COMMSCOPE®

Propel frequently asked questions

What is Propel™?

Propel is a modular, flexible, high-speed fiber platform that easily evolves to support faster data speeds, lower latency and more efficient deployments across multiple upgrades, for all networks, within the same panel.

- High-density fiber panels
- Four MPO-aligned interchangeable ULL module/ adapter sizes
- 8- and 16-fiber MPO assemblies
- 12- and 24-fiber legacy assemblies
- QR-coded performance verification
- Visit the Propel solutions page for a deeper dive.

Why Propel™—why now?

Capacity growth and delivery demand are driving MPO16 adoption; network complexity and time to market require simplified designs and faster deployment.

In an ever-changing network environment, flexibility might be the most important feature of Propel.

Propel enables 1:1 matching of module and adapter options for application-based scaling—making it the most efficient fiber solution available.

It supports 2-, 8-, 12-, 16- and 24-fiber applications—duplex and multipair—without wasting fibers, panel space or installation time. If your site does need to change, Propel will take you there.

SN   LC

MPO8   MPO12   MPO16   MPO24

Why design for 16-fiber connectivity?

Transceiver speeds are rapidly moving from 100G/200G to 400G, 800G, 1.6T and beyond[1].

By 2027, shipments of 100G servers are expected to dominate the market. To support a typical 1:1 subscription ratio, the leaf-and-spine fabric needs to run at 400G.

Not everyone is in the same place, but they are on the same path; eventually, all enterprise and data center networks will need to migrate to higher speeds—whether 10G-40G-100G or those noted above.

If you are using 10G for your server connections today, you will most likely upgrade to a higher speed within the next five years—probably to another duplex application like 25G, 50G or even 100G.

The most cost-effective way to deploy these lane speeds is by splitting higher speed ports like 100G, 400G or 800G.

If you are using 400G switches and splitting the ports into 8 x 50G for your servers, on an 1U-32-port 400G switch you will effectively have access to more than 200 50G ports; most likely, that would be enough ports to serve an entire row of racks and enable you to remove most of (if not all) the TOR switches. Such a design results in significantly lower latency in your network as an extra bonus on top of the added network speed.

In the end this type of deployment often results in lower costs for network equipment and related maintenance.

Network complexity will only increase, so it's easier to create a path to higher speeds sooner rather than later.

The industry's first 16-fiber MPO solution

Why design for 16-fiber connectivity? (*continued*)

Propel enables seamless migration to 400G, 800G, 1.6T and beyond. Its 16-fiber connectivity provides the most efficient multipair building block for trunk applications and the most cost-effective breakouts for backbone switches.

Propel also supports all legacy 24-, 12- and 8-fiber applications, multimode and singlemode fiber, enabling you to migrate to higher speeds when ready—no rip and replace required.

[1] New transceivers that will use MPO16: 800G-DR8, 800G-DR8-2, 800G-SR8, 800G-VR8, 1.6T SR8.2, 1.6T-VR8.2, 1.6T-DR8, 1.6T-DR8-2

Is Propel recommended for new installations?

Yes. Propel is ideal for greenfield installations as it represents CommScope's data center and enterprise fiber strategy going forward. It provides network engineers with the standards-based design options and configuration flexibility to support all existing applications. Because it aligns with current duplex and emerging 8- and 16-fiber designs, Propel ensures seamless migration as your network evolves.

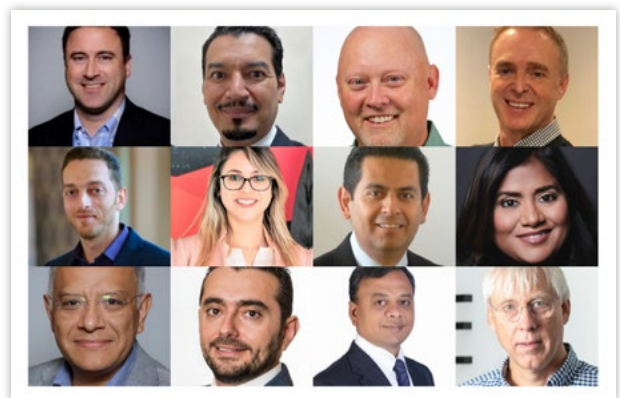## Is Propel backwards compatible with existing fiber installations?

Yes. As CommScope's leading end-to-end fiber platform, Propel can be deployed alongside an existing installation. It features a variety of cable assemblies that enable a seamless transition from an older legacy network to a future-ready Propel-enabled infrastructure.

When deploying Propel with an existing fiber installation, it is important to follow the below guidance:

- For connecting legacy CommScope panels to network equipment using Propel **equipment or array cables:**

  – If the existing CommScope installation uses **LC duplex connectors on both ends** of a channel (panel to panel) with OM4, OM5 or singlemode fiber trunk cable in between, applications using 2-, 4-, 8- or 16-fiber Propel array equipment cables should support the allowable distance/connection count for the lowest performing cable component.

  – If the existing low-loss or legacy installation ends with MPO connectors at adapter packs, care should be taken selecting the appropriate MPO cable assembly configuration as there could be differences in polarity, pinning or fiber end-face on each end. Transitions are possible but consult your CommScope sales engineer or TAC for guidance before ordering assembly.

- For connecting Propel panels to UD/HD/EHD/CHD panels with ULL modules via installed CommScope ULL pinned trunk cabling:

  – Remember that MPO8 and MPO12 (in OM4/OM5, multimode and singlemode) and MPO24 (multimode only) are supported

and have Enhanced Method B (U2 Type Standard Polarity) fiber polarity. To connect any of those options to MPO16 at the equipment from LC duplex or MPO adapters at the panel, array assemblies are available and support the transition. To transition to SN or other very small form factor (VSFF) connectors at the network equipment, MPO8 and LC duplex transition patch cords are available as well. Consult the Propel ordering guide.

Since Propel is at the leading edge of infrastructure design, it contains some new features that may not be present in a legacy installation. CommScope's technical teams are always available to help data center managers successfully migrate to fully future-ready Propel-based infrastructure.

Why use angled physical contact (APC) connectors?

An APC MPO ensures good return loss even if physical contact is lost. Moreover, at higher speeds, back reflections from dirty or poorly polished multimode UPC MPO16 or MPO8 end faces may affect 400G-SR8 or 400G-SR4 performance. The standards for both are changing to include APC connectivity for higher data rates.

While greenfield installations should use APC MPO for high-speed, high-quality transmission, CommScope recommends that brownfield installations use UPC MPO to ensure backward compatibility.

Note: APC and UPC MPO connectors are **not** interoperable and should **not** be mated together.

What Propel-enabled design tools are available?

The Fiber Performance Calculator now includes a ULL version with Propel module options and newer applications.

All application support tables are available with performance specifications: Volume 6 ULL and Volume 6 S (400G supplement) cover ULL and Propel products.

Note: ULL application support tables only include combinations of MPO and LC connectors (which cover SN). The tables assume equivalent performance among:

- LC and SN
- Multimode MPO8, MPO12, MPO16 and MPO24
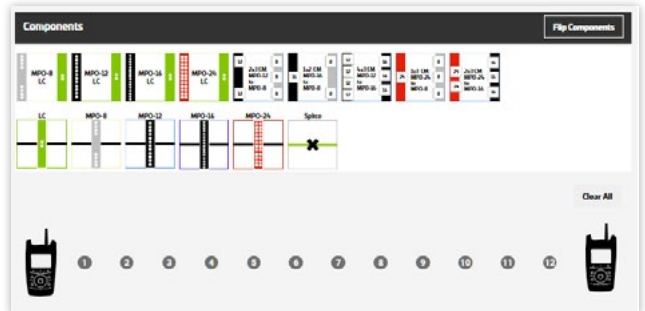- Singlemode MPO8, MPO12, and MPO16

Is Propel more sustainable than other solutions?

CommScope's Propel portfolio is sustainably designed[2] to reduce waste, conserve space, reduce fuel consumption and increase the product lifecycle:

- 4U panel packaging takes up 20 percent less space and weighs 16 percent less than typical panels

- Installation requires one technician, reducing CO_2e.

- Support for multiple upgrade cycles reduces material and manufacturing impact

- Platform components use conflict-free minerals

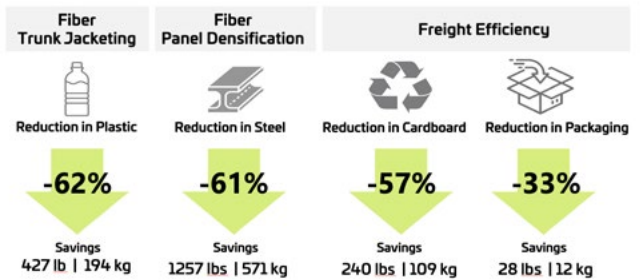MPO16 connectivity takes sustainability further:

- 62 percent reduction in plastic since more links are provided by fewer trunks

- 61 percent reduction in steel, due to the panel densification

- 57 percent reduction in cardboard and 33 percent in packaging, higher freight efficiency

It's all part of CommScope's global initiative to reduce our carbon footprint across all operations, products, and supply chains.

[2] https://www.commscope.com/globalassets/digizuite/952295-propel-sustainability-infographic-ig-116707-en.pdf

- ⊘ Minimal single-use plastics in panel packaging
- ⊘ Recycled cardboard
- ⊘ Foam is recycled and recyclable
- ⊘ No single-use plastics in module packaging

Sustainable networks to support future appplications

Fiber Trunk Jacketing	Fiber Panel Densification	Freight Efficiency	
Reduction in Plastic	Reduction in Steel	Reduction in Cardboard	Reduction in Packaging
-62%	-61%	-57%	-33%
Savings 427 lb | 194 kg	Savings 1257 lbs | 571 kg	Savings 240 lbs | 109 kg	Savings 28 lbs | 12 kg

NOTE: the above numbers are specific to a large social media install.
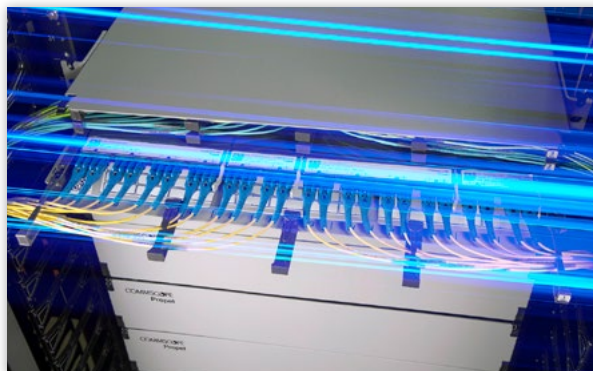
Do Propel components support WebTrak®?

Yes, all Propel components are labeled with a WebTrak barcode or QR code. Cable assemblies have a wraparound label on the outer jacket. All other components feature printed QR codes that enable mobile access via CTrak®. These can be found on the label (modules, adapter packs) and chassis and inside the front and back doors (panels). QR codes for adapter packs and panels link to the product's eCatalog® page.

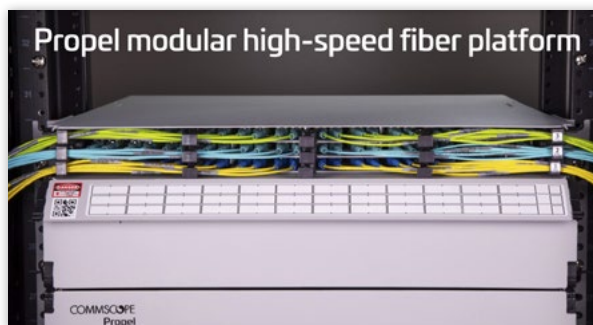## What is the max allowable channel optical loss at 40G, 800G and 1.6T?

Thanks to our participation in application standards, CommScope ensures a sufficient loss budget across the installed base. For example, 800G-DR8 has the same loss budget and reach as 400G-DR4. As standardized loss budgets change, we will update the Fiber Performance Calculator and application support tables.

How can Propel reduce the amount of equipment I need to purchase?

The Propel universal chassis supports 72 MPO 8F–24F and LC duplex per RU (144F) and accommodates 144 SN (288F) per RU. Where other vendors require multiple different chassis to support multiple generations of network application and active equipment, Propel uses just one.

The innovative internal cable management system enables a smaller panel footprint, so you can add more panels instead of unneeded horizontal cable management products. The Propel portfolio also includes VSFF connectors like the duplex SN—doubling panel density to 288F per RU.

Propel modular high-speed fiber platform

What is the new SN connector and how does it work?

The SN connector is a VSFF duplex optical connector that utilizes the same proven 1.25 mm ferrule technology as the industry-standard LC connector but with significantly reduced outer dimensions. It is designed for hyperscale, edge, enterprise, and colocation data center interconnects (DCI or MTDC). 288 SN connectors fit in every RU in any Propel shelf.

Where can I find more information about Propel?

Visit www.commscope.com/propel.

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

commscope.com

Visit our website or contact your local CommScope representative for more information.