

CORIANT IS NOW PART OF INFINERA

8625 Smart Router

High Speed IP/MPLS Router for 5G Networks

The Coriant® 8625 Smart Router serves as a step forward in the carrier drive toward 5G and high speed fixed mobile convergence (FMC) networks. In addition to a nonblocking 400 GbE capacity spread between redundant line cards, the 8625 Smart Router leverages the optical layer to deliver terabit speed in access, aggregation, and core networks. To effectively support advanced LTE-A and 5G air interface technologies, the 8625 Smart Router is equipped with the Coriant industry-leading range of network synchronization options that can be further optimized with low latency optical transport. The compact 300 mm deep chassis and power efficient design are ideally suited for installations in metro and access networks. Support from both the Coriant network management system, Coriant Transcend™ Chorus for Packet, and the Coriant multi-vendor SDN controller, Coriant Transcend™ Symphony for Packet, provides a broad array of operational efficiencies and programmable network automation. The 8625 Smart Router has been designed with the future in mind for WAN service providers.

ENABLING FLEXIBLE LTE NETWORK ARCHITECTURES

Offering ideal capabilities to implement flexible LTE and 5G networks, the 8625 Smart Router platform provides IP routing and Ethernet switching to support the X2 interface between eNodeBs, and S1 and S1-Flex interfaces between eNodeBs and LTE network core elements. The 8625 Smart Router supports both fixed and mobile transport, so mobile operators can extend their service offering to include fixed network services. The IEEE 1588v2 phase synchronization capabilities of the 8625 Smart Router are designed to meet the strict tolerance of LTE-TDD and LTE-A networks as well as the even more stringent synchronization targets for 5G. The integrated features of the 8625 Smart Router enable simple migration from existing frequency synchronization to phase synchronization.

SUPPORTING ALL-IP AND FIXED NETWORKS

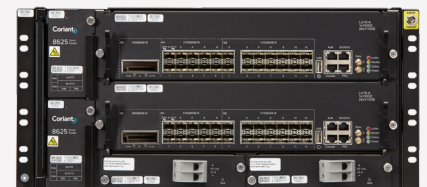
An optimal solution for mobile and fixed networks that deploy microwave, wired Ethernet, or dark fiber as the underlying transport media, the 8625 Smart Router contains IP routing as well as MPLS and Ethernet switching tables that provide the flexibility needed to serve evolving network architectures and applications. The 8625 Smart Router supports a mix of IP and Ethernet services, such as IP VPNs, VPLS and Ethernet pseudowires, significant buffering capacity for bursty data applications, and advanced traffic management features with hierarchical QoS support for flexible end-user service definition. IP-Multicast support is available for applications such as eMBMS and IPTV broadcast delivery.

DELIVERING CONVERGED IP-OPTICAL INTEGRATION

The 8625 Smart Router offers various expansion options for combined IP-Optical transport. The solution includes colored interfaces on the Smart Routers coupled with the Coriant® Pluggable Optical Layer (see Figure 1) or Coriant Groove™ G30 Network Disaggregation Platform (NDP) (see Figure 2) as a high-capacity transport underlay. The 8625 Smart Router installation can be optionally extended with the Pluggable Optical Layer FOADM or Groove G30. Flexible IP-Optical multi-layer transport configurations are supported together with the use of the CFP2 DCO and QSFP28 optical pluggable transceivers on 8625 line cards. The converged IP-Optical configuration options of the 8625 Smart Router address the demands of continuously increasing bandwidth while minimizing OpEx and CapEx.

BENEFITS OF THE CORIANT® 8625 SMART ROUTER

- **Leverages** purpose-built architecture for FMC and 5G networks
- **Optimizes** 10G/1G aggregation with 100G connectivity
- **Provides** option to integrate FOADM optical layer for expanded capacity
- **Maximizes** IP-Optical transmission performance for access, metro, and core applications
- **Delivers** high-density, compact form factor for metro and aggregation networks
- **Offers** a comprehensive range of synchronization options
- **Enables** SDN capabilities for network automation and optimization



The IP passive optical solution shown in Figure 1 is a typical configuration providing cost-efficient multi-layer transport for access networks. Whereas Figure 2 shows the IP-Optical transport solution based on the Groove G30, which adds an optical transport layer for regional, metro, and long haul applications. This architecture leverages the flexibility of Layer 3 with cost-efficient optical transport to optimize routing capacity by off-loading pass-through transit traffic to 10/100G optical transport circuits in a low cost and low latency network design. Integrated IP-Optical transport delivers a dramatic capacity increase for routing sites. Combined IP-Optical transport enlists the advantages of the Coriant Transcend™ Software Suite, a powerful toolkit that enables optimized multi-layer service and resource management. The Coriant IP-Optical transport solution represents the realization of a future-proof network architecture to meet the challenges in the transition to 5G by minimizing cost per bit, increasing bandwidth, and lowering latency.

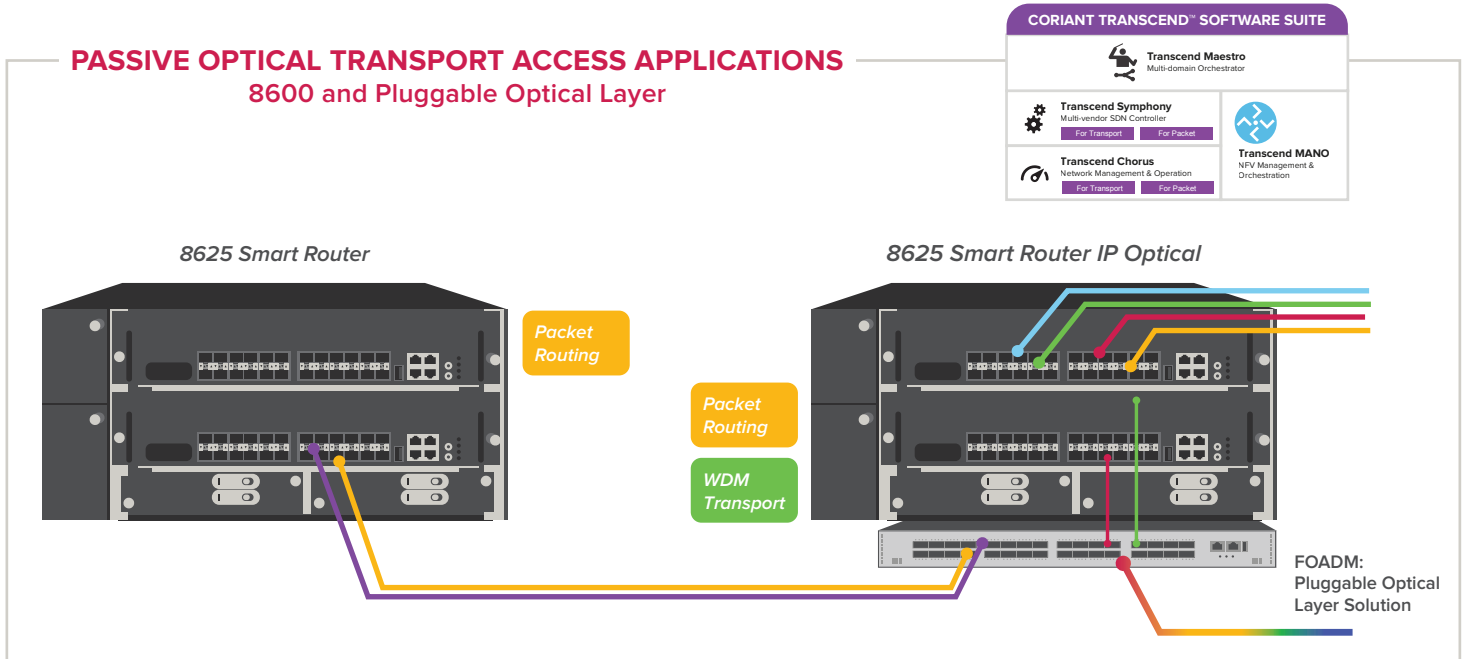


Figure 1: Coriant® 8625 Smart Router Variants with Combined Optical Transport Option

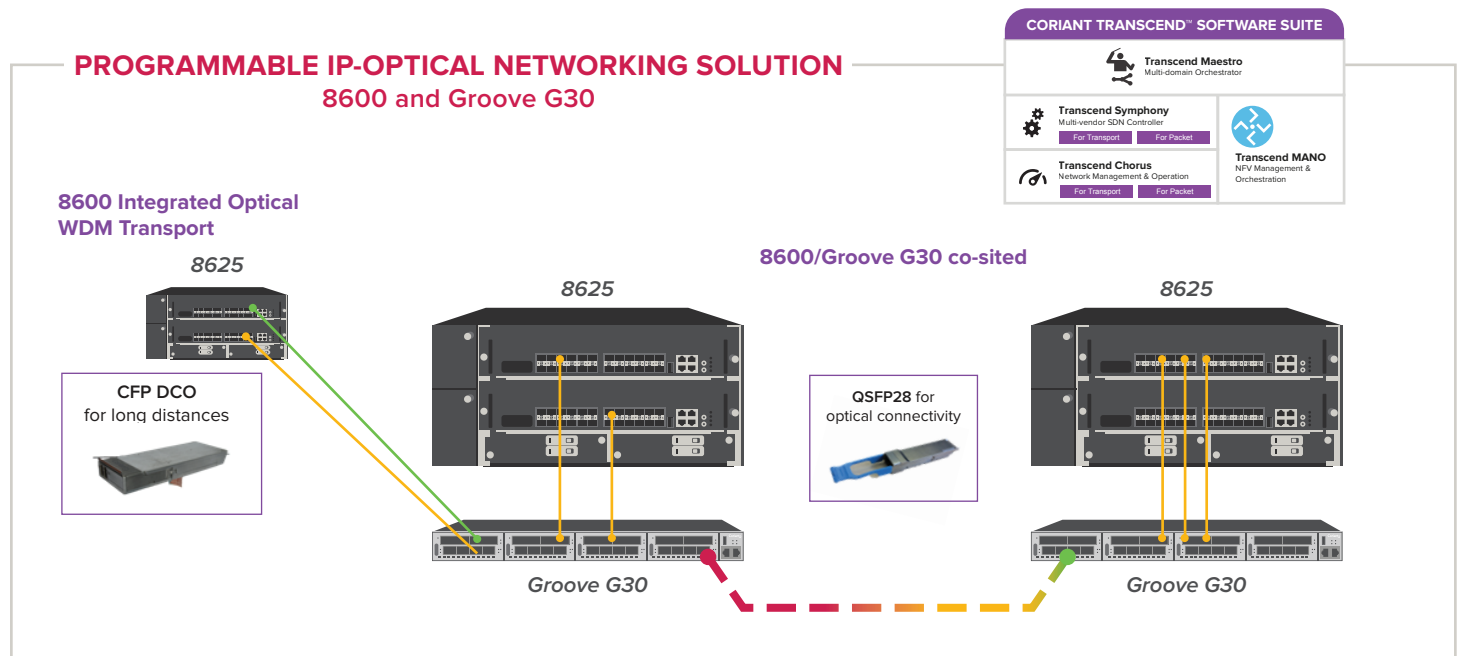


Figure 2: Coriant® 8625 Smart Router Variants with the Groove G30

The Coriant® Smart Router Series

The Smart Router Series offers versatile and scalable solutions for service provider access and aggregation from small hub sites to controller and gateway sites. Smart Routers serve fixed and mobile convergence and cloud computing networking needs and are designed to meet the ever-growing requirements of data hungry mobile and enterprise users. The entire Smart Router Series shares a common Network Operating System for consistent support of an extensive Ethernet and IP/MPLS feature set, including broad QoS, OAM, and network resiliency options. Advanced traffic management features include hierarchical policing and shaping support with Strict Priority and WFQ Scheduling. Simultaneous support for multiservice applications in access and aggregation networks protects earlier network investments. The Smart Router Series is supported by the Coriant network management system, Coriant Transcend™ Chorus for Packet, and the Coriant multi-vendor SDN controller, Coriant Transcend™ Symphony for Packet.

OFFERING A RANGE OF SYNCHRONIZATION OPTIONS

The 8625 Smart Router enables efficient and reliable synchronization for LTE-A and 5G. The 8625 Smart Router supports a wide range of synchronization features including Synchronous Ethernet, Synchronization Status Message (SSM) over Ethernet, and IEEE 1588v2 Boundary Clock required for LTE Time-Division Duplex (LTE-TDD), LTE Advanced (LTE-A), and future 5G mobile networks. Phase synchronization master clock can be supported using the innovative Coriant® Integrated GPS (GNSS) SFP receiver as a timing source on the 8625 Smart Router. All synchronization features are software configurable without any required hardware changes. This highly sophisticated synchronization implementation provides a cost-efficient, flexible, and robust rollout of packet-based synchronization.

REDUCING OPERATING EXPENSES WITH INTELLIGENT NETWORK MANAGEMENT

Fully managed by the Coriant network management system, Coriant Transcend™ Chorus for Packet, the 8625 Smart Router seamlessly integrates into any existing Smart Router network, network expansion, or greenfield deployment. Transcend Chorus supports the operator throughout the network lifecycle from planning and deployment phases all the way to optimization and maintenance by automating many routine network management tasks to reduce operational expenses.

IMPLEMENTING AN OPEN, PROGRAMMABLE, AUTOMATED SDN SOLUTION

The Coriant multi-vendor SDN controller, Coriant Transcend™ Symphony for Packet, fully supports the 8625 Smart Router. Transcend Symphony is an integral component of the overall Coriant Transcend™ Solution, a modular SDN software suite that combines the benefits of open, programmable, and automated multi-layer SDN architecture and a proven portfolio of IP/MPLS edge routing and packet optical transport solutions to enable dynamic, end-to-end network control and optimization.

PROVIDING HIGH INTERFACE DENSITY AND COMPACT FORM FACTOR

The 8625 Smart Router is designed to offer high speed packet aggregation capabilities in a compact 5RU design with low power consumption and full redundancy of forwarding, control and management plane, synchronization, power, and fan modules. The 8625 Smart Router supports a flexible Line Unit design. The first released Line Unit (LU1) has multiple interface configuration options with a mix of 100 Gbps, 10 Gbps, and 1 Gbps Ethernet support. The 8625 Smart Router supports two Line Units providing 400 Gbps total bidirectional throughput with LU1s and 700 Gbps with future-planned LU2s. Each Line Unit includes a dedicated control processor for resiliency and stateful recovery in the case of a card failure. Hot swap deployment enables consistent throughput without service interruption during node upgrades.

TECHNICAL SPECIFICATIONS

Physical Dimensions

- 5RU high
- 300 mm deep
- 19-inch rack mounting
- 8625-O Smart Router optical layer extension: 1RU 8-slot FOADM passive shelf

Power and Cooling

- -48 Vdc, redundant power supply
- Two user changeable power modules with optional protection
- Maximum power consumption with two Line Unit 1 (LU1) cards: 650 W
- Maximum power consumption supported by Power Input Modules: 1300 W (for future Line Units)

- Forced cooling with two fan modules
- Airflow: Side to side or side to back (by adjusting airflow panel)

Forwarding Plane

- IPv4 and IPv6 routing
- Multicast
- MPLS switching (LSR and LER)
- Ethernet MAC switching
- Optical Layer: 1, 2, 4, and 8 channel filters

TECHNICAL SPECIFICATIONS CONTINUED

Functionality

- IP VPN (RFC 4364)
- IP VPN multicast
- VPLS and H-VPLS
- Integrated routing and bridging
- 6vPE support
- Ethernet/VLAN pseudowires
- Single and multi-segment pseudowires
- 802.1ad QinQ
- Seamless MPLS
- Two Way Active Measurement Protocol (TWAMP)
- Y.1731 frame loss, frame delay, and frame delay variation measurement
- IEEE 802.1ag Ethernet OAM loopback, continuity check, ping, and link trace
- BFD (Static, OSPF, ISIS, RSVP-TE)

Forwarding Capacity

- 400 Gbps full duplex forwarding capacity with LU1s; 700 Gbps with future-planned LU2s

Chassis Configuration

- Two Power Input Modules
- Two slots for Line Units
- Two Fan Modules

Line Units

- Line Unit 1: 1 x 100GBASE-R (CFP2) + 24 x 10GBASE-R with two operating modes:
 - 1 x 100GBASE-R (CFP2) + 14 x 10GBASE-R
 - 24 x 10GBASE-R

Resiliency and Load Balancing

- 1+1 control plane protection
- Nonstop forwarding with control plane redundancy and graceful restart

- Power input protection
- Ethernet Link Protection
- Ethernet Link Aggregation
- 1:1 RSVP-TE LSP protection
- RSVP-TE Fast Reroute (FRR)
- Ethernet pseudowire redundancy
- VRRP
- IP load balancing (Equal Cost Multipath [ECMP])
- BGP multipath for load balancing
- IPv4 and IP VPN load balancing to RSVP-TE tunnels

Security

- L3/L4 Access Control Lists
- Denial of service protection
- Radius and TACACS+ authentication and accounting
- SSH-2 for FTP and Telnet
- MD5, SHA-1 authentication

Synchronization

- ITU-T [G.8262]
- Station Clock Input/Output (SCI/SCO)
- Pulse-per-Second (PPS) clock input and output
- Time-of-Day (TOD) input
- Synchronous Ethernet
- SSM over Ethernet [G.8264]
- IEEE 1588v2 Boundary Clock for Phase Synchronization
- IEEE 1588v2 L3 Frequency Synchronization Slave
- SyncE assist
- Support for the Integrated GPS (GNSS) SFP Module

Routing and MPLS Label Distribution

Protocols

- OSPF-TE, ISIS-TE, BGP, and MP-BGP
- LDP, RSVP-TE
- PIM-SM and PIM-SSM

Traffic Management

- DiffServ support for up to 7 traffic classes
- DiffServ aware MPLS Traffic Engineering (DS-TE)
- IEEE 802.1P/Q mapping to IP or MPLS
- Policing: port, VLAN, hierarchical
- Shaping: port, VLAN, hierarchical
- RED/WRED queue management
- Strict Priority and WFQ scheduling
- Access Control Lists (ACL)

Management

- CLI with SSH2, FTP with SSH2
- SNMPv1 and SNMPv2 monitoring
- Coriant Transcend™ Chorus for Packet network management system
- Coriant Transcend™ Symphony for Packet multi-vendor SDN controller
- Radius and TACACS+ authentication and accounting
- External Alarms
- Console

Environmental Conditions

- Operating temperature: -5°C to +55°C, when airflow is from side to side
- Operating temperature: -5°C to +45°C, when airflow is from side to back

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