

# Firewall Services Module for Cisco Catalyst® 6500 Series and Cisco 7600 Series

The Firewall Services Module (FWSM)—a high-speed, integrated firewall module for Cisco Catalyst® 6500 switches and Cisco 7600 Series routers—provides the fastest firewall data rates in the industry: 5 Gb throughput, 100,000 CPS, and 1M concurrent connections. Up to four FWSMs can be installed in a single chassis providing scalability to 20 GB per chassis. As part of the world-leading Cisco PIX® Firewall family, the FWSM provides large enterprises and service providers with unmatched security, reliability, and performance.

The FWSM leverages Cisco PIX technology and runs the Cisco PIX Operating System (OS), a real-time, hardened, embedded system that eliminates security holes and performance-degrading overhead. At the heart of the system, a protection scheme based on the Adaptive Security Algorithm (ASA) offers stateful connection-oriented firewalling. Using ASA, the FWSM creates a connection table entry for a session flow based on the source and destination addresses, randomized TCP sequence

numbers, port numbers, and additional TCP flags. The FWSM controls all inbound and outbound traffic by applying the security policy to these connection table entries.

### Major FWSM Benefits

The traditional role of firewalls has changed. Firewalls now do more than protect a corporate network from unauthorized external access. They can also prevent unauthorized users from accessing a particular subnet, workgroup or LAN within a corporate network. FBI statistics indicate that 70 percent of all security problems originate from inside an organization. According to one in five respondents to the FBI's survey, intruders broke into, or tried to break into their corporate networks during the preceding 12 months. And most experts agree that the majority of network break-ins go undetected.

### Integrated Module

Installed inside a Cisco Catalyst 6500 Series Switch or Cisco 7600 Internet Router, the FWSM allows any port on the device to operate as a firewall port and integrates stateful firewall security inside the network infrastructure. This becomes especially important where rack space is at a premium. The Cisco Catalyst 6500 truly emerges as the IP services switch of choice for customers requiring intelligent services

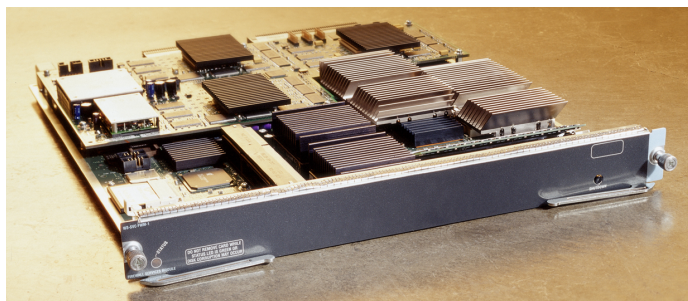


Figure 1



such as firewall services, intrusion detection, and virtual private networking (VPN), along with multilayer LAN, WAN, and MAN switching capabilities.

### Future Proof

The FWSM can handle up to 5 Gb of traffic, providing unsurpassed performance to meet future requirements without requiring a system overhaul. Up to three additional FWSMs can be added to the Catalyst 6500 to meet growing demands.

### 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. The FWSM offers a unique combination of performance and security on the same platform, using proven Cisco PIX technology for inspecting packets.

### Lower Cost of Ownership

The FWSM offers the best price/performance of any firewall. Cost of maintenance is included in the SmartNet™ contract of the Cisco Catalyst chassis. Because the 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 Cisco PIX Device Manager's intuitive graphical user interface (GUI) can be used to manage and configure the FWSM. The FWSM is supported by the Cisco management framework and by Cisco AVVID (Architecture for Voice, Video and Integrated Data) partners for configuration and monitoring.

### FWSM Features

Key Features	Benefits
<b>Performance</b>	<ul style="list-style-type: none"><li>• 5 Gbps</li><li>• 1 million concurrent connections</li><li>• More than 100,000 connection setup and teardowns/sec</li></ul>
<b>Multiple Interfaces</b>	<ul style="list-style-type: none"><li>• Supports up to 100 firewall VLANs—any of the Cisco Catalyst 4000 VLANs can be a firewall VLAN</li><li>• Understands 802.1q and Inter-Switch Link (ISL) protocols</li></ul>
<b>Cut-through Proxies</b>	Enforces security policies on a per VLAN basis



Key Features	Benefits
<b>Configuration Support</b>	<ul style="list-style-type: none"> <li>• Console to command-line interface (CLI)</li> <li>• Telnet to the inside interface of the Cisco PIX Firewall</li> <li>• Telnet over IP Security (IPSec) to the outside interface of the Cisco PIX Firewall</li> <li>• Secure Shell Protocol (SSH) to CLI</li> <li>• Secure Sockets Layer (SSL) to Cisco PIX Device Manager</li> </ul>
<b>AAA Support</b>	Integrates with popular authentication, authorization, and accounting services via TACACS+ and RADIUS support
<b>NAT/PAT Support</b>	Provides dynamic/static Network Address Translation (NAT) and Port Address Translation (PAT)
<b>Cisco PIX Device Manager (PDM)</b>	<ul style="list-style-type: none"> <li>• Simple, intuitive, Web-based GUI supports remote firewall management</li> <li>• Wide range of real-time and historical reports providing usage trend, performance baseline, and security event information</li> </ul>
<b>Secure Network Management</b>	Secure, Triple Data Encryption Standard (3DES)-encrypted network management access
<b>Access Lists</b>	<ul style="list-style-type: none"> <li>• Up to 128,000 access lists</li> </ul>
<b>URL Filtering</b>	Uses Websense software to check outgoing URL requests with the policies defined on the server
<b>Command Authorization</b>	Allows privilege levels to be assigned to all CLI, and creation of user accounts or login contexts tied to these privilege levels
<b>Object Grouping</b>	Ability to group network objects (e.g., hosts) and services (e.g., ftp and http)
<b>Protection from DoS</b>	<ul style="list-style-type: none"> <li>• DNS Guard</li> <li>• Flood Defender</li> <li>• Flood Guard</li> <li>• TCP Intercept</li> <li>• Unicast Reverse Path Forwarding</li> <li>• Mail Guard</li> <li>• FragGuard and Virtual Reassembly</li> </ul>
<b>Routing</b>	<ul style="list-style-type: none"> <li>• Static routes</li> <li>• Dynamic; i.e., Routing Interface Protocol (RIP) and Open Shortest Path First (OSPF)</li> </ul>
<b>High Availability</b>	Stateful failover—intra and interchassis
<b>Logging</b>	Comprehensive syslogging, FTP, URL, and ACL logging
<b>Additional Protocols</b>	<ul style="list-style-type: none"> <li>• H.323 V2</li> <li>• NetBios over IP</li> <li>• RAS Version 2</li> <li>• RTSP</li> <li>• SIP</li> <li>• XDMCP</li> <li>• Skinny</li> </ul>

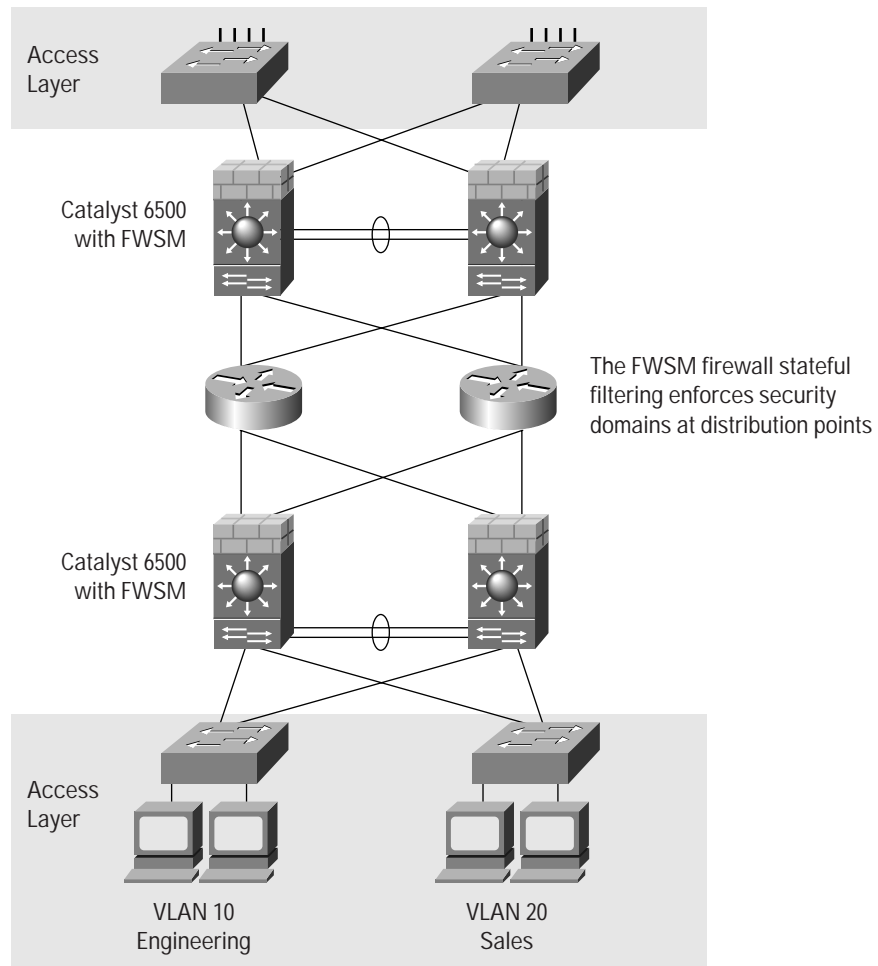


## FWSM Deployment

The FWSM can be deployed in topologies serving enterprise campuses and data centers.

Today's Enterprises need more than just perimeter security—they need to connect business partners and provide campus security domains that serve multiple groups within the organizations. The FWSM provides a flexible, cost-effective and performance-based solution by allowing users and administrators to establish security domains with different policies within the organization. Figure 2 shows a campus deployment using stateful filtering to establish separate VLAN-based security domains:

Figure 2  
Campus Deployment

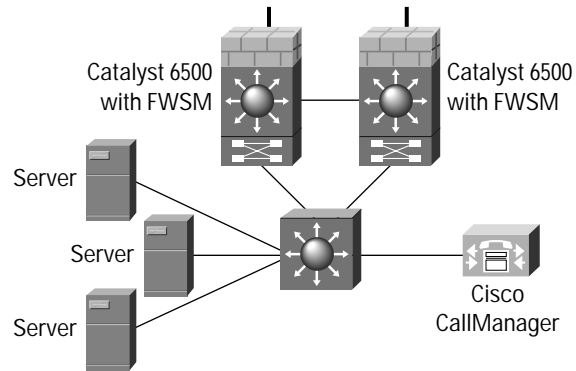


Using the FWSM, users can set appropriate policies for different VLANs.

Data Centers also require stateful firewall security solutions to protect data while delivering gigabit performance at the lowest possible cost. Figure 2 shows a data center with redundant FWSMs protecting server data.



Figure 3  
eCommerce Data Center Deployment



The FWSM maximizes capital investment by providing the best price/performance in a firewall and allows customers to replace expensive multiple firewalls that require additional firewall load balancer devices.

#### Ordering Information

Product Number	Description
<b>WS-SVC-FWM-1-K9</b>	Firewall Service Module for Cisco Catalyst 6500
<b>WS-SVC-FWM-1-K9=</b>	Firewall Service Module for Cisco Catalyst 6500 (spare)
<b>SC-SVC-FWM-1.1-K9</b>	Firewall Module Software for Catalyst 6500
<b>SC-SVC-FWM-1.1-K9=</b>	Firewall Module Software for Catalyst 6500 (spare)

#### Licensing

No licensing is required for the FWSM.

#### System Requirements

- Supervisor 2/Multilayer Switch Feature Card 2 (MSFC2)
- Native Cisco IOS<sup>®</sup> software release 12.1(13)E or higher
- Hybrid CatOS minimum software release 7.5(1)
- Occupies one slot in a Cisco Catalyst 6500 Series Switch or Cisco 7600 Series Internet Router
- Up to four firewall modules in the same chassis

## Regulatory Compliance

### Safety

UL 1950  
CSA C22.2 No. 950-95  
EN60950  
EN60825-1  
TS001  
CE Marking  
IEC 60950  
AS/NZS3260

### EMI

FCC Part 15 Class A  
ICES-003 Class A  
VCCI Class B  
EN55022 Class B  
CISPR22 Class B  
CE Marking  
AS/NZS3548 Class B

### NEBS

SR-3580 - NEBS: Criteria Levels (Level 3 compliant)  
GR-63-CORE - NEBS: Physical Protection  
GR-1089-CORE - NEBS: EMC and Safety

### ETSI

ETS-300386-2 Switching Equipment

## Telecommunications

ITU-T G.610  
ITU-T G.703  
ITU-T G.707  
ITU-T G.783 Sections 9-10  
ITU-T G.784  
ITU-T G.803  
ITU-T G.813  
ITU-T G.825  
ITU-T G.826  
ITU-T G.841  
ITU-T G.957 Table 3  
ITU-T G.958  
ITU-T I.361  
ITU-T I.363  
ITU I.432  
ITU-T Q.2110  
ITU-T Q.2130  
ITU-T Q.2140  
ITU-T Q.2931  
ITU-T O.151  
ITU-T O.171  
ETSI ETS 300 417-1-1  
TAS SC BISDN (1998)  
ACA TS 026 (1997)  
BAPT /TC/139 (Draft 1e)



Corporate Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-4000  
800 553-NETS (6387)  
Fax: 408 526-4100

European Headquarters  
Cisco Systems International BV  
Haarlerbergpark  
Haarlerbergweg 13-19  
1101 CH Amsterdam  
The Netherlands  
www-europe.cisco.com  
Tel: 31 0 20 357 1000  
Fax: 31 0 20 357 1100

Americas Headquarters  
Cisco Systems, Inc.  
170 West Tasman Drive  
San Jose, CA 95134-1706  
USA  
www.cisco.com  
Tel: 408 526-7660  
Fax: 408 527-0883

Asia Pacific Headquarters  
Cisco Systems, Inc.  
Capital Tower  
168 Robinson Road  
#22-01 to #29-01  
Singapore 068912  
www.cisco.com  
Tel: +65 317 7777  
Fax: +65 317 7799

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(0207R) LW3514 0802