

Cisco 7200 Series Security Router **Bundles** with VAM2 for Headend, High-Bandwidth, Scalable VPNs

As VPNs become mainstream for WAN connectivity, the demands on network security devices for high performance, feature richness, and investment protection have increased dramatically. The Cisco® 7200 Series Security Router bundles provide best-in-class VPN and security services by combining the strength of Cisco 7200 Series features and the Cisco VPN Acceleration Module 2 (VAM2) with Cisco IOS® Software network services. To better address requirements specific to the evolving VPN market, the Cisco 7200 Series provides an extensible platform, with modular processor and I/O subsystems, that allows for simple upgrades in VPN performance and system scalability as demands change. Additional expansion capabilities, such as increased density of LAN/WAN interfaces and integration with Multiprotocol Label Switching (MPLS) for service provider deployments, make the Cisco 7200 Series Security Router bundles an excellent choice for high-throughput VPN systems.

VPNs are an alternative WAN infrastructure. They replace or augment existing private networks using leased lines, Frame Relay, or ATM to connect remote and branch offices and central sites more cost-effectively and with increased flexibility. Interconnecting multiple sites meets specific requirements such as accommodating diverse traffic types, ensuring ubiquitous access and reliability of all devices in the network, providing a framework for managing numerous geographically dispersed devices, and ensuring scalability at the VPN aggregation hub site. Many VPN devices on the market today focus on remote-access VPN applications and do not accommodate these specific site-to-site VPN requirements.

Using Cisco IOS Software, the Cisco 7200 Series Security Router (Figure 1) provides critical VPN software services, such as support for routing, quality of service (QoS), and multicast and multiprotocol traffic across the VPN, as well as integration of firewall, intrusion detection, and service-level validation. Using the Cisco VAM2 (Figure 2), the Cisco 7200 Series Security Router delivers IP security (IPsec) encryption scalability for the most demanding headend remote-access and site-to-site VPN deployments. This combination of features delivers a best-in-class solution that accommodates the most diverse VPN environments.

Figure 1
Cisco 7200 Series
Security Router



Figure 2
Cisco VAM





Benefits

Support for DES, 3DES, and AES

The Cisco VAM2 supports Data Encryption Standard (DES) and Triple DES (3DES) and adds hardware acceleration for Advanced Encryption Standard (AES). AES is a cryptographic algorithm often used by U.S. government organizations to replace DES and 3DES.

Performance

The Cisco 7200 Series, combined with the Cisco VAM2, supports up to 260 Mbps of IPsec encryption throughput—an increase of 79 percent over the existing Cisco VAM. The Cisco 7200 Series, equipped with a Cisco VAM2 and 512 MB of system memory, also supports up to 5000 IPsec remote-access or site-to-site tunnels.

Bandwidth Conservation

The Cisco VAM2 integrates hardware-assisted IP Payload Compression Protocol (IPPCP) Layer 3 compression into the Cisco 7200 Series. In environments where bandwidth is costly, this integration provides hardware-based IPPCP Lempel-Ziv-Stac (LZS) processing to compress network traffic before it is encrypted and sent over pay-per-byte WAN connections.

Deployment Flexibility

The Cisco 7200 Series Security Router bundles can serve as a dedicated VPN gateway or an integrated, single-device VPN router solution. For network environments that require a single-device solution, the Cisco 7200 Series offers integrated, content-aware QoS to help ensure the reliability of latency-sensitive applications and intrusion detection for perimeter security, service-level validation to monitor network performance, and numerous LAN and WAN interfaces for diverse connectivity requirements. The rich routing features inherent to the Cisco 7200 Series simplify VPN deployment by eliminating burdensome static routes associated with VPN appliances. These features make the Cisco 7200 Series Security Router bundle one of the most cost-effective headend VPN solutions on the market.

Large-Scale Manageability

Managing multiple VPN devices over multiple sites requires not only robust VPN configuration management and monitoring capabilities, but also device inventory and software version management features. Cisco delivers comprehensive VPN configuration, monitoring, and policy management through CiscoWorks VPN/Security Management Solution (VMS). For per-device site-to-site VPN configuration and monitoring, the Cisco VPN Device Manager provides a step-by-step wizard-based user interface, enabling expeditious deployment of VPNs.

Cisco 7200 Series Platform Overview

The Cisco 7200 Series offers specific hardware configurations optimized for VPN applications and network topologies, while simultaneously setting the benchmark for hardware configuration flexibility, upgradability, and investment protection. Following is a list of some of these features.

- System processor modularity using the Cisco 7200 Series of network processing engines (NPEs) provides deployment-specific processing scalability. Furthermore, processors may be upgraded as network throughput requirements change, thus providing excellent platform investment protection.



- The Cisco 7200 Series Security Router bundles offer flexible I/O configurations for VPN termination at the WAN edge with integrated WAN interfaces ranging from T1/E1 to DS3/E3 and OC-3, or VPN deployment behind the WAN edge using the embedded dual Fast Ethernet interfaces. These features, combined with Cisco VAM2 support for the broad set of LAN/WAN media and full Layer 3 routing services available in the Cisco 7200 Series, help ensure the smooth integration of encryption technology into virtually any enterprise or service-provider network environment.
- Port adapter expansion slots of the Cisco 7200 Series provide high interface density and flexibility to accommodate complex network requirements.
- The 128-MB base system memory in Cisco 7200 Series Security Router bundles ensures reliable, high-speed VPN services delivery. Memory is expandable to 1 GB, depending on the NPE installed.
- The 64-MB packet memory provides large buffers for bandwidth management, queuing services, and long-delay public networks.
- The Cisco 7200 Series Security Router bundles provide a 48-MB Flash disk for storing Cisco IOS Software images—expandable to dual 128-MB Flash disks.
- Cisco IOS IPsec Software with full Layer 3 routing, VPN tunneling, and advanced bandwidth management features is included with all Cisco 7200 Series Security Router bundles.

For a list of features supported by these new VPN bundles, see Table 1.

Table 1 Features at a Glance

Feature	Description/Benefit
High VPN performance and scalability	<ul style="list-style-type: none"> • Provides up to 260 Mbps of 3DES IPsec throughput¹ • Provides up to 5000 tunnels (with 512 MB of system memory)
Hardware-based compression	<ul style="list-style-type: none"> • Provides Layer 3 IPPCP LZS support for bandwidth conservation over pay-per-byte WAN connections
Comprehensive VPN features	<ul style="list-style-type: none"> • Offers diverse public key infrastructure (PKI) support and certificate auto-enrollment, helping to ensure proper identity and authenticity of devices and data • Provides comprehensive tunneling support, allowing any standards-based IPsec or Layer 2 Tunneling Protocol (L2TP) client to interoperate with Cisco IOS Software tunneling technologies
Deployment flexibility	<ul style="list-style-type: none"> • Can be deployed as a dedicated VPN gateway behind the WAN edge, or on the WAN edge as a single-device solution
Accommodate diverse network traffic types	<ul style="list-style-type: none"> • Cisco IOS Software supports secure, reliable transport of virtually any type of network traffic, including multiprotocol and multicast, across the IPsec VPN
Ensure high VPN uptime	<ul style="list-style-type: none"> • Provides routing over IPsec, Dead Peer Detection, Hot Standby Router Protocol (HSRP), hardware component redundancy, and environmental monitoring
VPN and network-infrastructure management	<ul style="list-style-type: none"> • CiscoWorks VMS for multidevice VPN management • Cisco VPN Device Monitor for single device management
Modular, upgradable system processor	<ul style="list-style-type: none"> • Cisco 7200 Series NPEs provide modular Reduced Instruction Set Computing (RISC) processing scalability



Table 1 Features at a Glance

Feature	Description/Benefit
LAN/WAN interface flexibility	<ul style="list-style-type: none">• Provides support for more than 60 port adapters, including serial, packet over SONET (POS); ATM; Ethernet, Fast Ethernet, Gigabit Ethernet; and voice• The Cisco 7206VXR chassis delivers high interface density
Platform investment protection	<ul style="list-style-type: none">• The unparalleled modularity of processors, interfaces, and memory helps ensure that a Cisco 7200 Series Security Router bundle purchased today will accommodate the growing needs of enterprise organizations and service providers
Standards-based VPN support	<ul style="list-style-type: none">• IPsec/Internet Key Exchange (IKE): RFCs 2401-2411 and 2451• IPPCP: RFCs 2393 and 2395

Table 2 Cisco 7200 Security Router Bundles Ordering Information

Part Number	Description
7206VXR225/2VPNK9	Cisco 7206VXR VPN bundle, 6-slot chassis, NPE-225 processor, I/O with two 10/100 Fast Ethernet ports, Cisco VAM2, 128 MB system memory, 48 MB Flash memory, single AC power supply, Cisco IOS Software Release 12.3(M) or later with IPsec 3DES
7206VXR400/2VPNK9	Cisco 7206VXR VPN bundle, 6-slot chassis, NPE-400 processor, I/O with two 10/100 Fast Ethernet ports, Cisco VAM2, 256 MB system memory, 64 MB Flash memory, single AC power supply, Cisco IOS Software Release 12.3(M) or later with IPsec 3DES
7206VXRG1/2VPNK9	Cisco 7206VXR VPN bundle, 6-slot chassis, NPE-G1 processor with three 10/100/1000 Ethernet ports, Cisco VAM2, 256 MB system memory, 64 MB Flash memory, single AC power supply, Cisco IOS Software Release 12.3(M) or later with IPsec 3DES



Technical Specifications for Cisco 7200 Series Security Router Bundles

VPN Tunneling

- IPsec (RFCs 2401-2411, 2451)
- Generic routing encapsulation (GRE) (RFCs 1701-1702)
- L2TP (RFC 2661)

Encryption

- Encapsulating Security Payload (ESP) DES and 3DES (RFCs 2406 and 2451)
- AES

Authentication

- X.509 digital certificates (RSA signatures)
- Shared secrets
- Simple Certificate Enrollment Protocol
- RADIUS (RFC 2138)
- TACACS+
- Challenge Handshake Authentication Protocol/Password Authentication Protocol (CHAP/PAP) (RFC 1994)
- Integrity
- HMAC-MD5 and HMAC-SHA-1 (RFCs 2403-2404)

Key Management

- IKE (RFCs 2407-2409)
- IKE-XAUTH
- IKE-CFG-MODE

IP Compression

- IPPCP-LZS (RFCs 2401-2402)

Certificate Authority Support

- Entrust
- VeriSign
- Microsoft
- Iplanet
- Baltimore Technologies

Bandwidth Management and QoS

- Network-Based Application Recognition (NBAR) content-aware classification
- Class-/Flow-Based Weighted Fair Queuing (WFQ)
- Generic traffic shaping (GTS)
- Rate limiting (committed access rate [CAR])
- Congestion avoidance (Weighted Random Early Detection [WRED])



Resiliency

- HSRP
- IKE keepalives
- Routing across IPsec
- Subsecond stateful IPsec failover
- Dead Peer Detection

Management Options

- CiscoWorks VMS suite Version 2.1
 - Management Center for VPN Routers
 - CiscoWorks QoS Policy Manager
- Secure command-line interface using Secure Shell Protocol (SSH) or Kerberized Telnet

Routing Protocols

- Border Gateway Protocol 4 (BGP4)
- Routing Information Protocol (RIP)/RIP2
- Open Shortest Path First (OSPF)
- Enhanced Interior Gateway Routing Protocol (EIGRP)/IGRP
- Next Hop Resolution Protocol (NHRP)
- Intermediate System-to-Intermediate System (IS-IS)

Security

- Context-Based Access Control (CBAC) stateful firewall
- Java blocking
- Active audit intrusion detection
- Denial-of-service detection and prevention

Port Adapter Options

- Ethernet/Fast Ethernet: *PA-FE-TX, PA-2FE-TX*
- Gigabit Ethernet: **PA-GE**
- T1/E1 serial: *PA-MCX-8TE1, PA-8T-V35, PA-4T+*
- T3/E3 serial: *PA-T3+, PA-E3*
- OC-3 POS: *PA-POS-OC3 (Multimode, single-mode intermediate, single-mode long)*

Regulatory Compliance

Safety:

- UL 1950
- CSA 22.2-No. 950
- EN60950
- EN41003
- AUSTEL TS001
- AS/NZS 3260

**EMI:**

- AS/NRZ 3548 Class A
- CSA Class A
- FCC Class A
- EN60555-2
- EN55022 Class B
- VCCI (Class II)

Immunity:

- IEC-1000-4-2 (ESD)
- IEC-1000-4-3 (radiated susceptibility)
- IEC-1000-4-4 (electrical fast transients)
- IEC-1000-4-5 (surge)
- IEC-1000-4-6 (injected RF swept)
- IEC-1000-4-11 (power line voltage)
- IEC-1000-3-2 (harmonics)

Environmental Requirements

- Operating temperature: 32 to 104°F (0 to 40°C)
- Nonoperating temperature: -4 to 149°F (-20 to 65°C)
- Humidity: 10 to 90 percent noncondensing

Power Requirements

- Input, VA output, watts: 370W maximum; 280W maximum
- AC input voltage: 100 to 240 VAC
- Frequency: 50 to 60 Hz
- AC input current: 5A maximum at 110 VAC; 2.5A maximum at 240 VAC
- DC input current: 13A maximum at -48 VDC
- Heat dissipation: 370W (1262 Btus/hr)
- DC input voltage: -38 VDC minimum; -48 VDC nominal; -72 VDC maximum

Size/Weight

- Width: 16.8 in. (42.67 cm)
- Height: 12.25 in. (31.13 cm)
- Depth: 17 in. (43.18 cm)
- Weight (maximum): 50 lb (22.7 kg)
- Weight (installation/minimum): 36.60 lb (16.64 kg)



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