

# H3C S9500 10G Core Routing Switch Data Sheet



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## Statement

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## PRODUCT OVERVIEW

The H3C S9500 series switch is a new-generation 10G core routing switch developed by Huawei-3com for the applications in the enterprise campus networks core layer and carriers' IP metropolitan-area network (MAN) core or distribution layer for its intelligent, scalable architecture and converged, secure and reliable performance.

To accomplish the carrier and enterprise' inspiring business perspective with appropriate investment and valuable consideration in IT infrastructure, the H3C S9500 series deploys the unparalleled and innovational 10G platform and flexible port density interface module to provide high speed links for MAN, campus and data centers networks featuring low cost, high performance and capabilities to support abundant services. Configured maximally 576 GE-ports or 48 10GE-ports, the H3C S9500 series provides L3 and L2 forwarding performance of large capacity, high density and modularization to support the MPLS distributed wire-speed forwarding.

Integrated with multiplex services categories, powerful QoS guarantee, complete security management mechanism and carrier-class high reliability, the H3C S9500 series demonstrates its coincident with customer's aspirations and continues to satisfy their requirements for maximum network uptime, comprehensive network security, and scalable and flexible services.



Figure 1. H3C S9500 Series Chassis

## PRODUCT FEATURES

The H3C S9500 series adopts numerous industry-leading features to realize the promise of

<sup>1</sup> S9502 will be released in Q4/2006.

top-ranking services, performance and availability with investment protection for enterprise and service provider IP communication markets, including:

### **1) Advanced System Structure**

The H3C S9500 series introduces the distributed system architecture and powerful ASIC chips for high-speed routing, as well the Crossbar technologies for packet switching. The creative cooperation of combination and division greatly improve the forwarding performance and expansion capabilities of the routing switch. Embedded in the main control module, the Crossbar switching fabric provides a switching capacity up to 720Gbps and can be set to work in the active/standby or load-sharing mode by software configuration. Through several 10Gbps bus, the interface module is connected to the Crossbar switching networks on the two main control modules realizing the hot backup of dual main controls and dual switching networks in the real sense and greatly improving the system reliability.

Adopting the advanced system ASIC chip design, the longest routing prefix mode and the packet-by-packet forwarding mode, the H3C S9500 series can effectively combat network viruses like Worm. Blaster, get more applicable to large-scale networks with multiple services and complex visit flows and match more exactly the Ethernet MAN development trend, while keeping the wire-speed performance and relying on the low cost.

### **2) High Capacity, High-Density, Wire-Speed Forwarding**

The H3C S9500 series can provide 1.8T backplane bandwidth, 720Gbps switching capacity and 428Mpps forwarding capabilities to support ultimate 576GE ports or 48 10GE ports totally. In addition, the H3C S9500 series provides flexible interface choices from 10/100/1000 to 10 Gigabit Ethernet and combined interface boards to satisfy the customer's requirements for high density and high throughput.

Idea for powerful hardware platform upgrades capabilities, the H3C S9500 series has reserved a large number of bus interfaces on the backplane for future system expansion. The system switching capacity can be smoothly expanded to terabits to meet the ever-increasing bandwidth needs and user investment protection.

### **3) Carrier-Class Reliability Design**

The H3C S9500 series adopts distributed processing structure to support dual main control switching units with all interface modules and power supply modules hot swappable and passive backplane design. The power system equips dual power inputs following the 1+1 redundant hot backup mechanism. All the reliability designs ensure the system to meet strict requirements for carrier-class network reliability (up to 99.999%).

#### **4) MPLS Distributed Wire-Speed Supported**

The H3C S9500 series provides Multi-protocol Label Switching (MPLS) supported in hardware to enable VPN services within the enterprise and facilitates smooth integration with wire-speed service provider core infrastructures and Metro Ethernet deployments. Besides featuring the configuration of VPN IPv4 address & distribution VPN-IPv4 information by BGP, the H3C S9500 series offers the comprehensive MIB functions through supervising VPN VRF, VPN Interface, VPN VRF BGP configuration table and VPN VRF Route ,VPN VRF Route Target table.

#### **5) VLL & VPLS Layer 2 VPN Solutions**

With the arrival of MPLS enhanced interface module, The H3C S9500 series provides abundant distributed and wire speed L2 VPN processing capability, which include Martini and Kompella mode with 4k VLL VC. in addition, MPLS-VPLS is also developed to provide centralized VPLS processing capability, with 1K VPLS VSI and MAC address 128/VSI, the processing capacity of VPLS NP module reaches 3Gbps and MAC table is 128k total.

#### **6) RPR<sup>2</sup> Solution**

S9500 will offer 10G RPR interface module in Q1/06, RPR (Resilient Packet Ring) combine advantages from both SDH network and Ethernet, such as high reliability of SDH fault self-healing and cost-effectiveness, high bandwidth, high flexibility and expansibility of Ethernet. In addition, as RPR is based on ring technology, so that it can provide advanced features like high efficient bandwidth management, automatic topology discovery, QoS guarantee etc.

#### **7) Complete Security Mechanism**

The H3C S9500 series deploys the 802.1x mode for access user authentication, secure SNMPv3 NM protocol and MD5 encrypted authentication of OSPF v2, RIP v2 and BGP v4 packets. By distinguishing different users of various service levels, the H3C S9500 series have different configuration privileges and provide two user authentication modes: local authentication and RADIUS authentication with the standard Radius protocol and SSH for access safety. The rich traffic control mechanisms are supported including ACL based on source and destination IP address, MAC address and port number.

#### **8) 10 Gigabit Interfaces Supported**

The H3C S9500 series figures the industry leading 10 Gigabit Ethernet and OC-192 packet over SDH/SONET(POS) up to 48 10GE or 12 10G POS port density of the total system to provide a pertinent solution for MAN applications to simplify the network architecture and reduce the network construction costs. With chassis size ranging from 2 (H3C S9502<sup>3</sup>),

<sup>2</sup> RPR interface module will be released in Q4/06

<sup>3</sup> S9502 will be released in Q4/06

5(H3C S9505), 8(H3C S9508) to 12(H3C S9512) and utmost 288 10/100/1000 Ethernet ports supporting IEEE 802.3af Power over Ethernet(PoE), H3C S9500 delivers a intelligent and economical solution for the enterprise campus aggregation network.

The H3C S9500 series set the 10GE network standards by providing powerful QoS guarantee, rich services features such as ACL, strategic routing and security, wire-speed MPLS forwarding, IP VPN services and transparent LAN services.

### **9) Integrated IEEE 802.3af PoE Supported**

Cooperating with the centralized and manageable power over Ethernet (PoE) power supply assembly, the H3C S9500 series simplifies the customers' power deployments through supporting the integrated IEEE 802.3af PoE functions to the desktop access switch. By providing optional choices of the PoE Chassis, power module and surge protection device, the PoE system facilitates the enterprise campus and carrier's network layout to be more expansible and scalable.

### **10) Flexible Network Address Translation (NAT) Deployment**

The H3C S9500 series supports the flexible network address translation (NAT) deployment by providing the specific NAT processing module to achieve the application layer gateway service of FTP,ICMP,DNS,LDAP,H.225,H.245,SIP etc. To ease the customer's internal network IP management and speed up the campus network configuration, the NAT processing module provides NAT log, NAT blacklist and NAT/NAPT of Internet access service for all VPN users.

### **11) Firewall<sup>4</sup> and IPSec<sup>5</sup> Function Supported**

With the development of network technology, more and more network attacks arise simultaneously, so that security enhancement has become a critical issue in the network industry. Concerning about customer's demand in the network security, S9500 will provide SecBlade Firewall/VPN module to support rich firewall and IPSec function. SecBlade Firewall module supports ASPF, NAT-PAT, IPSec VPN encryption features, multiple certificate authentication, various network attack defending, real-time traffic analysis, internal network address security, email alarm etc. SecBlade VPN module provides abundant VPN functions (such as L2TP VPN, GRE VPN, IPSec VPN, MPLS VPN and Huawei DVPN) and support IPSec hardware encryption (such as DES, 3DES and AES).

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<sup>4</sup> Firewall service module will be released in Q4/06

<sup>5</sup> IPSec service module will be released in Q4/06

## PRODUCT SPECIFICATIONS

**Table 1 H3C S9500 Series Software and Hardware Details**

Attributes	S9502	S9505	S9508	S9512
Switching capacity	240Gbps	300Gbps	480Gbps	720Gbps
Backplane capacity	450Gbps	750Gbps	1.2T	1.8Tbps
Packet forwarding speed	143Mpps	178Mpps	285Mpps	428Mpps
Number of slots	4	7	10	14
Number of slots for interface modules	2/3	5	8	12
L2 features	4K VLAN Super VLAN PVLAN 802.1p priority 802.1Q STP/RSTP/MSTP GARP/GVRP IGMP snooping Port mirroring Flow mirroring Link Aggregation(802.3ad) Cross boards link aggregation LACP 802.1x Guest VLAN Dynamic VLAN Broadcast storm suppression MDI/MDI-X auto negotiation HWTACACS Selective QinQ (Class D interface module supported)			
MAC address table	14k/card, 42k/System (VLAN non-cross cards)	14k/card, 70k/System (VLAN non-cross cards)	14k/card, 112k/System (VLAN non-cross cards)	14k/card, 168k/System (VLAN non-cross cards)
L3 features	RIPv1,RIPv2, OSPF, IS-IS, BGPv4 Equal Cost Multi Path: 8			



Attributes	S9502	S9505	S9508	S9512
	Policy routing Routing policy uRPF (NAT Service Module Supported) VRRP DHCP-RELAY DHCP-SERVER NAT			
Multicast	IGMP V2 IGMP snooping PIM-DM PIM-SM MSDP/MBGP Any-RP			
MPLS VPN	Label stack levels: 4 LER/LSR MCE Embedded MPLS VPN HoPE Inter-AS MPLS VPN			
VPLS & VLL	VPLS VSI number: 1K Mac table: 128/VSI,128K (total) VPLS Martini Method H-VPLS VLL VC number: 4K VLL Martini Method VLL Kompella Method			
QoS	DiffServ Each port supporting 8 priority queues. Detailed bandwidth management with the granularity of 8k Congestion prevention algorithm: WRED and tail drop Queue scheduling algorithms: SP, WRR and SP+WRR Traffic shaping			
Reliability	MTBF >200,000 hours MTTR < 0.5 hours Dual main control boards 1+1 power supplies Modules hot-swappable			

Attributes	S9502	S9505	S9508	S9512
System architecture	Integrated chassis that can be installed in a 19-inch rack			
Outline dimensions (mm) (W×D×H)	436 x 420 x 265	436 x 450 x 486	436 x 450 x 619	436 x 450 x 753
Weight (in maximum configuration)	40kg	65kg	80Kg	100 kg
Environmental requirements	Working temperature: 0°C ~ 45°C. Relative humidity: 10%~90%, no condensing			

Table 2 H3C S9500 Series Available Power Supply

Attributes	S9502	S9505	S9508	S9512
Input voltage(AC)	100~240 VAC auto-ranging (50~60Hz)	100~240 VAC auto-ranging (50~60Hz)	2000W AC power supply module: 100~240VAC auto-ranging (50~60Hz) Output 1200W:100~120VAC; Output 2000W:200~240VAC;	
Input voltage(DC)	-48~-60 VDC	-48~-60 VDC	2000W DC power supply module: -48~-60VDC	
Max power output of single power module	600W	1200W	2000W	
Max power dissipation	< 600W	< 1000W	< 1200W	<1600W
Power redundancy	1+1 redundancy; hot swappable			

The H3C S9500 Series can provide PoE functions cooperating with the PoE assembly listed below when the customers intend to deploy PoE applications.

Table 3 H3C S9502 Series PoE Assembly Specifications

Attributes	Description
PoE power system deployment (redundant configuration)	1+1 redundancy for PoE power supply modules, Hot swappable
PoE power module	2500W AC power supply module: 100~240VAC auto-ranging. Output 1250W:100~120VAC Output 2500W:200~240VAC
PoE power dissipation	Totally 2500W :200-240V; Support 144 ports at 15.4W

Table 4 H3C S9505 S9508 S9512 PoE Assembly Specifications

Attributes	Description
PoE power system deployment	2+1 redundancy for PoE power supply modules,

(redundant configuration)	Hot swappable
PoE power module	2500W AC power supply module: 100~240VAC auto-ranging. Output 1200W:100~120VAC Output 2500W:200~240VAC
PoE power dissipation	Totally 4500W :200-240V; Support 288 ports at 15.4W

Table 5 H3C S9500 Series Port Densities Information and WAN Interfaces

Maximum System Port Densities	S9502	S9505	S9508	S9512
10 Gigabit Ethernet	12	20	32	48
OC-48 POS	12	20	32	48
OC-192 POS	3	5	8	12
Gigabit Ethernet	144	240	384	576
Fast Ethernet	144	240	384	576

## STANDARDS AND SPECIFICATIONS COMPLIANCE

Table 6 lists the standard compliance specifications for the H3C S9500 Series.

Table 6 H3C S9500 series compliance specifications

Specification	Number	Description
<b>IEEE</b>		
	<b>IEEE 802.1D</b>	Bridging
	<b>IEEE 802.1p/Q</b>	VLAN tagging
	<b>IEEE 802.1w</b>	RSTP
	<b>IEEE 802.1s</b>	MSTP
	<b>IEEE 802.1X</b>	Port based access control
	<b>IEEE802.3</b>	10Base-T
	<b>IEEE802.3u</b>	100BASE-TX, 100BASE-FX
	<b>IEEE802.3z</b>	1000BASE-SX, 1000BASE-LX
	<b>IEEE802.3ab</b>	1000BASE-T
	<b>IEEE802.3ae</b>	10 Gigabit Ethernet
	<b>IEEE802.3x</b>	Flow control
	<b>IEEE802.3ad</b>	Link aggregation
	<b>IEEE802.3af (PoE)</b>	Power over Ethernet
	<b>IEEE802.3ak</b>	10GBASE-CX4
	<b>IEEE 802.17</b>	Resilient packet ring (RPR) access method & physical layer specifications
<b>RFC</b>		
<b>BGPv4</b>	<b>RFC1771</b>	BGPv4
	<b>RFC1772</b>	Application of the BGP
	<b>RFC1965</b>	BGPv4 autonomous system confederations
	<b>RFC1997</b>	Communities attribute
	<b>RFC1998</b>	PPP Gandalf FZA Compression Protocol
	<b>RFC2385</b>	Transmission Control Protocol (TCP) MD5

		authentication for BGP
	<b>RFC2439</b>	Route flap dampening
	<b>RFC2796</b>	Route reflection
	<b>RFC1657</b>	Definitions of Managed Objects for BGPv4
<b>OSPFv2</b>		
	<b>RFC2328</b>	OSPF v2
	<b>RFC1587</b>	OSPF NSSA
	<b>RFC2370</b>	OSPF opaque link-state advertisement (LSA) option
	<b>RFC1850</b>	OSPF v2 Management Information Base (MIB), traps
<b>IS-IS</b>		
	<b>ISO10589</b>	IS-IS
	<b>RFC1195</b>	IS-IS
	<b>RFC2973</b>	IS-IS mesh groups
<b>RIP</b>		
	<b>RFC1058</b>	RIP v1
	<b>RFC1723</b>	RIP v2
	<b>RFC1724</b>	RIP v2 MIB
	<b>RFC2453</b>	RIP v2
	<b>RFC2083</b>	PNG (Portable Network Graphics) Specification Version
<b>IP General</b>		
	<b>RFC791</b>	IP
	<b>RFC792</b>	ICMP
	<b>RFC793</b>	TCP
	<b>RFC768</b>	UDP
	<b>RFC826</b>	ARP
	<b>RFC783</b>	TFTP
	<b>RFC854</b>	Telnet
	<b>RFC894</b>	IP Over Ethernet
	<b>RFC1213</b>	MIB-II
	<b>RFC950</b>	Internet Standard Subnetting Procedure
	<b>RFC959</b>	FTP
	<b>RFC1141</b>	Incremental updating of the Internet checksum.
	<b>RFC1122</b>	Requirements for Internet Hosts - Communication Layers
	<b>RFC1256</b>	ICMP Router Discovery Messages
	<b>RFC1393</b>	Trace route Using an IP Option
	<b>RFC 2338</b>	VRRP
	<b>RFC 2787</b>	Definitions of Managed Objects for VRRP
	<b>RFC 1542 &amp; 2131</b>	DHCP relay
	<b>RFC2236</b>	IGMP Snooping
	<b>RFC2280</b>	Routing Policy Specification Language (RPSL)
	<b>RFC1305</b>	NTPv3
	<b>RFC1573</b>	Evolution of the Interfaces Group of MIB-II
	<b>RFC1157</b>	SNMP
	<b>RFC857</b>	Telnet Echo Option
	<b>RFC858</b>	Telnet Suppress Go Ahead Option
	<b>RFC1093</b>	NSFNET routing architecture
	<b>RFC1631</b>	NAT
	<b>RFC2663</b>	NAT Terminology and Considerations
	<b>RFC2138</b>	RADIUS

	<b>RFC1492</b>	HWTACACS
<b>IP Multicast</b>		
	<b>RFC 1112</b>	Host extensions for IP multicasting.
	<b>RFC 2236</b>	Internet Group Management Protocol, Version 2.
	<b>RFC 2715</b>	Interoperability Rules for Multicast Routing Protocols.
	<b>RFC 2362</b>	PIM-SM
	<b>Draft</b>	PIM-DM:draft-ietf-idmr-pim-dm-06
	<b>RFC 3618</b>	MSDP
	<b>RFC 2283</b>	Multi-protocol Extensions for BGPv4
<b>QoS</b>		
	<b>RFC2474</b>	Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers.
	<b>RFC2475</b>	Architecture for Differentiated Service.
	<b>RFC3168</b>	The Addition of Explicit Congestion Notification (ECN) to IP.
<b>MPLS</b>		
	<b>RFC3031</b>	Multi-protocol Label Switching Architecture.
	<b>RFC3032</b>	MPLS Label Stack Encoding.
	<b>RFC3033</b>	The Assignment of the Information Field and Protocol Identifier in the Q.2941 Generic Identifier and Q.2957 User-to-user Signaling for the Internet Protocol.
	<b>RFC3036</b>	LDP Specification.
	<b>RFC3037</b>	LDP Applicability.
<b>VPN</b>		
	<b>RFC2547</b>	BGP/MPLS VPN.
	<b>RFC2764</b>	A Framework for IP Based Virtual Private Networks
	<b>RFC2796</b>	BGP Route Reflection - An Alternative to Full Mesh IBGP.
	<b>RFC2842</b>	Capabilities Advertisement with BGPv4.
	<b>RFC2858</b>	Multi-protocol Extensions for BGPv4
	<b>RFC2917</b>	A Core MPLS IP VPN Architecture
	<b>RFC2918</b>	Route Refresh Capability for BGPv4.
	<b>RFC3107</b>	Carrying Label Information in BGPv4.
<b>VLL&amp;VPLS</b>		
	<b>Draft</b>	Draft-martini-l2circuit-trans-mpls-08.txt
	<b>Draft</b>	Draft-martini-l2circuit-encap-mpls-04.txt
	<b>Draft</b>	Draft-kompella-ppvnp-l2vpn-01.txt
	<b>Draft</b>	Draft-ietf-l2vpn-vpls-ldp-06.txt
<b>POS</b>		
	<b>RFC1619</b>	PPP Over SONET
	<b>RFC1661</b>	The Point-to-Point Protocol
	<b>RFC1662</b>	PPP in HDLC-like Framing
	<b>RFC2687</b>	PPP in a Real-time Oriented HDLC-like Framing.
<b>ITU</b>		
	<b>G.650 (4/97)</b>	Definition and test methods for the relevant parameters of single-mode fibers
	<b>G.652 (4/97)</b>	Characteristics of a single-mode optical fiber cable
	<b>G.661 (11/96)</b>	Definition and test methods for the relevant generic parameters of optical fiber amplifiers
	<b>G.662 (7/95)</b>	Generic characteristics of optical fiber amplifier

		devices and sub-systems
	<b>G.663 (10/96)</b>	Application related aspects of optical fiber amplifier devices and sub-systems
	<b>G.671 (11/96)</b>	Transmission characteristics of passive optical components
	<b>G.681 (10/96)</b>	Functional characteristics of interoffice and long-haul line systems using optical amplifiers, including optical multiplexing
	<b>G.703(1998)</b>	Physical/Electrical Characteristics of hierarchical digital interfaces
	<b>G.957(1999)</b>	Optical interfaces for equipments and systems relating to the Synchronous Digital Hierarchy
	<b>G.958</b>	Digital line systems based on the synchronous digital hierarchy for use on optical fiber cables
<b>ETS</b>		
	<b>ETS 300 019-2 1999</b>	Equipment engineering; environmental conditions and environment tests for telecommunications equipment.
<b>IEC</b>		
	<b>IEC 1000 1995</b>	Electromagnetic compatibility
	<b>IEC 297 1986</b>	Dimensions of mechanical structures of the 482.6 mm series
<b>EMC</b>		
	<b>EN 55022; 1998 + A1: 2000 + A2: 2003</b>	
	<b>EN 55024: 1998+ A1: 2001 + A2: 2003</b>	
	<b>CISPR 22: 2003</b>	
	<b>CISPR 24: 1997+A1:2001+A2:2002</b>	
	<b>ETSI EN 300 386V1.3.2:2003</b>	
	<b>VCCI V-3: 2003.04</b>	
	<b>AS/NZS CISPR 22</b>	
	<b>CNS 13438:1997</b>	
	<b>FCC part 15:2003 Class A</b>	
	<b>EMC Directive 89/336/EEC</b>	
	<b>R&amp;TTE Directive 99/5/EC Article 3.1 (b)</b>	
	<b>IECS-003</b>	
	<b>GB9254</b>	
<b>Safety</b>		
	<b>EN 60950:2000</b>	
	<b>EN 60825-1:1993+A1:1997</b>	
	<b>EN 60825-2:2000</b>	
	<b>UL 60950-1:2003, First Edition</b>	
	<b>CSA C22.2 No. 60950-1-03 1<sup>st</sup> Ed. April 1, 2003</b>	
	<b>IEC 60950</b>	
<b>IPSec</b>		
	<b>RFC2401</b>	Security Architecture for the Internet Protocol
	<b>RFC2402</b>	IP Authentication Header
	<b>RFC2403</b>	The Use of HMAC-MD5-96 within ESP and AH
	<b>RFC2404</b>	The Use of HMAC-SHA-1-96 within ESP and AH
	<b>RFC2405</b>	The ESP DES-CBC Cipher Algorithm With Explicit IV
	<b>RFC2406</b>	IP Encapsulating Security Payload (ESP)
	<b>RFC2407</b>	The Internet IP Security Domain of Interpretation for ISAKMP

	<b>RFC2408</b>	Internet Security Association and Key Management Protocol (ISAKMP)
	<b>RFC2409</b>	The Internet Key Exchange (IKE)
	<b>RFC2410</b>	The NULL Encryption Algorithm and Its Use With IPSec

## ORDERING INFORMATION

The H3C S9500 series is a core switch developed by Huawei-3Com. Users can purchase the chassis, power supplies and modules as actually required.

### S9502

NAME	DESCRIPTION	QUANTIT Y	REMARK
<b>Chassis configuration (Chassis with 1 AC or DC power)</b>			
LS-9502-OVS-H3	H3C S9502 Routing-Switch Chassis	1	Mandator y
<b>Power Supply Configuration</b>			
LSBM9POWERH-OVS	S9502 AC P/S 90-264V (Max 600W)	1-2	Mandator y
LSBM5POWERH	S9502 DC P/S 36-75V (Max 600W)	1-2	Mandator y
<b>Main control Board</b>			
LSBM1SRP1M1	H3C S9502 Routing Switch Processing Board	1-2	Mandator y
<b>Software</b>			
LIS-H3C-S9502-OVS	H3C S9502 Host Software Charge	1	Mandator y

### S9505

NAME	DESCRIPTION	QUANTIT Y	REMARK
<b>Chassis configuration (Chassis with 1 AC or DC power)</b>			
LS-9505-OVS-H3	H3C S9505 Routing Switch Chassis	1	Mandator y
<b>Cabinet configuration</b>			
LS-9500-2.2m	Switch Router Rack 2200 (H)	0-1	Optional
LS-9500-1.8m	Switch Router Rack 1800 (H)	0-1	Optional
<b>Power Supply Configuration</b>			
LSBM7POWERH	S9505 AC P/S 90-264V (Max 1200w)	1-2	Mandator y
LSBM2POWERH	S9505 DC P/S 36-75V (Max 1200w)	1-2	Mandator y
<b>Main control Board</b>			
LSBM1SRP1N6	H3C S9505 Routing Switch Processing Board	1-2	Mandator y
LSBM1SRP1N4	H3C S9500 Routing Switch Processing Board, Clock Module	1-2	Mandator y
<b>Software</b>			
LIS-H3C-S9505-OVS	H3C S9505 Host Software Charge	1	Mandator y

SRP1N6 and SRP1N4 can not be mixed up for configuration, only 2 SRP1N6 or 2 SRP1N4 are allowed to be deployed in one chassis. For more information, please check **H3C S9500 series**

## Switch Quick Configuration Manual V1.00.

### S9508

NAME	DESCRIPTION	QUANTIT Y	REMARK
<b>Chassis configuration (Chassis with 1 AC or DC power)</b>			
LS-9508-OVS-H3	H3C S9508 Routing Switch Chassis	1	Mandator y
<b>Cabinet configuration</b>			
LS-9500-2.2m	Switch Router Rack 2200 (H)	0-1	Optional
LS-9500-1.8m	Switch Router Rack 1800 (H)	0-1	Optional
<b>Power Supply Configuration</b>			
LSBM8POWERH	S9512&S9508 AC P/S 90-264V (Max 2000w)	1-2	Mandator y
LSBM4POWERH	S9512&S9508 DC P/S 36-75V (Max2000w)	1-2	Mandator y
<b>Main control Board</b>			
LSBM1SRP1N5	H3C S9508 Routing Switch Processing Board	1-2	Mandator y
LSBM1SRP1N4	H3C S9500 Routing Switch Processing Board, Clock Module	1-2	Mandator y
<b>Software</b>			
LIS-H3C-S9508-OVS	H3C S9508 Host Software Charge	1	Mandator y

SRP1N5 and SRP1N4 can not be mixed up for configuration, only 2 SRP1N5 or 2 SRP1N4 are allowed to be deployed in one chassis. For more information, please check **H3C S9500 series Switch Quick Configuration Manual V1.00.**

### S9512

NAME	DESCRIPTION	QUANTIT Y	REMARK
<b>Chassis configuration (Chassis with 1 AC or DC power)</b>			
LS-9512-OVS-H3	H3C S9512 Routing Switch Chassis	1	Mandator y
<b>Cabinet configuration</b>			
LS-9500-2.2m	Switch Router Rack 2200 (H)	0-1	Optional
LS-9500-1.8m	Switch Router Rack 1800 (H)	0-1	Optional
<b>Power Supply Configuration</b>			
LSBM8POWERH	S9512&S9508 AC P/S 90-264V (Max 2000w)	1-2	Optional
LSBM4POWERH	S9512&S9508 DC P/S 36-75V (Max2000w)	1-2	Optional
<b>Main control Board</b>			
LSBM1SRP1N7	H3C S9512 Routing Switch Processing Board	1-2	Mandator y
LSBM1SRP1N4	H3C S9500 Routing Switch Processing Board, Clock Module	1-2	Mandator y
<b>Software</b>			
LIS-H3C-S9512-OVS	H3C S9512 Host Software Charge	1	Mandator y

SRP1N7 and SRP1N4 can not be mixed up for configuration, only 2 SRP1N7 or 2 SRP1N4 are allowed to be deployed in one chassis. For more information, please check **H3C S9500 series Switch Quick Configuration Manual V1.00.**



## Interface Modules

Name	DESCRIPTION	PRODUCT QUANTITY				REMARKS
		S9502	S9505	S9508	S9512	
<b>Standard Module (Optional)</b>						
LSBM1FT48B	48-Port 10/100BASE-TX Interface Module(B),(RJ45)	0-3	0-5	0-8	0-12	Optional
LSBM1FP20B1	20-Port 100BASE-FX Interface Module(B),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1GP12B1	12-port 1000BASE-X Interface Module(B),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1GT24B1	24-Port 10/100/1000BASE-T Interface Module(B),(RJ45)	0-3	0-5	0-8	0-12	Optional
LSBM1GP24B1	24-Port 1000BASE-X Interface Module(B),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1XK1B1	1-Port 10GBASE-R Interface Module(B),(XENPAK,SC)	0-3	0-5	0-8	0-12	Optional
LSBM1XP2B1	2-Port 10GBASE-R/W Interface Module(B),(XFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1XP4B1	4-Port 10GBASE-R/W Interface Module(B),(XFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1F32GB1	32-Port 10/100BASE-TX(RJ45) and 4-port 1000BASE-X(SFP,LC) Interface Module(B)	0-3	0-5	0-8	0-12	Optional
LSBM1GV48DB1	48-Port 10/100/1000BASE-T Interface Module(DB),(PoE,RJ45)	0-3	0-5	0-8	0-12	Optional
<b>MPLS Enhanced Module</b>						
LSBM2FT48CA1	48-Port 10/100BASE-TX Interface Module(CA),(RJ45)	0-3	0-5	0-8	0-12	Optional
LSBM1FP20CA1	20-Port 100BASE-FX Interface Module(CA),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1GP12CA1	S9500 12-port 1000BASE-X Interface Module, SFP Req. (Enhanced)	0-3	0-5	0-8	0-12	Optional
LSBM1GT24CA1	24-Port 10/100/1000BASE-T Interface Module(CA),(RJ45)	0-3	0-5	0-8	0-12	Optional

LSBM1GP24CA1	24-Port 1000BASE-X Interface Module(CA),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1XK1CA1	1-Port 10GBASE-R Interface Module(CA),(XENPAK,S C)	0-3	0-5	0-8	0-12	Optional
LSBM1XP2CA1	2-Port 10GBASE-R/W Interface Module(CA),(XFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1XP4CA1	4-Port 10GBASE-R/W Interface Module(CA),(XFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1F32GCA1	32-Port 10/100BASE-TX(RJ45) and 4-Port 1000BASE-X(SFP,LC) Interface Module(CA)	0-3	0-5	0-8	0-12	Optional
LSBM1GT8PCA1(Q4/06)	8-Port 10/100/1000BASE-T Ethernet Interface and 4-Port 1000Base-X Ethernet Optical Service Card(CA)	0-3	0-5	0-8	0-12	Optional
LSBM1P4G8CA1	4-Port OC-3c POS(SFP,LC) and 8-Port 1000BASE-X(SFP,LC) Interface Module(CA)	0-3	0-5	0-8	0-12	Optional
LSBM1SP4CA1	4-Port OC-48c POS Interface Module(CA),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1UP1CA1	1-Port OC-192c POS Interface Module(CA),(XFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1VP2CA1(Q4/06)	2-Port OC-192c RPR Interface Module(CA),(XFP,LC)	0-3	0-5	0-8	0-12	Optional
<b>IPv6 Ready Module</b>						
LSBM1GV48DB1	48-Port 10/100/1000BASE-T Interface Module(DB),(PoE,RJ45)	0-3	0-5	0-8	0-12	Optional
LSBM1GP24DB1(Q4/06)	24-Port 1000BASE-X Interface Module(DB),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1GP24DC1(Q4/06)	24-Port 1000BASE-X Interface Module(DC),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1GT24DB1(Q4/06)	24-Port 10/100/1000BASE-T Interface	0-3	0-5	0-8	0-12	Optional

Module(DB),(RJ45)						
<b>PoE Module</b>						
LSBM1GV48DB1	48-Port 10/100/1000BASE-T Interface Module(DB),(PoE,RJ45)	0-3	0-5	0-6	0-6	Optional
LSBM1PoEDIMMH	DIMM for PoE Master and Slave Power Management	0-3	0-5	0-6	0-6	mandatory for PoE function
<b>Service Module</b>						
LSBM1NATB1	NAT Service Module	0-1	0-1	0-1	0-1	Optional
LSBM1VPNB1	VPLS Service Module	0-1	0-1	0-1	0-1	Optional
LSBM1FW8DB1 (Q3/06)	8-Port 1000BASE-X Interface Firewall Service Module(DB),(SFP,LC)	0-3	0-5	0-8	0-12	Optional
LSBM1IPSEC8DB 1 (Q3/06)	8-Port 1000BASE-X Interface IPSEC Service Module(DB),(SFP,LC)	0-3	0-5	0-8	0-12	Optional

This product list does not include Optics. For more information, please check the latest **Huawei-3Com Price List**.

## DEPLOYMENT SCENARIOS

The H3C S9500 Series can be deployed for converged services for enterprise campus and carrier's networks:

### I Deployment Scenario for H3C S9500 Series in Distribution and Core Layers of MAN

The H3C S9500 Series provides robust high performance 10G network environments as the distribution and core layers equipment of an IP MAN.

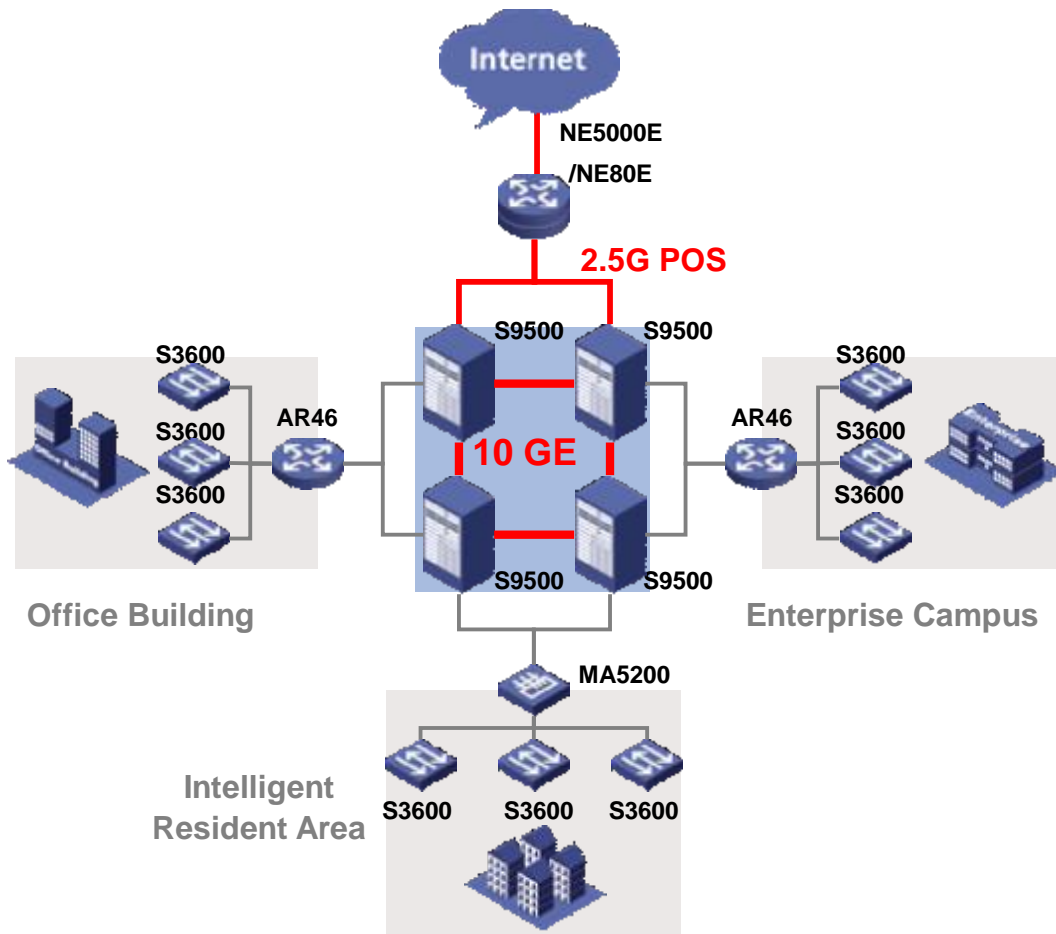


Figure 2. Deployment Scenarios for H3C S9500 Series in Distribution and Core Layers of MAN

For the demanding carrier's backbone networking environment requiring for high reliability, security and expandability, the network core equipment comprises the NE80/40 core router and the S9500 series switch. With flexibly choices from 5~12 service module slots, the H3C S9500 Series is configured with dual main controls units, dual switching units and multiple power supplies as redundant backups to avoid network interruption. The core equipments can be interconnected via 10GE or POS interface.

To the Internet Service Provider (ISP), the service convergence MAN must offer value-added services such as VOD, video conference, IP voice, e-learning and telemedicine etc, and so it is necessary to subdivide the services and users to ensure the security when Ethernet is deployed as access network layer. In this scenario the MA5200 can serve as the access server and those access Ethernet switches such as S5600 can directly connect to it via the 10/100/1000 Ethernet interfaces and S9500 can be networked with the BAS (MA5200) to provide user access control, authentication and billing functions to carry out flexible user management.

## I Deployment Scenario for H3C S9500 Series with RPR<sup>6</sup> solution in Backbone layer of Campus network

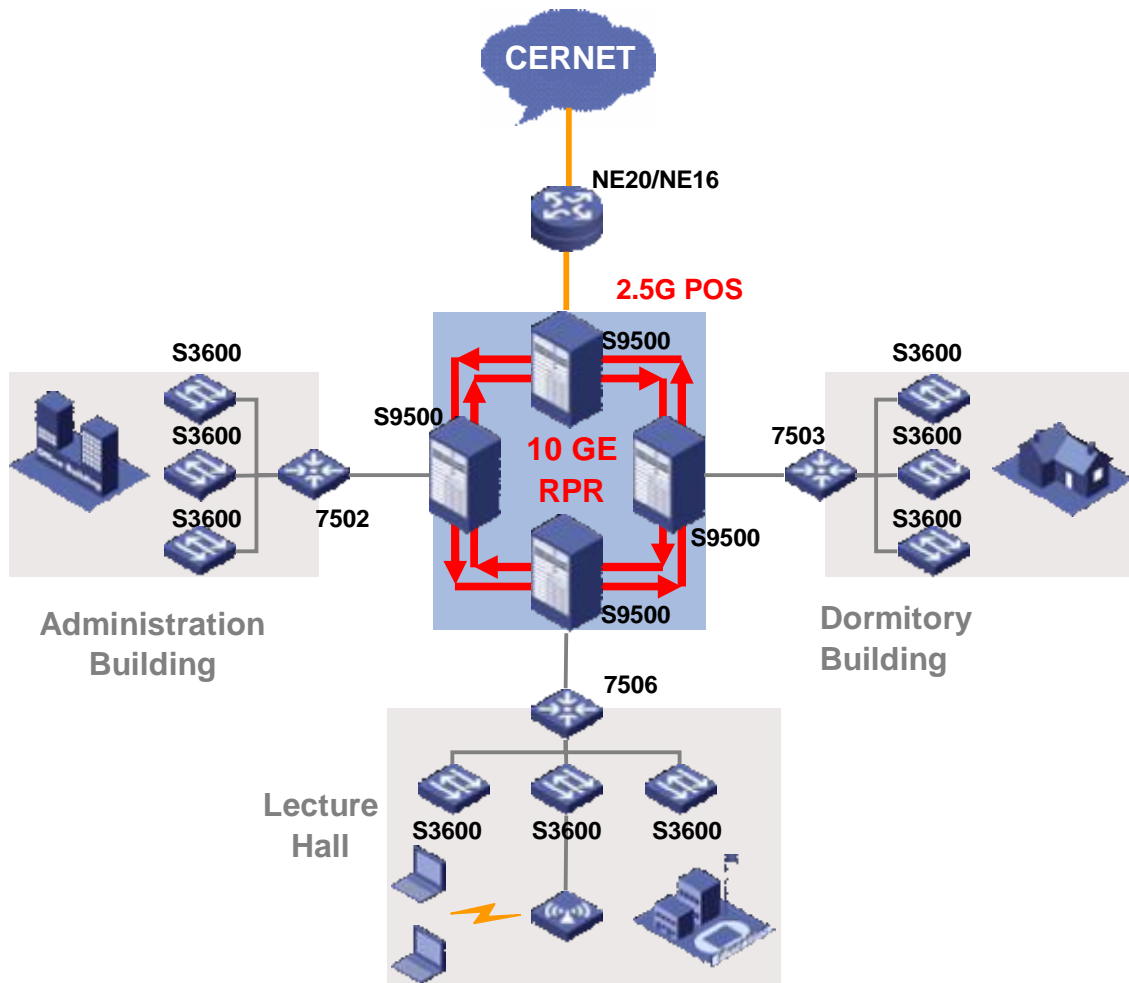


Figure 3. Deployment Scenario for H3C S9500 Series with RPR solution in Backbone layer of Campus network

As the 10G RPR interface module is available by Huawei-3Com since Q4/05, it can be used to deploy advanced, intelligent and Resilient ring, that will offer campus network high speed L2 packet forwarding, further more, due to advanced network design (inner ring and outer ring), the switching over time via link failure will be less than 50ms (carrier class level), that will reduce the influence to campus network to minimum extent. In addition, RPR can offer complete QoS mechanism, which will guarantee the high priority service, such as data flow from administration building.

<sup>6</sup> RPR interface module will be released in Q4/06

## I Deployment Scenarios for H3C S9500 Series in Backbone Layer of Enterprise Networks

The H3C S9500 Series is deployed as the backbone device of the enterprise network in this scenario.

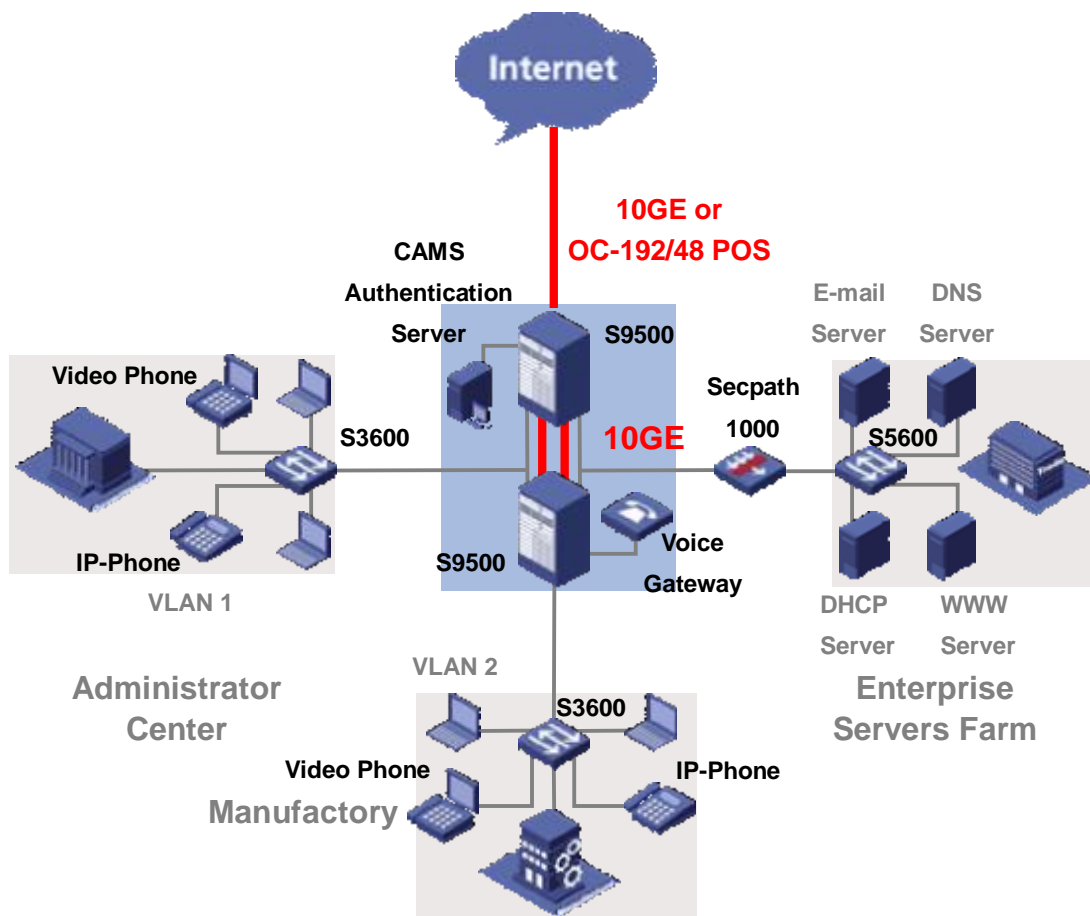


Figure 4. Deployment Scenarios for H3C S9500 Series in the Enterprise Backbone Network

The H3C S9500 Series provides an ideal solution for enterprise backbone networks' requirements for its high reliability, expandability and service convergence. In this scenario, the H3C S9500 series switch acts as the network core node to provide a high speed connection to the ISP network for its powerful routing capacity and abundant L3 features.

The H3C S9500 series can provide a full security management mechanism and QoS guarantee for the enterprise backbone network, and control the access authorities and users bandwidth flexibly. Supporting standard VLAN and multiple VLAN-based extended functions, the switch can isolate enterprise servers' farm and avoid illegal access to the servers. Double 10GE links for redundant backup are provided in the networking core layer of two or more core switches.

## I Deployment Scenarios for H3C S9500 Series Firewall<sup>7</sup> Application

SecBlade FW module is located at the egress of the Internet

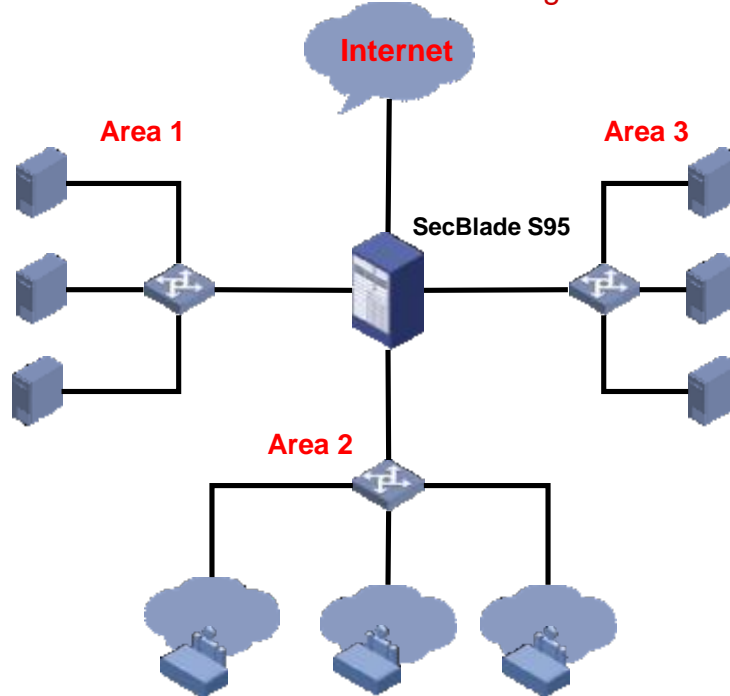


Figure 5. Deployment Scenarios for H3C S9500 Series' Firewall Application at the egress

While located at the egress of the Internet, the SecBlade FW module can support NAT, ALGs of multiple application protocols such as FTP and H.323, and varieties of attack defending, thus ensuring normal secure access from the internal network to the external network.

<sup>7</sup> Firewall service module will be released in Q4/06

SecBlade FW module is located at the internal network for protecting important areas

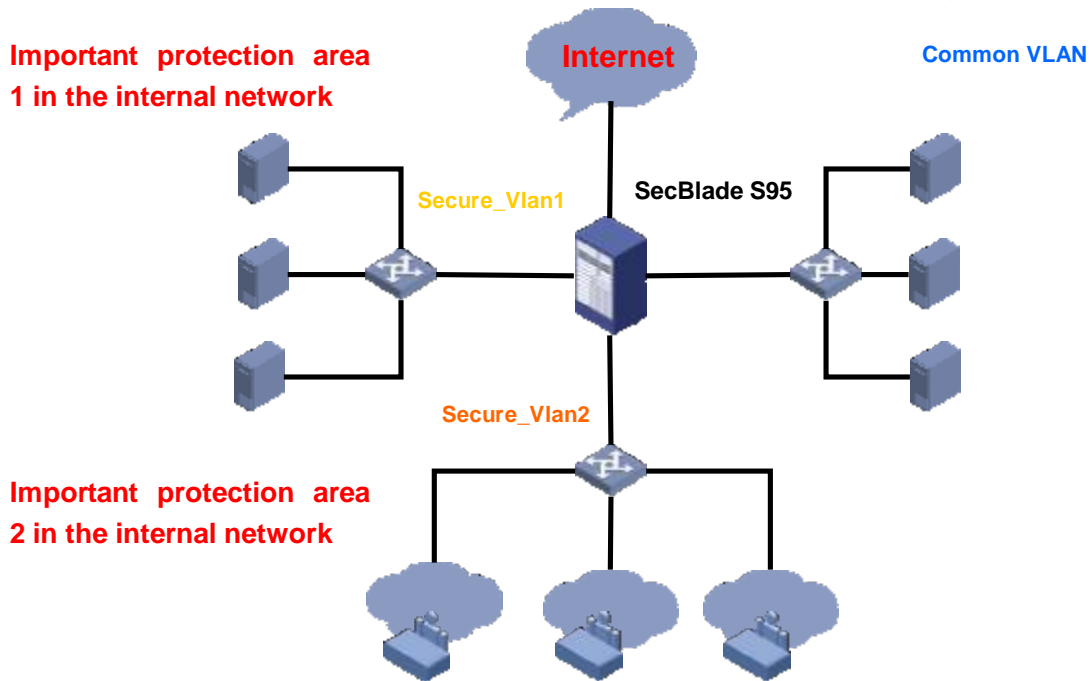


Figure 6. Deployment Scenarios for H3C S9500 Series' Firewall Application at the internal network

If there are important network segments in the internal network, the SecBlade FW module can be deployed in the internal network for protection. It configures Secure VLAN, formulates rules for each Secure VLAN, and customizes security strategies according to specific application features. This deployment can detect all traffic flows into/out of the protected network.

## I Deployment Scenarios for H3C S9500 Series VPN Application

The SecBlade VPN module has powerful VPN functions, meeting demand of branches and mobile offices for accessing the corporate headquarters. By integrating Internet, Intranet and Extranet, it implements secure access of enterprises.



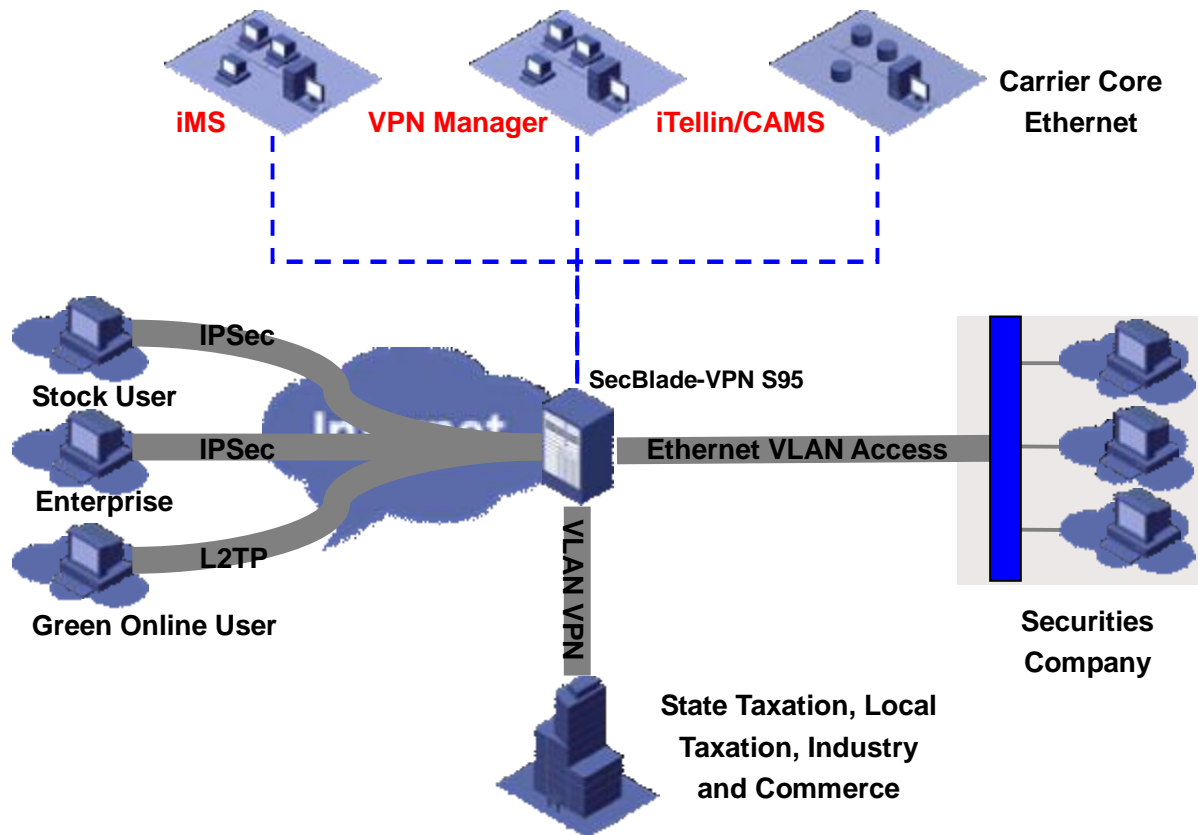


Figure 7. Deployment Scenarios for H3C S9500 Series' VPN Application

- | Supports IPsec<sup>8</sup>/IKE VPN
- | Supports GRE VPN
- | Supports L2TP VPN
- | Supports DVPN

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<sup>8</sup> IPsec service module will be released in Q4/06