

8615 Smart Router

Cost-Efficient, High Speed Ethernet Aggregator for Packet Networks

The Coriant® 8615 Smart Router is a cost-efficient, 44 Gbps full duplex IP/MPLS router targeted for packet networks. The device is designed for aggregation and large mobile macro sites in technically advanced all-IP networks. The 8615 Smart Router 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. The 8615 Smart Router also provides the flexibility and capabilities needed to serve all-IP mobile and fixed networks, including applications ranging from traditional consumer, enterprise, and machine-to-machine connectivity to cloud networking needs.

SUPPORTING ALL-IP MOBILE AND FIXED NETWORKS

The 8615 Smart Router is an optimal solution for mobile and fixed networks that deploy Ethernet technology as the underlying transport media. With large IP routing as well as MPLS and Ethernet switching tables, the 8615 Smart Router provides the flexibility needed to serve evolving network architectures and applications. The 8615 Smart Router also offers high volume buffering capacity to accommodate bursty data applications. Multicast capabilities allow applications such as IPTV and company town hall sessions. The capacity of the 8615 Smart Router can be extended by deploying a carrier-class stacking solution with two 8615 Smart Router chassis creating a single network element with 88 Gbps of full duplex capacity and control plane redundancy.

ENABLING FLEXIBLE LTE NETWORK ARCHITECTURES

With ideal capabilities to implement flexible LTE network architectures, the 8615 Smart Router provides IP and IP VPN routing to support the X2 interface between eNodeBs and the S1 and S1-Flex interfaces between eNodeBs and LTE network core elements. The 8615 Smart Router can also accommodate fixed network traffic, so mobile operators can extend their service offering to include, for example, fixed business services. The extensive synchronization capabilities of the 8615 Smart Router are essential for LTE networks. In addition to frequency synchronization, the 8615 Smart Router supports 1588 Phase synchronization that is required by LTE Time-Division Duplex (LTE-TDD) and LTE Advanced (LTE-A) along with 5G applications in the future. The integrated features of the 8615 Smart Router also enable simple migration to phase synchronization. The 8615 Smart Router multicast capabilities support eMBMS broadcast delivery.

DELIVERING A RANGE OF BACKHAUL APPLICATIONS

The 8615 Smart Router further strengthens the Coriant® Smart Router portfolio support for IP VPN applications, Ethernet and pseudowire connectivity, Virtual Private LAN Service (VPLS), and Hierarchical VPLS (H-VPLS). A broad selection of connectivity options enables service providers to choose the most suitable backhaul application for their needs. This 8615 Smart Router is capable of serving the needs of mobile backhaul networks, fixed mobile convergence, and cloud computing applications.

BENEFITS OF THE CORIANT® 8615 SMART ROUTER

- **Support all-IP mobile and fixed networks** with a cost-effective IP/MPLS router
- **Enable flexible LTE network architectures**
- **Reduce operational expenses** with intelligent network management
- **Deploy a range of synchronization options**
- **Deliver high speed packet aggregation** in a compact form factor



8615 Smart Router stacking provides redundancy and double capacity



The Coriant® Smart Router Series

The Smart Router series offers versatile and scalable solutions for mobile backhaul from small aggregation sites to controller and gateway sites. In addition, Smart Routers serve fixed and mobile convergence and cloud computing networking needs. These solutions are designed to meet the ever-growing requirements of data hungry mobile and enterprise users. All of the Smart Routers are LTE-ready and provide an extensive Ethernet and IP/MPLS feature set. Simultaneous support for multiservice applications in access and aggregation networks protects earlier network investments. The Smart Router product family is supported by the 8000 INM, which is an easy to use end-to-end network management solution. The 8000 INM minimizes operational and maintenance costs and scales up to tens of thousands of network elements.

REDUCING OPERATIONAL COSTS WITH INTELLIGENT NETWORK MANAGEMENT

The 8615 Smart Router is fully managed by the Coriant® 8000 Intelligent Network Manager (INM). The 8615 Smart Router also seamlessly integrates into any existing Smart Router backhaul network, network expansion, or greenfield deployment. The 8000 INM supports the operator throughout the network lifecycle from planning and deployment phases all the way to optimization and maintenance while minimizing the number of routine tasks and operational expenditures at every step.

IMPLEMENTING AN OPEN, PROGRAMMABLE, AUTOMATED SDN SOLUTION

The 8615 Smart Router is fully supported by the Coriant Transcend™ SDN Packet Controller. The Packet Controller is an integral component of the overall Coriant Transcend™ SDN Solution suite, a modular SDN software suite that combines the benefits of open, programmable, and automated multi-layer (Layer 0-3) SDN architecture and a proven portfolio of IP/MPLS edge routing and packet optical transport solutions to enable dynamic, end-to-end network control.

LEVERAGING HIGH INTERFACE DENSITY AND FULL SYNCHRONIZATION SUPPORT

The 8615 Smart Router accommodates 16 fixed optical 1 GbE ports, 8 fixed 1 GbE electrical ports, and 2 x 10 GbE ports. The electrical ports support IEEE 802.3at Power over Ethernet (PoE) for passing electrical power along with data traffic. The integrated PoE solution enables the 8615 Smart Router to deliver CapEx and OpEx savings by eliminating the need for external power sources at directly connected external devices.

In mobile backhaul network deployments, the 8615 Smart Router supports a range of highly accurate synchronization schemes, such as Synchronous Ethernet, Synchronization Status Message (SSM) over Ethernet, and IEEE 1588v2 Boundary Clock for phase synchronization, which is required for LTE-TDD and LTE-A. Phase synchronization can also be provided using the innovative Coriant® Integrated GPS (SNSS) SFP receiver supported by the 8615 Smart Router.

OFFERING COMPACT FORM FACTOR

The 8615 Smart Router is designed to offer essential high speed packet aggregation capabilities in a compact 1RU form factor. With external secure cabling, two 8615 Smart Routers can be stacked to form a redundant pair of devices while doubling capacity to 88 Gbps and securing user service availability at critical network locations. The stacking configuration offers redundant control plane and user plane operations.

TECHNICAL SPECIFICATIONS

Physical Dimensions

- 441 x 44 x 300 mm / 17.36 x 1.73 x 11.81 in (W x H x D)
- Standard 19-inch, 23-inch, or ETSI 600 mm rack mounting
- 3.0 kg / 6.6 lb without fan and power modules
- 1RU high

Power and Cooling

- Hot swappable single feed -48 Vdc power module (up to 2 per element)
- Power consumption: maximum with PoE 310 W, without PoE 180 W
- 120 W pool shared among 8 ports, maximum PoE 30 W per port
- Five fans in one fan module, fan speed controlled by the control function

Forwarding Plane

- IPv4 and IPv6 routing
- IPv4 and IPv6 multicast
- MPLS switching (LSR and LER)
- Ethernet MAC switching

TECHNICAL SPECIFICATIONS

Functionality

- IP VPN (RFC 4364)
- IP VPN multicast
- VPLS and H-VPLS
- Integrated routing and bridging
- 6vPE support
- Ethernet/VLAN pseudowire
- Single and multi-segment pseudowires
- 802.1ad QinQ
- Seamless MPLS
- Y.1731 frame loss, frame delay, and frame delay variation measurement
- IEEE 802.1ag Ethernet OAM loopback, continuity check, ping, and link trace
- Two Way Active Measurement Protocol (TWAMP)
- BFD (Static routes, OSPF, ISIS, RSVP-TE)
- E1 interface support via SFP for SAToP Pseudowires

Forwarding Capacity

- 44 Gbps full duplex forwarding capacity (Simple IMIX)
- 88 Gbps full duplex forwarding capacity with stacked configuration (Simple IMIX)

Chassis Configuration

- Power module
- 2 x 10GBASE-R SFP+ ports
- 16 x 1000BASE-X SFP ports
- 8 x 1 GbE electrical interfaces with IEEE 802.3at PoE
- Station Clock Input/Output (SCI/SCO)
- Pulse-per-Second (PPS) clock input and output
- Time-of-Day (ToD) input
- 2 x stack cable interfaces
- Fan unit

Resiliency and Load Balancing

- Control plane protection with stacked configuration
- Non-stop forwarding with control plane redundancy and graceful restart with stacked configuration

- Ethernet Link Protection
- Ethernet Link Aggregation
- 1:1 RSVP-TE LSP protection
- 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 and Output ports
- Pulse-per-Second (PPS) input and output
- Time-of-Day input
- Synchronous Ethernet
- SSM over Ethernet [G.8264]
- IEEE 1588v2 Boundary Clock for phase sync
- SyncE assist
- Support for Integrated GPS (GNSS) SFP receiver

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 and shaping
- Port, VLAN group, and VLAN shaping
- 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® 8000 Intelligent Network Manager (INM)
- Coriant Transcend™ SDN Packet Controller
- RADIUS and TACACS+ authentication and accounting

Standards

- Safety: EN 60950-1:2006 and IEC60950-1:2005
- EMC:
 - EN 300 386:2008
 - Installation environment: telecommunication center
 - ITU-T K.80:07/2009
 - FCC 47 CFR Part 15, Subpart B, Class A
- RTTE Directive 1999/5/EC

Environmental Conditions

- Storage: ETSI EN 300 019-1-1, Class 1.1
 - Temperature: -5°C to 45°C / 23°F to 113°F
- Transportation: ETSI EN 300 019-1-2, Class 2.3
 - Temperature: -40°C to 70°C / -40°F to 158°F
- Operating conditions: ETSI EN 300 019-1-3, Class 3.2 (non-condensing)
 - Temperature: -5°C to 55°C / 23°F to 131°F (without PoE)
 - Relative humidity: 5% to 95%

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