PRODUCT BROCHURE

INFINERA XT SERIES

INFINERA DTN-X XT SERIES MESHPONDERS

Delivering super-channels with scalability, flexibility and programmability for powering cloud scale networks

The rapid growth of cloud-based services, the advent of the Internet of Things (IoT) and an explosive increase in on-demand video and virtual reality along with other content-rich services are driving the demand for massive optical bandwidth in transport networks. By 2020, over 20 billion devices are expected to get connected as the IoT becomes pervasive. With 5G on the horizon, mobile data services and video usage are forecasted to multiply 13 times over from today, while 70% of businesses are expected to be cloud-enabled by 2020. The explosive growth in traffic and a shift to cloud-based delivery of applications is driving a transformation of the network architecture. As cloud infrastructure expands and networks migrate to a new architecture of Layer C (cloud services) and Layer T (intelligent transport), service providers need their Layer T networks to adapt to new traffic flows and to support smooth scale-out expansion. These cloud scale networks allow service providers to efficiently address both large N x 100 Gigabit Ethernet (GbE) linear connectivity requirements driven by web scale operators and diverse mesh connectivity requirements driven by more traditional telco enterprise and residential customers. The next generation of the Infinera Intelligent Transport Network blends web scale technology with telco-grade technology for a new architecture that addresses these diverse traffic requirements extremely efficiently when compared with more conventional architectures.

XT-500

XT-3300

XT-3600

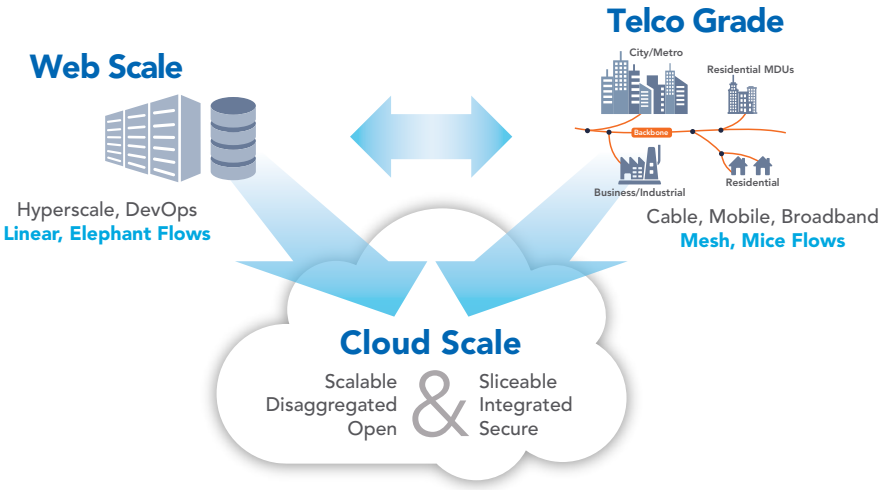


Figure 1: Layer T Needs to Be Cloud Scale

The DTN-X XT Series, powered by Infinera's Infinite Capacity Engine, offers the industry's only 2.4 terabit per second (2.4T) commercial super-channel system based on large-scale photonic integrated circuit (PIC) technology. Super-channels enable the deployment and activation of up to 2.4T with only one fiber pair and a single operational motion, dramatically simplifying operations and enabling a pool of service-ready bandwidth that can be software-activated on demand via Instant Bandwidth. The DTN-X XT Series delivers multi-terabit super-channel bandwidth in a compact form factor and at the same time enables that super-channel to be sliced, so each wavelength can be tuned across the C-band, modulated and then routed to the appropriate destination. The XT Series is optimized for delivery of cloud scale network services and can be applied in metro, regional and long-haul networks spanning from hundreds to thousands of Kilometers (km), leveraging 16 quadrature amplitude modulation (16QAM), 8QAM and quadrature phase-shift keying (QPSK) modulations. The DTN-X XT Series features the industry's first meshponders, combining muxponder technology with sliceable photonics in a server-like wavelength-division multiplexing (WDM) appliance to deliver hyperscalability up to 2.4T along with fine-grained granularity for optical mesh networks. The server-like XT Series meshponders are developed from Infinera's learnings from the web scale market and seamlessly interoperate with the chassis-based DTN-X XTC Series switching platforms, with their roots in telco networks. The meshponder platforms include Infinera's unique Instant Bandwidth technology, sliceable super-channels, designed-in support for in-flight line-rate Layer 1 encryption (encryption software license required for activation) and the Advanced Coherent Toolkit (ACT) for better capacity-reach performance.

The XT Series includes the following platforms:

- The XT-3300 meshponder platform delivers 1.2T of line-side capacity for metro, regional, long-haul and data center interconnect (DCI) networks in one rack unit (1RU). The XT-3300 provides a reach of 6,000 km in an ultra-compact form factor at 618 millimeter (mm) rack depth, with low power consumption.
- The XT-3600 meshponder platform delivers 2.4T of line-side capacity

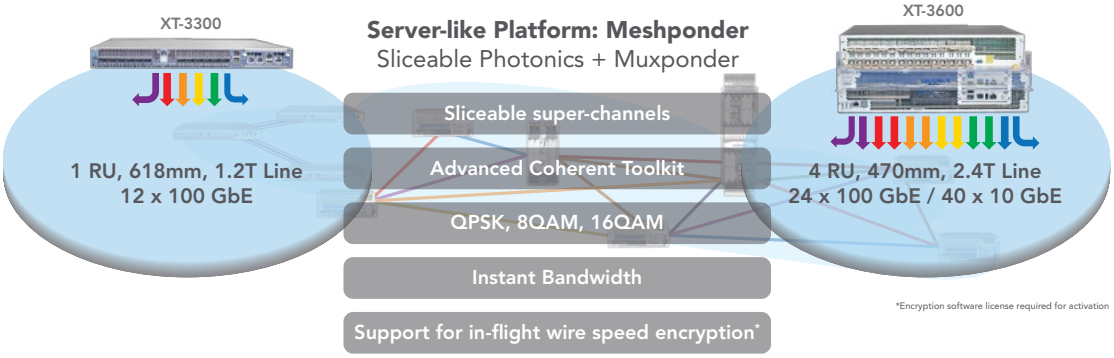


Figure 2: XT-3300 and XT-3600 Meshponders

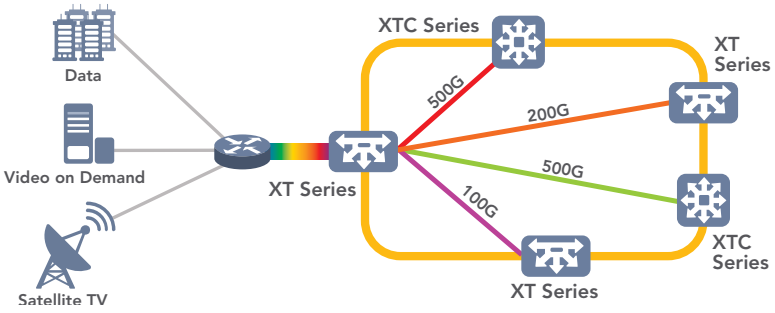


Figure 3: DTN-X XTC and XT Series Network

for metro, regional and long-haul networks in 4RU. With redundant controller, 470 mm rack depth, a mix of OTU4, 100 GbE, 10 GbE client interfaces and Optical Transport Network (OTN) multiplexing, the XT-3600 supports a reach of 6,000 km.

- The XT-500 delivers a 500 gigabit per second (500G) super-channel output with 10 GbE or 100 GbE clients in 2RU of rack space, with low power consumption.

Optimized Multi-application Scalable Transport Platform

As demand for bandwidth continues to drive the need for network scale, service providers seek reliable solutions to grow their networks while offering a range of differentiated services and meeting stringent customer service level agreements (SLAs). The XT Series is purpose-built to offer high bandwidth, flexible reach, simple installation and easy operations to support a wide range of applications. The DTN-X XT Series delivers optical super-channels of up to 2.4T in purpose-built sizes, resulting in a high-density bandwidth solution with low power consumption. It provides up to 25.6T of capacity on a single fiber pair in the C-band while supporting a flexible combination of 10 GbE, 100 GbE and OTN client modules.

Powered by the Infinera Infinite Capacity Engine, the XT-3300 and XT-3600 multi-terabit meshponders support the new approach of sliceable photonics combined with muxponder technology in transport networks. Service providers can now become more competitive in the marketplace by drastically reducing both operational rigidity and forecasting complexity. This solution provides fine-grained and flexible control of wavelengths with the ability to tune and route N x 100G super-channels in multiple separate directions with the appropriate modulation, which in turn can be combined with packet-aware OTN switching in the DTN-X XTC Series. This combined solution was compared to the conventional approach, which does not use PIC-based super-channels, on a standard network and showed a reduction of 56% in the total cost of ownership (TCO).

With the proliferation of mobile and cloud services, information has increasingly started to reside in data centers that are distributed

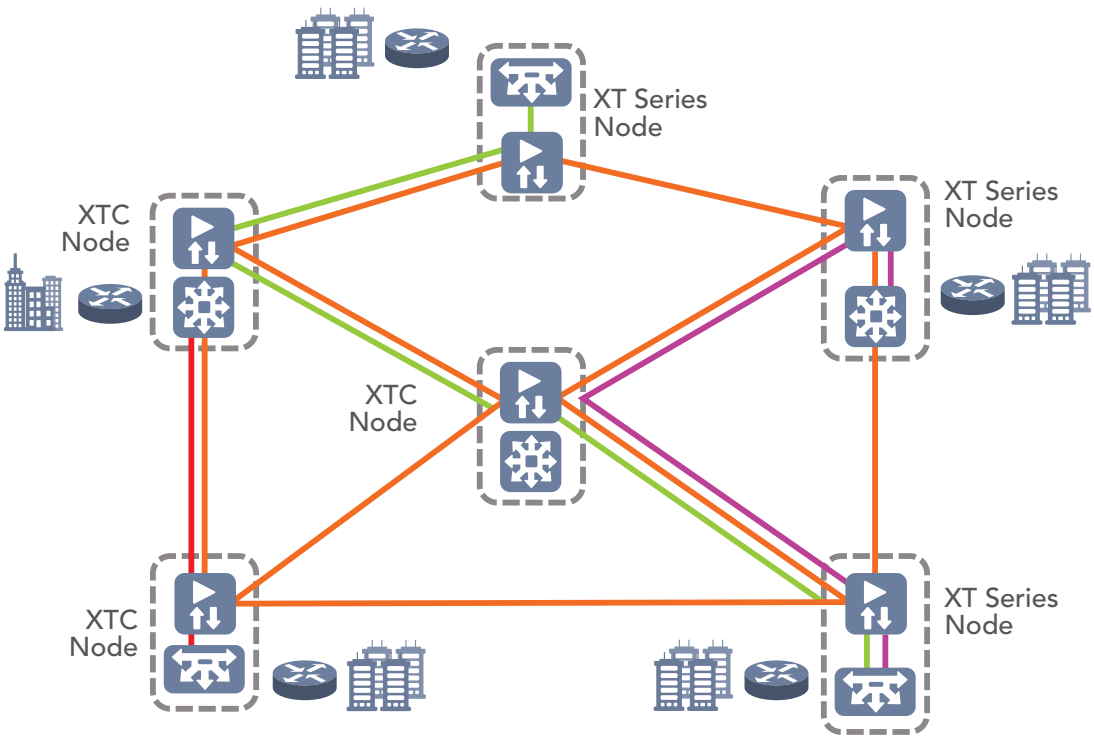


Figure 4: Super-channel Mesh

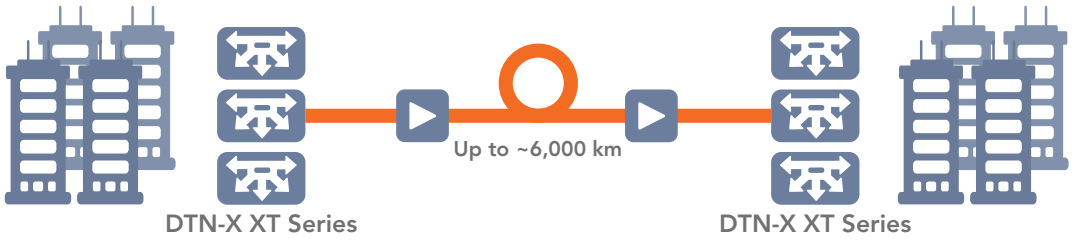


Figure 5: Long-haul DC Interconnect Apllication

across the globe. Consequently, traditional user-to-data center traffic is being overshadowed by massive growth in traffic between data centers, which can be separated across long distances. To effectively address the emerging east-west traffic patterns between the data centers, the server-like XT Series offers compact high-density design with very low latency and high-bandwidth connectivity to play a key role in regional and long-haul DCI applications.

The XT Series integrates seamlessly with the Infinera FlexILS open flexible grid optical line system. This enables service providers to take advantage of the colorless, directionless and contentionless (CDC) reconfigurable optical add-drop multiplexer (ROADM) architecture. As a result, service providers can switch super-channels at the optical layer, Layer 0, in an optical mesh network, thereby boosting network efficiency for interconnect traffic, which does not require digital switching. The DTN-X XT Series interoperates seamlessly over the Infinera open flexible grid optical line system FlexILS. The Infinera line system includes 20-port super-channel FlexROADM and is L-band-ready for increased flexibility, reach and bandwidth with fiber capacity of over 50T.

Plug-and-play Flexibility

The XT Series supports FlexCoherent® technology, enabling service providers to optimize network performance across a wide range of applications using a number of software-programmable advanced modulation formats. These include binary phase-shift keying (BPSK), matrix-enhanced phase-shift keying (ME-PSK), QPSK, 3QAM, 8QAM and 16QAM. Also, Infinera's Instant Bandwidth technology on the XT Series enables service providers to adopt a cashflow-efficient business model, deploying additional bandwidth rapidly with a few mouse clicks when demand arises, without the need to order, install and deploy additional equipment.

Simple and Programmable

The DTN-X XT Series is managed by the Infinera Management Suite, a collection of robust carrier-class applications and toolsets, including a full-featured graphical element and network manager, the Infinera Digital Node Administrator (DNA) and offline engineering, planning and optimization tool, the Infinera Network Planning System (NPS).

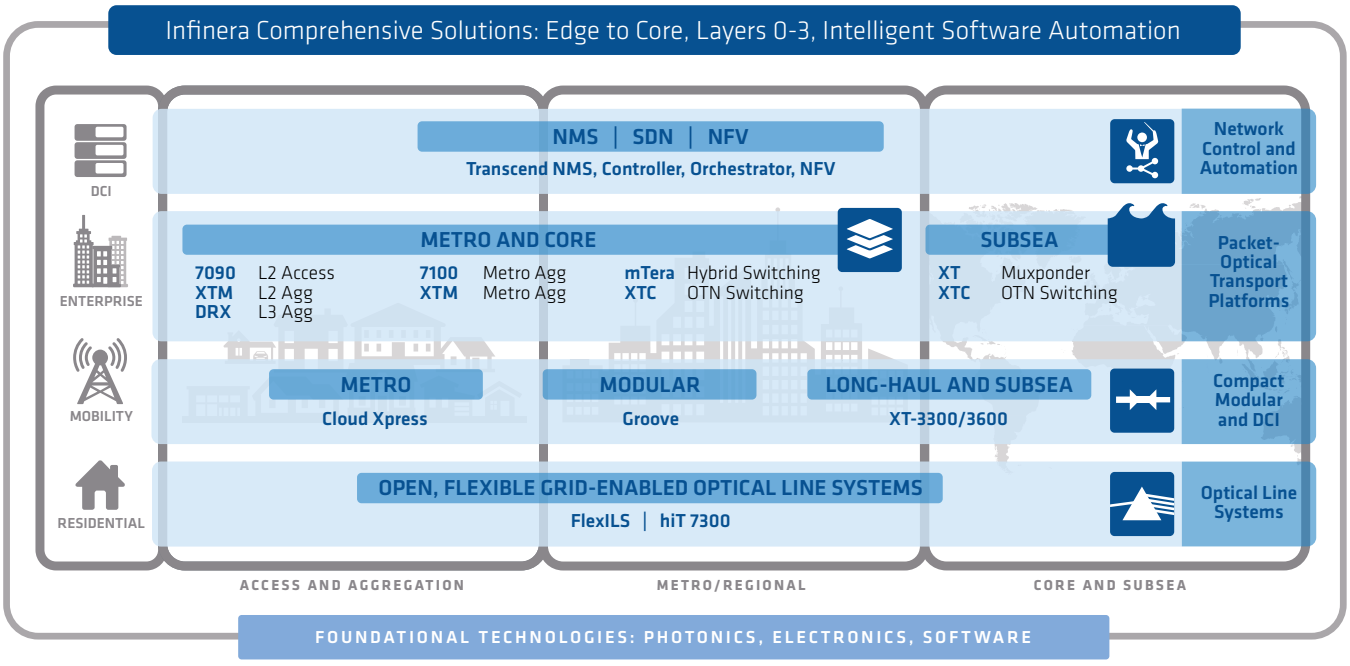
The DTN-X XT Series can be software-defined networking (SDN)-controlled with Infinera's Xceed Software Suite, which uses open software and interfaces with third-party solutions via open application programming interfaces (APIs) to provide revenue-ready applications for agile, assured orchestration of new services. Xceed makes bandwidth more dynamic and flexible. Xceed combines an open, multi-layer SDN control platform with modular, commercially deployable applications that enable new revenue sources while increasing network efficiency. The Xceed Multi-layer SDN platform seamlessly interoperates with the Infinera Management Suite, enhancing Infinera's robust portfolio of software solutions to control and manage

subsea, long-haul, metro and data center interconnect networks.

The XT Series is a member of the DTN-X Family in the Infinera Intelligent Transport Network portfolio, as shown in Figure 7. Infinera has extended its award-winning DTN-X Family with the introduction of XT-3300 and XT-3600 to power cloud scale networks. The Infinera DTN-X XT Series provides a highly scalable, flexible and programmable platform, delivering on Infinera's vision of enabling an infinite pool of intelligent bandwidth that the next communications infrastructure is built upon.

Contact us to learn more.

COMPREHENSIVE SOLUTIONS SET



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