Cisco 4-Port Fast Ethernet Switch WAN Interface Card
for Cisco **1700** Series Modular Routers

The Cisco 4-port 10/100BASE-T Fast Ethernet Switch WAN Interface Card (WIC-4ESW) for Cisco 1700 Series modular access routers is an intelligent managed switch, offering small businesses and enterprise small branch office customers the option to integrate LAN switching and routing into one platform. The advanced capabilities of the WAN interface card (WIC), including VLAN support, Spanning Tree Protocol, and traffic prioritization, provide the flexibility for customers to deploy different network configurations.

Introduction

The Cisco 4-Port Fast Ethernet Switch WIC (Figure 1) extends the capabilities of Cisco 1700 Series modular access routers, providing four additional Fast Ethernet ports for expanded network deployments. When installed in the WIC or WIC/VIC slot of the router, this 4-port 10/100BASE-T switch WIC enables delivery of LAN services for connecting PCs, printers, server farms, wireless access points, or other LAN devices. The 10/100BASE-T Fast Ethernet port onboard the Cisco 1700 Series router can be connected to an external DSL or cable modem to provide high-speed broadband services.

Figure 1

Cisco 4-Port 10/100BASE-T Ethernet Switch WIC with VLAN Support

Managed Fast Ethernet Switch Features

The Cisco 4-Port Fast Ethernet Switch WIC is an intelligent Ethernet switch that provides several autodetect features, such as half- or full-duplex autosensing, 10/100BASE-T autosensing, and automatic crossover detection. These features reduce first-time configuration steps and allow for flexibility when your network architecture changes.

Because it is also a managed switch, the Cisco 4-Port Fast Ethernet Switch WIC offers more capabilities and business advantages than most integrated switching solutions available for routers and security appliances. Support for standards-based IEEE features such as 802.1Q VLAN, 802.1p traffic prioritization, and 802.1D Spanning Tree Protocol makes the WIC a powerful component for Cisco 1700 Series modular access routers.

802.1Q VLAN technology allows devices such as hosts, servers, and printers that are connected to separate physical LANs to be grouped logically as though they were part of the same LAN. This provides ease of management and offers flexibility in deploying an optimized network solution.

IEEE 802.1p support allows the Cisco 4-Port Fast Ethernet Switch WIC to prioritize traffic flowing through the network, giving the highest priority to packets containing time-sensitive data, such as interactive voice and video traffic. Lower priority is given to data such as e-mail and FTP. This capability helps to optimize bandwidth utilization and to ensure reliable performance of business-critical applications.

The 802.1D Spanning Tree Protocol prevents loops in a switched network by only allowing traffic through a single path to other parts of the network, where redundant paths are shut off until they are needed. This is essential in maintaining a reliable and highly available network.

Flexible Applications

When combined with the power of Cisco IOS® Software, the Cisco 4-Port Fast Ethernet Switch WIC makes Cisco 1700 Series modular access routers highly flexible, allowing businesses to deploy many types of network applications such as the creation of a demilitarized zone (DMZ). A DMZ allows external Internet users to access public servers, including Web and FTP servers, while maintaining security for the company's private LAN through the use of Cisco IOS Firewall.

Consider the case of a small- or medium-sized company planning to implement an intranet, including an 802.11b WLAN and a Web server to host an internal Web site for employees. The company would also like to host an external Web site and an FTP server, so its customers can obtain product information and download sample files. In this case, a single Cisco 1700 Series modular access router configured with a Cisco ADSL WIC and a Cisco 4-Port Fast Ethernet Switch WIC can be deployed to meet these requirements. The external Web server and FTP server can be connected to two of the 10/100BASE-T ports on the Cisco 4-Port Fast Ethernet Switch WIC. A Cisco Aironet® wireless access point and the internal Web server can be connected to the remaining two 10/100BASE-T ports, providing internal LAN services, intranet, and Internet access for employees (Figure 2).

Using 802.1Q VLAN technology and Cisco IOS Firewall, a DMZ can be created for the external Web and FTP servers, to separate and protect the internal network from the Internet. At the same time, 802.1p traffic prioritization will guarantee timely access to mission-critical business applications. These features greatly expand the power of Cisco 1700 Series modular access routers, allowing you to provide valuable services to your customers and employees with a single networking device.

Figure 2

Creating a DMZ Using VLAN with Cisco IOS Firewall
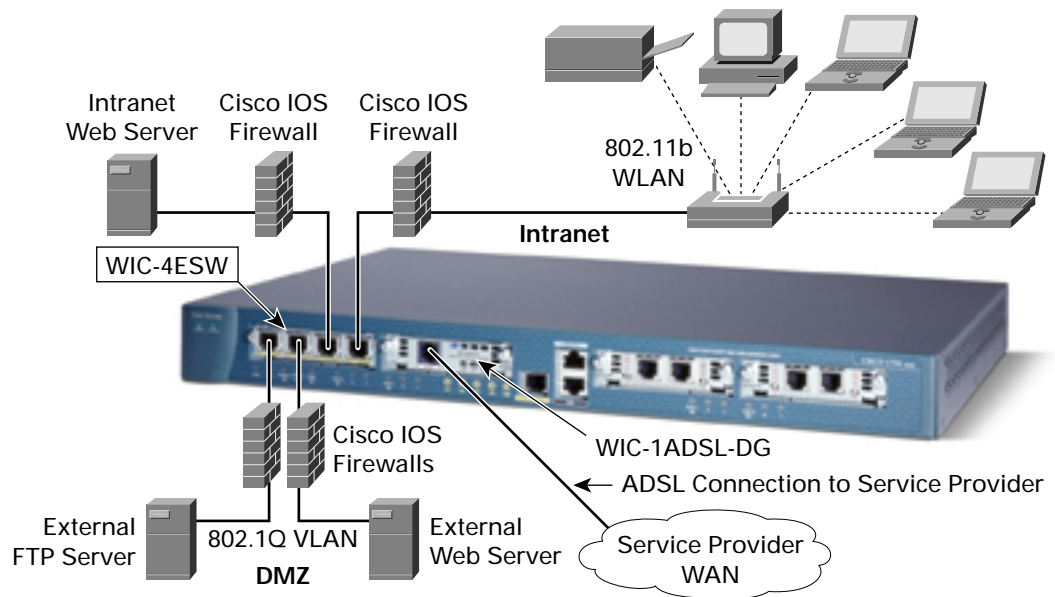
The addition of a Cisco 4-Port Fast Ethernet Switch WIC to a Cisco 1700 Series router offers a viable solution for implementing new broadband and LAN services in an integrated network access solution, while preserving your investment in existing equipment. The advanced features of the Cisco 4-Port Fast Ethernet Switch WIC provide the flexibility for customers to deploy various network configurations, offering small businesses and small branch office customers the option to integrate LAN switching and routing in one platform. Table 1 lists the features and benefits of the Cisco 4-Port Fast Ethernet Switch WIC.

Table 1 Features and Benefits

Features	Benefits
Four 10/100BASE-T Fast Ethernet switch ports	• Enables support and management of LAN and WAN configurations on a single device • Delivers up to 200 Mbps (full-duplex) throughput between switch ports
16 IEEE 802.1Q VLANs	• Provides flexibility to deploy DMZ configuration, wireless access segment, and separate voice and data segments for IP telephony deployment • Allows for increased LAN segmentation • Increases network performance by controlling broadcast traffic • Enables inter-VLAN routing
Spanning Tree Protocol and IEEE 802.1D	• Enhances network reliability • Provides path redundancy while preventing undesirable loops in the network
IEEE 802.1p traffic prioritization	• Allows traffic prioritization, giving the highest priority to packets containing time-sensitive data, such as interactive voice and video traffic
10/100 autosensing on each port	• Automatically detects Ethernet line speed
Half- and full-duplex support on each port	• Provides further control of performance and bandwidth utilization, allowing data to simultaneously flow to and from the router

Table 1 Features and Benefits (Continued)

Features	Benefits
Automatic crossover detection	• Automatically compensates for crossover or straight-through connections, allowing a single cable type to be used for both types of connections

Product Specifications

Table 2 Product Specifications

Part Number		
WIC-4ESW	• 4-Port 10/100 Fast Ethernet Switch WIC	
WIC-4ESW=	• 4-Port 10/100 Fast Ethernet Switch WIC (spare)	
Physical Interfaces/Ports		
Four 10/100BASE-T ports	• RJ-45 jacks • Half- and full-duplex support • 10/100 autosensing • IEEE 802.1Q VLAN routing • 4 VLANs per switched port • Spanning Tree Protocol 802.1D	
LED Indicators–Per Port		
LED	**Status**	**Description**
Left side	Solid green	Activity: Packets are moving in and out of the port
	Off	No activity
Right side	Solid green	Link is present
	Off	Link is not detected
Cisco IOS Software Support		
First Cisco IOS Software release	• Cisco IOS Software Release12.3(2)XC (this is an early deployment release that will merge into Cisco IOS Software Release 12.4T)	
Minimum feature sets	• Cisco IOS IP or IP Basic	
Dimensions and Weight		
Width	• 3.1 in. (7.9 cm)	
Height	• 0.8 in. (2.1 cm)	
Depth	• 4.8 in. (12.2 cm)	
Weight	• 0.12 lb (54.4 g)	
Environmental		
Operating temperature	• 32 to 104 F (0 to 40 C)	

Table 2 Product Specifications (Continued)

Nonoperating temperature	• –4 to 149 F (–20 to 65 C)
Relative humidity	• 10 to 85 percent noncondensing operating; 5 to 95 percent noncondensing, nonoperating
Connectors and Cables	
Ethernet cables and connectors must be purchased separately	
Management	
Full integration with Cisco router management tools	
Regulatory Compliance, Safety, EMC, Network Homologation	
When installed in a Cisco 1700 Series router, the Cisco 4-Port Fast Ethernet Switch WIC does not change the standards (regulatory compliance, safety, EMC, or network homologation) of the router itself. See data sheets for the Cisco 1700 Series routers for these standards at: http://www.cisco.com/go/1700	
Standards	
IEEE 802.p, IEEE 802.1Q, IEEE 802.1D	

Service and Support

Technical Support Services for the Cisco 4-Port Fast Ethernet Switch WIC are available through Cisco SMARTnet® and Cisco SMARTnet Onsite service programs. Cisco SMARTnet support augments the resources of your operations staff; it gives them access to a wealth of expertise (both online and via telephone), the ability to refresh their system software at will, and several hardware Advance Replacement options. Cisco SMARTnet Onsite provides all Cisco SMARTnet services and complements the hardware Advance Replacement feature by adding the services of a field engineer, offering support that can be critical for locations where staffing is insufficient or unavailable to perform parts-replacement activities. Table 3 lists features and benefits of Cisco SMARTnet support.

Table 3 Cisco SMARTnet Support Features

Cisco SMARTnet Support	
Features	**Benefits**
Access 24 x 7 to software updates	• Enables proactive or expedited issue resolution
Web access to technical repositories	• Lowers total cost of ownership by using Cisco expertise and knowledge
Telephone support through the Cisco Technical Assistance Center (TAC)	• Minimizes network downtime

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