# OcNOS Routed Optical Networking (RON)

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TOTAL NETWORK DISAGGREGATION

Take control of your network with Total Network Disaggregation from IP Infusion.
Complex networks simplified with open standards.

OcNOS Routed Optical Networking (RON) Overview

IP Infusion's Routed Optical Networking (RON) product portfolio provides IPoDWDM optical transport for Data Center Interconnect (DCI), metro and long-haul applications. While the aggregation network aggregates the traffics from various access networks, the Routed Optical Network routes and transports this traffic over IPoDWDM optical open line systems to remote ends of the network.

The RON solution consolidates and simplifies multilayer traditional IP, MPLS, and DWDM network architectures into a single layer IPoDWDM packet optical transport network as shown below.
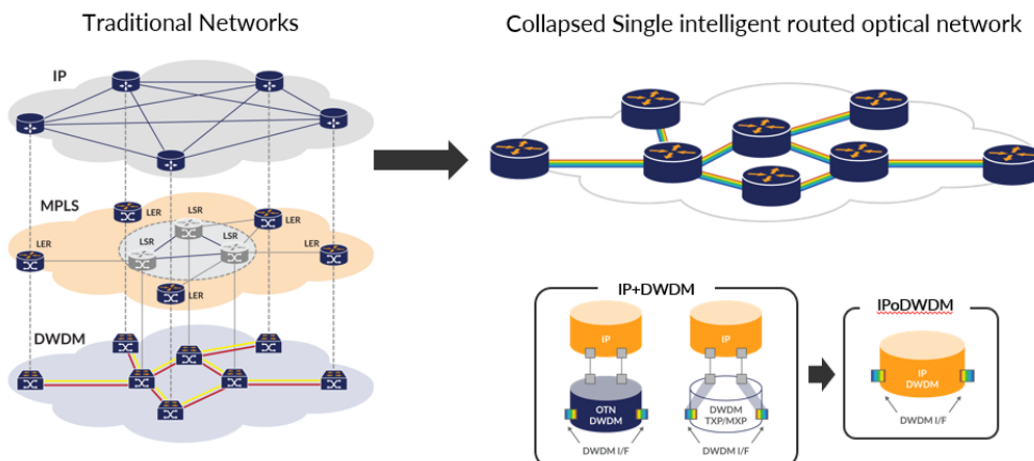
Native DWDM interfaces in the routers allow
for reduction of network layers, single control plane,
and network simplification.

The network nodes provide the hop-by-hop routing, and the DWDM coherent color interfaces provide the long-distance optical transport.

OcNOS-RON provides optical transport for the following use cases:

- Data Center Interconnect
- Backhaul of access edge services
- Metro Ethernet services
- Long haul optical networking

Some of the features specific to the optical transport are as below:

- L1 cross connect for transponder use case
- L2/L3 switch for packet transponder applications
- Configuration, monitoring and debug of optical line
- Open API and management interfaces
- Link level monitoring (power, BER, OSNR, CD etc.)
- Fiber fault sensing
- Events, alarms and telemetry data

Coherent Optics and Transceivers

Coherent Optical Communication is the mainstream technology that is used for long distance optical transmission. Coherent optics for commonly packaged CFP2 or QSFP-DD form factors are shown below.

CFP2 DCO 200G

QSFP-DD DCO 400G ZR/ZR+

OcNOS Routed Optical Networking Benefits

The following are key benefits of the OcNOS Routed Optical Networking:

- Flexible disaggregated network for scaling more subscribers by increased capacity per fiber
- Efficiency
    - Reconfigurable optical add-drop multiplexer (ROADM), switching traffic at λ level, reducing latency, footprint, power, complexity
    - Migration to FlexGrid ROADM: Support traffic volumes of hundreds Tb/s or even some Pb/s

ip infusion™

- Coherent pluggable
    - Service agility: Extensive use of coherent pluggable optics
    - Seamless migration from legacy to next gen networks
- Open Routed Optical Networking
    - Moving from Layered Architecture to Flat Hop-by-Hop Architecture
    - Collapsing management plane and control plane, DWDM, RON & packet
    - Enables hardware independence delivering faster roll-out of new services and shorter time-to-market

OcNOS Software

OcNOS (Open Compute Network Operating System) is an industry-leading Network Operating System (NOS) providing the most complete carrier-grade disaggregated solution for service providers. OcNOS-based solutions have been widely deployed in access, aggregation, transport and data center use cases for simplified operations and automation. It provides extensive programmability for end-to-end network management and orchestration. OcNOS features a single software image that runs across the entire portfolio of Open Compute platforms from leading vendors. This guarantees consistent operations, workflow automation and high availability, while significantly reducing operational expenses.

OcNOS provides industry standard CLIs, supports standard MIBs as well as the latest network management tools. Its integrated centralized management and provisioning layer allows for transaction-based configuration and device feature modelling. OcNOS is a modular, multi-tasking NOS, with tight integration capabilities on commodity hardware. This design allows for scaled and performance critical deployments.

OcNOS benefits include:

- Fully validated and hardened carrier-grade solutions
- Breaks vendor lock-in
- Scalable software for Terabit switching bandwidth
- Lower TCO: Up to 65-75% savings against Traditional Tier-1 vendors
- A broad ecosystem of technology and integration partners

OcNOS key highlights include:

- Packaged solutions for faster deployment and shorter time-to-revenue
- Advance data models for network automation, orchestration, and control
- Standard Cisco-like CLI
- Flexible deployment: OcNOS Service Provider Solutions addressing different use cases across the Service Provider network
- World-class 24/7/365 support

OcNOS Routed Optical Networking Hardware Platforms

Aggregation Router Edgecore AS7946-30XB or UfiSpace S9510-28DC model can be used with QSFP-DD-400G ZR/ZR+ Optics as Routed Optical Networking Hardware Platform. For more details on these platforms, please refer to Aggregation Router Product web pages.

ROUTED OPTICAL NETWORKING	
Hardware Platform Type	**Corresponding DCO Optics Type**
3.2 Tbps (Tomahawk Plus)	
Edgecore AS7716-24SC Cassini	CFP2-200G-DCO
Galileo 1	CFP2-200G-DCO
800 Gbps (Qumran-2A)	
UfiSpace S9510-28DC	QSFP-DD-400G ZR/ZR+*
2.4 Tbps (Qumran-2C)	
Edgecore AS7946-30XB	QSFP-DD-400G ZR/ZR+*

Software for 400G Open ZR+ module supports and includes the following features: Link Performance monitoring for media and host interface, alarms, CD, DGD, SOPM, PDL, OSNR, ESNR, Rx Optical signal power, SOPCR, MER, FEC Performance, Rx-Bits, corrected bits, Rx Frames, Uncorrected Frames per PM interval, TX power Tuning, and Application selector.

Relevant Links

DATASHEET   FEATURE MATRIX   HARDWARE COMPATIBILITY LIST

Contact us today to learn more about the OcNOS Routed Optical Networking product.

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