SC9400 Series Switches

FLEXIBLE ENTERPRISE SWITCH CHASSIS WITH 1G/10G/25G/40G/100G LINE CARDS AND ENGINES

SC9400 series switch delivers high performance, high density, and low latency for MAN, campus network and data centers.

Overview

The SC9400 series switches are multi-service core switches released by FS Networks for next-generation converged networks. The switches combine various features of campus networks and data centers. Support IPv4, IPv6, and other network services, meeting the application requirements of Ethernet in the future. In addition, the switches support virtualization features such as virtual switching unit (VSU) and virtual switch device (VSD). VSU simplifies the network architectures of customers to improve O&M efficiency. VSD helps customers improve the utilization of devices and lower network investments. The SC9400 series switches can be deployed in MANs, campus networks, and data centers based on business requirements.

Benefits

- Layer 3 Switches
- Broadcom Switch Chip
- Support up to 2 Units Stacking
- 1+1 Redundant Power Supplies
- IPv4/IPv6 Dual-stack Multi-layer Switching
- Support VSU, VSD, VXLAN, MPLS
- Green Ethernet, Energy Efficiency

Product Characteristics

On-demand Resource Allocation Based on Virtualization

VSU 3.0

The SC9400 series switches adopt VSU 3.0 to virtualize multiple physical devices into one logical device for unified operation and management, substantially reducing network nodes and lowering network O&M management personnel's workload. The switches can implement fast switchover within 50 ms to 200 ms upon a link failure and ensure uninterrupted transmission of key services, thereby enhancing network reliability. The inter-device link aggregation feature implements dual active uplinks for access servers and switches, doubling the bandwidth of effective connections.

VSD

The SC9400 series switches adopt VSD to virtualize one device into multiple virtual devices. Each virtual device has an independent configuration management interface and independent allocation of hardware resources (such as the memory, TCAM, and hardware forwarding table). These virtual devices can be independently restarted with no impact on others. This effectively implements on-demand allocation of network sources and allows core switch resources to be shared by multiple regions or users at the same time. Moreover, network resources can be completely pooled if both VSU 3.0 and VSD are enabled.

Carrier-Class High Reliability

The redundancy design is applied to all key components of the SC9400 series switches, including 1+1 redundancy for supervisor engines, N+M redundancy for power modules, 1+1 redundancy for fans. All redundant components are hot-swappable, which maximizes the reliability and availability of the entire switch.

The SC9400 series switches support GR for OSPF/IS-IS/BGP and BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing, and implement the fast fault detection mechanism through protocols, with the fault detection time less than 50 ms.

The hardware health status can be visualized so that users can monitor the fan status, power, temperature, and onboard voltage. Especially, users can identify voltage exceptions during routine inspection and handle the exceptions in a timely manner, thereby preventing system breakdown caused by voltage exceptions.

The switches employ the fault isolation technology to monitor the optical module status. If an optical module is faulty, the optical module is isolated and has no impact on the running of other ports or the switch. After the faulty optical module is replaced, the corresponding port recovers immediately.

CLOS Architecture for Non-Blocking Switching

The advanced CLOS multi-level multi-plane architecture is utilized to implement the separation of the control plane from the forwarding plane. That is, the switch fabric modules and supervisor engines can be configured independently to ensure non-blocking switching at the full line rate among ports, delivering continuous bandwidth upgrade and service support capabilities.

The complete orthogonal design applies to service cards and switch fabric modules. Traffic is transmitted to the switch fabric modules via the orthogonal connector for switching. In this way, there is no cabling on the backplane and the transmission loss is low, which greatly reduces the signal attenuation and improves the service traffic transmission efficiency in the switch.

Sound QoS Policies

The SC9400 series switches are capable of classifying and controlling various flows including MAC flows, IP flows, and application flows, to implement fine flow bandwidth control, forwarding priority, and other flow policies. Furthermore, the switches can provide services based on applications and characteristics of the service quality required by different applications.

The DiffServ-centered QoS guarantee system supports 802.1p, IP ToS, layer-2 to layer-7 traffic filtering, SP, WRR, and other QoS policies, and implements the QoS logic for multiple services throughout the network.

High Energy Efficiency

The SC9400 series switches are equipped with modular power supplies to deliver power efficiently.

The multi-core CPU supports dynamic power consumption management, and all Ethernet electrical ports support the Energy Efficient Ethernet (EEE) standard, reducing power consumption at low loads.

The smart fans support 256-level speed regulating and precise temperature control, saving energy and reducing noise. This allows the switches to run at a high temperature for a long time and adapt to severe environments, greatly lowering power consumption.

Ease of Network Maintenance

The SC9400 series supports the Simple Network Management Protocol (SNMP), Remote Network Monitoring (RMON), syslog, and other features for daily network diagnosis and maintenance. In addition, administrators can utilize diversified management and maintenance methods including the CLI, Web-based NMS, and telnet to facilitate device management.

The gRPC-based telemetry technology enables the switches to periodically collect information about CPU, memory, and other components

The simplistic optical management software and service template embedded in the switches enable the switches to be deployed quickly. In addition to allowing you to plan network services, the switches support plug and play, intelligent zero replacement, and optical link fault monitoring and alarm functions, and can go online with zero configuration.

Technical Specification

SC9400 series switches come with advanced hardware architecture design and abundant L2 and L3 features. Here's a look at the details.

CHARACTERISTICS

	SC9405
Ports	
Number of Line Card Slots	3
Number of Line Engine Slots	2
Max. 100G Ports	24
Max. 40G Ports	24
Max. 25G Ports	96
Max. 1G/10G Ports	144
Console Port	1
USB Port	1
MGMT port	1
Operating System	
OS	FSOS
Performance	
Layer Type	Layer 3
Switching Capacity	4800 Gbps
Forwarding Rate	892.8 Mpps
Flash Memory	1GB
MTBF (Hours)	>200K
Number of VLANs	4K
Stackability	Up to 2 Units

Technical Specification

S3910 series switches come with full gigabit downlink data exchange and fixed 10G uplink data exchange. Here's a look at the details.

CHARACTERISTICS

	SC9405
Performance	
Status Indicators	Status, MGMT, FAN, Power Supply
Remote Management Protocol	SNMP v1/v2c/v3, CLI, Telnet, RMON, syslog
Power	
Input Voltage	100-240VAC, 50-60Hz
Max. Power Consumption	<88W
Physical and Environmental	
Dimensions (Hx Wx D)	6.9''x 17.4''x 17.8'' (175× 442× 451mm)
Rack Space	4U
Fan Number	1
Hot-swappable Power Supplies	2 (1+1 Redundancy)
Airflow	Front-to-Back
Weight	71.32 lbs (32.35kg), with 1 fan
Operating Temperature	32°F to 122°F (0°C to50°C)
Storage Temperature	-40°F to 158°F (-40°C to 70°C)
Operating Humidity	10 to 90% (Non-condensing)
Storage Humidity	5 to 95% (Non-condensing)
Warranty	
Warranty	5 Years

Technical Specification

S3910 series switches come with full gigabit downlink data exchange and fixed 10G uplink data exchange. Here's a look at the details.

CHARACTERISTICS

	SC9400-48F-E	SC9400-48S-E	SC9400-8C-E	SC94-EM-A
Ports				
Ports	48x 1G SFP	48x 1G/10G SFP+	8x 40G/100G QSFP28 (Split to 4x 25G)	/
Max. 100G Ports	/	/	8	/
Max. 40G Ports	/	/	8	/
Max. 25G Ports	/	/	32	/
Max. 10G Ports	/	48	/	/
Max. 1G Ports	48	48	/	/
Power				
Max. Power Consumption	<95W	<160W	<130W	<33W
Physical and Environmental				
Dimensions (Hx Wx D)	1.62"x 16.22"x 15.35" (41x 412x 390mm)	1.62"x 16.22"x 15.35" (41x 412x 390mm)	1.62"x 16.22"x 15.35" (41x 412x 390mm)	1.61"x 5.94"x 15.35" (24× 151× 390mm)
Weight	7.05 lbs (3.2kg)	8.49 lbs (3.85kg)	7.72 lbs (3.5kg)	1.90 lbs (0.86kg)
Operating Temperature	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)	0 to 50°C (32 to 122°F)
Storage Temperature	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)	-40 to 70°C (-40 to 158°F)
Operating Humidity	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)	5% to 95% (Non-condensing)	10% to 90% (Non-condensing)
Warranty				
Warranty	5 Years	5 Years	5 Years	5 Years

FEATURES

Functionality	Description
L2 features	• Jumbo frame • 802.1Q • STP, RSTP, MSTP • Super VLAN • GVRP • QinQ and flexible QinQ • LLDP • ERPS (G.8032)
MPLS	• MPLS L3VPN • MPLS 6VPE • MPLS IPv6
IPv4 features	• Static routing, RIP, OSPF, IS-IS, and BGP4 • VRRP • ECMP • Policy-based routing • GRE tunnel
IPv6 features	• Static routing, OSPFv3, BGP4+, IS-ISv6, and MLDv1/v2 • VRRPv3 • ECMP • Policy-based routing • Manual tunnel, automatic tunnel, ISATAP tunnel, and GRE tunnel
Multicast	• IGMP v1/v2/v3 • IGMP snooping • IGMP proxy • PIM-DM, PIM-SM, PIM-SSM, and other multicast routing protocols • MLD • Multicast static routing
VXLAN	• VXLAN L2 bridge • VXLAN L3 gateway
ACL	• Standard, extended, and expert-level ACLs • ACL 80 • IPv6 ACLs
QoS	• 802.1P • SP, WRR, DRR, SP+WRR, SP+DRR, and other queue scheduling mechanisms • RED/WRED • Port-based rate limit

FEATURES

Functionality	Description
Mirroring	• Many-to-one mirroring, • one-to-many mirroring • flow-based mirroring • SPAN • RSPAN • VLAN mirroring
Reliability	• +1 redundancy for supervisor engines • N+M redundancy for power modules and 1+1 redundancy for fans • Hot swapping of components • Hot patch function and online installation of patches • GR for OSPF/IS-IS/BGP • BFD for VRRP/OSPF/BGP4/ISIS/ISISv6/static routing
Security	• NFPP • CPP • DAI, port security, and IP source guard • 802.1x • Portal authentication, RADIUS, and TACACS+ login authentication • uRPF • Login authentication and password security • Unknown multicast packets are not sent to the CPU, and unknown unicast packets can be suppressed. • SSHv2, providing encrypted security channels for user login • IPv6 SAVI
Management	• Console/AUX Modem/Telnet/SSH2.0 CLI configuration • File upload and download management using FTP, TFTP, and Xmodem • SNMP V1/V2c/V3 • RMON • NTP clock • Fault alarm and auto-recovery • System operation logging • sFLOW
Green Energy Saving	• IEEE 802.3az Energy Efficient Ethernet

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