Case Study

DCI Solution

Ited Boosts Network Capacity and Scalability with FS 400G DCI Solution

FS enabled Ited to implement a scalable and high-capacity 400G DCI solution using the D7000 series, ensuring seamless data center connectivity and supporting future network expansion.

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Country
🌎 Canada

Industry
🏛 Internet Service Provider

Network Type
🏢 Data Center Interconnect

Solutions
🖥 Optical Networking

Highlights

- Customize the 400G DCI solution with D7000 Series to ensure stable transmission based on fiber distance and loss.

- Streamline the design for ease of maintenance, supporting AmpCon-T and WebGUI management.

- Actively use available stock to shorten delivery times for out-of-stock products and minimize customer wait times.

Key Stats

- Supports 10G/25G/100G networks while ensuring future scalability to 400G, maximizing long-term ROI.

- 400G coherent systems support transmission up to 400 km, meeting long-haul network demands.

- Paired with a 40CH MUX/DEMUX, the system supports up to 40CH*400G, meeting future capacity needs.

> " We have determined that the D7000 solution appears to be well-suited to our current and future needs. "
>
> Network Architect, Ited

Overview

Ited is a Canadian small-to-medium-sized enterprise specializing in technical management services and IT consulting. The company offers a comprehensive suite of services, including telephone systems (VOIP), cloud hosting, data backup, internet connectivity (via cable or fiber), and software solutions.

Currently, Ited is planning to implement two distinct dark fiber routes between its two primary Data Transfer Centers (DTCs). By deploying DWDM equipment on these routes, the company aims to optimize fiber utilization and provide more bandwidth and connectivity options. Furthermore, Ited intends to offer DWDM services to its clients across these two locations, with most client requirements anticipated to fall within the 1G-25G bandwidth range.
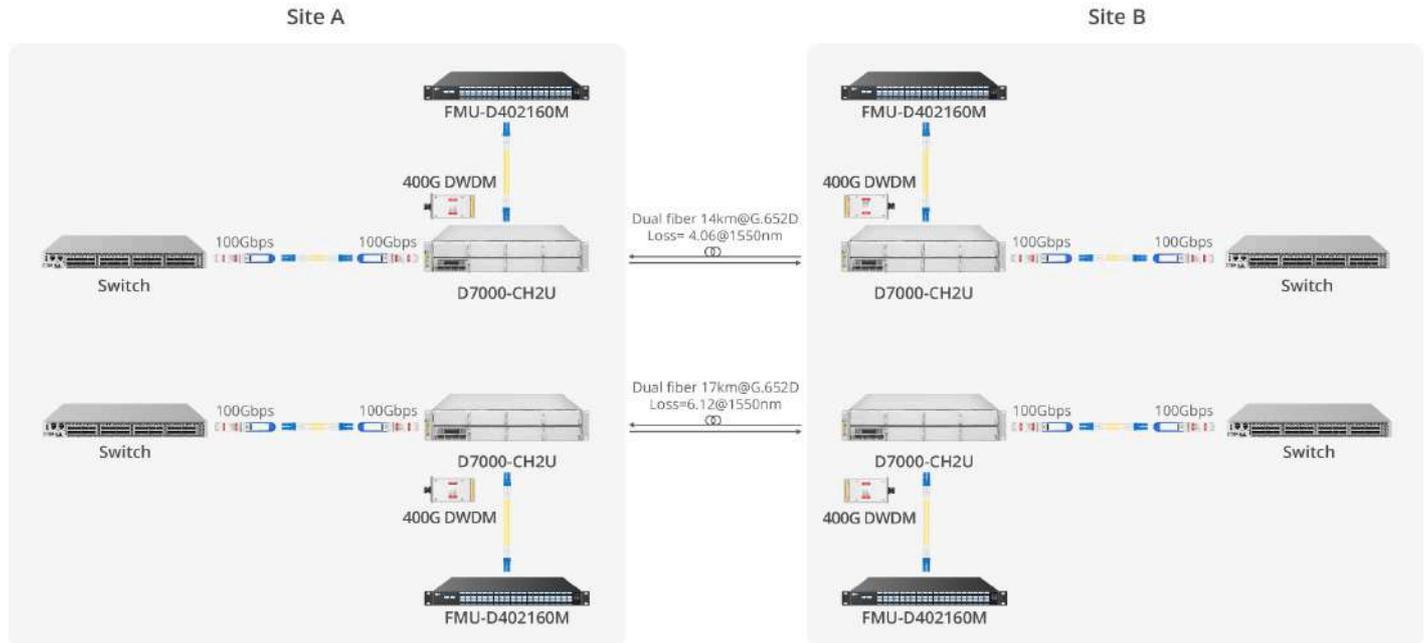
Challenges

Ited faces several key challenges in deploying its DCI solutions. They require multi-rate transmission on a single Mux/Demux, demanding compatibility and performance across various rates. To ensure stable transmission, the customer needs fiber with a loss below 0.3 dB/km at 1550 nm and has invested significant effort in sourcing high-quality fiber to guarantee link stability.

Additionally, the customer wants to add a 1310 nm port to their solution but encounters compatibility issues with simultaneous amplifier use. Lastly, they urgently need OM4 fiber, QSFPs, and a pair of MUX/DEMUX units. However, the out-of-stock availability of some of the products has caused supply chain delays that may affect their deployment plans.

Solutions

Based on the customer's specific fiber distance and loss conditions, FS has customized the 400G DCI solution with D7000 Series to meet their current needs for 10G, 25G, and 100G networks while allowing for future 400G upgrades. The D7000 provides reliable transmission with a range of up to 400 km without regeneration and supports up to 40CH * 400G capacity when used with a 40CH MUX/DEMUX. The solution currently uses only 1 channel, leaving 39 additional channels available for future expansion.

The D7000 series supports AmpCon-T and WebGUI management to ensure easy maintenance, and in the future, it can be unified with PicOS-based switches for easy maintenance. FS actively utilizes existing inventory to speed up delivery and finds alternatives to shorten the delivery cycle of out-of-stock products to ensure timely delivery of all necessary components.

Results

With the FS D7000 solution, Ited successfully established two dark fiber links spanning up to 20 kilometers between its data centers. Additionally, the 400G coherent system supports transmissions of approximately 400 kilometers, ensuring that Ited is well-prepared for future long-distance network requirements.

FS significantly reduced lead times by efficiently leveraging existing inventory and seeking alternatives for out-of-stock products. This proactive approach further enhanced Ited's overall experience, ensuring timely delivery and smooth implementation.

Product List

Product	ID	FS P/N	Description
Data Center Interconnect	216453	D7000-CH2U	8 Slots 2U Stackable Unloaded Chassis, Support Single-wavelength 200G/400G
Data Center Interconnect	216457	4MC4	1x 400G QSFP-DD or 4x 100G QSFP28 to 1x 400G CFP2 Muxponde
Data Center Interconnect	216483	D7000-EMU	D7000-EMU, Main Control Module for D7000 Series Managed Chassis
Mux Demux	33485	FMU-D402160M	40 Channels DWDM Mux Demux, 100GHz C21-C60, with Monitor Port
Optical Transceivers	216689	CFP2-DCO-400G-D	400G Coherent CFP2-DCO Transceiver Module (Tunable, 80km, LC/UPC)
Optical Transceivers	179821	QSFP-LX4-100G	Mellanox Compatible 100GBASE-LX4 QSFP28 Optical Transceiver Module
Optical Transceivers	69612	DWDM-SFP10G-40	10G DWDM SFP+ 100GHz Transceiver Module
Optical Transceivers	36196	QSFP-LX4-40G	Arista QSFP-40G-UNIV Compatible 40GBASE-UNIV QSFP+ Optical Transceiver Module
Fiber Optic Cables	40192	SMLCDX	Fiber Patch Cable, LC UPC to LC UPC, Duplex, 2F, OS2, OFNR, 2.0mm
Fiber Optic Cables	40220	OM4LCDX	LC UPC to LC UPC Duplex OM4 Multimode Riser (OFNR) 2.0mm Fiber Optic Patch Cable
Fiber Optic Enclosures	70361	FHD-1UFCE	FHD® 1U High Density Sliding Fiber Enclosure Unloaded

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