CISCO SYSTEMS

CISCO IPSEC VPN SERVICES MODULE FOR THE CISCO CATALYST 6500 SERIES AND CISCO 7600 SERIES

Critical high-bandwidth business applications have created a need for ubiquitous connectivity and increased bandwidth. Shared campuses, metro area networks and Internet data centers require high performance and secure connectivity. Many enterprises augment or replace their traditional WANs with site-to-site and remote-access virtual private networks (VPNs) to better accommodate these new connectivity requirements.

The Cisco® IPSec VPN Services Module (VPNSM) delivers cost-effective VPN performance for the Cisco Catalyst® 6500 Series switches and Cisco 7600 Series routers. Primary VPN features delivered by the VPNSM include:

- **Security integrated into network infrastructure**—The Cisco VPNSM supports both Cisco Catalyst 6500 Series switches and Cisco 7600 Series routers. By integrating VPNs into these infrastructure platforms, the network can be secured without extra overlay equipment or network alterations. Furthermore, the broad range of LAN and WAN interfaces, as well as the entire line of security services modules (VPN, Firewall, Network Anomaly Detection, Intrusion Detection, Content Services, and Secure Sockets Layer [SSL]) can now be used within the same platform.

- **High performance and scalability**—Using the latest in encryption hardware-acceleration technology, each Cisco VPNSM can deliver up to 1.9 Gbps of Triple Data Encryption Standard (3DES) traffic at large packet sizes (more than 500 bytes) and 1.6 Gbps of 3DES traffic at average packet sizes (300 bytes). In addition, a platform equipped with a Cisco VPNSM can terminate 8000 site-to-site or remote-access IP Security (IPSec) tunnels simultaneously and can set up those tunnels at up to 60 new tunnels per second. Furthermore, up to 10 Cisco VPNSM modules can be installed in a single platform for increased throughput.

- **VPN resiliency and high availability**—Using innovative features, such as Stateful Failover for both IP Security (IPSec) and generic routing encapsulation (GRE), Hot-Standby Router Protocol with Reverse Route Injection (HSRP+RRI), Dead Peer Detection (DPD), and support of dynamic routing updates over site-to-site tunnels, the Cisco VPNSM provides superior VPN resiliency and high availability.

- **Provides advanced security services**—Adding encryption, authentication, and integrity to network services is easy with the Cisco VPNSM. Secured campus and provider-edge VPN termination applications—and secured converged network services such as integrated data, voice, and video, [V3PN = "VOICE AND VIDEO ENABLED VPN."] and storage area networks—now are easily deployable. The module provides both site-to-site and remote access IPSec services over both LAN and WAN interfaces.

CISCO IPSEC VPN SERVICES MODULE OVERVIEW

The Cisco IPSec VPN Services Module is a full-slot card that fits into Cisco Catalyst 6500 Series and Cisco 7600 Series chassis. It does not have physical WAN or LAN interfaces. It uses virtual LANs (VLANs) to connect to platform LAN and WAN interfaces. Cisco VPNSM features are detailed in Table 1, and part numbers are listed in Table 2.

Table 1 Cisco IPSec VPN Services Module Features

Feature	Description
High-speed VPN Performance	High-speed VPN performance provides up to 1.9 Gbps 3DES IPSec throughput at large packets and 1.6 Gbps at 300 byte packets.
VPN is Integrated into the Infrastructure	This feature supports Cisco Catalyst 6500 Series and Cisco 7600 Series chassis as well as both LAN and WAN interfaces, enabling an integrated security approach to building a VPN in your infrastructure. No separate VPN devices are needed within your campus, intranet, Internet data center, or point of presence (POP).
Comprehensive VPN Features	This feature provides hardware acceleration for both IPSec and GRE, comprehensive site-to-site IPSec, remote-access IPSec, and public key infrastructure (PKI).
Can Accommodate Diverse Network Traffic Types and Topologies	Cisco IOS® Software supports secure, reliable transport of virtually any type of network traffic, including multiprotocol, multicast, and IP telephony across the IPSec VPN. Rich routing capabilities enable meshed and hierarchical network topologies.
Ensures VPN Resiliency and High Availability	Routing over IPSec tunnels, DPD, HSRP+RRI, intrachassis and interchassis stateful failover for both IPSec and GRE provide superior VPN resiliency and high availability.
VPN and Network Infrastructure Management	• Comprehensive systems for managing solutions from a single platform to hundreds or even thousands of platforms. Element management using the router Management Center and VPN monitor components of the CiscoWorks VPN/Security Management Solution. • Comprehensive end-to-end VPN management of numerous platforms throughout your network using the Cisco IP Solution Center for service provider and large enterprise VPN, security, and quality-of-service.

Table 2 Part Numbers and Ordering Information

Cisco Part Number	Description
WS-SVC-IPSEC-1	IPSec VPN Services Module for the Cisco Catalyst 6500 Series and Cisco 7600 Series
WS-C6503-IPSEC-K9	Cisco Catalyst 6503 VPN system: Cisco Catalyst 6503 chassis, Cisco Catalyst 6500 Series Supervisor Engine 2 (512 MB memory), Multilayer Switch Feature Card (MSFC) 2, integrated dual gigabit interface converter (GBIC), VPN services module, and single AC power supply with one open slot for expansion
WS-C6506-IPSEC-K9	Cisco Catalyst 6506 VPN system: Cisco Catalyst 6506 chassis, Cisco Catalyst 6500 Series Supervisor Engine 2 (512 MB memory), integrated dual GBIC, VPN services module, and single AC power supply with four open slots for expansion
WS-C6509-FW-VPN-K9	Cisco Catalyst 6509 Firewall and VPN security system: Cisco Catalyst 6509 chassis, Cisco Catalyst 6500 Series Supervisor Engine 720 (512 MB memory), integrated dual GBIC, firewall services module, VPN services module, and CiscoWorks VPN/Security Management Solution 2.2 Basic 5 user license.

TECHNICAL SUMMARY

VPN Tunneling

- IPSec (RFC 2401-2411, 2451)

Encryption

- Extended Services Processor (ESP), DES, and 3DES (RFC 2406, 2451)

Authentication

- X.509 digital certificates (RSA signatures)

- Preshared keys

- Simple Certificate Enrollment Protocol

- RADIUS (RFC 2138)

- TACACS+

- Challenge Handshake Authentication Protocol/Password Authentication Protocol (RFC 1994)

Integrity

- Hashed Message Authentication Code with MD5 (HMAC-MD5) and with Secure Hash Algorithm-1 (HMAC-SHA-1) (RFC 2403-2404)

Key Management

- Internet Key Exchange (RFC 2407-2409)

- IKE-XAUTH

- IKE-CFG-MODE

Certificate Authority/PKI Support

- Entrust

- VeriSign

- Microsoft

- Netscape

- IPlanet

- Baltimore Technologies

Resiliency and High Availability

- HSRP+RRI

- Intrachassis (blade to blade) Active/Active IPSec stateful failover

- Interchassis Active/Standby IPSec stateful failover

- DPD

- Dynamic Routing across IPSec (see Routing Protocols section)

Management Options

- CiscoWorks VMS and Router MC
- Cisco IP Solution Center (ISC)
- Secure command-line interface using Secure Shell (SSH) Protocol or Kerberized Telnet

Routing Protocols

- Border Gateway Protocol Version 4
- Routing Information Protocol (RIP) and RIP Version 2 (RIP2)
- Open Shortest Path First Protocol
- Enhanced Interior Gateway Routing Protocol (EIGRP) and IGRP
- Intermediate System-to-Intermediate System

Embedded Interfaces

- None

Supported Supervisor Engines

- Cisco Catalyst 6500 Series Supervisor Engine 2 with MSFC2
- Cisco Catalyst 6500 Series Supervisor Engine 720 with policy feature card (PFC)-3A or PFC-3BXL

Supported Modules and Interfaces

- LAN Interfaces
  - Multiport Fast Ethernet
  - Multiport Fast Ethernet with inline power
  - Multiport Gigabit Ethernet
- WAN Interfaces
  - FlexWAN and Enhanced FlexWAN
  - Optical Services Module (OSM) and Enhanced OSM
  - GE-WAN and Enhanced GE-WAN
  - Single and dual-port T3/E3
  - Single and dual-port High-Speed Serial Interface
  - Multiport T1/E1
  - Multichannel T1/T3/E3
  - OC-3 ATM single and multimode
  - OC-3 packet over SONET (POS) single and multimode
  - OC-12 ATM single and multimode
  - OC-12 POS single and multimode
  - OC-48 POS single mode
  - OC-48 POS-Dynamic Packet Transport single mode

- Additional Security and Network Services Modules in the Same Chassis
  - Cisco Catalyst 6500 Series Firewall Services Module
  - Cisco Catalyst 6500 Series Intrusion Detection Services Module 2
  - Cisco Catalyst 6500 Series Network Analysis Module (NAM-1 and NAM-2)
  - Cisco Catalyst 6500 Series SSL Services Module
  - Cisco Catalyst 6500 Series Content Switching Module
  - Cisco Catalyst 6500 Series Multiprocessor WAN Application Module

Cisco IOS Software Support (native Cisco IOS Software mode)

- Cisco IOS Software Release 12.2(17d)SXB (Cisco Catalyst 6500 Series Supervisor Engine 2 and Catalyst 6500 Series Supervisor Engine 720)
- Cisco IOS Software Release 12.2(17b)SXA (Cisco Catalyst 6500 Series Supervisor Engine 720 only)
- Cisco IOS Software Release 12.2(14)SY (Cisco Catalyst 6500 Series Supervisor Engine 2 only)

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