

Case Study

# Optical Networking Solution

California Food Manufacturing Leader  
Upgrades Network with FS CWDM  
Solution

A California food manufacturing leader collaborates with FS to solve network challenges. With FS CWDM solution, the company seamlessly integrates a multi-device environment and enables dual-rate transmission for enhancing efficiency and connectivity.

## California Food Manufacturing Leader Upgrades Network with FS CWDM Solution

### Country

 United States

### Industry

 Agricultural Production

### Network Type

 Data Center Interconnect

### Solutions

 Optical Networking

### Highlights

- Established a classic passive CWDM architecture, supporting multi-rate mixed transmission ranging from 1Gbps to 10Gbps, effectively achieving flexible compatibility and easy deployment.
- Offering complimentary installation and usage guidance services throughout, ensuring smooth installation and efficient utilization through personalized assistance via phone, online video, graphical tutorials, and more.
- Effectively solving compatibility among multi-brand, multi-type devices in complex network environments, ensuring stable and reliable interconnection among multiple devices.

### Key Stats

- The total link loss is  $\leq 11.5\text{dB}$ , excluding the insertion loss of MUX DEMUX, with a margin of 3dB.
- Enables concurrent transmission of 1G and 10G services over duplex optical fiber, up to 40km.



### Overview

The client initiated a partnership with FS in 2019. It is a food company headquartered in California with over 80 years of history, boasting a staff size ranging from 1,000 to 5,000, and is a leading brand in the state's food industry.

Due to the continuous expansion of their network requirements and the aging of their existing equipment, the client's original transmission network is no longer able to meet their needs. Additionally, the client's existing network environment has already deployed devices from other manufacturers, so they place great emphasis on the compatibility of multiple brands and the interoperability of devices. They wish to build a scalable, highly compatible, and easy-to-maintain network infrastructure to help them achieve efficient connectivity from the warehouse to the telecommunications company.

### Challenges

With budget constraints and the need to transmit data at different rates simultaneously, cost control and maximizing resource utilization are crucial considerations.

Since the customer's existing network architecture already has Aruba devices deployed, they need to consider whether the new optical transmission equipment can seamlessly integrate into the current network system and be compatible and collaborative with other devices. Otherwise, there may be adverse

issues such as data transmission interruptions and a decline in network performance.

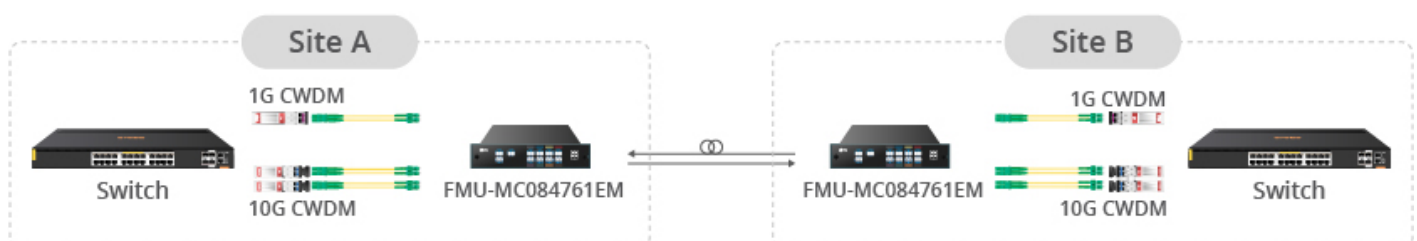
Due to limited expertise, the customer faces significant hurdles in deploying and maintaining the optical transmission network, necessitating comprehensive, one-stop installation and usage guidance services. Additionally, the equipment should be user-friendly, easy to manage, and designed to lower technical barriers.

### Solutions

In response to the customer's network requirements, FS has recommended a complete passive CWDM solution, along with professional technical guidance.

The overall solution centers on an 8CH CWDM Mux Demux. By selecting 1G and 10G CWDM modules compatible with Aruba switches, it not only achieves dual-rate transmission up to 40km but also easily integrates the existing network into the CWDM network, ensuring device interoperability. Additionally, the 8-channel CWDM Mux Demux access not only meets the customer's current network needs but also reserves space for future network expansion and upgrades. By simply adding or replacing CWDM channels, the customer can smoothly expand and upgrade network capacity.

Compared to active DWDM systems, CWDM systems mainly utilize passive devices, which effectively reduces the initial investment and operational costs for customers. It is noteworthy that the typical insertion



loss for the CWDM MUX DEMUX adopted in the solution is only 2.0dB, and does not exceed 2.4dB at maximum. At the same time, the entire link loss is controlled within 11.5dB, while still retaining a margin of 3dB. This means that even if fiber aging leads to increased loss in the future, their system will be able to transmit normally.

Additionally, the customer received free guidance services from the FS technical team throughout the process, ensuring smooth installation and efficient use of the product. The deployed CWDM Mux Demux is plug-and-play, helping customers easily achieve independent installation and use. Meanwhile, it is equipped with monitoring ports for real-time link monitoring, relieving the network administrators from concerns about specialized knowledge, making network management no longer challenging.

## Results

The economical and practical CWDM solution enables the transmission of multi-rate services from 1Gbps to 10Gbps over a duplex fiber across distances of up to 40km, maximizing the utilization of fiber resources to the greatest extent. The passive MUX DEMUX effortlessly resolves issues of equipment compatibility and is easy to operate and manage.

The system also possesses both reliability and forward-looking features, not only meeting current service demands but also enabling a smooth expansion and upgrade of network capacity through the simple addition or replacement of CWDM channels, providing users with a convenient and efficient method of expansion.



## **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)

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