



Case Study

# DCI Solution

Leading IT Firm Upgrades DCI with FS  
Streamlined Point-to-Point Solution

A leading company in the IT infrastructure sector has enhanced its data center interconnect (DCI) by leveraging FS streamlined point-to-point network solution.

## Leading IT Firm Upgrades DCI with FS Streamlined Point-to-Point Solution

### Country

 Frances

### Industry

 Technology

### Network Type

 Data Center Interconnect

### Solutions

 Optical Networking

- High Availability: Dual-link design greatly enhances network service stability.
- Ultra-Low Latency: Achieves microsecond-level data transmission latency.
- Intelligent Operations: AmpCon™-T provides real-time visual monitoring with robust features to quickly locate and resolve issues.
- High Cost-Effectiveness: The D7000 series offers exceptional performance at a competitive price.

## Highlights

- Streamlined Networking: Simplified point-to-point architecture significantly reduces packet transmission latency and loss rates while lowering network maintenance and management costs.
- Ultra-Wide Network: Substantially increases data transmission capacity without adding more fibers, addressing current network needs and future expansion and business growth.

## Key Stats

- Long-distance transmission of 18-22 km
- 4x100G client-side transmission, 400G line-side transmission
- Maximum single-fiber capacity of 19.2T



## Overview

A leading French company specializing in IT infrastructure, network security, and IT management services (ITSM) embarked on a strategic project to enhance the resilience and performance of its infrastructure by connecting two data centers. The company offers a wide range of network services and technical support, including but not limited to the implementation and optimization of Active Directory and System Center (SCCM, Intune, SCOM, SCVMM, and Orchestrator), full deployment of Veeam Backup & Replication, and the construction and management of LAN, WLAN, and WAN network infrastructures. Therefore, they required a highly reliable solution to ensure the efficient operation and continuous availability of all these critical services.

The project's objective was to implement an integrated solution that meets the highest industry standards using compatible modules and advanced link infrastructure. The project aimed not only to enhance data redundancy and security but also to optimize network management and performance, thereby laying a solid foundation for the company's future technological advancements.

## Challenges

The client requires 400G transmission on the line side while simplifying network design and deployment as much as possible. There will be two pairs of dark fibers between the two data centers, with two different paths, ranging from 18 to 22 kilometers in length. The company needs to implement comprehensive link monitoring and must obtain detailed dark fiber information to quickly detect and resolve any anomalies.

Additionally, the solution must ensure optimal redundancy to avoid any single point of failure (SPOF), as any disconnection between the two sites could lead to critical data loss and service disruption.

could lead to critical data loss and service disruption. The company aims to achieve a balanced solution that integrates performance, reliability, and cost-effectiveness. Transmission equipment must be selected wisely to ensure optimal performance while adhering to strict budget constraints. The solution design must be absolutely precise to ensure seamless integration with the existing infrastructure and rapid deployment.

## Solutions

The FS technical team implemented a simplified point-to-point network using the D7000-4MC4 device, achieving microsecond-level data transmission latency and providing more direct and predictable data transmission paths. The solution supports 100GE, 400GE, and OTU4 high-bandwidth services on the client side and offers a maximum single-fiber capacity of 19.2T, significantly increasing data transmission capacity without adding more fibers. Using CFP2-DCO-400G-D for transmission, the solution supports flexible line-side transmission from 100G to 400G per wavelength. The solution, using the D7000 series DWDM Mux/Demux and OA1825 integrated amplifier, supports both short-distance interconnections and long-distance backbone transmission between data centers.

The company's operations team can achieve multi-dimensional comprehensive performance monitoring across the entire link using AmpCon™-T. Utilizing the OTDR module in the D7000 device to measure fiber attenuation and loss, quickly pinpoint fault locations on the fiber link, and present results visually. This approach significantly enhances fault resolution efficiency and reduces the impact of network failures on business operations. AmpCon™-T supports intuitive visualization of the configured end-to-end service connections between network devices, enabling link discovery, monitoring, and configuration. Through the Dashboard, the system's status and performance can be monitored in real-time. Alarm management and fault prediction functions help the operations team identify potential failure factors early and take preventive measures, minimizing the risk of service disruptions.

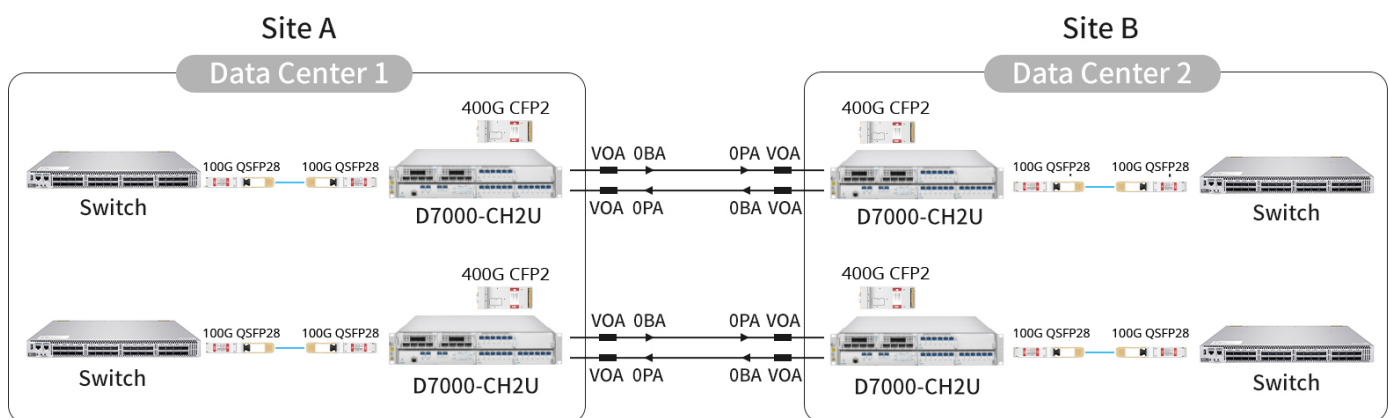
The solution achieves line-side redundancy during transmission through two sets of product configurations. Even if a component or path failure occurs, the backup path can immediately take over data transmission, preventing service interruptions and data loss. The redundant design not only enhances system availability but also improves system resilience and resistance to network interference, meeting the requirements for long-term stable operation in critical application environments. This solution delivers the required functionality and performance within budget, while also meeting the customer's long-term needs for network expansion and performance optimization, providing long-term value and return on investment.

## Results

The streamlined point-to-point network solution provides the company with a high-performance, reliable, and scalable network architecture. Without

increasing the number of fibers, the solution boosts single-fiber data transmission capacity to 19.2T and achieves a single-wave rate of 400G, meeting current demands and preparing for future expansion. The new network architecture enables comprehensive performance monitoring with no single point of failure (SPOF), ensuring the continuity of critical operations and minimizing the risk of failures.

While adhering to strict budget constraints, this solution offers excellent cost-effectiveness. The provided products not only meet current technical requirements but also fulfill long-term needs for network expansion and performance optimization. As a result, this approach delivers lasting value and return on investment for the company. Ultimately, the IT infrastructure is strengthened, security and service management are enhanced, and the solution supports the company's continued growth and operational stability.



### Product List

Product	ID	FS P/N	Description
Optical Transceivers	48354	QSFP-SR4-100G	QSFP-100G-SR4-S Compatible 100GBASE-SR4 QSFP28 Optical Transceiver Module
Optical Transceivers	216689	CFP2-DCO-400G-D	400G Coherent CFP2-DCO Transceiver Module
Data Center Interconnect	216453	D7000-CH2U	D7000-CH2U, 8 Slots 2U Stackable Unloaded Chassis
Data Center Interconnect	216457	4MC4	1 x 400G QSFP-DD or 4 x 100G QSFP28 to 1 x 400G CFP2 Muxponder
Data Center Interconnect	216487	TFF04	4 Channels DWDM OADM, Dual Fiber, Optional Channels
Data Center Interconnect	216505	OA1825	DWDM EDFA Bidirectional Amplifier with PA 15-25dB and BA 8-18dB Gain
Fiber Optic Cables	40446	SMLCSX	High Quality and Cost-effective 9/125µm Single Mode Bend Insensitive Fiber Optic Cable
Fiber Optic Cables	69009	12FMTPOM4	MTP®-12 Jumper, F to F, UPC, 12F, OM4, OFNP, 0.35dB, Type B



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