

Case Study

Enterprise Network Cabling

FS Helps Enterprise Offices Upgrade to 25GbE Without Rebuilding Existing Networks

Discover how FS helps an enterprise office environment upgrade to 25GbE workstations while preserving its existing 10GbE network. This case study highlights how standardized LC-LC OM4 infrastructure and validated interoperability across Dell, Ubiquiti, and Mellanox platforms enabled a smooth, cost-effective network upgrade, simplified long-term operations, and established a scalable foundation for future growth.

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Country

 United States

Industry

 ISP

Network Type

 Enterprise Data Centers

Solutions

 Enterprise Network Cabling

Highlights

- Added 25GbE access to selected high-bandwidth office areas while keeping the existing 10GbE network in service, enabling a targeted upgrade instead of a full infrastructure rebuild.
- A standardized OM4 fiber design simplified cabling deployment, cable management, troubleshooting, and future expansion by keeping the fiber medium and connection standard consistent across the office environment.

Key Stats

- 25GbE workstation connectivity was integrated with the existing 10GbE network through 100GbE uplinks without requiring a network infrastructure rebuild.
- OM4 multimode fiber supported the customer's short-distance office deployment, with actual links within 20 meters and enough reach for 25GbE SR applications up to 100 meters.

Overview

The customer is an enterprise operating in an office campus environment with growing demand for data-intensive workloads and higher-performance workstation environments. To address these evolving connectivity requirements, the customer sought to extend 25GbE connectivity to office workstations while preserving the existing 10GbE infrastructure and avoiding a complete network redesign.



Challenges

The customer needed to extend 25GbE connectivity to office workstations to meet increasing bandwidth demands, while preserving the existing 10GbE network and avoiding a full infrastructure replacement. This created a challenge in introducing higher-speed connectivity while minimizing migration complexity, deployment effort, and operational risk.

The office deployment involved different connection paths between equipment areas, wall outlets, and work areas. Using one fixed cable length across all links could create cable slack, make cable organization harder, and increase troubleshooting complexity over time.

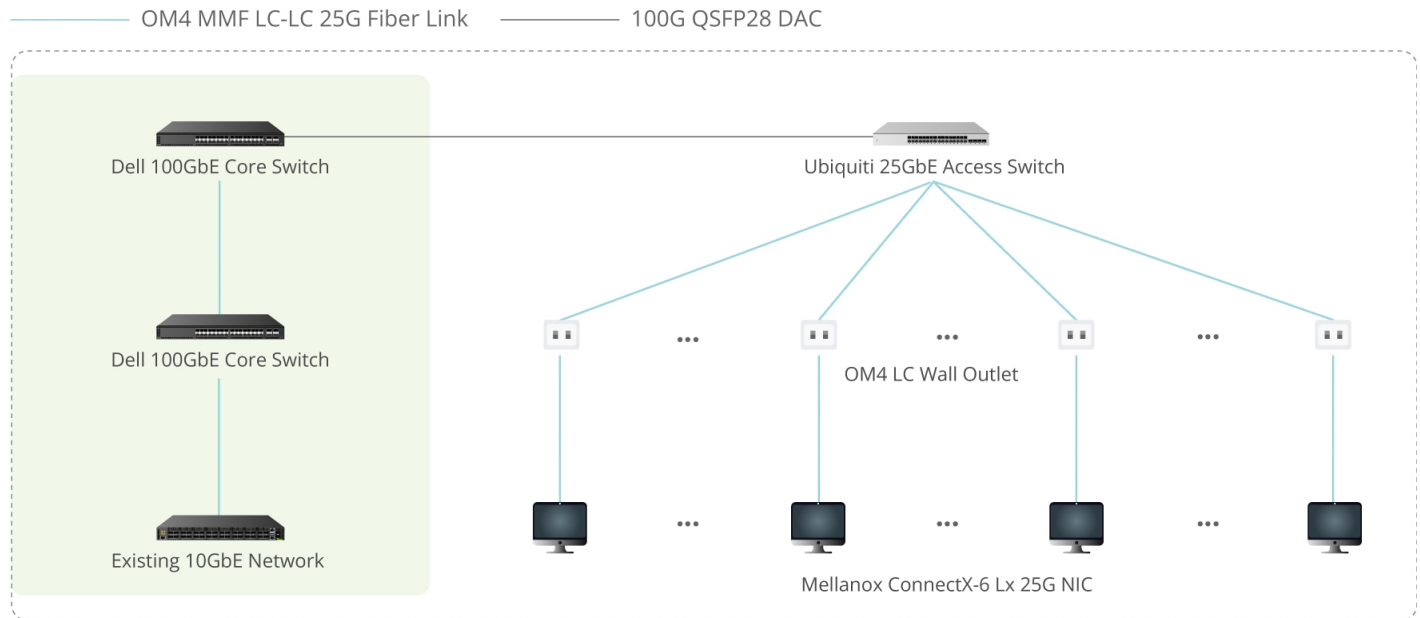
In addition, the network included equipment from multiple vendors, including Dell, Ubiquiti, and Mellanox, creating potential interoperability challenges across the environment. Differences in device compatibility requirements could lead to issues such as link instability, device recognition problems, and increased maintenance complexity, making reliable long-term operation a key concern.

Solutions

To support 25GbE workstation connectivity in the office environment, the customer evaluated whether an OM4 multimode fiber infrastructure could meet both current requirements and future network growth. Based on actual link distances of less than 20 meters and the need to support both existing 10GbE services and new 25GbE workstation connections, FS helped validate the suitability of the solution. OM4 multimode fiber supports 25GbE SR applications while remaining compatible with existing 10GbE SR services, providing a standardized and scalable foundation for office workstation connectivity.

During solution planning, the customer initially considered using multiple 20-meter LC-LC OM4 fiber patch cables throughout the deployment, including routes passing through walls and ceiling spaces. While this approach was technically feasible, a solution review conducted by the FS team identified significant variations in cable distances between network cabinets, wall outlets, and workstations. To better align the cabling design with real deployment conditions, FS worked with the customer to evaluate the routing requirements for each connection path and select appropriate cable lengths accordingly. By adopting multiple lengths of LC-LC OM4 fiber cables, the deployment reduced unnecessary cable slack, improved cable organization, and simplified ongoing maintenance while ensuring sufficient reach for every connection.

Beyond the physical cabling deployment, the customer also needed to integrate the new 25GbE workstation environment with the existing network infrastructure. FS guided the customer in designing a unified topology that connects the 25GbE access layer to the 10GbE core via 100GbE uplinks, ensuring seamless coexistence on the same OM4 infrastructure. Compatibility validation was also performed across Dell, Ubiquiti, and Mellanox platforms, with validated optics and customized DAC cables selected for key links to help ensure stable interoperability and long-term reliability.



Results

The project enabled the customer to extend 25GbE connectivity to office workstations while preserving the existing 10GbE network environment. Standardizing on OM4 fiber and LC connectivity established a consistent cabling standard across the office network, helping simplify cable management, troubleshooting, and future expansion activities.

The new 25GbE environment was integrated with the existing network through 100GbE uplinks without requiring a major infrastructure replacement. Combined with interoperability validation across Dell, Ubiquiti, and Mellanox platforms, the customer was able to complete the upgrade with greater deployment confidence while ensuring reliable long-term operation.



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