

Improving Metro Data Center Interconnect (mDCI) with the 1FINITY™ T100 Transport Blade

Data center interconnect (DCI), communication that occurs between data centers, plays a significant role in networking today.

Two trends are driving growth in the DCI market: the evolution of information technology to a cloud environment and the proliferation of video. The move to the cloud decreases capital expenditures, but it increases reliance on the data center. The explosion of video traffic has driven the need for content delivery networks in the metro. This development may keep long-haul backhaul costs down, but it increases bandwidth requirements in the metro. Thus, many users are building data centers, and service adoption within data centers continues to grow. Some of the specialized applications requiring DCI are cloud computing, business continuity and disaster recovery, and content or digital media delivery.

The requirements for DCI vary from telcos to Internet content providers (ICPs). For example, metro networking is quite different from long-haul transport. While the demand for faster, point-to-point connections increases to 100G and beyond, the type of equipment ICPs are requesting for metro DCI is a much narrower use case and has a much simpler feature set than the equipment telco providers request: it's optimized for low cost. Vendors are developing new DCI options with cost, space, and power attributes that more closely resemble those of data communications equipment than telecom equipment.

The explosion of bandwidth required by over-the-top (OTT) applications has created tremendous growth in the number of data centers and their size. Data center growth also fuels demand for DCI between centers.

DCI traffic is predominantly point-to-point, and users typically address demands with optical DWDM systems. When the number of DCI demands is small, many data center operators (DCOs) lease services from service providers. As the number of DCI demands increases, many DCOs find it more economical to lease lambdas and manage their own DWDM transponder systems. Because DCOs often lease space in data centers, they seek to use as little space as possible. The challenge here is to drive cost from the network, which means getting the most bits across the lambda using as little real estate and as few wavelengths as possible. Until now, the most economical approach has employed 100G wavelengths, but a change is imminent.

Fujitsu's Metro Data Center Interconnect Solution

The Fujitsu 1FINITY™ platform provides a purpose-built metro DCI solution for data center operators that delivers high-capacity for point-to-point functionality. This blade-centric solution comprises high-density transport and FOADM network elements. The 1FINITY T100 blade provides the key to providing dense and efficient transponding of 100 GbE connections onto a DWDM system. With this solution, two 100 GbE connections are aggregated onto a single 200 Gbps, 50 GHz wavelength. The T100 provides industry-leading density in a modular platform that is easily managed with an SDN network controller.



Figure 1: mDCI Application

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Unprecedented Density, Power and Performance

Since a large percentage of ICP and DCO interconnect applications are deployed at leased facilities, density, power, and cost per bit are important considerations. With this in mind, an industry-leading capacity of 1.6 Tbps bidirectional is provided by the 4 × 100 GbE clients into 2 × 200G network interfaces per half-width card. Figure 2 depicts two cards in a T100 blade.

Summary

The Fujitsu mDCI solution is purpose-built for high-capacity, pay-as-you-grow transport. With industry-leading density, power efficiency, and network management, the 1FINITY T100 is positioned to capture the new technology cycle associated with metro 100G services and emerging, low-cost, optical form factors.

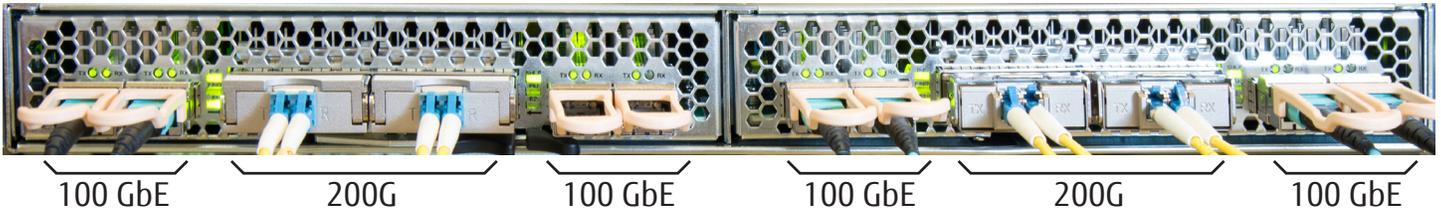


Figure 2: The front panel of the 1FINITY T100 Transport Blade

The 1FINITY T100 provides industry-leading power efficiency (0.8 watts per Gbps) in a single rack unit. The presence of pluggable AC and DC power inputs and redundant fans simplifies maintenance.

The modular design of the 1FINITY T100 provides enhanced features such as plug-and-play capabilities, zero-touch provisioning, open standards-based Linux software, and an SDN-enabling, REST API management interface.

There are two ways to manage the 1FINITY T100—CLI and REST API. In a stand-alone deployment, using the CLI, simply turn on the interfaces and select the wavelength. With the SDN and NFV revolution solidly underway, the 1FINITY T100 easily adapts into an SDN management architecture via the REST API.

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