Case Study

Enterprise LAN

Mobile Network Provider Upgrades Network Connectivity with FS 40G/100G Campus Solution

A leading mobile network provider enhanced its infrastructure with FS 40G/100G campus solution, achieving faster data transmission, high-speed connectivity, and reliable scalability for future expansion.

FS

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Country
🌐 Canada

Industry
🧭 ISP

Network Type
🏢 Large and Midsize Campus Network

Solutions
🖧 Enterprise LAN

Highlights

- S8550-6Q2C switches support MLAG, RDMA, and VXLAN to enhance network reliability and flexibility.

- 40G-SR4 modules are compatible with existing network equipment to improve operational efficiency.

- Dual-compatible DACs simplify cabling management, reducing complexity and maintenance costs.

Key Stats

- Achieve high-speed connectivity between 40G/100G servers and 10G SFP+ switches.

- Optimized network architecture improves data transmission rates and reduces latency.

- Over 90% of orders are shipped same-day, ensuring prompt project execution.

Overview

A leading global manufacturer supplier specializes in delivering comprehensive 2G to 5G mobile network solutions for rural, enterprise, and rapid deployment scenarios. The company operates over 600 private mobile networks across more than 30 countries across many industries such as maritime, mining, and agriculture. To support their expanding operations and ensure high-speed, reliable connectivity, they needed to upgrade their network infrastructure to achieve 40G/100G access speeds for their terminal servers.

Challenges

The customer's current issue is that their terminal servers support 40G/100G rates, but they lack the equipment to connect these servers to existing 10G SFP+ switches. This bottleneck not only affects network efficiency but also limits the full utilization of advanced server capabilities. They anticipated using their existing S3900-48T6S-R switches to achieve seamless interconnectivity between servers and various switches.

The key challenge is to establish an effective connection between high-speed servers and lower-speed switches using the existing equipment, thereby meeting the customer's growing data transmission needs. This requires optimizing network performance and resource utilization within specified budget constraints.

Solutions

Based on the customer's specific connectivity needs and equipment requirements, FS proposed a comprehensive solution aimed at optimizing network performance. To address the speed discrepancy with the existing S3900 switches, we implemented LAG to aggregate their 10G ports. This technology consolidates multiple 10G links into higher-bandwidth connections, significantly boosting overall network capacity, redundancy, scalability, and stability.

The core of the solution is the S8550-6Q2C switches, supporting both 40G and 100G port speeds and enabling port splitting for up to four connections with S3900 switches. They serve as high-speed access points directly connecting to end servers and core switches managing network traffic flow. This integrated design enhances network efficiency by eliminating the traditional access and core layer separation. Key features include MLAG, VARP, and Smart-Link technologies for enhanced reliability and redundancy, alongside support for protocols like MPLS, VXLAN, and QoS to ensure efficient data management aligned with operational needs.

Furthermore, the solution incorporates a variety of components. For instance, 40G DAC cables are utilized for short-distance interconnections, simplifying wiring management and reducing operational workload during field maintenance. QSFP-SR4-40G modules provide excellent compatibility with existing network equipment, ensuring seamless integration. The deployment of MTP cables ensures dependable, high-speed connections that meet current network demands and facilitate future scalability.

A: 40 Gbps System (High Priority)
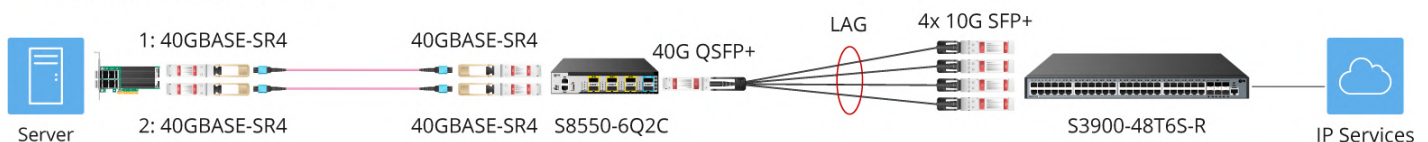
B: 100 Gbps System (future, not a Priority yet)
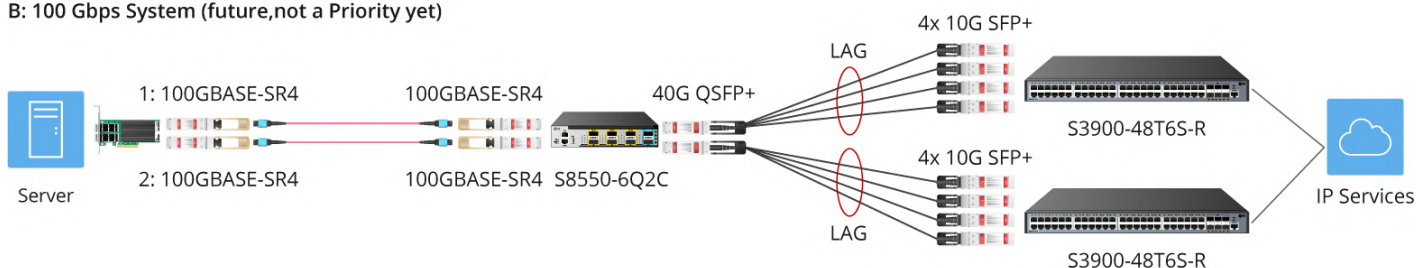
Results

Through FS's professional technology implementation, the customer has achieved significant enhancement in data processing capabilities, resulting in a notable increase in data transmission speeds. This improvement has empowered the customer to streamline operational workflows. Additionally, enhanced network architecture stability has led to reduced downtime and system failures.

Looking ahead, the customer will benefit from the existing infrastructure's scalability, facilitating future expansion with ease. By enhancing capacity to meet escalating demands, the customer can sustain competitiveness in their industry, ensuring ongoing success and innovation. The customer is positioned to adapt to future challenges and seize new opportunities in an ever-changing market landscape.

Product List

Product	ID	FS P/N	Description
40G Switch	158185	S8550-6Q2C	S8550-6Q2C, 8-Port Ethernet L3 Switch, 6 x 40Gb QSFP+, with 2 x 100G QSFP28, Support MPLS&MLAG
1G Switch	134657	S3900-48T6S-R	S3900-48T6S-R, 48-Port Gigabit Ethernet L2+ Switch, 48 x Gigabit RJ45, with 6 x 10Gb SFP+ Uplinks, Stackable Switch
40G DAC	21406	Q-4SPC03	3m (10ft) 40G QSFP+ to 4 x 10G SFP+ Passive Direct Attach Copper Breakout Cable for FS Switches
40G QSFP+	17931	QSFP-SR4-40G	QSFP+ 40GBASE-SR4 850nm 150m DOM MPO-12/UPC MMF Optical Transceiver Module for FS Switches, Support 4 x 10G-SR
40G QSFP+	36281	QSFP-SR4-40G	Intel E40GQSFPSR Compatible QSFP+ 40GBASE-SR4 850nm 150m DOM MPO-12/UPC MMF Optical Transceiver Module, Support 4 x 10G-SR
MTP® Jumper	68020	12FMTPOM4	3m (10ft) MTP® Jumper, MTP®-12 UPC (Female) to MTP®-12 UPC (Female), 12 Fibers, Multimode (OM4), Plenum (OFNP), 0.35dB Max, Type B, Magenta

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