

Cisco 7100 Series VPN Router

An integrated enterprise VPN router for deploying self-healing, self-defending VPNs



Introduction

The proliferation of the networked economy has spawned fundamental changes in how business is conducted. Running business at Internet speeds has resulted in global expansion, acquisitions, and alliances for many enterprises. This has placed new demands on the traditional wide-area network (WAN). Networks once focused solely on connecting a few remote sites must now expand to accommodate international offices and external business partners. Furthermore, critical business applications have driven the need for ubiquitous connectivity and increased bandwidth to remote locations. Consequently, many enterprises are augmenting or replacing their traditional WANs with site-to-site virtual private networks (VPNs) to better accommodate these new connectivity requirements.

Site-to-site VPNs are an alternative WAN infrastructure that replaces or augments existing private networks utilizing 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 drives specific requirements such as accommodating diverse traffic types, ensuring reachability and reliability of all devices in the network, providing a framework for managing numerous geographically dispersed devices and, of course, 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.

Utilizing Cisco IOS[®] Software, the Cisco 7100 Series VPN Router works seamlessly with critical site-to-site VPN software services, such as support for routing, quality of service (QoS), multicast and multiprotocol traffic across the VPN, as well as integrating firewall, intrusion detection, and service-level validation. And utilizing the Integrated Services Module (ISM), the Cisco 7100 Series VPN Router delivers IP Security (IPSec) encryption scalability for the most demanding headend site-to-site VPN deployments. This combination of features delivers a best-in-class solution that accommodates the most diverse site-to-site VPN environments.

Key site-to-site Headend VPN features

Key site-to-site headend VPN features delivered by the Cisco 7100 Series VPN Router include:

- *Encryption performance greater than full-duplex DS3 line rate*—Utilizing standard equipment ISM hardware encryption acceleration, the Cisco 7100 Series can support 2000 simultaneous IPSec tunneling sessions with Triple Data Encryption Standard (3DES) IPSec encryption performance up to 90 Mbps. An optional Integrated Services Adapter (ISA) may be added to provide dual encryption acceleration performance for up to 3000 tunnels and 140-Mbps 3DES encryption, thus enabling scalable site-to-site VPN connectivity to remote offices and extranet partners.



- *Support for diverse networking environments*—IPSec is a unicast, IP-only protocol. The Cisco 7100 Series VPN Router utilizes Cisco IOS Software features to accommodate multicast and multiprotocol traffic, as well as routing across the VPN, thus delivering flexible solutions for the most diverse site-to-site VPN environments. The rich routing functionality inherent in the Cisco 7100 Series also simplifies VPN deployment by eliminating burdensome static routes associated with VPN appliances.
- *Comprehensive VPN features*—The Cisco 7100 Series VPN Router supports all features key to VPNs-IPSec data encryption, a wide array of tunneling protocols, broad certificate-authority support for public key infrastructure (PKI), as well as advanced features such as certificate auto-enrollment.
- *Deployment flexibility: dedicated VPN gateway or single-box network solution*—Like all Cisco VPN Routers, the Cisco 7100 Series can serve as a dedicated VPN gateway or an integrated, single-box VPN router solution. For network environments that require a single-box solution, the Cisco 7100 Series offers integrated content-aware QoS to ensure reliability of latency-sensitive applications, ICSA-certified stateful firewall and intrusion detection for perimeter security, service-level validation to monitor network performance, and a wide variety of LAN and WAN interfaces for diverse connectivity requirements.
- *Built-in VPN resiliency*—Ensuring reliable, resilient network connectivity requires integration at many levels. The Cisco 7100 Series VPN Router delivers VPN resiliency natively through its support of full Layer 3 routing, such as Enhanced Interior Gateway Routing Protocol (EIGRP) and Open Shortest Path First (OSPF)-over-IPSec VPNs. Such native resiliency is also delivered through the Hot Standby Router Protocol (HSRP) and power supply, fan, and network interface redundancy.
- *All-encompassing site-to-site VPN management framework*—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. The Cisco 7100 Series

VPN Router is supported by key Cisco VPN configuration and monitoring applications such as the VPN/Security Management Solution (VMS) and the Web-based VPN Device Manager (VDM).

The Cisco 7100 Series encompasses two VPN routers, the Cisco 7120 and the Cisco 7140, each of which comes with ISM hardware encryption acceleration. The Cisco 7120 is the entry-level Cisco 7100 Series VPN Router, integrating high-performance, industry-leading routing with scalable VPN security and bandwidth management to provide cost-effective, comprehensive VPN solutions for larger branch offices and headquarters. The Cisco 7120 comes with dual Fast Ethernet LAN interfaces and an integrated four-port serial WAN interface. The Cisco 7140 Series provides superior routing and VPN services performance for the most demanding VPN deployments, as well as dual Fast Ethernet LAN interfaces and dual power supplies.



Cisco 7120 and 7140 Features at a Glance

Feature	Cisco 7120	Cisco 7140
Embedded Processor	RISC mips	RISC mips
Throughput of VPN Services, such as Bandwidth Management and Firewall	50 Mbps	Up to 140 Mbps
Encryption throughput with Single VPN Accelerator Card	50 Mbps	90 Mbps
Encryption throughput with Dual VPN Accelerator Card	Not supported	140 Mbps
64-Mb packet, 64-Mb system memory included	Yes	Yes
System Memory Expandable to 256 MB	Yes	Yes
Embedded Dual 10/100BaseT Fast	Yes	Yes
Ethernet Interfaces	Yes	Yes
Cisco 7100 Series Models	Cisco 7120-4T1/VPN: dual Fast Ethernet, four T1/E1 serial, ISM encryption card, IPSec DES, and QoS software Cisco 7120-4T1/VPN/K9: dual Fast Ethernet, four T1/E1 serial, ISM encryption card, IPSec 3DES, and QoS software	Cisco 7140-2FE/VPN: dual Fast Ethernet, ISM encryption card, IPSec DES, and QoS software Cisco 7140-2FE/VPN/K9: dual Fast Ethernet, ISM encryption card, IPSec 3DES, and QoS software Cisco 7140-2FE/2VPN/K8: dual Fast Ethernet, ISM and ISA encryption cards, IPSec DES, and QoS software Cisco 7140-2FE/2VPN/K9: dual Fast Ethernet, ISM and ISA encryption cards, IPSec 3DES, and QoS software
Expansion Slot for LAN/WAN Extensibility	Yes	Yes
AC Power Supply Included	Single	Dual
Compact, Two-Rack-Unit Design	Yes	Yes
Cisco IOS IPSec and QoS Software Included	Yes	Yes



Cisco 7100 Series VPN Router Features and Benefits Summary

Requirement	Cisco 7100 Series Feature/Benefit
High VPN Scalability	The Cisco 7100 Series supports up to 140-Mbps 3DES IPsec throughput for 3000 tunnels*.
Comprehensive VPN Features	The Cisco 7100 Series offers diverse PKI support, certificate auto-enrollment, and comprehensive tunneling support.
Deployment Flexibility	The Cisco 7100 Series can be deployed as a dedicated VPN gateway behind the WAN edge or on the WAN edge as a single-box solution with integrated firewall and QoS features.
Accommodation for Diverse Network Traffic Types	Cisco IOS Software supports secure, reliable transport of virtually any type of network traffic, including multiprotocol and multicast, across the IPsec VPN.
Ensured High VPN Uptime	The Cisco 7100 Series offers routing over IPsec, Internet Key Exchange (IKE) keepalives, HSRP, hardware component redundancy, and environment monitoring.
VPN and network infrastructure management	VPN/Security Management Solution (VMS) for multi-device VPN management. VPN Device Manager (VDM) for single device management CiscoWorks2000 infrastructure management.
Support for latency sensitive traffic across the VPN	Content-aware QoS provides bandwidth allocation, queuing, policing, and traffic shaping for reliable transport of latency sensitive traffic like ERP, voice/video, and SNA.
LAN/WAN Interface Flexibility	The Cisco 7100 Series supports over 30 port adapters, including serial, Packet over SONET (POS), ATM, and Ethernet/Fast Ethernet/Gigabit Ethernet.
Upgradable Memory	The system memory is upgradable to 256 MB, and Flash memory is upgradable to 128 MB.
Platform Investment Protection	The unparalleled modularity of processors, interfaces, and memory ensure that a Cisco 7200 Series VPN Router purchased today will accommodate technology innovation in the future.

Technical Specifications

VPN Tunneling

- IPsec (IP Security - RFCs 2401-2411, 2451)
- Generic routing encapsulation (GRE) (RFCs 1701-1702)
- Layer 2 Tunneling Protocol (L2TP) (RFC 2661)
- Point-to-Point Tunneling Protocol (PPTP) (RFC 2637)

Encryption

- SP DES and 3DES (RFCs 2406 and 2451)
- Microsoft Point-to-Point Encryption (MPPE) RC4 (40/128 bit)

Authentication

- X.509 Digital Certificates (RSA signatures)
- Shared Secrets
- Simple Certificate Enrollment Protocol
- Remote Access Dial-In User Service (RADIUS) (RFC 2138)
- TACACS+
- Challenge Handshake Protocol/Password Authentication Protocol (CHAP/PAP) (RFC 1994)

Integrity

- Hash-Based Message Authentication Code-Message Digest 5 (HMAC-MD5) and HMAC-Secure Hash Algorithm 1 (HMAC-SHA-1) (RFCs 2403-2404)

Key Management

- Internet Key Exchange (RFCs 2407-2409)
- IKE-XAUTH
- IKE-CFG-MODE

IP Compression

- IP Payload Compression Protocol-Lempel-Ziv-Stac (IPPCP-LZS) (RFCs 2401-2402)

Certificate Authority Support

- Entrust
- Verisign
- Microsoft
- iPlanet
- Baltimore Technologies



Bandwidth Management/QoS

- Network-Based Application Recognition (NBAR) Content-Aware Classification
- Class/Flow-Based Weighted Fair Queuing (WFQ)S Generic Traffic Shaping (GTS)
- Rate Limiting (committed access rate [CAR])
- Congestion Avoidance (Weighted Random Early Detection [WRED])

Resiliency

- HSRP
- IKE keepalives
- Routing across IPsec

Management Options

- VPN/security management solution (VMS)
- VPN device manager (VDM)
- CiscoWorks2000
- Secure command-line interface using Secure Shell Protocol (SSH) or kerberized Telnet

Routing Protocols

- Border Gateway Protocol 4 (BGP4)
- Routing Information Protocol (RIP/RIP2)
- OSPF
- 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

Security Certifications

- FIPS-140-1, level 2
- ICSA IPsec v1.0

Port Adapters Options

- Ethernet/Fast Ethernet
- Gigabit Ethernet
- T1/E1 serial
- High-Speed Serial Interface (HSSI)
- T3/E3 serial
- T3/E3 ATM
- OC-3 ATM
- OC-3 POS
- ISDN

Memory

- Flash memory: 48 (default), 128 MB
- System memory: 128 (default), 192, 256 MB

Compliance Certifications

- ISO-9000
- CE marking
- UL 1950
- CSA 22.2 No. 950
- EN60950
- TS001
- AS/NZS
- FCC Part 15 (CFR 47) Class A
- ICES-003 Class A
- EN55022 Class B
- CISPR22 Class B
- AS/NZS 3548 Class B
- VCCI Class B
- CTR3, 4, 12, 13, 24
- FCC Part 68
- CS 03
- Green Book
- G.703
- TS014, TS016, TS038

Network Homologation

- Europe: CTR2, CTR3
- Canada: CS-03
- United States: FCC Part 68Japan: Jate NTT
- Australia/New Zealand: TS013/TS031
- Hong Kong: CR22

Environmental Requirements

- Operating temperature: 32° to 104°F (0° to 40°C)
- Nonoperating temperature: -4° to 149°F (-20° to 64°C)
- Humidity: 10 to 90% noncondensing
- Airflow: ~ 120 cfm³, front to back

Power Requirements

- Voltage: 100-240 volts AC
- Current: 2.5-5 amps
- Frequency: 50/60 Hz
- Power consumption: 525 watts

Size/Weight

- Width: 17.5 in. (44.5 cm)
- Height: 3.5 in. (8.9 cm)
- Depth: 18.25 in. (46.4 cm)
- Weight: 32 lb (14.5 kg)



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