



Cisco Bidirectional Transceivers Enable 40 Gigabit Ethernet over a 10 Gigabit Ethernet Fiber Infrastructure

Cisco® bidirectional transceivers (Figure 1) enable 40 Gigabit Ethernet over a 10 Gigabit Ethernet fiber infrastructure.

Figure 1. Cisco QSFP BiDi Transceiver (QSFP-40G-SR-BD)



Benefits

- Reuse existing 10GE fiber infrastructure for 40GE migration
- Lower CapEx and installation labor costs
- Minimal disruption to the data center during migration
- Four times the bandwidth over the same fiber plant
- Up to 70% savings over other current solutions

Upgrading to 40 Gigabit Ethernet on an Existing 10 Gigabit Duplex MMF Infrastructure

Growing data center consolidation, higher-performance servers, and increasing application density on virtualized servers is driving network capacity demands to levels previously unimagined. Over the last several years, data center networks have transitioned from 1 Gbps to 10 Gbps to accommodate this rapid growth. Yet even the 10-Gbps infrastructure is becoming overwhelmed by today's data center requirements, making the shift to 40 and 100 Gbps inevitable, especially in the network aggregation layer and core.

However, the 10 Gigabit Ethernet fiber cabling infrastructure found in most data centers is based on the use of transceivers designed for duplex MMF (two multimode fiber strands). Since 40 Gigabit Ethernet multimode solutions require eight fiber strands, upgrading is both expensive and disruptive to the data center.

Next Steps

For more information about the savings provided by Cisco BiDi transceivers, see the sample case studies at <http://www.cisco.com/c/en/us/products/collateral/switches/nexus-9000-series-switches/white-paper-c11-729493.html>.

Cisco's innovative 40-Gbps Quad Small Form-Factor Pluggable (QSFP) bidirectional (BiDi) transceiver is a pluggable optical transceiver with a duplex LC connector interface for short-reach data communication and interconnect applications. By using the existing 10 Gigabit Ethernet duplex MMF fiber infrastructure for 40 Gigabit Ethernet, the Cisco BiDi transceiver offers significant cost savings and simplifies data center upgrading.

The Cisco BiDi transceiver supports link lengths of 100m and 150m on laser-optimized OM3 and OM4 multimode fibers. It complies with the QSFP MSA specification, enabling customers to use it on all QSFP 40-Gbps platforms to achieve high-density 40 Gigabit Ethernet networks.

Use Your Existing 10 Gigabit Ethernet Fiber for 40 Gigabit Ethernet

Whether your cable plant is structured or unstructured, Cisco's BiDi transceiver delivers significant savings and a smooth migration to 40 Gigabit Ethernet. The Cisco BiDi transceiver enables the use of an existing 10 Gigabit Ethernet fiber plant infrastructure for 40 Gigabit Ethernet, delivering four times the bandwidth over the same fiber plant and up to 70% savings over other current solutions.

For building out new data centers, deploying 40 Gigabit Ethernet for aggregation and core is no longer an option but a requirement to meet today's data demands. Designing new cable plants using Cisco's BiDi transceivers offers:

- 75% less fiber and MPO requirements
- Reduced cable sprawl and rack footprints
- Cost savings with the industry's lowest-priced 40 Gigabit Ethernet transceiver
- Investment protection with future support for 100 Gbps over duplex fiber

Designing your new fiber cable plant with Cisco's 40 Gigabit Ethernet BiDi transceiver allows you to reduce your fiber requirements and CapEx and OpEx while future proofing your data center for 100 Gigabit Ethernet.

Cisco's QSFP 40 Gigabit Ethernet BiDi technology removes 40-Gbps cabling cost barriers for migration from 10-Gbps to 40-Gbps connectivity in data center networks. Cisco's BiDi transceivers provide simpler and less expensive 40-Gbps connectivity compared to other 40-Gbps transceiver solutions. The Cisco QSFP BiDi transceiver allows organizations to migrate their existing 10-Gbps cabling infrastructure to 40 Gbps with little capital investment.