

Case Study

Data Center Cabling

Future-Proof Data Centers with FS's Multi-Rack FHD® High-Density Cabling Solution

FS's multi-rack FHD® cabling solution offers a scalable, high-density data center cabling system tailored for the media and entertainment industry, simplifying future upgrades with efficient space utilization.

Future-Proofing Data Centers with FS's Multi-Rack FHD® High-Density Cabling Solution

Country

 United States

Industry

 ISP

Network Type

 Service Provider Data Centers

Solutions

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- Respond within 24 hours, finalize solution designs in 3 days, and deliver all products within 10 days.

Overview

Today, the media and entertainment industry generates vast amounts of high-definition video, audio, and other large data files, demanding high bandwidth. Applications like real-time video transmission require low network latency, necessitating high-density, low-latency network cabling to meet these requirements. Additionally, the industry often requires rapid deployment of new equipment or expansion of existing systems, demanding high flexibility and scalability in data center cabling.

Our client aims to provide premium IT services for the M&E sector, focusing on planning, designing, and deploying technology to aid studios in content creation. The client requires a high-density data center cabling system to meet the industry's growing data demands. With limited room for ten racks and the need to accommodate frequent equipment changes and future upgrades, the cabling solution must optimize space utilization and provide convenient maintenance and management methods.

Highlights

- Maximized space utilization and redundancy in future upgrades for the client with high-density data center cabling systems.
- Simplified network management and maintenance with concrete cabling planning of FHD® series products.
- Eliminated hours in installation time and operational downtime with a plug-and-play product nature.

Key Stats

- Install two rows of 10 racks in the data center, with 2 racks providing redundant connections for others.
- 3 fiber enclosures have been installed in each of the two main racks, accommodating up to 432 fibers.
- Tool-free installation and Plug-and-play design increase cabling efficiency by 30%.

Challenges

Deploying a high-density cabling system to connect 10 racks with varying speeds (100G/25G/10G) in a data center requires meticulous planning to ensure cable organization and polarity correctness while avoiding

cable entanglement. Additionally, the high-density cabling complicates cable management and maintenance, necessitating professional planning and deployment.

To ensure redundancy and reliability across the entire network, all network equipment on two critical racks must be configured for full redundancy, requiring integration of multiple cable types (MTP, LC) to provide connections for all other racks. Organizing multiple pathways for high availability further adds to the complexity.

The project entails the arrival of all products by early May, including many customized cables, imposing significant pressure on timely logistics and inventory management. The client needs a network solution provider capable of offering customized, robust, easy-to-maintain high-density data center cabling solutions that can handle complex cabling needs, support rapid deployment, and include professional project management and timely delivery to meet tight deadlines.

Solutions

The data center cabling solution for 10 racks utilizes multi-rate AOC and MTP fibers, and a combination of high-density fiber enclosures, fiber cassettes, and fiber adapter panels. This setup maximizes the limited data center space, supports high bandwidth and low latency necessary for real-time video transmission, and allows for future expansion.

Racks 1 and 6 are equipped with three FHD-1UFCE fiber enclosures, seamlessly mountable on standard EIA 19-inch rack rails. Two enclosures each house four FHD-1MTP12LCDOM4A MTP® fiber cassettes, accommodating 96 fibers. The third enclosure stacks three FHD-FAP8MTPHB fiber adapter panels and one FHD-FAPB blank panel, accommodating 576 fibers and leaving room for future expansion. Core and aggregation layer devices are placed in these racks, including one 32-port 100G switch and two 48-port 25G/10G switches, providing redundant connections to other racks.

Racks 2 and 7 each have one fiber enclosure with two FHD-FAP8MTPHB fiber adapter panels and two FHD-FAPB blank panels, accommodating 384 fibers and allowing future expansion. Racks 3 and 8 each contain one fiber enclosure with one FHD-FAP8MTPHB fiber adapter panel and three FHD-FAPB blank panels, accommodating 192 fibers and reserving space for future updates. Each of these racks houses a 100G switch.

Racks 1 and 6 connect to racks 2/7 using eight TypeB MTP-12 fibers and to racks 3/8 using four TypeB MTP-12 fibers, providing 100G links. Racks 4, 5, 9, and 10 each house a 25G/10G switch and one fiber enclosure stacking four FHD-1MTP12LCDOM4AF fiber cassettes, accommodating 96 fibers. These connect to the FHD-1MTP12LCDOM4A cassettes in racks 1 and 6 using TypeA MTP-24 trunk cables, providing 10/25G links.

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Results

The client has achieved high-density cabling in ten racks within the data center, optimizing the utilization of limited space and simplifying the management and maintenance of data center cabling. This solution supports multiple data rates including 10G, 25G, and 100G, while incorporating a redundant multi-line design to ensure stable and reliable data transmission. Additionally, it provides room for future upgrades, maintaining the client's competitive edge in the industry.

The professional project team responds promptly within 24 hours, delivering tailored solutions from concept to procurement. Comprehensive project management ensures swift adjustments to the client's needs, guaranteeing the seamless progress of data center cabling projects as planned.

With seven global warehouses and an intelligent storage system, over 90% of orders were shipped on the same day, significantly reducing the risk of project delays. The plug-and-play design of the cabling products further improves installation efficiency by approximately 30%, allowing for minimizing downtime.



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