

Background

Due to the ongoing large increase in bandwidth demand, Data Center connections are expected to move from 25G/100G to 100G/400G.

- *Within the Racks*

10G still being used

25G starting to be deployed in volume

50G/100G following

- *Between the Racks*

40G still being used

100G starting to be deployed in volume

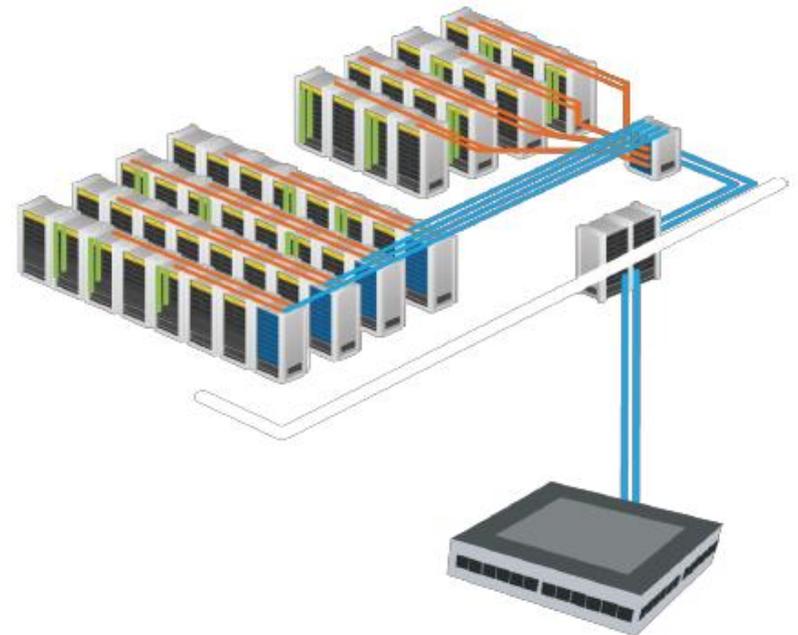
400G following

- *DCI & WAN*

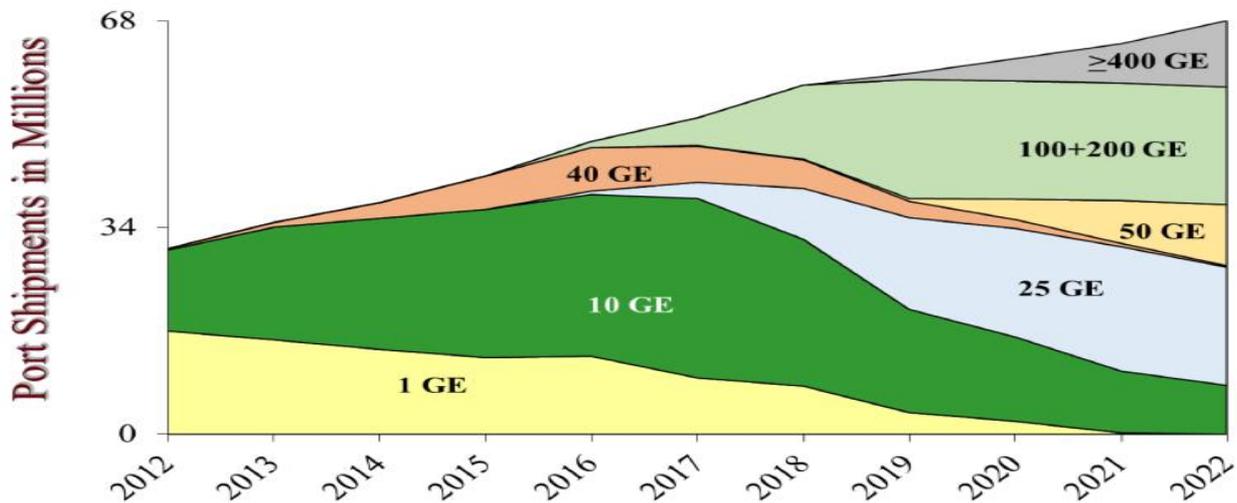
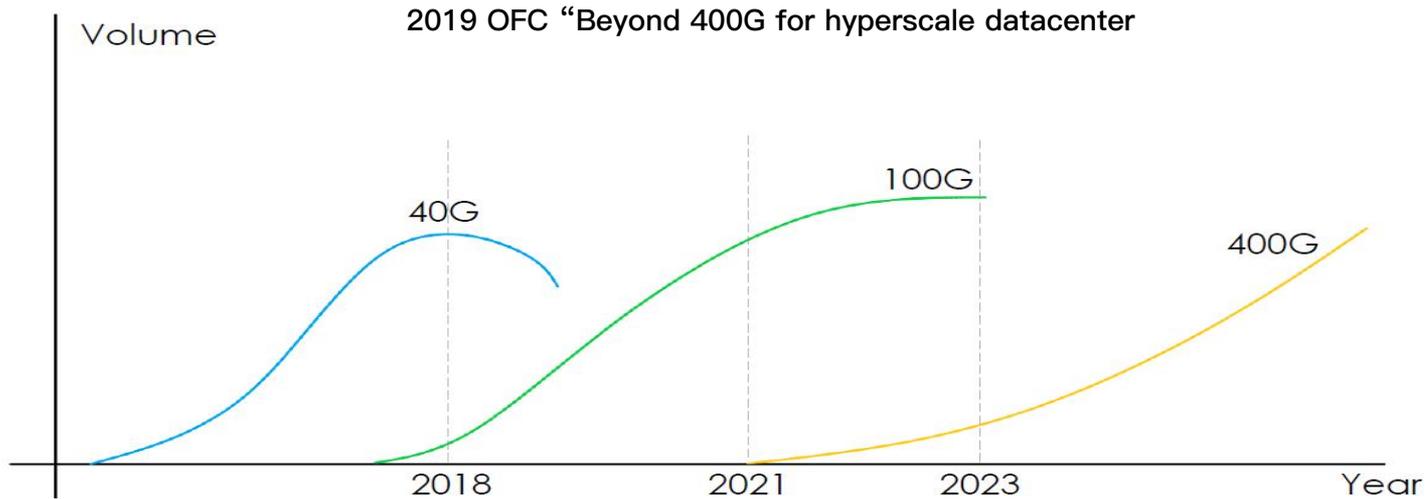
10G DWDM still being used

100G/200G starting to be deployed in volume

400G/800G following



According to the forecast of data center bandwidth demand and shipment, 400gb is about to start batch use

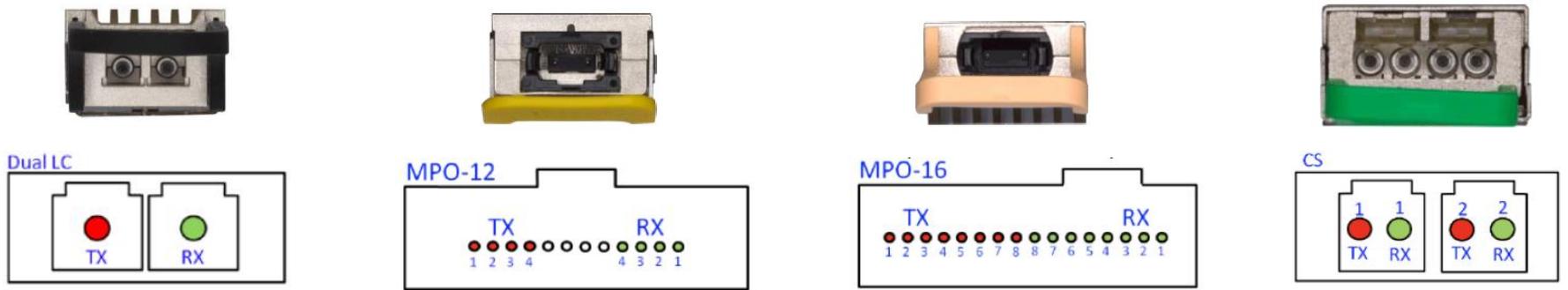


Source: Dell'Oro, 2018

Technology types of 400G Transceivers

Interface	Link Distance	Media Type	Optical Technology	Optical Connector	Standard
400GBase-SR16	100M(OM4)	32F Parallel MMF	16*25G NRZ Parallel VCSEL	32F MPO	IEEE 802.3bs
400GBase-DR4	500M	8F Parallel SMF	4*100G PAM4 Parallel (SiP)	8F MPO	
400GBase-FR8	2KM	2F Duplex SMF	8*50G PAM4 LAN-WDM(DML)	LC	
400GBase-LR8	10KM	2F Duplex SMF	8*50G PAM4 LAN-WDM(DML)	LC	
400GBase-SR8	100M(OM4)	16F Parallel MMF	8*50G PAM4 850nm(VCSEL)	16F MPO	IEEE P802.3cm
400GBase-SR4.2	100M(OM4)	8F Parallel MMF	8*50G PAM4 BiDi 850/910(VCSEL)	8F MPO	
400GBase-FR4	2KM	2F Duplex SMF	4*100G PAM4CWDM(EML)	2*CS	100G MSA

The Optical Interface as below



Outline of 16F Cabling System

In view of the current situation of data centers, OECE launched its solution "High Density Fiber Cabling System based on the 16F MPO Connector and the CS connector".

This solution is simple and easy to manage. While meeting the existing requirements of 40G/100G, it also provides a solid solution for the upcoming deployment of 400G Ethernet.

It will reduce customers' repeated investment in fiber resources and realize customers' maximum cost control advantages

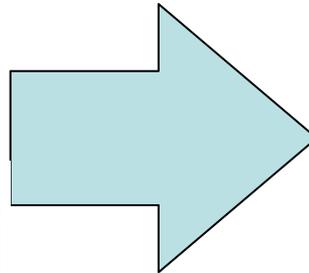
QSFP Transceiver



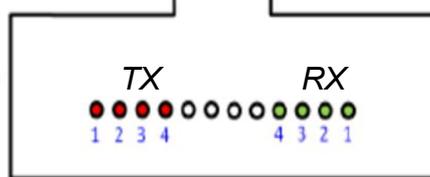
QSFP-DD Transceiver



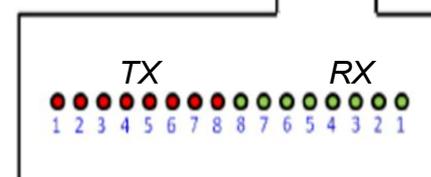
Upgrade Smoothly



MPO-12

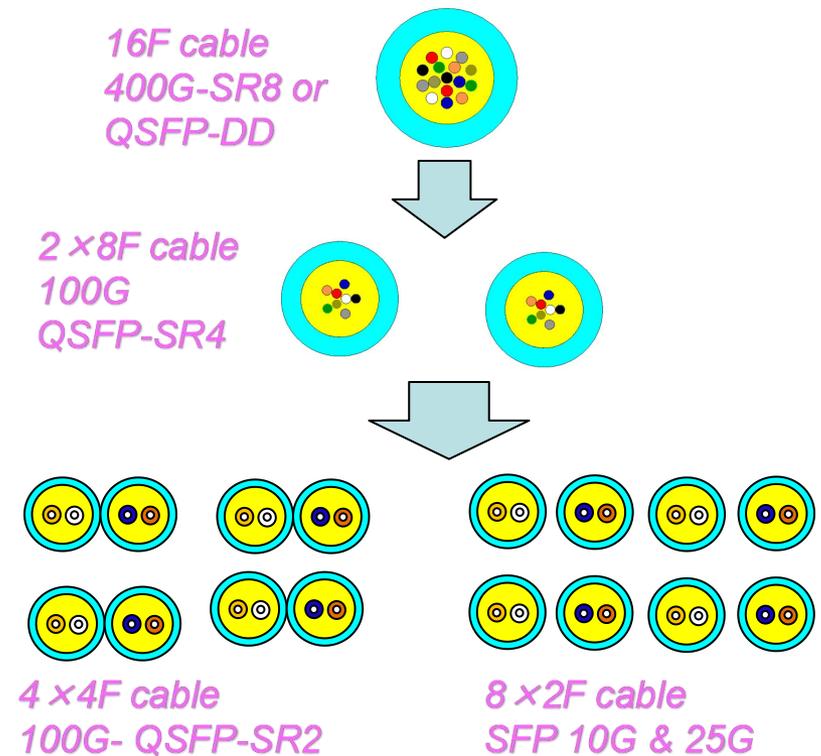


MPO-16



Advantages

- *Low insertion loss and high return loss , meeting the standards of 400G fiber transmission.*
- *The 16-core MPO fiber optic connector which is compliant with OSFP and QSFP-DD standards, compatible with existing 40G, 100G fiber transmission through the fanout cable assembly and Cassette.*
- *The trunk cable is based on 16F fiber which reduces the complexity of installation and deployment; and achieving 100% utilization of the fiber cable.*
- *All of products meet the relevant standards of environmental policies, environmental protection and flame retardant.*

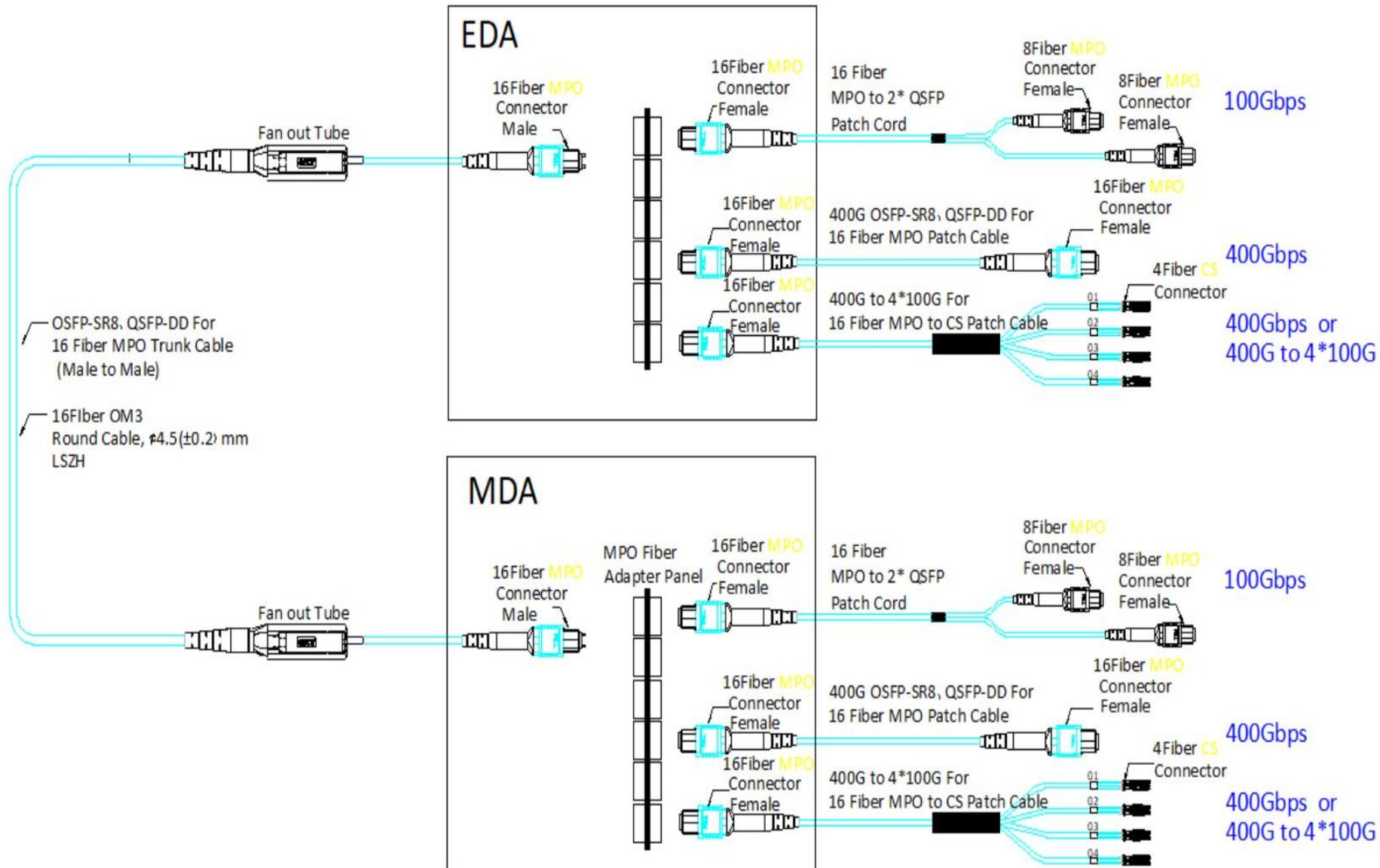


Advantages

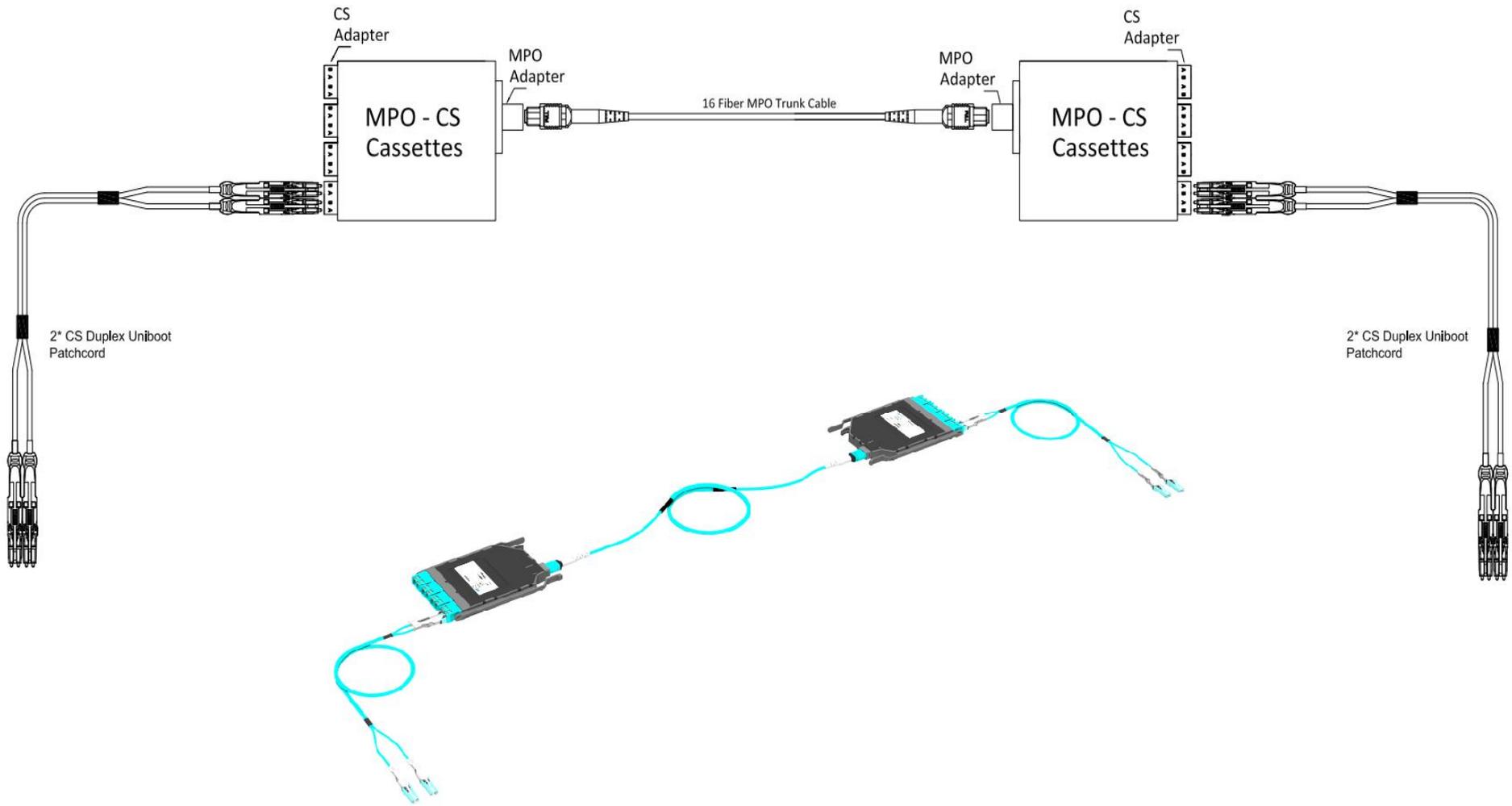
Compared with the cabling system of 8F ,12F and 24F, the 16F cabling system can fully support the coming 400G fiber transmission , good port mapping and 100% fiber utilization.

	Fiber Count	8F System	12F System	16F System	24F System	
1-25G	2F	●	●	●	●	● Fully Support Good port mapping 100% fiber utilization
	40G	●	●	●	●	
40G	2F	●	●	●	●	● Fully Support Good port mapping 100% fiber utilization
	8F	●	■	●	■	
100G	2F	●	●	●	●	■ Partially Supported complicated port mapping Not 100%fiber utilization
	8F	●	■	●	■	
400G	2F	●	●	●	●	▲ Not Support
	4F	●	●	●	●	
	8F	●	■	●	■	
	16F	■	▲	●	▲	

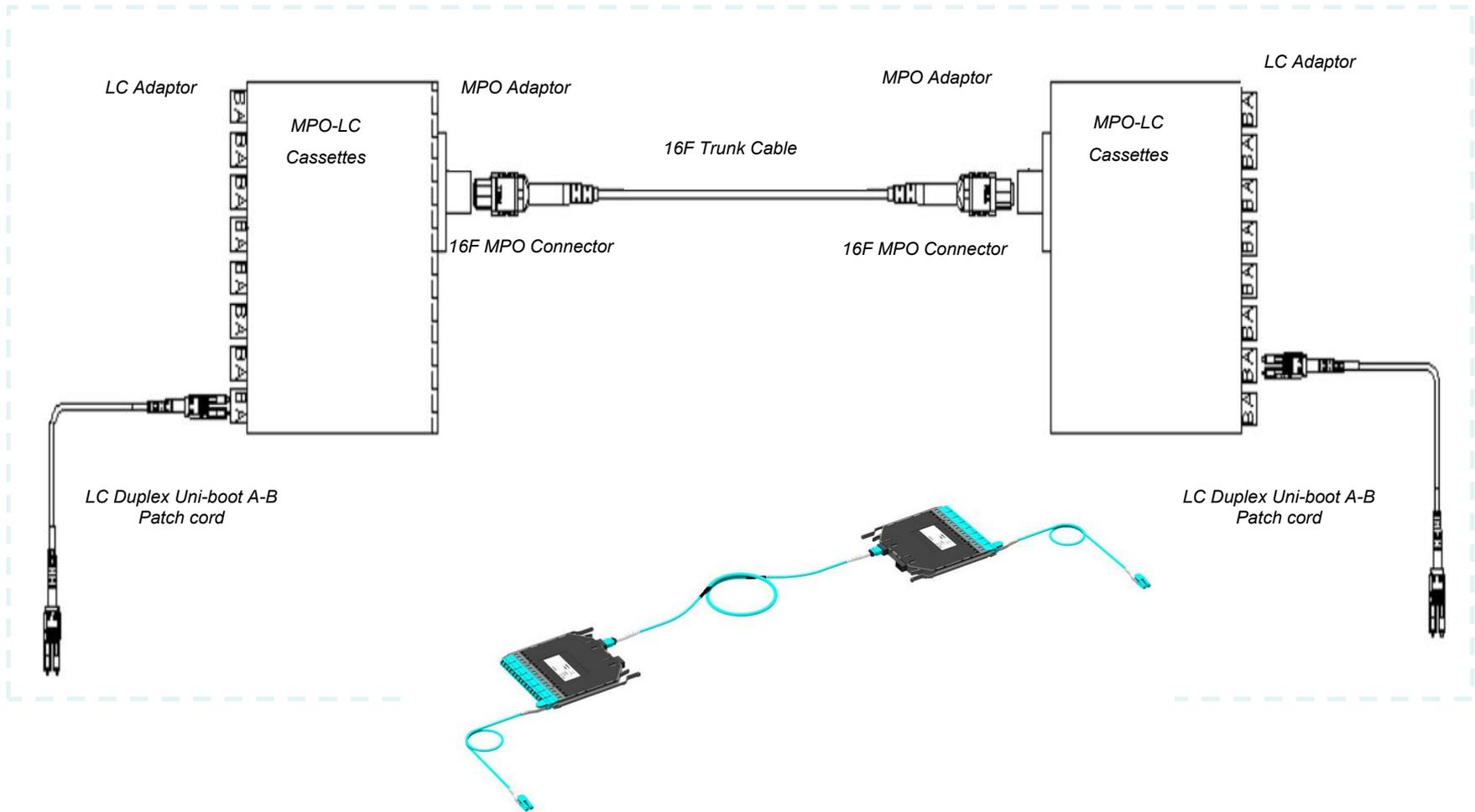
Port Mapping



Port Mapping



Port Mapping



Products



**4HU Rackmount LC
Patch Panels**



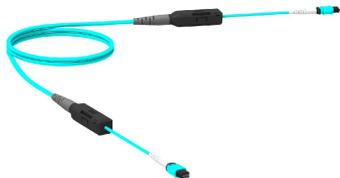
**1HU Rackmount LC
Patch Panels**



**16F MPO-LC
Cassette**



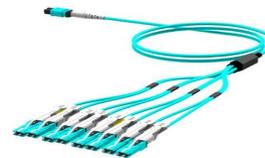
MPO Path Panel



**16F MPO Trunk
Cable**



**16F MPO Jumper
Cable**



**16F MP-CS
Fanout Cable**



4F CS Jumper



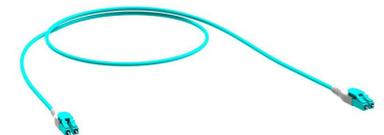
**4HU Rackmount CS
Patch Panels**



**1HU Rackmount CS
Patch Panels**



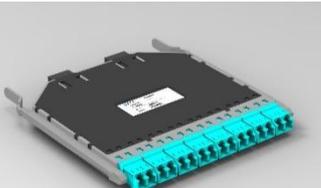
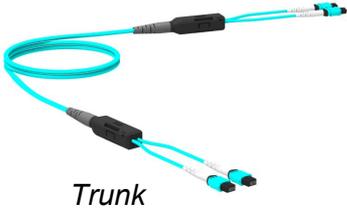
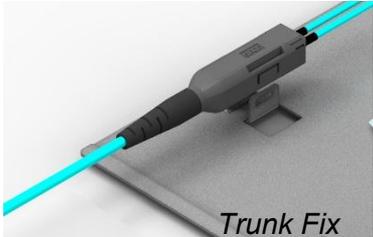
**16F MPO-CS
Cassette**



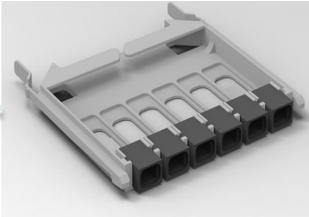
**2F LC
Jumper**

Patch Panel Features

Module Box Insert/Remove from Rear



MPO/LC Module Cassettes



LC Jumper

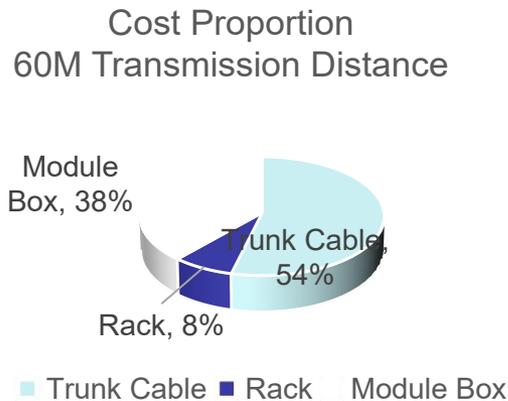


Module Box Insert/Remove from Front

Cost Comparison

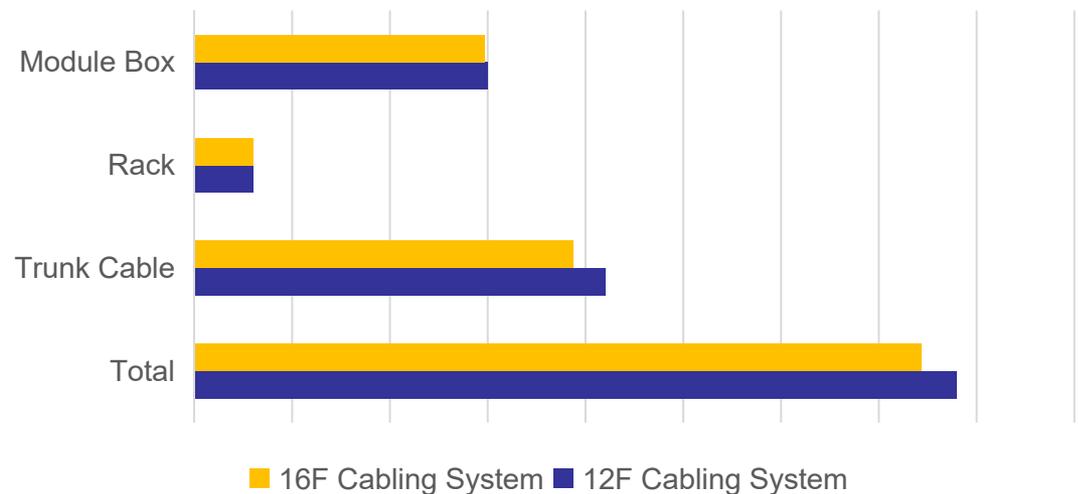
Compared with the 12F cabling system, the 16F cabling system have the cost advantage.

- Distribution box cost roughly the same
- Due to the 16F MPO connector and adapter developed and designed by OECE itself, the cost of the module box is similar
- The trunk cable is changed from 12F to 16F, which reduces the total number of cables under the same link number, thus reducing the overall cost of the trunk cable.
- If trunk cabling and test cost added, the cost advantage of the 16F cabling system will be more obvious



The cost proportion of the trunk cable is about 50%

Total Cost
16F Cabling System VS 12F Cabling System



The cost base on the 1U 144F fiber cabling system including the trunks and two 1U rack with the module box.

The cost of 16F cabling system is reduced about 10%