

KEY FINDINGS

- The number of data centers will increase by 54.4% between now and 2019.
- It will take until 2020 for 100G+ DWDM line-side interfaces to be dominant in the network.
- 29% of respondents utilize SFF appliances (either exclusively or as a majority) for their optical DCI deployments.
- Routers dominate the data center packet edge with 80% of respondents indicating their use, 44% indicated core/spine switches as packet edge.
- DCI traffic drivers differ by service provider type: all service providers cite data replication, non NSPs cite big data analytics and NSPs cite business continuity & regulatory compliance as their #1 DCI traffic driver.

Trends and Directions in Data Center Interconnect: A Survey of Optical and Packet Mode Networking Practices

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Summary

The rise of the data center and network virtualization for information and communication technology services delivery has resulted in Data Center Interconnect (DCI) becoming an important aspect of service providers' network architectures, enabling resiliency, load-sharing, and distributed workloads.

Some equipment suppliers are approaching the DCI market with traditional chassis-based optical networking equipment; others have announced new products tailored toward the DCI market with a more stackable, server-oriented approach. In addition, some data-oriented platforms have added support for coherent optical transmission modules while optical subassembly suppliers continue to innovate with longer distance and better performance 100G+ pluggable technology.

This report investigates the trends and directions that service providers are taking in the deployment of their data centers and specifically their interconnection. Optical and packet trends are discussed and conclusions drawn. All service providers are not at the same point with their data center interconnect strategy and execution. Therefore, we segment service providers into four main categories: Network Service Providers, Cloud Service Providers, Internet Content Providers and Inter-eXchange Providers sometimes referred to as Carrier Neutral Providers.

Where significant variations in deployment plans or trends are apparent across service provider types or geographies, we point those out throughout the report.

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