

It's critical that your data center infrastructure meet your needs today, but it's just as important that it can handle what's to come. Bandwidth demands are continually increasing, and the data center infrastructure you install today should be able to support the network speeds of tomorrow. Based on its technical expertise and supported by its testing procedures, Corning Cable Systems provides assurance that deployment of its Plug & Play™ Universal Systems today will support the migration path to 100G Ethernet in the future.

100G
READY



The requirement for higher data rates is being driven by many factors, including video applications, virtualization and convergence. This increased bandwidth demand will require the migration from 10 Gigabit Ethernet, to 40G and 100G Ethernet. Responding to that need, the IEEE recently approved a task force to develop guidance for 40G and 100G Ethernet data rates. While the completed standard isn't expected until 2010, the project authorization request (PAR) objectives include a minimum 100-meter distance objective for OM3 fiber (the only multimode fiber included in the PAR).



Parallel Optics

For data rates up to 10 GbE, duplex OM3 fiber serial transmission with a directly modulated 850 nm VCSEL has been used. However, for Ethernet data rates beyond 10 GbE, this transmission becomes impractical due to reliability concerns when the VCSEL is directly modulated across extreme operating temperatures in the data center. For data rates of 40G and 100G Ethernet, parallel optic transmission with OM3 fiber is most likely to be used. Parallel optic technology multiplexes or divides a high-data-rate signal among several fibers that are simultaneously transmitting and receiving. At the receiver, the signals are de-multiplexed to the original high-data-rate signal.

MTP® Connectivity

To enable parallel optic transmission, MTP connectivity is used throughout the link. A traditional link in the data center includes an MTP-terminated trunk cable with modules or harnesses on each end to transition from MTP connectivity to single-fiber connectors, for patching into the electronics. With parallel optic transmission, MTP connectors will be used not only within the link, but also on the electronics ports. Therefore, when 100G systems are implemented, the modules and harnesses used with MTP-terminated trunks today can be exchanged for MTP-terminated patch cords for ease of migration to parallel optics.

Performance

Considerations for 100G Ready performance include parameters such as skew, bandwidth and channel loss. Optical skew is the difference in propagation time between the multiple lanes of a parallel transmission system, which can contribute to transmission errors. 12X QDR InfiniBand (120 Gbps) specifies a maximum cable assembly skew performance of 0.75 ns. To ensure that its product is 100G Ready, Corning Cable Systems completed skew testing for distances up to 300 meters on its Plug & Play™ Universal Systems trunk cables. Applying the 0.75 ns skew specification, Corning Cable Systems Universal Plug & Play Systems MIC® 250 and Ribbon Cable trunks meet this skew criteria for distances up to 300 meters, providing assurance of skew performance for distances beyond the minimum 100 m distance over OM3 fiber specified in the IEEE's project authorization request.

Plug & Play Universal Systems also comply with the 100G expected total connector loss budgets of 1.5 to 2.0 dB. With industry-leading standard (0.5 dB) and low-loss (0.35 dB) MTP connectivity performance, Plug & Play Universal Systems trunks can be deployed in TIA-942 compliant structured cabling topologies while still adhering to the loss budgets anticipated for 100G performance. Corning Cable Systems low-loss Plug & Play Universal Systems, with 0.35 dB loss per MTP connector mating, support the reduced insertion loss budgets that may be required for increased channel distances.

Corning Cable Systems LANscape® Pretium™ Solutions provide customers with the confidence that their data center infrastructures will meet the requirements of today and tomorrow. For a scalable and reliable network, trust your infrastructure to Corning Cable Systems.

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