

Case Study

# Data Center Interconnect Solution

## Reducing Project Cost with 100G DWDM PAM4 Solution

A Swiss ISP has partnered with FS to upgrade its network. With the FS 100G DWDM PAM4 solution, the company can achieve high compatibility, wide applicability, and scalable networks for future expansion.

## Reducing Project Cost with 100G DWDM PAM4 Solution

### Country

 Switzerland

### Industry

 Internet Service Provider

### Network Type

 Data Center Interconnect

### Solutions

 Optical Networking

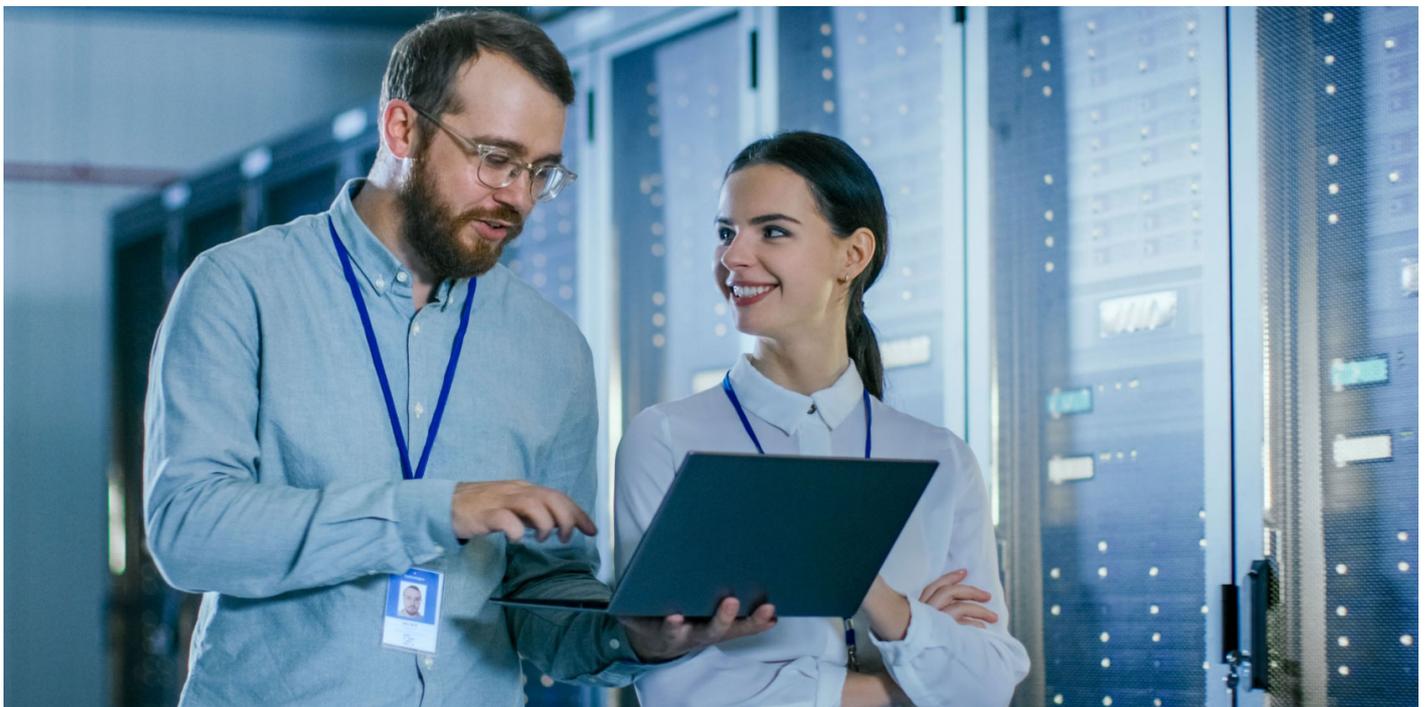
- The point-to-point transmission solution achieves 100G service transmission.
- The product reaches within two weeks ensuring project success and timely testing and deployment.
- Customized network management services improve solution security.

### Key Stats

- Provides 4 channels of 100G services for 0-80km point-to-point transmission over a single fiber.
- Reduce costs by 30% with an all-in-one 100G PAM4 solution.
- Plan to implement the same FS solution on up to 30 fiber lines in the future, with the number of DCP920 devices reaching up to 60.

### Highlights

- Cost reduction by enabling 4x100G service transmission between two sites using only one fiber with 100G SR4/LR4 modules instead of PAM4 modules.



### Overview

The client is a Swiss internet service provider catering to both private and corporate clients. The company operates its own 100G IP/MPLS backbone network, offering customized business solutions with speeds of up to 100 Gbit/s. Currently, the company has over 100 Points of Presence (PoP) across Switzerland and is continuously expanding.

Presently, the client has two sites connected via a 10G link, transmitting a single 10G service. They now wish to upgrade to a 100G service. They are looking for a cost-effective, highly compatible, and scalable solution to achieve this upgrade.

### Challenges

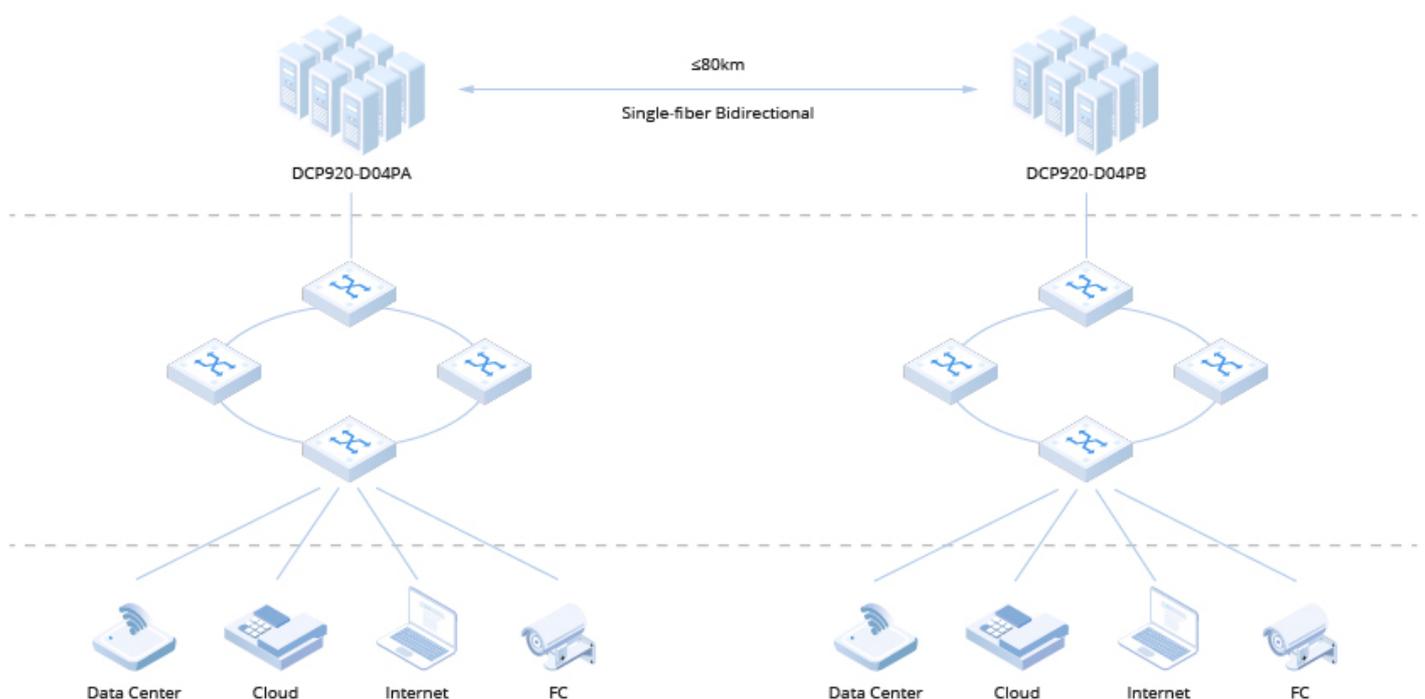
The challenging terrain makes management and maintenance difficult. The two sites are connected via dark fiber, with one site located in a mountainous area. Currently, the client uses 10G-ZR+ optics for a single 10G service. They need to upgrade to 100G services with cascading capability. Moreover, the

client's network lacks basic protection measures. Their backbone infrastructure spans multiple sites and POPs across Switzerland and Europe, yet not every location has a dedicated management network, complicating network management and maintenance.

In addition, the project is urgent and requires delivery, testing, and deployment within two weeks of order placement while maintaining cost-effectiveness.

### Solutions

To meet the client's demand for 100G transmission expansion, we recommend deploying a point-to-point 100G PAM4 solution between these two sites. This solution primarily utilizes the DCP920 series products, which are embedded with 4x 100G PAM4 modules. It can directly use 100G Base-SR4/LR4/IR4 modules, eliminating concerns about switch compatibility with PAM4 modules and the need to purchase expensive 100G PAM4 modules. Additionally, the single-fiber solution can effectively conserve fiber resources by



providing 4 DWDM channels on a single fiber for transmission.

The DCP920 series also allows users to remotely manage them through a web interface. Combined with the OSC function, users can monitor network status in real-time, simplifying installation, configuration, and fault diagnosis. To address the client's network security needs, FS offers custom NTP functionality and the ability to view and operate SNMP features through the WebGUI interface. Additionally, communication port numbers can be modified to prevent system attacks. Lastly, FS provides Free Product Trial and Demo Testing services, delivering the product solution within two weeks.

## Results

The client successfully achieved the transmission of four 100G services over a single fiber using the DCP920-D04P, significantly reducing costs by 30%. The network security and reliability are ensured through FS custom NTP functionality and remote Demo Testing support.

Finally, leveraging FS global warehousing advantage, project equipment was delivered quickly, completing delivery within two weeks while reducing project risk and increasing the likelihood of project success. The client has indicated that they may implement this solution on more than 30 links in the future.

## Product List

Product	ID	FS P/N	Description
Open Line System	201567	DCP920-D04PA	DCP920-D04PA, 4 Channels 100G DWDM PAM4 Open Line System, C45-C60, 4 x 100G QSFP28, Single Fiber, Side-A, with Built-in 100G PAM4 Module, 1U Rack Mount, 80km
Open Line System	201569	DCP920-D04PB	DCP920-D04PB, 4 Channels 100G DWDM PAM4 Open Line System, C23-C36, 4 x 100G QSFP28, Single Fiber, Side-B, with Built-in 100G PAM4 Module, 1U Rack Mount, 80km
100G QSFP28/SFP-DD	35182	QSFP-SR4-100G	QSFP28 100GBASE-SR4 850nm 100m DOM MPO-12/UPC MMF Optical Transceiver Module for FS Switches, Support 4 x 25G-SR



## **United States**

Address: 380 Centerpoint Blvd, New Castle, DE 19720, United States

Tel: +1(888) 468 7419

Email: [US@fs.com](mailto:US@fs.com)

**For more information, welcome to visit [www.fs.com](http://www.fs.com)**

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