S5850-48T4Q Switch Typical Network Solution

Model: S5850-48T4Q

Network Solution

Overview

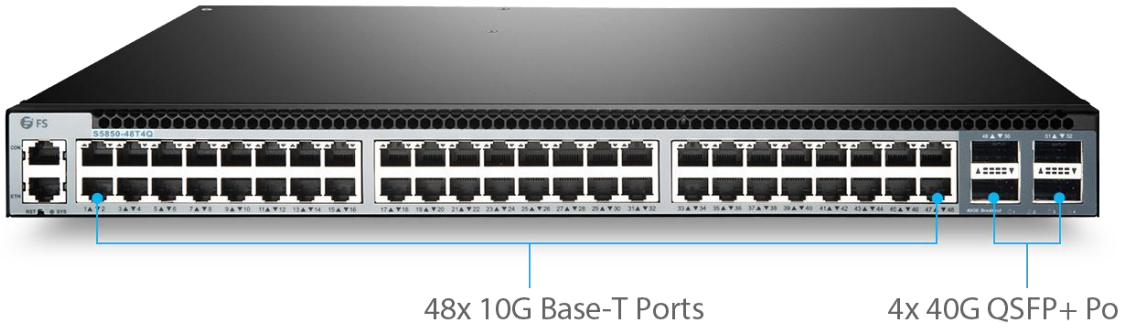
As the demand for switching capacity keeps accelerating, strong migration to higher Ethernet speeds is thus inevitable, 10G SFP+ switch deployment lies the very foundation of data center expansion. We provide S5850-48T4Q switch with backward-compatible 10G-T port, auto-negotiating between higher and lower speeds. It also has comprehensive L2+/L3 features to meet current and future needs on virtualization, converged networking and mobility.

This switch can not only be used at the center of a small business network to provide the connection between servers and network storage, but also as an aggregation/access switch in a larger organization to resolve the congestion issue which is caused by the broader adoption of Gigabit-to-the-desktop between network edge and core. It is ideal for expanding network capacity, removing performance bottlenecks. Deploying 48 port 10G Base-T network switch can be less expensive to install and maintain while meeting the requirements of most short-distance connections within a data center.

1.28 Tbps
Switching Capacity

952.3Mpps
Forwarding Rate

L2/L3
Layer Type



Enterprise Static Routing Network Solution Case Study

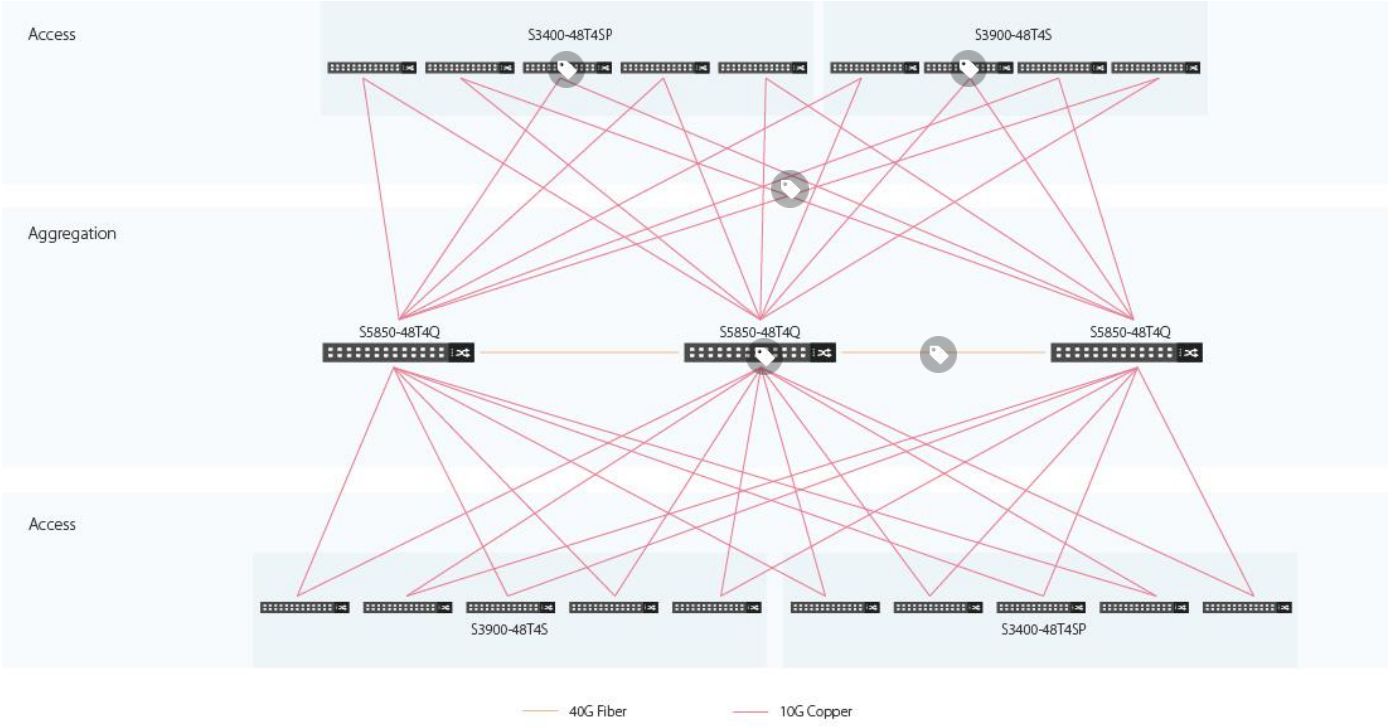
Background

The customer is going to move to a new office and needs to build a network for the new office building. The new office has two floors in total. The first floor has only switches and patch ports and signal is supplied from the second floor. The second floor is their main data center which has 5 Racks. Rack 1- 2 have only switches and patch ports. Rack 3– 5 have 10G switches with redundant power supplys. Three core nodes and multiple branch nodes are needed in this short distance communication.

Challenge

The network is divided into a power supply area and a communication area. It is necessary to design a complete and stable network to avoid forming a loop setting. All 48 port switches from 1st and 2nd floor (Rack 1- 2) are connected redundantly to these three switches per 2x 10G (2nd Floor Rack 3-5). The trunks are alternately connected to the 10GB switches. Data rate for TOR switches is 10G, each 48 port switch and PoE+ switch should be connected with LAG 2x 10G from the TOR switches.

Solution Topology



Solution Description

This solution adopts a three-layer architecture and uses three-layer routing protocols to build a redundant network. The transmission efficiency of the entire network is accelerated through the highly efficient short-distance electrical communication network transmission method. At the same time, the OSPF protocol and static routing are deployed to enhance the stability of the entire network.

Connection:
S5850-48T4Q: This switch adapts an adjustable speed fan, which can automatically adjust the fan speed according to the external ambient temperature to save energy. And it can adjust the actual power consumption according to the port's business traffic, which meet customer requirements for power consumption and heat dissipation.

S3900-48T4S: It is recommended due to its 48x 1GE RJ45 ports and 4x 10G uplink ports. For PoE+ switches, we recommends S3400-48T4SP switches which have 4x 10G ports and 48 1G RJ45 ports and can be connected to the TOR switch.

Static routing: Manually configured static routes without occupying network bandwidth, which helps to route internal traffic to make more efficient use of network resources.

OSPF: The three S5850-48T4Q switches in the middle core level are interconnected and running OSPF; PoE+ and access switches are running static routes, which introducing static routes into OSFP to achieve network-wide interoperability and link load redundancy. Once the network topology changes, the OSPF protocol can automatically calculate and correct the route, which greatly facilitates network management.

Product List

ID	Description
69378	S5850-48T4Q 48-Port 10GBASE-T L3 Managed Ethernet Switch with 4 40Gb QSFP+ Uplinks
72946	S3900-48T4S 48-Port 10/100/1000BASE-T Gigabit L2+ Stackable Managed Ethernet Switch with 4 10Gb SFP+ Uplink
90132	S3400-48T4SP 48-Port Gigabit Managed PoE+ Switch with 4 10Gb SFP+ Uplinks, 400W
36157	Cisco QSFP-40G-SR4 Compatible 40GBASE-SR4 QSFP+ 850nm 150m MTP/MPO DOM Transceiver Module
68020	3m (10ft) MTP Female 12 Fibers Type B Plenum (OFNP) OM4 (OM3) 50/125 Multimode Elite Trunk Cable, Magenta
66613	FS for Cisco SFP-10G-T-S Compatible, 10GBASE-T SFP+ Copper RJ-45 30m Transceiver Module (Standard)
73057	1ft (0.3m) Cat6a Snagless Shielded (SFTP) PVC CMX Ethernet Network Patch Cable, Black

Enterprise Campus Network Solution Case Study

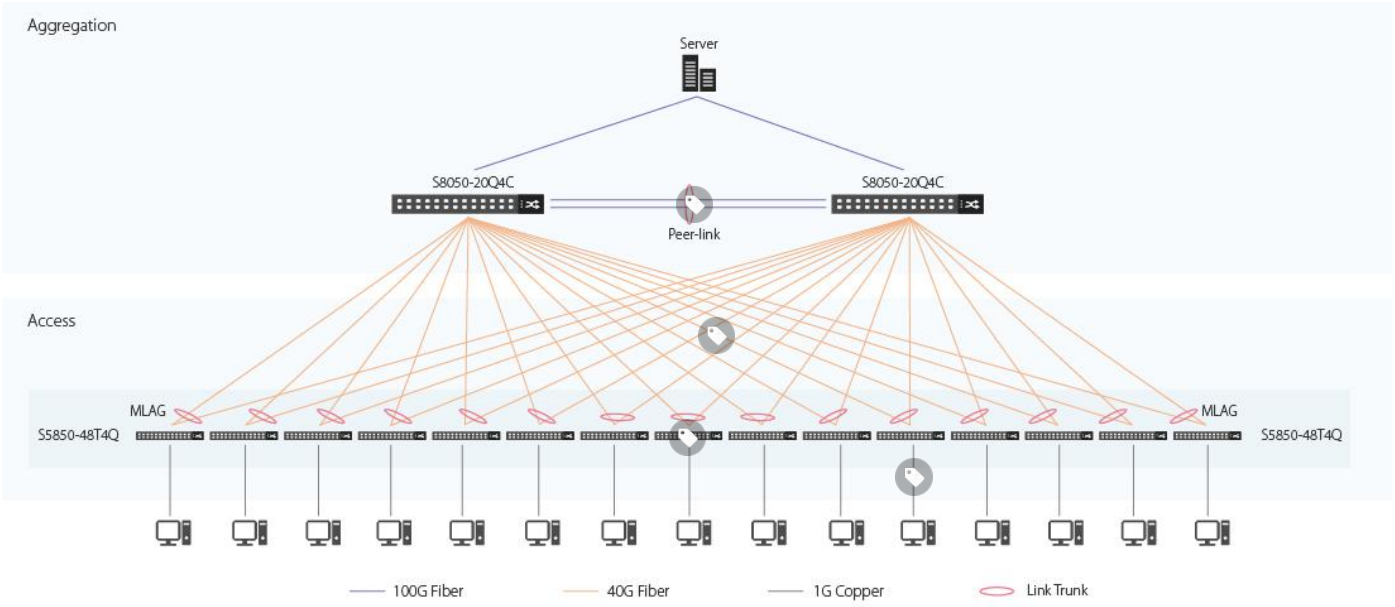
Background

A customer comes from the United States is looking for a professional enterprise network solution. He wants a server to connect with 720 clients in the control room, and transfer the largest file (1-2TB) from the server to the client through the network at the same time.

Challenge

All 720 clients can be transferred at once is the best, but if it is not possible, he can accept scaling down to batch 240 clients at a time. The number of data services to be transmitted is large, and they must use network copper cables to connect the terminal equipment.

Solution Topology



Solution Description

The core switch selects our S8050-20Q4C switch and the access equipment uses S5850-48T4Q to form a stable structure network. The dual-redundancy design of link and device provides high reliability and security for the network and avoids the single point of failure which will cause a paralyzed network. Administrators can easily and flexibly deploy the network.

Connection:
S5850-48T4Q: To meet the needs of customers to connect terminal equipment and large data traffic through network cables, we recommended the S5850-48T4Q switch. It has 48x 10G RJ45 ports for connecting terminal equipment to achieve10G connection, and 4x 40G QSFP+ uplink ports are used to connect the core switch S8050-20Q4C. This switch supports MLAG and can realize the virtualization.

MLAG: Two S5850-48T4Q switches are configured with MLAG and logically as a virtual switch, which connected to the customer's terminal equipment by a dual-link to form a ring-free topology. It can ensure the decoupling of the control plane between many devices, achieve control plane isolation and device fault isolation, and can perform active-active forwarding processing on the premise of version upgrade without affecting each other.

Product List

ID	Description
29126	S8050-20Q4C 20-Port 40Gb QSFP+ and 4 10Gb Combo L3 Managed Ethernet Switch with 4 100Gb QSFP28 Uplinks
69378	S5850-48T4Q 48-Port 10GBASE-T L3 Managed Ethernet Switch with 4 40Gb QSFP+ Uplinks
70555	3ft (0.9m) Cat5e Snagless Unshielded (UTP) PVC CM Ethernet Network Patch Cable, Blue
48354	Cisco QSFP-100G-SR4-S Compatible 100GBASE-SR4 QSFP28 850nm 100m DOM Transceiver Module for Ethernet and Data Center
36157	Cisco QSFP-40G-SR4 Compatible 40GBASE-SR4 QSFP+ 850nm 150m MTP/MPO DOM Transceiver Module
68020	3m (10ft) MTP Female 12 Fibers Type B Plenum (OFNP) OM4 (OM3) 50/125 Multimode Elite Trunk Cable, Magenta

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

https://www.fs.com

The information in this document is subject to change without notice. FS has made all efforts to ensure the accuracy of the information, but all information in this document does not constitute any kind of warranty.