

Case Study

# Optical Networking

100G Data Centre Expansion for  
ISP Industry Through FS 1.6T  
Large Capacity DWDM Solution

Explore how the ISP industry can achieve cost savings and improve network performance by implementing the FS 1.6T large capacity DWDM solution. Designed for efficient, future-proof 100G data centre expansion, the solution best meets your business needs.

## 100G Data Centre Expansion for ISP Industry Through FS 1.6T Large Capacity DWDM Solution

### Country

 United Kingdom

### Industry

 Internet Service

### Network Type

 Data Centre Interconnect

### Solutions

 Optical Networking

## Highlights

- Improved efficiency through the centralised monitoring and O&M functions of the M6800 series.
- Amplified the optical signal in the link through the M6200 series to extend the transmission distance.
- Supported full tuning of 50GHz ITU-T grid and flexible DWDM tuning by CFP2-DCO coherent transceiver.
- Provided effective support for future business growth through large-capacity expansion design solutions.

## Key Stats

- 2 sets of customised solutions within 12 hours and ensure feasibility.
- Tailor-made solutions based on customer-specific requirements.
- 1.6T large-capacity DCI network for massive business needs.
- 2 x 100G long-distance data centre interconnections.

## Overview

The customer is a leading manufacturer and supplier of mobile network solutions with a specific focus on rural and remote areas, enterprise, rapid deployment, and disaster recovery applications. They have deployed their solutions in over 30 countries and have implemented over 600 private mobile networks across various industries, including maritime, mining, agriculture, and forestry.

## Challenges

As the customer's business grew, the necessity for substantial bandwidth, high speed, and low latency between data centres became crucial to support their extensive operations. The customer planned to establish multi-site chain transmission network to achieve 100G service capabilities. Since the customer already had some M6800 series devices, the FS solution team needed to meet the customer's basic business requirements while utilising the existing devices to lower the overall solution cost.

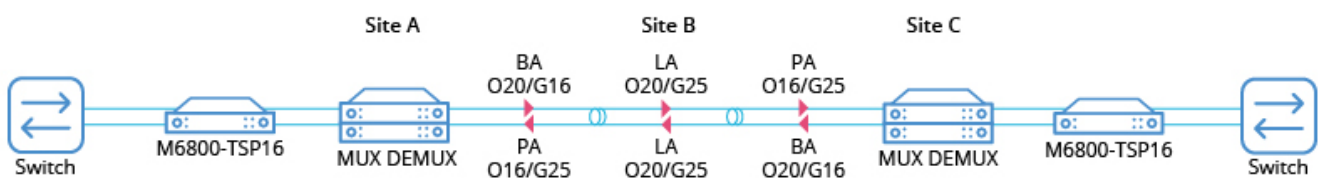
## Solutions

After video meetings with the customer and demand analysis, the FS team designed two 100G DWDM solutions within 12 hours to help the customer achieve cost savings and long-term business value. The solutions are as follows:

**Route 1:** Develop an efficient point-to-point transmission architecture through site links from A to B and then to C.

- The M6200-CH2U chassis and the M6200-D2160M multiplexer effectively integrate data transmission signals.
- In the A-B segment, the M6200-20LA amplifier enhances the signal, while the B-C segment utilises the M6200-25PA for signal enhancement.

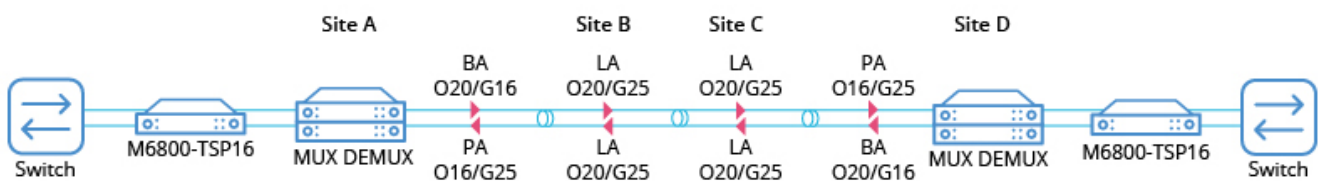
- The M6800-TSP16 devices at sites A and C provide max 1.6T high-capacity transmission and support both out-of-band management and GCC in-band management methods.



**Route 2:** The network architecture builds a complex multi-point transmission network from A to B, C to D.

- The M6200-CH2U chassis supports the network core, with the M6800-TSP16 enhancing transmission and upgrade flexibility.

- M6200-20LA and M6200-20BA amplifiers offset signal degradation across segments; the M6200-25PA boosts initial signal strength.
- The A to D segment uses the M6800-TSP16 devices to achieve max 1.6T large-capacity service transmission and efficient link management.



Both solutions use CFP2-DCO and 100G LR4 optical modules to achieve multi-site interconnection. The CFP2-DCO module supports full tuning within the 50GHz ITU-T wavelength range. Its built-in DSP chip allows long-distance transmission without adding DCM for dispersion compensation.

These solutions not only provide an efficient, reliable, and economical network upgrade path but also ensure that customers can flexibly respond to future business and technical challenges through their modular design and customized services.

### Product List

Product	ID	FS P/N	Description
M6200 Series	107371	M6200-CH2U	7 Slots 2U Managed Chassis Unloaded Platform, Redundant AC PSUs, Support WEB/SNMP Management
M6200 Series	109705	M6200-D2160M	40 Channels 100GHz C21-C60 Active, Dual Fiber DWDM Mux and Demux with Monitor Port, Pluggable Module
M6200 Series	121328	M6200-20LA	20-30dB Gain DWDM EDFA In-line Amplifier, 20dBm Output for M6200 Managed Chassis
M6200 Series	107366	M6200-20BA	11-21dB Gain DWDM EDFA Booster Amplifier, 20dBm Output for M6200 Managed Chassis
M6200 Series	107367	M6200-25PA	20-30dB Gain DWDM EDFA Pre-Amplifier, 16dBm Output for M6200 Managed Chassis
M6200 Series	107373	M6200-SFPVOA	SFP Variable Optical Attenuator Module
M6800 Series	111053	M6800-TSP16	16x 100G QSFP28 to 8x 200G CFP2 OTN Managed Transport Platform
M6500 Series	120135	CFP2-DCO	20-30dB Gain DWDM EDFA Pre-Amplifier, 16dBm Output for M6200 Managed Chassis
10/25/40/100G Modules	102571	100GBASE-LR4	Customized QSFP28 100GBASE-LR4 1310nm 10km DOM Duplex LC/UPC SMF Transceiver Module



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