### Coriant Optical Core Solution

*Enhance the Customer Experience with Scalable, Flexible, and Efficient Core Network Transport*

**DRIVING A PREMIUM CUSTOMER EXPERIENCE WHILE NAVIGATING THE CHALLENGES OF TRAFFIC GROWTH**

As service providers focus on a customer experience based business model rather than a pricing and performance based competition, they need to provide services faster than ever before and guarantee the highest availability. While performance remains a key requirement to minimize costs, the paradigm shift in vendor selection and network design is moving from pure performance to operational benefits including automation, usability, and robustness. Increasing fiber capacity, node size, and bandwidth of services are critical to cope with traffic growth, but maximizing fiber and equipment utilization including smooth migration to 100G+ technologies is the key to business growth. The Coriant® Optical Core solution offers operators a best-in-class suite of high-bandwidth, high-reliability transport systems, software based intelligence, and advanced professional services to address traffic growth cost effectively and end-user demand with a clear competitive edge.

**THE CORIANT® OPTICAL CORE SOLUTION**

Operators generate revenue by delivering services from data centers or IP networks to users connected to their metro access networks. The Coriant® Optical Core solution connects these segments with reliable high-bandwidth services through our solutions portfolio, including:

- **Coriant® hiT 7300 Multi-Haul Transport Platform** – offers a significantly cost-efficient and dynamic Layer 0 solution for connecting data centers and IP routers to the long haul network
- **Coriant® mTera® Universal Transport Platform (UTP)** – addresses the increasing market demand for integrated packet optical networks, works seamlessly with the hiT 7300 to optimize network costs, and scales from metro to core switching capacities as an ideal metro gateway product, with integrated SDH/SONET switching capability for a smooth migration to OTN or packet networks
- **Coriant Groove™ G30 DCI Platform** – optimized for power and space efficiency while serving ICPs (Internet Content Providers) and CSPs (Communications Service Providers) and supporting operation in an SDN-enabled environment with open interfaces or integrated into a carrier-class network management system
- **Coriant® 7100 Pico Packet Optical Transport Platform** – provides large-scale enterprises direct connection to the optical core with 100G data rates and offers one of the most feature rich platforms in the market
- **Coriant® Transport Network Management System (TNMS)** – differentiates with the most user-friendly GUI in the market and supports fast and easy workflows to optimize CSP operations
- **Coriant Transcend™ SDN Transport Controller** – supports new ICP operational models such as DevOps based on virtualization techniques

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### OPTICAL CORE SOLUTION BENEFITS

- **Accelerate** revenue with automation and fast and easy workflows
- **Deliver** the desired level of service availability in the most cost-effective manner
- **Maximize** optical performance under even the most challenging fiber conditions
- **Minimize** operational costs with the smallest footprint and low power consumption
- **Protect** your investment with future-proof universal hardware and software defined optics
- **Expand** capacity, bandwidth, and reach with high flexibility
- **Optimize** network resource utilization across layers based on trend analysis
DELIVERING SCALABILITY THROUGH OPTIMIZED REACH AND CAPACITY

The Coriant Optical Core solution serves diverse environments ranging from national to intercontinental networks and subsea infrastructure. As a key component of the Optical Core solution, Coriant CloudWave™ Optics can deliver a 100G service up to 5,000 km without the need for regeneration, while the hybrid EDFA/Raman amplifiers support span lengths of up to 300 km. When networks extend from terrestrial to subsea with island hopping or festoon installations, Coriant delivers spans of up to 450 km repeater free and transoceanic distances of up to 11,000 km on new fibers. This performance is delivered by feature-rich platforms offering footprint-optimized solutions, embedded encryption, and integrated optical time-domain reflectometer (OTDR).

Given the expense of installing new fiber, achieving spectral efficiency in existing fiber becomes a primary focus. The Optical Core solution supports up to 25.6 Tbps per fiber with 128 flexi-grid channels and 16QAM based 200G wavelengths through the Coriant Groove™ G30. Coriant super-channel functionality available in the hiT 7300 scales up to 1 Tbps and differentiates with deployment options for optically meshed networks optimizing reach and simplifying spectrum management to allow for dynamic reconfigurations of (super-)channels. The traffic in these networks can be switched most cost effectively in the optical layer using 2 to 16 degree ROADMs. Switching traffic in Layer 1 delivers additional resiliency options and operational flexibility. The mTera UTP can scale from 1.6T to 12T switching capacity while supporting any mix of OTN and packet traffic and providing operators full investment protection and planning flexibility with network and traffic pattern evolution.

OFFERING ROBUST OPTICAL PERFORMANCE AND RESILIENCE

With decades of experience and expertise in optical transport network solutions, Coriant delivers field-proven industry-leading technology enabling robust network installations under extreme environmental conditions, including locations such as the Himalayas and the polar circle, earthquake prone regions, and regions experiencing numerous lightning strikes on aerial fiber deployments. Coriant solutions also offer state-of-the-art optical performance for maintenance activities, where temporary fiber bends or fiber squeezes are tolerated seamlessly. Even after a loss of signal on an unprotected line, the recovery procedure for our platforms begins automatically after repair and completes within seconds. Coriant optical link control equalizes challenging fiber conditions, including effects from multiple fiber cuts, fiber aging, use of different fiber types in one span, or strongly varying span lengths in one link and ensures that the network can grow to the planned End of Life (EOL) capacity.

CORIANT OPTICAL LINK CONTROL

Coriant long haul link control software is field proven in some of the world’s most demanding long haul networks. Key functions include optimizing the gain of each amplifier, optimizing the power level of each channel, tilt control to compensate for the wavelength-dependent loss of each channel, and drop control to optimize the drop power to the sweet spot of the receiver. This link control software also optimizes the power levels of both 10G and 100G channels to maximize end-to-end performance in a hybrid dispersion-managed network.
Coriant's optical design capabilities help operators compete for the best user experience with the highest network and service availability. The Optical Core solution provides impressive sub 50msec optical protection switching without duplication of transponder investment. This can be combined with L0/L1 GMPLS for the most cost-effective network resilience. The mTera UTP acts not only as an OTN/packet switch in the Optical Core but also as a gateway to metro networks from where it collects services in Layer 2/2.5 while fully supporting service resilience and protection mechanisms. For more advanced restoration options, the Coriant Transcend™ SDN Transport Controller provides SDN-based restoration.

PROVIDING OPTIMIZED RESOURCE UTILIZATION AND EFFICIENT OPERATIONS

Besides performance, cost matters most in optical networks. The Optical Core solution leads with energy efficiency – less than 50 W per 100 Gbps service and below 0.85 Watt/Gbps switched OTN/packet traffic – and a compact footprint. These features are enabled by the first-to-market dual core DSP and components built to Coriant’s specifications. The Coriant CloudWave™ Optics solution for 100G/150G/200G is specifically designed to reuse the existing 10G and 40G assets of an operator for the ideal combination of features and benefits that underscore Coriant innovation as the first choice for operators migrating to 100G+.

An efficient operations model is not only cost saving, it is key to a best-in-class customer experience and fast return of investment. Coriant’s Optical Core solution features a services and network management system with a clear focus on simple, business oriented workflows. TNMS GUI is customizable per user to the specific operator procedures and complemented by a rich choice of data fields and an import option for services planning data from operator owned tools. The TNMS drag and drop user interface and context sensitive drop-down menus simplify daily usage. Workflows are simpler and faster and errors are minimized using TNMS with the network as the database and without scripting needs or data manipulation in spreadsheets. Network resource usage is optimized by routing algorithms that consider link costs and optical performance.

ENSURING A TRUSTED PARTNERSHIP BEYOND THE SPEEDS AND FEEDS

Coriant’s Optical Core solution provides a wide breadth of functionality delivering industry-leading performance with an easy-to-use, robust management system, all backed by the experience and expertise of Coriant® Global Services. Our comprehensive portfolio of tailored service solutions for every step of the network lifecycle include network planning, installation, commissioning, and operation. Coriant® Global Services gives operators additional savings through network status and trend analysis and multi-layer optimization, while employing planning and simulation tools that utilize the most sophisticated algorithms in the industry.

UNLEASHING THE FUTURE WITH CORIANT INNOVATION

Coriant helps operators introduce SDN concepts into their networks to deliver automated end-to-end and multi-layer service provisioning and restoration, latency aware IP service planning, Network as a Service (NaaS), and SDN trending analysis or network defragmentation. The Coriant Transcend™ SDN Transport Controller facilitates migration to next-generation OSS systems for faster and more simplified service provisioning. Coriant sees that many core networks will evolve toward an NaaS model, serving operator internal customers as well as end customers in the same way.

INDUSTRY-LEADING R&D ADVANCES

- 400G over 1,634 km on SSMF
- 1T super-channel on live network
- 38.4 Tbps with 64QAM over 750 km
- 57.6 Tbps on hollow core fiber
### SUMMARY
Coriant offers operators a cost-competitive Optical Core solution with 25.6 Tbps fiber capacity, 1T super-channels, and 5,000 km terrestrial reach for 100G. The solutions suite establishes an industry benchmark with its universal grooming and aggregation capabilities, network optimization services to maximize resource usage efficiency, and products designed for low power consumption and a compact footprint to reduce operational costs. The optical experts at Coriant differentiate by enabling the most cost-efficient and resilient Optical Core solution with sub 50 msec protection while outperforming all other industry solutions with robustness under challenging fiber conditions. Coriant provides operators with a unique workflow-oriented network and service management model enabling a lean operation while satisfying the most demanding end-users with fast response times.

### CORIANT CLOUDWAVE™ OPTICS
Coriant CloudWave™ Optics is a versatile suite of software-programmable photonic layer technologies that brings a new level of flexibility, reliability, efficiency, and scalability to next-generation optical transmission networks. A key enabler of the Coriant metro and core network transport solutions, Coriant CloudWave™ Optics features software programmable line side modulation, tunable spectral allocation, and channel frequency flexibility. These carrier-grade capabilities significantly enhance service flexibility and network scalability in metro, regional, LH, ULH, and Data Center Interconnect (DCI) transport applications.

### CORIANT PRODUCTS

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<tr>
<th>Product Name</th>
<th>Description</th>
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| **Coriant® hiT 7300 Multi-Haul Transport Platform** | • Highly modular ULH system for 11,000 km reach  
• 25.6 Tbps with 128 flexi-grid channels at 200 Gbps  
• 50 msec optical protection with 1 transponder |
| **Coriant® mTera® Universal Transport Platform (UTP)** | • POTS family scaling from metro (1.6 Tbps) to core capacities (12 Tbps)  
• Universal OTN/packet/SDH/SONET interfaces and switching  
• Integrated optics with ULH performance |
| **Coriant Groove™ G30 DCI Platform** | • Designed for DC density, performance, and operational needs  
• 4 pluggable slots for lowest first cost and application flexibility  
• 134 Tbps in 42RU and 0.45 Watt/Gbps for 1,000 km reach |
| **Coriant® 7100 Packet Optical Transport Platform** | • Ideal for high speed business services  
• Most feature rich metro platform  
• 10G packet aggregation and 2x100G uplink |
| **Coriant® Transport Network Management System (TNMS)** | • User-friendly interface with customizable GUI and drag and drop functionality  
• Efficient operations through simple workflows at any network size  
• Network performance and optical impairment aware routing |
| **Coriant Transcend™ SDN Solution** | • Next-generation OSS migration to speed up IT processes  
• Automated end-to-end and multi-layer service provisioning and restoration  
• Network aware service planning and provisioning |