Port Replication

Introduction

Driven by ever-increasing demands for bandwidth and speed, enterprise and hyperscale networks alike are turning more and more to high density switches and fiber connections. 10G is almost commonplace, 40G and 100G are growing in adoption, and 400G is around the corner. High-density connections allow more capacity within the same footprint and increase scalability while bringing down overall cost, but they also introduce new challenges to overcome.

Not all devices support high-density connections, so there is often a need to aggregate lower-density connections before they reach a high-density switch. Conversely, connections from high-density switches need to be broken out to reach the low-density devices, without losing track of what goes where. In addition to breaking out 40G ports into 4x10G ports and 100G ports into 4x25G ports, network managers need a way to ensure that every cable connection is accurately installed and documented, and network technicians need a reliable way to know exactly which ports to service.

Breakouts for 40, 100 and 400G for any switch.

- *40G to 4 x 10G*
- *100G to 4 x 25G*
- *400G to 4 x 100G*

Visit www.fibermountain.com to learn more.

Breakout Visibility

Imagine working as a technician in a data center who needs to service one 10G port that is part of a 40G breakout. First you have to find the switch within the data center, then the correct 40G switch port and then the correct 10G port. In standard breakout methods, there are no physical indicators to show which 10G port corresponds to which fiber of the original 40G port. This makes the technician's work error prone – which port actually needs the new connection?

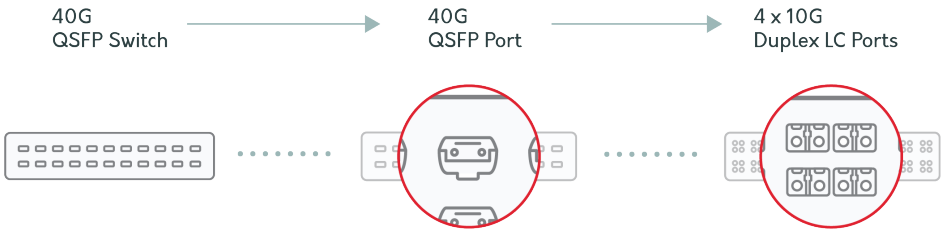


Figure 1: Breakout Visibility

For more information, visit: **www.fibermountain.com**

Port Replication

Fiber Mountain's L-Series Fiber Port Aggregators (FPAs) can be configured as port replicators to address both breakout and visibility issues for high density switches. The FPA uses rear-facing MPOs mapped to front-facing duplex LC ports to break out any QSFP into four duplex LC ports, labeled according to the rear MPO for easy tracking of connection paths. In addition, each duplex LC and MPO has an associated tri-color LED, which can be configured to show port status from the originating switch or to be controlled via software to remotely guide a technician to the correct device and port.

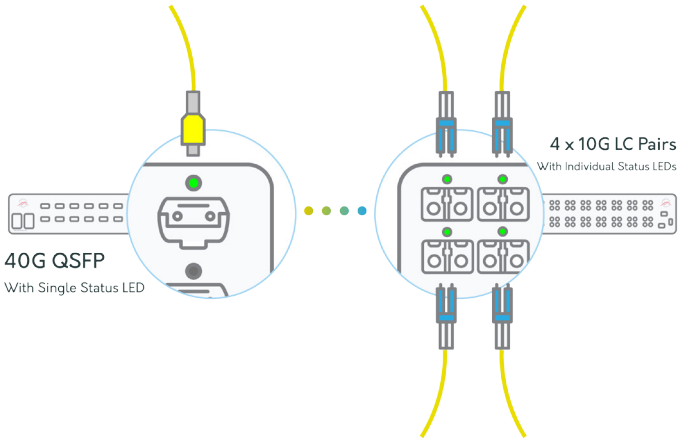
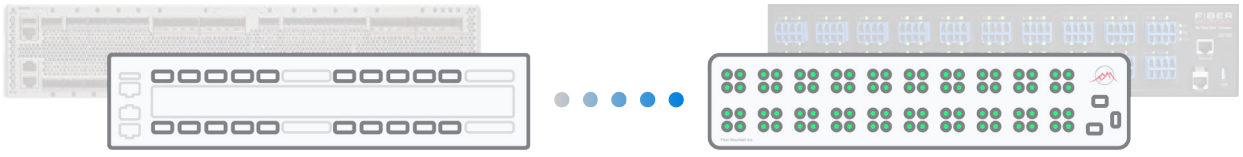


Figure 2: Port Replication

Cisco NCS 1002 - Real World Example

Cisco customers needed a way to break out the 20 QSFP ports of the NCS 1002 DWDM transport platform in order to connect it to end devices that only support 10G. Fiber Mountain partnered with Cisco to create the LS-2520 as a custom port replicator, breaking out all 20 QSFPs in a single 2RU unit with ports numbered to match the NCS 1002 and LEDs controlled directly by the connected NCS 1002.



Cisco NCS 1002
20 x QSFP

Fiber Mountain LS-2520
80 x Duplex LC Ports

Figure 3: Real world example

Conclusion

Fiber Mountain's L-Series FPAs can provide port replication and breakout for any QSFP switch, with the added benefit of softwarecontrollable per-port LEDs. This makes L-Series FPAs an ideal companion for any QSFP switch or transport platform, available for single mode and multimode applications with 80 or 72 LC duplex ports.