

H3C S9820-8C-G Data Center Switches

Product overview

H3C S9820 series switches are a new generation of high-performance, high-density 400GE/200GE/100GE Ethernet switches launched by H3C for data centers. These switches provide high density 400GE/200GE/100GE ports; supports redundant pluggable power supplies and fans, and the fan direction can be flexibly adjusted. S9820s can be used for next-generation data center core.

S9820s can also connect to S12500 core switches through 400GE uplinks and 100GE switches in downlinks, providing high-bandwidth and large-capacity server access.

Views

S9820-8C-G

The switch supports 8 subslots, each card can provide up to 16*100GE ports or 4*400GE QSFP-DD/Q112 ports, 8*200GE ports



Features and highlights

High port density and powerful forwarding capacity

The H3C S9820 series switches supports high-density 400GE/200GE/100GE ports, has powerful forwarding capabilities, and has flexible sub-card configurations, supporting a maximum of 32*400GE Q112/ QSFP-DD ports, 64*200G QSFP56 or 128*100GE QSFP28 ports, with extremely high port density and strong forwarding capability, can meet the needs of high-end data center high-density servers without networking requirements for convergent access.

H3C distributed resilient network interconnection (DRNI)

- H3C S9820 series switches support DRNI(M-LAG), which enables links of multiple switches to aggregate into one to implement device-level link backup. DRNI is applicable to servers dual-homed to a pair of access devices for node redundancy.
- Streamlined topology: DRNI simplifies the network topology and spanning tree configuration by virtualizing two physical devices into one logical device.
- Independent upgrading: The DR member devices can be upgraded independently one by one to minimize the impact on traffic forwarding.
- High availability: The DR system uses a keepalive link to detect multi-active collision to ensure that only one member device forwards traffic after a DR system splits.

Powerful visibility

With the rapid development of data center, the scale of the data center expands rapidly; reliability, operation and maintenance become the bottleneck of data center for further expansion. H3C S9820 series switches conform to the trend of automated data operation and maintenance, and support visualization of data center.

- INT (Inband-Telemetry) is a network monitoring technology used to collect data from the device. Compared with the traditional network monitoring technology featuring one query, one reporting, INT requires only one-time configuration for continuous data reporting, thereby reducing the request processing load of the device. INT can collect timestamp information, device ID, port information, and buffer information in real time.
- Provides a variety of traffic monitoring and analytic tools, including sFlow, NetStream, SPAN /ERSPAN mirroring, and port mirroring to help customers perform precise traffic analysis and gain visibility into network application traffic. With these tools, customers can collect network traffic data to evaluate network health status, create traffic analysis reports, perform traffic engineering, and optimize resource allocation.
- Supports realtime monitoring of buffer and port queues, allowing for visible and dynamic network optimization.
- Supports PTP (Precision Time Protocol) to achieve highly precise clock synchronization.

Flexible programmability

- The switch uses industry-leading programmable switching chips that allow users to define the forwarding logic as needed.
- Users can develop new features that meet the evolving trend of their networks through simple software updates.

Powerful SDN capacity

- H3C S9820 series switches adopt the next-generation chip with more flexible Openflow FlowTable, more resources and accurate ACL matching, which greatly improves the software-defined network (SDN) capabilities and meet the demand of data center SDN network.
- H3C S9820 series switches can interconnect with H3C SeerEngine-DC Controller through standard protocols such as OVSDB, Netconf and SNMP to implement network automatic deployment and configuration.

Comprehensive security control policies

- H3C S9820 series switch supports AAA, RADIUS and user account based authentication, IP, MAC, VLAN, port-based user identification, dynamic and static binding; when working with the H3C iMC platform, it can conduct real time management, instant diagnosis and crackdown on illicit network behavior.
- H3C S9820 series switch supports enhanced ACL control logic, which enables an enormous amount of inbound and outbound ACL, and delegate VLAN based ACL. This simplifies user deployment process and avoids ACL resource wastage. S9820 series switch can also take advantage of Unicast Reverse Path Forwarding (Unicast RPF). When the device receives a packet, it will perform the reverse check to verify the source address from which the packets are supposedly originated, and will drop the packet if such path doesn't exist. This can effectively prevent the source address spoofing in the network.

Multiple reliability protection

- The S9820 series switch provides multiple reliability protection at both switch and link levels. With over current, overvoltage, and overheat protection, all models have a redundant pluggable power module, which enables flexible configuration of AC or DC power modules based on actual needs. The entire switch supports fault detection and alarm for power supply and fan, allowing fan speed to change to suit different ambient temperatures.
- The switch supports diverse link redundancy technologies such as H3C proprietary VRRPE, and Smart Link. These technologies ensure quick network convergence even when large amount of traffic of multiple services runs on the network.

Excellent manageability

The switch improves system management through the following ways:

- Provides multiple management interfaces, including the serial console port, , USB port, out-of-band management ports.
- Supports multiple access methods, including SNMPv1/v2c/v3, Telnet, SSH 2.0, SSL, and FTP.
- Supports standard NETCONF APIs that allow users to configure and manage the switch, enhancing the compatibility with third-party applications.

Technical specifications

Hardware specifications

Item	S9820-8C-G
Dimensions (H × W × D) /mm	130.5×440×760
Weight	≤45kg
Console port	1
Out-of-band management port	10M/100M/1000M Base-T port: 1; SFP port: 1
Mini USB port	-
USB port	1
Expansion slot	8 slots(each slot support 16*100G QSFP28/ 4*400G QSFP112/ 4*400G QSFP-DD/ 8*200G QSFP56)
CPU	2.2GHz
Flash/SDRAM	NAND FLASH:SSD 128G NOR FLASH:128M*2 RAM: 16G
Latency	1.5μs
Buffer	64MB
Switching capacity	25.6T (bidirection)
Forwarding capacity	5.4B pps
AC-input voltage	100V-240V AC; 50/60Hz
DC-input voltage	240V DC
Power module slot	4
Fan tray slot	5
Air flow direction	Fan Panel Side Exhaust Airflow
Static power consumption	Dual power:272W/ Four power:289W
Typical power consumption(full cables, 50% load)	LSWM1CGQ16M1: Dual power:880W/ Four power:891W LSWM1CDHQ4M1: Dual power:809W/ Four power:815W
Typical power consumption(full transceivers, 100% load)	LSWM1CGQ16M1: Dual power: 1894W/ Four power: 1902W LSWM1CDHQ4M1: Dual power: 1377W/ Four power: 1383W
MTBF(years)	34.47
MTTR(hour)	0.5
Operating temperature	-40°C~70°C
Operating humidity	5%~95%

Software specifications

Item	Feature description
Device virtualization	M-LAG(DRNI)
Link aggregation	Static Aggregation Dynamic Aggregation Layer 3 Aggregation
VXLAN	L2 VxLAN gateway L3 VxLAN gateway Multicast vxlan
Lossless network	PFC /PFC deadlock /Deadlock prevention /ECN /AI ECN /ECN OVERLAY /INOF /IPCC ECMP mode eligibility /ECMP mode enhanced /Spraylink /RoCEv2 flow session analysis DPSH
Programmability	RESTful /Tcl /Python /NETCONF /Ansible/OpenFlow
Traffic analysis	Sflow / Netstream / IPv6 NetStream
VLAN	Port-based VLANs, Mac-based VLAN, Protocol VLAN VLAN mapping QinQ, QinQ Stacking MVRP(Multiple VLAN Registration Protocol) Super VLAN PVLAN Default VLAN
MAC address	Dynamic learning and aging of mac address entries Dynamic,static and blackhole entries Mac address limiting on ports
IPv4 routing	Static routing and default routing RIP(Routing Information Protocol) v1/2 OSPF (Open Shortest Path First) v1/v2 ISIS(Intermediate System to Intermediate system) BGP (Border Gateway Protocol) Routing policy VRRP PBR

Item	Feature description
IPv6 routing	Static routing and default routing RIPng OSPFv3 IPv6 ISIS BGP4+ Routing policy VRRP PBR
MPLS	MPLS Static LSP LDP MCE
Multicast	IGMP snooping MLD snooping IPv4 and IPv6 multicast VLAN IPv4 and IPv6 PIM snooping IGMP and MLD PIM and IPv6 PIM MSDP Multicast VPN
Reliability	STP/RSTP/MSTP protocol STP Root Guard and BPDU Guard ERPS Ethernet OAM Smartlink DLDP BFD for OSPF/OSPFv3, BGP/BGP4, IS-IS/IS-ISv6, PIM/IPM for IPv6 and Static route IPv4 VRRP, IPv6 VRRP

Item	Feature description
QoS	Weighted Random Early Detection (WRED) and tail drop Flexible queue scheduling algorithms based on port and queue, including strict priority (SP), Weighted Deficit Round Robin (WDRR), Weighted Fair Queuing (WFQ), SP + WDRR, and SP + WFQ. Traffic shaping Packet filtering at L2 (Layer 2) through L4 (Layer 4); flow classification based on source MAC address, destination MAC address, source IP (IPv4/IPv6) address, destination IP (IPv4/IPv6) address, port, protocol, and VLAN to apply qos policy,including mirroring,redirection,priority remark etc. Committed access rate (CAR) Account by packet and byte COPP TAP
Telemetry	gRPC ERSPAN Telemetry Stream INT Ping, Tracert
Configuration and maintenance	Console telnet and SSH terminals SNMPv1/v2/v3 ZTP
Configuration and maintenance	System log File upload and download via FTP/TFTP NQA iNQA ping,tracert NTP PTP(1588v2) GIR Graceful Insertion and Removal CLI, RBAC, TCL, Python
Security and management	Keychain, Public Key Management, PKI, SSH, SSL, Packet Filtering, DHCP Snooping, DHCPv6 Snooping ARP Attack Prevention, ND Attack Prevention, Attack Detection and Prevention, IP Source Guard, uRPF MACsec,Cloudsec, TPM, Object Group, TCP Attack Prevention Configuration, SAVI, SAVA, MFF, FIPS, Microsegmentation

- The options may be different depending on the specific requirement. Restrictions and limitations may apply. To confirm availability, refer to related user guide or visit H3C website <https://www.h3c.com/en/home/htb/>.

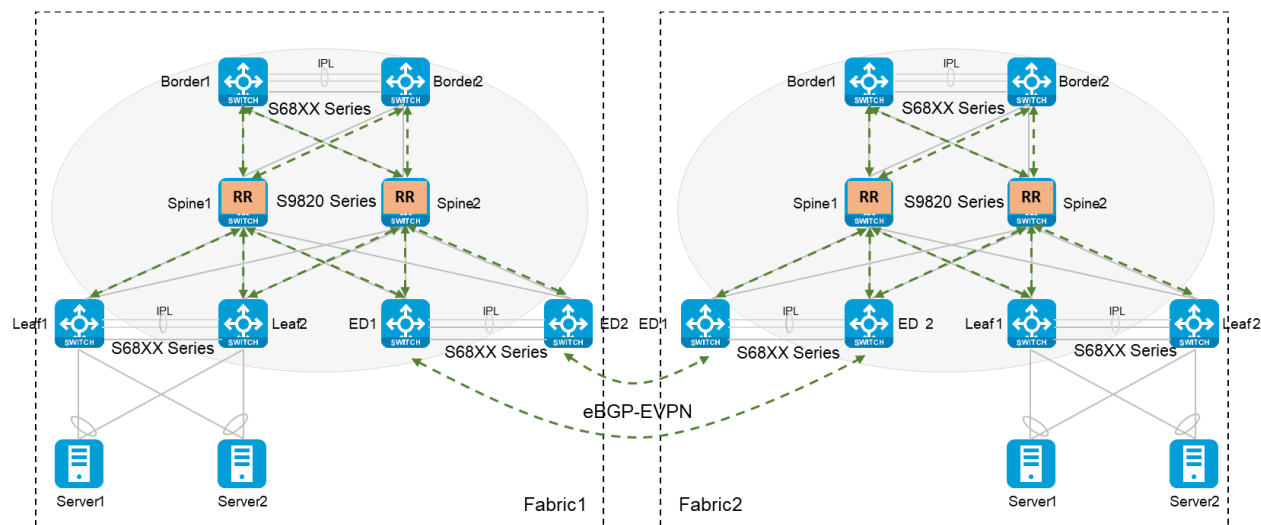
Performance and scalability

Item		S9820-8C-G
Forwarding table	Jumbo frame length(byte)	1536-13312
	Mirroring group	4
	max number of MACs per switch	448K
	max number of ARP entries IPv4	vlan: 126K; vxlan: 48k
	max ND table size for IPv4	126K max
	max number of unicast routes IPv4	768K
	max number of unicast routes IPv6	256K
	IPv4 I2 multicast group	8000
	IPv4 I3 multicast group	12132
	IPv6 I2 multicast group	8192
	IPv6 I3 multicast group	8192
	LAGG group	256
	ECMP group	2047
	ECMP member per group	2-128
	VRF	4095
Interface	Loopback interface number	1024
	L3 sub interface number	4094
	SVI interface number	4094
	VxLAN AC number	16383
	VxLAN VSI number	8K
	VxLAN Unicast tunnel number	IPv4:8K; IPv6:2K
	VXLAN Instance for each VSI	8187
	VLAN number	4094
Performance	RIB	5M
	MSTP instance	65
	PVST instance	126
	VRRP group	4000
	NQA group	30000
Static table	static mac-address	96K
	static multicast mac-address	256
Static table	static ARP	126K
	static ND	1024

Item		S9820-8C-G
	static IPv4 routing table	160k
	static IPv6 routing table	10K

Application scenarios

The typical data center application is an EVPN-VxLAN design, S9820 series switches work as spine or spine/border, S68XX series work as leaf and border or ED. From this design. The users can get a non-blocking large L2 system.



Ordering information

Item		Description
Host	LS-9820-8C-G	H3C S9820-8C-G L3 Ethernet Switch with 8*Interface Module Slots
Power	PSR1300-12A-C-A	H3C 1300W AC Power Supply Module (Power Panel Side Exhaust Airflow)
Fan	FAN-80B-1-B	Fan Module (Fan Panel Side Exhaust Airflow)
Module	LSWM1CGQ16M1	H3C 16-Port 100G Ethernet Optical Interface Module(QSFP28)
	LSWM1CDHQ4M1	H3C 4-Port 400G Ethernet Optical Interface Module(QSFP112)
	LSWM1CCQ8M1	H3C 8-Port 200G Ethernet Optical Interface Module (QSFP56)
	LSWM1CDQ4M1	H3C 4-Port 400G Ethernet Optical Interface Module(QSFP-DD)



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