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N Series Switches FSOS **Typical Network Solution**

Models: N5850-48S6Q; N8550-48B8C; N8550-32C

Overview

N series data center switches with FSOS operating system support rich and complete Layer 2 switching and Layer 3 routing functions, IPv4 and IPv6 dual stack protocols, and VXLAN functions of data center, which is built for the small and medium data center, and the medium and large campus networks.

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| Part Number | N5850-48S6Q | N8550-48B8C | N8550-32C |
|------------------------------|---|--|---|
| Layer Type | Layer 3 | Layer 3 | Layer 3 |
| Port | 48x 10G SFP+ and 6x 40G QSFP+ | 2x 10G SFP+, 48x 25G SFP28 and 8x 100G QSFP28 | 2x 10G SFP+ and 32x 100G QSFP28 |
| Switching Capacity | 1.44 Tbps full duplex | 4 Tbps full duplex | 6.4 Tbps full duplex |
| Forwarding Rate | 1 Bpps | 2.9 Bpps | 4.7 Bpps |
| Airflow | Back-to-Front | Back-to-Front | Back-to-Front |
| Hot-swappable Power Supplies | 2 (1+1 Redundancy) | 2 (1+1 Redundancy) | 2 (1+1 Redundancy) |
| Dimensions (HxWxD) | 1.71" x 17.26" x 18.62" (43.4 x 438.4 x 473mm) | 1.71" x 17.26" x 21.1" (43.5 x 438.4 x 536mm) | 1.72" x 17.26" x 20.28" (43.8 x 438.4 x 515mm) |

Medium-sized Data Center Solution

Background

The client wants us to provide a small and medium data center solution. There are a large number of servers, including 10G and 25G. Because of more business, he hopes to be able to guarantee the reliability of business access, to ensure that the network can not be interrupted.

Challenge

To build this network, we need to deploy redundant links to ensure stability and reliability, but we need to consider avoiding loop in the network at the same time. More business can be forwarded through link load balance.

Solution Topology



Solution Description

This solution can select the N8550-48B8C which uplink port speed is 100G to connect 25G servers and select N5850-48S6Q which uplink port speed is 40G to connect 10G servers. Use N8550-32C as the core switch and its 100G port can speed down to 40G. Multiple rates can be used flexibly to solve a variety of different business scenarios including high performance computing, AI, etc. Use dual-link access to improve access reliability and escort the business.

Connetcion

N8550-32C: This device is recommended because it has 32x 100G ports and it can slow down to 40G to meet different scene requirements. It can be smoothly upgraded and expanded and support hot/cold aisle with port-to-power and power-to-port airflow;

N8550-48B8C: This device is recommended because its 48x SFP28 downlink ports and 8x QSFP28 uplinks ports, which meets the need of 25G servers, is highly energy-efficient, and supports 5+1 redundant fan backup and hot/cold aisle with port-to-power and power-to-port airflow;

N5850-48S6Q: This device is recommended because its 48x SFP+ downlink ports and 6x 40 QSFP uplinks ports, which meets the need of 10G servers, supports 4+1 redundant fan backup and hot/cold aisle with port-to-power and power-to-port airflow;

BFD for VRRP+MSTP: Server dual network card connection, deploy BFD for VRRP+MSTP between the server and the leaf gateway device to achieve link redundancy. When one uplink is disconnected, the traffic can quickly switch to another uplink for forwarding and eliminate the loop in the network at the same time.

OSPF+BFD: OSPF+BFD is deployed between spine and leaf, which can realize fast fault detection and shorten the convergence time of routing protocol when link faults or topology changes on the network. Equivalent routing can also be deployed for load sharing.

ECMP: The egress link realizes load balancing through ECMP and realizes redundant backup at the same time.

Product List

| ID | Description |
|--------|---|
| 120421 | N8550-32C, 32-Port L3 Data Center Switch, 32 x 100Gb QSFP28, 2 x 10Gb SFP+, FSOS Support, Broadcom Trident III Chip |
| 120420 | N8550-48B8C, 48-Port L3 Data Center Switch, 48 x 25Gb SFP28, 2 x 10Gb SFP+, with 8 x 100Gb QSFP28 Uplinks, FSOS Support, Broadcom Trident III Chip |
| 120419 | N5850-48S6Q, 48-Port L3 Data Center Switch, 48 x 10Gb SFP+, with 6 x 40Gb QSFP+ Uplinks, FSOS Support, Broadcom Trident II+ Chip |
| 102531 | 100GBASE-LR4 QSFP28 1310nm 10km DOM Optical Transceiver Module for FS Switches |
| 50147 | Customized LC/SC/FC/ST/LSH/MU/MTRJ Duplex OS2 Single Mode Fiber Optic Patch Cable |
| 70382 | 25GBASE-LR SFP28 1310nm 10km DOM Optical Transceiver Module for FS Switches |
| 40191 | 1m (3ft) LC UPC to LC UPC Duplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable |
| 30914 | 10m (33ft) 40G QSFP+ Active Optical Cable for FS Switches |
| 11552 | 10GBASE-SR SFP+ 850nm 300m DOM Transceiver Module for FS switch |
| 40220 | 2m (7ft) LC UPC to LC UPC Duplex OM4 Multimode PVC (OFNR) 2.0mm Fiber Optic Patch Cable |

Enterprise Network Solution

Background

The client wants to provide an enterprise network solution for his company, which is an Internet company with r&d center and office area. He hopes to meet the requirements:

- Wired wireless integrated network coverage, employees can work anytime and anywhere through the network.
- High-speed LAN ensures fast data transmission.
- Clear division of authority between departments to prohibit illegal access.
- Manage the online behavior of employees to ensure their work efficiency.

Challenge

Because the company has its own product research and development center, it has high requirements for the stability and security of the network. It is necessary to design hot backup and redundant links while ensuring high performance of the network. And the switch should support configuring security policies.

Solution Topology



Solution Description

It is suggested to choose our N8550-32C for core equipment and N5850-4856Q for aggregation equipment. ERPS can be used to carry out multilink protection mechanism, fast convergence, to meet the requirements of carrier-level reliability, ensure the stability and reliability of the network. Link failure does not affect the business, and then the business can continue.

Connection

N8550-32C: This device is recommended because it has 32x 100G ports and it can speed down to 40G. It meets various interconnection needs and supports smooth upgrading and expansion. Supports hot plug of power supply and fan. And supports the hot/cold aisle with port-to-power and power-to-port airflow.

N5850-48S6Q: This device is recommended because it has 48x SFP+ downlink interfaces and 6x 40G QSFP uplink interfaces. It supports a variety of link protection protocols and protects the reliability of links. Supports hot plug of power supply and fan. And supports the hot/cold aisle with port-to-power & power-to-port airflow.

S5860-24XB-U: High performance POE++ equipment, suitable for future trends. The downlink port of the device supports 100M/1000M/2.5G/5G/10G base-T multi-rate, which can meet various business requirements.

S3410-24TS-P: Cost-effective POE management facilities, with 24x 10/100/1000 downlink POE ports and 2x 1G/10G uplink ports.

S3910-48TS: It has 48x 10/100/1000 base-T downlink interfaces and 4x 10G SFP+ uplink interfaces, supports Energy Efficient Ethernet (EEE) and various network security protocols.

ERPS: Ethernet Ring Protection Switching, link backup can be carried out to improve the reliability of the network. If there is a loop in the network, the use of ERPS protocol can effectively prevent the generation of broadcast storms, to achieve rapid migration of traffic.

Product List

| ID | Description |
|--------|---|
| 120421 | N8550-32C, 32-Port L3 Data Center Switch, 32 x 100Gb QSFP28, 2 x 10Gb SFP+, FSOS Support, Broadcom Trident III Chip |
| 120419 | N5850-48S6Q, 48-Port L3 Data Center Switch, 48 x 10Gb SFP+, with 6 x 40Gb QSFP+ Uplinks, FSOS Support, Broadcom Trident II+ Chip |
| 108716 | S5860-24XB-U, 24-Port Multi-Gigabit Ethernet L3 Managed Convergence Switch, 24 x PoE++ Ports @740W, with 4 x 25Gb SFP28 and 4 x 10Gb SFP+ Uplinks, Broadcom Chip |
| 108718 | S3410-24TS-P, 24-Port Gigabit Ethernet Managed PoE+ Switch, 24 x PoE+ Ports @740W, with 2 x 10Gb SFP+ Uplinks and 2 x Combo SFP Ports, Broadcom Chip |
| 108714 | S3910-48TS, 48-Port Gigabit Ethernet L2+ Managed Switch, 48 x Gigabit RJ45, with 4 x 10Gb SFP+ Uplinks, Stackable Switch, Broadcom Chip |
| 30914 | 10m (33ft) 40G QSFP+ Active Optical Cable for FS Switches |
| 11552 | 10GBASE-SR SFP+ 850nm 300m DOM Transceiver Module for FS switch |
| 40220 | 2m (7ft) LC UPC to LC UPC Duplex OM4 Multimode PVC (OFNR) 2.0mm Fiber Optic Patch Cable |
| 70748 | 5ft (1.5m) Cat6a Snagless Shielded (SFTP) PVC CMX Ethernet Network Patch Cable, Blue |
| 84027 | 1167Mbps 2x2 MU-MIMO Dual-Band Qualcomm Chip Gigabit Access Point |

Note: If you have any questions or requirements, please contact FS technician team or your Account manager for personalized services:

https://www.fs.com/solution_support.html



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