

OcNOS Routed Optical Networking (RON)

May 2023

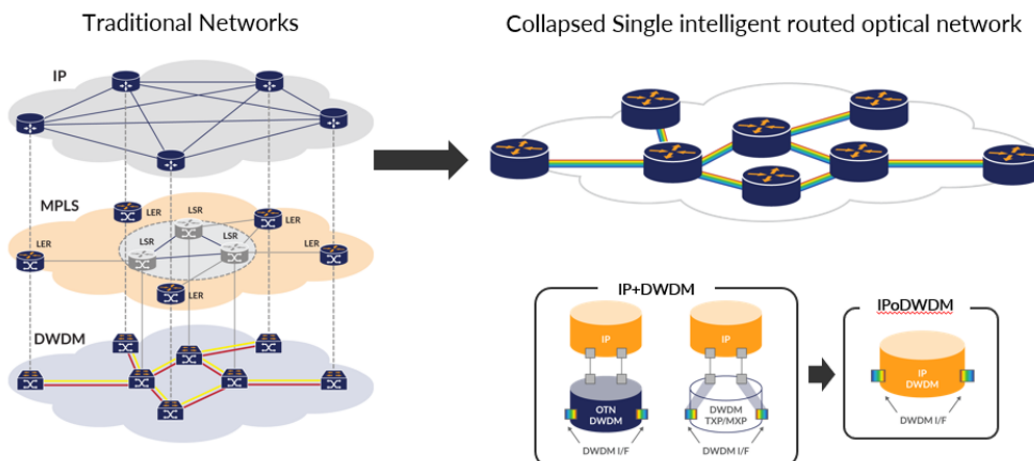
TOTAL NETWORK DISAGGREGATION

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

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
- 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

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+

400G ZR/ZR+ Pluggable Optical Modules

The 400G ZR/ZR+ pluggable modules are supported on the following platforms currently:






- Edgecore AS7535-28XB
- Edgecore AS7946-30XB
- UfiSpace S9510-28DC
- UfiSpace S9600-56DX

The benefits associated with using 400G ZR/ZR+ pluggable modules include the following:

- Reducing complexity of longhaul network infrastructure
- Streamlining traffic flow to a single aggregation network
- Reducing the amount of space, power, and equipment needed for DWDM systems
- Decreasing the number of network elements needed
- Enabling network managers to leverage L3 protocols

OcNOS Routed Optical Networking Hardware Platforms

Platforms

	Edgecore AS7535-28XB SKU: IPBASE, MPLS, IPADV-CE-AGGR, PLUS Ports: 24 x 25GE; 2 x 100GE QSFP28; 2 x 400GE QSFP-DD Switching capacity: 800 Gbps Switching chipset: Qumran2a 	Edgecore AS7946-30XB SKU: IPBASE, MPLS, IPADV-CE-AGGR, PLUS Ports: 4 x 10/25GE; 18 x 100GE QSFP28; 4 x 100 GE QSFP-DD; 4 x 400GE QSFP-DD Switching capacity: 2.4 Tbps Switching chipset: Qumran2c 
Edgecore AS7716-24SC (Cassini) SKU: IPBASE, MPLS, XCONNECT Ports: 16 x 100GE QSFP28; 8 x 100/200GE CFP2-DCO Switching capacity: 3.2 Tbps Switching chipset: Tomahawk Plus 	UfiSpace S9510-28DC SKU: IPBASE, MPLS, IPADV-CE-AGGR, PLUS Ports: 24 x 25GE SFP28; 2 x 100GE QSFP28; 2 x 400 GE QSFPDD Switching capacity: 800 Gbps Switching chipset: Qumran2a 	UfiSpace S9600-56DX SKU: AGGR, PLUS Ports: 8 x 40/100/400GE QSFP-DD; 48 x 40/100GE QSFP28; 4 x 1/10/100GE SFP28 Switching capacity: 4.8 Tbps Switching chipset: Qumran2c 

Optics

CFP2-200G-DCO Lumentum: TRB200DAA-01
Skylane Optics: C2DTULDS0200, C2DTULDJ0200, C2DTULDH0300



QSFP-DD 400G ZR/ZR+



Fujitsu (ZR): FIM38900/120
SmartOptics (ZR+): SO-TQSFP-DD-4CCZRP
Hisense Broadband (ZR+): LCQ638B5-PC+

Relevant Links

DATASHEET

FEATURE MATRIX

HARDWARE
COMPATIBILITY LIST

OCNOS-RON
CONFIGURATION GUIDE

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

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