FUJITSU

shaping tomorrow with you

Revolutionary 1FINITY™ Platform: Key Enabler of Programmable, Disaggregated Networks

By creating substantial competitive advantages, service providers can position themselves for industry leadership and long-term success. At a fundamental level, game-changing networks make it possible to increase service velocity, grow revenue, and reduce operating costs.
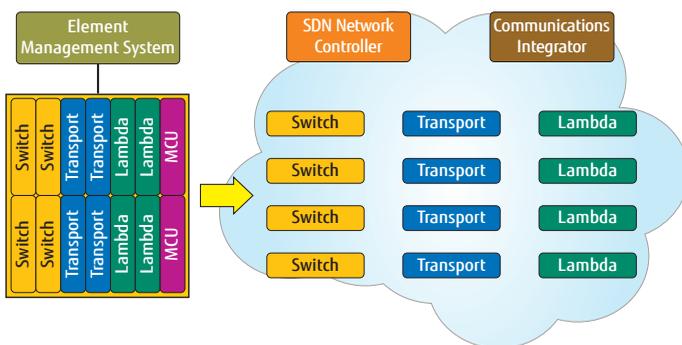
In the future, leadership networks will be based on two revolutionary technologies—disaggregated hardware and open-source software.

Disaggregation is an architecture with the power to fundamentally change the optical networking equipment market.

1FINITY Platform: The Dawn of a New Era
Existing core and metro networking platforms are complex, tightly coupled, and vertically integrated. Users purchase converged-function shelves and, with luck, grow services to use all the capability they've purchased. However, many deployments result in half-empty shelves that consume valuable rack space and are wired for more power than they need.

With the 1FINITY platform, Fujitsu has physically separated these complex systems into individual hardware components and logically reaggregated them with intelligent software. Figure 1 depicts the functional disaggregation that distinguishes the 1FINITY platform.

Figure 1: Functional disaggregation delivers unprecedented flexibility, scalability, and efficiency. The 1FINITY platform supports multiple levels of software management and control.

Benefits of the 1FINITY Platform
- Independent blade-centric design facilitates agile development, continuous performance improvement, and technology innovation
- Functional 1RU blades provide low initial investment, efficient scalability, and a pay-as-you-grow approach
- Compact form factor overcomes space constraints and enables efficient rack space utilization
- Open architecture allows multivendor interoperability with common network control
- Open pluggable optics ensure supply chain flexibility and support customizable interface rates
- Open APIs support standards-based interfaces, enabling SDN control and easing OSS integration

The key benefits of this revolutionary approach to networking hardware are rapid development cycles, optimized functionality, and remarkable operating efficiencies.

Leveraging functional disaggregation, the 1FINITY platform comprises four product families providing transport, switch, lambda, and access functionality. Each component in these families is a smart blade that can operate independently or with others.

Freeing You from the Shackles of the Chassis
The small, dense form factor of 1FINITY blades enables fast time to market, low initial investment, and efficient scaling, resulting in a pay-as-you grow approach that provides the specific functionality required. 1FINITY blades are as compact as one rack unit (1RU), and their architecture eliminates rack partitioning due to chassis boundaries, allowing full utilization of rack space.

Separating shelf functions into independent blades enables technology innovation, allowing independent improvement of density, power, and functionality without the constraints of traditional converged shelves. Support of open optics simplifies procurement, and support of open application program interfaces (APIs) permits easy integration with operations support systems (OSSs).

Fujitsu 1FINITY Platform

The 1FINITY platform is a revolutionary networking architecture that provides users unprecedented flexibility, efficiency, and scalability and is optimized for SDN control. Fujitsu will continue to introduce 1FINITY blades to meet emerging market requirements and provide the latest technology. The combination of 1FINITY hardware and Fujitsu Virtuora® software delivers a continuous, agile network that provides end-to-end operational automation, service orchestration, and network programmability.

1FINITY Transport Family

The 1FINITY Transport family is a series of transponders and muxponders delivering high-capacity transport for metro, regional, and long-haul applications.

Figure 2: The 1FINITY T100 transponder blade packs industry-leading capacity and power efficiency in a single rack unit.

- The 1FINITY T100 transponder is purpose-built for metro data center interconnect (DCI) applications, providing industry-leading capacity (1.6 Tbps bidirectional) and power efficiency (<80 watts per 100G) in a single rack unit.

- The 1FINITY T200 is a feature-rich muxponder that uses coherent processing and multimodulation to enable long-haul DCI or add beyond-100G capabilities to existing transport networks.

- The 1FINITY T300 is a flexible, high-density muxponder that supports metro and long-haul transport with 10G, 40G, and 100G client rates. With 1 Tbps line-side transport in a single rack unit, the T300 provides the ultimate transport capability.

1FINITY Lambda Family

The 1FINITY Lambda family is a modular dynamic ROADM platform that can be used to build multidegree network nodes with flex-grid operation and super-channel support. 1FINITY Lambda blades support CD ROADM configurations of up to 12 degrees.

- A small CD ROADM configuration with up to 4 degrees and support for up to 128 clients can be implemented using a twin 1 × 9 WSS ROADM-on-a-blade (1FINITY L100) and a dual 4 × 16 splitter-coupler (1FINITY L110).

- Larger CD ROADM configurations with up to 12 degrees and support for up to 960 clients can be implemented using a dual 1 × 16 splitter-coupler (1FINITY L110) and a twin 12 × 9 WSS optical switch (1FINITY L120).

- The 1FINITY L200 blade provides bidirectional intermediate line amplification (ILA) up to 35 dB in a compact form factor.

1FINITY Switch Family

The 1FINITY Switch product family performs high-density packet switching for Ethernet backhaul and DCI applications.

- The 1FINITY S100 is a Layer 2 white box switch designed for 10 GbE to 100 GbE aggregation of Carrier Ethernet 2.0 services, providing 1.2 Tbps bidirectional switching capacity and low power consumption.

1FINITY Access Family

Blades in the 1FINITY Access family will support next-generation access technologies, such as 10G-EPON and NG-PON2, delivering gigabit services in metro and rural fiber-to-the-home and business applications.

Enhancing and Protecting Network Investments

The 1FINITY platform complements and extends existing Fujitsu FLASHWAVE networks. Interoperation with FLASHWAVE 9500 and CDS platforms using WDM and packet technologies protects investments and smooths transitions to the 1FINITY platform. Extending networks to 100G and beyond is as easy as adding a si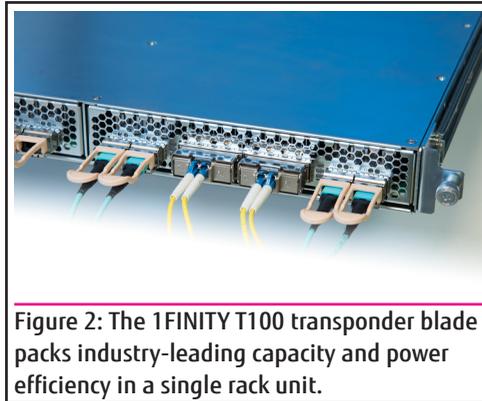ngle 1FINITY Transport blade. In ROADM networks, adding nodes with 1FINITY Lambda and Transport blades can provide hub site extensions or expand metro rings. A 1FINITY Switch provides high-density Ethernet aggregation for many growing applications.

1FINITY + Virtuora Form the Programmable, Disaggregated Network

The 1FINITY platform supports multiple levels of software management and control:

- Blade-resident software and a Web-based graphical user interface enable each 1FINITY device to function as an independent network element.

- The 1FINITY C100 Communications Integrator provides a single, consolidated connection to data communication networks, simplifies blade provisioning, and supports innovative software apps.

- In the Virtuora SDN software suite, Virtuora Design provides network planning and design, Virtuora EMF provides element management, and Virtuora NC provides SDN control. The southbound interface of the open SDN control framework supports communication between 1FINITY blades and the network via NETCONF. For multivendor, multilayer control of WDM, OTN, and packet networks, the network controller can access a robust application ecosystem via REST-based APIs.

Together, 1FINITY + Virtuora create the programmable, disaggregated network, a formidable combination for network automation and virtualization.

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