one spare, the system will generate a license pack for each spare ordered. In other words, the number of license packs equals the number of spares ordered.

Cisco customers can contact their local Cisco representatives for questions related to Cisco WCS licensing. Cisco employees or partners can contact wcs-customer-license@cisco.com.

For More Information

For more information about Cisco Spectrum Expert Wi-Fi, visit:

http://www.cisco.com/en/US/products/ps9393/index.html.

Cisco Aironet Antennas and Accessories

Every wireless LAN (WLAN) deployment is different. When engineering an in-building solution, varying facility sizes, construction materials, and interior divisions raise transmission and multipath considerations. Cisco offers a complete range of 2.4- and 5-GHz antennas for access-point and bridge equipment that facilitate a customized wireless solution for almost any installation.



Key Features

- Client adapter antennas extend the transmission range for more specialized applications; a variety of optional, higher-gain antennas are provided that are compatible with selected client adapters.
- Access-point antennas are compatible with all Cisco RP-TNC-equipped access points; they are available with different gain and range capabilities, beam widths, and form factors.
- Bridge antennas are available in directional configurations for point-to-point transmission and in an omnidirectional configuration for point-to-multipoint implementations.
- Low-loss cable extends the length between any Cisco Aironet bridge and the antenna. With a loss of 6.7 dB per 100 feet (30m), low-loss cable provides installation flexibility without a significant sacrifice in range.
- Cisco offers a complete range of antennas for 5-GHz bridging applications.

Specifications

Cisco Aironet 2.4 GHz Access Point Antennas with RP-TNC Connectors

Feature	AIR-ANT5959	AIR-ANT2410Y-R	AIR-ANT2012	AIR-ANT3213
Description	2-dBi Diversity omnidirectional ceiling mount	10-dBiYagi mast or wall mount	Diversity patch wall mount	5.2-dBiPillar mount diversity omni
Application	Indoor unobtrusive antenna, best for ceiling mount. Excellent throughput and coverage solution in high multipath cells and dense user population	Indoor/Outdoor directional antenna for use with Access Points or Bridges	Indoor/Outdoor, unobtrusive medium range antenna	Indoor, unobtrusive medium-range antenna

Approximate Indoor Range[1]	6 Mbps: 295 ft (90 m) 54 Mbps: 88 ft (27 m)	6 Mbps: 548 ft (167 m) 54 Mbps: 165 ft (50 m)	6 Mbps: 418 ft (127 m) 54 Mbps: 126 ft (38 m)	6 Mbps: 379 ft (121 m) 54 Mbps: 114 ft (35 m)
Cable Length	3 ft. (0.91m)	3 ft. (0.91 m)	3 ft. (0.91m)	3 ft. (0.91m)
Dimensions (H x W x D)	5.3 x 2.8 x 09. in. (13.5 x 7.1 x 2.3 cm)	7.25 x 3 in. (18.4 x 7.62 cm)	4.78 x 6.66 x 0.82 in. (12.14 x 16.92 x 2.08 cm)	14 x 5 in. x 1 in. (35.5 x 12.7 x 2.5 cm)
Weight	7 oz. (.19 kg)	8 oz.	9.6 oz. (272g)	1 lb. (460g)
Feature	**AIR-ANT1728**	**AIR-ANT4941**	**AIR-ANT2422DG-R**	**AIR-ANT2422DW-R**
Description	5.2-dBi omnidirectional ceiling mount	2.2-dBi black dipole antenna	2.2-dBi gray non-articulating dipole antenna	2.2-dBi white dipole antenna
Application	Indoor medium-range antenna, typically hung from crossbars of drop ceilings	Indoor omnidirectional coverage	Indoor omnidirectional coverage	Indoor omnidirectional coverage
Approximate Indoor Range	6 Mbps: 379 ft (116 m) 54 Mbps: 114 ft (35 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)	6 Mbps: 300 ft (91 m) 54 Mbps: 90 ft (27 m)
Cable Length	3 ft. (0.91m)	N/A	N/A	N/A
Dimensions (H x W x D)	11.25 x 1 in. (28.5 x 2.5 cm)	5.5 in. (14 cm)	5.5 in. (14 cm)	5.5 in. (14 cm)
Weight	4.6 oz. (131g)	1.1 oz. (31 g)	1.1 oz. (31 g)	1.1 oz. (31 g)
Feature	**AIR-ANT1729**	**AIR-ANT2485P-R**	**AIR-ANT2460P-R**	**AIR-ANT2465P-R**
Description	6-dBi Patch wall mount	8.5-dBi patch wall mount	6-dBi patch wall mount	6.5-dBi diversity patch wall mount
Application	Indoor/outdoor, unobtrusive, midrange antenna (may also be used as a medium-range bridge antenna)	Indoor, unobtrusive, long-range antenna (may also be used as a midrange bridge antenna)	Indoor, unobtrusive, long-range antenna (may also be used as a midrange bridge antenna)	Indoor/outdoor, unobtrusive midrange antenna
Approximate Indoor Range	6 Mbps: 403 ft (123 m) 54 Mbps: 121 ft (37 m)	507 ft (155 m) 153 ft (47 m)	403 ft (123 m) 121 ft (37 m)	418 ft (127 m) 126 ft (38 m)
Cable Length	3 ft. (0.91m)	3 ft (0.91 m)	3 ft (0.91 m)	3 ft (0.91 m)
Dimensions (H x W x D)	4 x 5 in. (9.7 x 13 cm.)	5.3 x 5.3 x.90 in. (13.5 x 13.5 x 2.28 cm.)	4.1 x 3.9 x.75 in. (10.4 x 9.9 x 1.9 cm.)	5 x 6.7 x 0.90 in. (12.7 x 17 x 2.28 cm.)
Weight	4.9 oz. (139 g.)	8.2 oz. (231.3 g.)	6 oz. (171.5 g.)	11.6 oz. (330.2 g.)

Cisco Aironet 5 GHz Access Point Antennas with RP-TNC Connectors

Feature	**AIR-ANT5145V-R**	**AIR-ANT5160V-R**	**AIR-ANT5170P-R**	**AIR-ANT5195P-R**
Description	4.5-dBi diversity omnidirectional ceiling mount	6-dBi omnidirectional antenna	7.0-dBi Diversity patch wall mount	9.5-dBi Patch wall or articulating mast mount
Application	Indoor midrange antenna	Indoor/outdoor midrange antenna	Indoor/outdoor directional wall mount antenna	Indoor/outdoor patch antenna provides different mounting options
Approximate Range[3]	6 Mbps: 732 ft (223 m) 54 Mbps: 82 ft (25 m)	6 Mbps: 822 ft (251 mm.) 54 Mbps: 92 ft (28 m)	6 Mbps: 880 ft (270 m) 54 Mbps: 140 ft (43 m)	6 Mbps: 1030 ft (313 m) 54 Mbps: 170 ft (52 m)
Beam Width	360° H 50° E	360° H 17° E	70° H, 50° V	50° H, 43° V
Cable Length	3 ft. (0.91 m.)	3 ft. (0.91 m)	3 ft. (0.91 m)	3 ft. (0.91 m)
Dimensions (L x D)	6.75 x 4.1 in. (17.1 x 10.41 cm)	12 x 1 in. (30.5 x 2.5 cm)	5.7 in. (14.5 cm.) x 4.3 in. (10.9 cm.) x 0.7 in. (1.8 cm.)	5.1 in. (12.9 cm.) x 5.1 in. (12.9 cm.) x 1.0 in. (2.5 cm.)
Weight	11.5 oz.	5.3 oz.	8 oz (0.2 kg.)	9 oz. (0.25 kg.)

Cisco Aironet 5 GHz Access Point Antennas with RP-TNC Connectors

Feature	**AIR-ANT5135D-R**	**AIR-ANT5135DG-R**	**AIR-ANT5135DW-R**
Description	3.5-dBi black dipole antenna Indoor omnidirectional coverage	3.5-dBi gray non-articulating antenna Indoor omnidirectional coverage	3.5-dBi white dipole antenna Indoor omnidirectional coverage
Application	675 ft (206 m)	675 ft (206 m)	675 ft (206 m)
Approximate Range[3]	75 ft (21 m) 360ºH, 40ºE	75 ft (21 m) 360ºH, 40ºE	75 ft (21 m) 360ºH, 40ºE
Beam Width	N/A	N/A	N/A
Cable Length	5.3 x 0.6 in. (13.5 x 1.5 cm)	5.3 x 0.6 in. (13.5 x 1.5 cm)	5.3 x 0.6 in. (13.5 x 1.5 cm)
Dimensions (L x D)	1 oz (28.3 g)	1 oz (28.3 g)	1 oz (28.3 g)

1. All range estimations are based on an integrated client adapter antenna associating with an access point under ideal indoor conditions. The distances referenced here are approximations and should be used for estimation only.

Cisco offers antennas that can be used with the Cisco Aironet 1250 Series Access Points, which feature 802.11n technology. The antennas and access points use an RP-TNC type connector. Two antennas are available for the 2.4- and 5-GHz band.

2.4- and 5-GHz Access Point Antennas with RP-TNC Connectors for Cisco Aironet 1250 Series Access Points

Feature	AIR-ANT2430V-R	AIR-ANT5140V-R
Description	Ceiling mount omnidirectional	Ceiling mount omnidirectional
Application	Indoor carpeted area type, unobtrusive omnidirectional antennas for Cisco Aironet 1250 Series MIMO Radios	Indoor carpeted area type unobtrusive omnidirectional antenna for Cisco Aironet 1250 Series MIMO Radios
Gain	3.0 dBi	4.0 dBi
Frequency	2.4 GHz	5 GHz
Approximate Indoor Range at 6 Mbps[1]	507 ft (155 m)	403 ft (123 m)
Approximate Indoor Range at 54 Mbps[1]	153 ft (47 m)	121 ft (37 m)
Beam Width	360°H, 60°V	360°H, 45°V
Cable Length	3 ft (0.91 m) 3 cables with RP-TNC	3 ft (0.91 m) 3 cables with RP-TNC
Dimensions	12.1 x 4.2 x 1.6 in. (30.73 x 10.67 x 4.06 cm)	6.9 x 3 x.9 in (17.53 x 7.62 x 2.29 cm)
Weight	27 oz (0.76 kg)	14.1 oz (0.40 kg)
Operating Temperature	0º to +55ºC	-0º to +55ºC

1. All range estimations are based on an external antenna associating with an integrated Intel Centrino client under ideal conditions. The distances referenced here are approximations and should be used for estimation purposes only.

Cisco offers antennas for the Cisco Aironet 1500 Series Outdoor Mesh Access Points in various gains and antenna types.

2.4- and 5-GHz Antennas with N-Type Connectors for the Cisco Aironet 1500 Series Lightweight Outdoor Mesh APs[1]

Feature	AIR-ANT2450V-N	AIR-ANT2455V-N	AIR-ANT2480V-N
Description	5 dBi, direct mount omnidirectional antenna for 2.4 GHz	5.5 dBi, direct mount omnidirectional antenna for 2.4 GHz	8 dBi direct mount omnidirectional antenna for 2.4 GHz
Application	Omnidirectional antenna for outdoor mesh access points. Suitable for all access point deployments, specifically for cable strand mount applications.	Omnidirectional antenna suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in all deployments. Not suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in cable strand mount situations.	Extended range omnidirectional antenna for outdoor mesh access points. Suitable for pole or roof mounting deployments.
Gain	5 dBi	5.5 dBi	8 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz
Beam width	30° V	25° V	10° V
Cable Length	None	None	None
Dimensions	11 in. x 1 in. (27.94 x 2.54 cm)	12.5 in. x 1 in. (31.75 x 2.54 cm)	19.5 in. x 7/8 in. diameter (49.5 cm x 2.22 cm)
Weight	0.40 lbs. (0.18 kg)	0.31 lbs. (0.14 kg)	0.45 lbs. (0.20 kg)
Operating Temperature	-30° to +70 C	-30° to 70°C	-30° to +70° C

Feature	AIR-ANT5175V-N	AIR-ANT5180V-N	AIR-ANT5114P-N	AIR-ANT5117S-N
Description	7.5 dBi omnidirectional antenna for 5 GHz	8 dBi direct mount omnidirectional antenna for 5 GHz	14 dBi wall/mast mount articulating patch antenna for 5 GHz	17 dBi, 90 degree mast mount sector antenna for 5 GHz
Application	Omnidirectional antenna suitable for use on Cisco Aironet 1500 Series Lightweight Outdoor Mesh Access Points in all deployments.	Omnidirectional antenna for Cisco Aironet 1520 series mesh access points. Suitable for all deployments, including cable strand mount applications.	Recommended for medium range point to point deployments	Recommended for point-to-multipoint deployments of medium to long range.
Gain	5 GHz bands = 7.5 dBi 4.9 GHz bands = 6 dBi	8 dBi	14 dBi	17 dBi
Frequency	4.9-5.8 GHz	4.9-5.85 GHz	4.9-5.85 GHz	4.9-5.85 GHz

Beam width	16°V	16° V	25° H, 29° E	90° H, 8° E	
Cable Length	1 ft (0.30 m)	None	1 ft. (0.30 m)	None	
Dimensions	11.65 in. x 1 in. (29.41 x 2.54 cm)	11 in. x 1 in. (27.94 x 2.54 cm)	4 1/8 in. x 4 1/8 in. (10.48 cm x 10.48 cm)	24 1/2 in. x 2 ½ in. (62.23 cm x 6.35 cm)	
Weight	0.38 lbs. (0.17 kg)	0.4 lbs. (0.18 kg)	0.70 lbs. (0.32 kg)	1.95 lbs. (0.88 kg)	
Operating Temperature	-30° to 70°C	-30° to +70 C	-30° to +70° C	-30° to +70° C	
Cisco Aironet 2.4 GHz Bridge Antennas					
Feature	**AIR-ANT2506**	**AIR-ANT24120**	**AIR-ANT2414S-R**	**AIR-ANT1949**	**AIR-ANT3338**
Description	5.2 dBi Omnidirectional Mast mount	12 dBi High-gain omnidirectional Mast mount	14 dBi Vertically polarized sector	13.5 Yagi mast mount	21 dBi Solid dish
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-multipoint applications	Outdoor long range point-to-multipoint applications	Outdoor medium-range directional connections	Outdoor long-range directional connections
Approximate Indoor Range[4]	2 Mbps: 3.3 miles (5.31 km) 11 Mbps: 1.66 miles (2.66 km) 54 Mbps:.21 miles (.34 km)	2 Mbps: 15.81 miles (25.43 km) 11 Mbps: 7.92 miles (12.75 km) 54 Mbps: 1.0 miles (1.6 km)	2 Mbps: 16.71 miles (26.89 km) 11 Mbps: 8.89 miles (14.30 km) 54 Mbps: 1.26 miles (2.02 km)	2 Mbps: 18.33 miles (29.49 km) 11 Mbps: 11.19 miles (18.01 km) 54 Mbps: 1.41 miles (2.27 km)	2 Mbps: 26.49 miles (42.62 km) 11 Mbps: 20.1 miles (32.33 km) 54 Mbps: 4.46 miles (7.17 km)
Cable Length	3 ft. (0.91m)	1 ft. (0.30m)	5 ft (1.5 m)	3 ft. (0.91m)	2 ft. (0.61m)
Dimensions (L x D)	13 x 1 in. (33 x 2.5 cm)	50 x 1.5 in. (127 x 3 cm)	36 x 6 x 1.25 in. (91 x 15 x 10 cm)	18 x 3 in. (46 x 7.6 cm)	24 in. d (61 cm)
Weight	5oz. (14 g)	1.5 lb. (0.68 kg)	6.5 lb. (3 kg)	12 oz. (34 kg)	11 lb. (5 kg)
Cisco Aironet Accessories					
Feature	**AIR-ACC2537-060**	**AIR-ACC245LA-R**		**AIR-ACC2662**	
Description	60 in. (152 cm) bulkhead extender	Yagi articulating mount		Yagi articulating mount	
Application	Flexible antenna cable that extends access point cabling typically within an enclosure	Helps prevent damage due to lightning-induced surges or static electricity; Helps prevent damage due to lightning-induced surges or static electricity		Adds swiveling capability to mast-mounted Yagi antennas	
Cisco Aironet 5.8 GHz Bridge Antennas with N-Type Connectors					
Feature	**AIR-ANT58G9VOA-N**	**AIR-ANT58G10SSA-N**		**AIR-ANT58G28SDA-N**	
Description	9.0-dBi omnidirectional Mast mount	9.5-dBi sector antenna Mast mount		28.0-dBi dish antenna Mast mount	
Application	Outdoor short-range point-to-multipoint applications	Outdoor medium-range point-to-point and point-to-multipoint applications		Outdoor long-range directional connections	
Polarization	Vertical	Vertical or horizontal Field configurable		Vertical or horizontal Field configurable	
Elevation adjustment	None	None		+/- 12.5 degrees	
Approximate range at 9 Mbps6	8 miles (13 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N		23 miles (37 km) (with 28 dBi antennas on each end)	
Approximate range at 54 Mbps6	2 miles (3 km) (with 22.5 dBi captive antenna on the remote site)	Same as AIR-ANT58G9VOA-N		12 miles (19 km) (with 28 dBi antennas on each end)	
Beam width	360 H, 6 V	60 H, 60 V		4.75 H, 4.75 V	
Supplied jumper cable length	4.9 ft. (1.5 m)	4.9 ft. (1.5 m)		4.9 ft. (1.5 m)	
Dimensions (H x W x D)	20.25 x.64 in. (51.4 x 1.62 cm) (L x W)	2.5 x 2.5 x 1.75 in. (6.4 x 6.4 x 4.5 cm)		Diameter: 29 in. (74 cm) Depth: 14.5 in. (36.8 cm)	
Weight	2.0 lb. (0.9 kg)	1.25 lb. (0.6 kg)		9.5 lb. (4.3 kg)	
Cisco Aironet Bridge Accessory					
Feature	**AIR-ACCRWM1400**	**AIR-ACCBRGB=**		**AIR-ACCMFM1400=**	
Description	Roof/Wall mount kit	Grounding block		Multifunction mount	
Application	Allows mounting to flat surfaces Includes full elevation and azimuth adjustment	Helps prevent damage due to lightning-induced surges or static electricity		Allows mounting to poles with a diameter between 1.5 in. and 2.5 in. Includes both elevation and polarization adjustment	
Cisco Aironet Power Injector Cables					
Feature	**AIR-CAB020DRG6-F=**	**AIR-CAB050DRG6-F=**		**AIR-CAB100DRG6-F**	

Cable length	20 ft. (6m)	50 ft. (15m)	100 ft. (30m)

1. Cisco Aironet 1500 Series Access Points are available in single-band (2.4 GHz) and dual-band (2.4 GHz and 5 GHz) versions. Check your access point for proper antenna selection before placing an order.

Selected Part Numbers and Ordering Information

Cisco Aironet Accessories	
AIR-ACC2662	Yagi Antenna Articulating Mount
AIR-ACC2537-060	60 in. (152 cm) bulkhead extender
AIR-ACC2545LA-R	2.4 GHz and 5 GHz lightning arrestor
AIR-CAB020LL-R	20 ft. (6m) low-loss antenna cable
AIR-CAB050LL-R	50 ft. (15m) low loss antenna cable
AIR-CAB100ULL-R	100 ft. (30m) low loss antenna cable
AIR-CAB150ULL-R	150 ft. (46m) low loss antenna cable
Cisco Aironet Antennas	
AIR-ANT1728	5.2 dBi Omni Ceiling Mount Antenna
AIR-ANT1729	6 dBi Patch Wall Mount Antenna
AIR-ANT1949	13.5 dBi Yagi Mast Mount Antenna
AIR-ANT2012	6.5 dBi Diversity Patch Wall Mount Antenna
AIR-ANT2506	5.2 dBi Omnidirectional Mast Mount Antenna
AIR-ANT3213	5.2 dBi Pillar-Mount Diversity Omni Antenna
AIR-ANT2410Y-R	10 dBi Yagi mast or wall mount
AIR-ANT3338	21 dBi Solid Dish Antenna
AIR-ANT2430V-R	Ceiling mount omnidirectional
AIR-ANT24120	12 dBi Omnidirectional Mast Mount Antenna
AIR-ANT4941	2.2 dBi Dipole Antenna (Standard Rubber Duck)
AIRANT5140V-R	Ceiling mount omnidirectional
AIR-ANT5959	2.0dBi Diversity Omni Ceiling Mount Antenna
AIR-ANT2414S-R	14dBi Sector Mast Mount Antenna
AIR-ANT5145V-R	4.5 dBi omni
AIR-ANT5160V-R	6 dBi omni
AIR-ANT5170P-R	7.0 dBi Diversity patch wall mount
AIR-ANT5195P-R	9.5 dBi Patch wall or articulating mast mount
AIR-ANT2422DG-R	2.2 dBi Gray non-articulating dipole
AIR-ANT2422DW-R	2.2 dBi White dipole
AIR-ANT2450V-N	5 dBi, direct mount omnidirectional antenna for 2.4 GHz
AIR-ANT2480V-N	8 dBi direct mount omnidirectional antenna for 2.4 GHz
AIR-ANT2485P-R	8.5 dBi Patch wall mount
AIR-ANT2460P-R	6 dBi Patch wall mount
AIR-ANT2465P-R	6.5 dBi Diversity patch wall mount
AIR-ANT5114P-N	14 dBi wall/mast mount articulating patch antenna for 5 GHz
AIR-ANT5117S-N	17 dBi, 90 degree mast mount sector antenna for 5 GHz
AIR-ANT5180V-N	8 dBi direct mount omnidirectional antenna for 5 GHz
AIR-ANT5135DG-R	3.5 dBi Gray non-articulating dipole
AIR-ANT5135DW-R	3.5 dBi White dipole
AIR-ANT5175V-N	7.5 dBi Omnidirectional
AIR-ANT2455V-N	5.5 dBi Omnidirectional
AIR-ANT58G9V0A-N	9.0 dBi Omnidirectional mast mount
AIR-ANT58G10SSA-N	9.5 dBi Sector antenna, mast mount
AIR-ANT58G28SDA-N	28.0 dBi Dish antenna, mast mount

For More Information

For more information about Cisco antennas and accessories, visit: http://www.cisco.com/go/antenna.

Service and Support

Cisco offers a wide range of services programs to accelerate customer success. Cisco SMARTnet Service for the Smart Business Communications System (SBCS) provides direct access anytime to Cisco network experts and award-winning resources to help rapidly resolve problems and protect customer investment. Cisco SMARTnet Service delivers rapid problem resolution and complete, solutions-level technical support for the

Cisco SBCS. Cisco services help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco SMARTnet services, visit http://www.cisco.com/go/smartnet.

Chapter 4: Video, Voice, and Unified Communications

Video, Voice, and Unified Communications at a Glance

Product	Features	Page
COMMUNICATIONS INFRASTRUCTURE		
Cisco AS5350XM Universal Gateway	High performance, IRU universal gateway offering best in class voice, fax, remote access and session border control services • 2, 4, and 8 CT1/CE1/PRI, and 1 CT3 configurations for 48 to 672 channels • Low power and high availability design	4–5
Cisco AS5400XM Universal Gateway	High performance, 2RU universal gateway offering best in class voice, fax, remote access and session border control services • 8 to 20 CT1/CE1/PRI, and 1 T3 configurations for 192 to 672 channels • Low power and high availability design	4–7
Cisco AS5850 Universal Gateway	High density universal gateway for service providers and large enterprises • Supporting at least 2688 sessions data, voice, and fax services on any port at any time using T1, E1, DS3, or STM-1 trunk interface • Constant density regardless of codec type, ECAN, or VAD settings • Extensive high availability features • TDM grooming capability	4–9
Cisco Voice Gateways	The Cisco VG248 and VG224 dedicated voice gateway provides connectivity between IP networks and legacy telephones • VG248 supports up to 48 Foreign eXchange Station (FXS) ports for connecting analog telephones or legacy voice mail systems; fully manageable by Cisco Unified Communications Manager, a CLI interface via Telnet, or via SNMP • VG224 supports up to 24 FXS ports for connecting analog telephones and is IOS-based; fully manageable by Cisco Unified Communications Manager or Cisco Unified Communications Manager Express via CLI interface or GUI	4–10
Cisco MCS 7800 Series Media Convergence Servers	High availability server platform for Cisco IP telephony systems • Turnkey solution, includes Communications Manager or other software • For large- and medium-sized enterprise IP telephony deployments	4–11
CUSTOMER CONTACT		
Cisco Unified Contact Center Enterprise	Cisco Unified Contact Center Enterprise delivers multisite, intelligent contact routing, network-to-desktop computer telephony integration (CTI), and multichannel contact management to contact center agents over an all-IP infrastructure or mixed IP and time-division multiplexing (TDM) infrastructure. It offers: • Pre- and post-routing of contacts • Ability to handle voice, web, and e-mail contacts, as well as inbound and outbound campaigns • CTI, universal queue, interactive-voice-response (IVR) integration, and remote agent	4–12
Cisco Unified Contact Center Express	• This software-based automatic call distributor (ACD), IVR, and CTI application is ideal for departmental, enterprise branch-office, or small and medium-sized contact centers with Cisco IP Telephony networks. • Standard, Enhanced, and Premium versions are available. • The solution offers an open systems platform, allowing ease of installation and configuration. • This contact center provides a graphically led workflow editor, providing a common interface for creating interactions or call flows, and creates business logic between IVR and ACD functions. • This solution supports Cisco Unified IP Interactive Voice Response, a feature-rich foundation for the creation of an IP-based IVR system that is open and expandable.	4–13

Product	Features	Page
Cisco Unified Contact Center Hosted	Cisco Unified Contact Center Hosted is suitable for both enterprise customers and service providers. · The service provider hosts the contact-center infrastructure software, which is shared by multiple business customers, in its central office or data center. · Subscribing business customers can have IP infrastructures, TDM infrastructures, or a combination of the two. · For the enterprise customer, multiple branch offices or divisions share a partitioned, centralized contact-center infrastructure.	4–14
Cisco Unified Customer Voice Portal	Cisco Unified Customer Voice Portal delivers intelligent, personalized self-service over the phone. It allows customers to efficiently and enjoyably retrieve the information they need from the contact center. The solution: · Offers a prompt collect, queuing, and call-control service using standard IP technologies · Provides sophisticated voice and video self-service options with the ability to quickly and easily escalate to assisted service as required · Offers video capabilities including video self-service menus, video queuing, and video agent support through third-generation (3G) mobile video and video kiosks · Supports Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) capabilities · Integrates fully with both traditional TDM and IP-based contact centers	4–15
Cisco Unified Expert Advisor	The Cisco Unified Expert Advisor Option expands the scope of the contact center by allowing enterprise knowledge workers to handle incoming customer calls without the need for the rigid tools and business rules typically found in formal contact centers. The solution: · Allows formal contact-center agents to use real-time subject matter expertise to best advantage across the enterprise · Promotes higher productivity of resources · Improves communication and business processes across the enterprise · Provides excellent customer service	4–15
Cisco Unified Intelligence Suite	The Cisco Unified Intelligence Suite offers customers a powerful Web-based reporting platform that is as flexible as it is intuitive. Customers can report on the details of every contact across all channels from a single interface, regardless of the resources involved. The system: · Is built on a robust and extensible framework with a Web 2.0 architecture underpinning · Extends the boundaries of traditional contact-center reporting to an information portal where data can be easily integrated from virtually any source and shared throughout the organization · Provides a state-of-the-art, open platform offering a secure and distinctive 360-degree view of the enterprise · Provides the ability to drill into individual contact details at any level	4–16
Cisco Unified Intelligent Contact Management Enterprise	Cisco Unified Intelligent Contact Management Enterprise provides call routing and CTI for multisite, TDM-based or IP-based contact centers in a distributed, fault-tolerant architecture. It offers: · Cisco Pre-Routing and Cisco Post-Routing, customer profile routing (CPR), and enterprise reporting · True Virtual ACD capabilities with third party PBX's · CTI, web collaboration, e-mail management, and IVR integration · Multicarrier, multivendor capabilities, and inbound and outbound campaign management · Interfaces for integrating virtually any type of communication channel or work task routing	4–17
Cisco Unified Intelligent Contact Management Hosted	Cisco Unified Intelligent Contact Management Hosted helps service providers address a full range of business opportunities. It offers: · Open architecture—The solution facilitates a smooth migration from TDM circuit-switched to IP-based voice technology while facilitating business-to-business services, e-commerce, and multimedia applications such as Web collaboration and e-mail response management. · For the service provider—The solution offers a unique opportunity to deliver critical applications tailored to each customer's business strategy. · For the customer—Services use value-added service provider capabilities to best advantage to meet business goals.	4–17
IP TELEPHONY		
Cisco ATA Series of Analog Telephone Adapters	Turns any analog telephone into an IP telephone. Each of the two voice ports supports independent telephone numbers, providing two separate lines · Interoperable with SIP and SCCP · Enables analog devices, such as phones and fax machines, to support VoIP services by converting the analog signal into an IP signal	4–18

Product	Features	Page
Cisco Smart Business Communications System	The Cisco Smart Business Communications System is a complete voice and unified communication system for small businesses with up to 50 users. · This unique system of products is designed, tested, and delivered specifically for small and medium-sized businesses (SMBs). · It includes voice, video, switching, VPN, security, routing, and optional integrated wireless. · Business applications that provide presence, mobility, and collaboration can be integrated.	4–19
Cisco Unified Communications Manager 6.0	· Cisco Unified Communications Manager 6.0 is the server-based call-processing and call-control component of the Cisco Unified Communications Solution. · It offers a suite of integrated voice applications and utilities. · Available as an appliance, it is accessible through a GUI and a command-line interface. · The solution provides improved language support.	4–21
Cisco Unified Communications Manager Assistant	A PC and phone application that provides productivity tools that enhance communications between manager and administrative assistant · Improves efficiency and ease-of-use by extending commonly used features such as call filtering, immediate call diversion, and line state monitoring to administrative assistants and managers	4–24
Cisco Unified Communications Manager Business Edition	· Cisco Unified Communications Manager Business Edition is designed for medium-sized businesses with up to 500 employees and up to 20 sites (19 remote sites). · The solution offers cost-effective single-server deployment options for medium-sized organizations with smaller IT staffs requiring easy-to-configure and easy-to-manage applications. · Cisco Unified Communications Manager-based call and media processing capabilities offer support for voice and video calling. · Cisco Unified Mobility Advantage supports single number reach and dual-mode smartphone devices. · The solution offers Cisco Unity Connection-based integrated voice-messaging capabilities. · It supports the full suite of the Cisco Unified IP Phones 7900 Series. · A call-processing redundancy option is available through Cisco Unified Survivable Remote Site Telephony (SRST).	4–24
Cisco Unified Communications Manager Express	· Cisco IOS Software-based call control is supported on standard Cisco 1800, 2800, and 3800 Series Integrated Services Routers, and Cisco IAD 2400 Series Integrated Access Devices. · Feature-rich unified communications features include video calls, softphone, remote phones, and secure calls between sites. · The feature-rich and configurable key system or PBX operation mimics the customer's existing telephony environment. · Cisco Unified Communications Manager Express supports up to 250 users per site; multiple sites can be networked together. · The application provides an intuitive GUI for system administration. · It supports all Cisco Unified IP Phones.	4–27
Cisco Unified Survivable Remote Site Telephony Software (SRST)	Cisco Unified Survivable Remote Site Telephony (SRST) Software is a Cisco IOS Software-based feature set that provides key backup telephony functions for the remote branch office if connectivity to the centrally-located Cisco Unified Communications Manager fails (that is, a WAN link is interrupted). During a WAN outage, the Cisco Unified SRST-enabled router provides robust telephony services (including off-net calls to 911).	4–29
Cisco Unified IP Phones 7900 Series	An exciting, distinctively stylish, and pure VoIP phone portfolio to meet the wide range of business communication needs at affordable prices · Display-based technology provides ease-of-use · Integrated inline power and 2-port Ethernet switch provides end-to-end infrastructure integration · Rich application environment enabled by open APIs based on XML	4–29
Cisco Unified Video Advantage	· Brings video telephony functionality to Cisco Unified IP Phones and Cisco IP Communicator · Adds video to phone calls through the use of a personal computer without button-pushing or mouse-clicking · Video telephony is now just a phone call	4–32
UNIFIED COMMUNICATIONS ARCHITECTURE		
Cisco Emergency Responder	Works with Cisco Unified Communications Manager to automatically provide E9-1-1 features in North America, and is compatible with any emergency number · Dynamically tracks the location of IP phones, routes emergency calls to the appropriate E9-1-1 network, and provides the current location information · Provides real-time alert notifications to on-site or contracted security groups	4–32

Product	Features	Page
Cisco IP Communicator	· Softphone client that gives computers the capabilities and features of a Cisco Unified IP Phone · A supplemental telephone that provides access to phone extensions and services outside the office · Unified administration with Cisco Unified IP Phones and automatic software updates makes it easy to manage	4–33
Cisco Unified Application Environment	· Offers a rich portfolio of ready-to-use packaged applications that extend the Cisco Unified Communications platform · Provides customer development tools to quickly integrate unified communications with other business applications or build custom applications · Provides an application environment that makes it easy to develop, deploy, and manage applications	4–34
Cisco Unified MeetingPlace Conferencing	· Cisco Unified MeetingPlace conferencing provides integrated voice, video, and Web collaboration for large organizations. · It facilitates media-rich collaboration for Cisco Unified Communications solutions. · It allows on-premises voice conferencing for WebEx. · It facilitates voice and video interoperability for Cisco TelePresence solutions. · This on-premises solution offers cost savings and security. · The solution offers an exceptional user experience; it is simple for users to setup, attend, and manage virtual meetings.	4–35
Cisco Unified MeetingPlace Express	· Cisco Unified MeetingPlace Express is an integrated voice, video, and web collaboration solution for midsize organizations. · It facilitates media-rich collaboration for Cisco Unified Communications solutions. · This on-premises solution offers cost savings and security. · It is easy to deploy and manage.	4–35
Cisco Unified Mobile Communicator	· Cisco Unified Mobile Communicator is a unified communications application for mobile phones that extends collaboration benefits of Cisco Unified Communications to mobile employees while they are away from the office. · Cisco Unified Mobile Communicator provides real-time access to company directory, presence, visual voice mail, integrated call history, and conference notifications and other vital information; all from a single, intuitive interface connected to a Cisco Unified Communications System.	4–37
Cisco Unified Personal Communicator	· Unified client that transparently integrates presence, voice, video telephony, messaging, and web conferencing · Provides quick access to phone extensions, voice messaging, directories, conferencing and collaboration services both inside and outside the office	4–38
Cisco Unified Videoconferencing 3500 Series Products	· The Cisco Unified Videoconferencing 3500 Series provides a video infrastructure for Cisco Unified Communications solutions. · This solution facilitates face-to-face discussions among remote participants. · This high-performance solution is flexible and cost-effective. · It supports multiple standards, codecs, and protocols for broad connectivity with traditional and emerging video environments.	4–38
Cisco Unified Presence	Cisco Unified Presence collects information about your availability status and communications capabilities, including whether you are available to be contacted or prefer being contacted over a particular communications device, such as by phone or instant message, at a given time. Cisco Unified Presence: · Supports Cisco Unified Personal Communicator and Cisco IP Phone Messenger · Facilitates applications interoperability using standards-based Session Initiation Protocol (SIP) or SIMPLE implementation · Supports Microsoft Office Communicator click-to-dial and phone monitoring functions, as well as integration with Microsoft Outlook Calendar · Integrates with the IBM Lotus Sametime 7.5 client	4–40
Cisco Unity Connection	Combines integrated messaging, speech recognition and call routing rules into an easy-to-manage system for mid-market customers	4–40
Cisco Unity Express	· Integrated voice mail and automated attendant services locally delivered for either Cisco Unified Communications Manager or Cisco Unified Communications Manager Express solution · Leverages the data infrastructure; supported on broad range of Cisco access routers and new Cisco Integrated Services Routers · Increases employee productivity and customer service for businesses of various sizes and operational models	4–41
Speech Connect for Cisco Unity	Speech Connect for Cisco Unity offers unmatched performance in speech recognition because of features such as: · Advanced disambiguation · Names Tuning service · Dynamic names dictionary	4–42

Product	Features	Page
Cisco Unity—Unified Messaging and Voice Mail	Voice mail and unified messaging system delivers all messages into single inbox for access via phone, e-mail, or Internet	4–42
Voice and Security Bundles	Voice and security bundles are designed for enterprise branch offices, small and medium-sized businesses (SMBs), and managed network service providers seeking consolidated, easy-to-order, versatile, and cost-effective solutions.	4–43
Cisco Telepresence	For product information, see Chapter 7, "Video and Broadband Cable."	
Cisco Digital Media System	For product information, see Chapter 7, "Video and Broadband Cable."	
Product Ordering Website	To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml. This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.	

Services to Protect, Maintain, and Optimize Cisco Products

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For more information about all services, see Chapter 10, "Services".

Memory Information for Universal Gateways

Router	Memory Type	Slots	Default Memory	Max Memory	Default Config (Notes)
Cisco AS5350XM	Main SDRAM System Flash	2 1	512 MB 128 MB	1 GB 1 GB	
Cisco AS5400XM	Main SDRAM System Flash	2 1	512 MB 128 MB	1 GB 1 GB	
Cisco AS5850	ERSC SDRAM Feature Cards SDRAMS		1 GB 128 MB	1 GB 128 MB	Ships with all required memory

Cisco AS5350XM Universal Gateway



The Cisco AS5350XM Universal Gateway is a 1-rack-unit (1RU) gateway supporting 2- to 16-port T1/E1 or 1 CT3 configurations. The Cisco AS5350XM provides voice, fax, data, and session-border-control (SBC) services on any port at any time. This cost-effective platform is ideally suited for service provider and enterprise environments. The Cisco AS5350XM Universal Gateway doubles the performance of the original Cisco AS5350 and delivers significant memory enhancements to offer high performance and high reliability in a compact, modular design.

The Cisco AS5350XM Universal Gateway supports existing Cisco AS5350 trunk termination, universal port feature cards, and the new Packet Voice DSP Module 2 (PVDM2) digital-signal-processor (DSP) cards in a more powerful chassis to help ensure continuing network investment protection.

Ideal for Companies that Need These Features

- High density in a small footprint (up to 20 CT1/CE1 or 1 CT3, any codec type, fax protocol or modem type)
- High-performance voice, fax, data, and session-border-control (SBC) services
- Concurrent voice gateway and SBC
- High call rates (up to 20 calls per second)
- Enhanced performance for processor-intensive Tool Command Language (TCL) or Voice Extensible Markup Language (VoiceXML) scripting for complex voice services

- T.38 real-time fax relay, T.37 fax store and forward, fax detection, and unified communications

Key Features

- The Cisco AS5400XM Universal Gateway is ideally suited for service provider and enterprise environments that require innovative voice, fax, and data services.
- This universal gateway has a 2-rack unit (2RU), CT3-capable universal gateway with hot-swappable cards and internal redundant power supply.
- This universal gateway offers best-in-class voice, fax, remote access, and session-border-control (SBC) services.
- The gateway provides concurrent gateway and SBC operation.
- This gateway includes the following feature cards: 4 or 8 T1/E1/Primary Rate Interface (PRI) feature cards (ISDN calls terminated on the card); one CT3 feature card; a 60- or 108-channel universal port feature card; and a 384-channel voice feature card.
- This gateway has two 10/100/1000 autosensing Gigabit Ethernet LAN ports.
- This gateway has redundant 8-Mbps serial backhaul ports for Frame Relay, High-Level Data Link Control (HDLC) or Point-to-Point Protocol (PPP) WAN backhaul.
- The gateway provides one fast console port for local administrative access and one auxiliary port for remote administrative access, as well as redundant LAN and WAN backhaul ports.
- The gateway is European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant, and has a redundant AC or DC power supply with dual fans.
- The gateway is interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).

Specifications

Feature	Cisco AS5350XM
Processor	750 MHz RISC processor
SDRAM	512 MB (default), 1 GB (maximum)
System Flash	128 MB (default), 1 GB (maximum)
Feature Card Slots	3 slots
Trunk Feature Cards	2 T1/E1/PRI, 4 T1/E1/PRI, 8 T1/E1/PRI, 1 CT3
DSP Feature Cards	60 Universal port card, 108 Universal port card 384 port voice/fax card
Egress Ports	2 10/100/1000 autosensing Gigabit Ethernet LAN ports 2 8-Mbps serial ports T1/E1 DS1 and CT3 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECNet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP), fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR, AMR-NB, iLBC
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF, Multifrequency (MF); Continuity Testing (COT)
Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); T.38 real-time fax relay; T.37 fax store and forward; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP); Media Recording Control Protocol (MRCP); TTS Servers; ASR Servers
SS7	Integrated Signaling Link Terminal (ISLT), MTP1, MTP2, IUA, RUDP backhaul
Network Security	RADIUS or TACACS+, PAP, CHAP, and MSCHAP authentication, local user/password database DNIS, CLID, call-type pre-authentication Inbound/outbound traffic filtering (including IP, IPX, AppleTalk, bridged traffic) Network Address Translation (NAT) and dynamic access lists (ACLs) SNMPv2, SNMPv3, SSHv2 H.235
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)

Session Border Control	H.323 to H.323 (including Cisco Unified Communications Manager); H.323 to SIP (including Cisco Unified Communications Manager); SIP to SIP (including Cisco Unified Communications Manager); 1000 concurrent calls with 2000 sessions in flow-through mode
Channelized T1	Robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments ITU-T V.34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression; Async-mode PPP
Full Cisco IOS Software Support	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 1.75 x 17.5 x 20.5 in.; Weight (fully loaded): 22 lbs. (10 kg)

For More Information

For more information about the Cisco AS5350XM Universal Gateway, visit: http://www.cisco.com/en/US/products/hw/iad/index.html.

Cisco AS5400XM Universal Gateway



The Cisco AS5400XM Universal Gateway offers exceptional capacity in only two rack units (2RU) and provides voice, fax, and data services on any port at any time. High-density (up to one CT3 of voice over IP [VoIP] and two CT3 of time-division multiplexing [TDM] switching), low-power consumption (as low as 3.5A at 48 VDC per CT3 of G.711), and universal port digital signal processors (DSPs) make the Cisco AS5400XM Universal Gateways ideal for many network deployment architectures, especially co-location environments and mega points of presence (POPs).

The Cisco AS5400XM Universal Gateway supports the Cisco AS5400 and Cisco AS5400HPX trunk termination and universal port feature cards in a more powerful chassis, while doubling the performance and delivering significant memory enhancements for high performance.

Ideal for Companies that Need These Features

- High density in a small footprint (up to 20 CT1/CE1 or 1 CT3, any codec type, fax protocol or modem type)
- High-performance voice, fax, data, and session-border-control (SBC) services
- Concurrent voice gateway and SBC
- High call rates (up to 20 calls per second)
- Enhanced performance for processor-intensive Tool Command Language (TCL) or Voice Extensible Markup Language (VoiceXML) scripting for complex voice services
- T.38 real-time fax relay, T.37 fax store and forward, fax detection, and unified communications

Key Features

- The Cisco AS5400XM Universal Gateway is ideally suited for service provider and enterprise environments that require innovative voice, fax, and data services.
- This universal gateway has a 2-rack unit (2RU), CT3-capable universal gateway with hot-swappable cards and internal redundant power supply.
- This universal gateway offers best-in-class voice, fax, remote access, and session-border-control (SBC) services.
- The gateway provides concurrent gateway and SBC operation.
- This gateway includes the following feature cards: 4 or 8 T1/E1/Primary Rate Interface (PRI) feature cards (ISDN calls terminated on the card); one CT3 feature card; a 60- or 108-channel universal port feature card; and a 384-channel voice feature card.
- This gateway has two 10/100/1000 autosensing Gigabit Ethernet LAN ports.
- This gateway has redundant 8-Mbps serial backhaul ports for Frame Relay, High-Level Data Link Control (HDLC) or Point-to-Point Protocol (PPP) WAN backhaul.
- The gateway provides one fast console port for local administrative access and one auxiliary port for remote administrative access, as well as redundant LAN and WAN backhaul ports.

- The gateway is European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant, and has a redundant AC or DC power supply with dual fans.
- The gateway is interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).

Specifications

Feature	Cisco AS5400XM
Processor	750 MHz RISC processor
Calls Supported	Voice, fax, and remote access services to 648 concurrent calls (to 1CT3/16E1s)
SDRAM	512 MB (default), 1 GB (maximum)
Boot Flash	N/A
System Flash	128 MB (default), 1 GB (maximum)
Feature Card Slots	7
Trunk Feature Cards	4 T1/E1/PRI, 8 T1/E1/PRI, 1 CT3
DSP Feature Cards	60 Universal port card, 108 Universal port card 384 low complexity, 192 medium complexity or 144 high complexity port voice/fax card
Egress Ports	2 10/100/1000 autosensing Gigabit Ethernet LAN ports 2 8-Mbps serial ports; T1/E1 DS1 and CT3 trunk feature cards
LAN Protocols	IP, IPX, AppleTalk, DECNet, ARA, NetBEUI, bridging, HSRP, 802.1Q
WAN Protocols	Frame Relay, PPP, HDLC (leased line)
Routing Protocols	Routing Information Protocol (RIP), RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, AY-EIGRP, IPX-EIGRP, Next Hop Resolution Protocol (NHRP), AppleTalk Update-based Routing Protocol (AURP)
QoS Protocols	IP Precedence, Resource Reservation Protocol (RSVP), Weighted Fair Queuing (WFQ), Weighted Random Early Detection (WRED), Multichassis Multilink PPP (MMP), fragmentation and interleaving, 802.1P
Access Protocols	PPP, Serial Line Internet Protocol (SLIP), TCP Clear, IPXCP, ATCP, ARA, NBFCP, NetBIOS over TCP/IP, NetBEUI over PPP, protocol translation (PPP, SLIP, ARA, X.25, TCP, local-area transport [LAT], Telnet), and Xremote
Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP)
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR, AMR-NB, iLBC
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF, Multifrequency (MF); Continuity Testing (COT)
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels Firewall security and intrusion detection QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Session Border Control	H.323 to H.323 (including Cisco Unified Communications Manager); H.323 to SIP (including Cisco Unified Communications Manager); SIP to SIP (including Cisco Unified Communications Manager) 1000 concurrent calls with 2000 sessions in flow-through mode
Voice and Fax Signaling Protocols	H.323v2, H.323v3, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); T.38 real-time fax relay; T.37 fax store and forward; Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0 at modulations V.33, V.17, V.29, V.27ter, V.21; ITU-T T.30, T4; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP), Media Recording Control Protocol (MRCP); TTS Servers; ASR Servers
Channelized T1	Robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2, leased line, Frame Relay, G.703, G.704
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments; ITU-T V.34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression; Async-mode PPP
Full Cisco IOS Software Support	IP Plus and Enterprise Plus feature sets including 3DES and Lawful Intercept images
Console and Auxiliary Ports	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 3.5 x 17.5 x 18.25 in.; Weight (fully loaded): 35 lbs. maximum (15.8 kg)

For More Information

For more information about the Cisco AS5400XM Universal Gateway, visit:
http://www.cisco.com/en/US/products/hw/iad/index.html.

Cisco AS5850 Universal Gateway



The Cisco AS5850 Universal Gateway is a high-density gateway with carrier-class attributes, offering high availability and exceptionally high capacity. Higher-capacity configurations (depending on dial, voice, and fax application types) are also supported. It supports a wide range of IP-based, value-added services such as high-volume Internet access, corporate VPNs, long distance for Internet service providers (ISPs), international wholesale long distance, distributed prepaid calling, Cisco Signaling System 7 (SS7) interconnect and managed voice services including hosted IP telephony, managed IP private branch exchange (PBX), multiservice VPNs, and IP contact centers. Using the rich set of Cisco IOS Software features and SS7 interconnection, service providers can quickly provision their networks for new services to meet the rapidly changing demands of the communications provider marketplace.

Ideal for Companies that Need These Features

- Support for up to 2688 sessions of data, voice, or fax services using T1, E1, DS-3, or STM-1 trunk interfaces, with larger configurations supported for dial and time-division multiplexing (TDM) switching
- Service provider or large enterprise installations
- High port count behind one IP address
- Highly available single system with multiple redundancy
- Wholesale dial and voice, retail dial and voice, TDM grooming, or wireless applications

Key Features

- The Cisco AS5850 Universal Gateway offers hot-swappable, redundant power supplies and power feeds.
- This universal gateway provides redundant digital signal processors (DSPs) and route switch controllers (RSCs) a redundant blower for cooling, and Call Admission Control (CAC).
- Supports any codec at 100-percent capacity, simplifying network engineering.
- Supports Route Processor Redundancy Plus (RPR+) for high availability.
- This gateway provides thermal management and power management and redundant fans.
- This gateway offers the DSP Resource Recovery feature.
- Supports H.323v2, H.323v3, H.323v4, Session Initiation Protocol (SIP), and Media Gateway Control Protocol (MGCP) 1.0 and provides application-specific support, including support for AOL and Prodigy traffic.
- Offers WAN optimization, including routing filters, snapshot routine, and dial-on-demand routing (DDR).
- This gateway is European Telecommunications Standards Institute/Network Equipment Building Standards (ETSI/NEBS) Level 3 compliant.
- The gateway is interoperable with the Cisco Signaling System 7 (SS7) Interconnect for Voice Gateway (signaling gateway).
- This gateway provides Stratum-3 clock support and 802.1Q/1p VLAN/Inter-Switch Link (ISL) support.
- This gateway provides up to three chassis per rack (14RU chassis) and only 30A at 48V for 4 CT3 cards of high-complexity voice (11ma per voice channel, 12ma with route processor redundancy).

Specifications

Feature	Cisco AS5850
Slots	12 feature board slots; 2 ERSC slots
Processor	650 MHz Broadcom 1250 Dual Core
ERSC Switch Fabric	5 Gbps. Layer 3/4 switching
Memory	1 GB SDRAM with ECC per ERSC 128 MB SDRAM (with parity) per feature card
Trunk Cards	Single CT3 plus 216 DSP Channel feature card; 24 Ce1/CT1 feature card; Single port channelized STM-1 feature card
Universal Port Card	324 Channel DSP-feature card
Egress Ports	Dual Gigabit load-balanced redundant Ethernet ports with GBIC interfaces for user traffic Dual 10/100 Mbps Ethernet port with RJ-45 connector for management traffic
LAN Protocols	IP, bridging, HSRP, 802.1Q
Service Support	Port Policy Management and SS7/C7
Routing Protocols	RIP, RIPv2, OSPF, IGRP, EIGRP, BGPv4, IS-IS, NHRP
Access Protocols	PPP, SLIP, TCP Clear

Bandwidth Optimization	Multilink PPP (MLPPP), TCP/IP header compression, Bandwidth Allocation Control Protocol (BACP), Bandwidth on demand, Nonfacility-associated signaling (NFAS), traffic shaping
Network Security	RADIUS or TACACS+, PAP or CHAP authentication, local user/password database, DNIS, CLID, call-type pre-authentication, Inbound/outbound traffic filtering (including IP), SNMPv2, SNMPv3
Virtual Private Networking	IP Security (IPSec) and policy enforcement (RADIUS or TACACS+) L2TP, Layer 2 Forwarding (L2F), and generic routing encapsulation (GRE) tunnels; Firewall security and intrusion detection; QoS features (committed access rate [CIR], Random Early Detection [RED], IP Precedence, policy-based routing)
Channelized T1	PRI, robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized DS3	PRI, robbed-bit signaling; Loop Start; Immediate Start, and Wink Start Protocols
Channelized E1	CAS, PR1, E1 R2,SS7 IMT
Channelized STM-1	CAS, PR1, E1 R2,SS7 IMT
Voice Compression	G.711, G.723.1 (5.3K and 6.3K), G.726, G.729ab, G. Clear, GSM-FR,
DSP Voice Features	Echo cancellation, programmable up to 128 MB; Transparent transcoding between A-law and mu-law encoding; Voice activity detection, silence suppression, comfort noise generation; Fixed and adaptive jitter buffering; Call progress tone detection and generation—Dial tone, busy, ring-back, congestion, and re-order tones with local country variants; DTMF, Multifrequency (MF); Continuity Testing (COT)
Voice and Fax Signaling Protocols	H.323v2, H.323v4, SIP, MGCP 1.0, TGCP 1.0, Voice XML, Real-Time Streaming Protocol (RTSP), Extended Simple Mail Transfer Protocol (ESMTP); Fax out (transmission) Group 3, standards EIA 2388 Class 2 and EIA 592 Class 2.0 at modulations V.33, V.17, V.29, V.27ter, V.21; ITU-T T.30, T4; Fax detection; Fax and modem passthrough; Open Settlements Protocol (OSP), Media Recording Control Protocol (MRCP) to enable TTS and ASR Services
ISDN Protocols Supported	Sync mode PPP, V.110 at rates up to 38400 bps; Network- and user-side ISDN; NFAS with backup D-channel; QSIG, Feature Group B, Feature Group D; DoVBS
Modem Protocols Supported	V.90 or V.92 standard supporting rates of 56000 to 28000 in 1333 bps increments; V.92 Modem on Hold and Quick Connect; V.44 Compression supporting increased throughput by more than 100 percent for Internet browsing; K56Flex at 56000 to 32000 in 2000-bps increments; ITU-T V.34 Annex 12 at 33600 and 31200 bps; ITU-T V.34 at 28800, 26400, 24000, 21600, 19200, 16800, 14400, 12000, 9600, 7200, 4800, or 2400 bps; V.32bis 14400, 12000, 9600, 7200, 4800; V.32 9600, 4800; V.22bis 2400, 1200; V.21 300; Bell 103, 300; V.22 1200; V.23 1200/75; ITU-T V.42 (including Microcom Networking Protocol [MNP] 2-4 and; Link Access Procedure for Modems [LAPM] error correction; ITU-T V.42bis (1000 nodes) and MNP 5 data compression
Wireless Protocol	V.110
Full Cisco IOS Software Support	IP Plus feature sets including 3DES and Lawful Intercept images
Console	Asynchronous serial (RJ-45)
Chassis	Dimensions (H x W x D): 24.5 x 17.5 x 124 in.; Weight (fully loaded): 220 lbs. (100 kg)

For More Information

For more information about the Cisco AS5850 Universal Gateway, visit: http://www.cisco.com/en/US/products/hw/iad/index.html.

Cisco Voice Gateways

Cisco voice gateways interface directly to private branch exchanges (PBXs) or public telephone networks to carry voice traffic across IP networks by converting IP calls to standard telephony calls, and conversely. They provide connectivity between packet telephony and traditional telephony such as public switched telephone network (PSTN), private branch exchanges (PBXs), fax machines, and other devices.

Cisco offers the Cisco VG248 and VG224 dedicated analog voice gateways. The full line of Cisco access and integrated routers can also add analog and digital voice gateway functions through the use of network modules and voice interface cards.

Cisco VG248 48-Port Analog Phone Gateway

The Cisco VG248 48-Port Analog Phone Gateway is a 1-unit-high, rack-mountable device allowing 48 analog devices (phones, fax machines, and modems) to be used with Cisco Unified Communications Manager. It allows organizations such as hotels, universities, and hospitals with large numbers of analog phones to deploy IP telephony while maintaining the investment in traditional handsets. The analog lines are full-featured, with caller ID, message waiting lights, and feature codes. The price per port is competitive with a traditional private branch exchange (PBX).

The Cisco VG248 supports the traditional voicemail Simple Message Desk Interface (SMDI) voicemail interface that allows the connection of a Cisco Unified Communications Manager network to a traditional voicemail system. It also allows the sharing of existing SMDI-based voicemail systems between the Cisco Unified Communications Manager and the traditional PBX.

Cisco VG224 Analog Phone Gateway

The Cisco VG244 Analog Phone Gateway is a high-density, 24-port Cisco IOS Software gateway for analog phones, fax machines, modems, and speakerphones within an enterprise voice system based on Cisco Unified Communications Manager or Cisco Unified Communications Manager Express. Having these devices tightly integrated with the IP-based phone system is advantageous for increased manageability, scalability, and cost-effectiveness. Commercial businesses can also use the Cisco VG224 in conjunction with Cisco Unified Communications Manager Express to effectively augment an integrated services router environment. This topology environment supports a business that needs a high concentration of analog voice ports for basic calls, with supplementary services such as transfer, hold, park, and pickup.

With Cisco Unified Communications Manager or Cisco Unified Communications Manager Express, the Cisco VG224 can provide supplementary analog services while using the Cisco IOS Software gateway for reliable fax and modem delivery.

Ideal for Companies that Need These Features

- Cisco VG248 48-Port Analog Phone Gateway—SMDA termination; Ability to allow the sharing of Simple Message Desk Interface (SMDI)-based voicemail systems between the Cisco Unified Communications Manager and a traditional private branch exchange (PBX)
- Cisco VG224 24-Port Analog Phone Gateway—Skinny Client Control Protocol (SCCP), Media Gateway Control Protocol (MGCP), Session Initiation Protocol (SIP), or H.323 support for analog ports; Cost-effective, 1-rack unit (1R, foreign-exchange-station (FXS) interfaces for Cisco Unified Communications Manager Express (CME) or Cisco Unified Communications Manager applications

Selected Part Numbers and Ordering Information

VG248	48-port VoIP analog phone gateway
VG224	Cisco VG 224 analog phone gateway

For More Information

For more information about Cisco Voice Gateways, visit: http://www.cisco.com/go/voicegate.

Cisco MCS 7800 Series Media Convergence Servers



Cisco MCS 7816-H3 and Cisco MCS 7816-I3

The Cisco MCS 7816-H3 and MCS 7816-I3 Media Convergence Servers are entry-level rack-mounted servers equipped with an Intel Dual Core Celeron C352 3.2-GHz processor, a 160-GB Serial Advanced Technology Attachment (SATA) hard drive, and a single non-hot-swap power supply.

Cisco MCS 7825-H3 and Cisco MCS 7825-I3

The Cisco MCS 7825-H3 and MCS 7825-I3 Media Convergence Servers are entry-level rack-mounted servers that occupy only one rack-mounting space. These servers are equipped with an Intel Xeon 3050 2.13-GHz processor, two 160-GB SATA hard drives configured as a Redundant Array of Independent Disks 1 (RAID1), and a single non-hot-swap power supply.

Cisco MCS 7835-H2 and Cisco MCS 7835-I2

The Cisco MCS 7835-H2 and MCS 7835-I2 Media Convergence Servers provide a highly available midlevel rack-mounted server solution that is equipped with an Intel Xeon 5140 2.33-GHz processor, up to eight hot-swap Serial Attached SCSI (SAS) hard disks, a RAID 1/0 controller, hot-swap redundant fans, and redundant hot-swap power supplies. An optional tape backup is available.

Cisco MCS 7845-H2 and Cisco MCS 7845-I2

The Cisco MCS 7845-H2 and MCS 7845-I2 Media Convergence Servers provide powerful and highly reliable high-level rack-mounted server solutions. The servers are equipped with two Intel Xeon 5140 2.33-GHz processors, up to eight hot-swap SAS hard disks, a RAID 1/0 controller, redundant hot-swap fans, and redundant hot-swap power supplies. An optional tape backup is available.

Ideal for Companies that Need These Features

- Cisco MCS 7816-H3 or MCS 7816-I3—Low-price solution (These media convergence servers are ideal for small customer deployments.)
- Cisco MCS 7825-H3 or MCS 7825-I2—Small customer deployments where RAID is important (These media convergence servers are ideal for customers with racks.)
- Cisco MCS 7835-H2 or MCS 7835-I2—Medium-sized customer deployments where RAID is important; Power and fan redundancy (These media convergence servers are ideal for customers with racks.)
- Cisco MCS 7845-H2 or MCS 7845-I2—Large-sized customer deployments where RAID is important; Power and fan redundancy are important (These media convergence servers are ideal for customers with racks.)

Specifications

MCS-7816-H3	MCS-7816-I3	MCS 7825-H3	MCS 7825-I3
• Intel Core Duo Celeron C352 3.2GHz processor 2 GB SDRAM[1] • 160 GB SATA hard disk • DVD drive • Integrated SATA controller • Dual 10/100/1000 Ethernet NIC • Rack mount system	• Intel Core Duo Celeron C352 3.2GHz processor 2 GB SDRAM • 160 GB SATA hard disk • DVD drive • Integrated SATA controller-RAID1 • Dual 10/100/1000 Ethernet NIC • Rack mount system	• Intel Dual Core 3050 2.13GHz processor 2 GB SDRAM • Dual 160 GB SATA hard disk • DVD drive • Integrated SATA controller-RAID1 • Dual 10/100/1000 Ethernet NIC1U • Rack mount system	• Intel Dual Core 3050 2.13GHz processor 2 GB SDRAM • Dual 160 GB SATA hard disk • DVD drive • Integrated SATA controller-RAID1 • Dual 10/100/1000 Ethernet NIC1U • Rack mount system
MCS 7835-H2	**MCS 7835-I2**	**MCS 7845-H2**	**MCS 7845-I2**
• Intel Dual Core 5140 2.33GHz processor • 2GB SDRAM • Two-72GB SAS hard disk • RAID 1 Controller • DVD • Dual 10/100/1000 Ethernet NIC • 2U Rack mount system	• Intel Dual Core 5140 2.33GHz processor • 2GB SDRAM • Two-72GB SAS hard disk • RAID 1 Controller • DVD • Dual 10/100/1000 Ethernet NIC • 2U Rack mount system	• Dual Intel Dual Core 5140 2.33GHz processor • 2GB SDRAM • Hard disks are configuration dependent • RAID 1 Controller • DVD • Dual 10/100/1000 Ethernet NIC • 2U Rack mount system	• Dual Intel Dual Core 5140 2.33GHz processor • 2GB SDRAM • Hard disks are configuration dependent • RAID 1 Controller • DVD • Dual 10/100/1000 Ethernet NIC • 2U Rack mount system

1. MCS-7815-I1-ECSI contains 1024 MB SDRAM while MCS-7815-I1-IPC3 and MCS-7815-I1-CC2 contain 2048 MB SDRAM.

Selected Part Numbers and Ordering Information

MCS-7816-H3-CCE1 / MCS-7816-H3-CCX1 / MCS-7816-H3-IPC1	Cisco Media Convergence Server 7816-H3
MCS-7816-I3-CCE1 / MCS-7816-I3-CCX1 / MCS-7816-I3-IPC1	Cisco Media Convergence Server 7816-I3
MCS-7825-H3-IPC1 / MCS-7825-H3-ECS1 / MCS-7825-H3-CCX1	Cisco Media Convergence Server 7825-H3
MCS-7825-I3-IPC1 / MCS-7825-I3-ECS1 / MCS-7825-I3-CCX1	Cisco Media Convergence Server 7825-I3
MCS-7835-H2-IPC1 / MCS-7835-H2-ECS1 / MCS-7835-H2-CCX1	Cisco Media Convergence Server 7835-H2
MCS-7835-I2-IPC1 / MCS-7835-I2-ECS1 / MCS-7835-I2-CCX1	Cisco Media Convergence Server 7835-I2
MCS-7845-H2-IPC1 / MCS-7845-H2-ECS1 / MCS-7845-H2-ECS2 / MCS-7845-H2-CCX1	Cisco Media Convergence Server 7845-H2
MCS-7845-I2-IPC1 / MCS-7845-I2-ESC1 / MCS-7845-I2-ESC2 / MCS-7845-I2-CCX1	Cisco Media Convergence Server 7845-I2

For More Information

For more information about the Cisco Media Convergence Server, visit: http://www.cisco.com/go/mcs.

Cisco Unified Contact Center Enterprise

Cisco Unified Contact Center Enterprise delivers skills-based contact routing, voice self-service, computer telephony integration (CTI), and multichannel contact management over an IP infrastructure. With multichannel automatic-call-distributor (ACD) functions combined with IP telephony in a unified solution, companies can rapidly deploy a distributed contact center infrastructure. Cisco Unified Contact Center Enterprise supports single and multisite deployments in both all-IP environments and mixed IP and time-division multiplexing (TDM) environments. It segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise or at home. The software profiles each customer contact using related data such as dialed number and

calling line ID, caller-entered digits, data submitted on a Web form, and information obtained from a customer database lookup. This combination of customer and contact center data is processed through user-defined routing scripts that graphically reflect a company's business rules.

Ideal for Companies that Need these Features

- Single contact center solution to support agents located in multiple locations, including formal contact centers, branch offices, and home agents
- Single contact center solution to support inbound, outbound, e-mail, and Web collaboration channels
- A fully redundant solution

Key Features

- Cisco Unified Contact Center Enterprise offers full scalability from less than a hundred to thousands of seats; it supports multisite contact centers and customer-relationship-management (CRM) integration.
- Carrier-class, distributed fault tolerance helps ensure uninterrupted operation.
- Multichannel interaction is possible, including Web collaboration with chat and callback, e-mail, voicemail, and fax routing.
- The solution provides continuous-contact call detail records.
- The solution provides common agent and supervisor desktops across all Cisco customer-interaction-management products.
- Cisco Unified Contact Center Enterprise provides predefined and custom real-time and historical reports; real-time data is also integrated in the agent and supervisor desktops.
- Support for custom call treatment for calls in queue includes support for music in queue and custom messaging; a standard screen pop allows any caller-entered information to be forwarded to the agent.
- Cisco Unified Contact Center Enterprise supports agent-supervisor interaction through chat; agent-supervisor messages are predefined.
- The solution offers enterprise presence integration through Cisco Unified Expert Advisor and Cisco Agent Desktop to tie-in or extend intelligently routed calls to knowledge workers or informal agents.

Selected Part Numbers and Ordering Information

IPCE-BUNDLE	Requires the purchase of one CCE Server license. This license entitles the user to deploy the following necessary components: (redundant) Router; (redundant) Logger; (redundant) Communications Manager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco Self-Service and Queuing (IVR) systems, CVP and IP-IVR (non-Cisco IVRs require third-party IVR port licenses); Administrative workstation(s); Historical database server(s); WebView Reporting server and reporting user connections; Internet Script Editor (ISE) server and ISE user connections; application gateways; (redundant) CTI server for third-party CTI connections (only for non-agent desktop application)
IPCE-SVR	Contact Center Enterprise server license

For More Information

For more information about Cisco Unified Contact Center Enterprise, visit: http://www.cisco.com/go/ipcc.

Cisco Unified Contact Center Express

Cisco Unified Contact Center Express provides easy-to-deploy, easy-to-use, highly available, and sophisticated customer interaction management for 1 to 300 agents by supporting a highly available virtual contact center with integrated self-service applications across multiple sites secured with Cisco Security Agent. All Cisco Unified Contact Center Express solutions are tightly integrated with Cisco Unified Communications Manager.

Ideal for Companies that Need these Features

- Contact center-in-a-box that delivers intelligent routing, call treatment, network-to-desktop and computer telephony integration (CTI), and integrated self-service for customer contact management over an IP infrastructure
- Ability to handle e-mail and Web-based contacts and provide outbound dialing support
- Sophisticated workforce management
- Ability to integrate multiple Cisco Unified Contact Center Express systems in the cloud under the control of Cisco Unified Intelligent Contact Management, including pre- and postrouting and centralized reporting
- Redundancy with high availability

Cisco Unified Contact Center Express is a virtual contact center solution for 1 to 300 agents that is easy to deploy, configure, and manage. It is available in three different packages [Standard, Enhanced, and Premium] to help ensure the right match with your business requirements. This interactive-voice-response [IVR] self-service

solution is fully integrated with contact center operations, including the ability to deploy advanced self-service technologies such as Automatic Speech Recognition (ASR) and Text to Speech (TTS).

Key Features

- Cisco Unified Contact Center Express reduces business costs while improving customer response by providing sophisticated and distributed automatic call distributor (ACD), interactive voice response (IVR), computer telephony integration (CTI), and agent and desktop services.
- The solution offers numerous sophisticated options traditionally associated with enterprise contact centers, including the ability to handle e-mail and Web-based contacts, presence integration, outbound preview dialing, and a complete workforce-management solution.
- Administration is browser-based, integrating with Cisco Unified Communications Manager browser-based administration.
- The solution provides ongoing contact call detail records.
- The standard screen allows any caller-entered information to be forwarded (through a pop) to the agent.
- The solution provides predefined or custom historical reports; real-time reports are provided within the agent and supervisor desktops.
- The solution offers high availability with automatic failover for mission-critical deployments.
- This complete, enterprise-wide, scalable unified contact center solution works in the Cisco Customer Interaction Network.
- Cisco Unified Contact Center Express fully supports agent-supervisor interaction through chat and predefined messages.
- The solution offers full IP call queue points and prompts; it collects voice interaction capabilities.
- Optional Automatic Speech Recognition (ASR) and Text-to-Speech (TTS) capabilities are available.
- The solution supports custom call treatment such as music for calls in queue.

NOTE: This is an abbreviated list of Cisco Unified Contact Center features.

Selected Part Numbers and Ordering Information

IPCX-40-STANDARD	New 4.0 Standard deployment
IPCX-40-ENHANCED	New 4.0 Enhanced deployment
IPCX-40-PREMIUM	New 4.0 Premium deployment
IPCX-40-STD-ADDON	Add-ons to an existing 4.0 Standard deployment
IPCX-40-ENH-ADDON	Add-ons to an existing 4.0 Enhanced deployment
IPCX-40-PRE-ADDON	Add-ons to an existing 4.0 Premium deployment

For More Information

For more information about Cisco Unified Contact Center Express, visit: http://www.cisco.com/go/ipccexpress.

Cisco Unified Contact Center Hosted Edition

The Cisco Unified Contact Center Hosted Edition solution is suitable for both enterprise customers and service providers. For service providers, it creates a new, high-margin service revenue stream for incumbent providers as well as new service carriers. The service provider hosts the contact center infrastructure software, which is shared by multiple business customers, in its central office or data center. Subscribing business customers can have IP infrastructures, time-division multiplexing (TDM) infrastructures, or a combination of the two. For the enterprise customer with multiple branch offices or divisions, the value is a centralized contact center infrastructure with the ability to offer services to its various divisions or satellite offices.

Ideal for Companies that Need These Features

- Multiple business units that function autonomously

This solution is ideal for very large enterprise customers who want to deploy a single solution to support multiple businesses such as state government. It is also ideal for service providers that want to offer managed contact center services to their customers.

Key Features

- Cisco Unified Contact Center Hosted is a virtual call center; calls are routed to contact center agents independent of their location, a service especially appealing to businesses with branch offices or home agents.
- Network routing with a computer-telephony-integration (CTI) network-based automatic call distributor (ACD) is combined with CTI services.

- Network interactive-voice-response (IVR) functions are located in the network to provide information to callers or to collect information from callers before they speak with a live agent.
- Calls are routed between contact centers based on call-context information (dialed number and caller ID), agent availability, and customer information from databases.

Selected Part Numbers and Ordering Information

IPCH-BUNDLE	The Hosted bundle consists of two separately-licensed sets of components. The base licenses for the shared infrastructure, such as the NAM, the network interfaces, shared network IVRs, CICMs, and Hosted IPCC Agent licenses; (redundant) Router; (redundant) Logger; (redundant) Communications Manager Peripheral Gateway(s); (redundant) IVR Peripheral Gateway(s) for connection to Cisco IVR systems ISN and IP-IVR (non-Cisco IVRs require third-party IVR port licenses); Administrative workstation(s); Historical database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; application gateways; (redundant) CTI server for third-party CTI connections (only for non-agent desktop application)

For More Information

For more information about Cisco Unified Contact Center Hosted, visit: http://www.cisco.com/go/ipcchosted.

Cisco Unified Customer Voice Portal

The Cisco Unified Customer Voice Portal integrates with both traditional time-division multiplexing (TDM) and IP-based contact centers to provide an unparalleled call-management and call-treatment solution with a self-service IVR option that can use information available to customers on the corporate Web server. With support for ASR and TTS capabilities, callers can obtain personalized answers to increasingly complex questions and can conduct business in new and innovative ways-all without the costs of interacting with a live agent. The Unified CVP solution offers a unique capability of providing the voice processing on Cisco ISR, AS5350 or AS5400 Access Servers, thus allowing the same self-service application to be deployed at a retail office or at large customer call centers, thus significantly reducing customers' bandwidth utilization.

Ideal for Companies that Need These Features

- Offset high costs associated with assisted-service contact center agents by directing more customer interactions to automated voice self-service
- Improved effectiveness of automated voice self-service by deploying world-class capabilities
- A consistent customer experience across self-service (web and voice) and assisted-service environments

Selected Part Numbers and Ordering Information

CVP-31-SVR	CVP 3.1 Self-Service Server Software
CVP-31-STUDIO	CVP 3.1 Studio
CVP-3X-PT	CVP 3.X Self-Service Port License
CVP-3X-PT-MN500	CVP 3.X Self-Service Port License Min 500
CVP-3X-RED	CVP 3.X Self-Service Redundancy License

For More Information

For more information about Cisco Unified Customer Voice Portal, visit: http://www.cisco.com/go/cvp.

Cisco Unified Expert Advisor

The Cisco Unified Expert Advisor option expands the scope of the contact center by allowing enterprise knowledge workers to handle incoming customer calls without the need for the rigid tools and business rules typically found in formal contact centers. It is an add-on to the Cisco Contact Center solutions Cisco Unified Contact Center and Cisco Unified Intelligent Contact Management Enterprise and Hosted. Cisco Unified Expert Advisor typically uses Cisco Unified Customer Voice Portal (CVP) for queuing and self-service but operates with any service control-based interactive voice response (IVR). The solution is dependent on Cisco Unified Intelligent Contact Management, Cisco Unified Presence, and Instant Messaging infrastructures. It does not require formal contact center customer-telephony-integration (CTI) agents to be part of the call flow. Cisco Unified Expert Advisor allows a contact center to virtually and automatically route calls across the contact center or the enterprise. Cisco Unified Expert Advisor acts as middleware to bridge calls transferred from the queue or formal agents to a set of presence-enabled knowledge workers. Formal agents do not need to have visibility of the presence of experts or knowledge workers.

Ideal for Companies that Need these Features

- Formal contact centers with agents that require escalation to third- or fourth-level support or specialists in the enterprise who have the ability to improve on customer service by addressing the sought-after "first-call resolution"

This solution is ideal for small to medium-sized contact centers that require extension of customer calls to knowledge workers and for informal contact centers that do not process a high load of calls or where most customers address their needs from a self-service application. It is also ideal for environments where there is only a self-service or queuing application and no formal agents.

Key Features

- Cisco Unified Expert Advisor provides easy-to-use agent access to experts in the enterprise to get information customers require quickly and efficiently.
- The solution allows change in the new enterprise by incorporating it into the customer service process for enhanced customer service.
- It enables content-rich interactions with customers to achieve customer loyalty and retention.
- Cisco Unified Expert Advisor facilitates enhanced business agility and higher resource productivity.
- It provides improved communication and business processes.
- The solution offers higher rates of first-call resolution and reduced customer turnover.

For More Information

For more information about Cisco Unified Expert Advisor, visit http://www.cisco.com/go/cc.

NOTE: Cisco Unified Expert Advisor will ship in the June 2008 timeframe.

Cisco Unified Intelligence Suite

The Cisco Unified Intelligence Suite comprises two components: Intelligence Center and the Archiver data repository. The suite also includes advanced integration tools that help users evolve the platform into an enterprise-wide information portal.

Intelligence Center is a web-based application that provides real-time and historical reporting in an easy-to-use, wizard-based interface. The Archiver is an external Microsoft Structured Query Language (MS-SQL) data repository that adds significant scalability and flexibility to Cisco Unified Contact Center reporting. The advanced integration tools allow customers to integrate data from nontraditional contact center sources such as Really Simple Syndication (RSS) feeds, external websites, and third-party databases to further improve business efficiency and effectiveness.

Ideal for Companies that Need these Features

- A powerful web-based reporting platform that is as flexible as it is intuitive
- The ability to report on the details of every contact across all channels from a single interface, regardless of the resources involved

Key Features

- Cisco Unified Intelligence Suite offers real-time and historical reporting in an easy-to-use, wizard-based interface.
- The solution offers a variety of presentation formats such as interactive grids, charts, web pages, and RSS feeds.
- Administrators can control access to features, reports, and data by granting privileges to individual users or groups of users.
- The solution offers integrated reporting for any data source, including third-party automatic call distributors (ACDs), Cisco Unified Workforce Management, customer relationship management (CRM), and QM products.
- The solution offers the ability to move between reports through hyperlinks providing drill-up, drill-down, and drill-across capabilities.
- Advanced drill-down capabilities allow customers to link multiple reports, including the ability to drill across data sources for maximum flexibility.

For More Information

For more information about the Cisco Unified Intelligence Suite, visit http://www.cisco.com/go/cc.

NOTE: Cisco Unified Intelligence Suite will ship in the August 2008 timeframe.

Cisco Unified Intelligent Contact Management Enterprise

Through a combination of multichannel contact management, intelligent routing, and network-to-desktop computer telephony integration (CTI), the Cisco Unified Intelligent Contact Management Enterprise segments customers, monitors resource availability, and delivers each contact to the most appropriate resource anywhere in the enterprise.

The Cisco Unified Intelligent Contact Management Enterprise solution allows customers to keep their current legacy solutions in place regardless of TDM or IP voice transports, while giving them a migration path to new technologies such as VOIP, multi-channel and presence. When deployed with the Cisco Unified Customer Voice Portal, it lets customers begin to move call routing and queuing into the IP network, while leaving their existing TDM automatic call distributors (ACDs) and agents in place. Therefore, customers can decide to replace aging technologies independently, when it makes the most sense for them.

Ideal for Companies that Need These Features

- Customers with existing, multi-site, single or multi vendor legacy ACD infrastructure looking for a unified call routing and CTI solution
- Customers looking for a migration path from their existing TDM architecture to an IP solution
- Customers who require unified routing across media types and across disparate vendor PBX and ACD solutions

Key Features

- Cisco Unified Intelligent Contact Management Enterprise offers carrier-class, distributed fault tolerance for uninterrupted operation.
- The solution provides profiles using contact-related data: dialed number and calling line ID (CLID), caller-entered digits, data submitted on a Web form, or information obtained from a customer profile database lookup. Profiles are processed with user-defined routing scripts that graphically reflect business rules. The solution routes each contact to the optimum resource anywhere in the enterprise, and delivers a unique and rich set of call-event and customer-profile data to the targeted desktop as a contact arrives, personalizing service and maximizing efficiency.
- Cisco Unified Intelligent Contact Management Enterprise gives customers the choice to interact through their phone, the web, voice over IP (VoIP), text chat, e-mail, or IM.
- The solution provides centralized management control over customer contacts, allowing users to implement a single set of business rules that uniformly address customer needs independent of contact channel or resource location.

Selected Part Numbers and Ordering Information

ICME-BUNDLE	Requires the purchase of at least one ACD PG and one ICM Agent license. Functionality included: monitor third-party ACD (call and agent); Call routing, including pre-routing from a carrier network and port-routing from an ACD; Historical database server(s); WebView server and WebView user connections; Internet Script Editor (ISE) server and ISE user connections; application, SQL, and ICM-to-ICM gateways; redundant deployment of all licensed components; Integrations through the ICM interfaces with third-party devices that are not intended for agent desktop usage; Connections to Cisco IVR systems (IP-IVR and CVP) and all related functions an ICM can perform, such as monitoring, reporting, and routing.

For More Information

For more information about Cisco Unified Intelligent Contact Management Enterprise, visit: http://www.cisco.com/go/icmee.

Cisco Unified Intelligent Contact Management Hosted

The Cisco Unified Intelligent Contact Management Hosted solution allows a service provider to quickly become a strategic business partner by hosting a broad continuum of mission-critical customer applications. With current users, its functions create new revenue opportunities while strengthening customer loyalty.

Ideal for Companies that Need These Features

- Open architecture: This solution facilitates a smooth migration from circuit-switched to packet-based voice technology while facilitating business-to-business services, e-commerce, and multimedia applications such as Web collaboration and e-mail response management, all transparent to the end user.

- Ability to deliver critical applications tailored to each customer's business strategy; and to sharply differentiate from competitors, making it easier to gain entry and obtain feature or transport revenue (for the service provider)
- Services to take advantage of value-added service provider capabilities to meet business goals (for the customer)

This solution benefits the service provider and the customer as well.

Key Features

- From this virtual call center, calls are routed to contact center agents independent of their location, a service especially appealing to businesses with branch offices or home agents.
- A network-based automatic call distributor (ACD) is combined with computer-telephony-integration (CTI) services.
- Network interactive-voice-response (IVR) functions are located in the network to provide information to callers or to collect information from callers before they speak with a live agent.
- Calls are routed between contact centers based on call-context information (dialed number and caller ID), agent availability, and customer information from databases.

Selected Part Numbers and Ordering Information

HOSTED-BUNDLE	Consists of two separately-licensed sets of components. The base licenses for the shared infrastructure, such as the NAM and the network interfaces. This is an "a la carte" licensing model; a customized system can be licensed by selecting the required volume and options The software licenses for dedicated customer components such as the ICM instances, peripheral gateway, agents, and so on. These are ACD PG and Agent licenses.

For More Information

For more information about Cisco Unified Intelligent Contact Management Hosted, visit:
http://www.cisco.com/en/US/products/sw/custcosw/ps1973/index.html.

Cisco ATA Analog Telephone Adapters



The Cisco ATA 186 and ATA 188 Analog Telephone Adaptors bring analog telephones into the networked world. The Cisco ATA products address the low-end product portfolio need by targeting the enterprise, business local services, small-office environment, and the emerging managed voice-services market. These cost-effective handset-to-Ethernet adaptors help enable analog devices, such as phones and fax machines, to support voice-over-IP (VoIP) services. The Cisco ATA 186 is equipped with a single RJ-45 Ethernet port. The Cisco ATA 188 has two RJ-11 voice ports and two RJ-45 ports. The internal Ethernet switch allows for direct connection to a 10/100BASE-T Ethernet network and connectivity to a co-located PC or other Ethernet-based device through the RJ-45 ports. Cisco ATA adapters can be configured to use the standards-based VoIP protocols Session Initiation Protocol (SIP) and Skinny Client Control Protocol (SCCP).

Ideal for Companies that Need These Features

- Analog devices such as phones and fax machines enabled to support VoIP services by converting the analog signal into an IP signal
- Continuing use of existing analog phones with IP network

Key Features

- Autoprovisioning with Trivial File Transfer Protocol (TFTP) provisioning servers
- Automatic assignment of IP address, network route IP, and subnet mask through Dynamic Host Configuration Protocol (DHCP)
- Optional web configuration through built-in web server
- Optional touch-tone telephone keypad configuration with voice prompt
- Administration password to protect configuration and access
- Advanced preprocessing to optimize full-duplex voice compression
- High-performance line-echo cancellation to eliminate noise and echo
- Voice activity detection (VAD) and comfort noise generation (CNG) to save bandwidth by delivering voice, not silence
- Dynamic network monitoring to reduce jitter artifacts such as packet loss

Specifications

Feature	Cisco ATA 186	Cisco ATA 188
Telephone and network interfaces	2 RJ-11 FXS ports 1 RJ-45 interface for network connections	2 RJ-11 FXS ports 1 RJ-45 interface for network connections 1 RJ-45 "switch port" for connection to PC or another downstream Ethernet device Note: "Daisychaining" multiple ATAs together through the second RJ-45 port is not supported
Dimensions (H x W x D)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)	1.5 x 6.5 x 5.75 in. (3.8 x 16.5 x 14.6 cm)
Weights	15 oz (425 gm)	15 oz (425 gm)
VoIP Protocols	SIP (RFC 2543); SCCP	SIP (RFC 2543); SCCP

Selected Part Numbers and Ordering Information

Cisco ATA Series of Analog Telephone Adaptors[1]	
ATA186-I1-A	Cisco ATA 186 2-port adaptor, 600 ohm impedance
ATA186-I2-A	Cisco ATA 186 2-port adaptor, complex impedance (270 ohm in series w/ 750 ohm and 150 nF in parallel)
ATA188-I1-A	Cisco ATA 188 2-port adaptor w/ switch, 600 ohm impedance
ATA188-I2-A	Cisco ATA 188 2-port adaptor w/ switch, complex impedance (270 ohm in series w/ 750 ohm & 150 nF in parallel)
Cisco ATA Series of Analog Telephone Adaptors Power Supply Cables	
ATACAB-NA	ATA power supply cable for North-American style power systems
ATACAB-EU	ATA power supply cable for Continental European-style power systems
ATACAB-UK	ATA power supply cable for United Kingdom
ATACAB-AR	ATA power supply cable for Argentina
ATACAB-JP	ATA power supply cable for Japan
ATACAB-AU	ATA power supply cable for Australia

1. Some countries have telephone networks that list multiple impedance requirements. It is important to closely approximate the impedance of the typical handsets used in the region when selecting the proper configuration. The incorrect choice may lead to poor echo cancellation performance.

For More Information

For more information about the Cisco ATA analog telephone adapters, visit: http://www.cisco.com/en/US/products/hw/gatecont/ps514/index.html.

Cisco Smart Business Communications System

The Cisco Smart Business Communications System (SBCS) combines voice, data, video, fax, and wireless into a single, purpose-built platform. This easy-to-deploy, easy-to-use solution will change the way customers communicate among their employees and with their customers, helping them become more efficient and more effective. With flexible support for up to 48 users and up to five interconnected offices, the Cisco Smart Business Communications System can grow as customers grow.

Ideal for Companies that Need These Features

- Communications application for a site with fewer than 50 telephony users on an Integrated Services Router—Cisco 2800 or 3800, or the IAD 2400 Series.

Key Features

- Comprehensive connectivity—Cisco Unified Communications 500 Series for Small Business includes robust voice and call-processing capabilities, voice messaging, public-switched-telephone-network (PSTN) and Internet connectivity, integrated firewall, and an optional integrated wireless LAN (WLAN) access point.
- Full portfolio of IP phones—The Cisco Smart Business Communications System supports the full portfolio of Cisco Unified IP Phones, including new value-priced Cisco Unified Communications 500 Series IP Phones, designed to work specifically with the Cisco Unified Communications 500 Series.
- Switching—Innovative Cisco Catalyst Express 520 Series Power over Ethernet (PoE) switches support a variety of networking needs, with best-practice configuration through Cisco Smartports.
- Routing—The Cisco Unified Communications 500 Series supports static routing and routing between VLANs and the built-in interfaces.

- Application integration—Cisco Unified CallConnnector software embeds unified communications functions into PC-based applications such as Microsoft Outlook, Internet Explorer, and customer-relationship-management (CRM) software. Additional third-party business-productivity applications are also supported.
- Collaboration—The Cisco Smart Business Communications System supports impromptu video communications, instant messaging, and presence capabilities to accelerate business processes for competitive advantage.
- Wireless LAN—Cisco 500 Series Wireless Express Mobility Controllers adds secure, integrated business-class wireless networking capabilities for greater flexibility.
- Simplified management—A GUI-based system configuration and management tool makes it easy to set up and administer the Cisco SBCS.
- Reduced complexity and improved reliability—Cisco SBCS reduces the complexity of the typical multivendor small business network and improves reliability through tighter integration of the critical components of an organization's network and phone system, all supported end to end by Cisco.
- Easy to own—The application is simple to order, with easy finance options available through Cisco Capital (includes Easy Lease); multilevel service options help ensure optimal return on investment (ROI).
- Flexible deployment options—The application works in hosted or managed service scenarios. It is available in desktop or 19-inch rack-mount form factors.

Specifications

Feature	Cisco Smart Business Communications System
Platform	Cisco Unified Communications 500 Series, Cisco Catalyst Express 520 Series Switches, Cisco 521 Wireless Express Access Point, Cisco 526 Wireless Express Mobility Controller, Cisco Unified IP Phones
Phones supported	521G, 524G, 7985G, 7975G, 7971G-GE, 7970G, 7965G, 7961G/GE, 7960G, 7945G, 7941G/GE, 7940G, 7912G, 7911G, 7905G, 7902G, 3911, wireless phone 7920, expansion module 7914, IP Conference station 7936, Cisco IP Communicator, Cisco Unified Video Advantage video telephony offering
IOS Images	12.4(11)XW7 (on Cisco UC500)

Selected Part Numbers and Ordering Information

Cisco Smart Business Communications System	
Cisco Unified Communications 500 Series	
UC520-8U-4FXO-K9	8U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC
UC520-8U-2BRI-K9	8U Unified CME base, Cisco Unity Express, and phone FL w/2BRI, 1VIC
UC520-16U-4FXO-K9	16U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC
UC520-16U-2BRI-K9	16U Unified CME base, Cisco Unity Express, and phone FL w/2BRI, 1VIC
UC520-24U-8FXO-K9	24U Unified CME base, Cisco Unity Express, and phone FL w/8FXO, 1VIC
UC520-24U-4BRI-K9	24U Unified CME base, Cisco Unity Express, and phone FL w/4BRI, 1VIC
UC520-32U-8FXO-K9	32U Unified CME base, Cisco Unity Express, and phone FL w/8FXO, 1 VIC
UC520-32U-4BRI-K9	32U Unified CME base, Cisco Unity Express, and phone FL w/4BRI, 1VIC
UC520-48U-12FXO-K9	48U Unified CME base, Cisco Unity Express, and phone FL w/12FXO, 1VIC
UC520-48U-6BRI-K9	48U Unified CME base, Cisco Unity Express, and phone FL w/6BRI, 1VIC
UC520-48U-T/E/F-K9	48U Unified CME base, Cisco Unity Express, and phone FL w/T1, 1VIC
UC520-48U-T/E/B-K9	48U Unified CME base, Cisco Unity Express, and phone FL w/T1, 1VIC
Cisco Unified Communications 500 Series Models with Optional Integrated WLAN Access Point	
UC520W-8U-4FXO-K9	8U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC, Wi-Fi
UC520W-8U-2BRI-K9	8U Unified CME base, Cisco Unity Express, and phone FL w/2BRI, 1VIC, Wi-Fi
UC520W-16U-4FXO-K9	16U Unified CME base, Cisco Unity Express, and phone FL w/4FXO, 1VIC, Wi-Fi
UC520W-16U-2BRI-K9	16U Unified CME base, Cisco Unity Express, and phone FL w/2BRI, 1VIC, Wi-Fi
Cisco Unified Communications 500 Series Expansion Modules	
VIC-4FXS/DID	4-port VIC-FXS/DID
VIC2-2FXO	2-port VIC-FXO (universal)
VIC2-4FXO	4-port VIC-FXO (universal)
VIC2-2BRI-NT/TE	2-port VIC card-BRI (NT and TE)
VWIC2-1MFT-T1/E1	1-port VWIC – T1/E1 (PRI and CAS)
Cisco Unified Communications 500 Series Accessories	
MEMUC500-128CF=	128 MB Compact Flash for the Cisco Unified Communications 500 Series (spare)
ACS-UC500RM-19=	19-inch rack mount kit for Cisco Unified Communications 500 Series (8 and 16 user models)
PWR-UC500-220W=	Cisco Unified Communications 500 Series Desk Top Power Adapter 120-240VAC-220W (Spare)
Cisco Catalyst Express 520 Series Switches	
WS-CE520-8PC-K9	8 10/100 access ports with PoE + 1 10/100/1000 or SFP ports
WS-CE520-24TT-K9	24 10/100 access ports + 2 10/100/1000 ports
WS-CE520-24LC-K9	4 10/100 access ports with PoE + 20 10/100 access ports + 2 10/100/1000 or SFP ports
WS-CE520-24PC-K9	24 10/100 access ports with PoE + 2 10/100/1000 or SFP ports

WS-CE520G-24TC-K9	24 10/100/1000 ports + 2 10/100/1000 or SFP ports Gigabit Ethernet aggregation switch
RCKMNT-19-CMPCT=	19-inch rack-mount kit for Cisco Catalyst Express 520 Series Switch
Cisco Mobility Express Products	
Cisco 521G Wireless Express Access Point	
AIR-AP521G-A-K9	Standalone mode upgradeable to controller mode; 802.11b/g; integrated antennas; FCC regulatory domain
AIR-LAP521G-A-K9	Controller mode; 802.11b/g; integrated antennas; FCC regulatory domain Requires WLC526
AIR-AP521G-E-K9	Standalone mode upgradeable to controller mode; 802.11b/g; integrated antennas; ETSI regulatory domain (Europe)
AIR-LAP521G-E-K9	Controller mode; 802.11b/g; integrated antennas; ETSI regulatory domain (Europe). Requires WLC526
AIR-AP521G-P-K9	Standalone mode upgradeable to controller mode; 802.11b/g; integrated antennas; Japan regulatory domain
AIR-LAP521G-P-K9	Controller mode; 802.11b/g; integrated antennas; Japan regulatory domain Requires WLC526
Cisco 526 Wireless Express Mobility Controller	
AIR-WLC526-K9	Cisco 526 Wireless Express Mobility Controller

For More Information

For more information about the Cisco Smart Business Communications System, visit: http://www.cisco.com/go/sbcs.

Cisco Unified Communications Manager 6.0

Built on previous versions, Cisco Unified Communications Manager 6.0 includes two main enhancements: the integration of the Cisco Unified Mobility Advantage (formerly Cisco Mobility Manager) feature into Cisco Unified Communications Manager software, and the support of dual-mode devices. Cisco Unified Mobility Advantage, previously available as an application on a Cisco media convergence server, provides functions that intelligently manage, filter, route, and place calls between a worker's Cisco Unified IP Phone and a remote mobile phone.

Integrating these functions into Cisco Unified Communications Manager software makes administration and functions a native part of the solution, providing the capability to manage calls from a wired Cisco Unified IP Phone or a mobile device. Additionally, support for dual-mode devices benefits customers who have mobile users who need to move between campus wireless and external cellular network environments. These devices can manually pass calls from a cellular Global System for Mobile Communications (GSM) network to an 802.11-based wireless LAN.

Because onboard agents are no longer supported on the appliance in this version, all Cisco Unified Communications Manager management interfaces are enhanced to allow for tight integration with third-party applications.

Key Features

- Cisco Unified Communications Manager is installed on Cisco 7800 Series Media Convergence Server platforms and selected third-party servers.
- Multiple Cisco Unified Communications Manager servers can be clustered and managed as a single entity. The application offers scalability from 1 to 30,000 IP phones per cluster, with load-balancing and call-processing service redundancy. Interlinking allows system capacity to reach 1 million users in a system of more than 100 sites. The solution aggregates the power of multiple, distributed installations, enhancing the scalability and accessibility of the servers to phones, gateways, and applications, and triple call-processing server redundancy improves overall system availability.
- Call Admission Control (CAC) helps ensure that voice quality of service (QoS) is maintained across constricted WAN links, and automatically diverts calls to alternate public-switched-telephone-network (PSTN) routes when WAN bandwidth is not available.
- Devices can automatically update location information as they move from location to location to improve CAC and emergency service performance.
- Cisco Unified Communications Manager offers improved security, supportability, manageability, as well as usability enhancements to user features, including park, hunt group, Cisco Unified Communications Manager Assistant, and call pickup features that have been supported in past releases.
- This solution effectively supports IP phone activities; Cisco Unified Communications Manager Assistant has been ported to an Extensible Markup Language (XML) service that can be run on the phone, allowing assistants that handle executive and manager phones to have increased features without having to rely on a PC to provide the user interface.
- Cisco Unified Communications Manager integrates with a Lightweight Directory Access Protocol (LDAP) directory such as Active Directory to provide required security features.

- Improved management of mobile and remote devices is achieved by tracking devices as they move from one location to another by mapping the IP address of the phone to a list of configured locations, allowing emergency calls made by mobile devices to call out the correct gateway. The software accurately tracks bandwidth and codec use for CAC purposes.
- Cisco Unified Communications Manager provides improved call routing to remote phones connected over a WAN. It allows alternate routing when the WAN is out of bandwidth or out of service. It provides routing to the originally called phone number through the PSTN or can call an alternate phone such as a mobile phone during a WAN failure or an out-of-bandwidth situation.
- The solution offers improved voice-quality troubleshooting and tracking on Cisco Unified IP Phones. The phones report voice-quality statistics, such as mean opinion score (MOS), to help the user and system administrator track voice quality on a call-by-call basis.
- Access through a full GUI and a command-line interface facilitates diagnostics. The solution supports all system management activities such as disk-space monitoring, system monitoring, and upgrades, which are either automated or controlled. The solution supports basic systems management features such as starting or stopping services and rebooting the appliance. No access to the underlying operating system is necessary.
- The solution is preloaded with Cisco Security Agent.
- A host-based firewall has been added, along with IP Security (IPSec) connectivity between all cluster members.
- An expanded Session Initiation Protocol (SIP) trunk interface conforms to RFC 3261, allowing support of video calls over the SIP trunk and improving conferencing and application support experiences when used with the Cisco Unity and Cisco Unified MeetingPlace solutions. Cisco Unified Communications Manager supports line-side devices, including IETF RFC 3261-compliant devices available from Cisco and other manufacturers.
- The Resource Reservation Protocol (RSVP) agent on a Cisco router extends CAC capability beyond a hub-and-spoke topology within a cluster. Now a call can be routed directly between two locations without having to traverse the hub, allowing alternative network topologies and more efficient use of networks.
- Simple Network Management Protocol (SNMP) support allows managers to set and report traps on conditions that could affect service and send them to the remote-monitoring systems. The solution offers an overall syslog performance MIB, the serviceability interface has instrumented appliance-specific counters, and the programming interface has added the ability to execute insert, update, and delete database commands.
- The solution offers enhanced administration features, such as the ability to add users faster, arrange and rearrange line appearances, copy stations, and administer presence groups.

Specifications

Feature	Cisco Unified Communications Manager 6.0[1]
Platforms	Media Convergence Server (MCS); Selected third-party servers
New and Enhanced User Features	Answer and answer release; Auto-answer and intercom; Barge Calls—Call-back busy, no reply to station; Call connection; Call coverage; Call forward (off-net and on-net), busy, and no answer; Call hold retrieve; Call park and pickup; Call pickup group (Universal); Call status per line (state, duration, and number); Call waiting and retrieve (with configurable audible alerting); Calling line identification (CLID) and calling party name identification (CNID) Conference barge; Conference list and drop any party (impromptu conference) Direct inward dial (DID) and direct outward dial (DOD); Directory dial from phone—Corporate and personal; Directories—Missed, placed, and received calls list stored on selected IP phones Distinctive ring for on- and off-net status, per-line appearance, and per phone; Drop last conference party (impromptu conferences); Extension mobility support; Immediate divert to voice mail; Last number redial (on- and off-net); MWI; Multiparty conference—Impromptu with add-on, meet-me features Multiple calls per line appearance; Multiple line appearances per phone; Mute capability from speakerphone and handset; On-hook dialing; Hands-free, full-duplex speakerphone Real-time QoS statistics through HTTP browser to phone; Recent dial list—Calls to phone, calls from phone, autodial, and edit dial; Service URL—Single-button access to IP phone service Single directory number and multiple phones—Bridged line appearances; Speed dial—Multiple speed dials per phone; Station volume controls (audio and ringer) Transfer—Blind, consultative, and direct transfer of two parties on a line User-configured speed dial and call forward through web access Video (SCCP, H.323, and SIP)
Pre-installed Software	Cisco Unified Communications Manager Version 6.0, configuration database, administrative software, CDR Analysis and Reporting Tool, Bulk Administration Tool (BAT), Cisco Unified Communications Manager Attendant Console, Real-Time Monitoring Tool (RTMT), Cisco Conference Bridge, Locale Installer, JTAPI, Telephony Service Provider, Cisco Unified Communications Manager Assistant Cisco Unified IP Phone Address Book Synchronizer Cisco Dialed Number Analyzer

Sample Subset of Administrative Features	• Conceals seconds calculation • Mean Opinion Score (MOS) calculation using K-Factor • Support for password aging, complex password requirements, one-time passwords, and so on, with LDAP directory • Voice quality statistics on a call-by-call basis • Application discovery and registration to SNMP manager • Automated alternate routing groups • AXL SOAP API with performance and real-time information, bulk administration
New and Enhanced System Capabilities	• Alternate automatic routing (AAR); Attenuation and gain adjustment per device (phone and gateway) • Automated bandwidth selection: auto route selection (ARS) • CAC—Intercluster and intracluster; Call coverage • Codec support for automated bandwidth selection: G.711 (mu-law and a-law), G.722, G.722.1, G.723.1, G.728, G.729A/B, GSM-EFR, GSM-FR, and wideband audio (proprietary 16-bit resolution; 16-kHz sampled audio); Digit analysis and call treatment (digit string insertion, deletion, stripping, dial access codes, and digit string translation); Distributed call processing—Deployment of devices and applications across an IP network; Virtual clusters of up to eight Cisco Unified Communications Manager servers for scalability, redundancy, and load balancing; Maximum of 7500 IP phones per Cisco Unified Communications Manager server and 30,000 per server cluster (configuration-dependent); Maximum of 100,000 busy-hour call completions (BHCCs) per Cisco Unified Communications Manager server and 250,000 per server cluster (configuration-dependent); Intercluster scalability to more than 100 sites or clusters through H.323 gatekeeper; Intracluster feature and management transparency • Fax over IP—G.711 pass-through and Cisco Fax Relay; Forced authorization codes and client matter codes (account codes); Hotline and private line automated ringdown (PLAR); Hunt groups—Broadcast, circular, longest idle, and linear; Language support for client-user interfaces (languages specified separately) • Multiple remote Cisco Unified Communications Manager platform administration and debug utilities—Prepackaged alerts, monitor views, and historical reports with RTMT; Real-time and historical application performance monitoring through operating system tools and SNMP; Monitored data collection service; Remote terminal service for off-net system monitoring and alerting; Real-time event monitoring and presentation to common syslog; Trace setting and collection utility; Browse to onboard device statistics; Clusterwide trace setting tool; Trace collection tool; Multisite (cross-WAN) capability with intersite CAC • Off-premises extension (OPX); Outbound call blocking; Out-of-band dual tone multifrequency (DTMF) signaling over IP; PSTN failover on route nonavailability—AAR; Call preservation—redundancy and automated failover—on call-processing failure; Station-to-station • Security—Device authentication; New model phones have an embedded X.509v3 certificate; a certificate authority proxy function (CAPF) is used to install locally significant certificate in the phones. • SIP trunk (RFC 3261) and line side (RFC 3261-based devices) • Cisco Unified SRST • Silence suppression and voice activity detection; Simplified North American Numbering Plan (NANP) and non-NANP support; T.38 fax support (H.323 and SIP); Time-of-day, day-of-week, and day-of-year routing and restrictions • Toll restriction—Dial-plan partition; Toll-fraud prevention—Prevent trunk-to-trunk transfer; Drop conference call when originator hangs up; Require forced authorization codes • Unified device and system configuration; Unified dial plan • Video codecs: H.261, H.263, H.264, and Cisco Wideband Video Codec (Cisco Unified Video Advantage) • Video Telephony (SCCP, H.323, and SIP)

1. Additional RAM may be required in Media Convergence Servers to support existing and enhanced services in Cisco Unified Communications Manager 6.0.

Selected Part Numbers and Ordering Information

Cisco Unified Communications Manager Software Installation Kits	
CM6.0-K9-SUP=	SW Upgrade CM 5.1 to 6.0 for Cisco SMARTnet
CM6.0-K9-UPG=	SW Upgrade CM 5.1 to 6.0 for SASU
CM6.0-U-K9-7815SE=	SW Upgrade CM 5.1 to CM 6.0-7815SE
CM6.0-U-K9-7815=	SW Upgrade CM 5.1 to CM 6.0-7815
CM6.0-U-K9-7825SE=	SW Upgrade CM 5.1 to CM 6.0-MMIPC bundles only
CM6.0-U-K9-7825=	SW Upgrade CM 5.1 to CM 6.0-7825
CM6.0-U-K9-7835=	SW Upgrade CM 5.1 to CM 6.0-7835
CM6.0-U-K9-7845=	SW Upgrade CM 5.1 to CM 6.0-7845
CM6.0-U-K9-DL320=	SW Upgrade CM 5.1 to CM 6.0-DL320
CM6.0-U-K9-DL380=	SW Upgrade CM 5.1 to CM 6.0-DL380 1CPU
CM6.0-U-K9-DL380D=	SW Upgrade CM 5.1 to CM 6.0-DL380 2CPU
CM6.0-U-K9-X306=	SW Upgrade CM 5.1 to CM 6.0-X306
CM6.0-U-K9-X346=	SW Upgrade CM 5.1 to CM 6.0-X346 1CPU

CM6.0-U-K9-X346D=	SW Upgrade CM 5.1 to CM 6.0-X346 2CPU
CM6.0-U-K9-X3650=	SW Upgrade CM 5.1 to CM 6.0-X3650 1CPU
CM6.0-U-K9-X3650D=	SW Upgrade CM 5.1 to CM 6.0-X3650 1CPU
Upgrade from Cisco Unified CallManager 4.1 and 4.2 to Cisco Unified Communications Manager 6.0	
CM6.0U4-K9-SUP=	SW Upgrade CM 4.1/4.2 to 6.0 for Cisco SMARTnet
CM6.0U4-K9-UPG=	SW Upgrade CM 4.1/4.2 to 6.0 for SASU or UCSS
CM6.0U4-K9-7815SE=	SW Upgrade CM 4.1/4.2 to 6.0-7815SE
CM6.0U4-K9-7825SE=	SW Upgrade CM 4.1/4.2 to 6.0-MMIPC bundles
CM6.0U4-K9-7815=	SW Upgrade CM 4.1/4.2 to 6.0-7815
CM6.0U4-K9-7825=	SW Upgrade CM 4.1/4.2 to 6.0-7825
CM6.0U4-K9-7835=	SW Upgrade CM 4.1/4.2 to 6.0-7835
CM6.0U4-K9-7845=	SW Upgrade CM 4.1/4.2 to 6.0-7845
CM6.0U4-K9-DL320=	SW Upgrade CM 4.1/4.2 to 6.0-DL320
CM6.0U4-K9-DL380=	SW Upgrade CM 4.1/4.2 to 6.0-DL380 1CPU
CM6.0U4-K9-DL380D=	SW Upgrade CM 4.1/4.2 to 6.0-DL380 2CPU
CM6.0U4-K9-X206=	SW Upgrade CM 4.1/4.2 to 6.0-X206
CM6.0U4-K9-X306=	SW Upgrade CM 4.1/4.2 to 6.0-X306
CM6.0U4-K9-X346=	SW Upgrade CM 4.1/4.2 to 6.0-X346 1CPU
CM6.0U4-K9-X346D=	SW Upgrade CM 4.1/4.2 to 6.0-X346 2CPU
CM6.0U4-K9-X3650=	SW Upgrade CM 4.1/4.2 to 6.0-X3650 1CPU

For More Information

For more information about Cisco Unified Communications Manager, visit: http://www.cisco.com/go/callmgr.

Cisco Unified Communications Manager Assistant

Cisco Unified Communications Manager Assistant provides the call-routing and call-management capabilities required in a manager or administrative assistant business environment while giving users a choice of phone devices that better fit their needs. By combining a PC-based console application with various softkeys and display panes on Cisco Unified IP Phones, it can present users job-specific tools, such as directories with Click-to-Dial and drag-and-drop functions, to more efficiently manage calls.

Cisco Unified Communications Manager Assistant is configured in either proxy-line mode or shared-line mode. In proxy-line mode, managers and assistants have different directory numbers or lines on their phones, but calls to managers are usually diverted to the assistant's line based on customizable dynamic filters. In shared-line mode, both managers and assistants share the same directory number, but assistants can handle calls without disturbing managers. Either mode can be used in conjunction with the PC-based console application or a new Extensible Markup Language (XML)-based phone service that does not require a PC.

Ideal for Companies that Need These Features

- Administrative assistants who need an efficient way to monitor and manage calls for multiple managers
- Managers who regularly have their calls answered by an assistant

For More Information

For more information about Cisco CMA, visit: http://www.cisco.com/go/ipma.

Cisco Unified Communications Manager Business Edition

Cisco Unified Communications Manager Business Edition is an easy-to-manage solution that combines voice, video, mobility, and messaging on a single server to simplify system administration and reduce hardware and operating expenses. This solution provides cost-effective deployment options for medium-sized organizations with smaller IT staffs that require all the advanced capabilities of Cisco Unified Communications Manager (formerly Cisco Unified CallManager), Cisco Unity Connection, Cisco Unified Mobility Advantage (formerly Cisco Unified Mobility Manager), and integrated management on a single server to expedite migration to unified communications.

The solution includes many new capabilities designed specifically for medium-sized organizations, including do not disturb, intercom with whisper page, audio message waiting indicators, and the Cisco Unified IP Phone 7931G. Also, medium-sized organizations can access traditional enterprise features such as speech recognition, integrated messaging, call-routing rules, and single number reach.

Cisco Unified Communications Manager Business Edition is designed for medium-sized businesses with up to 500 employees and up to 20 sites (19 remote sites). The Cisco Unified Communications Manager Business Edition integrates the benefits of voice, video, mobility, and messaging on a single

platform. Previously, organizations needed one hardware server for each application. Consolidating applications on a single server makes the Cisco Unified Communications Manager Business Edition a cost-effective solution by eliminating the need to have multiple hardware servers to run each application. It also dramatically simplifies the installation, support, and ongoing management of the system, thereby reducing the total cost of ownership (TCO). With the Cisco Unified Communications Manager Business Edition, medium-sized businesses can now more easily afford to bring enterprise-class Cisco Unified Communications features and applications to their headquarters and branch-office locations.

Key Features

The Cisco Unified Communications Manager Business Edition inherits nearly all of the core features and functions of the Cisco Unified Communications Manager and Cisco Unity Connection products. Some of the core capabilities are summarized here.

Medium-sized businesses can save money and space by reducing the number of servers.

- Call control—In addition to standard telephony features such as call coverage, call transfer, call waiting, hold, conference, park, and pickup, Cisco Unified Communications Manager delivers a powerful set of telephony features for medium-sized businesses -- for instance, intercom with whisper page, do not disturb, hold reversion, immediate divert to voicemail, and hunt groups.
- Session Initiation Protocol (SIP) support—SIP support is available in Cisco Unified Communications Manager with support of line-side devices, including IETF RFC 3261-compliant devices available from Cisco and other manufacturers.
- Cisco Unified IP Phone 7931G support—In addition to the full portfolio of Cisco Unified IP Phones, Cisco Unified IP Communicator, and Cisco Unified Personal Communicator, the Cisco Unified Communications Manager Business Edition supports the new Cisco Unified IP Phone 7931G. This phone provides functions that are commonly needed in small business environments. It provides 24 lighted line keys and 4 interactive softkeys that guide users through call features and functions. In addition, it provides hard-hold, redial, and transfer keys to facilitate simple and rapid call handling.
- Call Admission Control (CAC)—CAC helps ensure that voice quality of service (QoS) is maintained across constricted WAN links, and it automatically diverts calls to alternate public-switched-telephone-network (PSTN) routes when WAN bandwidth is not available. Now medium-sized businesses can save significant costs by using their IP WAN connections for their site-to-site calling instead of using more-expensive PSTN trunks.
- Powerful Cisco Unified Mobility capabilities—Cisco Unified Mobility (formerly Cisco Unified Mobile Connect) functions provide powerful capabilities previously available only to larger organizations. Cisco Unified Mobility provides the capability to have up to four other phones ring when a call comes into a user's IP phone. Whether users are working from home or in a hotel room, their calls can follow them anywhere. Cisco Unified Communications Manager also supports dual-mode devices, benefiting customers who have mobile employees who need to move between campus wireless and external cellular network environments.
- Voice messaging—The Cisco Unified Communications Manager Business Edition includes a powerful voice-messaging system, Cisco Unity Connection, which provides many advanced capabilities that can be customized to maximize individual and team productivity. Employees can personalize communications options and interact with the system to manage calls and messages in the way that is most comfortable and convenient for them. The flexible user interface makes messaging more efficient for intensive and occasional voicemail users alike. For example, the telephone user interface (TUI) and touchtone mappings for each user can be customized to make migration from traditional voicemail systems much easier. The new visual message locator allows users to use the display of the Cisco Unified IP Phone to view, search for, and sort voice messages. Using softkeys on the phone, users can view and play back all messages, new messages, or messages from a specific subscriber or outside caller.
- Personal Web administration: Cisco Unity Connection allows users to customize their personal settings from a Web browser using the Cisco Unity Connection Assistant. Users can quickly and easily establish or change personal settings such as their voicemail options, security codes, personal distribution lists, and message-delivery options.
- Powerful desktop voice-message access—Cisco Unity Connection offers an optional integrated messaging option, bringing voice messages to users' desktop e-mail inboxes.
- Web access to voicemail—The optional Cisco Unity Connection Inbox, a message-access console, provides a dedicated voicemail inbox on the desktop. With the Cisco Unity Connection Inbox, users can immediately visually prioritize their voice messages by username or caller identification, date, subject, or other field and, with a single click, play the message that they want to hear directly on their PC.
- Voice-activated user interface—To maximize the productivity of mobile workers, Cisco Unity Connection offers an optional natural and robust voice-activated user interface. This interface allows users to browse and manage their voice messages and to call other Cisco Unity Connection users or personal contacts with simple, natural speech commands.

Specifications

Platform	The Cisco Unified Communications Manager Business Edition software suite is supported on the Cisco MCS 7828 Unified Communications Manager Business Edition Appliance, a member of the Cisco media convergence server portfolio.
System Capacities	
Attribute	**Capacity**
Maximum total users	500
Mailboxes and voicemail ports	500 mailboxes and 16 voicemail ports
Number of remote sites	20 (centralized call processing, with Cisco Unified Survivable Remote Site Telephony [SRST])
Telephony and voicemail feature limitations	Cisco Unified Communications Manager Business Edition supports all the standard telephony features of Cisco Unified Communications Manager and voice-messaging features of Cisco Unity Connection except the following: • Call processing and voicemail redundancy • Distributed call processing—Cisco Unified Communications Manager Business Edition is supported only in the centralized call-processing model with Cisco SRST.

User and Administrator Features

For a summary of user and administrator features, please refer to the Cisco Unified Communications Manager 6.0 and Cisco Unity Connection 2.0 data sheets.

Localization

The Cisco Unified Communications Manager Business Edition supports 14 core languages for user locales, the voicemail telephone user interface, and the GUI.

In addition to the core languages, Cisco Unified Communications Manager supports an additional 13 user localizations. Refer to the data sheet for full details.

Cisco Unified Workspace Licensing Business Edition

Cisco Unified Workspace Licensing Business Edition extends the concept of workspace licensing to Cisco Unified Communications Manager Business Edition. Cisco Unified Workspace Licensing Business Edition offers a new easy and affordable way for customers to procure and deploy a broad range of Cisco unified applications and services. The Cisco Unified Communications Manager Business Edition Workspace Bundle includes all the clients, server software licenses, services, and software subscriptions that facilitate consistent deployment of multiple applications to all users in their workspace.

The following chart shows the functions available under the two licenses available for Cisco Unified Communications Manager Business Edition.

Function	What Is Included	Cisco Unified Communications Manager Business Edition Traditional User Licence	Cisco Unified Workspace Licensing—Business Edition
Presence	Cisco Unified Presence Profile	N	Y
Mobility	Cisco Unified Mobility Profile	N	Y
Soft client	Cisco Unified Personal Communicator or Cisco IP Communicator with Cisco Unified Video Advantage	N	Y
Phone license	Cisco Unified IP Phone license	N	Y (1 phone)
Messaging	Voice messaging or integrated messaging, including Automatic Speech Recognition (ASR), Text-To-Speech, and Web and e-mail access	VM	Voicemail, Instant Messaging, ASR, and TTS
Call control	Cisco Unified Communications Manager	Y	Y

Selected Part Numbers and Ordering Information

Cisco Unified Communications Manager Business Edition can be ordered in a couple of different ways, either independently (with traditional licenses) or as part of a workspace bundle (with workspace licenses).

Both Cisco Unified Communications Manager Business Edition licenses require purchasing a starter bundle. The starter bundles include all the unified communications server and client software for the applications included under the licenses, the Cisco MCS 7828 server hardware for deploying Cisco Unified Communications Manager Business Edition, and licenses for the first 50 users. To deploy Cisco Unified Presence, customers need to purchase a separate adjunct server.

Cisco Unified Workspace Licensing–Business Edition requires a prerequisite 3-year Cisco Unified Communications Software Subscription contract, which entitles customers to upgrades for all the client and server application software covered under the license. One-year agreements are available for government and education customers subject to applicable laws regarding multiyear contracts. In addition, 1-month contracts are available to enable co-termination when users are added during the course of a 3-year contract. A valid Essential Operate Services contract is required to activate the Cisco Unified Communications Software Subscription contract. Continue reading this ordering guide for details.

MCS7828I3-K9-WL	CUCMBE, 7828-I3 appliance, Workspace License 50 Users
MCS7828H3-K9-WL	CUCMBE, 7828-H3 appliance, Workspace License 50 Users

For More Information

For more information about the Cisco Unified Communications Manager Business Edition, visit: http://www.cisco.com/go/cmbe.

Cisco Unified Communications Manager Express

Cisco Unified Communications Manager Express delivers complete IP telephony and unified communications features on an all-in-one platform that facilitates voice, video, and data networking convergence.

Ideal for Companies that Need These Features

- Cisco Unified Communications Manager Express on Cisco integrated services routers—Data networking capabilities and would like to enable IP voice and unified communications on the same platform (for customers with 20 to 250 employees in their headquarters or branch office); IP voice and unified communications enabled on the same platform (for customers who have an appropriate Cisco integrated services router)
- Cisco Unified Communications Manager Express on the Cisco Unified Communications 500 Series for Small Business—Voice and basic security feature set for small business that is easy to set up and use (for customers who already have a Cisco integrated services router or a customer-premises-equipment [CPE] router for WAN connectivity); A converged voice and data solution (for customers with 5 to 50 employees per site at up to five sites networked together)

Key Features

- A cost-effective, converged data and voice solution inside Cisco integrated services routers
- Key system and small private-branch-exchange (PBX) features plus innovative convergence applications for up to 250 users
- Increased user productivity with Cisco Unified CallConnector for Microsoft Windows, a presence-based Windows application that gives users call control, location, and status of other users
- Single-number-reach function, which can forward incoming business calls to mobile or home phones based on user-specified call-handling rules
- An intuitive GUI for easy installation; adds, moves, and changes
- Internetworking with Cisco Unified Communications Manager
- Industry-leading investment protection for future growth

Specifications

Feature	Cisco Unified Communications Manager Express
Platform	Cisco 1861, 2801, 2811, 2821, 2851, 3250, 3270, 3825, and 3845 Integrated Services Routers. Cisco Unified 500 Series as part of Cisco Smart Business Communications System
Phones Supported	All Cisco Unified IP Phones 7900 Series and Cisco Unified SIP Phones 3900 Series
IOS Images	Version 3.3 supported with IOS 12.4 mainline; Version 3.4 with IOS 12.4(4)T; Version 4.0 with IOS 12.4(9)T, Version 4.1 with 12.4(15)T. Version 4.0 is the recommended release for most customers.

Selected Part Numbers and Ordering Information

Cisco Integrated Service Routers Unified Communications Bundles that include the Cisco Router, Communications Manager Express Feature License, Cisco Unity Express hardware and licensing, IP Phone licensing and Cisco Unified CallConnector for Microsoft Windows licensing.

C3845-35UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3845 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses

C3825-35UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3825 base router, 128 MB flash, 512M DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses
C2851-35UC-VSEC/K	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2851 base router, 128 MB flash, 256 MB DRAM, DSP-48, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS Advanced IP Services, 10 UCC desktop client licenses
C2821-25UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2821 base router, 128 MB flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 25 users, CUE FL for 25 users, 25 phone device licenses, Cisco IOS Advanced IP Services, 5 UCC desktop client licenses
C2811-15UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2811 base router, 128 MB flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 15 users, CUE FL for 15 users, 15 phone device licenses, Cisco IOS Advanced IP Services, 5 UCC desktop client licenses
C2801-10UC-VSEC/K9	UC plus Security with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2801 base router, 128 MB flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 10 users, CUE FL for 10 users, 10 phone device licenses, Cisco IOS Advanced IP Services, 2 UCC desktop client licenses
C3845-35UC/K9	UC with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3845 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C3825-35UC/K9	UC with Cisco Unity Express—Cisco 3800 Series Integrated Services Routers: Cisco 3825 base router, 128 MB flash, 512 MB DRAM, DSP-64, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C2851-35UC/K	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2851 base router, 128 MB flash, 256 MB DRAM, DSP-48, NME-CUE, CCME FL for 35 users, CUE FL for 35 users, 35 phone device licenses, Cisco IOS SP Services, 10 UCC desktop client licenses
C2821-25UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2821 base router, 128 MB flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 25 users, CUE FL for 25 users, 25 phone device licenses, Cisco IOS SP Services, 5 UCC desktop client licenses
C2811-15UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2811 base router, 128 MB flash, 256M DRAM, DSP-32, AIM-CUE, CCME FL for 15 users, CUE FL for 15 users, 15 phone device licenses, Cisco IOS SP Services, 5 UCC Desktop Client Licenses
C2801-10UC/K9	UC with Cisco Unity Express—Cisco 2800 Series Integrated Services Routers: Cisco 2801 base router, 128 MB Flash, 256 MB DRAM, DSP-32, AIM-CUE, CCME FL for 10 users, CUE FL for 10 users, 10 phone device licenses, Cisco IOS SP Services 2 UCC desktop client licenses
C1861-UC-2BRI-K9	UC with Cisco Unity Express—Cisco 1800 Series Integrated Services Routers: Cisco 1861, 128 MB Flash, 256 MB DRAM, DSP-32, 4 FXS, 4 FXO/2BRI, 8 PoE, AIM-CUE, CCME FL for 8 users, CUE license for 8 users, 10 phone device licenses, Cisco IOS SP Services, 2 UCC desktop client licenses
C1861-UC-4FXO-K9	UC with Cisco Unity Express—Cisco 1800 Series Integrated Services Routers: Cisco 1861, 128 MB flash, 256 MB DRAM, DSP-32, 4 FXS, 4 FXO/2BRI, 8 PoE, AIM-CUE, CCME FL for 8 users, CUE license for 8 users, 10 phone device licenses, Cisco IOS SP Services, 2 UCC desktop client licenses

Cisco Communications Manager Express Voice Bundles that include the Cisco Router with IOS Software voice features and Communications Manager Express Feature License:

CISCO3845-CCME/K9	Cisco 3845 Voice Bundle w/ IOS SP Services, PVDM2-64, FL-CCME (240 users), 64 MB Flash/256 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle w/ IOS SP Services, PVDM2-64, FL-CCME (168 users), 64 MB Flash/256 MB DRAM
CISCO2851-CCME/K9	Cisco 2851 Voice Bundle w/ IOS SP Services, PVDM2-48, FL-CCME (72/96[1] users), 64 MB Flash/256 MB DRAM
CISCO2821-CCME/K9	Cisco 2821 Voice Bundle w/ IOS SP Services, PVDM2-32, FL-CCME (48 users), 64 MB Flash/256 MB DRAM
CISCO2811-CCME/K9	Cisco 2811 Voice Bundle w/ IOS SP Services, PVDM2-16, FL-CCME (36 users), 64 MB Flash/256 MB DRAM
CISCO2801-CCME/K9	Cisco 2801 Voice Bundle w/ IOS SP Services, PVDM2-8, FL-CCME (24 users), 64 MB Flash/256 MB DRAM

1. Available with IOS Version 12.3(11)T release

Cisco Communications Manager Express Voice + Security Bundles that include the Cisco Router with an IOS Software Security feature and Communications Manager Express Feature License:

C3845-VSEC-CCME/K9	3845 VSEC Bundle w/PVDM2-64, FL-CCME-240, Adv IP Serv, 64F/256D
C3825-VSEC-CCME/K9	3825 VSEC Bundle w/PVDM2-64, FL-CCME-168, Adv IP Serv, 64F/256D
C2851-VSEC-CCME/K9	2851 VSEC Bundle w/PVDM2-48, FL-CCME-96, Adv IP Serv, 64F/256D
C2821-VSEC-CCME/K9	2821 VSEC Bundle w/PVDM2-32, FL-CCME-48, Adv IP Serv, 64F/256D
C2811-VSEC-CCME/K9	2811 VSEC Bundle w/PVDM2-16, FL-CCME-240, Adv IP Serv, 64F/256D
C2801-VSEC-CCME/K9	2801 VSEC Bundle w/PVDM2-8, FL-CCME-24, Adv IP Serv, 64F/256D

For More Information

For more information about the Cisco Unified Communications Manager Express, visit: http://www.cisco.com/go/ccme.

Cisco Unified Survivable Remote Site Telephony

Cisco Unified Survivable Remote Site Telephony (SRST) provides critical backup telephony functions at remote branch offices when connectivity to the centrally located Cisco Unified Communications Manager fails (that is, the WAN link is interrupted). During WAN outage the Cisco Unified SRST-enabled router provides robust telephony services (including off-net calls to 911). This product is ideal for enterprise organizations looking to cost-effectively deploy IP telephony in their branch-office locations. Cisco Unified SRST is available on the Cisco 1861 Integrated Services Router, the Cisco 2800 and 3800 Series Integrated Services Routers, the Cisco 3700 Series Multiservice Access Routers, and the Cisco Catalyst 6500 Series Switches using the Cisco Communications Media Module (CMM).

Key Features

- Business resiliency is achieved through redundant, localized call processing with intelligent and automatic failover configuration -- no manual IT or telecom intervention is required.
- This single appliance device is ideal for routing, security, public switched telephone network (PSTN) gateway services, and call control during WAN outages.
- Cisco Unified SRST supports all Cisco Unified IP Phones, supporting 8 to 720 phones per platform.
- All common PSTN interfaces and protocols are supported, in addition to support for both internal and external calling during failover with calls maintained during failover and fall-back.
- Voicemail is supported during WAN outages with local Cisco Unity Express or centralized Cisco Unity unified messaging through the PSTN.

Selected Part Numbers and Ordering Information

SRST Platform Density and Feature License			
Part Number	**Part Number (spare)**	**Platform**	**Number of Phones Supported**
FL-SRST-SMALL	FL-SRST-SMALL=	Cisco 2801	Up to 24 phones
FL-SRST-36	FL-SRST-36=	Cisco 2811	Up to 36 phones
FL-SRST-MEDIUM	FL-SRST-MEDIUM=	Cisco 2821	Up to 48 phones
FL-SRST-96	FL-SRST-96=	Cisco 2851	Up to 96 phones
FL-SRST-144	FL-SRST-144=	Cisco 3725	Up to 144 phones
FL-SRST-240	FL-SRST-240=	Cisco 3745	Up to 240 phones
FL-SRST-336	FL-SRST-336=	Cisco 3825	Up to 336 phones
FL-SRST-720	FL-SRST-720=	Cisco 3845	Up to 720 phones
FL-SRST-480	FL-SRST-480=	Cisco Catalyst 6500 Communication Media Module	Up to 480 phones
SRST Bundles			
C1861-SRST-B/K9	Feature License for up to 8 phones: 4 FXS ports, 2 BRI ports, 8 Power over Ethernet ports, 32 G.711 channels of DSPs included		
C1861-SRST-F/K9	Feature License for up to 8 phones: 4 FXS ports, 4 FXO ports, 8 Power over Ethernet ports, 32 G.711 channels of DSPs included		
CISCO2801-SRST/K9	Feature License FL-SRST-SMALL: 8 G.711 channels of DSPs included		
CISCO2811-SRST/K9	Feature License FL-SRST-36: 16 G.711 channels of DSPs included		
CISCO2821-SRST/K9	Feature License FL-SRST-MEDIUM: 32 G.711 channels of DSPs included		
CISCO2851-SRST/K9	Feature License FL-SRST-96: 48 G.711 channels of DSPs included		
CISCO3825-SRST/K9	Feature License FL-SRST-168: 64 G.711 channels of DSPs included		
CISCO3845-SRST/K9	Feature License FL-SRST-240: 64 G.711 channels of DSPs included		

For More Information

For more information about Cisco Unified SRST, visit: http://www.cisco.com/go/srst.

Cisco Unified IP Phones 7900 Series



Organizations can take full advantage of converged voice and data networks while retaining the convenience and user friendliness they expect from a business phone. Cisco Unified IP Phones can help improve productivity by meeting the needs of different users throughout organizations. The new suite of evolutionary Cisco Unified IP Phones, Cisco Unified IP Phone 7975G, 7965G, 7945G, 7962G, and 7942G models, have advanced media endpoints that create an even better end-user experience. Besides the wideband audio, Cisco Unified IP Phones offer a host of other features. The Cisco Unified IP Phone 7985G is a personal desktop video phone with camera and video screen in one unit. The Cisco Unified

IP Phone 7971G-GE, 7961G-GE, and 7941G-GE models offer a Gigabit Ethernet port for integration to a PC or desktop server. The Cisco Unified IP Phone 7970G and 7971G-GE models include a color, high-resolution backlit touch-screen display. The Cisco Unified IP Phone 7960G manager set and the Cisco Unified IP Phone 7961G enhanced manager set address the communication needs for a high or busy amount of phone traffic. Finally, the Cisco Unified IP Phone 7940G business set and the Cisco Unified IP Phone 7941G enhanced business set address the communication needs for medium to high telephone traffic.

The Cisco Unified IP Phone 7911G "basic sets" address the communication needs for low to medium telephone traffic. The Cisco Unified IP Phone Expansion Module 7914, 7915, and 7916 modules provide additional buttons and LCD displays to the Cisco Unified IP Phone 7960 and 7970 models, increasing the total number of buttons to 20 with one module, or 34 with two modules. The high-quality hands-free Cisco Unified IP Conference Station 7936 is designed for use on desktops and offices and in small to medium-sized conference rooms. The Cisco Unified Wireless IP Phone 7920 Multi-Charger and the Cisco Unified Wireless IP Phone 7921G are easy-to-use IEEE 802.11b wireless IP phones that provide comprehensive voice communications. The Cisco Unified IP Conference Station 7937G is a full-featured, IP-based, wideband-capable, full-duplex, hands-free conference station for use on desktops and offices and in conference rooms. This conference station also includes a back-lit pixel display with adjustable font size; it can be powered with Power over Ethernet (PoE) and has optional external microphone capabilities.

Key Features

- The IP phones have color LCD displays, including dynamic softkeys for call features and functions.
- The phones support information services, including Extensible Markup Language (XML) capabilities to extend IP phone systems.
- Users can customize the XML-based services to access a variety of information, such as stock quotes, employee directories, and Web-based content.
- The phones offer automatic phone discovery, VLAN configuration, and registration.
- Quality of service (QoS) is provided through support of 802.1Q/p, in addition to configurable Differentiated Services (DiffServ) and type of service (ToS).
- The phones offer Voice Activity Detection (VAD), silence suppression, comfort-noise generation, and error concealment.
- The phones provide G.711a, G.711u, and G.729ab audio-compression codecs. Software upgrade support is through a Trivial File Transfer Protocol (TFTP) server.
- An integrated Ethernet switch supports Ethernet connectivity for a downstream PC.
- Integrated inline power support allows the phone to receive power over the LAN.
- The phones have a hearing-aid-compatible handset.

Organizations can enhance telephone user experience with high-fidelity wideband audio and improved navigation options. The Cisco Unified IP Phone 7975G extends the functions of the existing Cisco Unified IP Phone 7940G, 7960G, and 7970G-GE models with the following new features:

- High-fidelity wideband audio for vibrant, lifelike conversations; Internet Low Bandwidth Codec (iLBC) support for use in lossy networks
- Large backlit touch-screen color or monochrome display for easy use of Cisco Unified Communications and third-party telephone applications
- Improved navigation cluster for easier navigation and feature and function selection
- Gigabit Ethernet connectivity

Specifications

Feature	SIP 3911	7906G	7911G	7931G	Conference Station 7936G
Integral Switch	No	No	10/100	10/100	No
Display	144x32 monochrome	192x64 monochrome	192x64 monochrome	192x64 graphical, monochrome, backlit	Pixel-based
Programmable (line) keys	0	0	0	24	0
Programmable (soft) keys	0	4	4	4	3
Speakerphone	Half-duplex	Yes (listen only)	Yes (listen only)	Yes	Yes
Headset port	No	No	No	Yes	No
Wideband audio	No	Limited	Limited	Limited	No
iLBC support	No	Yes	Yes	Yes	No
"5-way" navigation cluster	No	No	No	No	No

XML application	No	Yes	Yes	Yes	No	
Extension mobility	No	Yes	Yes	Yes	No	
Video Advantage Camera support	No	No	Yes	Yes	No	
Signaling protocol	SIP	SCCP/SIP	SCCP/SIP	SCCP/SIP	SCCP	
Feature	**Conference Station 7937G**	**7940G**	**7941G**	**7942G**	**7945G**	**7960G**
Integral Switch	No	10/100	10/100	10/100	10/100/1000	10/100
Display	Pixel-based	Monochrome 5"	4-bit grayscale, 5"	4-bit grayscale, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Mono-chrome, 5"
Programmable (line) keys	0	0	2-lighted	2-lighted	2-lighted	0
Programmable (soft) keys	4	4	4	4	4	4
Speakerphone	Yes	Yes	Yes	Yes	Yes	Yes
Headset port	No	Yes	Yes, wideband support	Yes, wideband support	Yes, wideband support	Yes
Wideband audio	Yes	No	Limited	Yes	Yes	No
iLBC support	No	No	Yes	Yes	Yes	No
"5-way" navigation cluster	No	No	No	No	Yes	No
XML application	Yes	Yes	Yes	Yes	Yes	Yes
Extension mobility	Yes	Yes	Yes	Yes	Yes	Yes
Video Advantage Camera support	No	Yes	Yes	Yes	Yes	Yes
Signaling protocol	SCCP	SCCP	SCCP/SIP	SCCP/SIP	SCCP/SIP	SCCP
Feature	**7961G**	**7962G**	**7965G**	**7975G**	**7985G**	**7921G**
Integral Switch	10/100	10/100	10/100/1000	10/100/1000	10/100	N/A
Display	4-bit grayscale, 5"	4-bit grayscale, 5"	Digital, 16-bit graphical backlit TFT Color, 5"	Digital, 16-bit graphical backlit TFT Color, 5.6"	8.4" color for 2-way video	Digital, 16-bit graphical backlit TFT Color, 2"
Programmable (line) keys	6-lighted	6-lighted	6-lighted	8-lighted	1	N/A
Programmable (soft) keys	4	4	4	5	5	2
Speakerphone	Yes	Yes	Yes	Yes	Yes	Yes
Headset port	Yes, wideband support	Yes, wideband support	Yes, wideband support	Yes, wideband support	Yes	Yes
Wideband audio	Limited	Yes	Yes	Yes	No	Yes
iLBC support	No	Yes	Yes	Yes	No	Yes
"5-way" navigation cluster	No	No	Yes	Yes	Yes	Yes
XML application	Yes	Yes	Yes	Yes	Yes	Yes
Extension mobility	Yes	Yes	Yes	Yes	No	Yes
Video Advantage Camera support	Yes	Yes	Yes	Yes	N/A	No
Signaling protocol	SCCP/SIP	SCCP/SIP	SCCP/SIP	SCCP/SIP	SCCP	SCCP

Selected Part Numbers and Ordering Information

CP-7985-NTSC	Cisco Unified IP Phone 7985
CP-7971G	Cisco Unified IP Phone 7975G
CP-7965G	Cisco Unified IP Phone 7965G
CP-7962G	Cisco Unified IP Phone 7962G
CP-7961G	Cisco Unified IP Phone 7961G
CP-7960G	Cisco Unified IP Phone 7960G
CP-7945G	Cisco Unified IP Phone 7945G
CP-7942G	Cisco Unified IP Phone 7942G
CP-7941G	Cisco Unified IP Phone 7941G
CP-7940G	Cisco Unified IP Phone 7940G
CP-7921G	Cisco Unified IP Phone7921G
CP-7931G	Cisco Unified IP Phone 7931G
CP-7911G	Cisco Unified IP Phone 7911G
CP-7906G	Cisco Unified IP Phone 7906G

CP-7937	Cisco Unified IP Conferencing Station 7937G
CP-7936G	Cisco Unified IP Conferencing Station 7936G
CP-3911	Cisco Unified SIP Phone 3911

For More Information

For more information about the Cisco Unified IP Phone portfolio, visit:
http://www.cisco.com/en/US/products/hw/phones/ps379/.

Cisco Unified Video Advantage

Cisco Unified Video Advantage brings video telephony functions to the Cisco Unified IP Phones 7900 Series and the Cisco IP Communicator softphone application. This video telephony solution consists of Cisco Unified Video Advantage software, Cisco VT Camera II, and a video telephony universal-serial-bus (USB) camera. Users make calls from their Cisco Unified IP Phones using the familiar phone interface, and calls are displayed with video on their PCs with no need to push a button or click a mouse. When registered to Cisco Unified Communications Manager, the Cisco Unified Video Advantage-enabled phone has the features and functions of a full-featured IP videophone. System administrators can provision a Cisco Unified IP Phone with Cisco Unified Video Advantage just as they would any other Cisco Unified IP Phone, greatly simplifying deployment and management.

Ideal for Companies that Need These Features

- Desktop video calling
- High-quality video with rich telephony features
- Transparent integration with desktop IP phone or Cisco IP Communicator for familiar phone interface

Key Features

- Consistent voice and video user experience: Cisco Unified Video Advantage offers easy, low-cost, high-quality video calling. Familiar call features such as call forward, transfer, conference, hold, and mute are initiated through the phone, and available video is viewed through the PC.
- Easy to manage: Unified administration is possible with Cisco Unified IP Phones and automatic software upgrades.

Selected Part Numbers and Ordering Information

CUVA-V2=	Cisco Unified Video Advantage with VT Camera II
CUVA-V2-24BUN=	Cisco Unified Video Advantage and VT Camera II 24-Unit Pack
CUVA-SW-2.X	Cisco Unified Video Advantage 2.0 Software License
CUVA-SW-LIC	Cisco Unified Video Advantage User License

For More Information

For more information about Cisco Unified Video Advantage, visit:
http://www.cisco.com/en/US/products/sw/voicesw/ps5662/.

Cisco Emergency Responder

Cisco Emergency Responder enhances emergency calling from Cisco Unified Communications Manager. It helps ensure that Cisco Unified Communications Manager sends emergency calls to the appropriate Public Safety Answering Point (PSAP) and then helps the PSAP identify the caller's location and, if necessary, return the call.

Key Features

- Cisco Emergency Responder automatically tracks IP phone locations by their IP address.
- The solution can detect changes in phone locations within minutes. Analog phones connected to foreign-exchange-station (FXS) ports are manually configured.
- Cisco Emergency Responder provides emergency call-routing instructions to Cisco Unified Communications Manager.
- The solution identifies the caller's location to local exchange carriers (LECs) and PSAPs, replacing the calling-party number associated with an emergency call with one that corresponds to the caller's location.
- The solution eliminates administration for IP phone relocation.

- The emergency responder supports Emergency Callback; emergency location identification numbers (ELINs) are configured for direct inward dialing (DID) and can be used by PSAPs to return emergency calls, if necessary; these calls can be returned directly to phones with non-DID line numbers.
- The solution alerts customer security personnel to emergency calls in progress.
- Cisco Emergency Responder logs emergency calls and location record changes.

Specifications

Feature	Cisco Emergency Responder			
Supported Platform	Cisco 7800 Series Media Convergence Servers			
Product Compatibility	Cisco Unified IP Phones 7902G, 7905G, 7910G, 7910G+SW, 7911G, 7912G, 7940G, 7941G, 7941G-GE, 7942G, 7945G, 7960G, 7961G, 7961G-GE, 7962G, 7965G, 7970G, 7971G-GE, 7975G, 7985G; Cisco Unified IP Phone Wireless 7920, 7921 (IP-subnet-based tracking only); Cisco Unified IP Conference Stations 7935, 7936; Cisco Unified SIP Phone 3911, Cisco Unified Personal Communicator; Cisco IP Communicator; Cisco IP Softphone (does not support CDP-based tracking); Cisco ATA 180 Series analog telephone adaptors (manual configuration only); Cisco VG 200 Series analog phone gateways (manual configuration only); Cisco Catalyst 2900 XL, 2940, 2950, 2960, 2970, 3500XL, 3550, 3560, 3570, 4000, 4500, 4900, 5000, 5500, 6000, and 6500 Series LAN switches; Cisco Ethernet Switching Network Modules in Cisco 3700 Series Multiservice Access Routers, 2800 and 3800 Series Integrated Services Routers			
Software Compatibility	Cisco Unified Communications Manager Cisco Unified Operations Manager			
System Capacity	**MCS 7816**	**MCS 7825**	**MCS 7835**	**MCS 7845**
Automatically Tracked Phones	6000	12,000	20,000	30,000
Manually Configured Phones	1000	2500	5000	10,000
Roaming Phones (per Cisco Emergency Responder Cluster)	600	1200	2000	3000
Switches	200	500	1000	2000
Switch Ports	12,000	30,000	60,000	120,000

For More Information

For more information about the Cisco Emergency Responder, visit: http://www.cisco.com/go/cer.

Cisco IP Communicator

Cisco IP Communicator is a software-based application that gives computers the capabilities and features of Cisco Unified IP Phones, providing high-quality voice calls and connection to company services for employees from on the road, in the office, or wherever they may have access to the corporate network. When used remotely, users have access to the same familiar phone services they have in the office. When registered to the Cisco Unified Communications Manager call-processing system, Cisco IP Communicator has the features and functions of a full-featured Cisco Unified IP Phone, including the ability to transfer calls, forward calls, and add additional participants to an existing conference call.

Ideal for Companies that Need These Features

- A softphone that provides high-quality voice calls and extensive telephony features
- A supplemental telephone that provides access to phone extensions and services outside the office

Key Features

- Works with Cisco Unified Video Advantage: Cisco IP Communicator brings video telephony to the telecommuter's and mobile worker's communication experience. Available video is automatically displayed.
- Easy to use: The Cisco IP Communicator offers feature parity with Cisco advanced IP phones, and IP phone services support (Extensible Markup Language [XML]) delivers company-specific applications to the desktop. The application provides autodetection of Cisco VPN Clients.
- Offers premium voice quality: Cisco IP Communicator has an Audio Tuning wizard for setting audio levels properly, advanced-jitter-buffer and packet-loss-concealment algorithms, and echo suppression and noise cancellation.
- Easy to manage: Administration is unified with Cisco Unified IP Phones and automatic software upgrades; system administrators can provision Cisco IP Communicator as they would any other Cisco Unified IP Phone.

Selected Part Numbers and Ordering Information

SW-IPCOMM-E1	Cisco IP Communicator Software
SW-CCM-UL-IPCOMM-E	Station User License for Cisco Unified Communications Manager

For More Information

For more information about Cisco IP Communicator, visit:
http://www.cisco.com/en/products/sw/voicesw/ps5475/index.html.

Cisco Unified Application Environment

Cisco Unified Application Environment offers an increasingly rich portfolio of ready-to-use packaged applications that deliver immediate out-of-box value and custom development tools that allow clients to transform their business by integrating unified communications into other business applications as well as build their own custom applications.

Key Features

- A rich portfolio of packaged applications is available today, with more being added each month. These applications span a wide variety of markets; some are designed for specific industries such as retail and healthcare, whereas others are applicable to all industries.
- This visual development environment allows Web and enterprise developers who lack telephony skills to easily and rapidly develop feature-rich applications.
- These automated test tools perform functional, load, system, and regression tests to reduce test cycles and increase the success rate of project completion.
- This set of application lifecycle management tools standardizes, centralizes, and automates management of all unified communications applications.
- A standard applications container facilitates development, quality assurance, and operations to collaboratively manage scalability, performance, and reliability of all unified communications applications.
- The solution summarizes implementation differences across products and versions to minimize interoperability challenges, so customers can upgrade their unified communications infrastructure without breaking their applications.
- Cisco Unified Application Environment offers increased support for integrated development environments and scripting languages, including Python, Ruby, C#, Java, JavaScript, Eclipse, and Microsoft Visual Studio.

Specifications

Components	Cisco Unified Application Environment
Cisco Unified Application Designer	The Cisco Unified Application Designer is a visual integrated development environment (IDE). Without learning the complex details of telephony protocols, developers with little or no IP Communications development expertise can use the Cisco Unified Application Designer to easily and rapidly develop rich applications that converge voice and video with enterprise applications and data.
Cisco Unified Application Server	The Cisco Unified Application Server is an application server for converged voice, video and data applications. It abstracts the complexity of telephony protocols, protects the reliability of the IP PBX from the applications, and provides a standard way to manage applications.
Cisco Unified Media Engine	The Cisco Unified Media Engine is a software-only media server. It provides ready-to-use and sophisticated media processing capabilities for all applications built using the Cisco Unified Application Designer.

Configuration and Ordering Information

Configuration and ordering of Cisco Unified Application Environment products can be a little tricky due to the arbitrary and highly variable nature of the application developed. Please consult your Cisco account team or channel partner if you have any configuration, ordering and pricing questions.

For More Information

For more information about Cisco Unified Application Environment, visit:
http://www.cisco.com/en/US/netsol/ns738/networking_solutions_package.html.

Cisco Unified MeetingPlace Conferencing

Cisco Unified MeetingPlace conferencing, a part of the Cisco Unified Communications family of products, is an enterprise-class rich-media conferencing solution that makes remote meetings as natural and effective as face-to-face meetings. The solution integrates voice, video, and Web collaboration with industry-leading setup and control capabilities to meet the needs of organizations looking for a single solution and user environment for all their conferencing needs. The solution is deployed on-network, behind the firewall, and integrated directly into an organization's private voice and data networks and enterprise applications, to provide significant cost savings, security, and a superior user experience. As a component of the Cisco Unified Communications System, Cisco Unified MeetingPlace conferencing delivers productivity that goes beyond traditional collaboration solutions by enabling rich-media collaboration to be incorporated into a broad range of communication scenarios.

Key Features

- Cost savings—Cisco Unified MeetingPlace Express is deployed in-house on an organization's converged IP network, a scenario that can reduce costs by virtually eliminating conferencing telephony and service fees paid to service providers.
- Tightly integrated rich-media conference setup—Cisco Unified MeetingPlace conferencing supports multiple interfaces for initiating impromptu conferences or scheduling future rich-media conferences. In a single step, meeting organizers can schedule or initiate immediate voice, video, and Web resources through a Web interface, touch-tone and Cisco Unified IP Phone, and Microsoft Outlook or IBM Lotus Notes calendar.
- Easy attendance of rich-media conferences—Attending a rich-media conference is as simple as a single mouse click. Cisco Unified MeetingPlace conferencing simultaneously launches the Web conference and dials out to the user's voice or video endpoint (either a room-based video system or desktop endpoint). Participants can also connect to the voice and video portions of the conference by directly dialing in from any video endpoint or telephone.
- Advanced rich-media conference capabilities and control:
  - Cisco Unified MeetingPlace conferencing tightly integrates voice, video, and Web conferencing capabilities for highly engaging and productive virtual meetings and interactions. With feature-rich voice, video, and Web conferencing capabilities, support for presentation of rich content, and preconfigured meeting application templates, Cisco Unified MeetingPlace conferencing gives organizations a single conferencing solution that meets a wide range of conferencing needs, including collaborative meetings, presentations, training, and Web seminars.
  - Cisco Unified MeetingPlace conferencing provides industry-leading in-meeting controls within the Web conference. Without disrupting a meeting, users know who is attending, how users are attending (voice, video, or web), who is speaking, and who is sharing.
  - With carrier-grade hardware and advanced system software, the Cisco Unified MeetingPlace solution delivers the scalability, reliability, simplified administration, security, and cost-effectiveness that IT organizations require.
  - The solution offers on-premises voice conferencing for WebEx. It provides the option to integrate Cisco Unified MeetingPlace voice conferencing with WebEx Meeting Center and WebEx Sales Center Web conferencing.
- Security:
  - The solution offers a dedicated on-network system; each customer is provided with a dedicated Cisco Unified MeetingPlace solution integrated with the private network.
  - The solution offers Internet lockout controls; meetings can be set up as internal-only meetings and held entirely behind the corporate firewall or as external meetings that are accessible to Internet and internal participants. Administrators and meeting organizers have complete control.
  - The solution offers access authentication, encryption, and in-session meeting controls.

For More Information

For more information about Cisco Unified MeetingPlace conferencing, visit:
http://www.cisco.com/go/meetingplace.

Cisco Unified MeetingPlace Express

Cisco Unified MeetingPlace Express, part of the Cisco Unified Communications family of products, is an integrated voice, Web, and video conferencing solution that helps midsize organizations realize the cost savings and productivity benefits of deploying conferencing over internal networks. Cisco Unified MeetingPlace Express provides simple, powerful conferencing functions that are easy to deploy and manage. As a component of the Cisco Unified Communications System, Cisco Unified MeetingPlace Express delivers productivity that goes beyond traditional conferencing solutions by enabling rich-media conferencing used in a broad range of communication scenarios.

Key Features

- Cost savings and security—Cisco Unified MeetingPlace Express is deployed in-house on an organization's converged IP network, a scenario that can reduce costs by virtually eliminating conferencing telephony and service fees paid to service providers.
- Easy deployment and management—Cisco Unified MeetingPlace Express is a software solution installed on a single server that supports industry-standard protocols (H.323 and SIP), to help ensure connectivity with a range of telephony systems, including Cisco Unified Communications Manager and Cisco Unified Communications Manager Express.
- Simple conference setup and attendance—Cisco Unified MeetingPlace Express includes Microsoft Outlook, Web, Cisco Unified IP Phone, and touchtone phone interfaces for setting up and attending meetings. In a single step, meeting organizers can initiate an immediate (reservationless) voice, Web, and video conference from any of these interfaces.
- Advanced voice, web, and video conferencing—Cisco Unified MeetingPlace Express tightly integrates voice, Web, and video conferencing capabilities, making it well-suited for interactive meetings and presentations. Meeting attendees experience high-quality voice conferencing, and video participants see the person who is speaking or the person who last spoke.
- Cisco Unified MeetingPlace Express provides innovative meeting-management functions that facilitate more productive meetings. From the Web interface, users can mute and unmute themselves, see who is in the meeting and how they are participating (voice, video, or Web), see who is speaking, and see who is sharing content.
- Cisco Unified Personal Communicator users can share content through a simple screen-sharing interface served by Cisco Unified MeetingPlace Express. In addition to adding impromptu Web conferencing support, Cisco Unified Personal Communicator environments can add multiparty voice and video capabilities with Cisco Unified MeetingPlace Express VT.
- Security—Security features include Secure Sockets Layer (SSL) encryption; behind-the-firewall deployment; and multiple meeting security options, including meeting access authentication and in-meeting controls such as "lock-meeting" and "remove-participants" functions. The solution offers Internet lockout controls; meetings can be set up as internal-only meetings and held entirely behind the corporate firewall or as external meetings that are accessible to Internet and internal participants. Administrators and meeting organizers have complete control.

Specifications

Feature	Cisco Unified MeetingPlace Express
Platform	Cisco Media Convergence Servers • Voice, web, and video conferencing media convergence server part numbers—MCS-7825-H3-RC1, MCS-7825-I3-RC1, MCS-7825-H2-RC1, MCS-7825-I2-RC1, MCS-7825-H1-RC1, MCS-7825-I1-RC1, MCS-7835-H2-RC1, MCS-7835-I2-RC1, MCS-7835-H1-RC1, MCS-7835-I1-RC1, MCS-7845-H2-RC1, MCS-7845-I2-RC1, MCS-7845-H1-RC1, and MCS-7845-I1-RC1 • Media-convergence-server part numbers for voice conferencing with lite meeting room only—MCS-7825H-3.0-IPC1, MCS-7825I-3.0-IPC1, MCS-7835H-3.0-IPC1, MCS-7835I-3.0-IPC1, and MCS-7845H-3.0-IPC1 (supports web conferencing) Plus exact equivalent third-party servers (for information, visit http://www.cisco.com/go/swonly; DVD drive required)
Capacity	Cisco Unified MeetingPlace Express can support a variety of combinations of voice, web, and video conferencing capacity, as well as varying amounts of recording capacity. The maximum meeting size is 200 concurrent users of voice conferencing, 200 concurrent users of web conferencing, and 200 concurrent users of video conferencing.
Call Control System Compatibility	• Cisco Unified Communications Manager Version 3.3 or later (video is supported with version 4.1 or later, 5.1 or later, and 6.0 or later) • Cisco Unified Communications Manager Express 3.3 or later (does not support video in meetings) • Standards-based H.323 * or SIP ** call-control systems

Client Compatibility	Microsoft Windows • Operating system—Windows 2000 Pro (SP2 or later), Windows 2000 Server Edition (SP2 or later), Windows 2000 Advanced Server (SP2 or later), Windows XP (SP1 or later), or Windows Vista (Business or Enterprise) • Browser—Internet Explorer 5.5 or later; Netscape 7.1 or later; Mozilla 1.6 or later; or Firefox 1.0.3 or later • Adobe Flash Player—8 or later Apple Macintosh • Operating system—Mac OS 9.2* or Mac OS 10.2 or later • Browser—Safari 1.1 or later; Netscape 7.1 or later; Mozilla 1.2.1* or 1.6 or later; or Firefox 1.0.3 or later • Adobe Flash Player—8 or later Linux** • Operating system—Red Hat 9 or Red Hat Enterprise Linux 3 or later • Browser—Netscape 7.1 or later; Mozilla 1.4 or 1.6 or later; or Firefox 1.0.3 or later • Adobe Flash Player—8 or later Sun Solaris** • Operating system—Solaris 9 or Solaris 10 • Browser—Netscape 7.1; Mozilla 1.4 or 1.7 or later; or Firefox 1.0.3 or later • Adobe Flash Player—8 or later
IP Phone Application Compatibility	Cisco Unified IP Phone 7940 Series, Cisco Unified IP Phone 7960 Series, Cisco Unified IP Phone 7970 Series, Cisco IP Communicator

For More Information

For more information about Cisco Unified MeetingPlace Express, visit:
http://www.cisco.com/go/meetingplaceexpress.

Cisco Unified Mobile Communicator

As an integral part of the Cisco Unified Communications family of products, Cisco Unified Mobile Communicator is an easy-to-use software application for mobile handsets that facilitates more effective communications for mobile employees. By extending enterprise communications applications and services to mobile phones and smartphones, Cisco Unified Mobile Communicator streamlines the communication experience, facilitating real-time collaboration across the enterprise. With Cisco Unified Mobile Communicator, you can place and receive calls, access company directory contacts, check presence information, and review voice-mail messages, as well as receive Cisco Unified MeetingPlace notifications and other vital information, all from a single, intuitive interface connected to a Cisco Unified Communications System.

Ideal for Companies that Need These Features

- A unified communications client for mobile phones that extends productivity benefits of directory access, presence, visual voice-mail, integrated call history, and conferencing notification outside the office
- A rich, consistent unified communications experience in the office and on the go

Key Features

- Unified contact list—Search your corporate directory (Microsoft Active Directory) and personal contacts (Microsoft Outlook) from one, easy-to-use interface to locate contacts quickly. Simply select a name to call.
- Presence—Find a contact and see whether the person is available to talk -- before you place the call. View a person's availability status from the directory on your mobile handset.
- Select to call—Dial from the directory by simply selecting a name.
- Secure text messaging—Send and receive text messages from colleagues when they are unavailable to talk. A visual list on your mobile handset shows at a glance who is trying to reach you. Incoming messages are conveniently grouped by person, showing the sender, the priority, and a brief subject line, if available.
- Visual voicemail—Access Cisco Unity voicemail messages to select, view, play back, and delete messages in any order, all from your mobile handset.
- Conferencing—Receive notifications of conference calls on your mobile phone from the Cisco Unified MeetingPlace solution.
- Call logs—View a list of recent calls on your mobile phone and learn what calls you missed, placed, and received from your mobile phone or your Cisco Unified IP phone.
- Security—Cisco Unified Mobile Communicator is deployed securely behind the enterprise firewall. It uses industry-standard Secure Sockets Layer (SSL) and Transport Layer Security (TLS) encryption to protect transmission of data between handsets and your data center. End users authenticate with existing Lightweight Directory Access Protocol (LDAP) directories. If a mobile handset is lost or stolen, IT staff can remotely deactivate the device and erase sensitive company information.

- Management— Simple, web-based management allows IT staff to manage user activation, configuration, and administration; set system privileges and security; report statistics; and manage devices. The end-user portal allows provisioning, directory management, and configuration of user preferences.

Selected Part Numbers and Ordering Information

CUMC-K9-V3	Cisco Unified Mobile Communicator

For More Information

For more information about Cisco Unified Mobile Communicator, visit:
http://www.cisco.com/en/US/products/ps7271/index.html.

Cisco Unified Personal Communicator

Cisco Unified Personal Communicator is a software-based application that transparently integrates a wide variety of communication applications and services. It lets users access their most frequently used communication tools all from a single, rich-media interface connected to Cisco Unified Communications Manager 6.0. With Cisco Unified Personal Communicator, users can communicate and collaborate in real time whether they are in the office, at home, or on the road. It is easy to use and features an intuitive user interface that is supported on both the Windows PC and Macintosh (Mac).

Ideal for Companies that Need These Features

- A unified client that transparently integrates presence, voice, video, instant messaging, and Web conferencing
- Powerful communications capabilities integrated with the personal computer, including integrated contact lists, Click-to-Call, voicemail playback, inbound call notification, and media escalation
- A supplemental telephone that provides access to phone extensions and services outside the office

Key Features

- Presence—View real-time availability and preferred communication methods of other users.
- Click-to-Call—Dial from the contact list, using either the integrated softphone or an associated Cisco Unified IP Phone.
- Conferencing—Launch voice, video, or Web conferencing sessions at a moment's notice to exchange ideas "face-to-face" or share content, such as a presentation.
- Voice messages—Access Cisco Unity Connection voicemail messages; view, playback, sort, and delete messages, all from one client application.
- Unified contact list—Search your corporate directory to locate contacts quickly, and then simply click to call.

Selected Part Numbers and Ordering Information

UPC-CLIENT-K9-PC	Cisco Unified Personal Communicator
UPC-CAMERAS-24=	Cisco VT Camera II 24 Unit Bundle

For More Information

For more information about the Cisco Unified Personal Communicator, visit:
http://www.cisco.com/go/unifiedpersonalcom.

Cisco Unified Videoconferencing 3500 Series Products

Cisco Unified Videoconferencing is a video infrastructure solution for Cisco Unified Communications. The solution allows participants to collaborate effectively and share information in real time to help organizations eliminate the barriers of time, distance, and resources and permit people around the world to function as if they were in the same room. The solution supports multiple protocols to facilitate connectivity with a wide variety of video-enabled devices from desktop video telephony to standard-definition and high-definition room systems and Cisco TelePresence systems. Cisco Unified Videoconferencing solutions are integrated into Cisco Unified Communications and rich-media conferencing solutions to deliver productivity that goes beyond traditional video conferencing by integrating video into a broad range of communication scenarios.

Key Features

- Multiprotocol support–broad video interoperability—The Cisco Unified Videoconferencing 3500 Series supports multiple standards, codecs, and protocols, including H.323, Session Initiation Protocol (SIP), Skinny Client Control Protocol (SCCP), and H.320, to help ensure broad connectivity with traditional and emerging video environments, including traditional room and desktop video conferencing systems, newer high-definition (HD) video solutions, Cisco TelePresence solutions, and Cisco Unified Communications Manager video telephony environments.
- High-performance, flexible solution—The Cisco Unified Videoconferencing 3500 Series offers an optimized experience for everyone. Its powerful hardware design has flexible processing capabilities to provide an exceptional user experience that is also scalable and cost-effective.
- High-definition (HD) conferencing—The Cisco Unified Videoconferencing 3545 System fully supports standards-based HD video conferencing endpoints, delivering exceptional quality to the video conferencing experience. Connections to HD-capable endpoints are fully processed.
- High-quality standard-definition video conferencing—Because every port has dedicated audio and video encoders, standard-definition (SD) endpoints can connect to any conference, at any supported bit rate, with any supported audio or video codec, at any supported SD resolution, and with any screen layout.
- High-capacity standard-definition video conferencing—The Cisco Unified Videoconferencing 3545 System has the flexibility to distribute processing resources that are not being fully used by personal or desktop video conferencing endpoints that do not require high connection rates.
- Integrated unified communications and rich-media conferencing solution—The Cisco Unified Videoconferencing 3545 System is integrated with the Cisco Unified Communications System to enable multiple video environments and usage scenarios, including impromptu conferences that can be initiated from desktop communications clients and phones; collaborative conferences that integrate voice, video, and Web conferencing; and traditional multilocation video conferencing.
- The Cisco Unified Videoconferencing ISDN Gateway Modules allow ISDN H.320 endpoints to participate in the same conferences as IP-based H.323, Skinny Client Control Protocol (SCCP), or Session Initiation Protocol (SIP) endpoints.
- Advanced solution management, desktop video, and streaming media–Cisco Unified Videoconferencing Manager—Cisco Unified Videoconferencing Systems can be managed as standalone devices or with the Cisco Unified Videoconferencing Manager, which helps organizations of all sizes use their video conferencing resources more effectively and extends desktop video access to new classes of users. The Cisco Unified Videoconferencing Manager allows users to easily schedule video conferences from a Web browser or a Microsoft Outlook calendar where they can view, check availability, and reserve video resources.
- Scalability—Meeting organizers can increase their conferencing capacity by creating a Cisco Unified Videoconferencing MCU cluster. They also can create large conferences by cascading conferences between multiple MCUs. Cascaded conferences can be centralized in the data center or geographically distributed to use WAN bandwidth more efficiently.

Specifications

Feature	Cisco Unified Videoconferencing 3500 Series
Video Capabilities	Video codecs—H.261, H.263, and H.264; Live video resolutions—Quarter Common Intermediate Format (QCIF), Common Intermediate Format (CIF), Standard Input Format (SIF), 4CIF, 1280 x 720p, and 1920 x 1080p (switched HD service only); Presentation video resolutions—Video Graphics Array (VGA), Super Video Graphics Array (SVGA), and Extended Graphics Array (XGA); Video bandwidth—Up to 2 Mbps per port; Full transcoding and transrating for all SD (up to and including 4CIF) video codecs and speeds on all ports; All-continuous-presence layout options support both SD and HD participants (for HD service); 4CIF resolution on all ports for all layout combinations; H.264 codec on all ports for all layout combinations; QualiVision for highly improved, standards-based video quality in networks with packet loss; supports both SD and HD connections; QoS support with Differentiated Services (DiffServ), type of service (ToS), and IP Precedence; Per-user (rather than per-conference) video processing, allowing unique and optimal video settings for each user
Audio Capabilities	SD audio codecs—G.711, G.722, G.722.1, G.723.1, G.728, and G.729A; DTMF tone detection (in-band, H.245 tones, and RFC 2833); Entry and exit sounds played when conference participants join or leave a conference; Ability to record and upload custom messages; Full transcoding and mixing on all audio ports
Signaling Protocols	H.323; SCCP; SIP; H.320 with gateway modules
Security	H.235 Advanced Encryption Standard (AES) and Data Encryption Standard (DES) encryption on both SD and HD connections, up to 128-bit keys, for secure audiovisual conferencing; Password-protected web GUI user access with multiple levels; administrator, operator, and user; Strong password enforcement; HTTPS and Secure Sockets Layer (SSL); PIN-protected conferences to help ensure privacy; Security warning page option; Serial port disable and enable; Session inactivity time-out and user lockout (manual and auto) capabilities; Security event logging
Feature	**Cisco Unified Videoconferencing 3545 System Specifications**
LAN Interface	One 10/100 Ethernet port, IEEE 802.3, 8-pin RJ-45 on each console
Serial Port	EIA-232, 9-pin D-type
Dimensions	3.50 x 17.25 x 10.0 in. (8.89 x 438.15 x 25.4 cm)

Weight	17.6 lb (8 kg) for empty chassis (with two power supplies)
Power	100-240 VAC autosense, 50–60 Hz, 202W maximum; Dual redundant power supplies; U.S. power cable included; Other power cables available
Environment	Operating temperature—32 to 122°F (0 to 50°C); Storage temperature—13 to 158°F (25 to 70°C); Humidity to 5 to 90% noncondensing

For More Information

For more information about the Cisco Unified Videoconferencing 3500 Series, visit: http://www.cisco.com/go/ipvc.

Cisco Unified Presence

Cisco Unified Presence is a critical capability that helps users realize the full value of their Cisco Unified Communications System. It collects information about users' availability status and communications capabilities, including whether they are using a communications device such as a phone at a particular time or have Web collaboration or videoconferencing enabled on their system.

Based on information captured by the Cisco Unified Presence, applications such as Cisco Unified Personal Communicator and Cisco Unified Communications Manager can improve productivity by helping users connect with colleagues more efficiently by determining the most effective avenue for collaborative communication. Presence information can be incorporated in applications developed using the Cisco Unified Applications Environment, extending Cisco Unified Presence into customized applications.

Ideal for Companies that Need These Features

- Instant messaging
- Reduction of phone tag
- Cisco Unified Personal Communicator as a client
- Ability to integrate an entity's availability status with their whereabouts

Key Features

- Supports Cisco Unified Personal Communicator and Cisco IP Phone Messenger
- Facilitates applications interoperability using standards-based Session Initiation Protocol (SIP) or SIMPLE implementation
- Supports Microsoft Office Communicator Click-to-Dial and phone-monitoring functions, as well as integration with Microsoft Outlook Calendar and Meeting Notification to help users maintain their availability and status information automatically
- Integrates with the IBM Sametime 7.5 client, allowing Sametime users to initiate calls on their Cisco Unified IP Phones by using the Click-to-Call feature

Selected Part Numbers and Ordering Information

SW-CUP6.0-K9=	License Cisco Unified Presence 6.0 Application Software
CUP6.0-U-K9=	SW Upgrade UPS 1.0 to CUP 6.0
CUP6.0-K9-NFR	SW Cisco Unified Presence 6.0 DEMO Not For Resale

For More Information

For more information about Cisco Unified Presence, visit: http://www.cisco.com/en/US/products/ps6837/index.html.

Cisco Unity Connection

Cisco Unity Connection transparently integrates messaging and speech access to provide continuous global access to calls and messages.

Key Features

- Intelligent voice messaging allows users to interact with the system in the way that is most comfortable and convenient for them. A simple and intuitive telephone user interface provides traditional access to voice messages; a desktop interface offers visual access to voice messages using either Internet Message Access Protocol (IMAP) or a dedicated web-browser application; and a speech-enabled interface provides natural language access to voice messages and directories. The solution offers robust Automated Attendant

functions that include intelligent routing and easily customizable call-screening and message-notification options.
- Cisco Unity Connection integrates simultaneously with Cisco Unified Communications Manager and leading traditional telephone systems.
- A Linux appliance can also be ordered as a co-resident solution with Cisco Unified Communications Manager Business Edition for up to 500 users.
- The solution offers a browser-based system administration console and tools for easy installation and maintenance.
- Cisco Unity Assistant allows IT staff to help end users manage more of their own accounts.
- The solution is scalable to 72 ports and 7500 users per server, and up to 15,000 Voice Profile for Internet Mail (VPIM) networked users across ten nodes. Server options are available with multiple processors, redundant fans, redundant power supplies, and Redundant Array of Independent Disks (RAID) hard disk drives.
- The telephone user interface is localized for more than a dozen languages and dialects.
- The system offers text-to-speech (TTS) e-mail access for Microsoft Exchange 2003 and 2007.
- The solution integrates with many traditional PBX switches using digital set emulations.
- The system supports multiple Cisco Unified Communications Manager clusters; it can light MWIs.
- The solution provides an IMAP-based message interface for basic desktop message access.

Specifications

Feature	Cisco Unity Connection 2.1
Unity Voice Mail (VM) and Unified Messaging (UM) possible configurations	7500 users and 72 ports maximum, 15000 VPIM networked users with 10 nodes Configured for Cisco Unified Communications Manager or configured for legacy PBX/dual integration[1]
Options	Voice Mail; IMAP Client Messaging with TTS option into Microsoft Exchange and Cisco Personal Communications Assistant web client

1. Contact your Cisco Sales Representative for integration information.

Selected Part Numbers and Ordering Information

UNITYCN7-25USR	Unity Connection, 8 ports, 25 users - All user Features - PROMO
UNITYCN7-50USR	Unity Connection, 8 ports, 50 users - All user Features - PROMO
UNITYCN7-100USR	Unity Connection, 16 ports, 100 users - All user Features - PROMO
UNITYCN7-200USR	Unity Connection, 16 ports, 200 users - All user Features - PROMO
UNITYCN7-300USR	Unity Connection, 16 ports, 300 users - All user Features - PROMO

For More Information

For more information about Cisco Unity Connection, visit:
http://www.cisco.com/en/US/products/ps6509/index.html.

Cisco Unity Express

Cisco Unity Express provides integrated messaging, voicemail, Automated Attendant services, and optional interactive voice response (IVR) specifically for the small and medium-sized office or branch office. The application is delivered on either a network module or advanced integration module, both of which are supported on a variety of voice-enabled integrated services routers.

Ideal for Companies that Need these Features

- Integrated messaging, voicemail, or Automated Attendant services at the branch or small office to support local users
- Up to 250 users per site
- Networking of multiple Cisco Unity Express systems for easy management of messages across sites

(When a customer has no requirement for integration with Microsoft Exchange, use Cisco Unity unified messaging for single message store with e-mail.)

Key Features

- The solution offers affordable messaging and greeting services for increased customer service and rich employee communications.
- Intuitive telephone prompts and a web-based interface provide fast, convenient voicemail and Automated Attendant administration.

- Cisco Unity Express can view, sort, search, and play back voice messages using the display of a Cisco Unified IP Phone or your e-mail client.
- The solution offers scalability from 4 to 16 concurrent voicemail or Automated Attendant calls and 12 to 250 mailboxes.
- The solution is deployable with Cisco Unified Communications Manager Express, Cisco Unified Communications Manager, and Cisco Unity systems.
- Voice services are centrally managed at branch-office locations.
- The solution supports the following languages: North American and British English; Canadian and European French; German; Italian; Danish; European, Latin American, and Mexican Spanish; Brazilian Portuguese; Japanese; Korean; and Mandarin Chinese.

Specifications

Feature	Cisco Unity Express
Hardware	NME-CUE or AIM-CUE, fully self-contained modules with onboard storage, memory, and processing supporting a variety of mailbox densities, storage capacities, and concurrent sessions to meet the needs of every small-to-medium office or branch
Software	Cisco Unity Express release 3.1
Platform Supported	Cisco 1861, 2600XM, 2691, 3700 Series Multi-Service Routers and Cisco 2800, 3800 Integrated Services Routers

For More Information

For more information about Cisco Unity Express, visit: http://www.cisco.com/go/cue.

Speech Connect for Cisco Unity

Speech Connect for Cisco Unity is a speech-enabled Automated Attendant for the enterprise. Internal or external callers can speak the name of an employee into the phone and instantly be connected to that employee. Enhanced software fine-tunes pronunciation, improving accuracy over time for superior voice-recognition performance.

Key Features

Speech Connect for Cisco Unity offers unmatched performance in speech recognition because of features such as the following: advanced disambiguation, names-tuning service, and dynamic names dictionary.

Speech Connect for Cisco Unity can be added to Cisco messaging solutions for enterprises and medium-sized businesses: Cisco Unity 5.0 and 4.2 and Cisco Unity Connection 2.1.

Selected Part Numbers and Ordering Information

SC-UNITY-NAME	One Speech Connect Cisco Unity Name
SC-GUEST-NAME	One Speech Connect Non-Cisco Unity Name
SPCH-CON-DAY2	Speech Connect Day2 Name Tuning—1 Name for 1 Year

For More Information

For more information about Speech Connect for Cisco Unity, visit: http://www.cisco.com/en/US/products/ps9676/index.html.

Cisco Unity Unified Messaging and Voicemail

Cisco Unity unified messaging is an enterprise-ready voice and unified messaging platform. As part of a unified communications solution, the application offers a reliable, secure, scalable, and full-featured voice and unified messaging platform.

Key Features

- The architecture allows IT staff to set one backup procedure, one message storage policy, and one security policy for both e-mail and voice messages.
- The system is scalable to 144 ports and 7500 users per server; it offers server options with multiple processors, redundant fans, redundant power supplies, and Redundant Array of Independent Disks (RAID) hard disk drives.
- Cisco Unity messaging supports Microsoft Exchange 2003 and 2007 and Active Directory as the single message store and directory; it supports Windows 2000, 2003, and 2007 operating systems.

- The solution supports Audio Messaging Interchange Specification analog (AMIS-A) and Voice Profile for Internet Mail (VPIM) interoperability to facilitate interoperability with older voicemail systems.
- Cisco Unity Bridge provides advanced message interchange functions with older Avaya or Octel voicemail systems, unlocking proprietary networking to deliver open, standards-based IP migration.
- The solution integrates with many traditional private-branch-exchange (PBX) switches using analog, serial, or digital set emulations; it enhances networking for large deployments.
- The solution supports multiple Cisco Unified Communications Manager clusters; it can light Message Waiting Indicators (MWIs).
- Cisco Unity messaging offers several fault-tolerant system tools, including robust security, file replication, and event logging.
- Cisco Personal Communications Assistant is an Internet Explorer-based voicemail inbox that provides unified messaging. Subscribers can access and manage messages and calls from anywhere, at any time, regardless of device or media type; or forward faxes to any local fax machine. An optional digital-networking module facilitates connectivity to other Cisco Unity servers at the same site.
- The solution provides an Internet Message Access Protocol (IMAP)-based message interface for basic desktop message access.

Specifications

Unity Voice Mail (VM) and Unified Messaging (UM) Possible Configurations	7500 users and 144 ports maximum, 250,000 networked users Configured for Cisco Unified Communications Manager or configured for legacy PBX/dual integration[1]
Options	Voice Mail; Unified Messaging; Unified Messaging with Multi-lingual option; Microsoft Exchange or Lotus Domino message store; AMIS for Exchange; VPIM for Exchange; Failover for Exchange; Cisco Unity Bridge for Exchange

1. Contact your Cisco Sales Representative for integration information

Selected Part Numbers and Ordering Information

Cisco Unity 5.0 Software	
UNITYU5-USR-E	One Unity VM/UM for Exchange User—PROMO
UNITYU5-USR-DC	One Unity UM for Domino User, includes DUC
UNITYV5-USR-DC	One Unity VM User for Domino User, includes DUC
Cisco Unity Integrations	
UNITY5.X-AMIS	Unity, AMIS-A networking
UNITY5.X-VPIM	Unity, VPIM—Per Server
UNITY5.X-CUE-CXN	Cisco Unity, Cisco Unity Express and Cisco Unity Connection Networking
UNITY5.X-ADD-LANG	Support for an additional language
Cisco Unity Bridge	
UNITY-BRIDGE-4	Four sessions of Unity Bridge software

For More Information

For more information about Cisco Unity Unified Messaging, visit: http://www.cisco.com/go/unity.

Voice and Security Bundles

Voice and security bundles are designed for enterprise branch offices, small and medium-sized businesses (SMBs), and managed network service providers seeking consolidated, easy-to-order, versatile, and cost-effective solutions.

- Cisco Integrated Services Router Unified Communications Bundles include—A Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified Communications Manager Express licenses for call processing; Cisco Unity Express hardware, software, and feature licenses for voicemail and integrated messaging; Digital-signal-processor (DSP) resources for conferencing and public-switched-telephone-network (PSTN) connectivity to IP; Phone device licenses to deploy Cisco Unified IP Phones; Cisco Unified Border Element licenses for connecting to a Session Initiation Protocol (SIP) telephony provider or to connect multiple sites together; Cisco Unified CallConnector for Microsoft Windows personal client desktop integration
- Cisco Unified Communications Manager Express Voice Bundles include—A Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified Communications Manager Express licenses for call processing; DSP resources for conferencing and PSTN connectivity to IP; Cisco Unified Border Element (UBE) licenses for connecting to a SIP telephony provider or to connect multiple sites together

- Cisco Unified Survivable Remote Site Telephony (SRST) Voice Bundles include—A Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified SRST feature licenses; DSP resources to support PSTN connectivity to IP
- H-VSEC Bundles include—A Cisco integrated services router with necessary memory and the recommended Cisco IOS Software feature set; Cisco Unified Communications Manager Express feature license, which can also be used for SRST; DSP resources for conferencing and PSTN connectivity to IP; Cisco Unified Border Element licenses for connecting to a SIP telephony provider or to connect multiple sites together; Cisco IOS Advanced IP Services; A Cisco AIM-VPN accelerator card for maximum performance of security features, including VPN tunneling

For customers who want to deploy security features along with voice features using the Cisco Integrated Services Router enabled with either Cisco Unified Communications Manager Express, or Cisco Unified Survivable Remote Site Telephony (SRST) they can buy the voice-plus-security versions of these bundles. The voice-plus-security bundles add security features such as VPN, firewall, and intrusion detection systems (IDSs) to the existing voice and data features provided.

Ideal for Companies that Need These Features

- Cisco Integrated Services Router Voice and Security Bundles—Support for 8 to 250 phones per location; Data, IP telephony, and VPN in an all-in-one solution based on a Cisco integrated services router (These routers are ideal for small and medium-sized businesses [SMBs] or enterprise branch offices.)
- Cisco Integrated Services Router Unified Communications Voice plus Security Bundles—VPN, firewall, or intrusion detection system (IDS) along with a complete data, voice, and video solution including integrated messaging on a single Cisco router along with Microsoft Windows desktop integration for Click-to-Dial and incoming call popup features; Low entry price for a complete unified communications solution with room to grow in the future
- Cisco Integrated Services Router Unified Communications Bundles—Complete data, voice, and video solution including integrated messaging on a single Cisco router along with Microsoft Windows desktop integration for Click-to-Dial and incoming call popup features; Low entry price for a complete unified communications solution with room to grow in the future
- Cisco Unified Communications Manager Express Voice plus Security Bundles—VPN, firewall, or IDS along with data and IP telephony in an all-in-one Cisco integrated services router-based solution. (These routers are ideal for offices that do not need voicemail.)
- Cisco Unified Communications Manager Express Voice Bundles—Data and IP telephony in an all-in-one Cisco integrated services router-based solution (These routers are ideal for offices that do not need voicemail.)
- Cisco Unified SRST Voice plus Security Bundles—Survivable Remote Site Telephony (SRST) for remote branch locations that need secure data connectivity with features such as VPN, firewall, or IDS plus local public-switched-telephone-network (PSTN) call handling with centralized Cisco Unified Communications Manager deployments; Investment protection (for customers who may deploy Cisco Unified Communications Manager in the future)
- Cisco Unified SRST Voice Bundles—SRST for remote branch locations that need data connectivity plus local PSTN call handling with centralized Cisco Unified Communications Manager deployments; Investment protection (for customers who may deploy Cisco Unified Communications Manager in the future)
- Cisco H-VSEC Bundles—Advanced VPN support with unified communications using Cisco Unified Communications Manager Express for distributed deployment or Cisco Unified SRST with centralized Cisco Unified Communications Manager deployment (for enterprise branch-office or power SMB customers)

Selected Part Numbers and Ordering Information

Cisco Integrated Services Router Unified Communications Voice plus Security Bundles	
C3845-35UC-VSEC/K9	Cisco 3845 UC Bundle with IOS Adv IP Services, PVDM2-64, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses, 7 CUBE licenses, 128 MB Flash/512 MB DRAM, 10 UCC Personal licenses
C3825-35UC-VSEC/K9	Cisco 3825 UC Bundle with IOS Adv IP Services, PVDM2-64, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses, 7 CUBE licenses, 128 MB Flash/512 MB DRAM, 10 UCC Personal licenses
C2851-35UC-VSEC/K9	Cisco 2851 UC Bundle with IOS Adv IP Services, PVDM2-48, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses, 7 CUBE licenses, 128 MB Flash/256 MB DRAM, 10 UCC Personal licenses
C2821-25UC-VSEC/K9	Cisco 2821 UC Bundle with IOS SP Services, PVDM2-32, AIM-CUE, 25 CME feature licenses, CUE user mailbox licenses and phone device licenses, 5 CUBE licenses, 128 MB Flash/256 MB DRAM, 10 UCC Personal licenses
C2811-15UC-VSEC/K9	Cisco 2811 UC Bundle with IOS Adv IP Services, PVDM2-32, AIM-CUE, 15 CME feature licenses, CUE user mailbox licenses and phone device licenses, 5 CUBE licenses, 128 MB Flash/256 MB DRAM, 5 UCC Personal licenses

C2801-10UC-VSEC/K9	Cisco 2801 UC Bundle with IOS Adv IP Services, PVDM2-32, AIM-CUE, 10 CME feature licenses, 2 CUBE licenses, CUE user mailbox licenses and phone device licenses, 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
C1861-2B-VSEC/K9	Cisco 1861 UC Bundle with IOS Adv IP Services, PVDM2-32, On board CUE hardware, 8 CME feature licenses, CUE user mailbox licenses and phone device licenses, 4 FXS ports,2 BRI ports,8 Power Over Ethernet ports, 2 CUBE licenses, 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
C1861-4F-VSEC/K9	Cisco 1861 UC Bundle with IOS Adv IP Services, PVDM2-32, On board CUE hardware, 8 CME feature licenses, CUE user mailbox licenses and phone device licenses, 4 FXS ports, 4 FXO ports,8 Power Over Ethernet ports, 2 CUBE licenses, 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
Cisco Integrated Services Router Unified Communications Bundles (Note: security not included)	
C3845-35UC/K9	Cisco 3845 UC Bundle with IOS SP Services, PVDM2-64, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses, 7 CUBE licenses, 128 MB Flash/512 MB DRAM, 10 UCC Personal licenses
C3825-35UC/K9	Cisco 3825 UC Bundle with IOS SP Services, PVDM2-64, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses, 7 CUBE licenses, 128 MB Flash/512 MB DRAM, 10 UCC Personal licenses
C2851-35UC/K9	Cisco 2851 UC Bundle with IOS SP Services, PVDM2-48, NME-CUE, 35 CME feature licenses, CUE user mailbox licenses and phone device licenses, 7 CUBE licenses, 128 MB Flash/256 MB DRAM, 10 UCC Personal licenses
C2821-25UC/K9	Cisco 2821 UC Bundle with IOS SP Services, PVDM2-32, AIM-CUE, 25 CME feature licenses, CUE user mailbox licenses and phone device licenses, 5 CUBE licenses, 128 MB Flash/256 MB DRAM, 10 UCC Personal licenses
C2811-15UC/K9	Cisco 2811 UC Bundle with IOS SP Services, PVDM2-32, AIM-CUE, 15 CME feature licenses, CUE user mailbox licenses and phone device licenses, 3 CUBE licenses, 128 MB Flash/256 MB DRAM, 5 UCC Personal licenses
C2801-10UC/K9	Cisco 2801 UC Bundle with IOS SP Services, PVDM2-32, AIM-CUE, 10 CME feature licenses, CUE user mailbox licenses and phone device licenses, 2 CUBE licenses, 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
C1861-UC-2BRI-K9	Cisco 1861 UC Bundle with IOS SP Services, PVDM2-32, On board CUE hardware, 8 CME feature licenses, CUE user mailbox licenses and phone device licenses, 2 CUBE licenses, 4 FXS ports,2 BRI ports,8 Power Over Ethernet ports, 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
C1861- UC-4FXO- K9	Cisco 1861 UC Bundle with IOS SP Services, PVDM2-32, On board CUE hardware, 8 CME feature licenses, CUE user mailbox licenses and phone device licenses, 2 CUBE licenses, 4 FXS ports, 4 FXO ports,8 Power Over Ethernet ports, 128 MB Flash/256 MB DRAM, 2 UCC Personal licenses
Cisco Unified Communications Manager Express Voice plus Security Bundles	
C3845-VSEC-CCME/K9	Cisco 3845 Voice Bundle with IOS Adv IP Services, PVDM2-64, FL-CCME (250 users), 50 CUBE licenses, 128 MB Flash/512 MB DRAM
C3825- VSEC-CCME/K9	Cisco 3825 Voice Bundle with IOS Adv IP Services, PVDM2-64, FL-CCME (175 users), 35 CUBE licenses, 128 MB Flash/512 MB DRAM
C2851- VSEC-CCME/K9	Cisco 2851 Voice Bundle with IOS Adv IP Services, PVDM2-48, FL-CCME (100 users), 20 CUBE licenses, 128 MB Flash/256 MB DRAM
C2821- VSEC-CCME/K9	Cisco 2821 Voice Bundle with IOS Adv IP Services, PVDM2-32, FL-CCME (50 users), 10 CUBE licenses, 128 MB Flash/256 MB DRAM
C2811- VSEC-CCME/K9	Cisco 2811 Voice Bundle with IOS Adv IP Services, PVDM2-16, FL-CCME (35 users), 7 CUBE licenses, 128 MB Flash/256 MB DRAM
C2801- VSEC-CCME/K9	Cisco 2801 Voice Bundle with IOS Adv IP Services, PVDM2-8, FL-CCME (25 users), 5 CUBE licenses, 128 MB Flash/256 MB DRAM
Cisco Unified Communications Manager Express Voice Bundles (Note: security not included)	
CISCO3845-CCME/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (250 users), 50 CUBE licenses, 128 MB Flash/512 MB DRAM
CISCO3825-CCME/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-CCME (175 users), 35 CUBE licenses, 128 MB Flash/512 MB DRAM
CISCO2851-CCME/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-CCME (100 users), 20 CUBE licenses, 128 MB Flash/256 MB DRAM
CISCO2821-CCME/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-CCME (50 users), 10 CUBE licenses, 128 MB Flash/256 MB DRAM
CISCO2811-CCME/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-CCME (35 users), 7 CUBE licenses, 128 MB Flash/256 MB DRAM
CISCO2801-CCME/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8, FL-CCME (25 users), 5 CUBE licenses, 128 MB Flash/256 MB DRAM
Cisco Survivable Remote Site (SRST) Voice plus Security Bundles	
CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS Adv IP Services, PVDM2-64, FL-SRST (250 users), 128 MB Flash/ 512 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS Adv IP Services, PVDM2-64, FL-SRST (175 users), 128 MB Flash/ 512 MB DRAM
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (100 users), 128 MB Flash/256 MB DRAM

CISCO2821-SRST/K9	Cisco 2821 Voice Bundle with IOS Adv IP Services, PVDM2-32, FL-SRST (50 users), 128 MB Flash/256 MB DRAM
CISCO2811-SRST/K9	Cisco 2811 Voice Bundle with IOS Adv IP Services, PVDM2-16, FL-SRST (35 users), 128 MB Flash/256 MB DRAM
CISCO2801-SRST/K9	Cisco 2801 Voice Bundle with IOS Adv IP Services, PVDM2-8, FL-SRST (25 users), 128 MB Flash/256 MB DRAM
Cisco Survivable Remote Site (SRST) Voice Bundles (Note: security not included)	
CISCO3845-SRST/K9	Cisco 3845 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (250 users), 128 MB Flash/512 MB DRAM
CISCO3825-SRST/K9	Cisco 3825 Voice Bundle with IOS SP Services, PVDM2-64, FL-SRST (175 users), 128 MB Flash/512 MB DRAM
CISCO2851-SRST/K9	Cisco 2851 Voice Bundle with IOS SP Services, PVDM2-48, FL-SRST (100 users), 128 MB Flash/256 MB DRAM
CISCO2821-SRST/K9	Cisco 2821 Voice Bundle with IOS SP Services, PVDM2-32, FL-SRST (50 users), 128 MB Flash/256 MB DRAM
CISCO2811-SRST/K9	Cisco 2811 Voice Bundle with IOS SP Services, PVDM2-16, FL-SRST (35 users), 128 MB Flash/256 MB DRAM
CISCO2801-SRST/K9	Cisco 2801 Voice Bundle with IOS SP Services, PVDM2-8, FL-SRST (25 users), 128 MB Flash/256 MB DRAM
C1861-SRST-C-B/K9	Cisco 1861 Voice Bundle with IOS SP Services, PVDM2-32, 8 SRST feature licenses, Included CUE module with 8 user mailbox licenses, 4 FXS ports, 2 BRI ports,8 Power Over Ethernet ports, 128 MB Flash/256 MB DRAM
C1861-SRST-B/K9	Cisco 1861 Voice Bundle with IOS SP Services, PVDM2-32, 8 SRST feature licenses, 4 FXS ports,2 BRI ports,8 Power Over Ethernet ports, 128 MB Flash/256 MB DRAM
C1861-SRST-C-F/K9	Cisco 1861 Voice Bundle with IOS SP Services, PVDM2-32, 8 SRST feature licenses, Included CUE module with 8 user mailbox licenses, 4 FXS ports, 4 FXO ports,8 Power Over Ethernet ports, 128 MB Flash/256 MB DRAM
C1861-SRST-F/K9	Cisco 1861 Voice Bundle with IOS SP Services, PVDM2-32, 8 SRST feature licenses, 4 FXS ports, 4 FXO ports,8 Power Over Ethernet ports, 128 MB Flash/256 MB DRAM
Cisco H-VSEC Bundles	
C3845-H-VSEC/K9	Cisco 3845 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/SSL-3, 25 User SSL License, 100 users feature license for CME/SRST, 20 CUBE licenses, 512 MB Flash/1 GB DRAM
C3825-H-VSEC/K9	Cisco 3825 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-64, AIM-VPN/SSL-3, 25 User SSL License, 100 users feature license for CME/SRST, 20 CUBE licenses, 512 MB Flash/1 GB DRAM
C2851-H-VSEC/K9	Cisco 2851 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-48, AIM-VPN/SSL-2, 10 User SSL License, 50 users feature license for CME/SRST, 10 CUBE licenses, 256 MB Flash/512 MB DRAM
C2821-H-VSEC/K9	Cisco 2821 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-32, AIM-VPN/SSL-2, 10 User SSL License, 50 users feature license for CME/SRST, 10 CUBE licenses, 256 MB Flash/512 MB DRAM
C2811-H-VSEC/K9	Cisco 2811 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-16, AIM-VPN/SSL-2, 10 User SSL License, 35 users feature license for CME/SRST, 7 CUBE licenses, 256 MB Flash/512 MB DRAM
C2801-H-VSEC/K9	Cisco 2801 High Performance Voice Security Bundle with IOS Advanced IP Services, PVDM2-8, AIM-VPN/SSL-2, 10 User SSL License, 25 users feature license for CME/SRST, 5 CUBE licenses, 128 MB Flash/384 MB DRAM

For More Information

For more information about Cisco Unified Communications Manager Express, visit: http://www.cisco.com/go/ccme. For more information about Cisco Unified Survivable Remote Site Telephony, visit: http://www.cisco.com/go/srst.

Chapter 5: Security

Security Products at a Glance

Product	Features	Page
ENDPOINT SECURITY		
Cisco IOS Security	· Cisco IOS Security tightly integrates security services with advanced routing technologies. · Comprehensive, secure connectivity capabilities include IP Security (IPSec) VPN, Cisco Group Encrypted Transport (GET) VPN, Dynamic Multipoint VPN (DMVPN), Easy VPN, and Secure Sockets Layer (SSL) VPN. · The solution offers integrated threat control services such as category-based URL filtering, Cisco Network Admission Control (NAC), and intrusion prevention system (IPS). · A firewall for voice traversal through Session Initiation Protocol (SIP), Skinny Client Control Protocol (SCCP), and H.323 protocols is supported. · Cisco IOS Security supports transparent firewalling for deployment, with no address change required in the network. · Virtual (Virtual Route Forwarding [VRF]-aware) firewalls offer isolated route space and overlapping addresses. · The modular chassis offers flexible deployment options.	5–4
Cisco Security Agent	Cisco Security Agent protects endpoints from all types of malware and confidential data loss with a lower total cost of ownership, and provides with the following benefits: · Proven: With proven behavior-based detection, endpoints are proactively protected from new and unknown threats · Persistent: With persistent security, endpoints are always protected, even when they are not connected to the corporate network or are lacking the latest patches · Integrated: With tightly integrated behavior-based detection, data loss protection, antivirus, antispyware, acceptable use and compliance policies, and a personal firewall into a single agent, CSA provides comprehensive endpoint protection in a simple-to-manage, lower total cost solution.	5–6
Cisco NAC Appliance	This easily deployed network-admission-control (NAC) solution allows network administrators to authenticate, authorize, validate, quarantine, and remediate wired, wireless, and remote users and their machines prior to allowing access to the network. It offers the following benefits: · The Cisco NAC Appliance integrates authentication, posture assessment, quarantine, and remediation into one product. · The appliance supports built-in policies for more than 350 applications from leading antivirus, antispyware, and other security and management software solution providers. Automatic security policy updates (rule sets) provide up-to-date patching, definition files, and hot fixes. · The appliance generates significant cost savings by empowering users to repair and update their own machines. · It improves network health and resiliency by using a roles-based method to prevent unauthorized access and by requiring that all incoming devices comply with corporate security policies and standards. · The solution scales from 50 to 100,000 user deployments.	5–7
NETWORK SECURITY		
Cisco ASA 5500 Series Adaptive Security Appliances	Cisco ASA 5500 Series Adaptive Security Appliances are easy-to-deploy solutions that integrate world-class firewall, unified communications (voice and video) security SSLand IPSec VPN, intrusion prevention systems (IPSs), and content security services in a flexible, modular product family. The Cisco ASA 5500 is designed to provide: · Intelligent threat defense and secure communications services that stop attacks before they affect business continuity · Protection for networks of all sizes · Lowered overall deployment and operations costs while delivering comprehensive multilayer security	5–11

Cisco Intrusion Prevention Systems (IPS)	Cisco Intrusion Prevention System (IPS) solutions accurately identify, classify, and stop malicious traffic, including worms, spyware, adware, network viruses, and application abuse, before they affect business resiliency. Cisco IPS solutions deliver market-leading threat protection through: • Pervasive network integration by defeating threats from multiple vectors, including network, server, and desktop endpoints • Collaborative threat prevention with a unique, system-wide security ecosystem that assesses and reacts to threats, delivering unmatched network scalability and resiliency • Proactive posture adaptation by evolving and adapting the network to stay ahead of the security landscape, mitigating threats by both known and unknown attacks • The Cisco IPS solution offers flexibility in deployment through multiple full featured form factors, including: The IDSM Module for the Cat6K; The 4200 Series appliance family; The AIM-IPS Module for the ISR Router; The AIP-SSM Module for the ASA platform appliances	5–15
Cisco Catalyst 6500 Series Firewall Services Module	The Cisco Catalyst 6500 Series Firewall Services Module (FWSM) is a high-speed, integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series Routers that provides some of the fastest firewall data rates in the industry: 5-Gbps throughput, 100,000 cells per second (CPS), and 1 million concurrent connections. Up to four FWSMs can be installed in a single chassis, providing scalability to 20 Gbps per chassis. Based on Cisco PIX Firewall technology, the Cisco Catalyst 6500 FWSM offers large enterprises and service providers excellent security, reliability, and performance while providing the following benefits: • This integrated module is installed inside a Cisco Catalyst 6500 Series Switch or Cisco 7600 Internet Router. • It will be compatible with future versions. • It offers enhanced reliability. • It offers a lower cost of ownership with among the best price-to-performance ratios of any firewall. • It is easy to use with the Cisco Adaptive Security Device Manager (ASDM). • Efficiency and productivity gains with the virtualized FWSM deliver multiple firewalls on one physical hardware platform.	5–17
Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module	The Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module is a high-speed, integrated SSL VPN services module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers that addresses the scalability, performance, application support, and security required for large-scale, remote-access SSL VPN deployments. Taking advantage of the broad, industry-proven application support and endpoint security provided by Cisco VPN 3000 Series Concentrators, the Cisco WebVPN Services Module is ideally suited to meet the secure connectivity demands of any organization. Important features include: • Integration with network infrastructure • Virtualization and Virtual Route Forwarding (VRF) awareness • Advanced endpoint security • Scalability • Ease of deployment	5–18
Cisco SSL VPN Solutions	Cisco SSL VPN solutions (formerly known as Cisco WebVPN solutions) offer a flexible and secure way to extend networking resources to virtually any remote user with access to the Internet and a Web browser. The Cisco Adaptive Security Appliance Software Version now provides enhanced SSL VPN functions to increase the ease, security, and granular control of SSL VPN connections. The ubiquity of the Internet, combined with today's VPN technologies, lets organizations cost-effectively and securely extend the reach of their network resources to telecommuters, partners, and mobile workers. These solutions deliver remote-access connectivity features and benefits such as: • Web-based clientless access and full network access without preinstalled desktop software • Threat-protected VPN • Simple, flexible, and cost-effective licensing • Single device for both SSL VPN and true IPSec VPN, as well as unified threat management (UTM) • Breadth of endpoint and platform support, including exclusive iPhone full tunnel support • Highly scalable, performance-optimized solution	5–20
CONTENT SECURITY		
IronPort E-mail Security Appliances	IronPort e-mail security appliances provide a multi-layer approach to stopping e-mail-based threats: • Spam protection—E-mail and Web reputation filtering technology is combined with industry-leading IronPort Anti-Spam. • Virus defense—IronPort Virus Outbreak Filters are paired with fully integrated traditional anti-virus technology. • Secure messaging—Policy enforcement and content-filtering technology fulfills compliance and regulatory requirements.	5–22

IronPort Web Security Appliances	IronPort Web security appliances provide a multi-layer approach to stopping web-based threats: • Fast Web proxy—Allows for deep content analysis, which is critical to accurately detect devious and rapidly mutating Web-based malware • Acceptable Use Policies (AUP)—URL filtering from IronPort enables the enforcement of corporate Internet usage policies. • Integrated Layer 4 (L4) Traffic Monitor—Scans all ports at wire speed, detecting and blocking spyware "phone-home" activity. • Malware Filtering—The first solution on the market that offers multiple anti-malware scanning engines on a single, integrated appliance	5–25
APPLICATION SECURITY		
Cisco ACE Web Application Firewall	Cisco ACE WAF protects Web applications and helps organizations comply with regulatory requirements with the following benefits: • Secure: Built upon a proven understanding of XML, Cisco ACE WAF secures and protects Web applications from common attacks such as identity theft, data theft, application disruption, fraud, and targeted attacks. • Scalable: Gigabit throughput, unparalleled support for concurrent transactions, and the ability to scale to the largest of data centers enables uninterrupted collaboration in high-paced environments with fewer appliances to store and manage. • Simple: Enterprise-ready management, including pre-defined compliance and security profiles, allows for simple deployment and management, even with no prior application experience. • Compliant: Out-of-the-box PCI customizable policies allows you to protect your back-end databases and demonstrate compliance through securing, auditing, and reporting on Web application activity.	5–27
SYSTEM MANAGEMENT AND CONTROL		
Cisco Security Manager	Cisco Security Manager provides centralized management of security solutions for faster deployments -- and with increased accuracy. The application is cost-effective for small networks, and offers scalability for large enterprises. It offers the following benefits: • Cisco Security Manager centrally manages firewall, VPN, and intrusion prevention systems (IPSs) (configuration, changes, and updates). • It bridges the "gap" between network operations and security operations through workflow collaboration and standardized policy definitions to appliances, routers, and switches. • It integrates cross-functions with Cisco Security MARS for real-time event, log, and policy changes. • It maintains and documents a consistent security policy, and provides for policy provisioning. • The application provides exportable reports of who configured what, when, where, and why. • Cisco Security Manager works in conjunction with Cisco ACS as well as identifying any out-of-band configuration changes. • The application applies firewall rules and IPS signatures to mitigate threats. • Cisco Security Manager generates automated hourly IPS signature updates.	5–28
Cisco Security Monitoring, Analysis and Response System (MARS)	The Cisco Security Monitoring, Analysis and Response System (MARS) is a centralized monitoring, event-correlation, attack-mitigation, and compliance reporting system. It offers the following benefits: • It provides topology awareness and monitoring. • It provides automated alerting and mitigation. • The flexible device support framework of Cisco Security MARS provides for simplified monitoring of both Cisco and third-party platforms. • NetFlow analysis detects zero-day worms and viruses. • It analyzes up to 1000 events per second on a single box as well as offering a highly scalable, distributed architecture. • It makes sense of data by reducing millions of security events down to a handful of incidents. • It generates hundreds of packaged reports, all user-configurable, including support for Payment Card Industry (PCI), Health Information and Patient Privacy Act (HIPPA), Control Objectives for Information and related Technology (COBIT), and others. • The application collaborates CSM for policy control and tuning.	5–30
Cisco Secure Access Control Server (ACS) 4.2 for Windows	• Cisco Secure Access Control Server (ACS) is the integration and control platform for managing access policy for network resources. • It is part of the Proactive Automation of Change Control (PACE) solution. • The solution extends access security by combining authentication, user or administrator access, and policy control from a centralized identity networking solution, thereby allowing for greater flexibility and mobility, increased security, and user productivity gains. • The new 4.2 version includes improved DBMS synchronization, Lightweight Directory Access Protocol (LDAP) options, better logging, more Extensible Authentication Protocol-Flexible Authentication via Secure Tunneling (EAP-FAST) options, and more.	5–32

Cisco Secure Access Control Server 4.2 Solution Engine (ACS SE)	• Cisco Secure Access Control Server (ACS) Solution Engine is a ready-to-use, security-hardened server dedicated to running Cisco Secure ACS services. • This 1-rack unit (1RU) appliance serves as a high-performance access control server supporting centralized RADIUS and TACACS+. • It includes features of the Cisco Secure Access Control Server.	5–33
Cisco Secure Access Control Server View 4.0	• This solution provides the highest level of reporting, alerting, and troubleshooting functions for Cisco Secure ACS deployments. • It collects and correlates data from multiple Cisco Secure ACS servers and logs. • Aggregate views of system activity as well as detailed information at the transaction level are provided for both network access and device administration. • The solution delivers maximum visibility into configured policies and authentication and authorization activities across the network. • Cisco Secure ACS View is the ideal solution for organizations requiring the greatest levels of reporting and control.	5–33
Cisco Secure Access Control Server Express 5.0 (ACS Express)	• This solution includes comprehensive access-control-server functions and is relatively economic and easy-to-operate. • It supports up to 50 devices and 350 users. • The web-based GUI is easy to manage, and the CLI offers multilevel administrative access control. • As with Cisco Secure ACS 4.2, Cisco Secure ACS Express also supports both network access and device administration (RADIUS and TACACS+). • The solution offers broad authentication protocol support and integral support for internal and external authentication databases. • This solution is ideal for the medium or small enterprise, corporate regional office, or retail branch office.	5-49
CiscoWorks Network Compliance Manager 1.3	• This solution is part of the Cisco PACE solution. • It tracks and regulates configuration and software changes throughout a multivendor network infrastructure (including Cisco routers, switches, firewalls, load balancers, and wireless access points). • It provides unparalleled visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology best practices.	5–35

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business. For more information about Cisco Advanced Services, visit http://www.cisco.com/go/techservices.

For more information about all services, see Chapter 10, "Services".

Cisco IOS Security

Cisco IOS Software routers ship with the industry's most comprehensive security services, intelligently embedding data, security, voice, and wireless in the platform portfolio for fast, scalable delivery of mission-critical business applications. The Cisco 800 Series Routers and Cisco 1800, 2800, and 3800 Series Integrated Services Routers are ideal for small businesses and enterprise branch offices, delivering a rich, integrated solution for connecting remote offices, mobile users, and partner extranets or service provider-managed customer premises equipment (CPE). The Cisco 7200 and 7300 Series Routers and the Cisco ASR 1000 Series Aggregated Services Routers are ideal for WAN aggregation security services in campus environments and large branch offices.

Cisco IOS Software routers include security services that address customer concerns regarding threat control, secure connectivity, integrated network solutions, and security management. With the convergence of features such as advanced firewall, VPN services, intrusion prevention system (IPS), Cisco Network Access Control (NAC), and content filtering, the Cisco IOS Security routers give customers flexibility to choose a solution that meets their bandwidth, LAN and WAN density, and multiservice requirements while benefiting from advanced security.

Ideal for Companies that Need These Features

- An integrated security solution that includes firewall, VPN, remote access, IPS, and content filtering technologies
- Low total cost of ownership by taking advantage of the existing infrastructure for modular and flexible deployment options
- An integrated ICSA-certified stateful firewall solution with powerful security and multiprotocol routing all on the same routing platform
- Scalability options from the Cisco 800 Series up to the Cisco 7200 Series, the Cisco 7301, and the Cisco ASR 1000 Series Aggregation Services Routers
- Integrated, secure network solutions including secure unified communications and secure mobility
- Secure extranet and intranet perimeters and Internet connectivity for branch and remote offices
- Ability to meet compliance regulations such Payment Card Industry (PCI), Health Insurance Portability and Accountability Act (HIPAA), or Sarbanes-Oxley Act of 2002 (SOX) that require firewall or data-encryption services

Key Features

- Cisco IOS Security offers an advanced firewall that includes context-based access control (CBAC), which provides secure, stateful, application-based packet inspection to support the latest protocols and advanced applications.
- Cisco IOS Security includes Cisco IOS Inline Intrusion Prevention for real-time monitoring, interception, and response to network misuse for supporting thousands of attack signatures.
- The application supports Cisco IOS Software-based content security through reputation and category-based filtering.
- Voice security is included; advanced firewall inspection for SIP protocols offers dynamic protection for secure unified communications and remote teleworkers.
- Cisco IOS Security offers comprehensive, secure connectivity and encryption services for multiple use cases around site-to-site VPN and unified remote-access security. These services include IP Security (IPSec) VPN, Cisco Group Encrypted Transport (GET) VPN, Dynamic Multipoint VPN (DMVPN), Easy VPN, and Secure Sockets Layer (SSL) VPN.
- Cisco IOS Security offers dynamic, per-user authentication and authorization for LAN, WAN, and VPN clients.
- Cisco Network Admission Control (NAC) support extends the ability of the network to enforce organizational security policies on devices seeking network access by delivering NAC services on an integrated services module.
- Cisco IOS Security supports Cisco Router and Security Device Manager (SDM) for granular single-device configuration and monitoring capabilities.
- Graphical policy management and monitoring for large-scale deployments is achieved with Cisco Security Manager and Cisco Security Monitoring, Analysis and Response System (MARS).

Specifications

Supported Network Interfaces	All network interfaces on supported platforms
Supported Platforms	Cisco 1720, 1800, 2600/2600XM, 2800, 3700, 3800, 7200, and 7301 series router platforms (supports full feature set) Cisco 800, UBR900, 1600, and 2500 series router platforms include all firewall features with the exception of authentication proxy
Max IPsec Tunnel	Cisco 800—up to 20; Cisco 1800—up to 800; Cisco 2800—up to 1500; Cisco 3800—up to 2500; 7200/7301 bundles—up to 5000
Cisco IOS Firewall Performance[1]	Cisco 800—10 Mbps; Cisco 1700—20 Mbps; Cisco 1800—125 Mbps; Cisco 2600XM—35 Mbps; Cisco 2691-VPN—197 Mbps; Cisco 2800—530 Mbps; Cisco 3725-VPN, Cisco 3745-VPN—197 Mbps; Cisco 3825—855 Mbps; Cisco 3845—1 Gbps; Cisco 7200/7301 Bundles—1 Gbps

1. UDP traffic only

Selected Part Numbers and Ordering Information

The Cisco IOS Security router bundles are based on the Cisco 800 Series Routers, Cisco 1800, 2800, and 3800 Series Integrated Services Routers, and Cisco 7200 and 7300 Series Router platforms. They include the entry security bundles, enhanced security bundles for added performance and scale, as well as entry voice (Voice Security [VSEC]) and Voice and Video Enabled VPN (V3PN) bundles for combined security and unified communications. The ordering process is simplified by providing the following important features:

- The Cisco 800 Routers are ideal for small businesses and enterprise branch offices, delivering a rich, integrated solution for connecting remote offices, mobile users, and partner extranets or service provider-managed customer premises equipment (CPE). The Cisco ASR 1000 Series Aggregated Services Routers offer service providers and enterprises industry-leading performance, service capabilities, reliability, and

efficiencies in a compact form factor, delivering integrated, high-performance services, including multigigabit encryption, broadband, 10 Gbps firewall, (NBAR), and session border control (all software enabled—no service blades required).
- A Cisco router with all the necessary security components is orderable with a single part number at a reduced price compared to ordering each component separately.
- All security bundles come preinstalled with Cisco Router and Security Device Manager (SDM) for fast and easy deployment based on Cisco Technical Assistance Center (TAC) and ICSA Labs recommended router security configurations.
- Entry security bundles, enhanced security bundles, entry voice bundles (VSEC), and V3PN bundles offer varying capabilities and price points to meet a variety of needs.
- Cisco 2800 and 3800 Series Routers now have advanced security network modules available for hardware-based intrusion detection systems (IDSs).

Cisco 7200 and 7301 bundles include the selected router platform, a VPN hardware card, additional memory, and the Cisco IOS Software to run IP Security (IPSec) Triple Digital Encryption Standard (3DES) or Advanced Encryption Standard (AES) encryption.

Cisco 800 and 1800 Series Integrated Services Routers offer embedded VPN acceleration. For details about the Cisco router security bundles, visit: http://www.cisco.com/go/securitybundles.

For More Information

For more information about the Cisco IOS Security feature set, visit: http://www.cisco.com/go/routersecurity.

Cisco Security Agent

Businesses are under intense pressure to protect their IT assets from attacks that are increasing in frequency and sophistication while at the same time addressing stringent compliance requirements and minimizing expenses and complexity.

Cisco Security Agent 6.0 is the first endpoint security solution that integrates behavioral-based intrusion protection, data-loss prevention, and signature-based antivirus into a single, manageable agent. This exceptional blend of capabilities defends servers and desktops against sophisticated zero-day attacks and enforces acceptable-use and compliance policies within a simplified management infrastructure.

Ideal for Companies that Need These Features

- Real-time protection from persistent & evolving threats
- Device malware scanning and deletion
- Identification & control of sensitive information to prevent data loss
- Regulatory-compliance monitoring and enforcement
- Easier, faster deployment and enhanced visibility
- Automatic, no-cost audio-visual signature updates
- Lower total cost of ownership

Key Features

- Provides industry-leading protection for laptops, desktops, servers, and POS devices.
- Prevents against data loss at the endpoint, including—Preventing Clipboard abuse (for example, copying sensitive information and pasting to IM, blogs, etc.); Preventing sensitive information from being copied, written to network drives, accessing the network (TCP/UDP), or written to USB devices, CDs, and other removable media; Allowing only authorized applications to access the sensitive information (for example, not allowing uploads of sensitive files via Outlook); Imposing restrictions for wireless and remote users (i.e. cannot copy sensitive information to removable media while off the corporate network)
- Provides behavioral-based protection from known and unknown threats.
- Integrates antivirus protection with automatic, no-cost updates.
- Offers network collaboration that strengthens the security posture of the organization.
- Offers comprehensive management, visibility, and reporting.
- Is the critical endpoint component of the Cisco Self-Defending Network architecture.

Specifications

Feature	Cisco Security Server Agent	Cisco Security Desktop Agent	Cisco Security Agent Management Console
Platforms	• Windows 2003 Server • Windows 2000 Server and Advanced Server • Solaris 9 SPARC architecture (64-bit kernel) • Solaris 8 SPARC architecture (64-bit kernel) • Red Hat Enterprise Linux 4.0 ES and AS • Red Hat Enterprise Linux 3.0 ES and AS	• Windows Vista • Windows Embedded Point of Service (WEPOS) • Windows XP Professional • Windows XP Tablet Edition • Windows 2000 Professional • Red Hat Enterprise Linux 4.0 WS • Red Hat Enterprise Linux 3.0 WS	Microsoft Windows 2003 R2 Server and Advanced Server

Selected Part Numbers and Ordering Information

CSA-SRVR-K9=	Cisco Security Agent [1 Server Agent Bundle]
CSA-B10-SRVR-K9	Cisco Security Agent [10 Server Agent Bundle]
CSA-B25-SRVR-K9	Cisco Security Agent [25 Server Agent Bundle]
CSA-B100-SRVR-K9	Cisco Security Agent [100 Server Agent Bundle]
CSA-B25-DTOP-K9	Cisco Security Agent [25 Desktop Agent Bundle]
CSA-B100-DTOP-K9	Cisco Security Agent [100 Desktop Agent Bundle]
CSA-B250-DTOP-K9	Cisco Security Agent [250 Desktop Agent Bundle]
CSA-B1000-DTOP-K9	Cisco Security Agent [1,000 Desktop Agent Bundle]
CSA-DLPD-25-K9	Cisco Security Agent [25 DLP Desktop Agent Upgrade]
CSA-DLPD-100-K9	Cisco Security Agent [100 DLP Desktop Agent Upgrade]
CSA-DLPD-250-K9	Cisco Security Agent [250 DLP Desktop Agent Upgrade]
CSA-DLPD-1000-K9	Cisco Security Agent [1,000 DLP Desktop Agent Upgrade]

For More Information

For more information about Cisco Security Agent, visit: http://www.cisco.com/go/csa.

Cisco NAC Appliance



The Cisco NAC Appliance is an easily deployed network-admission-control (NAC) solution that allows network administrators to authenticate, authorize, evaluate, and remediate wired, wireless, and remote users and their machines prior to permitting access to the network. It identifies whether machines are compliant with security policies and repairs vulnerabilities before network access is allowed. To enhance its ease of use, the NAC appliance comes preinstalled with rule sets for operating system updates, antivirus software updates, and antispyware software from all major vendors, simplifying the task of determining which policies to enforce and how to enforce them.

Customers will need at least one Cisco NAC Server, which performs device compliance checks as users attempt to access the network. It can be deployed as a virtual gateway or as a real IP gateway, Customers also need at least one Cisco NAC Manager to define access policies and to manage the server(s). The Cisco NAC Agent is an optional client software component for more stringent vulnerability assessment. The Cisco NAC Profiler is an optional device that provides device profiling service. It keeps a real-time, contextual inventory of all devices in a network, including nonauthenticating devices such as IP phones and printers. The Cisco NAC Guest Server is another optional device that provides secure guest access service.

The Cisco NAC Appliance is ideal for midsize and large enterprises that are looking for a client policy enforcement solution. It complements wireless deployments, remote-access deployments, and other security products, such as Cisco Security Agent and Cisco Security Monitoring, Analysis and Response System (MARS). The Cisco NAC Appliance is the market's most widely deployed NAC solution.

The appliance is available with 100-, 250-, 500-, and 1500-user license-based Cisco NAC Server seats. The number of users is defined as online, concurrent users. The appliance is available either as a "standard" manager, which can support up to 20 NAC servers, or as a manager "lite," which can support up to 3 NAC servers.

The Cisco NAC Profiler facilitates the deployment and management of Cisco NAC by discovering, tracking, and monitoring the location, types, and behavior of all LAN-attached endpoints. It also uses the information about the device to apply appropriate Cisco NAC policies.

The Cisco NAC Guest Server vastly simplifies the provisioning, notification, management, and reporting of guest users on wired and wireless networks.

Ideal for Companies that Need These Features

- A client policy enforcement solution
- License-based server seats for 100, 250, 500... up to 3500 users
- Support for up to 20 NAC servers
- Simplified provisioning, notification, management, and reporting of guest users on wired and wireless networks

Key Features

- Authentication integration—The Cisco NAC Appliance supports roles-based access control by acting as an authentication proxy for most forms of authentication, natively integrating with Kerberos, Lightweight Directory Access Protocol (LDAP), RADIUS, Active Directory, eDirectory, and S/Ident. It allows administrators to maintain multiple user profiles with varying degrees of access.
- Vulnerability assessment—The Cisco NAC Appliance supports scanning of all Windows-based operating systems, Mac OS, Linux machines, and non-PC networked devices such as Xbox, PlayStation 2, and personal digital assistants. It conducts network-based scans or can use custom-built scans as required. In a managed domain, it can also conduct scans of Windows registries without client software.
- Device quarantine—The Cisco NAC Appliance laces noncompliant machines into quarantine, preventing the spread of infection while maintaining access to remediation resources; it quarantines these machines by using subnets as small as /30, or by using a quarantine VLAN.
- Automatic security policy updates—The Cisco NAC Appliance provides predefined policies for the most common network access criteria, including policies that check for critical operating system updates and common antivirus software virus definition updates. It eases the management cost on network administrators, who can rely on the Cisco NAC Appliance (Clean Access) system to constantly maintain updated policies.
- Centralized management—The web-based management console allows administrators to define the types of scans required for each role as well as the related remediation packages necessary for recovery. One management console can manage several servers.
- Remediation and repair—The Cisco NAC Appliance gives devices access to remediation servers during quarantine that can provide operating system patches and updates, virus-definition files, or endpoint security solutions such as Cisco Security Agent. Administrators have the option of automatically installing these fixes using the Cisco NAC Appliance enforcement agent.
- Single Sign On (SSO)—The appliance supports SSO with VPN clients, Microsoft Windows, and wireless deployments.
- Solution for major customer pain points—This appliance supports identity-based access control, Guest Access, and managed and unmanaged assets.
- Flexibility—The appliance is ideal for flexible deployment scenarios; it supports wireless, remote-access (VPN), branch offices (WAN), and main campus (LAN) environments. Both in- and out-of-band deployments are possible.
- Autoremediation for Windows
- Device profiling service—The appliance discovers, tracks, and monitors the location, types, and behavior of all LAN-attached endpoints.
- Guest access service—The appliance simplifies the provisioning, notification, management, and reporting of guest users on wired and wireless networks.

Specifications

Cisco NAC Servers and NAC Managers			
Feature	**Cisco NAC Appliance 3310**	**Cisco NAC Appliance 3350**	**Cisco NAC Appliance 3390**
Product	Cisco NAC Server for 100, 250, and 500 users Cisco NAC Lite Manager	Cisco NAC Server for 1500, 2500, and 3500 users Cisco NAC Standard Manager	Cisco NAC Super Manager
Processor	Dual-core Intel Xeon 2.33-GHz	Dual-core Intel Xeon 3.0-GHz	2 x dual-core Intel Xeon 3.0-GHz
Memory	1 GB PC2-4200 (2 x 512 MB)	2 GB PC2-5300 (2 x 1 GB)	4 GB PC2-5300 (4 x 1 GB)
Memory bus clock	1333-MHz FSB	1333-MHz FSB	1333-MHz FSB
Controller	Embedded SATA RAID Controller	Smart Array E200i Controller	Smart Array E200i Controller
Hard disk	80-GB NPH SATA drive	2 x 72-GB SFF SAS RAID drives	4 x 72-GB SFF SAS RAID drives
Removable media	CD/DVD-ROM drive	CD/DVD-ROM drive	CD/DVD-ROM drive
Network Connectivity			

Ethernet network interface cards (NICs)	2 x Integrated Broadcom 10/100/1000 5708 NICs 2 x Intel e1000 Gigabit NICs (PCI-X)	2 x Integrated Broadcom 10/100/1000 5721 NICs 2 x Intel e1000 Gigabit NICs (PCI-X)	2 x Integrated Broadcom 10/100/1000 5721 NICs 2 x Intel e1000 Gigabit NICs (PCI-X)
10BASE-T cable support	Category (Cat) 3, 4, or 5 unshielded twisted pair (UTP) up to 328 ft. (100m)	Cat 3, 4, or 5 UTP up to 328 ft. (100m)	Cat 3, 4, or 5 UTP up to 328 ft. (100m)
10/100/1000BASE-TX cable support	Cat 5 UTP up to 328 ft. (100m)	Cat 5 UTP up to 328 ft. (100m)	Cat 5 UTP up to 328 ft. (100m)
Secure Sockets Layer (SSL) accelerator card	None	Cavium CN1120-NHB-E	Cavium CN1120-NHB-E
Interfaces			
Serial ports	1	1	1
USB 2.0 ports	4 (two front, two rear)	4 (one front, one internal, two rear)	4 (one front, one internal, two rear)
Keyboard port	1	1	1
Video port	1	1	1
Mouse port	1	1	1
External SCSI port	None	None	None
System Unit			
Form factor	Rack-mount 1 RU	Rack-mount 1 RU	Rack-mount 1 RU
Weight	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured	35 lb (15.87 kg) fully configured
Dimensions	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)
Power supply	650W auto-switching, PFC	Dual 700W (redundant)	Dual 700W (redundant)
Cooling fans	6; non-hot plug, nonredundant	9; redundant	9; redundant
BTU rating	2910 BTUs/hr (at 120 VAC); 2870 (at 240 VAC)	2910 BTUs/hr (at 120 VAC); 2870 (at 240 VAC)	2910 BTUs/hr (at 120 VAC); 2870 (at 240 VAC)
Cisco NAC Profiler			
Feature	**Specifications**		
Components			
Processor	Dual-core Intel Xeon 3.0-GHz		
Memory	2 GB PC2-5300 (2 x 1 GB)		
Memory bus clock	1333-MHz FSB		
Controller	Smart Array E200i Controller		
Hard disk	2 x 72-GB SFF SAS RAID drives		
Removable media	CD/DVD-ROM drive		
Network Connectivity			
Ethernet network interface cards (NICs)	• 2 x Integrated Broadcom 10/100/1000 5708 NICs • 2 x Intel e1000 Gigabit NICs (PCI-X)		
10BASE-T cable support	Cat 3, 4, or 5 UTP up to 328 ft (100m)		
10/100/1000BASE-TX cable support	Cat 5 UTP up to 328 ft (100m)		
Interfaces			
Serial ports	1		
USB 2.0 ports	4 (one front, one internal, two rear)		
Keyboard ports	1		
Video ports	1		
Mouse ports	1		
External SCSI ports	None		
System Unit			
Form factor	Rack-mount 1 RU		
Weight	35 lb (15.87 kg) fully configured		
Dimensions	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)		
Power supply	Dual 700W (redundant)		
Cooling fans	9; redundant		
BTU rating	2910 BTUs per hour (at 120 VAC); 2870 (at 240 VAC)		
Cisco NAC Guest Server			
Components			
Processor	Dual-core Intel Xeon 2.33-GHz		
Memory	1 GB PC2-4200 (2 x 512 MB)		
Memory bus clock	1333-MHz FSB		
Controller	Embedded SATA RAID controller		
Hard disk	80-GB NPH SATA drive		

Removable media	CD/DVD-ROM drive
Network Connectivity	
Ethernet network interface cards (NICs)	• 2 x integrated Broadcom 10/100/1000 5708 NICs • 2 x Intel e1000 Gigabit NICs (PCI-X)
10BASE-T cable support	Cat3, 4, or 5 UTP up to 328 ft (100m)
10/100/1000BASE-TX cable support	Cat5 UTP up to 328 ft (100m)
Interfaces	
Serial ports	1
USB 2.0 ports	4 (two front, two rear)
Keyboard ports	1
Video ports	1
Mouse ports	1
External SCSI ports	None
System Unit	
Form factor	Rack-mount 1 RU
Weight	35 lb (15.87 kg) fully configured
Dimensions	1.70 x 16.78 x 27.75 in. (4.32 x 42.62 x 70.49 cm)
Power supply	650W auto switching, PFC
Cooling fans	6; non-hot plug, nonredundant
BTU rating	2910 BTUs per hour (at 120 VAC); 2870 (at 240 VAC)

Selected Part Numbers and Ordering Information

Cisco NAC Server	
NAC3310-100-K9	NAC Appliance 3310 Server—Max 100 users
NAC3310-100FB-K9	NAC Appliance 3310 Server Failover Bundle—Max 100 users
NAC3310-100FBUL	NAC Appliance 3310 FB License Upgrade—100 to 250 users
NAC3310-100UL	NAC Appliance 3310 License Upgrade—100 to 250 users
NAC3310-250-K9	NAC Appliance 3310 Server—Max 250 users
NAC3310-250FB-K9	NAC Appliance 3310 Server Failover Bundle—Max 250 users
NAC3310-250FBUL	NAC Appliance 3310 FB License Upgrade—250 to 500 users
NAC3310-250UL	NAC Appliance 3310 License Upgrade—250 to 500 users
NAC3310-500-K9	NAC Appliance 3310 Server—Max 500 users
NAC3310-500FB-K9	NAC Appliance 3310 Server Failover Bundle—Max 250 users
NAC3350-1500-K9	NAC Appliance 3350 Server—Max 1500 users
NAC3350-1500FB-K9	NAC Appliance 3350 Server Failover Bundle—Max 1500 users
NAC3350-1500FBUL	NAC Appliance 3350 FB License Upgrade—1500 to 2500 users
NAC3350-15000UL	NAC Appliance 3350 License Upgrade—1500 to 2500 users
NAC3350-2500-K9	NAC Appliance 3350 Server—Max 2500 users
NAC3350-2500FB-K9	NAC Appliance 3350 Server Failover Bundle—Max 2500 users
NAC3350-2500FBUL	NAC Appliance 3350 FB License Upgrade—2500 to 3500 users
NAC3350-25000UL	NAC Appliance 3350 License Upgrade—2500 to 3500 users
NAC3350-3500-K9	NAC Appliance 3350 Server—Max 3500 users
NAC3350-3500FB-K9	NAC Appliance 3350 Server Failover Bundle—Max 3500 users
Cisco NAC Manager	
NACMGR-3-K9	NAC Appliance 3310 Manager—Max 3 servers
NACMGR-3FB-K9	NAC Appliance 3310 Manager Failover Bundle—Max 3 servers
NACMGR-20-K9	NAC Appliance 3350 Manager—Max 20 servers
NACMGR-20FB-K9	NAC Appliance 3350 Manager Failover Bundle—Max 20 servers
NACMGR-40-K9	NAC Appliance 3390 Manager—Max 40 servers
NACMGR-40FB-K9	NAC Appliance 3390 Manager Failover Bundle—Max 40 servers
Cisco NAC Profiler	
NAC3350-PROF-K9	NAC 3350 Profiler—Max up to 40K devices
NAC3350-PROF-FB-K9	NAC 3350 Profiler Failover Bundle—Max up to 40K devices
NAC3350-CLT-K9=	NAC3350 Collector—Up to NAC Srv user count
Cisco NAC Guest Server	
NAC3310-GUEST-K9	Cisco NAC Guest Server

For More Information

For more information about the Cisco NAC Appliance, visit: http://www.cisco.com/go/NAC.

Cisco ASA 5500 Series Adaptive Security Appliances



Cisco ASA 5500 Series Adaptive Security Appliances are purpose-built solutions that combine best-in-class security and VPN services with an innovative, extensible services architecture. Designed as a core component of the Cisco Self-Defending Network, the Cisco ASA 5500 Series provides proactive threat defense that stops attacks before they spread through the network, controls network activity and application traffic, and delivers flexible VPN connectivity. The result is a powerful multifunction network security appliance family that provides the security breadth and depth for protecting home-office, branch-office, small and medium-sized business, enterprise, and data center networks while reducing the overall deployment and operations costs and complexities associated with providing this new level of security.

Ideal for Companies that Need These Features

- Cisco ASA 5500 Series Firewall Edition—Ability to deploy new applications securely while protecting valuable assets from unauthorized access; Flexible, reliable deployment options: This appliance provides a wide range of services such as transparent firewall, virtualization, and intelligent network integration; Comprehensive management solutions to lower operational costs: Flexible centralized management solutions provide full-featured provisioning and monitoring services.
- Cisco ASA 5500 Series IPS Edition—Control access to critical assets: Firewall access control and application policy enforcement provide authenticated access to critical resources; Accurate, multivector threat prevention: This appliance achieves maximum attack identification through multiple analysis techniques and technologies; Complete incident lifecycle management: This complete solution covers management, monitoring, incident response, and outbreak prevention.
- Cisco ASA 5500 Content Security Edition—Trusted firewall technology; Market-leading content security capabilities, including antivirus and antispyware, URL and content filtering, antiphishing, and antispam; Threat-protected VPN; Easy deployment and management
- Cisco ASA 5500 Series SSL/IPsec VPN Edition—SSL and IPsec VPN for any deployment environment: Clientless and full network VPN access delivers superior customizability for diverse requirements; Threat-protected VPN: Integrated endpoint and network security technologies help ensure that the VPN is not a conduit for damaging security threats; Cost-effective VPN: Integrated load balancing, network intelligence, and security, as well as high scalability reduces the number of devices required to scale and secure the VPN. Advanced configuration and monitoring tools simplify and scale the deployment and maintenance operations; Optimized VPN remote access: Application and network connection optimization for top-performance client and clientless VPN remote access helps ensure transparent use of the network applications and resources; Broad endpoint and platform support: Cisco ASA 5500 Series SSL and IPsec VPN edition includes Windows 2000, Windows XP/Vista (32- and 64-bit), Mac OSX, Linux, Windows Mobile Pocket PC, and an exclusive iPhone full VPN tunnel capability.

Key Features

- Market-proven security and VPN capabilities—Full-featured, high-performance firewall, intrusion prevention system (IPS), content security, and SSL/IPsec VPN technologies deliver robust application security, user- and application-based access control, worm and virus mitigation, malware protection, content filtering, and remote user-site connectivity.
- Extensible services architecture—Taking advantage of a modular services processing and policy framework offered by the Cisco ASA 5500 Series Adaptive Security Appliances, businesses can apply specific security and network services on a per-traffic flow basis, delivering highly granular policy controls and a wide range of protective services with streamlined traffic processing. The efficiencies of this policy framework, as well as software and hardware extensibility through user-installable security services modules (SSMs) and security services cards (SSCs), advance the evolution of existing services and the deployment of new services without requiring a platform replacement or performance compromise. With these capabilities, the Cisco ASA 5500 Series provides the foundation for highly customizable security policies and exceptional services extensibility to help protect against the fast-evolving threat environment.
- Reduced deployment and operations costs—The multifunction Cisco ASA 5500 Series allows for platform configuration and management standardization, helping to decrease the costs of deployment and ongoing operations.

Specifications

	Cisco 5505	Cisco 5510	Cisco 5520	Cisco 5540	Cisco 5550	Cisco 5580-20	Cisco 5580-40
Network location	Small Business, Branch Office, Enterprise Teleworker	Internet Edge	Internet Edge	Internet Edge	Internet Edge, Campus	Data Center, Campus	Data Center, Campus
Performance Summary							
Maximum firewall and IPS throughput (Mbps)	150 Mbps	300 Mbps	450 Mbps	650 Mbps	1.2 Gbps	5 Gbps (real-world HTTP), 10 Gbps (jumbo frames)	10 Gbps (real-world HTTP), 20 Gbps (jumbo frames)
Maximum firewall connections	10000 / 25,000	50,000 / 130,000	280,000	400,000	650,000	1,000,000	2,000,000
Maximum firewall connections/second	4000	9000	12,000	25,000	36,000	90,000	150,000
Packets per second (64 byte)	85,000	190,000	320,000	500,000	600,000	2,500,000	4,000,000
Maximum 3DES/AES VPN throughput	100 Mbps	170 Mbps	225 Mbps	325 Mbps	425 Mbps	1 Gbps	1 Gbps
Maximum site-to-site and remote access VPN sessions	10 / 25	250	750	5000	5000	10,000	10,000
Maximum SSL VPN user sessions[1]	25	250	750	2500	5000	10,000	10,000
Bundled SSL VPN user session[1]	2	2	2	2	2	2	2
Technical Summary							
Memory	256 MB	256 MB	512 MB	1 GB	4 GB	8 GB	12 GB
Minimum system flash	64 MB	64 MB	64 MB	64 MB	64 MB	1 GB	1 GB
Integrated ports[2]	8 port 10/100 switch with 2 Power over Ethernet ports	5-10/100 / 2-10/100/1000, 3-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	4-10/100/1000, 1-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	4-10/100/1000, 1-10/100 +4-10/100/1000, 4 SFP (with 4GE SSM)	8-10/100/1000, 4-SFP, 1-10/100	2-10/100/1000 Management +4-10/100/1000 (with ASA5580-4GE-CU) + 4 GE SR LC (with ASA5580-4GE-FI) +2 10GE SR LC (with ASA5580-2X10GE-SR)	2-10/100/1000 Management +4-10/100/1000 (with ASA5580-4GE-CU) + 4 GE SR LC (with ASA5580-4GE-FI) +2 10GE SR LC (with ASA5580-2X10GE-SR)
Maximum virtual interfaces (VLANs)	3 (trunking disabled) / 20 (trunking enabled)	50 / 100	150	200	250	100 (250[3])	100 (250[5])
Expansion Capabilities							
SSC/SSM/IC Expansion	1-SSC	1-SSM	1-SSM	1-SSM	Not Available	6-IC	6-IC
SSC/SSM/ICs supported	Future, SSC	CSC SSM, AIP SSM, 4GE SSM	CSC SSM, AIP SSM, 4GE SSM	CSC SSM, AIP SSM, 4GE SSM	Not Available	4-10/100/1000, 4-GE SR LC, 2-10GE SR LC	4-10/100/1000, 4-GE SR LC, 2-10GE SR LC
Intrusion Prevention	Not available	Yes (with AIP SSM)	Yes (with AIP SSM)	Yes (with AIP SSM)	Not Available	Not Available	Not Available
Concurrent threat mitigation throughput (Mbps) (firewall + IPS services)	Not available	150 (with AIP SSM-10) 300 (with AIP SSM-20)	225 (with AIP SSM-10) 375 (with AIP SSM-20) 450 (with AIP SSM-40)	500 (with AIP SSM-20) 650 (with AIP SSM-40)	Not available	Not available	Not available

Content Security (anti-virus, anti-spyware, file blocking)	Not available	Yes (with CSC SSM)	Yes (with CSC SSM)	Yes (with CSC SSM)	Not available	Not available	Not available
Maximum number of users for anti-virus, anti-spyware, file blocking (CSC SSM only)	Not available	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	500 (CSC-SSM-10) 1000 (CSC-SSM-20)	Not available	Not available	Not available
Content Security Plus License features	Not available	Anti-spam, anti-phishing, URL filtering	Anti-spam, anti-phishing, URL filtering	Anti-spam, anti-phishing, URL filtering	Not available	Not available	Not available
Features							
Cisco Adaptive Security Appliance Software Version (latest)	8.0	8.0	8.0	8.0	8.0	8.1	8.1
Application-layer firewall services	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Layer 2 transparent firewalling	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Security contexts (included/maximum)[4]	0/0	0/0 / 2/5	2/20	2/50	2/50	2/50	2/50
GTP/GPRS inspection[4]	Not available	Not available	Yes	Yes	Yes	Yes	Yes
High availability support[5]	Not supported Stateless A/S	Not supported A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S	A/A and A/S
SSL and IPsec VPN services	Yes	Yes	Yes	Yes	Yes	Yes	Yes
VPN clustering and load balancing	Not available	Not available / Yes	Yes	Yes	Yes	Yes	Yes
Advanced endpoint assessment[4]	Yes	Yes	Yes	Yes	Yes	Yes	Yes

1. Beginning with Cisco ASA Software v7.1, SSL VPN (Web VPN) capability requires a license. Systems include 2 SSL VPN users by default for evaluation and remote management purposes
2. Beginning with Cisco ASA Software v7.2.3, the ASA 5510 Security Plus license enables 2 10/100/1000 interfaces and 3 10/100 interfaces
3. Supported in a future ASA software release
4. Licensed features
5. A/S = Active/Standby; A/A = Active/Active

Selected Part Numbers and Ordering Information

Cisco ASA 5500 Series Firewall Edition Bundles	
ASA5505-BUN-K9	Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Triple Data Encryption Standard/Advanced Encryption Standard (3DES/AES) license
ASA5505-K8	Cisco ASA 5505 10-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, Data Encryption Standard (DES) license
ASA5505-50-BUN-K9	Cisco ASA 5505 50-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-UL-BUN-K9	Cisco ASA 5505 Unlimited-User Bundle includes 8-port Fast Ethernet switch, 10 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5505-SEC-BUN-K9	Cisco ASA 5505 Unlimited-User Security Plus Bundle includes 8-port Fast Ethernet switch, 25 IPsec VPN peers, 2 SSL VPN peers, DMZ, stateless Active/Standby high availability, 3DES/AES license
ASA5510-BUN-K9	Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5510-K8	Cisco ASA 5510 Firewall Edition includes 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5510-SEC-BUN-K9	Cisco ASA 5510 Security Plus Firewall Edition includes 2 Gigabit Ethernet + 3 Fast Ethernet interfaces, 250 IPsec VPN peers, 2 SSL VPN peers, Active/Standby high availability, 3DES/AES license
ASA5520-BUN-K9	Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, 3DES/AES license
ASA5520-K8	Cisco ASA 5520 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 750 IPsec VPN peers, 2 SSL VPN peers, Active/Active and Active/Standby high availability, DES license

ASA5540-BUN-K9	Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5540-K8	Cisco ASA 5540 Firewall Edition includes 4 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5550-BUN-K9	Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5550-K8	Cisco ASA 5550 Firewall Edition includes 8 Gigabit Ethernet interfaces + 1 Fast Ethernet interface, 4 Gigabit SFP interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-20-BUN-K8	Cisco ASA 5580-20 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-20-BUN-K9	Cisco ASA 5580-20 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5580-20-4GE-K9	Cisco ASA 5580-20 Firewall Edition 4 Gigabit Ethernet Bundle includes 4 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-20-8GE-K9	Cisco ASA 5580-20 Firewall Edition 8 Gigabit Ethernet Bundle includes 8 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-40-BUN-K8	Cisco ASA 5580-40 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, DES license
ASA5580-40-BUN-K9	Cisco ASA 5580-40 Firewall Edition includes 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, 3DES/AES license
ASA5580-40-8GE-K9	Cisco ASA 5580-40 Firewall Edition 8 Gigabit Ethernet Bundle includes 8 Gigabit Ethernet interfaces, 2 management interfaces, 5000 IPsec VPN peers, 2 SSL VPN peers, Dual AC power, 3DES/AES license
ASA5580-40-10GE-K9	Cisco ASA 5580-40 Firewall Edition 4 10Gigabit Ethernet Bundle includes 4 10Gigabit Ethernet interfaces; 2 management interfaces; 5000 IPsec VPN peers; 2 SSL VPN peers, Dual AC power, 3DES/AES license
Cisco ASA 5500 Series IPS Edition Bundles	
ASA5510-AIP10-K9	Cisco ASA 5510 IPS Edition includes AIP-SSM-10, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 5 Fast Ethernet interfaces
ASA5520-AIP10-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-10, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP20-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-20, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-AIP40-K9	Cisco ASA 5520 IPS Edition includes AIP-SSM-40, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP20-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-20, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-AIP40-K9	Cisco ASA 5540 IPS Edition includes AIP-SSM-40, firewall services, 5000 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
Cisco ASA 5500 Series Content Security Edition Bundles	
ASA5510-CSC10-K9	Cisco ASA 5510 Content Security Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces
ASA5510-CSC20-K9	Cisco ASA 5510 Content Security Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 250 IPsec VPN peers, 2 SSL VPN peers, 3 Fast Ethernet interfaces
ASA5520-CSC10-K9	Cisco ASA 5520 Content Security Edition includes CSC-SSM-10, 50-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5520-CSC20-K9	Cisco ASA 5520 Content Security Edition includes CSC-SSM-20, 500-user antivirus/anti-spyware with 1-year subscription, firewall services, 750 IPsec VPN peers, 2 SSL VPN peers, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
Cisco ASA 5500 Series SSL/IPsec VPN Edition Bundles	
ASA5505-SSL10-K9	Cisco ASA 5505 SSL/IPsec VPN Edition includes 10 IPsec VPN peers, 10 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch
ASA5505-SSL25-K9	Cisco ASA 5505 SSL/IPsec VPN Edition includes 25 IPsec VPN peers, 25 SSL VPN peers, 50 firewall users, 8-port Fast Ethernet switch
ASA5510-SSL50-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 50 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces
ASA5510-SSL100-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 100 SSL VPN 100 peers, firewall services, 3 Fast Ethernet interfaces
ASA5510-SSL250-K9	Cisco ASA 5510 SSL/IPsec VPN Edition includes 250 IPsec VPN peers, 250 SSL VPN peers, firewall services, 3 Fast Ethernet interfaces
ASA5520-SSL500-K9	Cisco ASA 5520 SSL/IPsec VPN Edition includes 750 IPsec VPN peers, 500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-SSL1000-K9	Cisco ASA 5540 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 1000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5540-SSL2500-K9	Cisco ASA 5540 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5550-SSL2500-K9	Cisco ASA 5550 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 2500 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet interface

ASA5550-SSL5000-K9	Cisco ASA 5550 SSL/IPsec VPN Edition includes 5000 IPsec VPN peers, 5000 SSL VPN peers, firewall services, 8 Gigabit Ethernet interfaces, 1 Fast Ethernet interface
ASA5580-20-10K-K9	Cisco ASA 5580 SSL/IPsec VPN Edition includes 10,000 IPsec VPN peers, 10,000 SSL VPN peers, firewall services, 4 Gigabit Ethernet interfaces, 2 management interfaces, Dual AC power, 3DES/AES license
Security Services Modules	
ASA-SSM-AIP-10-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 10
ASA-SSM-AIP-20-K9=	Cisco ASA Advanced Inspection and Prevention Security Services Module 20
ASA-SSM-CSC-10-K9=	Cisco ASA Content Security and Control Security Services Module 10 with 50-user antivirus/anti-spyware, 1-year subscription
ASA-SSM-CSC-20-K9=	Cisco ASA Content Security and Control Security Services Module 20 with 500-user antivirus/anti-spyware, 1-year subscription
SSM-4GE=	Cisco ASA 4-Port Gigabit Ethernet Security Services Module
Cisco ASA 5580 Series Interface Expansion Cards	
ASA5580-4GE-CU=	Cisco ASA 5580 4-port 10/100/1000 Ethernet interface card, RJ45
ASA5580-4GE-FI=	Cisco ASA 5580 4-port Gigabit Ethernet fiber interface card, SR, LC
ASA5580-2X10GE-SR=	Cisco ASA 5580 2-port 10 Gigabit Ethernet fiber interface card, SR, LC
Cisco ASA 5500 Series Software	
ASA-SW-UPGRADE=	Cisco ASA Software one-time upgrade for nonsupport customers

For More Information

For more information about the Cisco ASA 5500 Series Adaptive Security Appliance, visit: http://www.cisco.com/go/asa.

Cisco Intrusion Prevention System



Business networks of all sizes now face increasingly sophisticated attacks that can impede productivity, obstruct access to applications and resources, and cause significant communications disruption. In addition, because of compliance regulations and consumer privacy laws, business priorities now include minimizing legal liability, protecting brand reputation, and safeguarding intellectual property.

As an integral part of the Cisco Self-Defending Network and Cisco Threat Control solutions, the Cisco Intrusion Prevention System (IPS) provides end-to-end protection for your network. This inline, network-based defense can identify, classify, and stop known and unknown threats, including worms, network viruses, application threats, system intrusion attempts, and application misuse.

Cisco IPS Sensors and Cisco IPS Sensor Software deliver high-performance, intelligent detection with precision response from the network edge to the data center. This technology provides metrics in both multimedia and transactional environments, so organizations can anticipate true IPS performance tailored to their business. The sensors can be deployed widely and incrementally on servers and endpoints, as dedicated appliances and as service modules on routers, switches, and firewalls. They collaborate and adapt in real time to emerging threats.

In addition, with Cisco Services for IPS, organizations easily manage their IPS deployment with near-real time updates to the most recent threats.

Ideal for Companies that Need These Features

- Cisco IPS 4200 Series Sensor—A dedicated hardware appliance platform with these performance levels: 80 Mbps—Cisco IDS 4215 Sensor; 250 Mbps—Cisco IPS 4240 Sensor; 600 Mbps—Cisco IPS 4255 Sensor; 1 Gbps—Cisco IPS 4260 Sensor; 4 Gbps—Cisco IPS 4270 Sensor
- Cisco IDS Services Module 2 (IDSM-2)—IPS security module for Cisco Catalyst 6500 Series Switches with this performance level: 500 Mbps
- Cisco Advanced Inspection and Prevention Security Services Module (AIP-SSM)—IPS security module for the Cisco ASA 5500 Series Adaptive Security Appliance with these performance levels: 100 Mbps—Cisco AIP-SSM; 200 Mbps—Cisco AIP-SSM 20
- Cisco IPS Advanced Integration Module (AIM)—IPS AIM for the Cisco 1841, 2800, and 3800 Series Integrated Services Routers with this performance level: 45 Mbps
- Cisco IDS Network Module (NM-CIDS)—Cisco network module that provides IDS capability for Cisco access routers with this performance level: 45 Mbps
- Cisco IOS IPS—Focused set of IPS capabilities using Cisco IOS Software on the router with varying performance levels.

Key Features

- Pervasive network integration—Cisco Intrusion Prevention System (IPS) solutions defeat threats from multiple vectors, including network, server, and desktop endpoints. The solutions extend across Cisco platforms, from purpose-built appliances and integrated firewall and IPS devices to services modules for routers and switches. A Cisco IPS solution protects the network from policy violations, vulnerability exploitations, and anomalous activity through detailed inspection of traffic at Layers 2 through 7, across the entire network.
- Collaborative threat prevention—A Cisco IPS solution employs a unique, system-wide security ecosystem that assesses and reacts to threats, delivering exceptional network scalability and resiliency. This ubiquitous alliance includes cross-solution feedback linkages, common policy management, multivendor event correlation, attack-path identification, passive-active fingerprinting, and host-based (Cisco Security Agent) IPS collaboration.
- Proactive posture adaptation—As an organization's network threat posture changes, a Cisco IPS solution evolves and adapts to stay ahead of the security landscape, mitigating threats by both known and unknown attacks. Extensive behavioral analysis, anomaly detection, policy adjustments, and rapid threat-response techniques save time, resources, and most importantly, the organization's assets and productivity.

NOTE: IPS technology strategically deployed throughout the network provides excellent end-to-end, zero-day protection. A Cisco IPS solution protects an organization's infrastructure and business.

Specifications

Feature	IDS-4215	IPS-4240	IPS-4255	IPS-4260	IPS Module (IDSM-2)	IPS Network Module (NM-CIDS)
Performance	65 Mbps	250 Mbps	500 Mbps	1 Gbps	500 Mbps	45 Mbps
Monitoring Interface	Autosensing 10/100 Base-T Ethernet	Four 10/100/1000 Base-TX	Four 10/100/1000 Base-TX	Autosensing 10/100/1000 Base-TX	PCI	Internal 10-100-Mbps Ethernet and external 10-100-Mbps Ethernet
Optional Interface	Four 10/100 Base-Tx (4FE) sniffing interfaces (allowing a total of 5 sniffing interfaces)			4x 10/100/1000 Base-TX 2x1000SX		
Command and Control Interface	10/100 Base-TX	10/100 Base-TX	10/100 Base-TX	10/100 Base-TX	PCI	10/1010/100 Base-TX

Selected Part Numbers and Ordering Information

IPS 4200 Appliances	
IDS-4215-K9	Cisco IPS 4215 Sensor (chassis, software, SSH, two onboard 10/100BASE-TX interfaces w/ RJ-45 connector)
IDS-4215-4FE-K9	Cisco IPS 4215 Sensor (chassis, software, SSH, two onboard 10/100BASE-TX interfaces with RJ-45 connector plus 4-FE interface card)
IPS-4240-K9	Cisco IPS 4240 Sensor (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS4240-DC-K9	Cisco IPS 4240 NEBS-Compliant Sensor with DC power (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4255-K9	Cisco IPS 4255 Sensor (chassis, software, SSH, four 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4260-K9	Cisco IPS 4260 Sensor (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS-4260-4GE-BP-K9	Cisco IPS 4260 Sensor with an included 4-GE copper NIC with hardware bypass (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four 10/100/1000BASE-TX interfaces with built-in bypass)
IPS-4260-2SX-K9	Cisco IPS 4260 Sensor with an included NIC card (chassis, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and two fiber interfaces)
IPS4270-20-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector)
IPS4270-20-4GE-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four 10/100/1000BASE-TX interfaces)
IPS4270-20-4SX-K9	Cisco IPS 4270 Sensor (chassis, redundant power, software, SSH, two onboard 10/100/1000BASE-TX interfaces with RJ-45 connector, and four fiber interfaces)

IPS-4GE-BP-INT=	Spare 4-port copper interface card with built-in hardware bypass for the Cisco IPS 4260 and 4270
IPS-2SX-INT=	Spare 2-port fiber interface card for the Cisco IPS 4260 and 4270
Cisco ASA 5510 Series Adaptive Security Appliances	
ASA5510-AIP10-K9	Cisco ASA 5510 Adaptive Security Appliance with SSM-AIP-10 (chassis, software, 50 VPN peers, 4 Fast Ethernet interfaces, Triple Data Encryption Standard/Advanced Encryption Standard [3DES/AES])
Cisco ASA 5520 Series Adaptive Security Appliances	
ASA5520-AIP10-K9	Cisco ASA 5520 Adaptive Security Appliance with SSM-AIP-10 (chassis, software, 300 VPN peers, 4 Gigabit Ethernet interfaces, 3DES/AES)
ASA5520-AIP20-K9	Cisco ASA 5520 Adaptive Security Appliance with SSM-AIP-20 (chassis, software, 300 VPN peers, 4 Gigabit Ethernet interfaces, 3DES/AES)
Cisco ASA 5540 Series Adaptive Security Appliances	
ASA5540-AIP20-K9	Cisco ASA 5540 Adaptive Security Appliance with SSM-AIP-20 (chassis, software, 500 VPN peers, 4 Gigabit Ethernet interfaces, 3DES/AES)
Security Services Modules	
ASA-SSM-AIP-10-K9=	Cisco ASA 5500 Series Advanced Inspection and Prevention Security Services Module 10 (AIP-SSM-10)
ASA-SSM-AIP-20-K9=	Cisco ASA 5500 Series Advanced Inspection and Prevention Security Services Module 20 (AIP-SSM-20)
IPS AIM for ISR	
AIM-IPS-K9	Cisco Intrusion Prevention System Advanced Integrated Module for Cisco 1841, 2800, 3800

Cisco Catalyst 6500 Series Firewall Services Module



The Cisco Catalyst 6500 Series Firewall Services Module (FWSM) is a high-speed, integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series Routers. It provides one of the fastest firewall data rates in the industry: 5-Gbps throughput, 100,000 cells per second (CPS), and 1 million concurrent connections. Up to four FWSMs can be installed in a single chassis, providing scalability to 20 Gbps per chassis. Based on Cisco PIX Firewall technology, the Cisco FWSM offers large enterprises and service providers exceptional security, reliability, and performance.

The Cisco FWSM includes numerous advanced features that help reduce costs and operational complexity while allowing organizations to manage multiple firewalls from the same management platform. Features such as resource manager helps organizations limit the resources allocated to any security context at any time, thus helping ensure that one security context does not interfere with another. The transparent firewall feature configures the FWSM to act as a Layer 2 bridging firewall, resulting in minimal changes to network topology.

Ideal for Companies that Need These Features

- Ability to add an integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series Routers

Key Features

- An integrated module—Installed inside a Cisco Catalyst 6500 Series Switch or Cisco 7600 Internet Router, the Cisco Catalyst 6500 Series Firewall Services Module (FWSM) allows any port on the device to operate as a firewall port and integrates firewall security inside the network infrastructure.
- Compatibility with future versions—The FWSM can handle up to 5 Gbps of traffic, providing exceptional performance to meet future requirements without requiring a system overhaul. Up to three additional FWSMs can be added to the Cisco Catalyst 6500 to achieve better than 10-Gigabit Ethernet scalability.
- Enhanced reliability—The FWSM is based on Cisco PIX technology and uses the same time-tested Cisco PIX Operating System, a secure, real-time operating system.
- Lower cost of ownership—The FWSM offers among the best price-to-performance ratios of any firewall. Because FWSM is based on the Cisco PIX Firewall, the cost of training and management is lower, and because it is integrated in the chassis, there are fewer boxes to manage.
- Ease of use—The intuitive GUI of the Cisco PIX Device Manager can be used to manage and configure the features within the FWSM. The FWSM can now be managed using the Cisco ASA 5500 Series Adaptive Security Device Manager (ASDM) v5.2 as well.
- Efficiency and productivity gains—Virtualized FWSM delivers multiple firewalls on one physical hardware platform. Network administrators can configure, deploy, and manage these functions as if they were separate devices. Using virtualization to reduce the number of physical devices in a network significantly reduces the cost and complexity of managing network infrastructure.

Specifications

Performance	5.5 Gbps throughput per service module; Up to four FWSMs (20 Gbps) per Catalyst 6500 chassis with static VLAN or IOS Policy-based Routing; 2.8 Mpps; 1 million concurrent connections; 100,000 connection setups and teardowns per second; 256,000 concurrent NAT or PAT translations; Jumbo Ethernet packets (8500 bytes) supported
VLAN Interfaces	1000 total per service module; 256 VLANs per security context in routed mode; 8 VLAN pairs per security context in transparent mode
Access Lists	Up to 80,000 access control entries in single context mode NOTE: The FWSM implements Layer 3 and 4 access control security checks in hardware with virtually no performance impact using non-upgradeable high-speed memory
Virtual Firewalls (Security Contexts)	20, 50, 100, 250 Virtual Firewall licenses; Virtual Firewalls and 1 administrative context are provided for testing purposes.

Selected Part Numbers and Ordering Information

Hardware	
WS-SVC-FWM-1-K9	Firewall Services Module for Cisco Catalyst 6500 and 7600 Series
WS-SVC-FWM-1-K9=	Firewall Services Module for Cisco Catalyst 6500 and 7600 Series (spare)
Security Bundles	
WS-C6506-E-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis and Supervisor 720 3B
WS-C6509-E-FWM-K9	Cisco Catalyst 6509 Firewall Security System with Enhanced Chassis and Supervisor 720 3B
WS-C6513-FWM-K9	Cisco Catalyst 6513 Firewall Security System with Supervisor 720 3B
WS-6509EXL-2FWM-K9	Cisco Catalyst 6509 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and two Firewall Service Modules
WS-6513XL-2FWM-K9	Cisco Catalyst 6513 Firewall Security System with Supervisor 720 3BXL and two Firewall Service Modules
WS-6506-EXL-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
WS-6509-EXL-FWM-K9	Cisco Catalyst 6506 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
WS-C6513-XL-FWM-K9	Cisco Catalyst 6513 Firewall Security System with Enhanced Chassis, Supervisor 720 3BXL and one Firewall Service Module
Software	
SC-SVC-FWM-1.1-K9	Firewall Services Module Software Release 1.1 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-1.1-K9=	Firewall Services Module Software Release 1.1 for Cisco Catalyst 6500 and 7600 Series (spare)
SC-SVC-FWM-2.2-K9	Firewall Services Module Software Release 2.2 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-2.2-K9=	Firewall Services Module Software Release 2.2 for Cisco Catalyst 6500 and 7600 Series (spare)
SC-SVC-FWM-2.3-K9	Firewall Services Module Software Release 2.3 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-2.3-K9=	Firewall Services Module Software Release 2.3 for Cisco Catalyst 6500 and 7600 Series (spare)
SC-SVC-FWM-3.1-K9	Firewall Services Module Software Release 3.1 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-3.1-K9=	Firewall Services Module Software Release 3.1 for Cisco Catalyst 6500 and 7600 Series (spare)
SC-SVC-FWM-3.2-K9	Firewall Services Module Software Release 3.2 for Cisco Catalyst 6500 and 7600 Series
SC-SVC-FWM-3.2-K9=	Firewall Services Module Software Release 3.2 for Cisco Catalyst 6500 and 7600 Series (spare)

NOTE: Cisco Firewall Services Module Software 1.1 has reached end-of-sale status. Customers are encouraged to upgrade or purchase FWSM Software 2.3 or 3.1, 3.2.

For More Information

For more information about the Cisco Catalyst 6500 Series Firewall Services Module, visit: http://www.cisco.com/en/US/products/hw/modules/ps2706/ps4452/index.html.

Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module

The Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module is a high-speed, integrated SSL VPN services module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers that addresses the scalability, performance, application support, and security required for large-scale, remote-access SSL VPN deployments. Supporting up to 32,000 SSL VPN users and 128,000 connections per chassis, the Cisco WebVPN Services Module can cost-effectively meet the capacity requirements of large enterprises. The innovative virtualization capabilities integrated into the module simplify the policy creation and enforcement for diverse enterprise user communities and make it an ideal solution for managed service providers. Taking advantage of the broad, industry-proven application support and endpoint security provided by Cisco VPN 3000 Series Concentrators, the

Cisco WebVPN Services Module is ideally suited to meet the secure connectivity demands of any organization.

Ideal for Companies that Need These Features

- Ability to add a high-speed, integrated SSL VPN services module for Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Routers

Key Features

- Integration with network infrastructure—Incorporating VPN into the Cisco Catalyst 6500 Series Switches and Cisco 7600 Series Internet Routers helps secure the network without the need for extra overlay equipment or network alterations.
- Virtualization and Virtual Route Forwarding (VRF) awareness—Virtualization technology is a way to pool resources while masking the physical attributes and boundaries of the resources from the resource users. Up to 128 VRF-aware virtual contexts are supported per module.
- Advanced endpoint security—A primary component of the Cisco WebVPN Services Module, Cisco Secure Desktop offers preconnection security posture assessment and a consistent and reliable means of eliminating all traces of sensitive data.
- Scalability—A single module is capable of supporting up to 8000 simultaneous users and up to 32,000 concurrent connections. Up to four modules can be supported in a single chassis to support up to 32,000 simultaneous SSL VPN users and 128,000 connections.
- Ease of deployment—The Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module comes with integrated device-manager support. This support helps configure and provision the module without the need for an external element management system, providing a ready-to-deploy solution.

Specifications

Scalability	Up to 8000 users; Up to 300 Mbps; Up to 64 SSL VPN virtual contexts and 64 gateways; Up to 4 modules in a chassis
Virtualization	Ability to divide into multiple contexts, with each context as a complete logical representation of the WebVPN Services Module, complete with separate policies and configuration
VRF-Aware	VRF mapping; Single-IP model (URL-based or login-name-based); Multiple-IP model; Per-VRF AAA server; Per-VRF DNS server; Per-VRF gateway; Per-VRF number of users
User Authentication	RADIUS; Windows NT, Active Directory, UNIX NIS; Group-based access control using Cisco Secure Access Control Server (ACS)
End-System Integrity (Cisco Secure Desktop integration)	Antivirus check; Personal firewall check; Seeks to minimize risk of temporary and downloaded files and cookies from remaining on system
Redundancy and Load Sharing	Stateless failover; Cisco IOS Software server-load balancing (SLB) and Content Switching Module integration within the chassis; Active/Active failover
Application Support	Web access, file services, e-mail, Telnet, file transfer, legacy applications, specialized applications
Browser Support	Netscape, Internet Explorer, Firefox
Protocols	SSL 3.0 and 3.1; TLS 1.0
Configuration and Management	Console CLI, HTTP, HTTPS, Telnet, Secure Shell (SSH)
Syslog Support	Console display, external server, internal buffer
Cipher Suites	SSL_RSA_WITH_RC4_128_MD5; SSL_RSA_WITH_RC4_128_SHA; SSL_RSA_WITH_DES_CSC_SHA; SSL_RSA_WITH_3DES_EDE_CBC_SHA
Network Access Control	IP address; Differentiated Services Code Point/Type of Service (DSCP/ToS), TCP/UDP port, per-user, per-group

Selected Part Numbers and Ordering Information

WS-SVC-WEBVPN-K9	WebVPN Services Module for Cisco Catalyst 6500 Series and Cisco 7600 Series
WS-SVC-WEBVPN-K9=	WebVPN Services Module (spare)
SC-SVC-WVPN-11-K9	WebVPN Services Module Software 1.1
SC-SVC-WVPN-11-K9=	WebVPN Services Module Software 1.1 (spare)

For More Information

For more information about the Cisco Catalyst 6500 Series/7600 Series WebVPN Services Module, visit: http://www.cisco.com/en/US/products/ps6404/index.html.

Cisco SSL VPN Solutions

Today's remote-access VPN deployments require the ability to safely and easily extend corporate network access beyond managed desktops to different users, devices, and endpoints. The Cisco SSL VPN Client with Cisco ASA 5500 Series SSL and IPsec VPN Edition allows organizations to securely provide network access to a broad array of users, including mobile and fixed endpoints, remote offices, contractors, and business partners.

Supporting a wide range of deployment and application environments, the Cisco ASA 5500 Series SSL/IPsec VPN Edition delivers maximum value to organizations with its exceptionally comprehensive set of Secure Socket Layer (SSL) and IP Security (IPsec) VPN features, performance, and scalability. The Cisco ASA 5500 Series SSL/IPsec VPN Edition also allows organizations to use a powerful combination of multiple market-proven firewall, intrusion-prevention-system (IPS), and content-security technologies on a single, unified platform.

Ideal for Companies that Need These Features

- A feature-rich solution that offers a comprehensive breadth of platform and endpoint support in a simple-to-manage, flexible, easy-to-deploy, cost-effective solution
- Concurrent user scalability from 10–10,000 sessions per device and tens of thousands of sessions per cluster
- Combined SSL and true IPSec remote-access capability, coupled with industry-leading firewall, intrusion-prevention-system (IPS), and content-security capabilities
- A comprehensive, performance-optimized solution that offers high-quality application support, namely for delay-sensitive applications such as voice and video

Key Features

- Deployment flexibility—The Cisco SSL VPN with Cisco ASA 5500 Series Adaptive Security Appliance extends the appropriate SSL VPN technology, either clientless or full-network access, on a resource-granular per-session basis, depending on the user group or endpoint accessing the network.
- Comprehensive network access—Broad application and network resource access is provided through the Cisco AnyConnect VPN Client, an automatically downloadable network-tunneling client that provides access to virtually any application or resource.
- Optimized network performance—The Cisco AnyConnect VPN Client provides an optimized VPN connection for latency-sensitive traffic, such as voice-over-IP (VoIP) traffic or TCP-based application access.
- Ubiquitous clientless access—The solution delivers secure remote access to authenticated users on both managed and unmanaged endpoints, facilitating increased productivity by providing "anytime access" to the network.
- Granular control—The solution empowers network and IT management with additional tools to provide controlled access to corporate network resources and applications.
- Exceptional management flexibility—The application simplifies the complexity of managing diverse, remote-access connectivity requirements common in today's enterprise.
- Low total cost of ownership (TCO)—The solution reduces expensive help-desk calls associated with network connectivity problems and eliminates the administration costs of managing VPN client software on every endpoint.

Specifications

	Cisco ASA 5505	Cisco ASA 5510	Cisco ASA 5520	Cisco ASA 5540	Cisco ASA 5550	Cisco ASA 5580-20	Cisco ASA 5580-40
Maximum VPN Throughput	100 Mbps	170 Mbps	225 Mbps	325 Mbps	425 Mbps	1 Gbps	1 Gbps
Maximum Concurrent SSL VPN Sessions[1]	25	250	750	2500	5000	10,000	10,000
Maximum Concurrent IPsec VPN Sessions[1]	25	250	750	5000	5000	10,000	10,000
Profile	Desktop	1-RU	1-RU	1-RU	1-RU	4-RU	4-RU
Stateful Failover	No	Licensed feature[2]	Yes	Yes	Yes	Yes	Yes

VPN Load Balancing	No	Licensed feature[2]	Yes	Yes	Yes	Yes	Yes
Interfaces	Eight 10/100 copper Ethernet ports with dynamic port grouping (include two Power over Ethernet ports), three USB ports	Five 10/100 copper Ethernet ports, two USB ports	Four 10/100/1000 copper Ethernet ports, one out-of-band management port, two USB ports	Four 10/100/1000 copper Ethernet ports, one out-of-band management port, two USB ports	Eight Gigabit Ethernet ports, four SFP fiber ports, one Fast Ethernet port	Two USB ports, Two RJ-45 Management ports, Two Gigabit Ethernet Management ports With Interface Expansion Cards: -Up to Twelve 10 Gigabit Ethernet (10GE) ports -Up to Twenty-Four Gigabit Ethernet ports -Up to Twenty-Four 10/100/1000 Ethernet ports	Two USB ports, Two RJ-45 Management ports, Two Gigabit Ethernet Management ports With Interface Expansion Cards: -Up to Twelve 10 Gigabit Ethernet (10GE) ports -Up to Twenty-Four Gigabit Ethernet ports -Up to Twenty-Four 10/100/1000 Ethernet ports

1. Devices include a license for two SSL VPN users for evaluation and remote management purposes. The total concurrent IPsec and SSL (clientless and tunnel-based) VPN sessions may not exceed the maximum concurrent IPsec session count shown in the chart. The SSL VPN session number may also not exceed the number of licensed sessions on the device. The ASA 5580 Series supports greater simultaneous users than the ASA 5550 Series at comparable overall SSL VPN throughput as the ASA 5550 Series. These items should be taken in to consideration as part of your capacity planning
2. Upgrade is available with Cisco ASA 5510 Security Plus license.

Selected Part Numbers and Ordering Information

The following tables provide a subset of ordering information for the Cisco ASA 5500 Series SSL/IPsec VPN Edition. All Cisco ASA 5500 Series appliances include maximum IPsec concurrent users in the base configuration of the chassis. All SSL VPN features are included under a single feature license. Every Cisco ASA 5500 Series model can support SSL VPN through the purchase of an SSL VPN license. SSL VPN on the Cisco ASA 5500 Series may be purchased under a single part number as an edition bundle, or the chassis and SSL VPN feature license may be purchased separately, as indicated in Table 3. SSL VPN Users licenses are not additive. Upgrade Licenses paths are available for migration to higher Concurrent SSL users counts. To place an order, visit the Cisco Ordering Home Page.

Ordering Information for Edition Bundles		
ASA5505-SSL10-K9	10 SSL VPN users	Cisco ASA 5505 SSL/IPsec VPN Edition for 10 concurrent SSL VPN users
ASA5505-SSL25-K9	25 SSL VPN users	Cisco ASA 5505 SSL/IPsec VPN Edition for 25 concurrent SSL VPN users
ASA5510-SSL50-K9	50 SSL VPN users	Cisco ASA 5510 SSL/IPsec VPN Edition for 50 concurrent SSL VPN users
ASA5510-SSL100-K9	100 SSL VPN users	Cisco ASA 5510 SSL/IPsec VPN Edition for 100 concurrent SSL VPN users
ASA5510-SSL250-K9	250 SSL VPN users	Cisco ASA 5510 SSL/IPsec VPN Edition for 250 concurrent SSL VPN users
ASA5520-SSL500-K9	500 SSL VPN users	Cisco ASA 5520 SSL/IPsec VPN Edition for 500 concurrent SSL VPN users
ASA5540-SSL1000-K9	1000 SSL VPN users	Cisco ASA 5540 SSL/IPsec VPN Edition for 1000 concurrent SSL VPN users
ASA5540-SSL2500-K9	2500 SSL VPN users	Cisco ASA 5540 SSL/IPsec VPN Edition for 2500 concurrent SSL VPN users
ASA5550-SSL2500-K9	2500 SSL VPN users	Cisco ASA 5550 SSL/IPsec VPN Edition for 2500 concurrent SSL VPN users
ASA5550-SSL5000-K9	5000 SSL VPN users	Cisco ASA 5550 SSL/IPsec VPN Edition for 5000 concurrent SSL VPN users
ASA5580-20-10K-K9	10,000 SSL VPN users	Cisco ASA 5580-20 SSL/IPsec VPN Edition for 10,000 concurrent SSL VPN users

Cisco ASA Chassis and Applicable SSL VPN Licenses								
SSL VPN User Requirements	**Part Number**	**Cisco ASA 5505**	**Cisco ASA 5510**	**Cisco ASA 5520**	**Cisco ASA 5540**	**Cisco ASA 5550**	**Cisco ASA 5580-20**	**Cisco ASA 5580-40**
10 SSL VPN users	ASA5500-SSL-10	X	X	X	X	X	X	X
25 SSL VPN users	ASA5500-SSL-25	X	X	X	X	X	X	X
50 SSL VPN users	ASA5500-SSL-50		X	X	X	X	X	X

100 SSL VPN users	ASA5500-SSL-100	X	X	X	X	X	X
250 SSL VPN users	ASA5500-SSL-250	X	X	X	X	X	X
500 SSL VPN users	ASA5500-SSL-500		X	X	X	X	X
750 SSL VPN users	ASA5500-SSL-750		X	X	X	X	X
1000 SSL VPN users	ASA5500-SSL-1000			X	X	X	X
2500 SSL VPN users	ASA5500-SSL-2500			X	X	X	X
5000 SSL VPN users	ASA5500-SSL-5000				X	X	X
10,000 SSL VPN users	ASA5500-SSL-10K					X	X

For More Information

For more information about the Cisco SSL VPN Client with Cisco ASA 5500 Series Adaptive Security Appliance, visit: http://www.cisco.com/go/asa.

IronPort E-mail Security Appliances

The IronPort e-mail security appliances are some of the most sophisticated systems available today. In production at eight of the ten largest Internet service providers (ISPs) and more than 20 percent of the world's largest enterprises, these systems have a demonstrated record of unparalleled security and reliability. The same code base that powers the most sophisticated customers is available in all of IronPort e-mail security appliances to protect enterprises of all sizes. By reducing the downtime associated with spam, viruses, and a wide variety of other threats, these products facilitate the administration of corporate mail systems and reduce the burden on technical staff. IronPort e-mail security appliances support and protect organizations' e-mail systems, not only from today's threats, but from those certain to evolve in the future.

Ideal for Companies that Need These Features

- Anti-spam and anti-virus solution—IronPort offers multiple layers of defense against spam and viruses with a 99 percent catch rate and an industry-low false-positive rate of one in one million.
- Data loss prevention (DLP)—IronPort delivers high-performance, comprehensive data loss prevention for data in motion -- helping organizations both large and small prevent leaks, enforce compliance, and protect their brand and reputation. IronPort believes that a holistic solution for monitoring and data loss across all communication channels is vital to ensure the integrity of an organization's policies. Leadership within the Internet security market, together with its partnerships with industry-leading DLP vendors, puts IronPort in the unique position to offer a single vantage point to enterprises for this critical functionality.
- Regulatory compliance—IronPort's predefined content filters for Health Insurance Portability and Accountability Act (HIPAA), Gramm-Leach-Bliley (GLB), Sarbanes-Oxley Act of 2002 (SOX), and other regulations automatically scan e-mail messages for protected financial and health information. Easily extensible lexicons allow companies to customize these rules to meet specific requirements.
- E-mail encryption—IronPort PXE technology provides secure, policy-based e-mail encryption that is simple for both senders and receivers, and accessible from any e-mail platform. It meets compliance requirements and protects confidential information without the cost and complexity of the public key infrastructure (PKI).
- Organization size requirements—IronPort offers various appliances to meet the needs of companies of all sizes. The following list offers a general description for each product: IronPort Blocker—1–200 email users; IronPort C150—For small to midsize organizations; IronPort C350—For midsize enterprises; IronPort C650—For enterprises; IronPort X1050—For large enterprises and Internet service providers (ISPs)

NOTE: Please contact IronPort for sizing of specific appliances.

Key Features

- IronPort AsyncOS—IronPort AsyncOS is a unique, high-performance software architecture engineered from the ground up to address concurrency-based communications bottlenecks and the limitations of file-based queuing.
- IronPort Reputation Filters—IronPort Reputation Filters perform a real-time e-mail threat assessment and then identify suspicious e-mail senders. Suspicious senders are rate-limited or blocked, preventing malicious traffic from entering the network. As the first line of defense on the IronPort e-mail security appliances, Reputation Filters dispose of up to 90 percent of incoming spam at the connection level -- saving bandwidth,

conserving system resources, and yielding the very highest levels of security for critical messaging systems. A proven preventive solution, IronPort Reputation Filters defend the largest Internet service provider (ISP) and enterprise networks, as well as small and medium-sized businesses (SMBs), in production environments around the world.

- IronPort Anti-Spam—The catch rate of IronPort Anti-Spam is 97 to 99 percent. Its false positive rate is less than 1 in 1 million. To eliminate the broadest range of known and emerging e-mail threats, IronPort Anti-Spam combines best-of-class conventional techniques with breakthrough context-sensitive detection technology.
- IronPort Virus Outbreak Filters—IronPort Virus Outbreak Filters detect new virus outbreaks in real time, and then quarantine suspicious messages -- offering protection up to 42 hours before traditional anti-virus solutions.
- IronPort PXE—IronPort PXE encryption technology revolutionizes e-mail encryption, meeting compliance requirements while delivering powerful new business-class e-mail features.
- IronPort Data Loss Prevention (DLP)—IronPort delivers high-performance, comprehensive data loss prevention for data in motion, helping organizations both large and small prevent leaks, enforce compliance, and protect their brand and reputation.
- The IronPort SenderBase Network—SenderBase collects data from more than ten times the networks of competing monitoring systems, with data on more than 30 percent of the world's e-mail and Web traffic. This volume provides a very statistically significant sample size, resulting in immediate and accurate detection of even low-volume mail senders. A highly diverse group of more than 100,000 organizations, including some of the largest networks in the world, contribute information to IronPort's SenderBase on a remarkable 5 billion messages per day. SenderBase gives mail administrators excellent real-time visibility into security threats from around the world.
- The IronPort Threat Operations Center—The 24-hour IronPort Threat Operations Center (TOC) provides a view into global traffic activity, enabling IronPort to analyze anomalies, uncover new threats, and track traffic trends.

Specifications

C150	
Chassis/Processor	
Form Factor	17" 1U rack mounted chassis
Dimensions	1.7" (h) x 17" (w) x 22" (d)
CPU	Single Intel Processor
Storage	
RAID	RAID 1 configuration
Drives	Two 80GB 7200 RPM SATA drives
Connectivity	
Ethernet	Two Embedded Intel Gigabit NICs
Serial	1 DB-9 Serial Port
Mail Operations	
Mail Injection Protocols	SMTP, ESMTP, Secure SMTP over TLS
Mail Delivery Protocols	SMTP, ESMTP, Secure SMTP over TLS
DNS	Internal resolver/cache; Can resolve using local DNS or Internet DNS servers
Interfaces/Configuration	
Web Interface	Accessible by HTTP or HTTPS
Command Line Interface	Accessible via SSH or Telnet; Configuration Wizards
File Transfer	SCP or FTP
Programmatic Monitoring	XML-based configuration files
C350	
Chassis / Processor	
Form Factor	19" Rack-Mountable, 2U rack height
Dimensions	3.5" (h) x 19" (w) x 29" (d)
CPU	One Intel Xeon processor
Power Supplies	Hot-plug redundant, 700 watts, 100/240 volts
Storage	
RAID	RAID 1 configuration; Dual channel hardware with battery-backed cache
Drives	Two hot-swappable, 146GB Ultra 3 SCSI
Capacity	35GB effective queue capacity, 45GB non-mail (e.g. log) capacity
Connectivity	
Ethernet	One Intel 10/100 BaseT and two Broadcom Gigabit BaseT Ethernet ports
Serial	One RS-232 (DB-9) Serial Port
Mail Operations	

Mail Protocols	SMTP, ESMTP, Secure SMTP over TLS
DNS	Internal resolver/cache; Can resolve using local DNS or Internet root servers
LDAP	Integrates with Active Directory, Notes, Domino and OpenLDAP servers
Interfaces / Configuration	
Web Interface	Accessible by HTTP or HTTPS
Command Line Interface	Accessible via SSH or Telnet; Configuration Wizard or command-based
File Transfer	SCP or FTP
Programmatic Monitoring	XML over HTTP(S)
Configuration Files	XML-based configuration files archived or transferred to cluster
Cryptographic Algorithms	
TLS (Encrypted SMTP)	56-bit DES, 168-bit 3DES, 128-bit RC4, 128-bit AES and 256-bit-AES
DomainKeys Signing	512, 768, 1024, 1536 and 2048-bit RSA
SSH for System Management	768 and 1024-bit RSA
Programmatic Monitoring	RC4-SHA and RC4-MD5
SSH for System Management	768 and 1024-bit RSA
HTTPS for System Management	RC4-SHA and RC4-MD5
C650	
Chassis / Processor	
Form Factor	19" Rack-Mountable, 2U rack height
Dimensions	3.5" (h) x 19" (w) x 29" (d)
CPU	Two Intel Multi-Core Processors
Power Supplies	Hot-plug redundant, 750 watts, 100/240 volts
Storage	
RAID	RAID 1+0 configuration; Dual channel hardware with battery-backed cache
Drives	Four hot-swappable, 146 GB Serial attached SCSI
Capacity	70 GB queue capacity, 110 GB discretionary capacity (reporting data, logs, configuration, archives)
Connectivity	
Ethernet	Two Broadcom Gigabit BaseT and One Intel 10/100 BaseT Ethernet ports
Serial	One RS-232 (DB-9) Serial Port
Mail Operations	
Mail Injection Protocols	SMTP, ESMTP, Secure SMTP over TLS
Mail Delivery Protocols	SMTP, ESMTP, Secure SMTP over TLS
DNS	Internal resolver/cache; Can resolve using local DNS or Internet DNS servers
LDAP	Integrates with Active Directory, Notes, Domino and OpenLDAP servers
Interfaces / Configuration	
Web Interface	Accessible by HTTP or HTTPS
Command Line Interface	Accessible via SSH or Telnet; Configuration Wizard or command-based
File Transfer	SCP or FTP
Programmatic Monitoring	XML over HTTP(S)
Configuration Files	XML-based configuration files archived or transferred to cluster
Cryptographic Algorithms	
TLS (Encrypted SMTP)	56-bit DES, 168-bit 3DES, 128-bit RC4, 128-bit AES and 256-bit-AES
DomainKeys Signing	512, 768, 1024, 1536 and 2048-bit RSA
SSH for System Management	768 and 1024-bit RSA
HTTPS for System Management	RC4-SHA and RC4-MD5
X1050	
Chassis / Processor	
Form Factor	19" rack-mountable, 2U rack height
Dimensions	3.5" (h) x 19" (w) x 29" (d)
CPU	Two Intel Multi-Core Processors
Power Supplies	Hot-plug redundant, 750 watts, 100/240 volts
Storage	
RAID	RAID 1+0 configuration; Dual channel hardware with battery-backed cache
Drives	Four hot-swappable, 146 GB Serial attached SCSI
Capacity	70 GB queue capacity, 110 GB discretionary capacity (reporting data, logs, configuration, archives)
Connectivity	
Ethernet	Two Broadcom Gigabit BaseT and One Intel 10/100 BaseT Ethernet ports
Two-port fiber-optic NIC	
Serial	One RS-232 (DB-9) serial port
Mail Operations	

Mail Protocols	SMTP, ESMTP, Secure SMTP over TLS
DNS	Internal resolver/cache; Can resolve using local DNS or Internet DNS servers
LDAP	Integrates with Active Directory, Notes, Domino and OpenLDAP servers
Interfaces / Configuration	
Web Interface	Accessible by HTTP or HTTPS
Command Line Interface	Accessible via SSH or Telnet; Configuration Wizard or command-based
File Transfer	SCP or FTP
Programmatic Monitoring	XML over HTTP(S)
Configuration Files	XML-based configuration files archived or transferred to cluster
Cryptographic Algorithms	
TLS (Encrypted SMTP)	56-bit DES, 168-bit 3DES, 128-bit RC4, 128-bit AES and 256-bit-AES
DomainKeys Signing	512, 768, 1024, 1536 and 2048-bit RSA
SSH for System Management	768 and 1024-bit RSA
HTTPS for System Management	RC4-SHA and RC4-MD5

Selected Part Numbers and Ordering Information

Information below pertains to IronPort's bundle offerings. For a-la-carte, government, or educational pricing, contact an IronPort sales representative at sales@ironport.com.

- AS = Anti-Spam; AV = Anti-Virus; VOF = Virus Outbreak Filters; ENCR = IronPort E-mail Encryption

Single Appliance 1 year			
AS	**AS+AV**	**AS+AV+VOF**	**AS+AV+VOF+ENCR**
EBUN-1A-EN-S-1Y	EBUN-1A-EN-SQ-1Y	EBUN-1A-EN-SQR-1Y	EBUN-1A-EN-SQRT-1Y
Single Appliance 3 year			
AS	**AS+AV**	**AS+AV+VOF**	**AS+AV+VOF+ENCR**
EBUN-1A-EN-S-3Y	EBUN-1A-EN-SQ-3Y	EBUN-1A-EN-SQR-3Y	EBUN-1A-EN-SQRT-3Y
Dual Appliance 1 year			
AS	**AS+AV**	**AS+AV+VOF**	**AS+AV+VOF+ENCR**
EBUN-2A-EN-S-1Y	EBUN-2A-EN-SQ-1Y	EBUN-2A-EN-SQR-1Y	EBUN-2A-EN-SQRT-1Y
Dual Appliance 3 year			
AS	**AS+AV**	**AS+AV+VOF**	**AS+AV+VOF+ENCR**
EBUN-2A-EN-S-3Y	EBUN-2A-EN-SQ-3Y	EBUN-2A-EN-SQR-3Y	EBUN-2A-EN-SQRT-3Y

For More Information

For more information about IronPort products, visit: http://www.cisco.com/web/products/ironport or http://www.ironport.com/products/email_security_appliances.html

IronPort Web Security Appliance

Designed to meet the needs of the most demanding organizations, the IronPort S-Series Web security appliance protects the network perimeter against spyware and a wide variety of Web-based threats. The IronPort Web security appliance combines multiple layers of Web security technology such as deep application content inspection, IronPort's Layer 4 (L4) Traffic Monitor, IronPort Web Reputation Filters and multiple malware signatures.

Ideal for Companies that Need These Features

- A secure Web gateway, with multiple layers of defense against malware—With IronPort, these layers run concurrently on a single, integrated appliance.
- High security and high performance—Unlike other solutions on the market (for example, Blue Coat, Websense), security was not developed as an afterthought on the IronPort S-Series.
- Consolidated security, acceptable use policy (AUP), application control, and content caching features, all on a single, integrated appliance—Offers ease-of-management and low total cost of ownership (TCO)
- HTTPS decryption and scanning—Most similar solutions cannot scan HTTPS traffic, leaving the user exposed to Web-based threats.

Key Features

- A fast Web proxy is the foundation for security and acceptable use policy (AUP) enforcement. It allows for deep content analysis, which is critical to accurately detect devious and rapidly mutating Web-based malware.

- IronPort's integrated Layer 4 (L4) Traffic Monitor scans all ports at wire speed, detecting and blocking spyware "phone-home" activity. By tracking all 65,535 network ports, the L4 Traffic Monitor effectively stops malware that attempts to bypass Port 80.

Multi-layer, Multi-vendor Defense in Depth

- IronPort URL Filters offer exceptionally broad reach and a very high accuracy rate in controlling Web content. These filters compare users' Web traffic requests against administrator-set policies for 52 predefined (and an unlimited number of custom) categories, easily addressing acceptable use policy (AUP) concerns.
- The IronPort Anti-Malware System helps enable the IronPort S-Series to be the first solution on the market that offers multiple anti-malware scanning engines on a single, integrated appliance. This system uses the IronPort Dynamic Vectoring and Streaming (DVS) engine and verdict engines from Webroot and McAfee to full advantage.
- Scanning engines from Webroot and McAfee are fully integrated into the IronPort S-Series appliances. The Webroot scanning engine, backed by a threat research team at Webroot, performs both request- and response-side scans. The McAfee scanning engine is backed by Avert Labs, the world's top threat research center. The McAfee database includes in-depth analysis on both viruses and malware.
- The IronPort DVS engine was built to provide an integrated, single-appliance solution with multiple anti-malware scanning engines from different vendors. It employs sophisticated object parsing and streaming techniques to provide all of IronPort's AUP and security features for Web traffic.
- HTTPS decryption enables the IronPort S-Series to enforce acceptable use and security policies over HTTPS-decrypted data. IronPort's Web security solution is the first to use Web reputation and URL filtering to make HTTPS decryption decisions.

Comprehensive Management and Reporting Capabilities

- IronPort Web Security Manager provides a single, easy-to-understand view of all access and security policies configured on the appliance. Administrators manage all Web access policies (including those for URL filtering, reputation filtering, and malware filtering) from a single location.
- IronPort Web Security Monitor provides valuable insight into overall Web activity, as well as threat identification and prevention, within corporate networks. These on- and off-box reports are designed to provide actionable information as well as historical trends.
- Multiple deployment modes facilitate flexibility within a corporate network. Deployment modes include deployment as an explicit forward proxy for the network or transparent deployment off a Layer 4 switch or a Web Cache Communication Protocol (WCCP) router within the network.
- A Simple Network Management Protocol (SNMP) Enterprise MIB facilitates hands-off monitoring and alerting for key system metrics, including hardware, performance, and availability.
- Integrated authentication through standard directories (such as Lightweight Directory Access Protocol [LDAP] or Active Directory) and the ability to implement multiple authentication schemes (such as NT LAN Manager [NTLM] or Basic) lets enterprises deploy the IronPort S-Series transparently, while taking advantage of preexisting authentication and access control policies within their networks.
- Extensive logging allows enterprises to keep track of all Web traffic, both benign and malware-related. Standard log formats include Apache, Squid or Squid-detailed -- along with the ability to specify custom log formats consistent with enterprise logging policies.

Specifications

Chassis / Processor	
Form Factor	Form Factor 19" Rack-Mountable, 2U rack height
Dimensions	3.5" (h) x 19" (w) x 29" (d)
CPU	2x Dual Core Intel Xeon 5140, 4 MB Cache
Memory	4 GB 533 MHz, Dual Ranked DIMMs
Backplane	PERC 5/i, x6 Backplane, Integrated Controller Card
Power Supplies	Hot-plug redundant, 700 watts, 100/240 volts
Storage	
RAID	RAID 10 configuration; Dual channel hardware with battery-backed cache
Drives	Six hot-swappable, 146 GB SAS Drives, 876 GB Total
Connectivity	
Ethernet	4 Port, Dual Embedded Broadcom Gigabit NIC 2x Intel® PRO 1000PT Gigabit NIC
Serial	One RS-232 (DB-9) Serial Port
Interfaces / Configuration	
Web Interface	Accessible by HTTP or HTTPS
Command Line Interface	Accessible via SSH or Telnet; Configuration Wizard or command-based
File Transfer	SCP, FTP or SYSLOG

Programmatic Monitoring	XML over HTTP(S)
Configuration Files	XML-based configuration files

Selected Part Numbers and Ordering Information

Information below pertains to IronPort's bundle offerings. For a-la-carte, government, or educational pricing please contact an IronPort sales representative at sales@ironport.com.

Note the following: All bundles include Platinum Support, Rails (4-Post Square), and Sawmill Software for IronPort; URL Filtering, Web Reputation Filters, and Anti-Malware System by IronPort; The IronPort Anti-Malware System includes signatures from Webroot and McAfee

Note the following abbreviations: URL = URL Filtering; WEBREP = IronPort Web Reputation Filters; ASPY = Anti-spyware; AV = Anti-virus and anti-malware

Single Appliance Bundles (1 Year)			
	URL	**URL+WREP**	**URL+WREP+ASPY+AV**
Users	WBUN-1A-EN-A-1Y	WBUN-1A-EN-AB-1Y	WBUN-1A-EN-ABC-1Y
Single Appliance Bundles (3 Years)			
	URL	**URL+WREP**	**URL+WREP+ASPY+AV**
Users	WBUN-1A-EN-A-3Y	WBUN-1A-EN-AB-3Y	WBUN-1A-EN-ABC-3Y
Dual Appliance Bundles (1 Year)			
	URL	**URL+WREP**	**URL+WREP+ASPY+AV**
Users	WBUN-2A-EN-A-1Y	WBUN-2A-EN-AB-1Y	WBUN-2A-EN-ABC-1Y
Dual Appliance Bundles (3 Years)			
	URL	**URL+WREP**	**URL+WREP+ASPY+AV**
Users	WBUN-2A-EN-A-3Y	WBUN-2A-EN-AB-3Y	WBUN-2A-EN-ABC-3Y

For More Information

For more information about the IronPort S-Series Web Security Appliance, visit: http://www.cisco.com/web/products/ironport or http://www.ironport.com/products/web_security_appliances.html

Cisco ACE Web Application Firewall

Companies are increasing efficiency and profitably with the implementation of new Web 2.0 and service-oriented-architecture (SOA) application solutions. Unfortunately, criminals are increasingly exploiting these applications for identity theft, data theft, application disruption, and fraud, accelerating compliance efforts focused on application security as seen with the PCI DSS (Payment Card Industry Data Security Standard) 1.1 mandate.

The Cisco ACE Web Application Firewall provides full compliance with the latest PCI requirements. It combines deep Web application analysis with high-performance Extensible Markup Language (XML) inspection and management to address the full range of threats associated with Web application services. The result is dramatically reduced business exposure to attacks on modern mission-critical applications, protection of sensitive customer and corporate information, and enhanced availability.

Ideal for Companies that Need These Features

- A firewall with deep web application analysis with high-performance Extensible Markup Language (XML) inspection
- Compliance with sections 6.5 and 6.6 of the PCI DSS (Payment Card Industry Data Security Standard) 1.1 standard
- A comprehensive Layer 7 security solution to complement existing network firewalls (for customers hosting Web applications)

Key Features

- Secure—Built upon a proven understanding of XML, Cisco ACE WAF secures and protects Web applications from common attacks such as identity theft, data theft, application disruption, fraud, and targeted attacks.
- Scalable—With gigabit throughput, unparalleled support for concurrent transactions, and the ability to scale to the largest of data centers, Cisco ACE WAF enables uninterrupted collaboration in high-paced environments with fewer appliances to store and manage.
- Simple—With centralized enterprise-ready management, including pre-defined compliance and security profiles, Cisco ACE WAF can be simply deployed and easily managed, even with no prior application experience.

- Compliant—With out-of-the-box PCI customizable policies, Cisco ACE WAF allows you to protect your back-end databases and demonstrate compliance through securing, auditing, and reporting on web application activity.

Specifications

Item	Specification
Transport Security	Full SSL v2/3 support with configurable cipher suites; FIPS 140-2 Level 3 platforms available
Cryptographic Support	Cryptographic algorithms including—Advanced Encryption Standard (AES); Data Encryption Standard (DES); Triple DES (3DES); Blowfish; RSA; Diffie-Helmann; Digital Signature Algorithm (DSA); Secure Hash Algorithm 1 (SHA-1) and Message-Digest 5 (MD5)
Web Application Security	Full reverse proxy; Monitor mode deployment; Buffer overflow; HTTP parameter manipulation, Protocol compliance; Null byte blocking; Input encoding normalization; Response filtering and rewriting; Flexible firewall actions; Cookie and session tampering; Cross-site scripting (XSS); Command injection, SQL injection; Privacy enforcement by preventing information leak; Cryptography enforcement; Application and server error message cloaking; Referrer enforcement; Positive and negative security models; Custom rules and signatures; PCI compliance profiles
Administration	Web user interface; Command-line interface; SSH; Simple Network Management Protocol (SNMP); Roles-based access control (RBAC); Delegated administration; Central policy management and distributed enforcement; Import and export of configuration, statistics, and logs
Logging, Monitoring, and Auditing	Syslog and message and event logs; Traffic and service-level agreement (SLA) monitoring and reporting; Statistics for monitoring and various alerts and triggers; Audit trail of administrative operations

Selected Part Numbers and Ordering Information

Part Number	Product Name	Product Options	Support and Services
ACE-XML-K9 or ACE-XML-NF-K9	Cisco ACE Web Application Firewall Appliance	Chassis	CON-SNT-ACEXK9 or CON-SNT-ACEXNK9
ACE-XML-SW-6.0	Cisco ACE Web Application Firewall Software	Software	-
ACE-XML-FIPS or ACE-XML-NONFIPS	FIPS-compliant SSL acceleration or Non-FIPS-compliant SSL acceleration	Cryptography	CON-SNT-ACEXFIPS or CON-SNT-ACEXNFIP
ACE-WAF-GAT-LICFX or ACE-WAF-MGT-LICFX	Cisco ACE Web Application Firewall license or Cisco ACE Web Application Firewall Manager license	Licensing	CON-SAU-ACEWGW or CON-SAU-ACEWMG

NOTE: Cisco ACE Web Application Firewall will be available for ordering beginning May 1, 2008.

For More Information

For more information about the Cisco ACE Web Application Firewall, visit: http://www.cisco.com/en/US/products/ps9586/index.html.

Cisco Security Manager

Cisco Security Manager is a highly scalable, comprehensive solution for provisioning and policy administration of Cisco firewalls, VPNs, and intrusion prevention systems (IPSs). This powerful, easy-to-use tool efficiently scales for managing networks with fewer than 10 devices to very large networks consisting of thousands of devices. The GUI increases the speed and accuracy of policy definitions and deployment. An integral component of the Cisco Security Management Suite, Cisco Security Manager collaborates with Cisco Security MARS to provide a complete security management solution.

Ideal for Companies that Need These Features

- Scalable network management of centrally provisioned Cisco firewalls, VPNs, and IPSs
- Multiproduct, multitechnology security provisioning for a unified management system
- Configuration wizards to reduce complexity
- Enhanced visibility through customized views: Device, Groups, and Topology
- Advanced decision-support workflow

Key Features

- Cisco Security Manager provides a single policy table for all devices—Cisco ASA 5500 Series Adaptive Security Appliances, Cisco PIX security appliances, Cisco IPS 4200 Series Sensors, Cisco Catalyst 6500 Series services modules, and Cisco router platforms running a Cisco IOS Software security software image.
- The application can scale from managing a few devices to thousands of devices.
- The solution provisions Cisco firewalls, VPNs, and intrusion prevention systems (IPSs) regardless of platform.
- Flexible device grouping options allow for management of devices based on type, location, business function, or administration responsibility.
- The solution provides flexible application views to support operational needs.
- Cisco Security Manager provides intelligent analysis of policies for increased accuracy.
- The solution provides automatic updates for IPS sensors.

Specifications

Server Requirements	
System hardware	IBM PC-compatible with a 2-GHz or faster processor; Color monitor with at least 1024 x 768 resolution and a video card capable of 16-bit colors; DVD-ROM drive; 100Base-T (100 Mbps) or faster network connection; single interface only; Keyboard and mouse
File system	NTFS
Memory (RAM)	2 GB
System Software[1]	Microsoft Windows 2003 Server—Enterprise Edition with SP1; Standard Edition with SP1; Microsoft Windows 2000—Advanced Server with SP4; Server with SP4; Professional with SP4
Browser	Microsoft Internet Explorer 6.0 (6.0.2600); or with SP1 (6.0.2800); Mozilla 1.7 or 1.75
Compression software	WinZip 9.0 or compatible
Hard drive space	20 GB
IP Address[2]	One static IP address
Component	Minimum requirement
Client requirements	
System hardware	IBM PC-compatible with a 1-GHz or faster processor; Color monitor with video card set to 24-bit color depth; Keyboard; Mouse
Memory (RAM)	1 GB
Virtual memory/swap space	512 MB
Hard drive space	10 GB
Operating system[1]	Microsoft Windows XP Professional with SP1 or higher; Microsoft Windows 2003—Server Edition with SP1; Enterprise Edition with SP1; Microsoft Windows 2000—Advanced Server with SP4; Professional with SP4
Browser	Microsoft Internet Explorer 6.0 (6.0.2600); or with SP1 (6.0.2800); Mozilla 1.7 or 1.75
Java[3]	Includes an embedded and completely isolated version of Java

1. Supports only the U.S. English and Japanese versions of Windows. CS Manager does not support any other language version. Server only: Microsoft ODBC Driver Manager 3.510 or later is also required to work with Sybase database files.
2. If the server has more than one IP address, disable all but one address. The CS Manager installer displays a warning if it detects any dynamic IP addresses on the target server. Dynamic addresses are not supported.
3. Opening IPS Manager without required version of Java results in CS Manager server displaying a message to install the required Java version. This Java version does not interfere with browser settings or with other Java-based applications.

Selected Part Numbers and Ordering Information

CSMPR-LIC-50	CS Mgr Enterprise Pro - Incremental 50 Device License
CSMPR-LIC-100	CS Mgr Enterprise Pro - Incremental 100 Device License
CSMPR-LIC-500	CS Mgr Enterprise Pro—Incremental 500 Device License
CSMPR-LIC-1000	CS Mgr Enterprise Pro—Incremental 1000 Device License
CSMPR50-3.1-K9	CS Mgr 3.1 Enterprise Pro—50 Device Base Lic Media Kit
CSMPR50-3.1-MR-K9	CS Mgr 3.1 Enterprise Pro—50 Minor Upg Media Kit
CSMPR50-PAK-2	CS Mgr Enterprise Pro 50—RME/PerfMon License
CSMST-CSMPR-UPG-K9	CS Mgr Enterprise Std-25 to Pro-50 Upgrade
CSMST25-3.1-K9	CS Mgr 3.1 Enterprise Standard—25 Device Limit Media Kit
CSMST25-3.1-MR-K9	CS Mgr 3.1 Enterprise Standard—25 Minor Upg Media Kit
CSMST25-PAK-2	CS Mgr Enterprise Standard 25—RME/PerfMon License
CSMST5-3.1-K9	CS Mgr 3.1 Enterprise Standard—5 Device LimitMedia Kit
CSMST5-3.1-MR-K9	CS Mgr 3.1 Enterprise Standard—5 Minor Upg Media Kit

CSMST5-PAK-2	CS Mgr Enterprise Standard 5—RME/PerfMon License
VMS-CSMPR-UPG-K9	VMS to CS Mgr Enterprise Pro—50 Upgrade Media Kit
VMS-CSMST5-UPG-K9	VMS to CS Mgr Enterprise Std—5 Upgrade Media Kit
VMS-CSMST25-UPG-K9	VMS to CS Mgr Enterprise Std—25 Upgrade Media Kit

For More Information

For more information about Cisco Security Manager, visit: http://www.cisco.com/go/csmanager.

Cisco Security Monitoring, Analysis, and Response System (MARS)



Cisco Security Monitoring, Analysis and Response System (MARS) is a family of high-performance, scalable appliances for threat management, monitoring, and mitigation that enable customers to make more effective use of network and security devices by combining traditional security event monitoring with network intelligence, context correlation, vector analysis, anomaly detection, hotspot identification, and automated mitigation capabilities. By combining network intelligence, an understanding of network topology, and automated mitigation capabilities, Cisco Security MARS helps companies accurately identify and eliminate network attacks while maintaining network compliance.

Ideal for Companies that Need These Features

- Cisco Security MARS 25—Low-end device to plot network topology and gain insight into network topology; Analysis of up to 750 events per second; Analysis of up to 15,000 NetFlow flows per second; 250-GB storage (Cisco Security MARS 25 is ideal for small offices, test labs, departments, small retail establishments, DMZs, and customer premises equipment [CPE].)
- Cisco Security MARS 25R—Low-end device to plot network topology and gain insight into network topology; Analysis of up to 75 events per second; Analysis of up to 15,00 NetFlow flows per second; 250-GB storage (Cisco Security MARS 25R is ideal for small offices, test labs, departments, small retail establishments, DMZs, and CPE.)
- Cisco Security MARS 55—Consolidation of firewall and intrusion detection system (IDS) with network events and network flows in a small network; Analysis of up to 1500 events per second; Analysis of up to 30,000 NetFlow flows per second; 500-GB storage (Cisco Security MARS 55 is ideal for small to medium-sized offices, remote branch offices, retail establishments, small businesses, DMZs, and CPE.)
- Cisco Security MARS 110—Analysis of up to 7500 events per second; Analysis of up to 150,000 NetFlow flows per second; 1500-GB Redundant Array of Independent Disks (RAID) storage (Cisco Security MARS 110 is ideal for second-generation appliances for large offices and CPE.)
- Cisco Security MARS 110R—Analysis of up to 4500 events per second; Analysis of up to 75,000 NetFlow flows per second; 1000-GB RAID storage (Cisco Security MARS 110R is ideal for large enterprises, central offices, and large firewalls; that is, firewall services modules [FWSMs].)
- Cisco Security MARS 210—Analysis of up to 15,000 events per second; Analysis of up to 300,000 NetFlow flows per second; 2000-GB RAID storage (Cisco Security MARS 210 is ideal for second-generation appliances for large enterprises, central offices, and large firewalls [FWSMs].)
- Cisco Security MARS GC—Preservation of WAN; Consolidation of reports from distributed "local" controller (Cisco Security MARS GC is ideal for large distributed environments [large enterprises or service provider companies] and multiservice switching platforms [MSSPs]. It is also useful for autonomous business units that are rolling activities to global teams and for state and federal governments for consolidating activities from various agencies.)
- Cisco Security MARS GC2—Preservation of WAN
  (Cisco Security MARS GC2 is ideal for second-generation appliances in large distributed environments [large enterprises or service provider companies] and MSSPs. It is also useful for autonomous business units that are rolling activities to global teams and for state and federal governments for consolidating activities from various agencies.)

Key Features

- Centralized monitoring—Cisco Security MARS provides detailed information about the network infrastructure, including routers, switches, firewalls, VPN concentrators, and endpoint devices, through a variety of device logs, alerts, and NetFlow communication. It also provides process threat information down to the IP and MAC address, nearest attached switch port, as well as the attack path through the network.
- Central event repository—The central event repository serves as a central repository for all events generated by security devices, such as firewalls, authentication servers, network intrusion prevention systems (IPSs) and intrusion detection systems (IDSs) and proxy servers. All collected events are cross-correlated in real time.

- Data reduction—Cisco Security MARS can reduce millions of security events to a handful of actual reported network incidents.
- Timely attack mitigation—Built-in expertise recognizes and recommends mitigation for attacks before they can bring down an entire network.
- End-to-end network awareness—The application integrates Network Address Translation (NAT), Port Address Translation (PAT), and MAC address information to identify attackers, targets, and network hotspots in graphical form for quick action. It uses the full configurations of all types of network devices and end systems. Pre- and post-NAT addresses can be displayed.
- Integrated vulnerability assessment—This solution determines whether a possible network attack is genuine or a false positive, reducing the number of alarms and the time needed to take action.
- Reduced deployment and operation cost—Cisco Security MARS discovers and then maps the topology of a network and becomes operational in a very short period of time.
- Standard 802.1x support—The application facilitates authentication of a host connecting to the switch port before obtaining an IP address.
- Cisco Distributed Threat Mitigation (DTM) and CICS support—This collaborative solution proactively identifies the most active signatures from the IPS appliance deployed in the network and, based on the most active threats detected on the network, distributes the same IPS signatures to the user-defined Cisco IOS IPS devices.
- Case management—Administrators can escalate an incident by creating a case and forwarding the case with notes to other users and security administrators.
- NetFlow analysis—Cisco IOS NetFlow data is collected and analyzed by Cisco Security MARS, at speeds as high as 300,000 flows per second.
- This application provides real-time investigation and compliance reporting.

Specifications

Feature	CS-MARS-25R-K9	CS-MARS-25-K9	CS-MARS-55-K9	CS-MARS-110-K9
Storage	120 GB (non-RAID)	120 GB (non-RAID)	240 GB RAID 0	1500 GB RAID 10 Hot-swappable
Form Factor	1RU x 16	1RU x 16	1RU x 25.6	2RU x 27 3/4" (D); 3.44" (H); 19" (W)
Power Supply	300W, 120/240V autoswitch	300W, 120/240V autoswitch	300W, 120/240V autoswitch	2 x 750W dual-redundant 120/240V autoswitch
Performance				
Events/sec.	50	500	1000	7500
Netflows/ sec.	1500	15,000	30,000	150,000
Feature	**CS-MARS-210-K9**	**CS-MAR-GC-K9**	**CS-MARS-GC2-K9**	
Storage	2000 TB RAID 10 Hot-swappable	1 TB RAID 10 Hot-swappable	2 TB RAID 10 Hot-swappable	
Form Factor	2 RU x 27 3/4" (D); 3.44" (H); 19" (W)	4RU x 25.6	2 RU x 27 3/4" (D); 3.44" (H); 19" (W)	
Power Supply	2 x 750W dual-redundant 120/240V autoswitch	500W dual-redundant 120/240V autoswitch	2 x 750W dual-redundant 120/240V autoswitch	
Events/sec.	15,000			
Netflows/ sec.	300,000			
Maximum Connections		Not restricted	Not restricted	

Selected Part Numbers and Ordering Information

Cisco SMARTnet Service Part Number		
CS-MARS-25R-K9	CON-SNT-MARS25R	Cisco Security MARS 25R
CSMARS-25-LIC-K9=	CON-SNT-MARS25U	Cisco Security MARS 25R upgrade license to CS-MARS-25-K9
CS-MARS-25-K9	CON-SNT-MARS25	Cisco Security MARS 25
CS-MARS-55-K9	CON-SNT-MARS55	Cisco Security MARS 55
CS-MARS-110R-K9	CON-SNT-MARS110R	Cisco Security MARS 110R
CSMARS-110-LIC-K9=	CON-SNT-MARS110U	Cisco Security MARS 110R upgrade license to CS-MARS-110-K9
CS-MARS-110-K9	CON-SNT-MARS110	Cisco Security MARS 110
CS-MARS-210-K9	CON-SNT-MARS210	Cisco Security MARS 210
CS-MARS-GC2R-K9	CON-SNT-MARSGC2R	Cisco Security MARS GC2R

CSMARS-GC2-LIC-K9=	CON-SNT-MARSGC2L	Cisco Security MARS GC2R upgrade license to CS-MARS-GC2-K9
CS-MARS-GC2-K9	CON-SNT-MARSGC2	Cisco Security MARS GC2

For More Information

For more information about Cisco Security MARS, visit: http://www.cisco.com/en/US/products/ps6241/index.html.

Cisco Secure Access Control Server 4.2 for Windows

Cisco Secure Access Control Server (ACS) provides a comprehensive, identity-based access policy system for Cisco intelligent information networks. It is the integration and control platform for managing access policy for network resources.

Cisco Secure ACS provides central management of access policies for both network access and device administration and supports a wide range of access scenarios, including wireless LAN, 802.1x wired, and remote access. The leading authentication, authorization, and accounting (AAA) platform in the market, Cisco Secure ACS is deployed by 90 percent of the top 500 Cisco customers.

Ideal for Companies that Need These Features

- Centralized access policy management for network resources
- Management of network access for wired and wireless connections
- Management of administrative access for network devices
- Management of remote access
- RADIUS or TACACS+ services
- Accounting and log information for audit, planning, troubleshooting, or billing
- 802.1x machine authentication

Key Features

- Cisco Secure Access Control Server (ACS) supports two distinct protocols for authentication, authorization, and accounting (AAA): RADIUS and TACACS+ for the concurrent support of network access and network device access control.
- Cisco Secure ACS provides an onboard database while supporting Windows Active Directory, Lightweight Directory Access Protocol (LDAP), and Open Database Connectivity (ODBC) for integration with existing user databases. Support for RSA SecurID Authentication Manager and RADIUS-enabled token servers allows integration of strong authentication.
- Cisco Secure ACS supports a wide range of authentication protocols, including Password Authentication Protocol (PAP), Challenge Handshake Authentication Protocol (CHAP), Microsoft CHAP (MS-CHAP), Extensible Authentication Protocol-Message Digest algorithm 5 (EAP-MD5), EAP-Generic Token Card (EAP-GTC), Cisco LEAP, Protected EAP (PEAP), EAP-Flexible Authentication via Secure Tunneling (EAP-FAST), and EAP-Transport Layer Security (EAP-TLS) to support all authentication requirements.
- Cisco Secure ACS allows the configuration of complex network access policies that may include authentication protocol requirements, device restrictions, time-of-day restrictions, posture validation, and other access requirements. Cisco Secure ACS may apply downloadable access control lists (dACLs), VLAN assignments, and other authorization parameters.
- Cisco Secure ACS replication allows replication of administrator-defined configuration items across ACS servers in the network, providing both flexibility and ease of administration for large networks.
- Cisco Secure ACS logs are viewable and exportable for use in other systems.

Specifications

Hardware Requirements	IBM PC compatible with Pentium IV processor, 1.8 GHz or faster ; 1GB RAM minimum ; Color monitor with minimum graphics resolution of 256 colors at 800 x 600 resolution ; CD-ROM drive ; 100BaseT or faster network connection
OS Requirements	Windows Server 2003, R2, Service Pack 2

Selected Part Numbers and Ordering Information

CSACS-4.2-WIN-K9	Cisco Secure ACS for Windows 4.2
CSACS-4.2-WIN-MR-K9	Upgrade to Cisco Secure ACS 4.2 for Windows from version 4.0 or 4.1
CSACS-4.2-WINUP-K9	Upgrade to Cisco Secure ACS 4.2 for Windows from version 3.x

For More Information

For more information about Cisco Secure ACS for Windows, visit: http://www.cisco.com/go/acs.

Cisco Secure Access Control Server 4.2 Solution Engine (ACS SE)

Cisco Secure Access Control Server 4.2 Solution Engine (ACS SE) is a ready-to-use, security-hardened server dedicated to running Cisco Secure ACS services. Cisco Secure ACS is an industry-leading, highly scalable access policy platform that supports comprehensive, identity-based network access control. Cisco Secure ACS provides central management of access policies for both network access and device administration and supports a wide range of access scenarios, including wireless LAN, 802.1x wired, and remote access.

Ideal for Companies that Need These Features

- A dedicated, security-hardened, application-specific appliance package

This product is ideal for customers not willing to install or manage a Windows OS environment.

Key Features

- Cisco Secure ACS SE is dedicated to run only the Cisco Secure ACS service, preventing any appliance-based OS changes, additions, or configuration modifications.
- A serial console interface is provided for initial configuration, subsequent management of IP connections, access to the Cisco Secure ACS HTML interface, and application of upgrade and recovery procedures.
- Solution engine-specific management tools provide generic appliance-management capabilities including backup, recovery, software upgrades, monitoring, maintenance, and troubleshooting functions.
- The solution provides authentication against Windows domains and remote logging capabilities of user accounting records.
- A packet-filtering service blocks traffic on all but the necessary Cisco Secure ACS-specific TCP and User Datagram Protocol (UDP) ports.
- Preinstalled, standalone Cisco Security Agent helps protects Cisco Secure ACS Solution Engine from zero-day attacks.
- Built-in Network Time Protocol (NTP) functions maintain network timing synchronization and consistency with other Cisco Secure ACS appliances or network devices.

Specifications

Processor	Pentium IV, 3.4 GHz
Memory	1 GB RAM
Hard drive	120 GB SATA
Optical Drive	CD/DVD combo
Interfaces	Two integrated 10/100/1000 Ethernet ports

Selected Part Numbers and Ordering Information

CSACSE-1113-K9	Cisco Secure ACS Solution Engine 4.2; includes Cisco 1113 hardware platform and Cisco Secure ACS Software 4.2
CSACSE4.2-SW-MR-K9	Cisco Secure ACS software upgrade to 4.2 for existing Cisco Secure ACS Solution Engine customers (1112 or 1113 appliances) with 4.0 or 4.1 software
CSACSE-4.2-SWUP-K9	Cisco Secure ACS software upgrade to 4.2 for existing Cisco Secure ACS Solution Engine customers (1112 or 1113 appliances) with 3.x software
CSACSE-1113-UP-K9	Upgrade for customers using Cisco Secure ACS for Windows, or Cisco ACS Solution Engine 1111/1112 platform to the Cisco Secure ACS Solution Engine 4.2; includes Cisco 1113 hardware platform and Cisco Secure ACS Software 4.2

For More Information

For more information about the Cisco Secure ACS Solution Engine, visit: http://www.cisco.com/en/US/products/sw/secursw/ps5338/index.html.

Cisco Secure Access Control Server View 4.0

Cisco Secure Access Control Server (ACS) View 4.0 provides the highest level of reporting, alerting, and troubleshooting functions for Cisco Secure ACS deployments. Providing maximum visibility into configured policies and authentication and authorization activities across the network, Cisco Secure ACS View is the ideal solution for organizations that require the greatest levels of reporting and control.

Ideal for Companies that Need These Features

- Enhanced reporting, monitoring, and troubleshooting for Cisco Secure ACS

Key Features

- The Cisco Secure ACS View dashboard provides quick access to favorite queries, generated reports, and alerts. The interactive viewer allows on-demand formatting, filtering, and sorting of generated reports to maximize the value of the information.
- Cisco Secure ACS View collects syslog messages from individual ACS servers or the central logging ACS server and has access to near-real time data without affecting the performance of the ACS deployment.
- Predefined authentication reports, session reports, device administration reports, configuration reports, and ACS administration reports provide Cisco Secure ACS View with ready-to-use functions.
- Cisco Secure ACS View includes a report design tool that allows you to pick and choose the data needed, group and aggregate data as required, and present the results in tabular and graphical form. It provides the flexibility to build queries and reports as required to meet organizational needs.
- Cisco Secure ACS View provides reports to assist in troubleshooting access problems. User authentication status and user account status are quickly available, and the customizable authentication failure code utility lists possible root causes and recommendation actions for resolution.
- User-defined alerts can be used to monitor authentication activity, device administration command activity, ACS server administration activity, ACS server backup and replication operations, and ACS server process status. System-defined threshold alerts monitor Cisco Secure ACS View system resources.

Specifications

Processor	Intel Core 2 Duo 2.13 Ghz
Memory	4 GB RAM
Hard drive	500 GB SATA
Optical Drive	DVD-ROM
Interfaces	Two onboard 10BASE-T/100BASE-TX/1000BASE-T Ethernet NIC ports

Selected Part Numbers and Ordering Information

CSACS4.0-VIEW-K9	Cisco Secure ACS View appliance with ACS View 4.0 software and license for managing two ACS servers (version 4.1.4 or 4.2 required)
CSACS4.0-VIEWLIC	License for managing an additional ACS server with Cisco Secure ACS View 4.0

For More Information

For more information about Cisco Secure ACS, visit: http://www.cisco.com/go/acs.

Cisco Secure Access Control Server Express 5.0

Cisco Secure ACS Express 5.0 is an entry-level RADIUS and TACACS+ authentication, authorization, and accounting (AAA) server for retail and enterprise branch-office deployments and small and medium-sized businesses (SMBs) with fewer than 350 users and 50 devices.

Ideal for Companies that Need These Features

- An access control solution for fewer than 350 users and 50 devices
- Streamlined GUI and management for SMB or branch-office deployments

Key Features

- Ease of use and low complexity helps organizations quickly set up and deploy an identity solution in their organizations.
- Cisco Secure ACS Express offers a simplified yet comprehensive access policy that allows the definition of multiple profiles for network access, wireless access, remote access, and device administration transparently.
- Cisco Secure ACS Express supports Active Directory, Lightweight Directory Access Protocol (LDAP), and one-time password (OTP) servers that allow deployments to integrate with customers' user repositories.
- Cisco Secure ACS Express supports a wide array of access protocols such as RADIUS, Extensible Authentication Protocol (EAP), and TACACS.
- Cisco Secure ACS Express can be upgraded and patched remotely.
- Cisco Secure ACS Express can be securely administered from the Web GUI (HTTPS) or through the scriptable command-line interface (CLI).

Specifications

Processor	Intel 352 Celeron D
Memory	1 GB RAM
Hard drive	250 GB
Optical Drive	DVD-ROM
Interfaces	Two onboard 10/100/1000 Ethernet NIC ports

Selected Part Numbers and Ordering Information

CSACS-5.0-EXP-K9	Cisco Secure ACS Express 5.0 appliance

For More Information

For more information about the Cisco Secure ACS Express, visit: http://www.cisco.com/go/acsexp.

CiscoWorks Network Compliance Manager 1.3

CiscoWorks Network Compliance Manager (NCM) tracks and regulates configuration and software changes throughout a multivendor network infrastructure. It provides superior visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology requirements. CiscoWorks NCM helps IT staff identify and correct trends that could lead to problems such as network instability and service interruption.

Ideal for Companies that Need These Features

- Increased visibility of policy noncompliance
- Decreased network downtime
- Automated network discovery and remediation
- Consolidation and expansion of the data center

Key Features

- CiscoWorks Network Compliance Manager (NCM) simplifies the ordering, licensing, and install processes, helping enable customers to get their NCM systems operational more easily.
- The application provides the ability to automate compliance on an “as-running” basis as well as the traditional “as-configured” basis.
- It dramatically reduces the need for regular expressions for creating rules.
- The solution provides up-to-date information about devices and modules that have reached end-of-sale or end-of-life status in the network (currently supports Cisco devices only).
- It facilitates automated software image management with recommendation, validation, synchronization, automatic image download, and automatic rollback on error.
- It eliminates manual administration of devices.
- The solution facilitates role-based access control and lock down.
- It includes centralized access-control-list (ACL) management.
- Subscription services complement the NCM software offering. CiscoWorks NCM Alert Center content, such as security-compliance policies in NCM format and product extensions, is uploaded into CiscoWorks NCM Alert Center and is hosted at a Cisco.com URL for subscribers to download into CiscoWorks NCM.
- The solution supports thousands of device models or versions from Cisco and 35 other vendors.
- Frequent and easy-to-deploy device driver releases are available.
- The solution facilitates real-time process enforcement.
- It increases uptime.
- The solution eases audit of configuration changes.
- It improves control of network resources.

For More Information

For more information about CiscoWorks Network Compliance Manager (NCM), visit: http://wwwin-nmbu.cisco.com/fieldportal/index.cfm.

Chapter 6: Data Center Networking

Data Center Networking at a Glance

Product	Features	Page
APPLICATION ACCELERATION		
Cisco Application Control Engine (ACE) Series Module	The Cisco ACE Family of application control engines provides a new level of control over the way applications and business services are deployed, secured, and managed across the extended enterprise. The Cisco ACE engines facilitate greater control over the application infrastructure, allowing organizations to quickly deploy and migrate applications to deliver the highest levels of services to the end user while simplifying the overall management and operation of a data center.	6–3
Cisco ACE XML Gateway	The Cisco ACE XML Gateway is a critical component of the Cisco ACE Family of products. It brings application intelligence into the network and facilitates efficient deployment of secure, reliable, and accelerated Web service environments based on XML and Simple Object Access Protocol (SOAP) using a shared network infrastructure. The gateway: • Reduces service latency and improves the user experience and server usage by implementing parallel event-led architecture • Manages unpredictable service outages and usage by enabling a shared, scalable infrastructure that actively enforces service latency agreements • Implements consistent security and XML message processing policies for enterprise-wide web services	6–4
Cisco CSS 11500 Series Content Services Switches	This modular Layer 4–7 load-balancing appliance offers flexible configuration, onboard Secure Sockets Layer (SSL) encryption and decryption, and compression. • The Cisco CSS 11500 provides an intelligent, distributed architecture to scale for today's e-business infrastructure. • The switch offers Adaptive Session Redundancy (ASR), a new industry standard in stateful failover. • The switch delivers the flexibility of any content switch in its class for customizing combinations of ports, performance, and services. • The Cisco CSS 11500 provides server off-load service such as integrated and scalable SSL encryption and decryption along with HTTP compression.	6–5
Cisco Catalyst 6500 Series Content Switching Module	The Cisco Catalyst 6500 Series Content Switching Module (CSM) is a high-performance content-switching line card for the Cisco Catalyst 6500 Switch. • Layer 4 and Layer 7 firewall, VPN, cache, and server load balancing. • Intelligently balances client traffic across multiple devices. • Full state and sticky-state redundancy and full regular expression support.	6–6
Cisco GSS 4492R Global Site Selector	The Cisco GSS 4492R Global Site Selector: • Delivers global load balancing for multiple data centers • Off-loads DNS servers by doing DNS resolution • Scales to support hundreds of data centers or server load balancers (SLBs) • Supports up to 20,000 DNS requests per second • Delivers unique DNS-based localization and persistence services	6–7
Cisco AVS 3100 Series Application Velocity System	The Cisco AVS 3100 Series Application Velocity System is an enterprise data center appliance for improving Web-based (HTML and Extensible Markup Language [XML]) application performance, measuring end-user response time, and managing application security.	6–8
DATA CENTER SECURITY		
Cisco ASA 5580 Adaptive Security Appliance	The Cisco ASA 5580-20 and 5580-40 Adaptive Security Appliances deliver multigigabit security services for large enterprise, data center, and service-provider networks. The Cisco ASA 5580 accommodates high-density copper and optical interfaces with scalability from Fast Ethernet to 10 Gigabit Ethernet, enabling unparalleled security and deployment flexibility. For more information, visit http://www.cisco.com/go/asa.	

Product	Features	Page
Cisco Catalyst 6500 Series Firewall Services Module (FWSM)	The Cisco Catalyst 6500 Series Firewall Services Module (FWSM) is a high-speed, integrated firewall module for Cisco Catalyst 6500 Switches and Cisco 7600 Series Routers that provides some of the fastest firewall data rates in the industry: 5-Gbps throughput, 100,000 cells per second (CPS), and 1 million concurrent connections. Up to four FWSMs can be installed in a single chassis, providing scalability to 20 Gbps per chassis. Based on Cisco PIX Firewall technology, the Cisco Catalyst 6500 FWSM offers large enterprises and service providers excellent security, reliability, and performance while providing the following benefits: · This integrated module is installed inside a Cisco Catalyst 6500 Series Switch or Cisco 7600 Internet Router. · It will be compatible with future versions. · It offers enhanced reliability. · It offers a lower cost of ownership with among the best price-to-performance ratios of any firewall. · It is easy to use with the Cisco Adaptive Security Device Manager (ASDM). · Efficiency and productivity gains with the virtualized FWSM deliver multiple firewalls on one physical hardware platform.	See 5–17
DATA CENTER SWITCHING		
Cisco Nexus 7000 Series Switches	The Cisco Nexus Family of switches, built for the data center, has many unique features and capabilities designed specifically for the most mission-critical place in the network, the data center. The Cisco Nexus 7000 Series is a modular data center-class switching system designed for 10-Gigabit Ethernet networks. This new platform is designed for exceptional scalability, continuous systems operation, and transport flexibility. The Cisco Nexus architecture scales beyond 15 terabits per second, with future availability of 40- and 100-Gigabit Ethernet and unified fabric I/O modules.	6–9
Cisco Nexus 5000 Series Switches	The Cisco Nexus 5000 Series of data center–class switches, delivers an architecture built on high-performance Ethernet unified fabric. The platform consolidates separate Local Area Network (LAN), Storage Area Network (SAN) and server cluster network environments into a single unified fabric.	6–10
Cisco Catalyst 4948 Series Switches	· The Cisco Catalyst 4948 Series Switches are data center top-of-rack optimized switches with emphasis on buffering for high throughput and full mesh traffic profiles. They offer: · Layer 2–4 switching and intelligent services with dynamic IP routing · Up to forty-eight 10/100/1000 ports with 4 Small Form-Factor Pluggable (SFP) ports or forty-eight 10/100/1000 ports with two 10-Gigabit Ethernet ports · Dual, hot-swappable internal AC or DC power supplies · Hot-swappable fan trays	See 2–35
Cisco Catalyst 4900M	· Data center top-of-rack optimized switch with 2 half module slots; emphasis on buffering for high throughput and full mesh traffic profiles; very low packet size independent latency · Layer 2 - 4 switching and intelligent services with dynamic IP routing and IPv6 · Up to 40 10/100/1000 ports, up to 24 ports of 10 GbE, up to 32 GbE SFP ports (via Twingig converter with 8-port 10 GbE modules) · Dual, hot-swappable internal AC or DC power supplies · Hot-swappable fan trays	See 2–36
FIBRE CHANNEL SWITCHING		
Cisco MDS 9000 Multilayer Directors and Fabric Switches	The Cisco MDS 9000 Multilayer Directors and Fabric Switches are storage area network (SAN) switches that deliver port density; multiprotocol integration; intelligent network services routing; an open platform for hosting intelligent storage services; and comprehensive, integrated management. · Intelligent network services include virtual SANs (VSANs), port, channels, embedded diagnostics, and advanced security. · The switches offer Cisco Fabric Manager, an embedded open application programming interface (API), and integration with CiscoWorks Resource Manager Essentials (RME) and other third-party SAN management platforms. · Multiprotocol support includes Fibre Channel, IBM Fiber Connection (FICON), Fibre Channel over IP (FCIP), and Small Computer System Interface over IP (iSCSI). · An open platform for hosting third-party storage applications (Cisco MDS 9500 Series Multilayer Directors and Cisco MDS 9200 Series Multilayer Fabric Switches) is achieved through a Fabric Application Interface Standard (FAIS)-based intelligent storage API (iSAPI) and SANTap Protocol. · The switches offer high-availability directors with nondisruptive software upgrades, stateful processor restart and failover, and redundancy of all major components.	6–11
Cisco MDS 9000 Port Analyzer Adapter	The Cisco MDS 9000 Port Analyzer Adapter encapsulates Fibre Channel frames into Ethernet packets for low-cost Ethernet-based storage and SCSI protocol analysis.	6–13
Cisco Data Mobility Manager	Cisco Data Mobility Manager (DMM), is a fabric-based data migration solution that transfers block data non-disruptively across heterogeneous storage volumes and across distances, irrespective of whether the host is online or offline.	6–13

Product	Features	Page
Cisco MDS 9000 Storage Media Encryption	Cisco MDS 9000 Storage Media Encryption protects data at rest on heterogeneous tape drives and virtual tape libraries in a storage area network (SAN) environment using secure IEEE standard Advanced Encryption Standard (AES) algorithms.	6–13
Cisco MDS 9000 Optical Modules	Cisco MDS 9000 Optical Modules—The Cisco ONS 15530 DWDM Multiservice Aggregation Platform, Cisco ONS 15540 ESP Extended Services Platform, and Cisco ONS 15454 SDH Multiservice Provisioning Platform (MSPP) are dense wavelength-division multiplexing (DWDM) platforms that provide transport across dark fiber for business-continuance applications.	6–14
WAN OPTIMIZATION		
Cisco Wide Area Application Engine (WAE) Appliances	This solution facilitates the consolidation of remote-office application infrastructure and services in the data center while providing LAN-like service levels to remote users. • A single, unified platform hosts WAN-optimization and application-acceleration products, including Cisco Wide Area Application Services (WAAS) Software and Cisco Application and Content Networking System (ACNS) Software. • Addressing varying customer needs based on branch size, bandwidth availability, and usage patterns, these appliances are designed to scale to very large enterprise-wide deployments.	6–14
Cisco Wide Area Application Services (WAAS) Software	• Advanced protocol optimizations such as read-ahead, prediction, and suppression are coupled with sophisticated caching techniques to minimize latency and unnecessary data crossing the WAN. • Cisco WAAS Data Redundancy Elimination (DRE) coupled with compression improves efficiency and mitigates unnecessary bandwidth consumption. • TCP flow optimization (TFO) optimizes TCP to enable better performance and efficiency in WAN environments. • Dynamic autodiscovery of endpoints helps ensure efficient deployment without the need to create and manage overlay networks. • End-to-end compatibility with existing network functions such as quality of service (QoS), firewall security, Cisco NetFlow monitoring, and high availability.	6–16
Cisco Application and Content Networking System (ACNS) Software	This powerful digital media delivery solution greatly reduces redundant digital media streaming traffic traversing a WAN from the data center to branch offices over satellite and terrestrial networks. • Cisco ACNS enhances corporate communications and end-user productivity. • Cisco ACNS offers reduced WAN bandwidth and optimized performance. • The solution supports comprehensive streaming media.	6–16
Cisco SSL Services Module for the Catalyst 6500 and 7600 Series	The Cisco SSL Services Module for the Catalyst 6500 and 7600 Series switches offers the following features: • Off-loading of SSL encryption and decryption • Scalable performance	6–17

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business. For more information about Cisco Advanced Services, visit http://www.cisco.com/go/techservices.

For more information about all services, see Chapter 10, "Services".

Cisco Application Control Engine (ACE) Series Module

The Cisco ACE Family of application control engines offer a comprehensive application-delivery solution. These products help ensure application availability, accelerate application performance, and protect applications while reducing data center costs.



Key Features

- Maximized application availability—The engines help ensure consistent availability of services to end users by taking advantage of highly scalable Layer 4 load balancing and Layer 7 content switching.
- Accelerated application performance—The engines use patented technologies to accelerate and compress application data, improving application responsiveness. Offloading and caching Secure Sockets Layer (SSL), TCP, and Extensible Markup Language (XML) each help the Cisco ACE engines to improve server performance.
- Comprehensive application security—The Cisco ACE Application Control Engines protect against application threats and denial-of-service (DoS) attacks with features such as Deep Packet Inspection, network and protocol security, highly scalable access-control capabilities, and a powerful XML firewall.

Selected Part Numbers and Ordering Information

WS-C6509E-ACE20-K9[1]	Cisco ACE20 6509 Bundle with 8 Gbps Throughput License
WS-C6504E-ACE20-K9[1]	Cisco ACE20 6504 Bundle with 4 Gbps Throughput License
WS-C6509-E-ACE-K9[1]	Cisco ACE10 6509 Bundle with 8 Gbps Throughput License
WS-C6504-E-ACE-K9[1]	Cisco ACE10 6504 Bundle with 4 Gbps Throughput License
ACE20-MOD-K9	Cisco ACE20 Service Module for Cisco Catalyst 6500 Series and Cisco 7600 Series—Includes 1000 SSL TPS and 5 Virtual Devices
ACE20-MOD-K9=	Cisco ACE20 Service Module for Cisco Catalyst 6500 Series and Cisco 7600 Series—Includes 1000 SSL TPS and 5 Virtual Devices (spare)
ACE10-6500-K9	Cisco ACE10 Service Module for Cisco Catalyst 6500 Series and Cisco 7600 Series, Includes 1000 SSL TPS and 5 Virtual Devices
ACE10-6500-K9=	Cisco ACE10 Service Module for Cisco Catalyst 6500 Series and Cisco 7600 Series, Includes 1000 SSL TPS and 5 Virtual Devices (spare)
ACE-16G-LIC	16Gbps Throughput License for Cisco ACE20
ACE-08G-LIC	8-Gbps Throughput License for Cisco ACE 10 and Cisco ACE20
ACE-04G-LIC	4-Gbps Throughput License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-250	250 Virtual Contexts License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-100	100 Virtual Contexts License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-050	50 Virtual Contexts License for Cisco ACE10 and Cisco ACE20
ACE-VIRT-020	20 Virtual Contexts License for Cisco ACE10 and Cisco ACE20

1. Cisco ACE Bundles do not include I/O modules so that customer can order I/O modules of their choice.

For More Information

For more information about the Cisco ACE Family, visit http://www.cisco.com/go/ace.

Cisco ACE XML Gateway



The Cisco ACE XML Gateway brings application intelligence into the network and facilitates efficient deployment of secure, reliable, and accelerated Extensible Markup Language (XML) applications and Web services. It simplifies access to XML information while reducing the potential introduction of new threats and vulnerabilities. It allows the autoprovisioning of Web services between the Universal Description Discovery and Integration (UDDI) registry and application servers, and provides message-level security for XML-based network traffic. It improves XML application responsiveness by offloading computationally intensive operations to the network infrastructure. The Cisco ACE XML Gateway delivers industry-leading performance exceeding 30,000 transactions per second (TPS). This dramatic performance improvement helps eliminate Web services deployment barriers.

Ideal for Companies that Need These Features

- Extensible Markup Language (XML) application scalability and performance—The Cisco ACE XML Gateway provides high speed XML traffic throughput by processing 30,000 schema validations per second on a 1-KB message and handling up to 40,000 concurrent connections in a single appliance. It reduces service latency and improves server usage by implementing a highly parallel event-led architecture. IT benefits by being able to better manage unpredictable service outages because a shared infrastructure actively enforces service latency agreements.
- Bullet-proof XML security—The Cisco ACE XML Gateway delivers an integrated XML firewall that provides services protection between different trust zones. This firewall differs from network firewalls in that it focuses on the application layer and works with the payload of the XML message. In the perimeter defense role, it guards against malicious XML payloads, XML denial-of-service (XDoS) attacks, and other security functions.

- Centralized provisioning and management of XML applications—The Cisco ACE XML Gateway reduces the time to deployment of Web services solutions by offering sophisticated rollback and versioning capabilities. A centralized policy system allows configuration security, integration, and routing policies, without programming and auto-discovery of web services.

Selected Part Numbers and Ordering Information

NOTE: The minimum software required is Cisco ACE XML Gateway Software Version 5.1.

ACE-XML-K9	Chassis—Cisco ACE XML Gateway Appliance
ACE-XML-SW-5.2	Software—Cisco ACE XML Gateway Software
ACE-XML-FIPS	Cryptography—FIPS-compliant SSL acceleration
ACE-XML-GATE-LIC	Licensing—ACE XML Gateway License

Cisco CSS 11500 Series Content Services Switches



The Cisco CSS 11500 Series Content Services Switch is suitable for both enterprises and service providers seeking to reduce data center costs, boost e-business application performance, offer enhanced services, ensure online transaction integrity, and provide the best possible online experience for customers, business partners, and internal workers.

The Cisco CSS 11500 is available as the standalone Cisco CSS 11501, the 3-slot Cisco CSS 11503, and the 6-slot Cisco CSS 11506.

Ideal for Companies that Need These Features

- Cisco CCS 11501 and CSS 11501S—Standalone, fixed-configuration switching platform with up to 8 Fast Ethernet ports and 1 optional Gigabit Ethernet port; Cost-effective server, cache, and firewall load balancing; Complex Web applications requiring high-level URL and cookie switching; Server off-load features such as integrated Secure Sockets Layer (SSL) encryption and decryption along with HTTP compression (part number 11501S-C only)
- Cisco CCS 11503—Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to 6 Gigabit Ethernet ports; Cost-effective server, cache, and firewall load balancing; Complex Web applications requiring high-level URL and cookie switching; Server offload features such as integrated SSL encryption and decryption along with HTTP compression
- Cisco CCS 11506—Compact, high-performance, modular content switching platform with up to 32 Fast Ethernet ports or up to 6 Gigabit Ethernet ports; Cost-effective server, cache, and firewall load balancing; Complex Web applications requiring high-level URL and cookie switching; Server off-load features such as integrated Secure Sockets Layer (SSL) encryption and decryption along with HTTP compression

Key Features

- The Cisco CSS 11500 introduces an intelligent, distributed architecture.
- The Cisco CSS 11500 improves site availability and transaction integrity by introducing the Cisco ASR 1000 Series Aggregated Services Router.
- The Cisco CSS 11500 delivers customized combinations of ports, performance, and services.
- Server offloads are accomplished through support of an integrated, high-capacity SSL module along with HTTP compression (WebNS 8.10), facilitating content switching functions.
- The Cisco CSS 11500 protects investment by facilitating upgrades of performance, ports, and services through modularity.
- Cisco CSS 11500 I/O modules deliver port density and flow performance.
- Fast Ethernet ports are 10/100BASE-TX with standard RJ-45 connectors, whereas the Gigabit Ethernet ports require Small Form-Factor Pluggable (SFP) gigabit interface converters (GBICs) (1000BASE-SX, 1000BASE-LX, or 1000BASE-T).

Specifications

Feature	Cisco CSS 11501	Cisco CSS 11503	Cisco CSS 11506
Modular Slots	N/A	3	6

Base Configuration	Switch Control with 8 10/100 Ethernet; 1 Gigabit Ethernet (GBIC) port	Switch Control Module; 2 GBIC ports	Switch Control Module; 2 GBIC ports
Max GB Ethernet Ports	1	6	12
Max 10/100 Ethernet Ports	8	32	80
2-port GB Ethernet I/O Module		Max—2	Max—5
16-port GB Ethernet I/O Module		Max—2	Max—5
8-port GB Ethernet I/O Module		Max—2	Max—5
SSL Module and HTTP Compression	CSS 11501S-C only	Max—2	Max—4
Session Accelerator Modules		Max—2	Max—5
Redundancy features	Active-active Layer 5 ASR Virtual IP Address (VIP) redundancy	Active-active Layer 5 ASR VIP redundancy	Active-active Layer 5; ASR; VIP redundancy; Active-standby SCM; Redundant switch fabric module; and power supplies
Height	1.75 in. (1 rack unit)	3.5 in. (2 rack units)	8.75 in. (5 rack units)
Bandwidth	Aggregate 6 Gbps	Aggregate 20 Gbps	Aggregate 40 Gbps
Storage	1 GB flash memory	1 GB flash memory	1 GB flash memory
Power	Integrated AC	Integrated AC or DC	Up to 3 AC or 3 DC

Selected Part Numbers and Ordering Information

CSS11506-2AC	Cisco 11506 Content Services Switch including SCM with 2 GE ports, flash drive, 2 switch modules, 2 AC power supplies, and a fan (requires SFP GBICs)
CSS11506-2DC	Cisco 11506 Content Services Switch including SCM with 2 GE ports, flash drive, 2 switch modules, 2 DC power supplies, and a fan (requires SFP GBICs)
CSS11503-AC	Cisco 11503 Content Services Switch including SCM with 2 GE ports, flash drive, and integrated AC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11503-DC	Cisco 11503 Content Services Switch including SCM with 2 GE ports, flash drive, and integrated DC power supply, integrated fan, and integrated switch module (requires SFP GBICs)
CSS11501	Cisco 11501 Content Services Switch including SCM with 8 10/100 and 1 GE ports, flash drive, and integrated AC power supply, integrated fan, and integrated switch module (optional SFP GBICs)
CSS11501S-C-K9	Cisco 11501 Content Services Switch with SSL termination and HTTP compression including 8 10/100 and 1 GE ports, flash drive, and integrated AC power supply and integrated fan (optional SFP GBICs)
CSS5-SCM-2GE	Cisco CSS 11500 System Control Module with 2 GE ports and hard disk (requires SFP GBICs)
CSS5-IOM-8FE	Cisco CSS 11500 Fast Ethernet I/O Module—8-port TX
CSS5-IOM-16FE	Cisco CSS 11500 Fast Ethernet I/O Module—16-port TX
CSS5-IOM-2GE	Cisco CSS 11500 Gigabit Ethernet I/O Module—2-port (requires SFP GBICs)
CSS5-SAM	Cisco CSS 11500 Session Accelerator Module
CSS5-SSL-C-K9	Cisco CSS 11500 SSL and HTTP Compression Module

For More Information

For more information about the Cisco CSS 11500, visit: http://www.cisco.com/go/11500.

Cisco Catalyst 6500 Series Content Switching Module



The Cisco Content Switching Module (CSM) is a Cisco Catalyst 6500 line card that balances client traffic to farms of servers, firewalls, Secure Sockets Layer (SSL) devices, or VPN termination devices. The Cisco CSM provides a high-performance, cost-effective load-balancing solution for enterprise and Internet service provider (ISP) networks. The Cisco CSM meets the demands of high-speed content-delivery networks, tracking network sessions and server load conditions in real time and directing each session to the most appropriate server. Fault-tolerant Cisco CSM configurations maintain full state information and provide true hitless failover required for mission-critical functions.

Ideal for Companies that Need These Features

- A high-performance, Layer 4-through-Layer 7 load-balancing solution integrated with the Cisco Catalyst 6500
- Load balancing for the highest traffic sights
- Support for up to 1,000,000 concurrent TCP connections

Key Features

- The Cisco Content Switching Module (CSM) establishes up to 150,000 Layer 4 connections per second and provides high-speed content switching while maintaining 1 million concurrent connections.
- The Cisco CSM offers outstanding price-to-performance value for large data centers and Internet service providers (ISPs)—It features a low connection cost and occupies a small footprint. It slides into a slot in a new or existing Cisco Catalyst 6500, enabling all its ports for Layer 4-through-Layer 7 content switching. Multiple Cisco CSMs can be installed in the same Cisco Catalyst 6500 for redundancy and scalable performance.
- The Cisco CSM uses the same Cisco IOS Command-Line Interface (CLI) that is used to configure the Cisco Catalyst 6500 Switch.

Specifications

Configuration Limits	512 total VLANs (client and server); 4000 virtual servers; 4000 server farms; 16,000 real servers; 4000 probes; 16,000 ACL items
Connections	1,000,000 concurrent TCP connections; 150,000 connection setups per second-Layer 4 75,000 connection setups per second-Layer 7
Throughput	4 Gigabits-per-second total combined (client-to-server and server-to-client) throughput 1.25 million pps
Catalyst Switch Platform Requirements	Native support (switch running Cisco IOS Software only); Hybrid support (switch running IOS/CatOS); Functions as a bus-enabled line card, not fabric-enabled; Multilayer switch feature card—MSFC or MSFC2

Selected Part Numbers and Ordering Information

WS-X6066-SLB-APC	SC6k-1.2-CSM	Supervisor 1A with Multiswitch Feature Card (MSFC) and Policy Feature Card (PFC) or Supervisor 2 Module with MSFC 2. IOS 12.1(8a)e, 12.1(8a)EX or 2.1

For More Information

For more information about the Cisco Content Switching Module (CSM), visit:
http://www.cisco.com/go/csm.

Cisco GSS 4492R Global Site Selector



The Cisco GSS 4492R Global Site Selector is part of the Cisco ACE Application Control Engine product line and a crucial component of any data center architecture that requires an appliance-based, security-focused, universal global load balancer. It is deployed with Cisco ACE Application Control Engine Modules. Using a special protocol (Keepalive Application Protocol [KAL-AP]) facilitates the exchange of application load and availability between the Cisco ACE GSS 4492R and the Cisco ACE Application Control Engine Module.

Key Features

- The Cisco GSS 4492R provides resilient architecture critical for disaster recovery and multisite web applications deployments.
- Optional software supports full Domain Name System (DNS) and Dynamic Host Configuration Protocol (DHCP) services, allowing the GSS to be deployed as a DNS appliance.
- The Cisco GSS 4492R offers advanced traffic management for multisite Web application deployments.
- The Cisco GSS 4492R offers innovative DNS-focused distributed denial-of-service (DDoS) protection software to mitigate the effects of DNS-based DDoS attacks.
- The Cisco GSS 4492R provides a centralized command and control of DNS resolution process for direct and precise control of global load-balancing processes.
- The Cisco GSS 4492R offers site persistence for e-commerce applications.
- The Cisco GSS 4492R supports a Web-based GUI, role-based access, and a DNS wizard to simplify the DNS command and control.

Specifications

Number of Ports	Two 10/100/1000 Fast Ethernet autosensing, one console port
Port Description	Network ports—two 10/100Base TX; Console port
DNS requests per second	Up to 30,000, depending on configuration

Network Management	Console port-CLI; Access to system through Telnet; Secure copy (SCP) or FTP; GUI-Secure HTTP (HTTPS) for Internet Explorer and Netscape Navigator; Network management MIBs; Read-only monitoring of network and device status, including RFC 1213; (MIB-II) and RFC 1514 (HOST-RESOURCES-MIB)
Storage	One 80-GB hard drive; Software image SF-GSS-V1.3-K9; 2 GB RAM; Pentium CPU
Physical	One-rack unit size chassis; 1 GB RAM; Prescott 3.2-GHz CPU
Power	Integrated AC power (autosensing 110V/60Hz)
Weight	28 lb (12.7 kg)
Temperature	Operational—50 to 95F (10 to 35C); Storage—-40 to 140F (-40 to 60C)
Dimensions (H x W x D)	1.67 x 16.9 x 20 in. (42.4 x 429 x 508 mm)

Selected Part Numbers and Ordering Information

GSS4492R-K9	Cisco GSS 4492R Global Site Selector
SF-GSS-V2.0-K9	Cisco Global Site Selector Software 2.0
SF-GSS-DDOSLIC	DDoS Mitigation Software (requires Cisco Global Site Selector Software 2.0)
SF-GSS-DNSLIC	Cisco GSS DNS license (requires Cisco Network Registrar 6.2 software [CNR-6.2-BASE1K] for full DNS capability) and Cisco Global Site Selector Software 2.0

For More Information

For more information about the Cisco GSS 4492R, visit: http://www.cisco.com/go/gss.

Cisco AVS 3100 Series Application Velocity System



The Cisco AVS 3100 Series Application Velocity System significantly lowers the cost of Web application deployments by accelerating performance and optimizing server and network resources. In addition, more business transactions are achieved per minute, eliminating the need for local data centers. Acceleration is accomplished by reducing latency and bandwidth required for any given Web application. Optimization is achieved by off-loading tasks from the server, such as SSL encryption and decryption, compression processing, and redundant requests from the server.

Ideal for Companies that Need These Features

- Reduced network latency—The Cisco AVS 3100 Series systems reduces Web application latency over the WAN and can improve user response times by 200 to 500 percent.
- Bandwidth reduction—The Cisco AVS 3100 Series system minimizes the network bandwidth required by Web applications by as much as 70 to 90 percentage.
- Server offload—The system increases application server capacity by offloading low-level communications and SSL transaction tasks, greatly increasing the effective capacity in your data center by reducing server cycles by an average of 80% percent.
- Web application firewall protection—The system offers secure mission-critical applications against identity theft, data theft, application disruption, and fraud.

Key Features

- Network-latency mitigation—The Cisco AVS products reduce client access latency at the point where the client accesses an application, one of the largest network bottlenecks. By transforming the browser cache into a dynamic "engine", the Cisco AVS significantly reduces the amount of page or transaction round-trip data required to complete an activity. The result is typically a 200- to 500-percent improvement in response times.
- Bandwidth reduction—The Cisco AVS 3120 Application Accelerator Module can help companies realize a 70- to 90-percent typical reduction in bandwidth usage, resulting in a dramatic reduction in bandwidth costs and an overall improved end-user experience.
- Server CPU offload—The Cisco AVS products allow companies to obtain up to an 80-percent typical reduction in server cycles, greatly increasing the effective capacity in their data centers and allowing them to delay or reduce server purchases.
- Powerful Web application protection—The bidirectional deep inspection technology of the Cisco AVS firewall can block the most common and damaging attacks against Web applications. It effectively thwarts attacks that threaten business continuity and eliminates the need for "rush" software development fixes and patches.
- Appscope—The Cisco AVS AppScope Monitor (AppScope) is the industry's only agentless, end-to-end application performance measurement solution. Installed in the data center alongside the Cisco AVS 3110 or

3120, it centrally monitors, measures, and reports end-user response times. AppScope measures the true application performance as realized by real end users-nothing is simulated.

Specifications

Software	Cisco AVS AppScope Monitor performance monitoring client; both the Cisco AVS 3120 appliance and the Cisco AVS 3180 Management Station are required for AppScope performance monitoring; GUI device management for one or more Cisco AVS 3120 appliances
Chassis	1RU appliance
Appliance	CPU = 3.2 GHz; Memory=4 GB; Disk Space=Two 200 GB hard drives
Network Ports	1 available RJ-25 10/100/1000 autosensing Ethernet port; 1 additional Ethernet port is inoperable and will be used in future software releases

Selected Part Numbers and Ordering Information

AVS-3120-K9	Cisco AVS 3120 Application Velocity System Appliance with 10/100/1000 Ethernet port
AVS-SW-5.0	Software for the Cisco AVS 3120. Includes Application Acceleration Module, and Web-based GUI device manager.
AVS-SW-6.0	Software for the Cisco AVS 3120. Includes Application Acceleration Module, Web Application Firewall Module and Web-based GUI device manager.
AVS-3180-MGMT-K9	Cisco AVS 3180 Management Station for Cisco AVS 3110 and 3120 appliances
AVS-MGMT-SW-5.0	Software for the Cisco AVS 3180 Management Station. Includes Web-based GUI management for multiple AVS 3110 and 3120 appliances and the AppScope Monitor client.
AVS-MGMT-SW.6.0	Software for the Cisco AVS 3180 Management Station. Includes Web-based GUI management for multiple AVS 3110 and 3120 appliances and the AppScope Monitor client.

For More Information

For more information about Cisco AVS, visit: http://www.cisco.com/go/avs.

Cisco Nexus 7000 Series Switches



The Cisco Nexus 7000 Series is the first series of switches designed specifically to meet data center-class requirements. Built to meet the most mission-critical data center requirements, it delivers continuous system operation and virtualized, pervasive services. The Cisco Nexus 7000 Series is a modular data center-class line of switches designed for highly scalable end-to-end 10-Gigabit Ethernet networks. It features a fabric architecture that scales beyond 15 terabits per second (Tbps), with future support for 40 and 100 Gigabit Ethernet.

The Cisco Nexus 7000 Series is based on a proven operating system (Cisco NX-OS), with enhanced features to deliver real-time system upgrades with exceptional manageability and serviceability. Its innovative design is built to support end-to-end data center connectivity, consolidating IP, storage, and interprocess communication (IPC) networks on a single Ethernet fabric.

Ideal for Companies that Need These Features

- Infrastructure scalability—The system is designed for future scalability to more than 15 Tbps for investment protection. It is built to support the emerging 40- and 100-Gigabit Ethernet standards.
- Its multicore, multithreaded OS optimizes CPU resources and offloads tasks to processors distributed across the modules.
- Cisco Trusted Security (TrustSec) offers scalable security with link-layer encryption, security-group access control lists, and role-based access control.
- Flexible NetFlow optimizes the network infrastructure, and thereby reduces operating costs and improves capacity planning.
- The switch offers operational continuity for lossless, nondisruptive upgrades and zero service downtime.
- A connectivity management processor (CMP) provides integrated out-of -band management access.
- Transport flexibility—It has a flexible foundation for unified fabrics and unified I/O.
- Virtualized control-plane and data-plane forwarding results in optimized performance.
- Virtual device contexts (VDCs) maximize software and hardware resource usage while providing strong security and software fault isolation.

Key Features

- The Cisco Nexus 7000 supports up to two hundred fifty-six 10-Gigabit Ethernet or three hundred eighty-four 10/100/1000 Ethernet ports in a single 10-slot chassis.
- The Cisco Nexus 7000 has a fully modular and fully redundant 10-slot chassis with front-to-back airflow and integrated cable management.
- Dual dedicated supervisor modules provide exceptional high-availability features with no service interruptions, even during hardware and software upgrades.
- A highly scalable fabric architecture supports up to five fabric modules for load-balanced, fault-tolerant operation; the switch is designed to deliver 230 Gbps per slot of bandwidth at release, with future support for more than 500 Gbps per slot.
- The switch provides virtual output queuing and fabric arbitration, delivers quality of service (QoS) and fairness across all ports, even during congestion, and provides the basis for future unified I/O.
- The switch offers integrated security hardware support for Cisco TrustSec, providing data confidentiality while simplifying and scaling access control.
- The switch has fully distributed forwarding engines, providing scalable packet processing and forwarding.
- Three load-sharing power supply modules allow either 110- or 220-VAC inputs. With 220-VAC inputs these power supplies will deliver fault tolerance for a fully loaded chassis with worst-case N+1 and grid redundancy.

Selected Part Numbers and Ordering Information

N7K-C7010	Cisco Nexus 7000 Series 10 Slot Chassis-includes cable management and Fans, does not include Power Supplies
N7K-C7010-FAB-1	Cisco Nexus 7000 10 Slot Fabric Module-46Gbps per slot
N7K-SUP1	Cisco Nexus 7000 Series Supervisor Module-includes external 8GB Log Flash, does not include optional external 2GB Expansion Flash
N7K-AC-6.0KW	Cisco Nexus 7000 Series 6kW AC Power Supply
N7K-M132XP-12	Cisco Nexus 7000 Series 32 Port 10Gb Ethernet Module (requires SFP+ Optic Modules)
N7K-M148GT-11	Cisco Nexus 7000 Series 48 Port 10/100/1000 Ethernet Module

Cisco Nexus 5000 Series Switches



The Cisco Nexus 5000 Series is a family of line-rate, low-latency, lossless 10 Gigabit Ethernet, Cisco Data Center Ethernet, and Fibre Channel over Ethernet (FCoE) switches for data center applications. With low latency, front-to-back cooling, and rear-facing ports, the Cisco Nexus 5000 Series is designed for data centers transitioning to 10 Gigabit Ethernet as well as for those ready to deploy a unified fabric that can handle their LAN, SAN and server cluster, networking all over a single link (or dual links for redundancy).

Key Features

- High-performance, low-latency 10 Gigabit Ethernet, delivered by a cut-through switching architecture, for 10 Gigabit Ethernet server access in next-generation data centers
- Cisco Data Center Ethernet, a main component of Cisco Data Center 3.0 architecture, with features, including Layer 2 multipathing, which increases scalability in the data center
- Unified fabric with Fibre Channel over Ethernet (FCoE) for I/O consolidation, reducing power and cabling requirements and simplifying data center networks especially for SAN consolidation Fibre Channel
- Virtual machine optimized services for higher asset utilization, simplified server connections, rapid server provisioning, security, and quality of service (QoS)

Selected Part Numbers and Ordering Information

N5K-C5020P-BF	Cisco Nexus 5000 2RU Chassis no PS, 5 Fan Modules, 40 ports (req SFP+)
N5K-C5020-FAN=	Cisco Nexus 5020 Fan Module, Spare
N5K-PAC-1200W(=)	Cisco Nexus 5020 PSU module, A/C, 208v 1200W
N5K-P2-BLNK(=)	Cisco Nexus 5020 PSU module, Blank slot cover
N5K-M1600(=)	Cisco Nexus 5000 1000 Series Module 6-port 10 GE (req SFP+)
N5K-M1-BLNK(=)	Cisco Nexus 5000 1000 Series Expansion Module Blank
N5KUK9-400N1.1(=)	Cisco Nexus 5000 Base OS Software Release 4.0

Cisco MDS 9000 Multilayer Directors and Fabric Switches



The Cisco MDS 9000 Multilayer Directors and Fabric Switches are storage area network (SAN) switches that deliver multiple layers of integrated intelligence, including multiprotocol integration (Fibre Channel, Small Computer System Interface over IP [iSCSI], Fibre Channel over IP [FCIP], and IBM Fiber Connection [FICON]), intelligent network services (virtual SANs [VSANs] and InterVSAN Routing, embedded diagnostics, role-based security, and encryption), and an open platform for hosting intelligent storage services and comprehensive, integrated management.

Ideal for Companies that Need These Features

- Cisco MDS 9500 Series Multilayer Directors—Maximum port densities—The directors offer up to five hundred twenty-eight 1-, 2-, and 4-Gbps autosensing Fibre Channel ports and up to forty-four 10-Gbps Fibre Channel ports in a single 13-slot chassis. Chassis are also available in 9- and 6-slot configurations; High availability—The directors offer nondisruptive software upgrades, stateful processor restart and failover, and redundancy of all major components; High performance—The directors offer up to 2.2 terabits per second (Tbps) per system, with each crossbar providing 100-percent system throughput; Multiprotocol support—The directors integrate Fibre Channel, FICON, FCIP, and iSCSI in single platform for optimal consolidation and SAN extension; Hosting of intelligent storage applications (network-based virtualization, volume management, data replication, data migration, storage media encryption, backup, and snapshot capabilities); Data center consolidation needs; Modularity and flexibility for future growth
- Cisco MDS 9200 Multilayer Fabric Switches—Moderate port densities—The switches offer up to 66 Fibre Channel ports in a single 2-slot chassis; Multiprotocol support— The switches integrate Fibre Channel, FCIP, and iSCSI in single platform for optimal consolidation and SAN extension; Hosting of intelligent storage applications (network-based virtualization, volume management, data replication, data migration, storage media encryption, backup, and snapshot capabilities); Modularity and flexibility for future growth
- Cisco MDS 9100 Series Multilayer Fabric Switch—Low base port count with pay-as-you-grow port licensing for up to 64.4-Gbps Fibre Channel ports—The base configuration has eight 4-Gbps Fibre Channel ports on the Cisco MDS 9124, and sixteen 4-Gbps Fibre Channel ports on the Cisco MDS 9134; Small form factor—The switch occupies 1 rack unit (1RU), so is ideal for space-constrained environments; Fibre Channel-only connectivity; Entry-level SAN where price per port is more important than future modularity and flexibility

Key Features

- Flexibility and investment protection—Share common switching modules across all Cisco MDS 9500 Series products, including the Cisco MDS 9200 Series. The chassis provide a 3RU base system consisting of eighteen 1-, 2-, and 4-Gigabit Ethernet ports; they are expandable with a variety of optional modules.
- Sophisticated diagnostics—The Cisco MDS 9000 provides intelligent diagnostics, protocol, decoding, and network analysis tools as well as integrated call-home capability for added reliability, faster problem resolution, and reduced service costs.
- Configurable—The Cisco MDS 9000 provides embedded Cisco Fabric Manager, open application programming interfaces (APIs), and integration and third-party SAN and network management platforms.
- Open platform—The platform is ideal for hosting intelligent storage services such as network-based volume management, data migration, and Cisco MDS 9000 Network-Accelerated Serverless Backup.
- Integrated mainframe support—Mainframe-ready, the Cisco MDS 9000 supports cascaded FICON fabrics, as well as intermix of FICON and open systems Fibre Channel Protocol (FCP) traffic on the same switch.

Specifications

Feature	MDS 9513 Director	MDS 9509 Director	MDS 9506 Director	MDS 9222i Fabric Switch
Modular Slots	13 slots; 2 for supervisors, 11 for connectivity	9 slots; 2 for supervisors, 7 for connectivity	6 slots; 2 for supervisors, 4 for connectivity	2 slots; 1 fixed configuration— 18 1/2/4-Gbps Fibre Channel ports and 4 GE ports; l open slot for connectivity
Maximum Number of Ports per Switch	528 1/2/4-Gbps Fibre Channel ports	336 1/2/4-Gbps Fibre Channel ports	192 1/2/4-Gbps Fibre Channel ports	16 1/2/4-Gbps + 48 1/2/4-Gbps Fibre Channel ports + 4 GE ports
Multiprotocol/ Multitransport	Yes; Fibre Channel, FCIP, iSCSI, IP-FC, and FICON			

High Availability	Non-disruptive software upgrades, stateful failover, process re-start ability, system health monitoring, hot swap; optics, power supplies, fans, supervisors, crossbars, switching, and services modules		Same as MDS 9509 Director	Stateful failover, process re-start ability, system health monitoring, hot swap; optics, power supplies, fans, switching, and services modules
Dimensions (H x W X D)	24.5 x 17.37 x 28.0 in. (62.23 x 44.12 x 71.12 cm)	24.5 x 17.37 x 18.4 in. (62.23 x 44.12 x 46.74 cm)	12.25 x 17.37 x 21.75 in. (31.12 x 44.12 x 55.25 cm)	5.25 x 17.32 x 22.66 in. (13.36 x 44.12 x 57.56 cm)
Max Buffer Credits per port	4095	4095	4095	4095
Port Channel	Up to 16 ports per Port Channel across switching modules			
Optics Support	Fibre Channel, Ethernet, CWDM, and DWDM			
HW-Enforced Zoning Support	N_Port WWN, F_Port WWN, N_Port FCID, Port Broadcast			
Default, LUN, Read Only	Yes	Yes	Yes	Yes
Security	Role-based access control, VSAN-based access control, Port security, RADIUS, TACACS+, SNMPv3, FC-SP, SSH, SSL, SFTP, and IPsec			

Feature	**MDS 9124 Fabric Switch**	**MDS 9134 Fabric Switch**
Fixed Slot	Fixed auto-sensing 1/2/4-Gbps Fibre Channel ports	Fixed auto-sensing 1/2/4-Gbps Fibre Channel ports
Maximum Number of Ports per Switch	24 1/2/4-Gbps Fibre Channel ports	32 1/2/4-Gbps Fibre Channel ports + 2 10-Gbps Fibre Channel ports
Multiprotocol/ Multitransport	No—Fibre Channel only	Yes—Fibre Channel and FICON
High Availability	Yes	Yes
Dimensions (H x W X D)	1.75 x 17.35 x 16.0 in. (4.5 x 44.5 x 40.6 cm)	1.76 x 17.16 x 18.89 in. (4.47 x 43.59 x 47.98 cm)
Max Buffer Credits per port	61	64
Port Channel	Same as MDS 9513 Director	Same as MDS 9513 Director
Optics Support	Fibre Channel	Fibre Channel
HW-Enforced Zoning Support	Same as MDS 9513 Director	Same as MDS 9513 Director
Default, LUN, Read Only	Yes	Yes
Security	RADIUS and TACACS+, FC-SP host-to-switch and switch-to-switch authentication, SFTP, SSHv2, SNMPv3, VSANs, hardware-enforced zoning, and per-VSAN role-based access control	

Selected Part Numbers and Ordering Information

MDS 9500 Base Configuration	
DS-C9506	MDS 9506 Chassis
DS-C9509	MDS 9509 Chassis
DS-C9513	MDS 9513 Chassis
DS-X9530-SF2-K9	MDS 9500 Supervisor/Fabric 2
MDS 9000 Modules	
DS-X9032-SSM	MDS 9000 Storage Services Module
DS-X9112	MDS 9000 12-port 1/2/4-Gbps FC Module
DS-X9124	MDS 9000 24-port 1/2/4-Gbps FC Module
DS-X9148	MDS 9000 48-port 1/2/4-Gbps FC Module
DS-X9302-14K9	MDS 9000 2-port GE and 14-port FC Module
DS-X9304-18K9	MDS 9000 4-port GE and 18-port FC Module
DS-X9304-18FK9	MDS 9000 4-port GE and 18-port FC FIPS Module
DS-X9308-SMIP	MDS 9000 8-port 1 GE IP Storage Services Module
DS-X9304	MDS 9000 4-port 10-Gbps FC Module
DS-SFP-FC-2G-SW	1/2-Gbps Fibre Channel-SW SFP, LC
DS-SFP-FC-2G-LW	1/2-Gbps Fibre Channel-LW SFP, LC
DS-SFP-FC4G-SW	1/2/4-Gbps Fibre Channel-Shortwave SFP, LC
DS-SFP-FC4G-MR	1/2/4-Gbps Fibre Channel-Longwave SFP, LC (4km reach)
DS-SFP-FC4G-LW	1/2/4-Gbps Fibre Channel-Longwave SFP, LC (10km reach)
DS-SFP-FCGE-SW	1-Gbps Ethernet and 2-Gbps Fibre Channel-SW, SFP, LC
DS-SFP-FCGE-LW	1-Gbps Ethernet and 2-Gbps Fibre Channel-LW, SFP, LC
DS-X2-FC10G-SR	10-Gbps Fibre Channel-Shortwave, SC
DS-X2-FC10G-SR	10-Gbps Fibre Channel-Longwave, SC
DS-SFP-GE-T	Gigabit Ethernet Copper, SFP, RJ-45

MDS 9500 Memory Options	
MEM-MDS-FLD512M=	MDS 9500 Sup Compact Flash Disk, 512 MB, Spare
MDS 9200 Base Configuration	
DS-C9216i-K9	MDS 9216i 14-port FC and 2-port GE + 1-slot Modular Switch
DS-C9222i-K9	MDS 9222i 18-port FC and 4-port GE + 1-slot Modular Switch
MDS 9100	
DS-C9124-K9	MDS 9124 8-port base
DS-C9134-K9	MDS 9134 16-port base
DS-C9134-1K9	MDS 9134 32-port base
DS-2C9134-K9	2x MDS 9134s stacked as a bundle via copper CX4 with 48-port enabled
DS-2C9134-1K9	2x MDS 9134s stacked as a bundle via copper CX4 with 64-port enabled

For More Information

For more information about the Cisco MDS 9000, visit: http://www.cisco.com/go/storagenetworking.

Additional Storage Networking Solutions

Cisco MDS 9000 Port Analyzer Adapters



Cisco MDS 9000 Port Analyzer Adapters reduces time to problem resolution. These adapters facilitate effective, low-cost analysis of Fibre Channel traffic anywhere in the network at any time, simplifying the debugging of network problems and reducing time to problem resolution. The device is a ready-to-use accessory for the Cisco MDS 9000 that facilitates simple, transparent analysis of Fibre Channel traffic in a switched fabric, eliminating the need for expensive standalone protocol analyzers.

Selected Part Numbers and Ordering Information

DS-PAA	Cisco MDS 9000 Port Analyzer Adapter, Base
DS-PAA-2	Cisco MDS 9000 Port Analyzer Adapter, Enhanced

Cisco MDS Data Mobility Manager

Cisco MDS Data Mobility Manager (DMM) is a storage area network (SAN) fabric-based software application that facilitates movement of block data from a source block device to a destination block device. Cisco MDS DMM is designed to allow a storage administrator to complete the migration process without the application server requiring outages typically needed when the storage subsystem is reconfigured.

Cisco MDS 9000 Storage Media Encryption

Cisco Storage Media Encryption (SME) protects data at rest on heterogeneous tape drives and Velocity Template Languages (VTLs) in a storage-area-network (SAN) environment using secure IEEE-standard Advanced Encryption Standard (AES) algorithms. Supported natively on the Cisco MDS 9000 18/4-Port Multiservice Module, and the Cisco MDS 9222i Multiservice Modular Switch, Cisco SME capabilities are provided as a fabric service so that traffic between any host and storage device on the fabric can use the Cisco SME services. Furthermore, these encryption and compression capabilities are transparent to the hosts and storage devices and are available for devices in all virtual SANs (VSANs) in the fabric without the need for reconfiguration or rewiring, eliminating downtime for deployment. Cisco SME provisioning and key management are both integrated into Cisco Fabric Manager; no additional software is required.

Selected Part Numbers and Ordering Information

M9500SME1MK9	Cisco Storage Media Encryption package for one MPS-18/4 or MPS-18/4 FIPS module in the Cisco MDS 9500 series
DS-SCR-K9=	Smart Card Reader for Cisco SME

Cisco MDS 9000 Optical Modules



The Cisco MDS 9000 optical interface modules operate with the following platforms:

- Cisco ONS 15530 DWDM Multiservice Aggregation Platform
- Cisco ONS 15540 ESP Extended Services Platform
- Cisco ONS15454 SDH Multiservice Provisioning Platform (MSPP)

The Cisco MDS 9000 optical interface modules offer a broad range of storage-area-network (SAN) connectivity solutions for both local and extended reach. Small Form-Factor Pluggable (SFP) modules for the Cisco MDS 9000 are available in either short- or long-wave options to support Fibre Channel and Gigabit Ethernet connections over distances of up to 500 meters and 10 kilometers, respectively. Cisco Coarse Wavelength-Division Multiplexing (CWDM) SFPs and passive add/drop multiplexers provide cost-effective, multiprotocol, extended-distance connectivity by optimizing the use of the existing optical infrastructure.

Cisco Wide Area Application Engine (WAE) Appliances



The Cisco Wide Area Application Engine (WAE) Appliances offer a single, unified platform to host Cisco WAN-optimization and application-acceleration products, including Cisco Wide Area Applications Services (WAAS) Software and Cisco Application and Content Networking System (ACNS) Software that facilitate the consolidation of remote-office application infrastructure and services in the data center while providing LAN-like service levels to remote users. When deployed with Cisco WAAS, it overcomes the performance barriers created by the WAN through a sophisticated combination of application-acceleration and WAN-optimization techniques that mitigate application and transport latency, improve throughput, and minimize WAN bandwidth consumption for any TCP-based application. When deployed with Cisco ACNS Software, Cisco WAE Appliances address the need to distribute and receive high-bandwidth, media-rich content across the Internet or an intranet without performance losses or content-delivery delays.

Ideal for Companies that Need These Features

- Cisco WAE-512 Wide Area Application Engine—This engine is designed for small to medium-sized branch-office edge deployments; A low-cost, high-performance platform; Easy integration into existing branch-office network infrastructure, both logically and physically; With Cisco ACNS, MPEG video decoder for baseband video capability
- Cisco WAE-612 Wide Area Application Engine—This engine is designed to address the deployment needs at the edge in large enterprise branches and regional offices as well as core installations in medium-sized data centers; Greater performance, reliability, and scale than the Cisco WAE-512; With Cisco ACNS, MPEG video decoder for baseband video capability
- Cisco WAE-7326 Wide Area Application Engine—This engine is designed for deployment as a core WAN optimization and application-acceleration device in large enterprise data centers; High level of performance and availability; Maximum WAN optimization and application-acceleration performance and very high scalability

Key Features

- The Cisco WAE Appliance provides a solution for performance and scalability constraints imposed by the WAN.
- The Cisco WAE delivers increasingly rich application content and services to remote users.
- The Cisco WAE provides ways to control the explosive growth in bandwidth requirements generated by new applications and business processes; it transparently improves throughput and responsiveness for existing applications.
- The appliance centralizes distributed application and file-services infrastructure into corporate data centers, and facilitates collaborative applications.
- The Cisco WAE uses available IT personnel and data-protection infrastructure to full advantage.
- The appliance can help reduce costs.
- The appliance easily implements regulatory compliance requirements.
- When the Cisco WAE-7326 is deployed using the Web Cache Communication Protocol Version 2 (WCCPv2), up to 32 Cisco WAE-7326 Appliances can be grouped together in a service group to support the largest enterprise deployments.
- With Cisco ACNS, the appliance can accelerate video-streaming solutions deployed at remote branches and help customers manage content caching and distribution.

Specifications

Feature	Cisco WAE-512	Cisco WAE-612	Cisco WAE-7326
Baseline RAM	1 GB	2 GB	4 GB
Maximum RAM	2 GB	4 GB	4 GB
Maximum storage	Two 250-GB SATA hard drives	Two 300-GB SAS hard drives	Six 300-GB SCSI hard drives
Network Interfaces	Two 10/100/1000	Two 10/100/1000	Two 10/100/1000
Power	One 350W AC	One 350W AC	One 350W AC
Rack units	One	One	One
MPEG decoder (optional)	Yes (support only with Cisco ACNS software) MPEG-1 and 2; DB-15 audio connector; BNC composite video output; 7-pin DIN S-video output connector	Yes (support only with Cisco ACNS software) MPEG-1 and 2; DB-15 audio connector; BNC composite video output; 7-pin DIN S-video output connector	No
Flash memory	128 MB of Compact Flash memory	128 MB of Compact Flash memory	128 MB of Compact Flash memory
External SCSI connector	No	No	Dual-channel U320 SCSI
Dimensions (H x W x D)	1.75 x 17.2 x 22.1 in. (43 x 440 x 559 mm)	1.75 x 17.2 x 22.1 in. (43 x 440 x 559 mm)	3.36 x 17.5 x 27.64 in. (85.4 x 443.6 x 702.0 mm)
Maximum weight	28 lb. (12.7 kg)	28 lb. (12.7 kg)	64 lb. (29.03 kg)
Universal input	Input voltage—low range 100 to 127 VAC; high range 200 to 240 VAC Input kilovolt-amperes (kVA) approximately— Minimum 0.102 kVA; Maximum 0.55 kVA	Input voltage—low range 100 to 127 VAC; high range 200 to 240 VAC Input kVA approximately— Minimum 0.102 kVA; Maximum 0.55 kVA	Input voltage—low range 100 to 127 VAC; high range 180 to 265 VAC Input kVA approximately— Minimum 0.36 kVA; Maximum 0.83 kVA
Operating temperature	50 to 95F (10 to 35C)	50 to 95F (10 to 35C)	50 to 95F (10 to 35C)
Nonoperating temperature	-40 to140F (-40 to 60C)	-40 to140F (-40 to 60C)	-40 to140F (-40 to 60C)
Humidity	Nonoperating—8 to 80%	Nonoperating—8 to 80%	Nonoperating—8 to 80%
Altitude	Maximum altitude—6500 ft (2000 cm)	Maximum altitude—6500 ft (2000 cm)	Maximum altitude—7000 ft (2133 cm)
Compliance	CE marking	CE marking	CE marking

Selected Part Numbers and Ordering Information

WAE-512-K9	Software and license options—Cisco WAAS or Cisco ACNS Storage options—One or two 250-GB SATA drives (part number DISK-SATA2-250GB) Memory options—Additional 1-GB memory (part number MEM-WAE-1GB) Optional 4-port network interface card (NIC) to support in-path (inline) deployments using Cisco WAAS (WAE-INLN-4CG)
WAE-612-K9	Software and license options—Cisco WAAS Software or Cisco ACNS Software Storage options—Two 300-GB SAS drives (part number DISK-SAS-300GB) Memory options—Additional 2-GB memory (part number MEM-WAE-2GB) Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (part number WAE-INLN-4CG)
WAE-674-K9	The WAE-674-K9 SKU includes 3 X 300 GB HDD and 4 GB RAM; no other HDD options are available Software and license options—Cisco WAAS Software or Cisco ACNS Software Memory options—Additional 4-GB memory (part number MEM-WAE-4GB) supported with Cisco WAAS only Power and fan option—Additional (redundant) power and fan available (part number RED-PWR-FAN-674) Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (part number WAE-INLN-4CG)
WAE-7326-K9	Cisco WAE-7326 Wide Area Application Engine
WAE-7341-K9	The WAE-7341-K9 SKU includes 4 X 300 GB HDD and 12 GB RAM; no other RAM or HDD options are available Software and license options—Cisco WAAS Software or Cisco ACNS Software Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (part number WAE-INLN-4CG)
WAE-7371-K9	The WAE-7371-K9 SKU includes 6 X 300 GB HDD and 24 GB RAM; no other RAM or HDD options are available Software and license options—Cisco WAAS Software or Cisco ACNS Software Optional 4-port NIC to support in-path (inline) deployments using Cisco WAAS (part number WAE-INLN-4CG)

For More Information

For more information about the Cisco Wide Area Application Engine (WAE) Appliances, visit: http://www.cisco.com/go/wae.

Cisco Wide Area Application Services (WAAS) Software

Cisco Wide Area Application Services (WAAS) is a powerful application-acceleration and WAN-optimization solution that facilitates branch-office server consolidation, performance improvements for centralized applications and services, and LAN-like service levels for remote users.

Key Features

- Cisco WAAS allows preservation of existing network policies, automatic discovery across any network topology, and end-to-end application traffic visibility for ease of monitoring, control, and troubleshooting.
- Cisco WAAS can facilitate consolidation of remote-office server infrastructure, including file servers, Web servers, e-mail servers, application servers, and database servers. The software minimizes deployment, operational, and management costs; improves data availability; and facilitates compliance with regulatory mandates.
- LAN-like performance—Cisco WAAS incorporates application-specific acceleration (Cisco WAAS Enterprise License) as well as WAN optimization that enable near-LAN performance for accessing centralized applications over the WAN, increasing employee productivity and collaboration across all branch-office application services including Web, file, video, e-mail, and enterprise applications.
- Simplified data protection—Cisco WAAS facilitates protection of application data during standard backup, retention, storage-management, and recovery procedures.
- Transparent integration—The solution integrates transparently with existing client, server, storage, and network infrastructure. It requires no changes to the infrastructure, and provides WAN-optimization capabilities without manipulating information that is vital for enabling value-added services that are hosted within the network infrastructure.

Selected Part Numbers and Ordering Information

SF-WAAS-4.0-SA-K9	Cisco WAAS 4.0 SATA2 SW image (separate license required) for WAE-512
SF-WAAS-4.0-SS-K9	Cisco WAAS 4.0 SATA2 SW image (separate license required) for WAE-612
SF-WAAS-4.0-SC-K9	Cisco WAAS 4.0 SATA2 SW image (separate license required) for WAE-7326
WAAS-TRN-APL	Cisco WAAS Transport License for 1 WAE Appliance
WAAS-ENT-APL	Cisco WAAS Enterprise License for 1 WAE Appliance
WAAS-CNTRL-MGR	Cisco WAAS Central Manager License (1 per mgmt appliance)
WAAS-TRN2ENT-APL=	WAAS Transport to WAAS Enterprise upgrade License for 1 WAE

For More Information

For more information about the Cisco Wide Area Application Services (WAAS) Software, visit: http://www.cisco.com/go/WAAS.

Cisco Application and Content Networking System (ACNS) Software

The Cisco Application and Content Networking System (ACNS) is a powerful digital media delivery solution that greatly reduces redundant digital media streaming traffic traversing a WAN from the data center to branch offices over satellite and terrestrial networks.

With Cisco ACNS, organizations from the private or public sectors can deliver effective and large-scale corporate communications, on-demand training, and digital signage to remote and dispersed branch offices, schools, and stores, with high-quality and minimal effect on the network, while taking advantage of investments in converged IP WANs.

Cisco ACNS combines the technologies of transparent on-demand caching, scheduled prepositioning, and live digital broadcasting to minimize the effect over the WAN for the following types of streaming media-based applications: corporate communications, e-learning, and digital signage.

Key Features

- Cisco ACNS provides live broadcasts and video on demand (VoD).
- Cisco ACNS integrates with the Cisco Digital Media System (DMS).
- Cisco ACNS offers unicast and IP Multicast delivery.
- Cisco ACNS delivers only one unicast video stream per digital media streaming source.
- Stream splitting at the edge delivers streams to hundreds of user desktops or TV displays.
- Cisco ACNS offers continuous and transparent media content distribution with policy-based bandwidth throttling.

- Cisco ACNS has a multilayer hierarchy for high scalability and redundancy across the delivery path to thousands of user desktops, digital signs, kiosks, etc.
- Cisco ACNS supports multivideo formats, including Microsoft Windows Media, Real, Flash, H.264, and QuickTime.
- Cisco ACNS is available on a variety of Cisco devices (Cisco WAE appliances and Cisco integrated services router network modules).

Selected Part Numbers and Ordering Information

SF-ACNS-5.5-SA-K9	Cisco ACNS Software v.5.5 (SATA)
SF-ACNS-5.5-SC-K9	Cisco ACNS Software v.5.5 (SCSI)
SF-ACNS-5.5-SS-K9	Cisco ACNS Software v.5.5 (SAS)

For More Information

For more information about Cisco ACNS, visit: http://www.cisco.com/go/acns.

SSL Services Module for the Catalyst 6500 and Cisco 7600 Series



The SSL Services Module for the Catalyst 6500 and Cisco 7600 Series is an integrated services module for the Cisco Catalyst 6500 Series that offloads the processor-intensive tasks related to securing traffic with Secure Sockets Layer (SSL) and increases the number of secure connections supported by a website.

Ideal for Companies that Need These Features

- This integrated SSL encryption and decryption solution features the Cisco Catalyst 6500 and 7200 Switches.
- The module offers scalable SSL processing—2500 connection setups per second per module; and 10,000 per chassis fully populated with SSL modules.

Key Features

- The SSL Services Module performs all Secure Sockets Layer (SSL)-related tasks, allowing servers to handle high-speed plaintext traffic.
- The SSL Services Module provides a simple means of addressing increased performance requirements by installing additional SSL modules in a Cisco Catalyst 6500 Switch.
- It maintains persistence even when clients request new session IDs in integrated mode with the Cisco Content Services Module (CSM).
- The SSL Services Module provides cost savings by requiring only a single certificate copy versus a copy for each server subject to customer and certificate authority agreement.

Specifications

System Capacity and Performance	2500 connection setups/sec per module—10K per chassis; 60K concurrent client connections—240K per chassis; 300 Mbps bulk rate encryption—1.2 Gbps per chassis; 256 key pairs; 256 key certificates; Up to 2K key sizes—256 proxy servers
Scalability	Up to four SSL modules in the same Catalyst 6500
Integration with Server Load Balancing	Tightly integrated in the Cisco Catalyst 6500 Switch with the CSM

Selected Part Numbers and Ordering Information

WS-SVC-SSL-1-K9=	Cisco SSL Module for Catalyst 6500 and Cisco 7600 Series Switches

For More Information

For more information about Cisco SSL Services Module for the Catalyst 6500 & Cisco 7600 Series switches, visit:
http://www.cisco.com/en/US/products/hw/modules/ps2706/prod_module_series_home.html.

Chapter 7: Video and Broadband Cable

Video and Broadband Cable Products at a Glance

Product	Features	Page
VIDEO		
Cisco Digital Media System	The Cisco Digital Media System (DMS) is a comprehensive suite of digital signage, Enterprise TV, and desktop video applications that allows companies to use digital media to increase sales, enhance customer experience and facilitate learning. Support from Cisco's broad partner ecosystem of deployment, solution development, and content creation partners ensures a successful digital media implementation.	7–2
Cisco Digital Media Encoders	Cisco Digital Media Encoders are integrated components of the Cisco Digital Media System for desktop video. They provide live and on-demand streaming digital media across an IP network. The Cisco Digital Media Encoder 1000 is a portable encoder, and the Cisco Digital Media Encoder 2000 is a multiprocessor, studio-quality audio and video encoding appliance.	7–3
Cisco Digital Media Manager	Cisco Digital Media Manager (DMM) is an integrated component of the Cisco Digital Media System for desktop video, digital signage, and enterprise TV. This Web-based application allows content authors to easily manage and publish content to the Cisco Video Portal or other end devices.	7–4
Cisco Digital Media Players	Cisco Digital Media Players (DMP) are highly reliable, IP-based hardware endpoints that enable digital signage and Enterprise TV through the ability to play high-definition live and on-demand video, motion graphics, Web, and dynamic content on digital displays.	7–5
Cisco Video Portal	Cisco Video Portal is an integrated component of the Cisco Digital Media System for Desktop Video. The Cisco Video Portal and Reporting Tool is a Web-based video portal that audiences can use to browse, search, and view digital media interactively; it includes a Web-based reporting tool.	7–7
Cisco TelePresence System	Cisco TelePresence integrates advanced audio, high-definition video, and interactive elements with the power of the underlying network to deliver an immersive in-person experience. • The system supports life-like images with ultra high-definition video and spatial audio. • The system integrates cameras, a lighting array, microphones, and speakers, all tuned to optimize the experience. • The ease of use and integrated, optimized environmental features make it easy to schedule and launch calls. • Integration with the highly available Cisco network offers reliability, quality of service (QoS), and security.	7–8
Cisco TelePresence System 3000	The Cisco TelePresence System 3000 is an ideal endpoint for group meetings, creating an environment for six people to sit around the "virtual table" in a single location.	7–8
Cisco TelePresence System 1000	The Cisco TelePresence System 1000 is ideal for small group or one-on-one meetings around the "virtual table."	7–9
Cisco TelePresence Manager	Cisco TelePresence Manager software makes it easy for you to schedule and manage Cisco TelePresence calls.	7–11
Cisco TelePresence Multipoint Switch	Easily and reliably include three or more locations in a single meeting	7–11
BROADBAND CABLE		
Headend and Distribution Hub Equipment		
Cisco uBR7225 Series Universal Broadband Router	The Cisco uBR7225VXR Universal Broadband Router is the newest low-cost entry and midlevel cable modem termination system (CMTS). • The 2-rack unit (2RU) modular chassis of the Cisco uBR7225VXR offers more than three times the downstream port density and four times the upstream port density as the 2RU Cisco uBR7100. • The router provides 50 percent more downstream and upstream port capacity than the Cisco uBR7246VXR. • It offers the lowest entry-level pricing in the industry while maintaining modularity for capacity growth. • Its advanced physical layer (PHY) provides ingress noise cancellation. • The router complies with DOCSIS, European DOCSIS (Euro-DOCSIS), and J-DOCSIS on one line card.	7–13

Cisco uBR7246VXR Universal Broadband Router	This modular, standards-based communications-grade Cable Modem Termination System (CMTS) integrated router is ideal for high-growth broadband cable deployments. • The router supports up to 10,000 broadband subscribers. • It offers a large variety of LAN and WAN interface options and processors. • It offers full Layer 3 implementation. • The router is DOCSIS 1.0 and 1.1 and Euro-DOCSIS 1.0, 1.1, and 2.0 advanced time division multiple access (A-TDMA only) and PacketCable 1.1 qualified. It supports the Advanced Mode DOCSIS Set-Top Gateway (DSG). • The router offers a selection of cable line cards that includes Cisco uBR7200 Series MC28U, MC28X, MC16U, and MC16X Broadband Processing Engine (BPE) models.	7–14
Cisco uBR10012 Universal Broadband Router	This broadband router delivers the services, performance, scale, and carrier-class reliability that large cable operators and Internet service providers (ISPs) demand. • The router supports up to 64,000 broadband subscribers. • It supports A-TDMA and advanced spectrum management. • The router offers full Layer 3 implementation. • It supports DOCSIS 1.0 and 1.1 and Euro-DOCSIS 1.0 and 1.1, and it is PacketCable 1.1 qualified. It also supports Advanced Mode DSG. • This high-performance aggregation platform offers Cisco Parallel Express Forwarding technology. • The router has network interfaces that include 1 Gbps over Gigabit Ethernet and an OC-48 Dynamic Packet Transport (DPT) Interface Module Set.	7–15
Cisco uBR3x10 RF Switch	This broadband router delivers the services, performance, scale, and carrier-class reliability that large cable operators and Internet service providers (ISPs) demand. • The router supports up to 64,000 broadband subscribers. • It supports A-TDMA and advanced spectrum management. • The router offers full Layer 3 implementation. • It supports DOCSIS 1.0 and 1.1 and Euro-DOCSIS 1.0 and 1.1, and it is PacketCable 1.1 qualified. It also supports Advanced Mode DSG. • This high-performance aggregation platform offers Cisco Parallel Express Forwarding technology. • The router has network interfaces that include 1 Gbps over Gigabit Ethernet and an OC-48 Dynamic Packet Transport (DPT) Interface Module Set.	7–15

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
This chapter provides only a small subset of all parts available via the URL listed under "For More Information." Some parts have restricted access or are not available through distribution channels.

Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.
In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business. For more information about Cisco Advanced Services, visit http://www.cisco.com/go/techservices.

For more information about all services, see Chapter 10, "Services".

Cisco Digital Media System

The Cisco Digital Media System (DMS) is a comprehensive suite of digital signage, enterprise TV, and desktop video applications that allows companies to use digital media to increase sales, enhance customer experience and facilitate learning. Support from Cisco's broad partner ecosystem of deployment, solution development, and content creation partners ensures a successful digital media implementation.

Digital Signage

Cisco Digital Signage provides scalable, centralized management and publishing of high-quality content to networked, on-premise digital signage displays

Built on the power of the Cisco Digital Media System, Cisco Digital Signage leverages the same hardware and management platform as and can interoperate with Cisco Enterprise TV, or can operate as a standalone application.

Enterprise TV

Cisco Enterprise TV is an interactive application that enables organizations to deliver on-demand video and broadcast live TV channels over an IP network to digital displays.

On-screen menus and program guides give users access to Enterprise TV content, and organizations can customize lineups and create their own content libraries. Users can navigate through channel menus and select from on-demand content with a remote control or other remote devices.

Built on the power of the Cisco Digital Media System, Cisco Enterprise TV leverages the same hardware and management platform as and can interoperate with Cisco Digital Signage, or can operate as a standalone application.

Desktop Video

Built on the power of the Cisco Digital Media System, Cisco Desktop Video gives customers, employees, partners, and students access to high-quality and compelling videos on demand and live webcasts at their desktops. Digital Media can be browsed, searched, and viewed over the network through a unique, easy-to-use Cisco Video Portal experience--anywhere, anytime.

Key Features

- Communicate richly and effectively with targeted customers, investors, partners, and media. In addition, they can deliver crucial information and training to employees, suppliers, and partners.
- Target consumers with tailored content directly to their desktop or other IP-enabled devices.
- Offer live and on-demand events and content to geographically dispersed audiences.
- The Cisco Digital Media System provides applications and solutions for a variety of industries, including financial services, retail, and education.

Integrated Components of the Cisco Digital Media System

The Cisco Digital Media System includes four product lines:

- Creation with Cisco Digital Media Encoders (DMEs)
- Management with the Cisco Digital Media Manager (DMM)
- Publishing to the Cisco Digital Media Players (DMP)
- Access through the Cisco Video Portal

Cisco Digital Media Encoders



Cisco Digital Media Encoders provide live and on-demand streaming digital media across an IP network. Organizations can schedule and manage live events from multiple encoders from a single administration interface. The encoders can be locally managed or remotely managed through the Cisco Digital Media Manager. The Cisco Digital Media Encoder can be used as a standalone encoder or as an integrated component of the overall Cisco Digital Media System for Desktop Video.

The studio-level (Cisco DME 2000) and portable (Cisco DME 1000) encoders provide live and on-demand streaming digital media across an IP network in a variety of encoding formats, inputs, and monitoring functions.

Key Features

The Cisco Digital Media Encoder 1000 offers the following features:

- Designed for both professionals and novices, the rugged-design, lightweight encoder is ideal for outdoor venues, classrooms, and conference rooms because it can extend Webcasting "outside of the studio".
- Lightweight, single channel
- Encoding of video live onto an iPod or live network distribution
- Local management; or remote management through the Cisco Digital Media Manager

The Cisco Digital Media Encoder 2000 offers the following features:

- Designed for advanced users who require multiple audio and video input options and a variety of encoding formats and functions.
- Studio-level, duel channel— a good choice for the corporate office or data center
- Live encoding/transcoding of media from analog and digital sources into standard formats (WMV, FLV, H.264, and so on.)
- Local management via an embedded LCD; or remote management through the Cisco Digital Media Manager

Specifications

Feature	Cisco Digital Media Encoder 1000	Cisco Digital Media Encoder 2000
Supported live streaming formats	Windows Media 9 MPEG-4/H.264	Windows Media 9 MPEG-4/H.264
Supported on-demand formats	Flash (.flv) (on-demand) Windows Media MPEG-4/H.264	Flash (.flv) (on-demand) Windows Media MPEG-4/H.264
Video inputs	Composite; S-Video	2 composite; 2 S-Video; 2 SDI (SMPTE - 259M) Video with embedded audio inputs (AES/EBU)
Audio inputs	1 balanced stereo (XLR3) Unbalanced stereo (RCA)	2 balanced stereo (XLR); 2 Unbalanced stereo (RCA); 2 digital audio (AES/EBU) inputs through SDI inputs
Ethernet ports	1 GB; 10/100 MB	2 10/100/1000 MB
Hard disk space	40 GB	One 85 GB
RAM	512 MB	1 GB
Processor	Single 1-Ghz Intel Celeron	Dual core AMD Opteron, 1.81 GHz
Additional ports	2 USB 2.0; keyboard; mouse; VGA monitor	2 USB 2.0 and VGA monitor
Dimensions (H x W x D)	4 x 7.5 x 15.5 in. (10.16 x 19.67 x 39.37cm)	3.5 x 19 x 24 in. (8.89 x 48.26 x 60.96 cm)
Weight	12 lb. (5.44 kg)	42 lb. (19.05 kg)
Power	110-220V; 50-60 Hz	110-220V; 50-60 Hz

Selected Part Numbers and Ordering Information

DMS-DME-1000	Cisco Digital Media Encoder 1000
DMS-DME-2000	Cisco Digital Media Encoder 2000

Cisco Digital Media Manager



The Cisco Digital Media Manager allows content authors to manage, schedule, and publish compelling digital media for live or on-demand playback across digital signage displays for Cisco Digital Signage and Enterprise TV, and to the Cisco Video Portal for Cisco Desktop Video. An integrated part of the Cisco Digital Media System, the web-based Cisco Digital Media Manager is the single, central management application for all Cisco Digital Media System products.

Content managers can:

- Manage content assets and create playlists for digital signage and desktop video
- Schedule instant and future content deployments and playback schedules for digital signage, Enterprise TV, and desktop video
- Report on playback schedules for digital signage and on video usage for desktop video
- Manage Q&A for live desktop video broadcasts
- Synchronize slides for both live and video on demand desktop video events

Content designers can:

- Customize signage screen layouts and zones for digital signage
- Customize and brand Enterprise TV skins and menus
- Customize and brand the Cisco Video Portal interface for desktop video

IT users can:

- Manage user accounts for role-based access control, and configure user-specific content restrictions for desktop video users via LDAP/Active Directory
- Configure and manage Cisco Digital Media Encoders for desktop video
- Remotely configure, manage, and monitor digital signage networks
- Manage event-based alerts and server appliances

Specifications

Cisco Digital Media Manager Features	
Product compatibility	Compatible with Cisco Application and Content Networking System (ACNS), the Cisco Video Portal and Cisco Video Portal Reports tool, Cisco Digital Media Players, and Cisco Digital Media Encoders
Programming interface	Web-based management

Cisco Digital Media Manager Client Requirements	
Browser	Microsoft Windows — Internet Explorer 6.0 or later, Mozilla 1.8 or later, or Firefox 1.5 or later recommended; Linux or UNIX—Mozilla 1.0 or Firefox 1.0 minimum ; Mozilla 1.8 or later or Firefox 1.5 or later recommended ; Apple Macintosh—Safari 2.0 minimum; Safari 2.0 or Firefox 1.5 or later recommended
Cisco Live Event Module Browser	Microsoft Windows—Internet Explorer 6.0 or later; Apple Macintosh—Mac OS X; VMWare Fusion; Windows XP or Vista—Internet Explorer, v.6.0 or later

Selected Part Numbers and Ordering Information

Software on Server Appliance	
DMM5.0-BASE-K9	Cisco Digital Media Manager Base V5.0 Perpetual Software License
DMM-VPM5.0-K9	Cisco Digital Media Manager Video Portal Manager V5.0 Perpetual Software License
DMM-DSM5.0-K9	Cisco Digital Media Manager Digital Signage Module V5.0 Perpetual Software License
DSM-FL-10	Cisco Digital Media Manager, Digital Signage Feature License for Up To 10 DMPs
DSM-FL-100	Cisco Digital Media Manager, Digital Signage Feature License for Up To 100 DMPs
DSM-FL-1000	Cisco Digital Media Manager, Digital Signage Feature License for Up To 1000 DMPs
DMM-LEM5.0-K9	Cisco Digital Media Manager Video Portal Module Live Event Module V5.0 Perpetual Software License
DMM-ETVM5.0-K9	DMM Enterprise TV Module V5.0 Perpetual Software Licence
DMM-SNMP5.0-K9	Digital Media Manager Ver. 5.0 SNMP Module Perptl. SW Lic.
MCS-7835H2-K9-DMM5	HW Only MCS-7835-H2 w/ 2048MB RAM and Two 72GB SAS HD
Software Upgrades and Add-Ons	
DMM-VPM5.0-K9=	DMM Video Portal Module V5.0 Perptl. SW Lic., Spare
DMM-DSM5.0-K9=	DMM Digital Signage Module V5.0 Perptl. SW Lic., Spare
DMM-LEM5.0-K9=	DMM Video Portal Module Live Event Module V5.0 Perptl. SW Lic., Spare
DMM-SNMP5.0-K9=	Digital Media Manager Ver. 5.0 SNMP Module Perptl. SW Lic.
DMM4-U5.0-K9	Cisco Digital Media Manager Base V5.0 Upgrade from V4.1 for MCS-7835-H1
VP4-1000-U5.0-K9	Cisco Digital Media Manager V5.0 Video Portal Module 5.0 Upgrade from V4.1
DSM-FL-10=	Cisco Digital Media Manager, Feature License for Up To 10 DMPs
DSM-FL-100=	Cisco Digital Media Manager, Feature License for Up To 100 DMPs
DSM-FL-1000=	Cisco Digital Media Manager, Feature License for Up To 1000 DMPs
Hardware Spares	
MCS-7835H2-DMS1=	HW Only MCS-7835-H2 w/ 2GB RAM, Two 72GB SAS HD, Spare

For More Information

For more information about the Cisco Digital Media System, visit: http://www.cisco.com/go/dms.

Cisco Digital Media Players



Cisco Digital Media Players (DMP) are highly reliable, IP-based hardware endpoints that enable digital signage and Enterprise TV through the ability to play high-definition live and on-demand video, motion graphics, Web, and dynamic content on digital displays. The DMP hardware options include support for standard-definition and high-definition MPEG-2 and MPEG-4/H.264, Flash, RSS, and other Web formats and dynamic data.

Using the Cisco Digital Media System's Cisco Digital Media Manager, organizations can flexibly and remotely publish centralized content over the Web to networked digital signs, Cisco Digital Media Players can be attached to virtually any on-premise digital signage display at any location, including branch-office banks, retail stores, break rooms, or lobbies, helping organizations reach their primary audiences anywhere, anytime.

Cisco Digital Media Players deliver flexible and real-time publishing; low ongoing operational costs and ease of use; speed of deployment; and leverage the scalability and power of the network.

The Cisco Digital Media Player 4305G includes such features as:

- Support for MPEG 1/2/4 Part 2 video in standard definition and high definition as well as graphics, Web content, Adobe Flash 7 or less, animation and tickers.
- 2-GB local storage for reliability and performance
- Small form factor: 7.5 x 5 x 1.5 in. at 1 lb
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

The Cisco Digital Media Player 4400G includes such features as:

- Support for MPEG 1/2/4 Part 10 video in standard definition and high definition as well as graphics, Web content, and Adobe Flash 9 animation, and tickers.
- 4-GB local storage for reliability and performance
- Small form factor: 10 x 8 x 2 in.; weighs 4.5 lb.
- Low power consumption
- IP-enabled delivery of live broadcasting and on-demand video content

Integrated with the Cisco Digital Media Manager, the Cisco Digital Media Players provide:

- Remote management of display (on and off, volume, contrast, and brightness)
- Full-screen video playback or "on-screen zoning" of multiple content types on a single display
- Customizable onscreen presentation templates and playlists

Specifications

Feature	Cisco Digital Media Player 4305G	Cisco Digital Media Player 4400G
Supported protocols	FTP; HTTP; MPEG2-Transport Stream; User Datagram Protocol (UDP)	FTP; HTTP; MPEG2-Transport Stream; User Datagram Protocol (UDP)
Video codecs	Video MPEG 1; Video MPEG 2: Main Profile at High Level; Video MPEG 4 part 2: Advanced Simple Profile at Level 5; Aspect ratio: 4:3 and 16:9; HD (up to 1080 at 16:9) progressive and interlace video resolution; Video data rate up to 12 Mbps; Overall delay 1-3 sec Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.	Video MPEG 1; Video MPEG 2: Main Profile at High Level; Video MPEG 4 part 10; Aspect ratio: 4:3 and 16:9; HD (up to 1080P at 16:9) progressive and interlace video resolution; Video data rate up to 12 Mbps; Overall delay 1-3 sec Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.
Audio codecs	Audio MPEG 1 Layers 1 and 2; MEPG 4 AAC Low Complexity; AC-3; Audio data rate: 64-320 kbps Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.	Audio MPEG 1 Layers 1 and 2; MEPG 4 AAC Low Complexity; AC-3; Audio data rate: 64-320 kbps Note: Please consult other Cisco documentation or your Cisco representative for exact audio codec, video codec, resolution, bit rate, and encapsulation combinations.
Physical connectors	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, RCA Audio Left, RCA Audio Right, HDMI, and RS-232 and USB Cable Type* and Maximum Supported Length—Composite/RCA cable, 10 ft.; HDMI 1.1**, 16 ft.; S-Video, 10ft. * Cable quality can be a factor **An HDMI extender product can be used to extend the cable to 150 ft.	Ethernet copper 10/100 BASE-T, RCA Video, S-Video, Mini 3.5 mm Stereo Audio Jack, HDMI, and RS-232 and USB Cable Type* and Maximum Supported Length—Composite/RCA cable, 10 ft.; HDMI 1.1**, 16 ft.; S-Video, 10ft.; USB 2.0 (2), 15 ft.; SPDIF, 10 ft. * Cable quality can be a factor **An HDMI extender product can be used to extend the cable to 150 ft.
Remote Control	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.	Transmitter Type and Maximum Supported Distance—Infrared (IR), 15 ft.
Functional	Video in—MPEG 1, MPEG 2, and MPEG 4 part 2 Audio in—Transport stream: Up to 6 audio packet IDs (part numbers) in transport stream Video out—Analog video (composite, S-Video); Digital video (HDMI) Audio out—Analog unbalanced audio (mono and stereo); MPEG 1 Layer 2: Selected; packet IDs in transport stream (1 of 6) MPEG 4 AAC and AC-3—Selected elementary audio (1 of 6)	Video in—MPEG 1, MPEG 2, and MPEG 4 part 10 Audio in—Transport stream: Up to 6 audio packet IDs (part numbers) in transport stream Video out—Analog video (composite, S-Video); Digital video (HDMI 1.1) Audio out—Analog unbalanced audio (mono and stereo); MPEG 1 Layer 2: Selected; packet IDs in transport stream (1 of 6) MPEG 4 AAC and AC-3; Selected elementary audio (1 of 6)
Power	Input voltage—5V Input current—3 ADC Power consumption—Peak: 12W; average: 5W	Input voltage:—12V Input current—3 ADC Power consumption—Peak: 30W; average: 15W
Flash memory	32 MB for OS; 2 GB for internal storage	4GB CF-card with endurance of 1,000,000 Write/Erase Cycles for OS and application storage
Environmental	Operating temperature—41ûF to 122ûF (5 to 50ûC; Passed 500-hour test of the uninterrupted video playback in 125.6ûF (52ûC) dry-heat environment Humidity—0 to 80% noncondensing	Operating temperature—41ûF to 104ûF (5 to 50ûC); Passed 500-hour test of the uninterrupted video playback in 125.6ûF (52ûC) dry-heat environment Humidity—20 to 80% noncondensing

Selected Part Numbers and Ordering Information

Cisco Digital Media Players 4305G and 4400G	
DMP-4305G-K9	Cisco Digital Media Player 4305G (Note: Includes Cables Accessory Kit)
DMP-SW5.0-K9	Digital Signage User Lic. for DMP 4305G
DMP-4400G-K9	Cisco Digital Media Player 4400G (Note: Includes Cables Accessory Kit)
DMP-SW5.0-K9	Digital Signage User Lic. for DMP 4400G
Spares	
DMP-ACC-KIT	Cisco Digital Media Player 4305G, Cables Accessory Kit, Spare (Note: A Cables Accessory Kit is already included with the Cisco Digital Media Player 4305G. This Spare Kit is an additional cost.)
DMP4400-ACC-KIT=	Cisco Digital Media Player 4400G, Cables Accessory Kit, Spare (Note: A Cables Accessory Kit is already included with the Cisco Digital Media Player 4400G. This Spare Kit is an additional cost.)
DMP-RM-K9=	Cisco Digital Media Player Remote Spare (Note: A Remote is already included with the Cisco Digital Media Player 4305G and 4400G. This Spare Kit is available at additional cost to previous versions of the 4305G.)

For More Information

For more information about the Cisco Digital Media System, visit: http://www.cisco.com/go/dms.

Cisco Video Portal



An integrated component of the Cisco Digital Media System for Cisco Desktop Video, the Cisco Video Portal helps users browse, search, and view digital media interactively at the desktop. Platform-independent, the Cisco Video Portal fits easily into an organization's existing network and IT infrastructure and supports major video formats such as Windows Media, Flash, and MPEG-4/H.264, QuickTime.

The Cisco Video Portal provides the following features:

- Customizable interface, program guide, and keyword search
- Personalized and featured playlists
- Advanced player controls: Full-screen video playback, fast forward, rewind
- Slide synchronization with video
- Submission and management of questions during live webcasts
- Video sharing
- Secure log in and access to user-specific content based on Active Directory/LDAP
- Detailed content and user access reporting: Who, what, when and how often

Specifications

Cisco Video Portal and Cisco Video Portal Reports Tool Features	
Product compatibility	Compatible with Cisco Application and Content Networking System (ACNS) Software, Cisco Digital Media Manager, Cisco Digital Media Players, and Cisco Media Encoders
Components (software)	Web-based Cisco Video Portal and Cisco Video Portal Reports tool
Supported encoder file types	Microsoft Windows Media, Adobe Flash (.flv), Apple QuickTime (.mov), and MPEG/H.264 – Up to a maximum of 2 GB per file
Cisco Video Portal and Cisco Video Portal Reports Tool Product Sizing Matrix	
Product	**Maximum Number of Connections**
Cisco Video Portal 5.0 Perpetual Software License with Cisco 7825 Media Convergence Server	Up to 500 concurrent initial user access within the first minute
Cisco Video Portal 5.0 Perpetual Software License with Cisco 7835 Media Convergence Server	Up to 1000 initial user access within the first minute
Cisco Video Portal Client Requirements	
Browser	• Windows—Internet Explorer 6.0 or later, Mozilla 1.8 or later, or Firefox 1.5 or later recommended • Linux or UNIX support for Flash VoD files only— Mozilla 1.0 or Firefox 1.0 minimum; Mozilla 1.8 or later or Firefox 1.5 or later recommended • Apple Macintosh support for Flash and QuickTime VoD files—Safari 2.0 minimum; Safari 2.0 or Firefox 1.5 or later recommended
Adobe Flash plug-in	Adobe Flash 8 plug-in or later recommended
Windows Media plug-in	Windows Media 9 or later (required if Windows Media content is offered)
QuickTime plug-in	QuickTime Player 7.1 or later recommended

Cisco Digital Media Manager Live Event Module 1.0	• Windows— Internet Explorer 6.0 or later; Internet Explorer 6 or later recommended • Apple Macintosh—VMWare Fusion • Windows XP or Vista—Internet Explorer 6 or later recommended
Minimum supported resolution	1024 x 768
Cisco Video Portal Reports Tool Client Requirements	
Browser	• Windows—Internet Explorer 5.5 or Firefox 1.5 minimum; Internet Explorer 6.0 or later or Firefox 1.5 or later recommended • Linux or UNIX—Firefox 1.5 or later • Apple Macintosh— Firefox 1.5 or later
Adobe Scalable Vector Graphics (SVG) plug-in	Adobe SVG 3.0 plug-in minimum; Adobe SVG 3.03 or later recommended (required only for Internet Explorer)

Selected Part Numbers and Ordering Information

Software on Server Appliance	
VP5.0-500-K9 VPR5.0-K9 MCS-7825H3-K9-VP5	Cisco Video Portal V5.0 for MCS-7825-H3 for up to 500 concurrent viewers
VP5.0-1000-K9 VPR5.0-K9 MCS-7835H2-K9-VP5	Cisco Video Portal V5.0 for MCS-7835-H2 for up to 1000 concurrent viewers
Software Upgrades	
VP4-500-U5.0-K9	Cisco Video Portal V5.0 Upgrade from V4.1 for MCS-7825-H2 for up to 500 concurrent viewers
VP4-1000-U5.0-K9	Cisco Video Portal V5.0 Upgrade from V4.1 for MCS-7835-H1 for up to 1000 concurrent viewers
The DMS V4.1 to V5.0 Upgrade is available to all Cisco customers with a current Software Application Support (SAS) contract via http://www.cisco.com. Access to the DMS upgrades is available from this website by selecting the Support: Download Software: Video and Content Delivery: Cisco Digital Media System web page selections.	
Hardware Spares	
MCS-7825H3-DMS1=	HW Only MCS-7825-H3 w/ 2048MB RAM and Two 160GB SATA HD, Spare
MCS-7835H2-DMS1=	HW Only MCS-7835-H2 w/ 2048MB RAM and Two 72GB SAS HD, Spare

For More Information

For more information about the Cisco Digital Media System, visit: http://www.cisco.com/go/dms.

Cisco TelePresence System

Cisco TelePresence creates a live, "face-to-face" experience over the network—empowering you to interact and collaborate with others like never before. As a breakthrough technology for remote collaboration, Cisco TelePresence integrates advanced audio, high-definition video, and interactive elements with the power of the underlying network to deliver an immersive in-person experience.

Key Features

- Available as an entire portfolio of rooms and endpoints in a variety of configurations to meet all meeting and collaboration needs, from one on one meetings to very large team meetings or classroom applications
- Simple ease of use and integration with Microsoft Outlook and Lotus Notes for one button to push meeting initiation
- Purpose-built environment that incorporates advanced audio, high-quality video, and room environmentals
- Ability to share documents, photos video and physical objects through auto-collaboration
- Meet with other organizations via Intercompany TelePresence
- Ability to interoperate with existing, standards-based video-conferencing equipment

Cisco TelePresence System 3000

The Cisco TelePresence System 3000 is an ideal endpoint for group meetings, creating an environment for six people to sit around the "virtual table" in a single location. Two Cisco TelePresence System 3000 systems in a meeting create a virtual table for 12 participants. The Cisco TelePresence System 3000 is suitable for uses such as customer engagements, presentations to small or large groups, supply-chain dealings, press briefings, operational or engineering reviews, negotiations, or regular team meetings.

Specifications

Product compatibility	Cisco TelePresence System 500 with CTS software version 1.5 or later; Cisco TelePresence System 1000 with CTS software version 1.1 or later; Cisco TelePresence ; System 3200 with CTS software version 1.4 or later; Cisco Unified Communications Manager 5.1 or later ; Cisco TelePresence Multipoint Switch 1.0 or later; Cisco TelePresence Manager 1.0 or later
Software compatibility	Cisco TelePresence System software Version 1.1 or later
Protocols	Cisco Discovery Protocol, SIP, IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection—100/1000m), internal 4-port Ethernet switch, and high-definition video connector
Programming interfaces	Web-based user interface; IP address assignment can be statically configured or configured through the Cisco TelePresence administrator Web interface
Physical dimensions (H x W x D)	8 x 15 x 19 feet of space is required at minimum
Weight	2020 lb (freight weight)
Power	Maximum: 5292W (44.1A @ 120V to 22A @ 240V) Typical: 4410W (36.8A @ 120V to 18.4A @ 240V)
Video and Audio Specifications	
Bandwidth consumption	3-9 Mbps (720p) or 9-12 Mbps (1080p) for IP QoS connections recommended; on average, a Cisco TelePresence System 3000 uses 6-8 Mbps (1080p)
Video standards	H.264
Frame rates	30 frames per second using H.264
Data and graphics frame rate	Graphics sharing at 5 frames per second (standard configuration) Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p
Resolution	1920 x 1080 Native
Audio standards	G.711 and AAC-LD (22 kHz)
Audio features	Cisco Dynamic Echo Cancellation for spatial audio
Cisco TelePresence High-Definition Camera	• CMOS 2/3-inch sensor; C Mount Lens; 1080p 30; Minimum illumination 300 Lux; Manual focus
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Video network features	Intelligent packet loss recovery of video transmission
Network interface	1 LAN or Ethernet (RJ-45); 100/1000 Mbps; Internal 4-port Ethernet switch with 2 PoE (IEEE 802.3af) ports on codec

Selected Part Numbers and Ordering Information

CTS-3000	**Cisco TelePresence System 3000**
Power Cords	Select the appropriate power cord option to plug into the wall outlets in the country where the TelePresence system will be deployed.
Laptop Connectivity Modules	Select the appropriate connectivity modules based on the country where the TelePresence system will be deployed. These modules allow participants to plug their laptop PC's or other portable electronic devices into power outlets integrated into the system table legs.
Lighting Fixtures	Select the appropriate system lighting fixture based on the region where the TelePresence system will be deployed. Special lighting fixtures are required for Europe and Japan.
Auxiliary control unit	CTS-LIGHT-CTRL This is an optional control unit that is not required for Cisco TelePresence System 3000 operation.
Projectors	Projector options are offered to meet country specific regulatory requirements. Select from standard, Chinese or none.
Presentation Codec	CTS-HFR-COLLAB This is a chargeable option to add a dedicated presentation codec to enable high frame rate Auto Collaboration.

For More Information

For more information about the Cisco TelePresence System, visit: http://www.cisco.com/go/telepresence.

Cisco TelePresence System 1000

The Cisco TelePresence System 1000 is ideal for small group or one-on-one meetings around the "virtual table." Two Cisco TelePresence System 1000 endpoints in a single meeting create a virtual table for up to 4 participants. The Cisco TelePresence System 1000 is suitable for uses such as direct

customer engagements, small presentations, regular one-on-one meetings with remote employees or partners, supply-chain dealings, press briefings, operational or engineering reviews, or negotiations and interviews.

Specifications

Product compatibility	• Cisco TelePresence System 500 with CTS software version 1.5 or later; Cisco TelePresence System 3000 with CTS software version 1.1 or later; Cisco TelePresence System 3200 with CTS software version 1.4 or later; Cisco Unified Communications Manager 5.1 or later ; Cisco TelePresence Multipoint Switch 1.0 or later; Cisco TelePresence Manager 1.4 or later
Software compatibility	Cisco TelePresence System software Version 1.2
Protocols	Cisco Discovery Protocol, SIP, IP, Dynamic Host Configuration Protocol (DHCP), Secure Shell (SSH) Protocol, 802.1p/q, and Real-Time Transport Protocol (RTP)
Connectivity	Ethernet (1 LAN, RJ-45 connection—100/1000m), internal 4-port Ethernet switch, and high-definition video connector (socket and cable)
Programming interfaces	Web-based user interface; IP address assignment can be statically configured or configured through the Cisco TelePresence Web interface
Physical dimensions (H x W x D)	61 x 62 x 14 in.; Designed for small conference room or office
Power	Maximum—1160W (9.7A @ 120V to 4.8A @ 240V); Typical—1079W (9A @ 120V to 4.5A @ 240V)
Video and Audio Specifications	
Bandwidth	1-3 Mbps (720p) or 3-4 Mbps (1080p) for IP QoS connections is recommended; on average, a Cisco TelePresence System 1000 uses 1-2 Mbps (1080p)
Video standards	H.264
Frame rates	30 frames per second using H.264
Data and graphics frame rate	Graphics sharing at 5 frames per second (standard configuration) Optional graphics sharing at 30 frames per second using a dedicated presentation codec
Native National Television Standards Committee (NTSC)	720p and 1080p
Resolution	1920 x 1080 native
Audio standards	G.711 and AAC-LD (22 kHz)
Audio features	Cisco Dynamic Echo Cancellation
Cisco TelePresence High-Definition Camera	• CMOS 2/3-in. sensor; C Mount Lens; 1080p 30; Minimum illumination 300 Lux; Manual focus
Additional Specifications	
Firmware upgrades	Downloadable from Cisco Unified Communications Manager
Dimensions (H x W x D)	61 x 62 x 14 in.
Footprint	Small conference room or executive office
Weight	690 lb (freight weight)
Video network features	Intelligent packet loss recovery of video transmission
Network interface	1 LAN or Ethernet (RJ-45); 100/1000 Mbps
Ethernet, Internet, and intranet connectivity	Cisco Discovery Protocol, 802.1p/q, TCP/IP, DHCP, and SSH

Selected Part Numbers and Ordering Information

CTS-1000	**Cisco TelePresence System 1000**
Power Cords	Select the appropriate power cord option to plug into the wall outlets in the country where the TelePresence system will be deployed.
Lighting Fixtures	Select the appropriate system lighting fixture based on the region where the TelePresence system will be deployed. Special lighting fixtures are required for Europe and Japan.
Auxiliary control unit	CTS-LIGHT-CTRL This is an optional control unit that is not required for Cisco TelePresence 1000 operation.
Presentation Codec	CTS-HFR-COLLAB This is a chargeable option to add a dedicated presentation codec to enable high frame rate Auto Collaboration.

For More Information

For more information about the Cisco TelePresence System, visit: http://www.cisco.com/go/telepresence.

Cisco TelePresence Manager

Cisco TelePresence Manager software makes it easy for you to schedule and manage Cisco TelePresence calls. As an integral part of the Cisco TelePresence experience, the software facilitates call scheduling and setup from common enterprise groupware such as Microsoft Exchange and Lotus Notes.

Key Features

- Web-based user interface for easy administration
- Easy scheduling to minimize user training and support
- Ability to launch calls with one button on the phone interface
- Microsoft Exchange and Lotus Notes compatibility
- Integration with Cisco Unified Call Manager for call control
- Optimized resource allocation for multipoint calls
- Consolidated views of scheduled meetings with export functions for ROI reporting

Specifications

Specifications	Description
Product compatibility	Cisco MCS 7835-H2 and MCS 7835-I2 Media Convergence Servers
Software compatibility	Microsoft Internet Explorer 6.0
Protocols	HTTP, HTTPS, Cisco AVVID XML Layer (AXL) with SOAP, Simple Network Management Protocol (SNMP), and CTI
Connectivity	IP
Reliability and availability	High availability through Cisco MCS 7835 Media Convergence Server platform

Selected Part Numbers and Ordering Information

CTS-MAN1.3	Cisco TelePresence Manager 1.3
One Cisco media convergence server is required per Cisco TelePresence Manager implementation	
MCS-7835-H2-CTS1	Cisco MCS 7835-H2 Media Convergence Server
MCS-7835-I2-CTS1	Cisco MCS 7835-I2 Media Convergence Server
One integration is required per Cisco TelePresence Manager Implementation	
LIC-CTS-MAN-MS	Cisco TelePresence Manager Integration for MS Exchange
LIC-CTS-MAN-IBM	Cisco TelePresence Manager Integration for IBM Domino
License required. Based on number of Cisco TelePresence systems under management.	
LIC-CTS-MAN-10	Cisco TelePresence Manager Device License: 10 units
LIC-CTS-MAN-50	Cisco TelePresence Manager Device License: 50 units
LIC-CTS-MAN-100	Cisco TelePresence Manager Device License:100 units

For More Information

For more information about the Cisco TelePresence System, visit: http://www.cisco.com/go/telepresence.

Cisco TelePresence Multipoint Switch

Easily and reliably include three or more locations in a single meeting with the Cisco TelePresence Multipoint Switch. With support for up to 48 locations in a single meeting across many endpoints, the switch allows all participants to be seen in life-like, high-definition video and heard in CD-quality, spatial audio with no perceivable latency. The Cisco TelePresence Multipoint Switch is an affordable, purpose-built appliance that offers superior scalability and is easy to install. It delivers automatic voice-activated switching either site-by-site or by individual table segment.

Key Features

- Easy meeting setup through enterprise groupware such as Microsoft Outlook or Lotus Notes
- One-button-to-push meeting start with the in-room IP phone
- Support for up to 48 single-screen Cisco TelePresence 1000 systems, 16 triple-screen Cisco TelePresence 3000 systems, or a mix of both in a single meeting
- Voice-activated switching with spatial audio and seating location on screen maintained as switching occurs
- Video conferencing interoperability with H.323 and Session Initiation Protocol (SIP) video conferencing endpoints

- Latency of less than 10 milliseconds for transparent switching between sites or segments during a multipoint call
- Data sharing and auto-collaboration to share images with all other participants and rooms
- Web-based administration with role-based profiles for administrators at both group and department levels

Specifications

Cisco TelePresence Attribute	
Product compatibility	Cisco TelePresence System 1000 Version 1.1 or later or Cisco TelePresence System 3000 Version 1.1 or later
Software compatibility	Cisco TelePresence Manager Version 1.1 or later
Call signaling	SIP trunk with Cisco Unified Communications Manager Version 5.1 or later and IP Version 4 (IPv4))
Media protocol	Real-Time Control Protocol (RTCP) and Real-Time Transport Protocol (RTP), User Datagram Protocol (UDP), and IP Unicast
Video protocol	H.264 baseline high-definition (HDTV) 16:9 aspect ratio
Video resolution	Progressive 1080p (1920 x 1080 pixels at 30 frames per second [fps]) and 720p (1280 x 720 pixels at 30 fps)
Auto Collaboration video	1024 x 768 pixels at 5 fps presentation video
Audio	Advanced Audio Coding with low delay (AAC-LD/HBR) 22-MHz (CD-quality) audio; 4 channel audio streams
Additional hardware	No additional hardware required
Cisco TelePresence Interoperability	
Product compatibility	Cisco TelePresence System 1000 Version 1.3 or later or Cisco TelePresence System 3000 Version 1.3 or later
Software compatibility	Cisco TelePresence Manager Version 1.4 or later
Call signaling	SIP trunk with Cisco Unified Communications Manager Version 5.1 or later and IP Version 4 (IPv4))
Media protocol	RTCP and RTP, UDP, and IP Unicast
Video protocol	H.264 baseline standard definition (TV) 4:3 aspect ratio (on demand only)
Video resolution	Common Interchange Format (CIF), 352 x 288 pixels at 30 fps)
Auto Collaboration video	Not supported in current release
Audio	Full toll-quality G.711 single channel audio (4 channels mixed)
Additional hardware	At least 1 Cisco Unified Videoconferencing 3515 MCU (model 3515/12, 3515/24, or 3545)
Cisco TelePresence Attribute	
Capacity	Up to 48 1080p 30-fps video streams
Maximum meeting size	A single multipoint meeting can accommodate up to the total capacity of the system, which supports 48 video streams (1 plasma display = 1 video stream), so 16 Cisco TelePresence System 3000 endpoints, 48 Cisco TelePresence System 1000 endpoints, or a mix can participate in a single meeting.
Concurrent meetings	The total capacity of the switch is 48 simultaneous video streams, with each plasma display representing one video stream. This capacity can be divided into any number of meetings. For example, with three Cisco TelePresence System 1000 endpoints per meeting, the switch supports 16 concurrent meetings. The maximum number of concurrent meetings (with at least 2 Cisco TelePresence System 1000 endpoints) is 24.
Latency (added by Cisco TelePresence Multipoint Switch)	Less then 10 milliseconds (ms)
Jitter (added by Cisco TelePresence Multipoint Switch)	Less then 0.05%
Availability	99.99% (estimated)
SNMP MIBs	RFC 1213, ENTITY, IF, ENTITY-FRU-CONTROL, HOSTRESOURCES, UMSEVENT, UMSLMSSENSOR, and CiscoTelePresenceCall MIB
CDR data	CDR ASCII format
Administrative interface	HTTP and HTTPS, Secure Shell (SSH) Protocol, role-based access control (RBAC), and password protection
QoS	Support for Differentiated Services (DiffServ) markings

Selected Part Numbers and Ordering Information

CTS-CTMS-1.1	Cisco TelePresence Multipoint Switch (CTMS)
LIC-CTMS-1.1 (Included)	Cisco CTMS Software License/Application
MCS-7845-H2-CTS1 (Included - standard)	Cisco MCS 7845-H2 Media Convergence Server
MCS-7845-I2-CTS1 (Included - alternate)	Cisco MCS 7845-I2 Media Convergence Server

For More Information

For more information about the Cisco TelePresence System, visit: http://www.cisco.com/go/telepresence.

Cisco uBR7225 Universal Broadband Router



The Cisco uBR7225VXR Universal Broadband Router is the successor to the Cisco uBR7100 and uBR7223 Series CMTS. The Cisco uBR7225VXR is a low-cost entry to midlevel CMTS in a 2RU modular chassis, offering cable operators, multiunit businesses, and Internet service providers (ISPs) an excellent and cost-effective platform for the delivery of high-speed data, voice, and video services. This new CMTS platform requires exceptionally low capital investment and minimal setup time, and it supports up to 5000 subscribers. The Cisco uBR7225VXR Universal Broadband Router is a service-enabling, communications-grade CMTS that offers carrier-class reliability, modular scalability, and significant investment protection.

Ideal for Companies that Need These Features

- 2RU modular CMTS offering with low entry-level pricing, while maintaining modularity for capacity growth and exceptionally minimal setup time
- A higher-capacity platform, without the need for the additional capacity of the Cisco uBR10012 or the larger form factor of the Cisco uBR7246VXR

Key Features

- The Cisco uBR7225 Universal Broadband Router supports PacketCable 1.1, DOCSIS 1.1, Euro-DOCSIS 2.0, and PacketCable Multimedia, increasing return on investment for converged services and speeding deployment of advanced IP services.
- The new low-cost line cards (part numbers UBR-E-28U and UBR-E-16U) lead to lower capital expenditures.
- This low-cost entry-level CMTS makes efficient use of capital expenditures while maintaining modularity for capacity growth.
- The Cisco uBR7225 provides up to 4 downstream and 16 upstream ports in a 2RU form factor.
- The router provides DOCSIS, Euro-DOCSIS, and J-DOCSIS support on one line card for operational savings and lower capital expenditures.

Specifications

Compact design suitable for rack-mount (2-RU) or desktop installation	Dimensions of 3.5 x 17.32 x 21.8 in. (8.89 x 44.9 x 55.37 cm) (H x W x D); 45 lb (20.4 kg); Front, mid, and rear mountable in a 19 in. EIA standard rack; Depth fully loaded from the tip of cable management bracket to the tip of the UBR-NPE-G1 handle is 26.1 in. (66.29 cm)
Modulation	Downstream—64-QAM, 256-QAM; Upstream—QPSK 8-, 16-, 32-, 64-QAM
Downstream frequency range	DOCSIS—6 MHz Annex B, 88–860 MHz; Euro-DOCSIS—8 MHz Annex A, 85–860 MHz; J-DOCSIS—6 MHz Annex B extension, 70–860 MHz
Upstream frequency range	DOCSIS—6 MHz Annex B, 5–42 MHz; Euro-DOCSIS—8 MHz Annex A, 5–65 MHz; J-DOCSIS—6 MHz Annex B extension, 5–55 MHz
Compatible Cisco Network Processing Engines (NPEs)	• The Cisco uBR7225VXR must contain one uBR7200-NPE-G1 processor that must have at least 256 MB of DRAM; if it contains more than one BPE, Cisco recommends installing either 512 MB or 1 GB of DRAM on the uBR7200-NPE-G1 to ensure best performance; FE/GE ports availability—3 GE ports (UBR-NPE-G1); Future support for UBR-NPE-G2 planned.
Line cards with integrated upconverters/modulators (cable plant interfaces)	Modular design—Line cards supported: UBR-E-16U; UBR-E-28U; UBR-MC16U; UBR-MC28U Physical: Occupies a single slot in the Cisco uBR7225VXR chassis; Maximum 2 line cards per uBR7225VXR chassis; Hot-swappable; no slot dependency; Dimensions (H x W x D):1.35 x 13.5 x 10.56 in. (3.43 x 34.29 x 26.82 cm); Weight: UBR-E-28U—6 lb (2.72 kg); UBR-E-16U—5.25 lb (2.38 kg); Power consumption: UBR-E-28U— 80W (273 Btu/h); UBR-E-16U—62W (211.6 Btu/h); Integrated upconverter specifications: High-level output—+61 dBmV, 53 to 857 MHz; Optimized for 64 and 256 quadrature amplitude modulation (QAM); Software configurable from 45 to 61 dBmV output power in units of dBmV
Included AC power supply	Single or dual redundant power supplies; 100 to 240 VAC input, 50/60 Hz frequency; 5.5 A maximum AC input current; 300W (maximum) output DC or 25 @ 11.28V; AC-input cable: 18-OEG4 3-wire cable with 3-lead IEC-320 receptacle on power supply end and country-dependent plug on power source end

Software Compatibility

The Cisco uBR7225VXR is supported in Cisco IOS Software Release 12.2SB, which includes PacketCable Multimedia Specification (PCMM), admission control, advanced-mode DOCSIS Set-Top Gateway (DSG), and Cisco Service Independent Intercept (SII) features.

For More Information

For more information about the Cisco uBR7225, visit: http://cisco.com/en/US/products/ps8474/index.html.

Cisco uBR7246VXR Universal Broadband Router



The Cisco uBR7246VXR Universal Broadband Router, a member of the Cisco uBR7200 Series, provides a single, Layer 3 routing, multiservice, scalable platform that gives cable companies the ability to deliver IP data, voice, and video services to DOCSIS, Euro-DOCSIS, and PacketCable-compliant cable modems, set-top boxes, and multimedia terminal adapters.

Ideal for Companies that Need These Features

- Flexible port expansion for multiservice deployment options
- Service support for up to 10,000 subscribers per chassis with 3.2 Gbps back plane[2]
- Powerful processor and edge intelligence; field-proven and carrier-class reliability
- Support for multimedia services
- High tolerance to hybrid fiber coaxial (HFC) network and spectrum noise

Key Features

- Modular design—1,000 to 10,000 subscribers supported based on different configurations
- Five 9's availability for low cost maintenance
- Advanced physical layer (PHY)
- A-TDMA and DOCSIS compliant; Euro-DOCSIS 2.0 (A-TDMA only); DOCSIS 1.1 qualified, and PacketCable 1.1 qualified; tComLabs qualified to Euro-DOCSIS 1.0, 1.1, and 2.0 (A-TDMA only) specifications; also supports Advanced Mode DSG.
- Powerful Layer 3 routing intelligence and sophistication

Specifications

Number of Cable Line Card Slots	4
Supported Cable Line Cards (Cable Plant Interfaces)	uBR7200 Series MC28U, MC28X, MC16U, and MC16X Broadband Processing Engines
Port Adapter Slots (LAN/WAN Interfaces)	2
Supported PA categories	Ethernet Serial, HSSI, ATM, POS, DPT
Power Supply Shots	2
Input/Output (I/O) controller	uBR7200-I/O-2FE/E, not required if UBR7200-NPE-G1 or UBR-NPE-G2 are installed in the system
I/O flash options for PCMCIA slots	Flash disk (48 MB); Flash disk (128 MB)
Network Processing Engines (NPE)	UBR7200-NPE-G2, UBR7200-NPE-G1, and NPE-400
Add-on processor memory options	128 MB, 256 MB, or 512 MB for NPE-400 256 MB, 512 MB, or 1 GB for uBR7200-NPE-G1
Router Bandwidth	3.2 Gbps

For More Information

For more information about the Cisco uBR7200, visit:

http://www.cisco.com/en/US/products/hw/cable/ps2217/index.html.

2. Numbers are for reference only. Actual numbers for specific systems will vary depending on network/service loading, traffic, and other parameters.

Cisco uBR10012 Universal Broadband Router



The Cisco uBR10012 Universal Broadband Router addresses the volume, capacity, and complexity of large cable headends or distribution hubs. The router delivers the highest level of service availability and capacity of any production Cable Modem Termination System (CMTS) available today. It employs a mix of distributed, centralized, and parallel processing to facilitate consistently high, real-world performance. The Cisco uBR10012 is CableLabs qualified to PacketCable 1.1 and DOCSIS 1.0 and 1.1 specifications. The product is also tComLabs qualified to EuroDOCSIS 1.0 and 1.1 specifications. The product further supports Advanced Mode DOCSIS Set-Top Gateway (DSG).

Ideal for Companies that Need These Features

- Large subscriber bases
- Edge routing or aggregation of DOCSIS traffic
- High-end throughput, capacity, and service handling
- Advanced multimedia service delivery
- Sophisticated Layer 3 routing intelligence
- Complex network interface configurations

Key Features

- Highest density and capacity—5,000 to 64,000 subscribers
- Powerful processing and throughput
- Five 9's availability
- Gigabit Ethernet line rate -> OC-48
- Scalable performance
- A-TDMA and DOCSIS 2.0 support
- Advanced intelligence features

Specifications

Modular Slots	Flash—48 MB; System—128 MB
Supported Cards	Cable line cards that include Cisco MC5X20U Broadband Processing Engine (BPE), Cisco 5X20H BPE Timing, Communications, and Control Plus (TCC+) card Gigabit Ethernet Half-Height (HH-1GE) network uplink card and OC-48 DPT Interface
Processor Type	Parallel Express Forwarding (PXF)
Flash Memory	64 MB (default); 128 MB (maximum)
DRAM Memory	1 GB DRAM (default PRE2)
Software Supported	Cisco IOS Software Release 12.3(17)BC2 recommended; Minimum software requirement: Cisco IOS Software Release 12.2(11)BC1 minimum for the Cisco 5X20 BPE, Cisco IOS Software Release 12.3(9)BC minimum to support the Cisco PRE-2, Cisco IOS Software Release 12.3(13)BC minimum to support the Cisco Gigabit Ethernet Half-Height Line Card, Cisco IOS Software Release 12.3(17)BC2 minimum to support the Cisco MC5X20H BPE
Power Supply	DC, AC
Hot-Swappable	Yes
Backplane Capacity	51.2 Gbps
Dimensions (H x W x D)	31.25 x 17.2 x 22.75 in. (79.4 x 43.7 x 57.8 cm)—18 rack units (RU) Mounting: 19 in. rack mountable (front or rear), 2 units per 7 ft. rack Note: Mounting in 23 in. racks is possible with optional third-party hardware
Weight	235 lb. (106.6 kg) fully-configured chassis

For More Information

For more information about the Cisco uBR10012 Series, visit:
http://www.cisco.com/en/US/products/hw/cable/ps2209/index.html.

Cisco uBR 3x10 RF Switch



The Cisco uBR 3x10 RF Switch is an integral part of the Cisco uBR10012 High Availability solution. It offers a fully redundant system that helps cable operators exceed PacketCable system availability, minimize service disruptions, and simplify operations.

Ideal for Companies that Need These Features

- Advanced services such as voice over IP (VoIP), DOCSIS Set-Top Gateway (DSG) set-top box (STB) deployments, and highly available commercial services
- Carrier-class N+1 network and service architecture
- High-density high-availability service support
- Scalability to tens of thousands of subscribers

Key Features

- N+1 redundancy
- Hot swap capability of all RF switch modules with no RF service disruption
- Support for DOCSIS and Euro-DOCSIS RF performance specifications
- Comprehensive set of high availability features
- Redundancy Readiness Verification, for proactive redundancy health monitoring and reporting
- Fully passive working path
- Position-sensing latching relays
- Unmatched port density and flexibility

Specifications

Input Power Requirements	AC:—100 to 240 VAC, 50 to 60 Hz, operating range: 90 to 254 VAC; DC—-48 to -60 VDC, operating range: 140.5 to -72 VDC, 200 mVpp ripple/noise
Environmental	Operational temperature range—0 to +40C; Operating temperature range—-5 to +55C
RF Requirements	Input/output impedance: 75 ohms; maximum RF input power: +15 dBm (63.75 dBmV); Switch type: Electro-mechanical, absorptive for working path, non-absorptive on the protect path; Switch setting time per switch module: 20 ms maximum; Downstream frequency range: 54 to 860 MHz; Typical downstream insertion loss: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant; 5.5 dB from working to output; 8.0 dB from, protect to output Downstream insertion loss flatness: +/- 1.1 dB from CMTS to cable plant; +/- 2.1 dB from protect to cable plant Downstream output return loss: > 15.0dB at <450 MHz, > 12.0 dB at >= 450 MHz; Downstream input return loss: > 15.0 dB; Downstream isolation: > 60 dB from channel to channel in working mode; > 52 dB from CMTS to protect when in protect mode; Upstream frequency range: 5 to 70 MHz; Typical upstream insertion loss: 4.1 dB from cable plant to CMTS; 5.2 dB from cable plant to protect; Upstream insertion loss flatness: +/- 0.4 dB from cable plant to CMTS; +/- 0.6 dB from cable plant to protect; Upstream input return loss: > 16 dB; Upstream isolation: >60 dB from channel to channel in working mode: > 60 dB from CMTS to protect when in protect mode; Protect mode: CMTS return loss > 10 dB, cable plant return loss: > 10 dB
Unit Control	10BaseT Ethernet—SNMP; Switching time from active (working) to standby (protect)—150 mS maximum after SNMP command
Connectors	RF connectors—MCX; AC power—IEC320 type; DC power—Three terminal block; Ethernet—RJ-45; RS-232 Bus—9-pin male D
Reliability	41,000 MTBF @ +50C as calculated by BellCore 5, 80 percent confidence factor
Dimensions (H x W x D)	5.25 x 17.5 x 14.8 in. (13.335 x 44.45 x 37.592 cm)
Weight	36 lbs.

For More Information

For more information about the Cisco uBR 3x10 RF Switch, visit:
http://www.cisco.com/en/US/products/hw/cable/ps2929/index.html.

Chapter 8: Optical Networking

Optical Networking at a Glance

Product	Features	Page
METRO CORE		
Cisco ONS 15600 Multiservice Switching Platform (MSSP)	· This solution allows service providers to transparently integrate their metropolitan (metro) core and metro edge networks while dramatically reducing initial turn-up costs. · It provides 320 gigabits of switching, grooming, aggregation, and bandwidth-management capacity in a single shelf. · The platform supports 32 OC-192/STM-64 (XFP) or 128 OC-48/STM-16, OC-12/STM-4, OC-3/STM-1, or Gigabit Ethernet (SFP pluggable) optical interfaces in a single shelf. · The platform offers any service, any port (ASAP) service cards that hold up to four pluggable I/O (ASAP 4-PIO or ASAP-1-PIO modules, each capable of supporting up to four 2.5-Gbps SFP optics or one 10-Gbps XFP optics capable of both fixed-rate and multirate formats. · The platform combines the functions of multiple metro systems, including SONET/SDH multiplexers and digital cross-connect network elements. · It provides carrier-class availability, serviceability, and management. · This scalable, easy-to-use platform supports all metro topologies.	8–3
Cisco ONS 15454 Multiservice Provisioning Platform (MSPP)	This platform integrates the functions of traditional SONET or SDH network elements with next-generation SONET/SDH transport and multiservice interfaces: · SONET/SDH aggregated services (SFP/XFP-based) include: 144 x OC-3/STM-1; 80 x OC-12/STM-4; 24 x OC-48/STM-16; 4 x OC-192/STM64 · SONET/SDH aggregated services include: 224 x DS-1; 192 x DS-3 · Data services include: Private-line; Switched; Layer 2 and Layer 3, including 10/100BASE-T, Gigabit Ethernet, and Resilient Packet Ring (RPR) · Storage services include: 1 Gbps; 2-Gbps Fibre Channel; IBM Fibre Connection (FICON) · The solution combines multiplexing, optical networking, and switching functions in one easy-to-use platform that supports all metro topologies.	8–3
METRO, REGIONAL, AND LONG-HAUL DWDM		
Cisco ONS 15454 Multiservice Transport Platform (MSTP)	This solution delivers integrated, intelligent dense wavelength-division multiplexing (DWDM) functions, including fully reconfigurable optical add/drop multiplexer (ROADM) technology for metropolitan, regional networks, and long-haul networks (from 32 to 80 wavelengths per node). · It offers multiservice time-division multiplexing (TDM) and data aggregation over 2.5- and 10-Gbps wavelengths. · SONET/SDH wavelength and aggregated services include: OC-3/STM-1; OC-12/STM-4; OC-48/STM-16; OC-192/STM-64 · 2-degree ROADM functions include: Zero to 32 or 40 channels of pass-through or add/drop multiplexer (ADM), A-to-Z wavelength provisioning, and full, real-time power monitoring of each individual wavelength · 8-degree ROADM functions include: Mesh Ring Interconnection up to 8 degrees with full (0 to 320 wavelength) ROADM pass or ADM · Data services include: Private-line, switched, and wavelength-based, including 10/100BASE-T, Gigabit Ethernet, 10 Gigabit Ethernet LAN physical layer, and 10 Gigabit Ethernet WAN physical layer · Storage services include: 1 Gbps; 2 Gbps; 4-Gbps Fibre Channel; 10-Gbps Fibre Channel; IBM Fibre Connection (FICON); Enterprise Systems Connection (ESCON); ETR/CLO; ISC-1; ISC-3 Video services include D1 and high-definition television (HDTV).	8–3
Cisco ONS 15216 Metropolitan/Regional DWDM System and Transmission Families	The Cisco ONS 15216 Metropolitan/Regional DWDM System supports 32 ITU-grid wavelengths launched by the Cisco ONS 15454 MSTP, ONS MSPP, ONS 15600, ONS 15310, or alien wavelengths and creates a more desirable per-wavelength cost. It offers: · Optical add/drop multiplexer (OADM) · Cisco ONS 15216 Erbium-Doped Fiber Amplifier (EDFA)-3 Optical Amplification · Compact, modular design	8–4
METRO EDGE ACCESS		

Cisco ONS 15327 SONET Multiservice Platform	The Cisco ONS 15327 SONET Multiservice Platform is an integrated optical networking platform that offers unprecedented multiservices on demand for the metro access or customer location: · It offers optimized bandwidth management, high-speed IP-based data services, rapid service provisioning, and multiple optical interfaces. · It aggregates and switches TDM, 10/100 BASE-T Ethernet and Gigabit Ethernet, data, and video services. · It offers a compact footprint (3 rack units [3RU]), a modular design, and it is industrially hardened.	8–4
Cisco ONS 15310-MA SONET Multiservice Platform	The Cisco ONS 15310-MA SONET Multiservice Platform offers high-density aggregation and transports up to 168 DS-1, 6 DS-3, or 32 Layer 1 or Layer 2/3 Ethernet ports (10, 100, and 1000 Mbps). · It offers tremendous service flexibility, supporting DS-1, DS-3/EC1, Layer 1, and Layer 2/3 Ethernet, and Small Form-Factor Pluggable (SFP)-enabled optics for OC-3, OC-12, and OC-48. · Its environmentally hardened design supports up to 99.999-percent reliability for both access and edge networks. · The platform comes in a compact 6-rack unit (6RU) form factor.	8–4
Cisco ONS 15310-CL SONET Multiservice Platform	The compact 1RU single-system controller design of the Cisco ONS 15310-CL SONET Multiservice Platform is optimized for data and TDM services over protected SONET transport for the customer location. It offers: · 1RU AC or dual-DC power chassis · Single system controller, timing, and synchronization · Two SFP optical ports for rings · 21 DS-1 and 3 DS-3 ports · One expansion slot · Fan cooling	8–5
Cisco ONS 15305 SDH Multiservice Provisioning Platforms (MSPPs)	Cisco ONS 15305 SDH Multiservice Provisioning Platforms are ultra-compact integrated systems that extend next-generation optical networks (access nodes or customer premises equipment [CPE]). The platforms offer: · Low-cost access and CPE platform · E1, E3, DS-3, 10/100 BASE-T Ethernet, and Gigabit Ethernet · STM-1, STM-4, and STM-16	8–5
OPTICAL NETWORK MANAGEMENT		
Cisco Transport Manager 8.5	Cisco Transport Manager 8.5 is an advanced optical transport domain manager that delivers element and network management layer functions: · It offers efficient management of the entire Cisco ONS product family. · It provides a resilient, adaptable, and integrated carrier-class element-management-system (EMS) solution. · This powerful GUI-based management system makes advanced management capabilities such as A-to-Z circuit provisioning easy to learn and use. · The solution is cost-effective, using industry-standard platforms such as Sun Solaris, Oracle, and Microsoft Windows to fit smoothly into various IT environments. · The solution offers a variety of northbound interface options (for example, Simple Network Management Protocol [SNMP], TL1, and CORBA)	8–5

Product Ordering Website
To place an order, visit: http://www.cisco.com/en/US/ordering/index.shtml.
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For more information about all services, see Chapter 10, "Services".

Cisco ONS 15600 Multiservice Switching Platform



The Cisco ONS 15600 Multiservice Switching Platform (MSSP) provides flexibility in designing next-generation metropolitan (metro) networks. Fully engineered and optimized for metro applications, the Cisco ONS 15600 MSPP simplifies and revolutionizes bandwidth management in the metro core by allowing service providers to transparently integrate their metro core and metro edge networks, while dramatically reducing initial turn-up costs. The any service, any port (ASAP) interface cards of the Cisco ONS 15600 provide 1 to 16 ports of capacity per slot to aggregate and transport mission-critical regional and metro-area traffic using a modular, flexible, and scalable design that allows single- and multiple-rate optics from OC-3 to OC-192, including Gigabit Ethernet SFP optics. Delivering scalability to 960 Gbps of traffic in a single rack, it complements the market-leading Cisco ONS 15454 MSPP by taking advantage of its proven architecture and operating software, allowing service providers to dramatically simplify their metro networks and realize immediate cost, space, and operational benefits. The Cisco ONS 15600 MSPP provides complete integration of metro core and edge networks for service provisioning and network management.

For More Information

For more information about the Cisco ONS 15600 platforms, visit: http://www.cisco.com/go/ons15600.

Cisco ONS 15454 Multiservice Provisioning Platforms



The Cisco ONS 15454 Multiservice Provisioning Platform (MSPP) provides key building blocks in optical networks because of its unprecedented transport performance and economics. It offers supercharged transport capability by combining the best of traditional SONET time-division multiplexing (TDM) and statistical multiplexing in single units. The Cisco ONS 15454 aggregates traditional facilities such as DS-1, DS-3, STS-1, OC-3, OC-12, and OC-48, including multiwavelength dense wavelength-division multiplexing (DWDM) optics, and also supports data interfaces for 10 Gigabit Ethernet, 100 Gigabit Ethernet, and Gigabit Ethernet data and video. This drastically improved efficiencies in the transport layer and breakthrough cost savings for initial and life-cycle deployment. A single Cisco ONS 15454 shelf can support combinations of OC-3/c, OC-12/c, OC-48/c, and OC-192. It also offers an international optical transport solution that combines the best of traditional SDH time-division multiplexing (TDM) and statistical multiplexing in a single platform.

For More Information

For more information about the Cisco ONS 15454 platforms, visit: http://www.cisco.com/go/ons15454.

Cisco ONS 15454 Multiservice Transport Platform



The Cisco ONS 15454 Multiservice Transport Platform (MSTP) sets the industry benchmark for metropolitan and regional dense wavelength-division multiplexing (DWDM) solutions by using proven Cisco MSPP networking technologies to deliver simple, fast, and intelligent DWDM capabilities and lower capital expenditures (CapEx) and operating expenses (OpEx). A metropolitan network, being close to or on a customer's premises -- unlike its long-haul counterpart -- requires support for a great diversity of service interfaces. The service interfaces allow network providers to offer new tariffs and allow enterprise customers to natively transport a wide variety of services over a common transport network without unnecessary conversion stages and equipment. Additionally, a wide service mix simplifies the planning for services. The Cisco ONS 15454 MSTP, with its multiservice provisioning platform (MSPP) capabilities, supports a broad range of standards-based services in a single platform.

Critical to offering a wide service mix is the ability of a DWDM system to offer the level of transparency required by the service. The ultimate in network-management flexibility is achieved through an industry-leading, fully reconfigurable optical add/drop multiplexer (ROADM) that allows 0 to 32, 40, 72, or 80 channels of pass-through or add/drop, A-to-Z wavelength provisioning, and full, real-time power monitoring of each individual wavelength. The Cisco ONS 15454 MSTP solution offers the choice of multiservice aggregation, wavelength aggregation, and wavelength transport, combined with integrated, intelligent DWDM transmission, in a single platform to optimize network costs for any mix of service types. Using digital-wrapper technology (defined in ITU-T G.709) facilitates transparency while still allowing enhanced wavelength management and providing extended optical reach with integrated

Forward Error Correction (FEC). The Cisco ONS 15454 MSTP is also used to build IP over DWDM (IPoDWDM) architectures. Cisco routers with integrated optics such as the Cisco CRS-1 Carrier Routing System (10 Gigabit Ethernet and OC-768), Cisco 12000 Series (10 Gigabit Ethernet), and Cisco 7600 Series (10 Gigabit Ethernet) have integrated, ITU-grid optics that allow for direct connection to the Cisco ONS 15454 MSTP without using external transponders.

For More Information

For more information about the Cisco ONS 15454 platforms, visit:

http://www.cisco.com/en/US/products/hw/optical/ps2006/ps5320/index.html.

Cisco ONS 15216 Metropolitan/Regional DWDM System



The Cisco ONS 15216 Metropolitan/Regional DWDM System supercharges wavelength services by supporting up to 32 ITU-grid wavelengths, and provides unprecedented transport flexibility with optical filtering, optical add/drop multiplexer (OADM), optical performance monitoring, and amplification. It allows service providers to deliver more services per wavelength and more wavelengths per fiber.

The Cisco ONS 15216 Metropolitan Dense Wavelength-Division Multiplexing (DWDM) FlexLayer filter solution is an ultraflexible filter architecture that allows cable multiple system operators and service providers to build "pay-as-you-grow" networks with the flexibility to upgrade in service without preprovisioning channels that are not required. This approach creates a more desirable per-wavelength cost.

The FlexLayer architecture allows for deployment of point-to-point, point-to-multipoint, ring, bus, and tree-and-branch architectures. These networks can be deployed as unprotected or protected networks, and they can also be deployed in transmit-only applications for broadcast networks. This flexibility is inherent in the design of the FlexLayer architecture.

For More Information

For more information about the Cisco ONS 15216 platforms, visit:

http://www.cisco.com/en/US/products/hw/optical/ps1996/ps1999/index.html.

Cisco ONS 15327 SONET Multiservice Platform



The Cisco ONS 15327 SONET Multiservice Platform combines high-bandwidth capacity and service diversity in a very compact footprint, helping service providers achieve increased economics at the metropolitan (metro) edge. Based on the same technology as the industry-leading Cisco ONS 15454, the Cisco ONS 15327 supports high optical bandwidth and can support OC-3, OC-12, OC-48, DS-1, DS-3, 10/100, and Gigabit Ethernet. With the ability to support either customer-located or metro access, the Cisco ONS 15327 includes comprehensive STS- and VT-level bandwidth management and integrated data switching. The Cisco ONS 15327 also may serve as a digital cross-connect without the need for additional equipment. It aggregates and switches time-division multiplexing (TDM) and Ethernet services, and can be managed using the Cisco Transport Controller element management system and Cisco Transport Manager for network management.

For More Information

For more information about the Cisco ONS 15300 platforms, visit: http://www.cisco.com/go/ons15300.

Cisco ONS 15310-MA SONET Multiservice Platform



The Cisco ONS 15310-MA SONET Multiservice Platform is a compact but high-density SONET device capable of multiservice time-division multiplexing (TDM) and data aggregation and transport. The Cisco ONS 15310-MA offers tremendous service flexibility, supporting DS-1, DS-3/EC-1, Layer 1, and Layer 2/3 Ethernet (10, 100, and 1000 Mbps), and Small Form-Factor Pluggable (SFP)-enabled optics for OC-3, OC-12, and OC-48. The Cisco ONS 15310-MA is a hardened design, and supports up to 99.999-percent reliability for both access and edge networks. The Cisco ONS 15310-MA is a carrier-class multiservice provisioning platform (MSPP) that efficiently switches Ethernet and TDM traffic for use in metropolitan and regional optical networks. The Cisco ONS 15310-MA can be managed using the Cisco

Transport Controller element management system and Cisco Transport Manager for network management.

For More Information

For more information about the Cisco ONS 15300 platforms, visit: http://www.cisco.com/go/ons15300.

Cisco ONS 15310-CL SONET Multiservice Platform



By extending the metropolitan (metro) edge to customer premises and providing direct high-speed LAN connectivity, the Cisco ONS 15310-CL SONET Multiservice Platform allows service providers to cost-effectively offer scalable, high-speed data services over their transport networks. For the enterprise, the Cisco ONS 15310-CL offers the efficiency, scalability, and high availability to meet the bandwidth demands of the mission-critical e-business infrastructure. These features are available without implementing new technology or upgrading the existing transport network infrastructure.

Optimized for the customer location, this evolutionary platform is based on the same technology as the industry-leading Cisco ONS 15454 and ONS 15327, supporting high optical bandwidth, and it can support DS-1, DS-3, and Layer 1/2 10/100 Ethernet. The Cisco ONS 15310-CL also provides comprehensive STS- and VT-level bandwidth management and integrated data switching.

The integrated multiservice optical networking functions of the Cisco ONS 15310-CL dramatically reduce service-delivery costs. Packaged in a 1-rack unit (1RU), industrially temperature-hardened Network Equipment Building Standards (NEBS) 3-compliant assembly, the Cisco ONS 15310-CL delivers fast provisioning and low initial cost, while maintaining a small footprint and low operational cost throughout the life of the product. It can be managed using the Cisco Transport Controller element management system and Cisco Transport Manager for network management.

For More Information

For more information about the Cisco ONS 15300 platforms, visit: http://www.cisco.com/go/ons15300.

Cisco ONS 15305 SDH Multiservice Provisioning Platforms (MSPPs)



The Cisco ONS 15305 Multiservice Provisioning Platform (MSPP) customer premises equipment (CPE) and aggregation solution is an ultra-compact, integrated system that offers cost-effective solutions. The platform provides native multiservice capabilities (that is, time-division multiplexing [TDM] interfaces, multiplexing, and Ethernet data interfaces).

The Cisco ONS 15305 aggregation platform provides the following TDM interfaces: protected or unprotected optical interfaces (8-port S-1.1 optical module, 2-port S-4.1 optical module, 1-port S-16.1 optical module, 1+1 MSP, SNCP, and 2F MS-SPRing for STM-16) and electrical customer interfaces (8- and 63-port E1 modules and a 6-port E3/DS-3 module). This product also provides native Ethernet customer access through an 8-port 10/100BASE-T module and a 2-port Gigabit Ethernet module (supports full Layer 2 capacity, bridging, VLANs, spanning tree, and priority management). An optional WAN module is available for point-to-multipoint applications.

For More Information

For more information about the Cisco ONS 15300 platforms, visit:
http://www.cisco.com/go/ons15300.

Cisco Transport Manager 8.5

Cisco Transport Manager is an integrated optical element management system for Cisco ONS 15000 optical networking platforms. The software manages configuration, fault isolation, performance, and security for Cisco optical network elements. With integrated support for SONET, SDH, dense wavelength-division multiplexing (DWDM) and Ethernet, along with open interfaces to operations support systems (OSSs), Cisco Transport Manager delivers the full power of the wide range of advanced optical systems that Cisco offers today's network operators and enterprises.

Cisco Transport Manager is a powerful tool that increases the productivity of the network operations staff. The system provides GUI-based point-and-click network management. As such, the solution has a low learning curve while providing advanced management capabilities such as A-to-Z circuit provisioning. Explorer-style navigation, the extensive use of wizards, tool tips, legends, and online help make it easy for an operator to perform tasks quickly and efficiently. Many otherwise tedious, time-consuming, and error-prone tasks can be fully streamlined using the features of this software.

Cisco Transport Manager works for small networks, but can also scale up to 3000 network elements and 100 concurrent clients per server. This solution is appropriate for small enterprise networks as well as large service provider networks. Cisco Transport Manager is extremely cost-effective (uses industry-standard platforms such as Sun Solaris, Oracle, and Microsoft Windows). It fits smoothly into most companies' information technology environments. Using scalable Sun server platforms, customers can minimize initial investment, but still accommodate growth by adding additional processors, memory, and disk space.

For More Information

For more information about Cisco Transport Manager, visit:

http://www.cisco.com/en/US/products/sw/opticsw/ps2204/index.html.

Chapter 9: Network Management

Network Management at a Glance

Product	Features	Page
NETWORK MANAGEMENT SOLUTIONS		
Cisco Assurance Management Solution	Cisco Assurance Management Solution (AMS) delivers real-time centralized monitoring and root-cause analysis for service providers and large enterprises. Cisco AMS is integrated with Cisco Active Network Abstraction (ANA). Built using Cisco ANA and IBM Tivoli technologies, Cisco AMS provides the main building blocks for flexible deployment of end-to-end assurance management for complex, multivendor, multitechnology networks. Further, Cisco provides several prepackaged professional services to implement and tailor Cisco AMS deployments to an organization's specific requirements.	9–4
Cisco Managed Services Solution	• This solution helps enable service providers to accelerate the deployment of managed services for their customers. • It allows valuable management functions such as zero-touch provisioning, configuration management, and fault and event monitoring to enable managed security services that include firewall, IP Security (IPSec) VPN, and Network Address Translation (NAT).	9–5
Cisco Proactive Automation of Change Execution (PACE) Solution	• This solution combines products and services that accelerate operational success by helping IT organizations securely automate and control network changes and configurations. • It helps enterprises meet compliance requirements, accelerate growth, ensure business continuity, and increase user productivity.	9–5
Cisco Security Management Suite	Cisco Security Management Suite offers best-of-class management applications as part of a self-defending network including; Cisco Security Manager, a policy-based configuration-management system designed to efficiently provision small- to large-scale Cisco firewall, VPN, and IPS deployments and Cisco Security Monitoring, Analysis and Response System (MARS), which delivers sophisticated monitoring, analysis, and mitigation functions for multivendor networks. Together, these two products form the Cisco Security Management Suite which delivers security administration and enforcement for the Cisco Self-Defending Network. These applications provide tremendous benefits within their respective functional domains. However, additional benefits and synergies can be realized when deploying both. These benefits include: • Event monitoring of multivendor security environments • Extensive reporting for operators and high-level administrators • Risk-assessment information to understand overall vulnerability of critical network assets within the enterprise • Forensics tools to investigate attacks	9–6
Cisco Security Monitoring, Analysis, and Response System (MARS)	Cisco Security Monitoring, Analysis, and Response System (MARS) is an appliance-based, all-inclusive solution that provides superior insight into and control of an organization's existing security deployment.	See 5-30
Cisco Network Application Performance Analysis (NAPA) Solution	This comprehensive set of tools and services provides information about application and network performance: • Faster identification and resolution of problems • Significantly enhanced network planning capabilities • Reduced risk • Access to Cisco advanced services	9–6
Cisco Application Analysis Solution	• This solution is part of the Network Application Performance Analysis (NAPA) solution. • It provides a visual and quantitative breakdown of the complex interactions among applications, servers, and networks to cost-effectively troubleshoot and reliably deploy networked applications. • It improves business continuity by rapidly illustrating whether performance problems are caused by network or application problems.	9–7

Cisco Configuration Assurance Solution	· This solution is part of the Cisco PACE solution. · It automatically diagnoses device misconfigurations, policy violations, inefficiencies, and security gaps using a combined visualization of network topology, traffic, and configuration. · It improves network availability and security, and documents compliance with best practices and important regulatory and IT governance requirements.	9–7
Cisco Network Planning Solution	· This solution is part of the Cisco Network Application Performance Analysis (NAPA) solution. · The solution helps reduce the risks associated with network growth, migration, and consolidation. · This effect analysis tool can help organizations optimize network capacity and performance, help ensure resiliency, plan for new technology deployments, and validate planned configuration changes.	9–7
Cisco Performance Visibility Manager	· This solution is part of the Cisco Network Application Performance Analysis (NAPA) solution. · It offers proactive network and application performance monitoring, reporting, and troubleshooting for maximizing network availability. · It increases early visibility into network and application behavior problems, to identify them before they become critical.	9–8
NETWORK MANAGEMENT SERVICES MODULES		
Cisco Catalyst 6500 Series Network Analysis (NAM) Modules 1 and 2	NAM is an integrated network-monitoring instrumentation and traffic-analysis solution for Cisco Catalyst 6500 Series-based environments. With its Web browser interface, NAM enables greater visibility into traffic at all layers of the network by providing real-time traffic analysis and troubleshooting capabilities.	9–8
Cisco Network Analysis Module for Branch Routers	As a companion to NAM modules 1 and 2, Cisco Network Analysis Module for Branch Routers provides traffic analysis of branch environments that are based on integrated services routers.	
ROUTING AND SWITCHING MANAGEMENT		
Cisco Active Network Abstraction	This flexible and powerful product suite offers device, network, and service management. It creates a virtual network model to help service providers and carriers effectively manage multiple services and technologies in a multivendor network environment.	9–9
Cisco Multicast Manager	Cisco Multicast Manager includes: · Automated multicast discovery · Proactive polling engine · Real-time multicast diagnostics · Alerting and reporting	9–9
Cisco Video Assurance Management Solution (VAMS)	The Cisco Video Assurance Management Solution (VAMS) delivers real-time, centralized monitoring of core, distribution, and aggregation networks for broadcast video transport to service providers. Cisco VAMS provides the framework for a flexible, end-to-end assurance platform for video and comprises two main products: · Cisco Active Network Abstraction (ANA) 3.6 is an element management system (EMS) that supports network root cause analysis (RCA) and provides mediation and abstraction between operations-support-system (OSS) applications and network devices. · Cisco Multicast Manager 2.4 provides a rich set of multicast monitoring and troubleshooting functions · These functions facilitate notification to Cisco VAMS of any changes in multicast or threshold events that may affect video performance.	9–10
CiscoWorks LAN Management Solution (LMS)	CiscoWorks LMS is part of the Cisco NAPA and Cisco PACE solutions. It provides critical applications needed to manage Cisco switch-based enterprise campus networks: · CiscoWorks Campus Manager · CiscoWorks Device Fault Manager · CiscoWorks Resource Manager Essentials and CiscoView · CiscoWorks Internetwork Performance Manager · CiscoWorks Portal and CiscoWorks Advisor	9–11
CiscoWorks Health and Utilization Manager (HUM)	· This Simple Network Management Protocol (SNMP)-based MIB polling application monitors network elements (such as CPU, memory, and interfaces, and links) for their availability and usage levels and provides historical reporting. · CiscoWorks HUM is preintegrated with CiscoWorks LAN Management Solution (LMS) 3.0. CiscoWorks HUM is designed as an add-on product and fits well with the existing CiscoWorks LMS 3.0 applications.	9–11
ENTERPRISE UNIFIED COMMUNICATIONS MANAGEMENT		

Cisco Unified Communications Management Suite	• This sophisticated toolset eases provisioning of Cisco Unified Communications network elements and services. • It monitors communications traffic across the network, to manage the servers and network elements providing the services to troubleshoot any events that might threaten the user experience, and to provide statistical analysis and trending of performance. • The suite is designed to address the specific needs of voice and video communications across a network.	9–12
Cisco Unified Operations Manager	• Cisco Unified Operations Manager and Cisco Unified Service Monitor are part of the Cisco Unified Communications Management Suite. • Cisco Unified Operations Manager 1.1 provides contextual diagnostic tools to facilitate trouble isolation and thereby increase the productivity of an organization's network managers. It also provides a real-time, service-level view of the entire Cisco Unified Communications System and presents the current operational status of each element.	9–12
Cisco Unified Service Monitor	• Cisco Unified Service Monitor provides a low-cost, reliable method of monitoring and evaluating voice quality in Cisco Unified Communications solutions.	9–13
Cisco Unified Provisioning Manager	• Cisco Unified Provisioning Manager is part of the Cisco Unified Communications Management Suite. • The solution provides provisioning for Cisco Unified Communications initial deployments and implementations. • It remains in place to provide ongoing operational provisioning and activation services for individual subscriber changes.	9–13
Cisco Unified Service Statistics Manager	• Cisco Unified Service Statistics Manager is part of the Cisco Unified Communications Management Suite. • It provides advanced statistics analysis and reporting capabilities.	9–14
CiscoWorks Quality-of-Service (QoS) Policy Manager	CiscoWorks QoS Policy Manager facilitates centralized administration and automated deployment of bandwidth reservation and prioritization policies for network applications across converged voice, video, and data networks. With this application organizations can: • Differentiate services of Web applications, voice traffic, and business-critical applications • Validate QoS settings and results with traffic analysis • Get real-time and historical reports for QoS troubleshooting • Control roles and privileges for policy view (modification and deployment)	9–14
Cisco TelePresence Readiness Manager	• This software solution helps in assessing network paths prior to the deployment of TelePresence systems. It can also be used to assess the networks prior to site extensions or TelePresence model upgrades. • Cisco TelePresence Readiness Assessment Manager addresses the following readiness assessment scenarios: Predeployment network assessment; Reassessment while adding new or additional sites or upgrading a TelePresence model; Verification after configuration update • This web-based network management application simplifies the holistic discovery, visualization, monitoring, and troubleshooting of multicast networks to help ensure business continuity.	9–15
SMALL AND MEDIUM BUSINESS NETWORK MANAGEMENT		
Cisco Monitor Director	• Cisco Monitor Director is a centralized, proactive network management application for Cisco Managed Service Providers planning to offer 24-hour, proactive voice and data network monitoring and management services to the SMB customers. • It works in conjunction with a Cisco Monitor Director Agent that monitors critical device parameters on Cisco SMB class routers, switches, voice gateways, and elements of Cisco Unified Communications networks, including the new Cisco Unified Communications 500 Series for Small Business.	9–16
Cisco netManager for IP Infrastructure	• Cisco netManager for IP Infrastructure provides simple, ready-to-use monitoring and diagnostics for small and medium-sized (SMB) network deployments (up to 100 devices and 100 wireless access points). • It supports Cisco and third-party network devices, printers, servers, and workstations.	9–16
Cisco netManager for Unified Communications	• This solution is built to manage small and medium-sized voice and data networks (up to 1000 phones or users). • It provides easy-to-use, out-of-the-box monitoring and diagnostics.	9–17
VIDEO, CABLE, AND CONTENT DELIVERY MANAGEMENT		
Cisco Broadband Access Center	This distributed, scalable, subscriber-device-management application: • Facilitates automated, flow-through provisioning of subscriber services • Provides a centralized, automated platform for service providers to control and configure residential home gateways, as well as IP devices behind the gateways	9–18

Cisco Broadband Policy Manager	Cisco Broadband Policy Manager helps deploy, administer, and deliver multiple services on converged IP networks, including: · Multivendor network device control · Reduced time and expense for system integration · Highly scalable distributed deployment · High-availability characteristics	9–18
Cisco Broadband Troubleshooter	Cisco Broadband Troubleshooter provides a diagnostic tool for RF technicians to quickly and easily isolate problems in the cable plant. It performs the following functions: · Analyzes and sorts RF conditions into specific categories such as attenuation, provisioning, and noise or packet corruption (cyclic redundancy check (CRC)) errors · Provides dashboard views of network health, Cable Modem Termination System (CMTS), and Cable Modem statistic and snapshots · Correlates Cable Modem to subscriber information · Works with an optional tool to map Cable Modems and status to subscriber street-level views	9–19
WIRELESS ACCESS MANAGEMENT		
CiscoWorks Wireless LAN Solution Engine and CiscoWorks Wireless LAN Solution Express	· These applications provide centralized, systems-level application for managing and controlling an entire Cisco Aironet wireless LAN (WLAN) infrastructure. · They ease Cisco Aironet WLAN deployments, enhance network security, maximize network availability, and reduce operating expenses.	See 3-34
NETWORK CONFIGURATION AND CHANGE MANAGEMENT		
CiscoWorks Network Compliance Manager	· This solution is part of the Cisco PACE solution. · It tracks and regulates configuration and software changes throughout a multivendor network infrastructure (including Cisco routers, switches, firewalls, load balancers, and wireless access points). · It provides unparalleled visibility into network changes and can track compliance with a broad variety of regulatory, IT, corporate governance, and technology best practices.	See 5-35

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Services to Protect, Maintain, and Optimize Cisco Products

Cisco and our global community of partners offer a portfolio of technical services that help you maintain the health and performance of every Cisco product. Offerings range from traditional maintenance to proactive and predictive services. To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family. For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

In addition, Cisco and our partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business. For more information about Cisco Advanced Services, visit http://www.cisco.com/go/techservices.

For more information about all services, see Chapter 10, "Services".

Cisco Assurance Management Solution

Cisco Assurance Management Solution (AMS) gives service providers and large enterprises near real-time centralized monitoring and root-cause analysis, integrated with Cisco ANA. Cisco AMS provides the main building blocks for flexible deployment of end-to-end assurance management for complex multivendor networks. It extends the existing Cisco Info Center solution to provide network fault monitoring, trouble isolation, and real-time service-level management.

Ideal for Companies that Need These Features

- Ability to provide real-time, centralized monitoring and root-cause analysis for effective and efficient fault resolution
- Ability to minimize service disruptions to their customers and subscribers to meet contractual service-level agreement (SLA) requirements

Key Features

- Root-cause analysis—Network faults are visualized with real-time analysis of the root cause, reducing the time needed to troubleshoot network problems. Consequential fault events are automatically correlated to the root-cause fault event in real time.
- Manager of managers—This feature facilitates management of data from multiple tools under a single console in Cisco AMS, improving the effectiveness of the network operations environment.
- Real-time management views—Operations staff and executives have "anytime, anywhere" access to device and network status and actionable information. Highly customizable dashboards offer a wide range of images, maps, charts, tables, and event lists to help provide immediate visibility into the network status.
- Incremental deployment—The solution is packaged to facilitate incremental use of Cisco AMS functions, integrated with Cisco ANA, to protect an organization's investment in existing systems.
- Extensibility—Cisco AMS can easily be extended with the Layer 3 Multiprotocol Label Switching (MPLS) VPN fault monitoring and the service path-tracing features of Cisco Service Fault Isolation. The solution can also easily be extended to include fault and assurance functions of Tivoli Netcool or Cisco Info Center.

For More Information

For more information about Cisco AMS, visit: http://www.cisco.com/en/US/products/ps8408/index.html.

Cisco Managed Services Solution

The Cisco Managed Services Solution (MSS) provides a cost-effective management platform for Cisco integrated services routers and for basic managed security services that are offered on top of the WAN transport service. It includes a solid device-management strategy as well as service-management functions for control and surveillance of each individual service.

Ideal for Companies that Need These Features

- Ability to deploy the following managed services quickly and efficiently—Managed IP Security (IPSec) VPNs; Managed firewall; Managed Network Address Translation (NAT)
- Ability to maximize subscriber deployment for faster revenue generation and competitive advantages

Key Features

- Cisco MSS provides rapid and trouble-free deployments that include analysis of the existing operations-support-system (OSS) environment and implementation recommendations to best use the management software.
- An additional security analysis service package is available for specific managed security applications.
- Cisco MSS provides additional advanced services when requested for the operate and optimize lifecycle phases.
- With Cisco MSS, advanced partner services are available in some regions for integration with the existing OSS environment and for the implementation of additional solution components.

For More Information

For more information about Cisco MSS, visit: http://www.cisco.com/go/mss.

Cisco Proactive Automation of Change Execution Solution

The Cisco Proactive Automation of Change Execution (PACE) solution combines products and services that accelerate operational success by helping IT organizations securely automate and control network changes and configurations. This solution helps enterprises meet compliance requirements, accelerate growth, ensure business continuity, and increase user productivity. The Cisco PACE solution is optimized to help medium-sized to large enterprises with challenges relating to compliance, in-house expertise, network complexity, and growth.

Solution Overview

- Cisco Configuration Assurance Solution
- CiscoWorks Network Planning Solution
- Cisco Secure Access Control Server
- CiscoWorks LAN Management Solution
- Cisco Advanced Services

Key Features

- As part of the Cisco PACE solution, scalability of the CiscoWorks Network Compliance Manager (NCM) software across geographies protects the software investment of high-growth companies.
- The Cisco PACE solution prevents revenue loss by reducing network downtime due to misconfigurations.
- The Cisco PACE solution reduces costs by identifying network inconsistencies that would require labor-intensive diagnosis.
- Configuration automation in the Cisco PACE solution saves money by allowing fewer administrators to manage large, complex networks.
- The Cisco PACE solution helps prevent the potentially expensive repercussions of noncompliance.

For More Information

For more information about the Cisco PACE solution, visit: http://www.cisco.com/go/pace.

Cisco Security Management Suite

The Cisco Security Management Suite is a framework of next-generation security-management tools designed for the operational management and policy administration of the Cisco Self-Defending Network. This suite of integrated applications simplifies the management process by automating tasks associated with the functional areas of security management: configuration, monitoring, analysis, mitigation, identity, and auditing. The result is an increased level of security assurance, better organizational productivity, and lower overall total cost of ownership (TCO).

The primary components of the Cisco Security Management Suite include the Cisco Security Manager and the Cisco Security Monitoring, Analysis and Response System (MARS). With a powerful set of applications, an integrated architecture, and a comprehensive partnering strategy, the Cisco Security Management Suite is positioned to provide organizations with a best-of-class management solution for their security networks. This solution gives administrators tools that automate and simplify operational tasks.

The Cisco Security Management Suite delivers increased security, better organizational productivity, and lower overall TCO.

Ideal for Companies that Need These Features

- Policy consistency and security assurance: Cisco Security Manager allows organizations to deploy consistent security policies across thousands of security devices in a short span of time.
- Rapid threat mitigation for improved company network uptime: Cisco Security MARS allows organizations to quickly identify and respond to network and security threats such as worms and viruses, preventing widespread outbreaks and significant downtime.
- Better control of and access to security information for forensics analysis and reporting: The applications in the Cisco Security Management Suite can collect information that is instrumental for organizational compliance reporting.
- Accounting and tracking of user network access and authorization: Cisco Secure ACS provides a central policy engine to control user access and privilege levels for network access.

Cisco Network Application Performance Analysis (NAPA) Solution

The Cisco Network Application Performance Analysis (NAPA) solution is a comprehensive set of tools and services that provides valuable information about the performance of the network and the applications running on it.

Key Features

- Faster identification and resolution of problems: Cisco NAPA helps identify whether a problem is related to the network, servers, or applications. When the problem is diagnosed, the Cisco NAPA solution provides the insight required to fix it.
- Significantly enhanced network planning capabilities: Cisco NAPA helps with predictive planning and optimization for successful deployment of new applications and network services.
- Reduced risk: By modeling network scenarios, this solution reduces the risks associated with new network deployments and provides better network performance.
- Access to Cisco Advanced Services

For More Information

For more information about the Cisco Network Application Performance Analysis solution, visit: http://www.cisco.com/go/napas.

Cisco Application Analysis Solution

Organizations can create a visual and quantitative breakdown of the complex interactions among applications, servers, and networks to cost-effectively troubleshoot and deploy networked applications with the Cisco Application Analysis Solution (AAS). Cisco AAS rapidly illustrates whether performance problems were caused by network or application problems.

Ideal for Companies that Need These Features

- Ability to automatically pinpoint the root cause for application-related problems in complex, multitier transactions
- Ability to accurately predict the performance that could be achieved with alternative approaches
- Ability to diagnose whether problems in application performance are caused by the application server

Key Features

- Cisco AAS is part of the Cisco NAPA solution.
- Cisco AAS facilitates visualization of end-to-end, application transaction dynamics graphically, from the view of both the network and application layers.
- Cisco AAS diagnoses whether problems in application performance are caused by the application, server, or network. It helps to automatically pinpoint the root cause for application-related problems in complex, multitier transactions. It also helps to assess proposed solutions and to more accurately predict the performance that can be achieved with alternative approaches.
- Cisco AAS bridges organizational gaps between application development and IT infrastructure teams, helping speed deployment of new applications and reducing disputes over responsibility that often accompany end-to-end performance troubleshooting.

For More Information

For more information about the Cisco Application Analysis Solution, visit: http://www.cisco.com/en/US/products/ps6362/index.html.

Cisco Configuration Assurance Solution

With the Cisco Configuration Assurance Solution (CAS), companies can automatically perform regular, systematic audits of the production network to diagnose device misconfigurations, policy violations, inefficiencies, and security gaps. Cisco CAS helps organizations improve network availability, security, and compliance with regulatory and IT governance requirements.

Ideal for Companies that Need These Features

- Ability to automatically perform regular, systematic audits of the production network to diagnose device misconfigurations, policy violations, inefficiencies, and security gaps
- Ability to improve network availability, security, and compliance with regulatory and IT governance requirements
- Ability to verify that network security policies have been implemented effectively using tests that—Simulate unauthorized traffic flows in a virtual model of the production network; Identify security gaps and pinpoint misconfigured nodes that block valid connectivity; Inspect complex backup configurations across the network, diagnosing latent problems by simulating failures to test network resiliency and predict the effect on applications, resources, and security

For More Information

For more information about Cisco CAS, visit: http://www.cisco.com/en/US/products/ps6364/index.html.

Cisco Network Planning Solution

The Cisco Network Planning Solution (NPS) reduces the risks associated with network growth, migration, and consolidation. It is an effect analysis tool that can help organizations optimize network capacity and

performance, ensure resiliency, plan for new technology deployments, and validate planned configuration changes. It is part of the Cisco NAPA solution.

Ideal for Companies that Need These Features

- Ability to accurately model the network infrastructure; clarify routing dynamics and end-to-end connectivity; show which traffic flows will be most affected by outages and where resulting bottlenecks are likely to occur; predict the effect of deploying new technologies, protocols, or hosted applications, including VPNs, VLANs, and voice over IP (VoIP)
- Ability to automate capacity planning and perform resilient link dimensioning and topology design; score the readiness of the network for VoIP deployment and provide design guidance

For More Information

For more information about the Cisco Network Planning Solution, visit: http://www.cisco.com/en/US/products/ps6363/index.html.

Cisco Performance Visibility Manager

Cisco Performance Visibility Manager (PVM) is a proactive network- and application-performance monitoring, reporting, and troubleshooting system for maximizing network availability. Part of the Cisco NAPA solution, it increases early visibility into network and application behavior problems, to identify them before they become critical.

Ideal for Companies that Need These Features

- Understandability to understand how application traffic affects network performance and prevent misuse of critical network resources
- Ability to immediately identify whether poor application performance is being caused by the network or the application
- Ability to proactively manage problems by continuously monitoring for conditions that may represent an emerging problem and facilitating early detection or potential performance problems
- Ability to get comprehensive reports in capacity planning, trending analysis, and ongoing status monitoring.

For More Information

For more information about the Cisco Performance Visibility Manager, visit: http://www.cisco.com/en/US/products/ps6768/index.html.

Cisco Catalyst 6500 Series Network Analysis Module 1 and 2 and Cisco Branch-Office Routers Series (NM-NAM) with NAM Software

The Cisco Network Analysis Module (NAM) 1 and 2, second-generation, high-performance network analysis modules for the Cisco Catalyst 6500 Series, provides network monitoring instrumentation and Web browser-based traffic analysis for environments centered on the Cisco Catalyst 6500 Series.

Ideal for Companies that Need These Features

- Application-level visibility built into the network
- Visibility into all layers of network traffic
- Ability to monitor traffic in a scalable switching environment
- Investment protection by interfacing with both bus and crossbar switching and fabric-based architectures in the Cisco Catalyst 6500 Series

Key Features

- Cisco NAM is available in two models: NAM-1 and NAM-2.
- Cisco NAM provides application-level Remote Monitoring (RMON) functions based on RMON2 and other advanced MIBs.
- Cisco NAM collects statistics on both data and voice-over-IP (VoIP) streams flowing through the host switch.
- Cisco NAM collects data from remote switches using the Remote Switched Port Analyzer (RSPAN) feature of the Cisco Catalyst 6500 and Catalyst 4000 Series Switches.
- Through performance management, Cisco NAM provides valuable information about the delays in server responses to client requests.

For More Information

For more information about Cisco NAM, visit:
http://www.cisco.com/en/products/hw/modules/ps2706/ps5025/index.html.

Cisco Active Network Abstraction

Cisco Active Network Abstraction (ANA) is an open solution that allows integration of both internal and external operations-support-system (OSS) applications into the working network. It includes a set of device-, network-, and service-management applications that take advantage of its virtual network technology.

The core technology of Cisco ANA includes a unique Virtual Network Element abstraction model that dynamically discovers and identifies basic network components, while obtaining end-to-end visibility of network resources, connections, and dependencies. The building blocks of this model are autonomous, virtual software-based network devices, each one cloning the characteristics and properties of its real-world counterpart. The aggregation of these devices creates the virtual model in the same way an aggregation of network elements creates a real-world network.

Ideal for Companies that Need These Features

- Multivendor device support
- Support for multiple technologies, including IP, Layer 2 and 3 VPN, xDSL, ATM, Frame Relay, Gigabit Ethernet, Metro Ethernet, Ethernet, 802.1Q, Inter-Switch Link (ISL), Layer 2 Tunneling Protocol (L2TP), ISDN, and routing protocols such as Enhanced Interior Gateway Routing Protocol (EIGRP), Open Shortest Path First (OSPF), Border Gateway Protocol (BGP), and Intermediate System-to-Intermediate System (IS-IS)
- Open northbound interfaces for integration with multiple OSS and business-support-system (BSS) applications

Key Features

- Cisco Configurable Device Management Platform—The device management platform provides a single solution for multidevice, multitechnology, and multivendor element management. The platform features unified monitoring and configuration, and comes complete with prepackaged, commonly used element-management-system (EMS) functions.
- Cisco Network Fault Isolation and Service Fault Isolation—This technology provides extensive fault-analysis capabilities for quick and accurate fault detection, isolation, and correlation. It reduces trouble-ticket flooding by analyzing the structure, configuration, and dependencies (logical and physical) of the virtual network to track down the virtual source of the fault to accurately reveal the real problem. With this technology, no costly rule maintenance is required.
- Cisco Network Discovery and Service Discovery—This technology provides accurate, real-time discovery of the network inventory, topology, and services. It allows users to view physical network aspects and topological relationships, and it accurately displays the logical inventory, complete with a service view, that spans network layers.
- Cisco Service Activation—This feature facilitates automatic configuration of any device regardless of vendor, model, or software version. The combined activation and configuration process dramatically quickens deployment, while eliminating unnecessary and error-prone manual processes. All activation and configuration activities are done in parallel with no single point of congestion.

For More Information

For more information about Cisco ANA, visit: http://www.cisco.com/go/ana.

Cisco Multicast Manager

Cisco Multicast Manager is a Web-based network-management application that simplifies the holistic discovery, visualization, monitoring, and troubleshooting of multicast networks to help ensure business continuity. Cisco Multicast Manager is appropriate for enterprise customers who employ multicast for financial market data for multiple system operators (MSOs) use multicast to transport video over IP, and for service providers that need to manage their multicast VPN (MVPN) environment.

Ideal for Companies that Need These Features

- As an enterprise customers, to employ multicast for financial market data
- As a cable operator, to use multicast to transport video over IP
- As a service provider, to manage multicast VPN (MVPN) environment

Key Features

- Automated multicast discovery: Cisco Multicast Manager discovers complete multicast topology from a single seed device, along with the multicast VPN (MVPN) provider and provider edge devices and Virtual Route Forwarding (VRF) tables they support. Discovery bridges the provider edge to the customer edge to create an end-to-end view of the multicast environment.
- Active polling engine: Cisco Multicast Manager provides a highly scalable polling engine to detect multicast anomalies before they become mission- critical problems.
- Real-time multicast diagnostics: Cisco Multicast Manager provides the equivalent of a Cisco IOS Software Command-Line Interface "show tech" for multicast, along with Local Target Logic (LTL) checking and packets-per-second (pps) rates taken from the route processor, switch processor, or distributed forwarding card. Output can be e-mailed directly to the Cisco Technical Assistance Center for further analysis.
- Alerts and reporting: Any exceptions detected by the polling engine are sent as Simple Network Management Protocol (SNMP) traps and logged for reporting purposes. Reports are available for rendezvous points, source-group pps rates, tree changes, interface bandwidth, and Layer 2 port pps rates. Real-time alerts originating from an Ineoquest iVMS application are also actionable through the Video Operations Solution (VOS) add-on.

For More Information

For more information about Cisco Multicast Manager, visit:
http://www.cisco.com/en/US/products/ps6337/index.html.

Cisco Video Assurance Management Solution

Cisco Video Assurance Management Solution (VAMS) Version 1.0 delivers to service providers real-time centralized monitoring of their backbone, regional, and aggregation networks for broadcast video transport. Cisco VAMS provides the framework for a flexible, end-to-end assurance platform for video.

Cisco Video Assurance Management Solution 1.0 comprises the following Cisco products and solutions:

- Cisco Active Network Abstraction (ANA) Version 3.6: This system operates between the network and the operations-support-system (OSS) layers acting as a mediation and abstraction between OSS applications and the network devices. Its abstracted network model removes the complexity of upgrading each OSS application when there is an upgrade of any element within the network. It also provides a gateway to the network for OSS applications supporting correlation and aggregation of events in the network, and provides this correlated information northbound.
- Cisco IPTV Service-Level Agreement (SLA) solution built around Cisco Multicast Manager Version 2.4: This tool provides a rich set of multicast monitoring and troubleshooting functions that facilitate notification of Cisco VAMS 1.0 of any changes in multicast or threshold events on elements in the multicast trees that may affect video performance. Cisco VAMS 1.0 collects outputs from Cisco Multicast Manager into Cisco Active Network Abstraction (ANA), providing views of both device and multicast faults.

Ideal for Companies that Need These Features

- Reduced mean time to repair (MTTR)
- Enhanced video quality of experience
- Proactive video transport monitoring
- Increased operational efficiency

Key Features

- Dynamic visualization of video metrics
- Custom service views
- Root-cause analysis
- Integration with other OSS and business-support-systems (BSS) solutions
- Proactive video transport monitoring
- Data collection from probes
- Multicast data collection

For More Information

For more information about Cisco VAMS 1.0, visit: http://www.cisco.com/en/US/products/ps9554/index.html.

CiscoWorks LAN Management Solution

CiscoWorks LAN Management Solution (LMS) is an integrated suite of management tools that simplify the configuration, administration, monitoring, and troubleshooting of Cisco networks. Built on popular, Internet-based standards, CiscoWorks LMS applications help network operators manage the network through a browser-based interface that can be accessed anytime and from anywhere within the network. CiscoWorks LMS maintains a centralized list of all Cisco network devices and their credentials. The list serves as a single repository for all CiscoWorks applications, whether they are installed locally or distributed in a multiserver deployment. CiscoWorks LMS Portal facilitates functional views that can be tailored to meet the needs of an individual or group of network operations staff, simplifying integration and navigation between Cisco network products and other third-party application functions.

Ideal for Companies that Need These Features

- A centralized system for sharing device information across all LMS applications, improving manageability and systemwide awareness of changes in the network
- Network discovery, topology views, end-station tracking, and VLAN management
- Real-time network fault analysis with easy-to-deploy, device-specific best-practices templates
- Hardware and software inventory management, centralized configuration tools, and syslog monitoring
- Network response time and availability monitoring and tracking
- Real-time device, link, and port traffic management, analysis, and reporting
- Flexible license model, allowing CiscoWorks LMS to be effectively used in a wide range of enterprise deployments without restricting functions or expandability

Key Features

- CiscoWorks Device Fault Manager provides detailed, real-time detection, analysis, and reporting of device faults. It often identifies problems before users realize they exist.
- CiscoWorks Campus Manager configures, manages, and visualizes complex physical and logical Layer 2 infrastructures, including VLAN and ATM management, path analysis, user tracking, and topology mapping.
- CiscoWorks Resource Manager Essentials provides network inventory, device configurations and changes, software updates, and syslog analysis.
- CiscoWorks Internetwork Performance Monitor offers proactive measurement of network response time and availability as well as real-time and historical analysis of congestion and latency problems.
- In CiscoWorks CiscoView, front-panel graphical displays of Cisco devices simplify user interaction with device components to change configuration parameters and monitor statistics.
- CiscoWorks Common Services provides a common model for data storage, login, user-role definitions, access privileges, and security protocols, as well as navigation and launch management.

For More Information

For more information about CiscoWorks LMS, visit: http://www.cisco.com/go/lms.

CiscoWorks Health and Utilization Manager

CiscoWorks Health and Utilization Monitor (HUM) is a Simple Network Management Protocol (SNMP)-based MIB polling application that monitors network elements (such as CPU, memory, and interfaces or links) for their availability and usage levels and provides historical reporting. CiscoWorks HUM is preintegrated with CiscoWorks LAN Management Solution (LMS) Version 3.0. CiscoWorks HUM is designed as an add-on product and fits well with existing CiscoWorks LMS 3.0 applications.

Ideal for Companies that Need These Features

- An add-on to LMS for monitoring the health and usage of critical MIB parameters, such as CPU usage, interface and port availability, etc., with historical trending and reporting

Key Features

- CiscoWorks HUM monitors CPUs, memory, and interfaces and ports for usage and availability levels.
- CiscoWorks HUM provides historical trending on a daily, weekly, monthly, and annual basis.
- CiscoWorks HUM supports integration with CiscoWorks LMS 3.0.
- CiscoWorks HUM offers comprehensive reporting through, for example, a device dashboard, custom reports, and Top-N/Bottom-N reports.
- CiscoWorks HUM provides threshold breach event notification, reporting, and event handler support.

Cisco Unified Communications Management Suite

Cisco Unified Communications Management Suite is a comprehensive portfolio of communications applications integrated with a secure network infrastructure. To take full advantage of such a system, organizations need a communications-management solution that provides a dashboard view of the entire system status.

Solution Overview

- Cisco Unified Provisioning Manager
- Cisco Unified Operations Manager
- Cisco Unified Service Monitor
- Cisco Unified Service Statistics Manager

Key Features

Cisco Unified Communications Management Suite allows you to:

- Deploy and provision the network
- Manage moves, adds, and changes
- Monitor network elements, including Cisco Unified Communications Manager, the Cisco Unity system, gateways, and endpoints, including the underlying network
- Identify and diagnose problems, and test and track changes
- Maintain network inventory
- Track and report on user experience and mean opinion scores
- Collect, analyze, and report statistical information from the network

For More Information

For more information about the Cisco Unified Communications Management Suite, visit: http://www.cisco.com/en/US/products/ps5747/Products_Sub_Category_Home.html.

Cisco Unified Operations Manager

Part of the Cisco Unified Communications Management Suite, Cisco Unified Operations Manager provides a real-time, service-level view of the entire Cisco Unified Communications System and presents the current operational status of each element. It continuously monitors the current operational status of elements such as Cisco Unified Communications Manager, Cisco Unified Communications Manager Express, Cisco Unity unified messaging, Cisco Unity Express, Cisco Unified Contact Center Enterprise, Cisco Unified Contact Center Express, and Cisco Unified MeetingPlace Express, as well as Cisco gateways, routers, switches, and IP phones. Cisco Unified Operations Manager also provides an integrated set of diagnostic capabilities for faster trouble isolation and resolution.

Ideal for Companies that Need These Features

- Real-time notifications and reports about the status of the network monitored to a higher-level entity (typically a manager of managers)
- Ability to manage multisite and multicluster unified communications environments
- Reduced administrative overhead through sharing device and credential information with other CiscoWorks tools deployed in the enterprise

Key Features

- Service-level view—A real-time, auto-refresh display provides status information about all the unified communications clusters and the elements of the clusters in the deployment. Drill-down views show the operational status of each element of the unified communications cluster and its interrelationships with other elements.
- Real-time alerts—Built-in intelligence monitors every device in a unified communications deployment for faults or outages, providing instant access to signaling-related and IP connectivity-related outage information. Alerts present the most up-to-date status.
- Diagnostic tests—A rich set of diagnostic tests can be used for trouble isolation and resolution. Synthetic tests serve to replicate user activity. Phone-status tests can be used to determine the current operational status of the IP phones in terms of signaling and IP connectivity. Administrators can use an IP test service-level agent to simulate traffic in the network and then determine network characteristics, such as reachability status, response time, latency, jitter, packet loss, and network quality.

- Service-quality reporting—Service-quality reporting monitors and provides detailed information about devices to enable further troubleshooting. With this feature, administrators can initiate a probable path trace between the endpoints to identify any potential problems in intermediate nodes that could influence service quality.
- Reports—Reports provide historical alert, event, and service-quality reports for up to 30 days. Customizable reports can be reviewed through e-mail or the Cisco Unified Communications Operations Manager GUI.

For More Information

For more information about Cisco Unified Operations Manager, visit:
http://www.cisco.com/en/US/products/ps6535/index/html.

Cisco Unified Service Monitor

Part of the Cisco Unified Communications Management Suite, the Cisco Unified Service Monitor 1.1 provides a low-cost, reliable method of monitoring and evaluating voice quality in Cisco Unified Communications solutions. It continuously monitors active calls supported by the Cisco Unified Communications System and provides near-real time notification when the voice quality of a call fails to meet a user-defined quality threshold. The end-user experience is expressed as Mean Opinion Score (MOS), which is calculated based on the ITU G.107 standard.

Ideal for Companies that Need These Features

- Real-time management information and diagnostic tools to help ensure an efficient deployment and subscriber satisfaction
- Immediate monitoring and assessment of the quality of IP-based calls without elaborate setup or complicated installation problems

Key Features

- Cisco Unified Service Monitor evaluates the performance of the actual RTP data streams of the monitored calls.
- Cisco Unified Service Monitor uses the standards-based ITU G.107 R-factor to evaluate and score the monitored call. Cisco Unified Service Monitor supports IEEE 802.3af Power over Ethernet (PoE). It is FCC Class B-compliant and can be installed in any office environment.
- The phone-based Cisco Voice Transmission Quality (VTQ) solution (for Cisco Unified Communications Manager Versions 4.2, 4.3, 5.0, 5.1, or later) provides user-experience metrics, expressed as a Mean Opinion Score (MOS), at the end of all active calls in the network.
- Cisco Unified Service Monitor provides a distributed, scalable solution to facilitate cost-effective quality-of-voice monitoring.
- Voice-quality alerts present the information in a specialized Service Quality Alerts display that provides a launching point for diagnostic tools and processes

For More Information

For more information about the Cisco Unified Service Monitor, visit:
http://www.cisco.com/en/US/products/ps6535/index.html.

Cisco Unified Provisioning Manager

Cisco Unified Provisioning Manager provides a reliable and scalable Web-based solution for managing a company's crucial, next-generation communications services. It manages unified communications services in an integrated IP telephony, voicemail, and messaging environment that includes Cisco Unified Communications Manager (formerly known as Cisco Unified CallManager), Cisco Unified Communications Manager Express (formerly known as Cisco Unified CallManager Express), Cisco Unity, Cisco Unity Express, and Cisco Unity Connection systems.

Ideal for Companies that Need These Features

- Ability to perform initial installation and deployment of Cisco Unified Communications network elements and services
- Ability to perform ongoing operational provisioning and activation of services and subscriber changes
- Cost control for deployments and ongoing service provisioning
- Ability to expedite "time to dial tone"
- Policy control of management and services

Key Features

- A simple, wizard GUI for service ordering—Cisco Unified Provisioning Manager provides simple, flexible ordering. Orders can be scheduled to run at a later time. A single batch order may contain multiple types of orders (add, change, or cancel) and multiple types of services, such as phone and voicemail additions or changes.
- Comprehensive policy and service parameter definition—Policy and service parameters can be defined by domains, service areas, and locations, and applied by configuration templates during initial deployment and rollout of new offices, locations, remote sites, and organizational overlays.
- User role-defined access—User roles define access to certain functions exposed through the Web interface to the system users. The subscriber role dictates the services to which the subscriber is entitled.
- Inventory tracking—The tracking capabilities of the Cisco Unified Provisioning Manager allow users to track information about all services and subscribers in an internal asset-management and inventory system. Users can create and save advanced searches to produce reports in HTML or Microsoft Excel format. Cisco Unified Provisioning Manager comes with sample configuration and phone information reports.

For More Information

For more information about Cisco Unified Provisioning Manager, visit:
http://www.cisco.com/en/US/products/ps7125/index.html.

Cisco Unified Service Statistics Manager

Cisco Unified Service Statistics Manager is an easy-to-use, Web-based software product that features a variety of advanced reports for executive, operations, and capacity-planning functions. Cisco Unified Service Statistics Manager offers both out-of-the-box reports and customizable reports that provide visibility into critical metrics, including call volume, service availability, call quality, resource usage, and capacity across the Cisco Unified Communications System, including across multiple clusters, gateways, and related devices. It facilitates viewing of information based on network, service, business, and user criteria and defining of service-level agreement constructs as well as measuring and verifying them based on unified communications statistics collected.

Ideal for Companies that Need These Features

- Statistical reporting, trending, and analysis for small, medium, and large Cisco Unified Communications deployments

Key Features

- Cisco Unified Statistics Manager integrates with and uses the data-collection capabilities of Cisco Unified Operations Manager and Cisco Unified Service Monitor to harvest and consolidate statistics information from a variety of Cisco devices and systems.
- The collected data is stored in a consolidated database that can be partitioned based on a variety of network, service, user, and business criteria for detailed analysis and reporting.
- Cisco Unified Statistics Manager provides out-of-the-box reports on critical metrics. Reports include IP phone and inventory reports, service-level agreement (SLA) reports, and customizable reports with data export in HTML, PDF, and CSV format. Reports on specific call metrics include reports about call volume, call duration, service availability, service quality, call completion, and Mean Opinion Score (MOS), as well as top numbers called, users, endpoints, and called numbers. Gateway and trunk traffic and usage reports with capacity trending are also available.
- Cisco Unified Statistics Manager also provides automatic report scheduling, generation, and distribution.
- Cisco Unified Statistics Manager provides call-failure analysis including cause code information.
- Cisco Unified Statistics Manager provides IP telephony testing.

For More Information

For more information about the Cisco Unified Service Statistics Manager, visit:
http://www.cisco.com/go/cussm.

CiscoWorks QoS Policy Manager

CiscoWorks QoS Policy Manager (QPM) allows administrators to centrally define and administer Cisco IOS Software and CAT-OS parameters needed for differentiating network traffic. This application helps to ensure high availability and predictable performance for business-critical applications that rely on advanced voice and video services.

Ideal for Companies that Need These Features

- End-to-end quality-of-service (QoS) configuration and automated, reliable policy deployment, while eliminating device-by-device command streams
- Rules-based policies that combine static and dynamic port applications and host system traffic filters
- Cisco QoS Policy Manager services, including congestion management and avoidance, and traffic shaping
- Ability to efficiently translate policies to specific QoS configuration commands to ensure consistency across domains
- Ability to validate policies quickly and reliably to LAN and WAN policy domains prior to deploying them
- Ability to generate Web-based reports on QoS policies deployed in the network

Key Features

- Cisco QPM measures traffic throughput for top applications and service classes and troubleshoots problems with real-time and historical quality-of-service (QoS) feedback.
- Cisco QPM centrally defines roles and permissions for use with the Cisco Secure Access Control Server (ACS) privilege control. Policy views can be modified and deployed for different device groups.
- Cisco QPM partitions the network into administrative and deployment domains and uses policy libraries for global QoS configuration. It modifies, scales, and monitors Cisco IOS AutoQoS voice policies on routers.
- Cisco QPM uses the secure, Web-based GUI for accurate end-to-end QoS configuration and automated, reliable policy deployment, while eliminating device-by-device command streams. The Setup wizard intelligently determines QoS policies and properties at each network point that requires IP telephony QoS configuration based on Cisco design recommendations.
- Cisco QPM exposes QoS policy conflicts, uploads existing device configurations, presents command-line-interface (CLI) syntax that corresponds to policies, allows previewing configuration changes before deployment, supports incremental access-control-list (ACL) updates, defines ACL ranges, and restores or applies a previous version of a policy database and backup to a remote server.
- An integral part of Cisco content networking, Cisco QPM Version 3.2 delivers the appropriate service levels to business-critical applications by supporting the extension of IP packet classification to include application signature, Web URLs, and negotiated ports.
- Cisco QPM facilitates congestion management, congestion avoidance, and bandwidth control by selectively activating QoS mechanisms on intelligently grouped LAN and WAN interfaces and providing support for external application programming interfaces (APIs) to trigger event-based policy distribution.
- Cisco QPM extends security by defining access-control policies to permit or deny transport of packets into or out of device interfaces.
- Cisco QPM supports device inventory import from CiscoWorks Resource Manager Essentials, shortening configuration time for devices targeted for policy enforcement and QoS monitoring.

For More Information

For more information about Cisco QPM, visit: http://www.cisco.com/go/qpm.

Cisco TelePresence Readiness Assessment Manager

Cisco TelePresence Readiness Assessment Manager is built to assess the network prior to deployment of TelePresence systems in the network.

Ideal for Companies that Need These Features

- Assessment prior to the deployment of TelePresence systems (helps to detect common problems and provide an optimal user experience, which leads to higher customer satisfaction)
- Periodic reassessments when expanding TelePresence networks, or for model upgrades

Key Features

- Automated network path discovery—Cisco TelePresence Readiness Assessment Manager discovers the network elements on the paths between proposed TelePresence sites or rooms.
- Automated best practice-compliance analysis—This application determines network device configuration compliance with the best-practice recommendations.
- Switch and line-card recommendations—This application determines and flags the noncompliance of line cards in the network path.
- End-of-service and end-of-life detection—This application determines and flags the end-of-service and end-of-life status of the devices in the network path.
- Resource usage baseline determination—This application determines resource usage for the devices on the network path in order to detect capacity bottlenecks.

- Comprehensive reports—This application generates comprehensive executive and detailed reports, which contain assessment results and recommendations. Report data is presented using charts, graphs, and text in Microsoft Word format. Assessors can modify reports to include expert comments and recommendations.
- Northbound interfaces—This application sends workflow status information by e-mail or pager to subscribers, helping assessors quickly return to the system and perform the next step in the workflow.

For More Information

For more information about Cisco TelePresence Readiness Assessment Manager, visit: http://www.cisco.com/en/US/products/ps8542/index.html.

Cisco Monitor Director

A comprehensive management application designed solely for the small and medium-sized business (SMB) market, the Cisco value-added reseller (VAR) managed service provider (MSP) solution encompasses two complementary components, Cisco Monitor Director along with Cisco Monitor Agent, offering an economical and scalable path for Cisco partners to migrate to managed services.

Deployed at the partner location, Cisco Monitor Director is a centralized, proactive network-management application for Cisco MSPs planning to offer 24-hour, proactive voice and data network monitoring and management services to their SMB customers. It works in conjunction with Cisco Monitor Agent, which is deployed at many SMB corporate headquarters and remote offices.

Cisco Monitor Agent collects customer-network data and reports it over a secure communication channel to Cisco Monitor Director, giving MSPs secure access and visibility into the customer's network. It provides monitoring of critical device parameters on Cisco SMB-class routers, switches, voice gateways, Cisco Unified Communications Manager Express, Cisco Unity Express, security appliances, access points, and Cisco Unified IP Phones.

Ideal for Companies that Need These Features

- As an SMB, ability to monitor and manage their own Cisco network
- As a value-added reseller (VAR) managed service provider (MSP), ability to provide MSP functions for their customers

Key Features

- These applications provide voice and Cisco analog telephone adapter (ATA) network discovery and topology display. They provide network-wide inventory collection and reporting.
- These applications provide Cisco Unified Communications and IP telephony monitoring, Cisco device performance monitoring, and interface status and traffic monitoring, as well as an interface to common trouble-ticketing applications.
- These applications offer highly secure and reliable communication. They provide real-time alerts and notifications through e-mail and paging based on time-of-day settings.
- Cisco Monitor Director and Monitor Agent do not require time-consuming training, offering ease of use and low initial investment.
- The distributed architecture and intelligence of Cisco Monitor Director and Monitor Agents provide for present and future network scalability. These applications make it possible to remotely monitor up to five small and medium-sized business (SMB) customers economically and to scale to support up to 50 SMBs as business expands.
- These applications provide secure, reliable communication between VAR MSPs and small and medium-sized business (SMB) customers, and a central customer dashboard for VAR MSPs.
- The applications provide Cisco end-of-sale and end-of-life database references and notifications.
- The applications offer remote access to all Cisco Monitor Agent features and capabilities.
- The applications allow partners to remotely monitor up to five SMB customers economically and scale to support up to 50 SMBs as partner business expands.

For More Information

For more information about Cisco Monitor Director and Cisco Monitor Agent, visit: http://www.cisco.com/en/US/products/ps7246/index.html.

Cisco netManager for IP Infrastructure

Cisco netManager for IP Infrastructure provides a simple, ready-to-use, monitoring and diagnostics application for small and medium-sized network deployments (up to 100 devices and 100 wireless access points) comprising Cisco and third-party network devices, printers, servers, and workstations. A

single Windows-based server or workstation running Cisco netManager software can monitor a network with up to 10 remote branches.

Ideal for Companies that Need These Features

- Ability to monitor IP infrastructure up to 100 devices and 1000 wireless access points.
- The devices can be Cisco and third-party network devices plus servers or workstations and printers.

Key Features

- Cisco netManager monitors and evaluates status of the Cisco Unified Communications System, including the underlying transport infrastructure.
- Cisco netManager presents the current operational status of the Cisco Unified Communications System through service-level views of the network.
- Cisco netManager provides contextual tools to view current alert status, real-time physical connectivity, and historical information for performance and active monitoring and to determine the service effects of any outages.
- Cisco netManager monitors and evaluates the status of network devices and desktop office devices such as printers, servers, and workstations.
- Cisco netManager supports a broad range of Cisco network devices and third-party network devices.
- Cisco netManager increases network-manager productivity and speeds troubleshooting by providing diagnostic tools and easy one-click access to embedded device-management systems.
- Cisco netManager deploys no agent software on the devices being monitored, so will not disrupt system operations.

For More Information

For more information about Cisco netManager for IP Infrastructure, visit:
http://www.cisco.com/en/US/products/ps8415/index.html.

Cisco netManager for Unified Communications

Cisco netManager for Unified Communications monitors all components of small and medium-sized Cisco Unified Communications Systems, including the underlying IP transport infrastructure (functions of Cisco netManager for IP Infrastructure) and provides the current operational status of all the elements in the network through a real-time, service-level view.

Ideal for Companies that Need These Features

- Ability to monitor Cisco Unified Communications deployments for up to 1000 users

Key Features

- Cisco netManager monitors and evaluates the status of the Cisco Unified Communications System, including the underlying transport infrastructure.
- Cisco netManager presents current operational status of the Cisco Unified Communications System through service-level views of the network.
- Cisco netManager provides contextual tools to view current alert status, real-time physical connectivity, and historical information for performance and active monitoring and to determine the service effects of any outages.
- Cisco netManager facilitates faster trouble isolation by providing contextual diagnostic tools and easy one-click access to embedded device-management systems.
- Cisco netManager provides performance metrics of different Cisco Unified Communications elements, such as resource usage (for example, CPU and memory) through real-time trend charts.
- Cisco netManager provides current information about connectivity-related and registration-related outages affecting all the Cisco Unified IP Phones (phones based both on Session Initiation Protocol [SIP] and Skinny Client Control Protocol [SCCP]).
- Cisco netManager facilitates tracking of Cisco Unified Communications devices and Cisco Unified IP Phone inventory, and tracks IP phone status changes.
- Cisco netManager creates a variety of reports that conveniently summarize move, add, and change operations on IP phones in the network.
- Cisco netManager deploys no agent software on the devices being monitored, so will not disrupt system operations.
- Rules and thresholds are built in.
- Automatic device identification and data collection facilitate easy setup and immediate monitoring of the managed network.

For More Information

For more information about Cisco netManager for Unified Communications, visit: http://www.cisco.com/go/cnmuc.

Cisco Broadband Access Center

Cisco Broadband Access Center (BAC) allows service providers to centralize the provisioning and management of subscriber devices through fully redundant and distributed product architecture.

Ideal for Companies that Need These Features

- As a service provider, to manage subscribers with network services using cable and DSL customer premises equipment (CPE) devices

Key Features

- Cisco BAC automatically recognizes end-user devices coming onto the service provider network. It assigns an appropriate class of service, dynamically generates device configuration files, and activates subscribers.
- Cisco BAC supports both preprovisioning of devices (giving customers a ready-to-use experience) and autoprovisioning so that service providers can easily support self-registration of customer-provided cable and DSL access devices.
- The solution provides embedded, high-performance data storage, optimized for device provisioning.
- Cisco BAC requires no additional external database.
- The solution provides an integrated Kerberos Protocol server for CableLabs PacketCable voice service provisioning
- Cisco BAC has a Java-based provisioning application programming interface (API).
- Cisco BAC appliance-based distributed information caching and processing servers offer true scalability.

For More Information

For more information about the Cisco Broadband Access Center, visit: http://www.cisco.com/en/US/products/sw/netmgtsw/ps529/index.html.

Cisco Broadband Policy Manager

The Cisco Broadband Policy Manager helps service providers deploy, manage, and deliver multiple services on their customers' converged IP networks by applying policies and dynamically configuring the network in real time based on events from multiple sources, including applications, network elements, and subscriber actions.

Ideal for Companies that Need These Features

- As a larger, Tier 1 and selected Tier 2 service provider, deployments of advanced services over broadband networks, DSL network deployments, and admission control over Point-to-Point Protocol over Ethernet (PPPoE) and ATM access networks

Key Features

- Cisco Broadband Policy Manager logs and transmits accounting records to RADIUS or Extensible Markup Language (XML)-enabled accounting interfaces.
- The application includes integrated admission-control capability to allow the service provider to control service delivery based on resource availability.
- Cisco Broadband Policy Manager enforces quality of service (QoS), bandwidth limits, and limits on the number of sessions to help ensure a quality customer experience.
- The application creates and manages quota repositories to account for customer usage and sets threshold limits to use for trigger execution of business rules while enforcing policies on the customer's session.
- Cisco Broadband Policy Manager gives retail partners control over policies for their customers and integrates retail policy requests with overall network policies administered by the wholesale provider.
- Cisco Broadband Policy Manager emits notifications to customers, network operators, and partners as needed using Simple Network Management Protocol (SNMP), Extensible Markup Language (XML), or HTTP messaging.
- The application delivers a full suite of standard interfaces to facilitate integration at both the system and the network levels, allowing support for multivendor equipment.
- Cisco Broadband Policy Manager supports an extremely high transaction rate to minimize session setup or service initiation request delays.

- Cisco Broadband Policy Manager is designed to be deployed as a distributed system to scale in relation to the number of network elements. It helps to ensure a responsive system, independent of the size of the network.

For More Information

For more information about Cisco Broadband Policy Manager, visit:
http://www.cisco.com/en/US/products/ps6478/index.html.

Cisco Broadband Troubleshooter

Cisco Broadband Troubleshooter is an easy-to-use tool that gives network administrators and technicians a GUI that streamlines RF problem resolution. The tool dynamically monitors RF characteristics on a per-modem or per-upstream basis, provides a measurement interface for the upstream that looks and feels like a spectrum analyzer, decentralizes RF monitoring and analysis, and automatically sorts and categorizes RF problem conditions. The product provides a fault-analysis tool that facilitates isolation of performance, cable plant, and CM problems and characterizes upstream and downstream trouble patterns. Operators can quickly discern customer-premises-equipment (CPE) connectivity impairments by identifying noise, attenuation, provisioning, and packet-corruption problems.

For More Information

For more information about Cisco Broadband Troubleshooter, visit:
http://www.cisco.com/en/US/products/sw/netmgtsw/ps530/index.html.

Chapter 10: Services

Cisco and our qualified partners provide award-winning services that help customers plan, build, and run their networks. A well-designed and healthy network is vital to keeping a business running in real time and connected to customers, employees, and suppliers.

Cisco Technical Services

Cisco has a portfolio of technical services that help maintain the health and performance of every Cisco product. These services range from traditional maintenance to proactive and predictive services.

Cisco Technical Services help:

- Increase network uptime, operational efficiency, and reliability
- Maintain business continuity
- Gain critical insight into network performance
- Lower operational costs
- Strengthen IT security and compliance
- Extend the value of your IT investments

Each Cisco Technical Service includes one or more of the service capabilities shown in Figure 10-1 to provide the best possible network reliability and application performance.

Figure 10-1: Technical Services Capabilities



Designated Technical Specialist is an additional capability available for some services.

To find the right technical service for any Cisco product, use the Service Finder tool at http://www.cisco-servicefinder.com. Enter a product description or SKU or search by product series family.

For More Information

For more information about Cisco Technical Services, go to http://www.cisco.com/go/ts.

Cisco Advanced Services

Cisco and our certified partners accelerate business transformation, operational maturity, and agility through consultative planning, solution development, and full deployment, creating network architectures that optimize IT services and enhance your business.

Cisco Advanced Services help:

- Reduce cost and optimize performance
- Effectively manage change
- Smoothly integrate new technologies
- Enhance design and implementation value of migrations and ongoing operations

- Meet business requirements with proven tools and methodologies
- Deploy fully tested network solutions

Each Advanced Services offering provides one or more of the service capabilities shown in Figure 10-2:

Figure 10-2: Advanced Services Capabilities

Business and Technology Strategy Alignment	Business Value Justification	Network Architectural Planning	Technology Readiness Assessments	Business Solution Architecture Planning
Advanced Technology Strategy Support	Foundation Technology System Design	Advanced Technology Planning and Design	Network Migration Planning and Support	Advanced Network Security Strategy
Ongoing Network Performance Tuning	Networking Staff and Technology Education	Operational Readiness Assessment	Network Change Support	Software Analysis and Support

For More Information

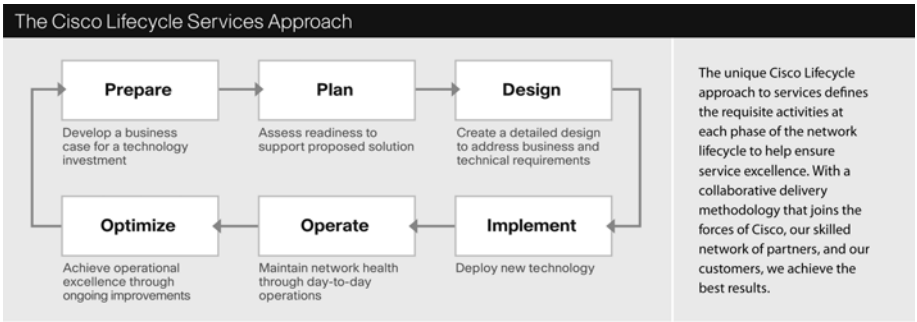
For more information about Cisco Advanced Services, visit: http://www.cisco.com/go/techservices.

Why Cisco Services

Cisco Services make networks, applications, and the people who use them work better together. Today, the network is a strategic platform in a world that demands better integration between people, information, and ideas. The network works better when services, together with products, create solutions aligned with business needs and opportunities.

The unique Cisco Lifecycle approach to services defines the requisite activities at each phase of the network lifecycle to help ensure service excellence. With a collaborative delivery methodology that joins the forces of Cisco, our skilled network of partners, and our customers, we achieve the best results. Figure 10-3 shows the lifecycle phases.

Figure 10-3: Lifecycle Phases



Contact your Cisco representative or your local certified Cisco partner to discuss recommended services to protect and extend your technology investment.

For More Information

For more information about all Cisco Services, visit http://www.cisco.com/go/services.