

# Cisco Firewall Family:

## Cisco PIX Firewall and the Cisco IOS Firewall Feature Set

### Cisco PIX Firewall, Cisco IOS Firewall Feature Set

Security is no longer simply an enabling technology—it's a fundamental component of network design. As more and more organizations come to understand that the network can secure their key transactions and communications, this new powerful, and convenient medium is becoming the business standard.

To ensure the integrity of your network, you need to build security into the infrastructure itself. More than 80 percent of the world's networks are built on equipment from Cisco Systems, putting Cisco in an ideal position to provide security that is woven into the fabric of the network.

The Cisco firewall family, including the Cisco PIX<sup>®</sup> Firewall Series and the Cisco IOS<sup>®</sup> Firewall Feature Set, not only enables a single point of protection at the perimeter of your network, but also makes security policy enforcement an inherent component of the network itself. The flexibility of both dedicated and integrated policy enforcement provides security solutions for widely dispersed intranet-, extranet-, and Internet-based communications.

### Cisco Firewall Family

#### Firewalls to Meet Every Need: The Cisco PIX Firewall and Cisco IOS Firewall

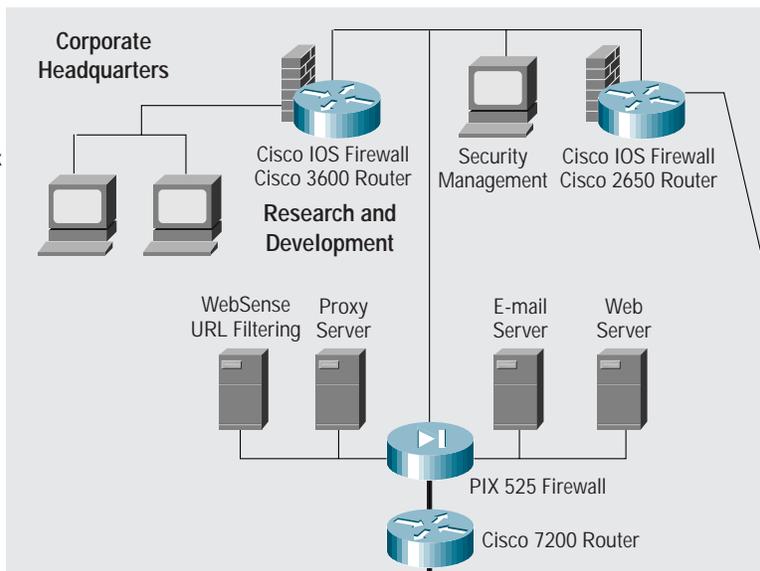
The Cisco PIX Firewall is the world's leading dedicated firewall appliance. It has received the highest level of security certification granted to any firewall product. The Cisco PIX Firewall is a turnkey appliance with unmatched performance and unparalleled features. Integration of third-party content solutions, such as NetPartner's WebSENSE URL management software, further enhances the industry-leading capabilities of the Cisco PIX Firewall. For IP-based network security, the Cisco PIX Firewall is the clear choice for those requiring dedicated firewall appliances. When combined with IP Security (IPsec), Cisco PIX Firewall provides an integrated virtual private network (VPN) solution.

The Cisco IOS Firewall integrates robust firewall and intrusion detection technology into the Cisco IOS Software. The Cisco IOS Firewall enhances existing Cisco IOS Software by including stateful, application-based filtering, dynamic per-user authentication and authorization, and real-time alerts. When combined with Cisco IOS IPsec software, the Cisco IOS Firewall provides an integrated VPN solution. Available with a wide range of Cisco routers, the Cisco IOS Firewall is the best choice for integrating multiprotocol routing with security policy enforcement.

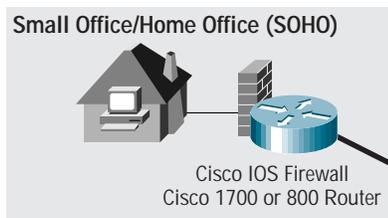


Figure 1 How Cisco PIX and Cisco IOS Firewalls Secure Your Enterprise Network

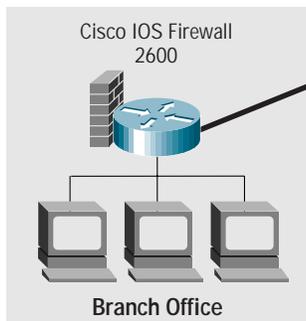
The PIX Firewall offers performance to secure multiple T3 lines from the Internet. The Research and Development network on the corporate intranet is secured by a one-box solution: Cisco IOS Firewall on the Cisco 3600 Router



Extranet provides linkage with untrusted partners using either IPSec encryption or Layer 2 Tunneling Protocol (L2TP) (Microsoft and Cisco standard), Cisco IOS Firewall secure encrypted communications



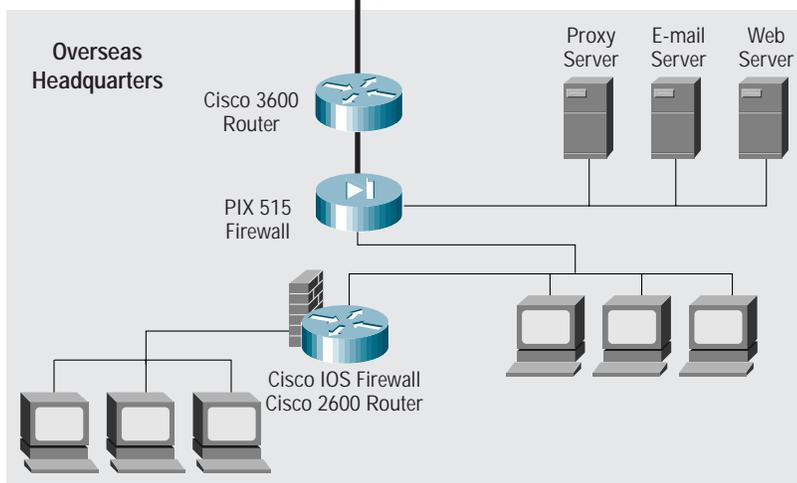
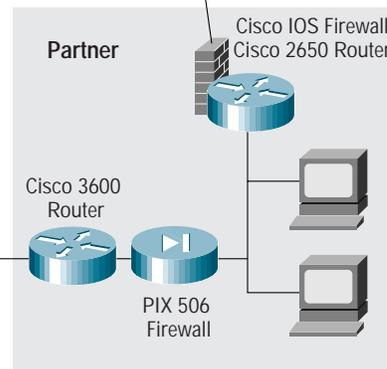
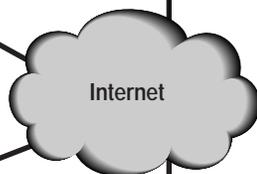
Small or home offices use a Cisco IOS Firewall on a Cisco 1700 or 800 Router for an integrated firewall and router in one box



Cisco IOS Firewall secures branch offices with stateful, application-based filtering. Communications with corporate access over IPSec VPN

IPSec Connections Shown:

- PIX Firewall to PIX Firewall
- PIX Firewall to Cisco IOS Firewall
- Cisco IOS Firewall to Cisco IOS Firewall





## Leading-Edge Capabilities of Cisco PIX Firewalls and Cisco IOS Firewalls

Both the Cisco PIX Firewall Series and the Cisco IOS Firewall incorporate leading-edge firewall technology. Table 1 outlines advanced features common to both firewalls.

Table 1 Features and Benefits Common to Cisco PIX Firewall and Cisco IOS Firewall

Feature	Benefit
Stateful packet filtering	Offers strong security by thoroughly inspecting data packets and maintaining critical addresses and port numbers in a lookup table
IPsec virtual private network standards based	Reduces telecommunication costs by enabling secure access of corporate networks over the Internet. Encrypts data for private communications with DES or 3DES
Dynamic, per-user authentication and authorization for LAN-Based and dial-in communications	Authenticates users against industry standards such as TACACS+ or RADIUS
Network address translation	Hides internal network from the outside for enhanced security
Content filtering	Blocks malicious Java applets
Management	GUI-based management allows firewalls to be managed and security policies to be implemented from central location; reporting tools provide statistics on traffic by protocol, Web site, and unauthorized attempts to access hosts
Redundancy/failover	If failure occurs, traffic is automatically routed to a backup unit
Protection for public application servers	Additional interfaces on either the Cisco PIX Firewall or Cisco IOS Firewall provide isolated networks for publicly accessible servers such as Web, e-mail, FTP, or DNS
Extensive multimedia support, including Microsoft NetShow, White Pine CU-SeeMe, RealNetworks RealAudio and RealVideo, Xing StreamWorks, VDOnet VDO Live, Vxtreme WebTheater, VocalTec Internet Phone, Microsoft NetMeeting, Intel Internet Video Phone, White Pine Meeting Point	Newest media-rich applications available to users without time-consuming reconfiguration of each user's workstation
Attack detection and prevention	Denial-of-service detection and prevention defends the network against syn flooding, port scans, and packet injection
Intrusion Detection System (IDS)	The IDS system identifies common attack signatures to detect patterns of misuse in network traffic.

Although both firewalls provide excellent security solutions, each excels in different environments and at sites with distinct requirements. Table 2 describes when to choose the Cisco PIX Firewall and Table 3 describes when to choose the Cisco IOS Firewall. In many instances, the best security solution is a combination of both.



Table 2 When to Choose the Cisco PIX Firewall

Customer Requirement	Cisco PIX Benefit
Device dedicated to security	The Cisco PIX Firewall offers a dedicated appliance with its own hardware and operating system optimized for firewall protection.
Highly deployable	The Cisco PIX Firewall Series is ideal for mass deployments with a wide array of choices from the 506, 515, 525, and 535 firewalls.
High internet activity	The Cisco PIX Firewall provides industry-leading performance of more than a quarter million simultaneous connections, and nearly 1.0-Gbps throughput, making it ideal for multimedia protocols, encryption, and large numbers of users.
Authentication and authorization	The Cisco PIX Firewall integrates with RADIUS and TACACS+ authentication schemes using very fast cut-through proxy; it includes application-level benefits of a proxy at wire speeds.
URL filtering	The Cisco PIX Firewall in combination with NetPartner's WebSENSE software can manage access to Internet sites using WebSENSE extensive URL filtering databases

Table 3 When to Choose the Cisco IOS Firewall

Customer Requirement	Cisco IOS Firewall Benefit
One-box solution combining powerful security and multiprotocol routing	The Cisco IOS Firewall provides a comprehensive, integrated security solution, including stateful packet filtering, intrusion detection, per-user authentication and authorization, VPN functionality, and multiprotocol routing in one box.
Protect intranet, extranet, and branch offices	The Cisco IOS Firewall is more economical for sites that do not require the high performance of the Cisco PIX Firewall. The Cisco IOS Firewall is an effective and economical solution to secure extranet and intranet perimeters and Internet connectivity for a branch or remote office.
Scalability to operate in different Cisco IOS environments with various performance requirements	The Cisco IOS Firewall scales to the performance level you require, from a low-end routing platform to a high-end model. The Cisco IOS Firewall scales to Cisco 800, 1700, 2600, 3600, and 7000 series routers.
Easy training and maintenance	Companies using Cisco IOS Software will find the Cisco IOS Firewall familiar to set up and manage.
Advanced QoS	Cisco IOS Firewall is integrated into the network through Cisco IOS Software, allowing customers to use advanced Cisco IOS QoS features in the same router running the Cisco IOS Firewall.

## Cisco Firewall Management Solutions

### Cisco PIX Device Manager (Included)

With the release of 6.0 all Cisco PIX firewalls come with the Cisco PIX Device Manager (PDM), a browser-based configuration tool that enables you to graphically set up, configure, and monitor your Cisco PIX Firewall without requiring an extensive knowledge of the Cisco PIX Firewall command-line interface (CLI). In addition, a wide range of informative, real-time, and historical reports provide critical insight into usage trends, performance baselines, and security events.

## ConfigMaker for Cisco IOS Firewall (Included)

ConfigMaker is an easy-to-use standalone Windows graphical user interface (GUI) that allows users to perform firewall configuration rules directly connected to the console port or through Telnet. ConfigMaker is available free from the Cisco Software Center.

## CiscoSecure Policy Manager (Optional)

CiscoSecure Policy Manager (CSPM) is a Windows NT based software tool. CSPM version 2.3 is the latest version of the Cisco security policy management. It enables customers to define, distribute, enforce, and audit network-wide security policies from a central location. CSPM streamlines the tasks of managing complicated network security elements for Cisco Routers running IOS Firewall and Cisco PIX firewall. In addition CSPM can manage Cisco IDS and Cisco IOS IPsec VPN deployments, allowing administrators to visually define security policies from one central tool.

## Cisco VPN/Security Management Solution (VMS) (Optional)

The CiscoWorks VPN/Security Management Solution (VMS) is a comprehensive browser-based application suite that addresses the unique management challenges of properly securing and administrating VPN and firewall connections. VMS includes a full set of monitoring and reporting applications plus a 10-device "lite" version of CSPM (see CSPM above). Today VMS supports all Cisco PIX and 7100/7200 routers for firewall management. Beginning with Cisco IOS Software Release 12.2(4)T, it will support the Cisco 1700, 2600, and 3600 routers.

## Third Party Partners (Optional)

### Solsoft NP

Solsoft NP is a UNIX-based management tool that supports the Cisco IOS Firewall and Cisco PIX Firewall. It is a multi-vendor, multi-device, scalable management solution that allows users to visually define, deploy, enforce, and audit security policies from a central location. For more information, visit [www.solsoft.com](http://www.solsoft.com)

## Summary

The rapid evolution of networks as a business essential dictates not only a need to build a barrier around the network, but also a new approach to network security. In this environment, the best place to secure the network is in the network itself. Instead of a single-product firewall solution external to the network, the Cisco Firewall products provide standard firewall capabilities while making security policy enforcement an inherent component of the network.



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