

How to pass the test with data centre interconnects

EXFO



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How do you see the data centre interconnect [DCI] landscape evolving globally over the next few years?

As hyperscalers and other industry players scale up data centres, we also see a growing need for 'scale-across' enabled by DCI. This is happening as the distance between AI clusters increases in the search for locations with available land and power. These interconnect links must support increasingly high bandwidth while maintaining high-quality fibre connectivity and low latency.

At the same time, we see an increase in the number of fibres per route to meet rising capacity demands. That creates significant pressure to deliver, validate and activate these networks in a timely fashion.

How does this rapidly changing market affect network testing and monitoring?

While the number of fibres per cable continues to grow, the transition from 400G to 800G and 1.6T networks is expected to happen much faster than the shift from 100G to 400G. That creates a need to test more fibres simultaneously, consolidate multiple test workflows and accelerate validation while improving visibility across the network.

Achieving this without compromising quality requires a much higher degree of end-to-end automation than legacy testing approaches designed for lower fibre counts and slower deployment cycles.

What else do operators need to consider in maintaining network reliability through effective testing and monitoring?

Hyperscalers depend on high-quality DCI infrastructure and set stringent performance expectations for the networks that support their AI workloads. As these networks scale, operators need greater visibility and control to consistently meet reliability and service objectives.

That calls for continuous monitoring of fibre infrastructure, supported by automated alerts that help identify and resolve issues before they impact network performance or service commitments.

Ensuring reliability also requires testing throughout the build, activation and maintenance phases. For example, validating fibre infrastructure early in the build process helps identify issues before they lead to rework, deployment delays and additional costs later in the project.

Even once construction is complete, it may be months before a hyperscaler activates services on a link. Monitoring for degradation during that period is equally important. Ultimately, maintaining quality requires a lifecycle approach that combines testing and monitoring from deployment through activation and ongoing operations.

How is network testing evolving to support fibre-dense DCI networks?

At EXFO, we're innovating to keep pace with the evolution of DCI infrastructure and emerging technologies. Our focus is on simplifying test and validation workflows through greater automation, helping customers scale operations more efficiently.

For example, we're advancing end-to-end automated testing for high-fibre-count networks. Recently, we introduced the FTB Lite 975, enabling touchless testing of up to 24 fibres simultaneously. We're also

expanding our test capabilities for hollow-core and multi-core fibre as interest in these technologies grows.

Bringing these capabilities together, EXFO Exchange provides a cloud-based platform with centralised access to test data and real-time visibility across the testing ecosystem. We continue to enhance the platform with new capabilities that provide a unified view of test data, helping teams monitor network quality, streamline workflows and maintain compliance requirements.

What capabilities are becoming essential for scaling DCI networks effectively?

As DCI networks continue to scale, many operators are re-evaluating traditional testing and monitoring approaches. The increasing demands of high-capacity, high-fibre-count infrastructures require greater automation, efficiency and visibility across the network lifecycle.

By embracing these capabilities, operators can support hyperscaler requirements more effectively, deliver consistent network quality and advance their broader network transformation initiatives.

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