Infinera

Infinera 8600 Smart Router Series

Highly Scalable, End-to-End IP/MPLS Routing

FLEXIBLE AND EFFICIENT MOBILE BACKHAUL

The Infinera 8600 Smart Router Series is designed as a highly scalable and cost-efficient portfolio of IP/MPLS routing solutions optimized for mobile backhaul and fixed transport applications – from small cell sites to the high-capacity metro core. The 8600 Series also offers simultaneous support for multi-service applications in fixed mobile convergence (FMC) access and aggregation networks to protect earlier infrastructure investments. By boosting network performance, integrating advanced synchronization, and enabling new fixed mobile services, the 8600 Series is intended to ensure a high quality user experience in 3G, LTE, LTE Advanced (LTE-A), and future 5G networks.

ADVANCED SYNCHRONIZATION

Key differentiators of the 8600 solution include a wide range of hardware integrated and software configurable advanced synchronization capabilities such as the Integrated GPS (GNSS) SFP Module, Synchronous Ethernet, Synchronization Status Message (SSM) over Ethernet, and IEEE 1588v2 Boundary Clock for phase synchronization, which is required for LTE Time-Division Duplex (LTE-TDD), LTE-A, and future 5G. The 8600 solution provides the highest level of synchronization at the lowest cost, with demonstrated OpEx savings of up to 75% via lower per-node power consumption and integrated functionalities.

ROBUST, END-TO-END IP/MPLS SOLUTIONS

Widely deployed in Tier 1 mobile networks around the world, the 8600 Series delivers compelling economic advantages as mobile networks evolve to accommodate ever-increasing data traffic. Highlights of the 8600 Series include:

- **8602 Smart Router** is a compact edge router for fixed or mobile end-points and the industry's only IP-67 environmentally hardened cell site router. An optimized cell site router for macro and small cell backhauling, the 8602 Smart Router extends the 8600 Series to the access network and enables operators to utilize IP/MPLS as a unified technology down to small cell sites.

- **8603 Smart Router** is a cost-efficient, 60 Gbps capacity router targeted for 5G and high speed FMC networks. With a compact 1RU chassis, power efficient design, and high 1GE interface density, the 8603 Smart Router is ideally suited for installations in mobile, fixed access, and aggregation networks. In addition, the 8603 Smart Router efficiently aggregates the uplink traffic flows to 10GE links toward the core and also offers 1GE Power over Ethernet (PoE) ports to connect wireless access points, IP cameras, and VoIP phones.

- **8615 Smart Router** is a cost-efficient 44 Gbps full duplex and 88 Gbps stacked configuration IP/MPLS router targeted for pure packet networks. The 8615 Smart Router is designed for aggregation and large mobile macro sites in technically advanced all-IP networks and provides high 1 GbE interface density for mobile or fixed access networks. In addition, it efficiently aggregates the uplink traffic flows to 10 GbE links toward the core.

BENEFITS OF THE INFINERA 8600 SMART ROUTER SERIES

- **Expand** mobile backhaul network capacity from small cell sites and macro-cell aggregation to over a terabit at gateway sites

- **Manage** self-organizing networks in mobile backhaul with true plug-and-play functionality

- **Enhance** network performance with robust synchronization for LTE, LTE-A, and 5G

- **Simplify** network transitions with smooth migration to LTE, LTE-A, and 5G

- **Meet** future scalability and latency performance requirements with converged IP-Optical innovation

Infinera 8600 Smart Router Portfolio Highlights

8602

8603

8615

8665

- **8625 Smart Router** provides a non-blocking 400 GbE capacity spread between redundant line cards and offers various expansion options for combined IP-Optical transport, which include colored interfaces on the Smart Routers coupled with the Infinera Pluggable Optical Layer or Infinera Groove G30 Network Disaggregation Platform. To effectively support advanced LTE-A and 5G air interface technologies, the 8625 Smart Router is equipped with the Infinera industry-leading range of network synchronization options that can be further optimized with low latency optical transport.

- **8665 Smart Router** is a scalable IP/MPLS router providing 1.2 Tbps full duplex switching capacity (1.2 Tbps throughput) in a compact and fully redundant system architecture. The 8665 Smart Router is designed to be deployed in medium-sized aggregation and large mobile macro sites as well as controller and S-GW sites in technically advanced all-IP networks. Optimized for pure packet networks, the 8665 Smart Router provides Ethernet interfaces from 1 Gbps to 100 Gbps.

- **Infinera Transcend Chorus for Packet** offers simplified end-to-end configuration and network management with point-and-click provisioning and plug-and-play installation. Transcend Chorus for Packet delivers the simplicity of a single system with a customizable graphical user interface for full management control of mobile, data, and business applications.

- **Infinera Transcend Symphony for Packet**, the Infinera multi-vendor SDN controller, is an integral component of the overall Infinera Transcend Solution, a modular SDN software suite that combines the benefits of open, programmable, and automated multi-layer (Layer 0-3) SDN architecture with the 8600 Smart Router Series and packet optical transport solutions to enable dynamic, end-to-end network control.

IP-OPTICAL MOBILE BACKHAUL SOLUTION

The 8600 Series today is helping mobile operators cost efficiently build and scale low latency, high-capacity LTE and LTE-A transport networks. Infinera is combining this proven IP/MPLS routing platform with optical layer capabilities to deliver an enhanced multi-layer solution designed to meet the key challenges of 5G. The Infinera IP-Optical Mobile Backhaul Solution couples the feature-rich 8600 routing platform with multi-layer SDN programmability and optical layer innovations from Infinera to create the foundation for enhanced synergies between the IP and optical networking layers.

LTE-A OPTIMIZED AND 5G-READY NETWORK EVOLUTION

A tighter coupling between the IP and optical domains will enable mobile operators to address key challenges as LTE/LTE-A networks evolve over time to support the stringent performance requirements of 5G. These challenges include an approximately 20-fold increase in end-user data rates (up to 10 Gbps) compared to LTE/LTE-A, ultra-low latency of 1 ms round trip, and ultra-dense deployments that will set unprecedented requirements for synchronization of cells sites as small and overlapping cell sites proliferate. Key building blocks of the Infinera multi-layer solution include:

- **World-class Synchronization** – Optimized for ultra-dense small cell architectures and CoMP/MIMO transmission environments, Infinera's world-class suite of integrated synchronization capabilities (frequency, Time-of-Day, phase) supports the stringent end-to-end synchronization demands of LTE-TDD, LTE-A, and 5G-ready networks reliably and cost effectively for simplified deployment and management, even in challenging heterogeneous networks.

- **Enhanced IP-Optical Layer Optimization** – The introduction of colored interfaces on the 8600 Smart Routers extends the reach and cost/performance benefits of optical layer transmission while also supporting interworking with the Pluggable Optical Layer. These capabilities provide operators the tools to maximize efficiencies across the IP and optical domains, which leads to lower network costs and improved service performance. As mobile networks become denser and latency requirements more stringent, a converged IP-Optical architecture will enable operators to deliver optimal Quality of Experience (QoE) for end-users through enhanced end-to-end traffic engineering (e.g., minimizing latency-impacting router hops) and to benefit from the right technology at the right location in the network. Recent analysis of the Infinera IP-Optical mobile backhaul solution has validated savings of up to 60% for incremental CapEx through system configuration efficiencies.

- **LTE-A/5G-optimized Scalability** – From cell site access at 10G to multi-terabit switching and transport in aggregation and metro core applications, the Infinera IP-Optical solution delivers optimal capacity, space, and power-efficient scalability across the mobile backhaul network. By extending optical layer connectivity closer to the mobile edge and maximizing lowest cost-per-bit optical transport, the Infinera multi-layer solution can help network operators cost efficiently address current LTE-A capacity and performance demands, while creating the foundation for the massive scalability requirements of future 5G services and a world of highly distributed Internet of Things (IoT) applications.

- **Multi-layer SDN Automation** – Powered by the Infinera Transcend Solution, the Infinera IP-Optical solution enables multi-layer and multi-domain SDN automation and control for optimal utilization of network resources, improved reliability, and simplified end-to-end provisioning. With proven standards-based interworking in third-party NFV-based vEPC environments and Self Organizing Network (SON) applications, the Infinera solution supports programmable, application-aware networking to assure the optimal QoE in multi-vendor, NFV-orchestrated networks.

Contact us to learn more about our IP-Optical Mobile Backhaul Solution.