

A server room with blue light trails and people working. The scene is dimly lit with blue and green light trails from fiber optic cables. Two people in white shirts are visible, one working on a server rack and another walking in the background.

Propel™

Building a more efficient network

How will faster networks lower the cost, latency and energy consumption?

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Technology Evangelist
Principal Field Application Engineer
ISO/IEC and CENELEC Cabling standards Expert

2023Q4

A PROVEN PARTNER TO THE WORLD'S TOP NETWORKS

COMMSCOPE IS BACKED BY THE EXPERTISE, INNOVATION AND RESOURCES THAT ENABLE US TO DELIVER POWERFUL RESULTS.

30,000

TALENTED
INNOVATORS

15,000+

PATENTS

\$800M

EACH YEAR
IN R&D

WE'RE PROUD TO PARTICIPATE IN THESE
PRESTIGIOUS ORGANIZATIONS

O-RAN Alliance
WFA
WBA
WinnForum
IEEE at many levels
On Go Alliance
NGMN
ISO/IEC

TIA
CableLabs
SCTE
IEEE
ETSI
Broadband Forum
ITU-T
CENELEC

Linux Foundation Networking
Connectivity Standards Alliance
Bluetooth
MoCA
HDMI
RDK
PRPL

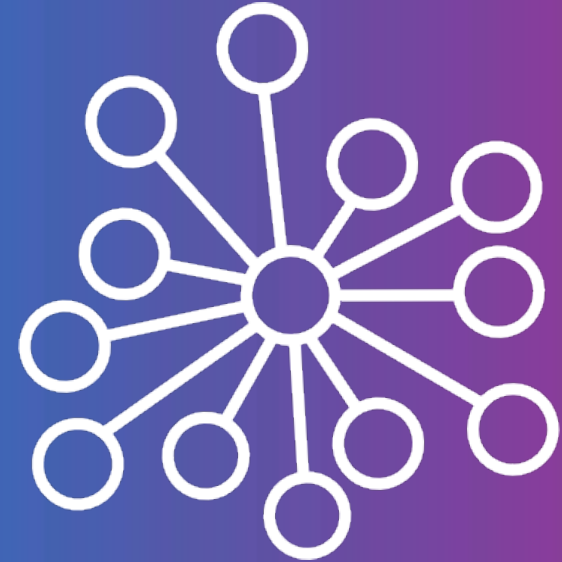
Agenda

Datacenter speed trends

Flattening the network

Connectivity types

Prepare for the future



Networks are shifting from 2 fiber
over 8 to 16 fiber applications



Hyperscales



Cloud

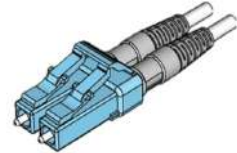


MTDC

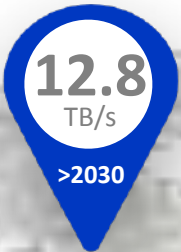
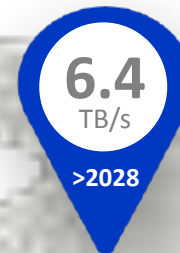
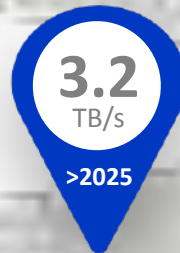
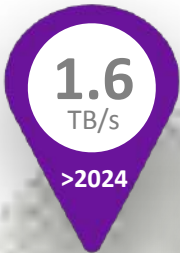







Enterprise

Capacity Crunch Drives Network Speed Investment



 Ethernet Speed
 Speed in Development
 Possible Future Speed



First Deployed	Electrical I/O [Gb/lane]	Switching Bandwidth	TOR/Leaf Data Center Switch Configuration	
~2010	10G	1.28T	 32xQSFP+ (40G)	Legacy technology
~2015	25G	3.2T	 32xQSFP28 (100G)	128 Electrical I/Os
~2019	25G	6.4T	 32 ports of 200G	256 Electrical I/Os
2021	50G	12.8T	 32 ports of 400G	
2022	100G	25.6T	 32 ports of 800G	512 Electrical I/Os coming soon?

Rapid succession of technology

NVIDIA announced the SPECTRUM-4
a 2U switch with 128 ports of 400G
51.2T = 1024 I/Os
expected power savings = 40%



QSFP-DD and OSFP Modules

- 8 electrical I/Os (8 transmit / 8 receive)
- The only way to use ASIC capacity
- 50G and 100G electrical I/Os up to 800G (today)
- New options for
 - Up to 8-way breakouts, 4-way popular for brownfield
 - New optical connectors to enable these breakouts
 - Multimode fiber and singlemode fiber options



QSFP-DD



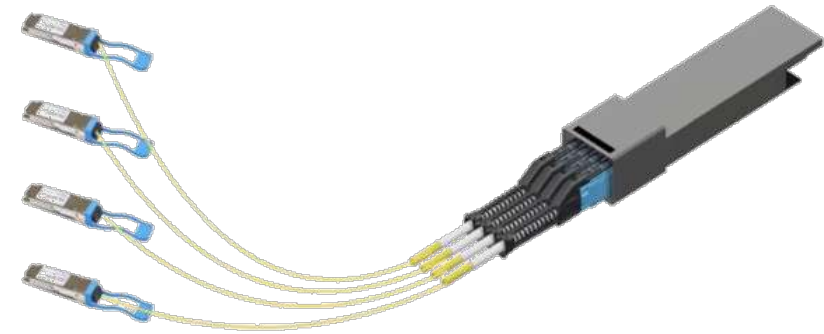
OSFP

400G MDIs

Media dependent interface (MDI)

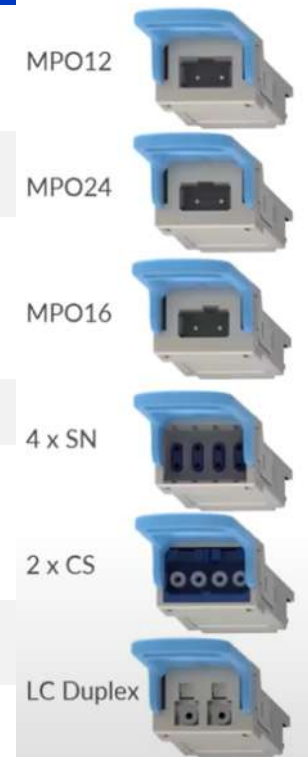
400G capacity QSFP-DD connectors

400G DR4
with 4
duplex
100G-DR
fibers

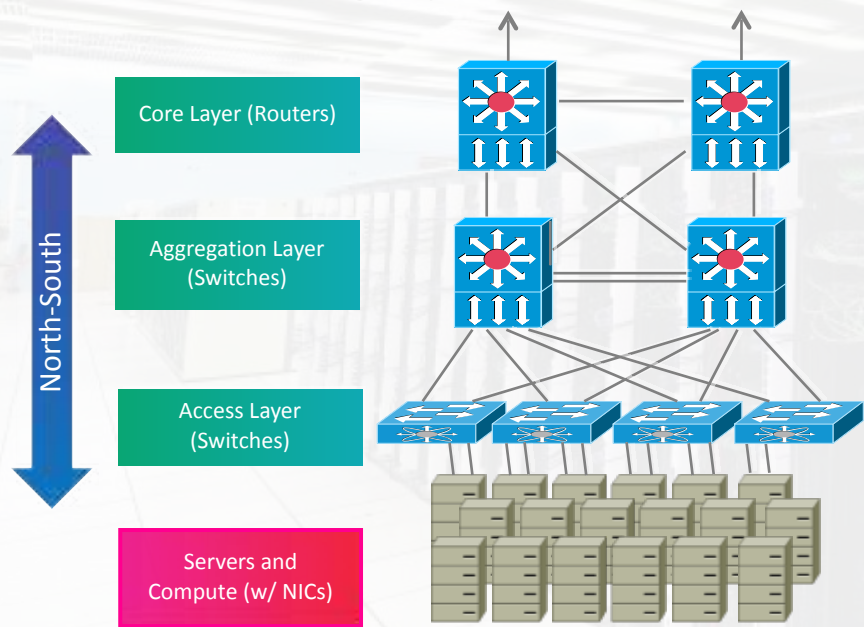


New SN/MDC connector avoids MPO-MTP Splitter cable

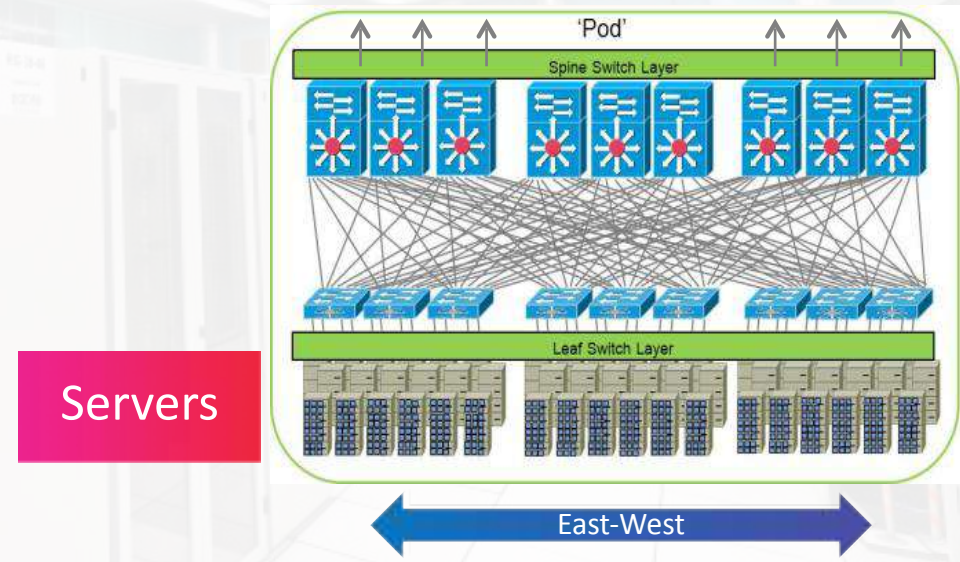
Reach	Name Scheme A	Scheme B	Scheme C	Connector
SR (50-70m)	QDD-400G-SR4.2	400G-BiDi		MPO12
	QDD-400G-SR8	400G-SR8		MPO16/MPO24
	QDD-400G-SR4	400G-SR4		MPO12
DR (500m)	QDD-2x200G-DR4	400G-DR8		MPO16/MPO24
	QDD-400G-DR4	400G-DR4		MPO12
FR (2km)	QDD-4x100G-FR1	400G-4xFR1	400G-DR4+	MPO12/4xSN
	QDD-2x200G-FR4	400G-2xFR4		2xCS/(2xSN)
	QDD-400G-FR8	400G-FR8		LC Duplex
	QDD-400G-FR4	400G-FR4		LC Duplex
LR (6km)	QDD-400G-LR4-6	400G-LR4-6		LC Duplex
LR (10km)	QDD-4x100G-LR1	400G-4xLR1	400G-DR4++	MPO12/4xSN
	QDD-2x200G-LR4	400G-2xLR4		2xCS/(2xSN)
	QDD-400G-LR8	400G-LR8		LC Duplex
	QDD-400G-LR4-10	400G-LR4-10		LC Duplex
ER (30-40km)	QDD-400G-ER8	400G-ER8		LC Duplex
	QDD-400ZR	400ZR		LC Duplex
ZR (80-120km)	QDD-400ZR	400ZR		LC Duplex
	QDD-400G-ZR	400G-ZR		LC Duplex



Legacy Network



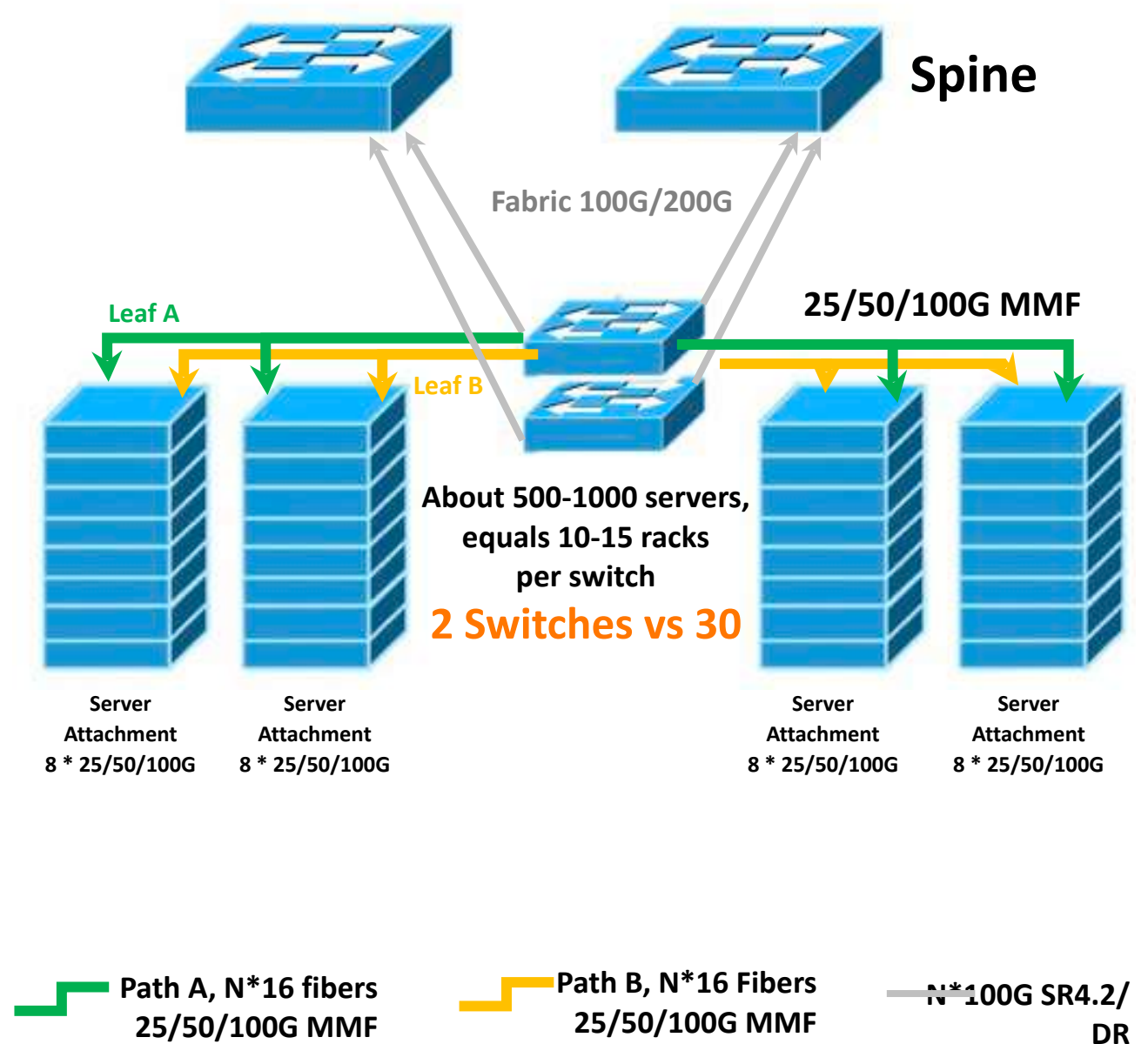
Leaf-Spine Network



DC network topologies continue to evolve



Efficient network architectures

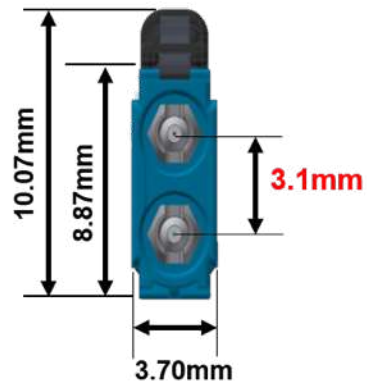


Optical connectors comparison

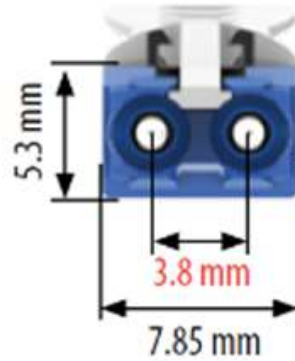
SN®



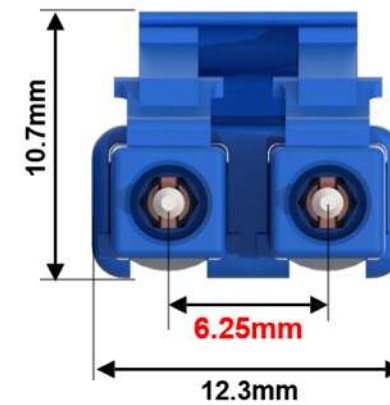
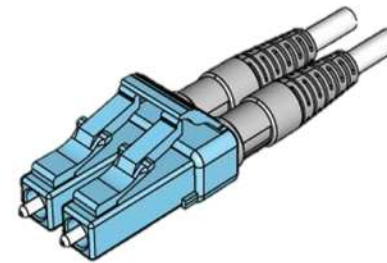
MDC



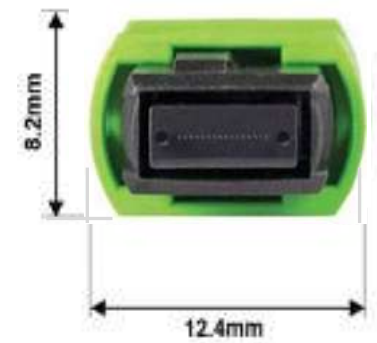
CS



LC Duplex



MPO



Why MPO16

Enables 2, 8 & 16-fiber applications
without wasting fibers

Simplifies design and installation

Backward compatible to legacy
and migration aligned to 400G/800G Ethernet and beyond

16 fiber applications provide 8:1 vs 4:1 breakouts: Enabling the
lowest cost and energy per bit with improved latency

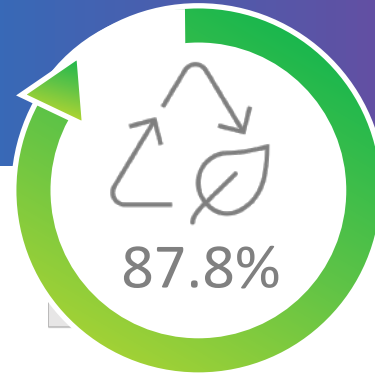




CommScope
Manufacturing Facilities
ISO 14001:2015
Environmental
Management Systems

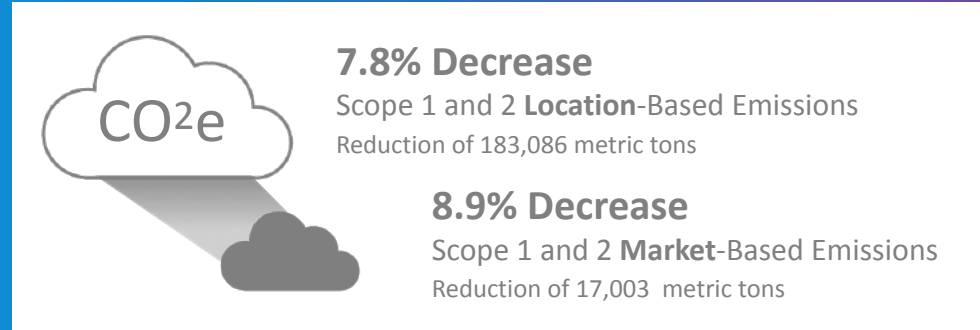


CommScope
Manufacturing Facilities
ISO 45001:2018
Health & Safety
Management Systems



of nonhazardous waste diverted
from landfills globally in 2021.
*Achieved by reducing waste generation
via product design and manufacturing
processes by converting waste to energy
and reusing and recycling waste.*

Conducted 268 sustainability assessments and audits in our supply chain.

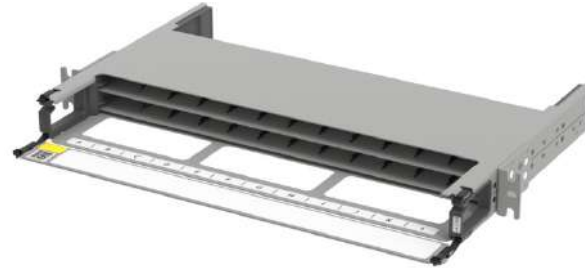


Panels

- **Adapt and grow** as needs change
- **Modular and interchangeable**
- **Blade-based** layout
- Minimum **size/weight**
- **Ergonomic & easy access**
- **One person** install
- Module **interchangeability**
- Support 8-12-16 and 24-fiber connectivity and **up to 288** connected fibers per **RU**
- **Method B Enhanced polarity**



Propel™



8LC

12LC

16LC

24LC



Flexibility

MPO8, MPO12, MPO16 to LC conversion

MPO24 to LC conversion MM

MPO8, MPO12, MPO16 to SN conversion SM

LC adapter modules

SN adapter modules

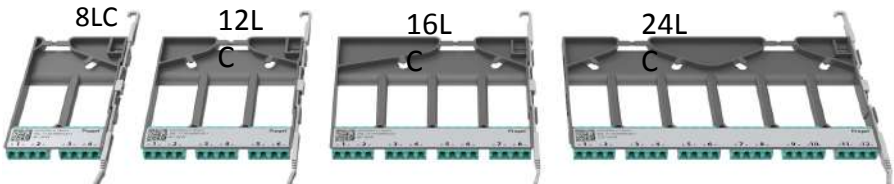
MPO8, 12, 16, 24 adapter modules

LC and MPO splice modules

MPO16 to 2x MPO8 conversion modules

MPO8 to MPO8 mesh modules

QSFP breakout modules





Leading
with 16-fibers

Most efficient multipair building block
for trunk applications

End-to-end APC multimode or singlemode provides application
insurance benefits compared to UPC

Enable cost effective
backbone switch/breakouts

Supports migrations whether duplex or multipair 4, 8, or 16
fibers; multimode & singlemode

Propel™

