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N8560-32C Switch

HIGH PERFORMANCE 100GB SWITCH FOR DATA CENTERS

N8560-32C spine switch is ideal for medium data centers and cloud computing services, providing stable, reliable and secure Layer 2/Layer 3 switching services.

Overview

The N8560-32C spine switch is ideal for medium data centers and cloud computing services. Compact 1U high-density switch with full line-rate 32 40G/100G ports, delivering low-latency, zero packet loss, non-blocking lossless Ethernet.

The switch incorporates multiple features that optimize data center network flexibility, efficiency, and reliability, including industry-leading chip, redundant hot-swappable power supplies and fans, VXLAN, MLAG (VAP), PFC, ECN, etc, meeting the growing demands of data center environment.

Benefits

- Broadcom BCM56870 Switch Chip
- Low-latency, Zero Packet Loss with PFC/ECN
- VXLAN Scales Data Center Capacity
- MLAG (VAP), GR and BFD Enhance Reliability
- 1+1 Redundant Power Supplies
- 4+1 Redundant Fan Modules
- CLI/ SNMPv1/v2c/v3/Telnet

Product Characteristics

Non-blocking Performance with Powerful Caching Capacity

The N8560-32C is a line-rate switch to power the next-generation data centers and cloud computing. It meets the requirements for a spine-and-leaf network architecture. It provides ports in the form of 32x 100G ports and all the ports can forward data at the line rate.

The switch employs an advanced cache scheduling mechanism to maximize the device's cache capability, ensuring truly non-blocking transmission in the increasingly demanding data center environment.

Data Center Virtualization

The N8560-32C switch adopts the industry-leading stacking technology to achieve unified network management, reduce network nodes and enhance network reliability. The failover time for link failure is within 50 to 200ms to guarantee uninterrupted operation for mission-critical applications. The cross-device link aggregation feature enables access to servers or switches to achieve active-active uplinks.

Data Center Overlay Networking

The N8560-32C switch supports VXLAN to meet the data center overlay networking requirements. This addresses the difficulty to expand traditional data center networks due to insufficient VLANs.

The basic network built by the N8560-32C switch can be divided into new subnets based on the overlay technology, without changing the physical topology or considering the restrictions on IP addresses and broadcast domains of physical networks.

Data Center Layer-2 Network Expansion

The VXLAN technology encapsulates layer-2 packets into User Datagram Protocol (UDP) packets, which enables the establishment of a logically layer-2 network on the layer-3 network. The N8560-32C switch, supporting the EVPN protocol, can automatically discover and authenticate virtual tunnel end points (VTEPs), thereby reducing flooding at the VXLAN data plane and eliminating dependency of VXLAN on underlying multicast services. This simplifies VXLAN deployment and improves the efficiency of large layer-2 network building to better meet the requirements of deploying a large layer-2 network in data centers.

RDMA-based Lossless Ethernet

The switch implements low-delay forwarding of the lossless Ethernet based on the Remote Direct Memory Access (RDMA) and optimizes service forwarding performance. It greatly reduces the operation cost per bit of the entire network and enhances the competitive edge of service products.

Hardware-based Traffic Visualization

The N8560-32C switch is equipped with the switch chips allowing end-to-end traffic visualization in a multipath, multinode network. In this way, the forwarding path and delay of each session can be monitored in a centralized manner, thereby raising the fault locating efficiency by more than 10 times.

Carrier-Class Reliability Protection

The N8560-32C switch supports built-in redundant power modules and modularized fan components. All the power modules and fan modules are hot-pluggable to guarantee undisturbed switching operation. In addition, the switch supports fault detection and automatic alarms for the power and fan modules. The rotation speed of the fans automatically adjusts to the ambient temperature. The switch further provides device-level and link-level reliability protection with the over-current, over-voltage, and overheating protection measures.

The N8560-32C switch also supports features like Graceful Restart (GR) and Bidirectional Forwarding (BFD) mechanisms. All the features ensure the network convergence time is unaffected even when the network bears abundant services and heavy traffic, and therefore ensure normal operation.

IPv4/IPv6 Dual-Stack Multi-Layer Switching

The hardware of the N8560-32C switch supports line-rate IPv4/IPv6 dual-stack multi-layer switching, and distinguishes and processes IPv4 and IPv6 protocol packets. The switch also supports multiple tunneling technologies including manually configured tunnels, automatic tunnels, ISATAP tunnels and so on. The switch provides flexible IPv6 inter-network communication solutions to be realized according to the requirement plan and status quo of the IPv6 networks. The switch is also applicable to an IPv4-only or IPv6-only network, or a hybrid of IPv4 and IPv6 network, fulfilling the transition requirements from IPv4 to IPv6 network.

The switch N8560-32C supports a wide range of IPv4 routing protocols including static routing, RIP, OSPF, IS-IS and BGP4, which can be selected flexibly according to the network environment. It also supports an abundant list of IPv6 routing protocols, such as static routing, RIPng, OSPFv3, and BGP4+, which can be selected flexibly either to upgrade the existing network to IPv6 network or to construct a new IPv6 network.

Flexible and Comprehensive Security Policies

The N8560-32C switch features multiple security features, which effectively defend against and control virus flooding and hacker attacks. These features include anti-DoS attack, validity check of ARP packets on ports, and multiple hardware-based ACL policies.

The switch supports hardware-based IPv6 ACLs, which can easily control IPv6 users' access to edge devices even when IPv6 users exist within an IPv4 network. It allows coexistence of IPv4 and IPv6 users on the network and can control access permissions of IPv6 users, such as restricting access to sensitive resources on the network.

The switch also supports Telnet access control based on source IP addresses. The measure prevents unauthorized users or hackers from attacking or controlling devices and thereby enhances security of the device NMS. The N8560-32C switch also implements Secure Shell (SSH) and SNMPv3 to encrypt management information in Telnet and SNMP processes, thereby ensuring security of management device information and preventing hackers from waging attacks or controlling devices.

It prevents unauthorized users from network access through multiple functions. These functions include multi-element binding, port security, time ACL, and bandwidth limit based on data traffic. The N8560-32C switch highly strengthens access security and is a perfect match for large-sized networks.

Advanced Management

The N8560-32C switch supports a family of management ports such as Console, MGMT and USB. The switch also supports SNMP v1/v2c/v3, a universal network management platform. In addition, the switch console port can be managed via Telnet / SSHv2. The switch enables Command Line Interface (CLI), Telnet, and cluster management, which simplify device management and provide

various encryption modes such as SSH2.0 to enhance network security.

The switch supports SPAN/RSPAN mirroring and multiple mirroring observation ports, offering users high visibility and transparency for easy maintenance. The switches also provide a wide range of network traffic reports to help users optimize network structure and adjust resources deployment accordingly.

Technical Specification

N8560-32C switch comes with the industry-standard hardware and FSOS. Here's a look at the details.

CHARACTERISTICS

	N8560-32C
Ports	
40G/100G QSFP28	32
RJ45 Management Port	1
Console Port	1
USB	1
Operating System	
OS	FSOS
Key Components	
Switch Chip	Broadcom BCM56870
CPU	Intel® Xeon D-1527 (Quad-core, 2.2 GHz)
SDRAM	8GB
Performance	
Layer Type	Layer 3
Switching Capacity	6.4 Tbps
Forwarding Rate	4.76 Bpps
MAC Address	96K
Packet Buffer	32MB
Flash Memory	240G
Latency	<1μs
Number of VLANs	4K
Jumbo Frame	9KB
Stackability	Up to 2 Units
MTBF (Hours)	390K
Status Indicators	SYS, PSU, FAN, Link, ACT, QSFP28 Port, Fan Module, Power Supply Module

CHARACTERISTICS

	N8560-32C
Remote Management Protocol	SNMP V1/V2C/V3, CLI, Telnet
Power	
Input Voltage	90 to 264 V AC, 50-60Hz
Max. Power Consumption	400W
Physical and Environmental	
Dimensions (HxWxD)	1.73"x 17.4"x 22" (44x 442x 560mm)
Rack Space	1U
Fan Number	5 (4+1 Redundancy)
Hot-swappable Power Supplies	2 (1+1 Redundancy)
Airflow	Front-to-Back
Weight	28.2 lbs (12.8kg), with 2 installed PSUs and 5 Fans
Operating Temperature	32°F to 104°F (0ºC to 40ºC)
Storage Temperature	-40°F to 158°F (-40ºC to 70ºC)
Operating Humidity	10% to 90% (Non-considensing)
Storage Humidity	10% to 90% (Non-considensing)
Warranty	
Warranty	5 Years

FEATURES

Functionality	Description
Layer 2 Protocols	IEEE802.3ae (10Gbase)
	IEEE802.3ak
	IEEE802.3an
	IEEE802.3x
	IEEE802.3ad (link aggregation)
	IEEE802.1p
	IEEE802.1Q
	IEEE802.1D (STP)
	IEEE802.1w (RSTP)
	IEEE802.1s (MSTP)
	IGMP Snooping
	Jumbo Frame (9Kbytes)
	IEEE802.1ad (QinQ and flexible QinQ)
	GVRP
Layer 3 Protocols (IPv4)	BGP4
	OSPFv2
	RIPv1
	RIPv2
	BGP4+
	Policy-based Routing
	Route-policy
	ECMP
	WCMP
	VRRP
	IGMP v1/v2/v3
	PIM-SSM/SM/DM
	MSDP
Basic IPv6 Protocols	ND
	ICMPv6
	Path MTU Discovery
	DNSv6
	DHCPv6
	ICMPv6
	ICMPv6 redirection
	ACLv6
	TCP/UDP for IPv6
	SNMP v6
	Ping /Traceroute v6
	IPv6 RADIUS
	Telnet/SSH v6

FEATURES

| Functionality	Description
Basic IPv6 Protocols	FTP/TFTP v6 NTP v6 IPv6 MIB support for SNMP VRRP for IPv6 IPv6 QoS
IPv6 Routing Protocols	Static routing Equal-cost routing Policy-based routing OSPFv3 RIPng BGP4+ MLDv1/v2 PIM-SMv6 Manual tunnel Auto tunnel IPv4 over IPv6 tunnel ISATAP tunnel
Data Center Features	PFC, ECN, RDMA VXLAN routing, VXLAN bridging BGP-EVPN VXLAN OpenFlow 1.3
Visualization	Support gRPC communication protocol Support sFlow sampling
QoS	EXP priority mapping based on 802.1p, DSCP and ToS ACL traffic classification Priority marking/remarking Multiple queue scheduling mechanisms, such as SP, WRR, DRR, SP+WRR, and SP+DRR
Stacking	Stacking technology for virtualizing 2 devices into 1
Buffer Management	Buffer monitoring and management, traffic burst identification
Reliability	GR for RIP/OSPF/BGP BFD detection RLDP (Rapid Link Detection Protocol) 1+1 power redundancy 4+1 fan redundancy Hot-swappable fans and power modules

FEATURES

Functionality	Description
Security	Network Foundation Protection Policy (NFPP)
	CPU Protection (CPP)
	Detection of unauthorized data packets
	Data encryption
	RADIUS / TACACS+
	IPv4 / IPv6 ACL packet filtering based on standard or extended VLANs
	Plaintext authentication and MD5 cipher-text authentication of OSPF, RIPv2, and BGPv4 packets
	Telnet login through limited IP addresses and the password mechanism
	u-RPF
	Broadcast packet suppression
	DHCP snooping, Anti-gateway ARP spoofing
	ARP check
Manageability	SNMP v1/v2c/v3
	NETCONF
	Telnet
	Console
	MGMT
	RMON
	SSHv1/v2
	FTP/TFTP for file upload and download management
	NTP clock
	Syslog
	SPAN/RSPAN/ERSPAN
	Telemetry
	VXLAN OAM
	VXLAN ping VXLAN tracert
	In-band Network Telemetry (INT)
Other Protocols	DHCP Client
	DHCP Relay
	DHCP Server
	DNS Client
	ARP Proxy
	Syslog
Power Supply	AC input:
	Rated voltage range: 100V to 240V AC
	Max. voltage range: 90V to 264V AC
	Frequency: 50-60Hz
	Rated current: 7.2A-3.5A

FEATURES

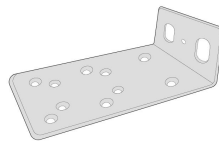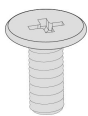| Functionality	Description
Power Supply	HVDC input: Input voltage range: 192V to 288V DC Input current range: 3.6A

Accessories
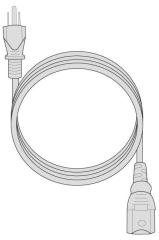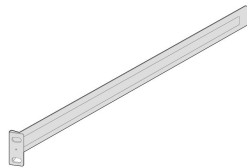
Power Cord x2

Grounding Cable x1

Mounting Bracket x2

M4 Screw x12

M6 Screw x8

M6 Nut x8

Slide Rail x2

Inner Rail x2