S3900 Series Switch Typical Network Solution

Model: S3900-24F4S

Network Solution

Overview

S3900-24F4S is an advanced Layer 2+ Gigabit Ethernet managed stackable switch. It has the characteristics of high availability, comprehensive security, robust multicast control, and advances QoS to the edge of the network while maintaining simple management.

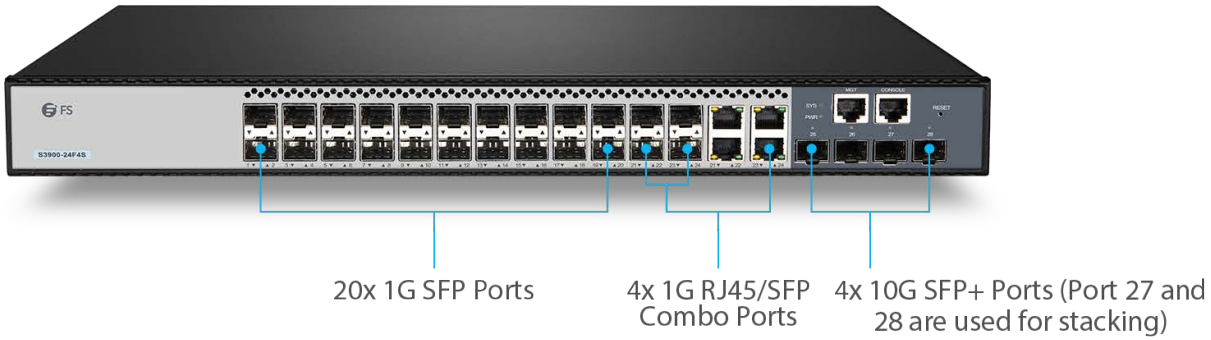
S3900-24F4S switch provides line-speed switching performance on all ports, making full use of existing high-performance Gigabit CPE, PCS, 11N/AC Wi-Fi applications, etc., which significantly improves application responsiveness and file transfer time.

The IEEE 802.1W rapid spanning tree protocol (RSTP) provides the convergence of loop-free networks and redundant links to the core network to ensure faster recovery from failed links and enhance overall network stability and reliability.

128 Gbps
Switching Capacity

95 Mpps
Forwarding Rate

BCM56151
Switch Chip



Photography Studio Network Case Study

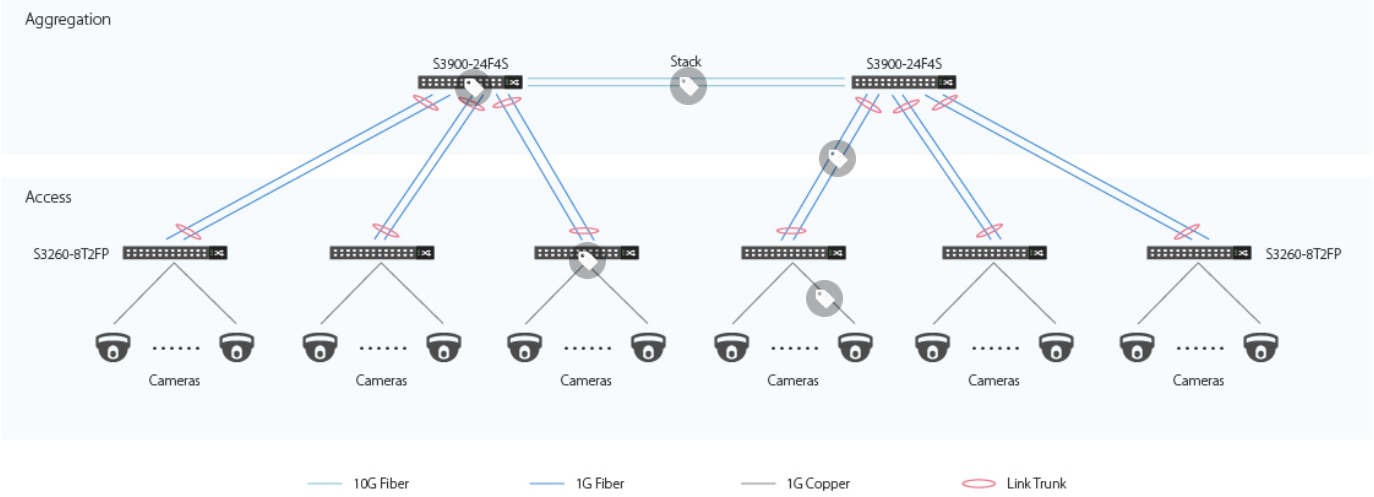
Background

The customer is building a 3D photogrammetry project recently, which needs to control many cameras through remote server room. At the same time, each camera to the host room needs to connect two pair fibers for redundant protection. The solution needs to be simple and easy to deploy and manage.

Challenge

- Monitroing with an HD mode on clothing display areas, storage rooms, meeting rooms, shoting places, etc., which are inside the photography studio.
- Requiring low latency on transmission network and uninterrupted recording.
- Requiring monitoring data storage time to reach more than 3 months.
- Supporting remotely preview the monitoring screen of each point in real time by multiple people.

Solution Topology



Solution Description

Multiple cameras at a long distance are connected to the central server room through our network switches in this solution. The structure is simple, which is easy to deploy and has strong flexibility. PoE switches or cameras can be added or removed at any time. This solution is also applicable to scenarios with long communication distances and the need for PoE switches to power PD devices, such as large resorts, farms, hotels, and other network scenarios.

Stacking: In the server room, two S3900-24T4S switches are configured in stacking mode, which logically becomes one switch. Extra ports are added for easy management. The failure of any one device or link will not affect the normal operation of other switches.

LACP: Adopt the link aggregation technology to connect S3900-24F4S and S3260-8T2FP to achieve link load balance and improve link bandwidth. Also, network redundancy is achieved and network stability is enhanced by LACP.

Product List

ID	Description
72945	S3900-24F4S 20-Port Gigabit SFP and 4 1Gb Combo L2+ Stackable Managed Ethernet Switch with 4 10Gb SFP+ Uplinks
80365	S3260-8T2FP 8-Port Gigabit Managed PoE+ Switch with 2 1Gb SFP Uplinks, 260W
11774	Cisco GLC-SX-MM Compatible 1000BASE-SX SFP 850nm 550m DOM Transceiver Module
41729	2m (7ft) LC UPC to LC UPC Duplex OM3 Multimode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
70555	3ft (0.9m) Cat5e Snagless Unshielded (UTP) PVC CM Ethernet Patch Cable, Blue

Residential Wired and Wireless Network Case Study

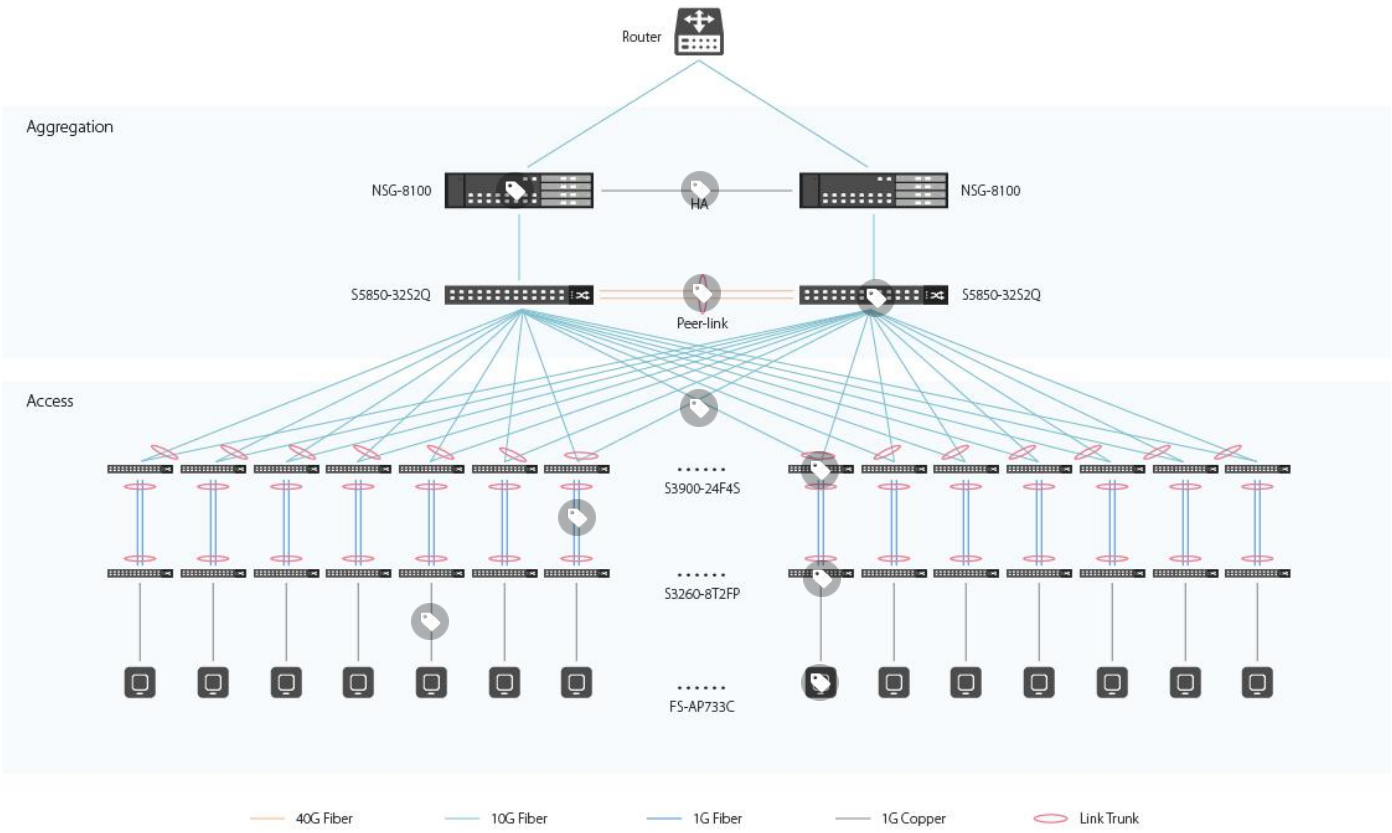
Background

The residential area which the customer is in charge of has more than 700 households, and it has a wide range of common facility areas, including an activity center, a reading room, and a health service center. The customer hopes to achieve a full range of network coverage, aiming at setting up a integrated network system involving wired and wireless WIFI. In addition, the customer expressed the hope that the network is stable and reliable, with a simple network hierarchy, convenient management and easy maintenance.

Challenge

- With high proportion of wireless users in community, the demand for the network and the load intensity of network equipment is greater.
- Due to access the Internet at different times, high stability of the ingress equipment is required.
- It is necessary to prevent attacks on the internal network, viruses, and user visits at the beginning of the setting without full-time management staff.
- Requiring simple network hierarchy, easy management, and network upgradeability and maintenance.

Solution Topology



Solution Description

The basic needs of wired and wireless network integration can be achieved through the above scheme design. The equipment selection in the plan is fully considered from the actual needs and costs of residential users. For example, PoE power supply can simultaneously transmit data and power via a copper patch cable, fully considering the user's requirements on wiring for beauty, and ceiling-mounted APs to achieve wireless coverage, in line with the decoration style of residential users. In terms of management, the switches in the network all have an independent WEB graphical configuration interface, guided by a setup wizard, the configuration is simple as well.

MLAG: By creating MLAG between S5850-32S2Q and S3900-24F4S switches to achieve dual redundancy of device links. Providing faster layer-2 convergence upon link and device failures and improving network resiliency, which reduces network down time as well as expenses.

LACP: LACP between S3900-24F4S and S3260-8T2FP increases bandwidth, providing graceful degradation and increasing availability as failure occurs. It provides network redundancy by traffic load balance across all available links.

High Availability (HA): The two NSG-8100 firewalls are configured with HA at the edge of the network, which can ensure high availability of network applications and improve security.

Product List

ID	Description
29122	S5850-32S2Q 32-Port 10Gb SFP+ L3 Managed Ethernet Switch with 2 40Gb QSFP+ Uplinks
72945	S3900-24F4S 20-Port Gigabit SFP and 4 1Gb Combo L2+ Stackable Managed Ethernet Switch with 4 10Gb SFP+ Uplinks
80365	S3260-8T2FP 8-Port Gigabit Managed PoE+ Switch with 2 1Gb SFP Uplinks, 260W
84026	733Mbps 2x2 MIMO Dual-Band FAT/FIT Wireless Access Point
36157	Cisco QSFP-40G-SR4 Compatible 40GBASE-SR4 QSFP+ 850nm 150m MTP/MPO DOM Optical Transceiver Module
68017	1m (3ft) MTP Female 12 Fibers Type B Plenum (OFNP) OM4 50/125 Multimode Elite Trunk Cable, Magenta
11555	FS for Cisco SFP-10G-LR Compatible, 10GBASE-LR SFP+ 1310nm 10km DOM Transceiver Module (Standard)
48928	Cisco SFP-GE-S-2 Compatible 1000BASE-SX SFP 1310nm 2km DOM Transceiver Module
40191	1m (3ft) LC UPC to LC UPC Duplex OS2 Single Mode PVC (OFNR) 2.0mm Fiber Optic Patch Cable
70724	5ft (1.5m) Cat6 Snagless Unshielded (UTP) PVC CM Ethernet Network Patch Cable, Gray

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