Release Notes for Cisco Routed Optical Networking, Release 3.0

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Release Notes for Cisco Routed Optical Networking Solution, Release 3.0

The release notes provide an overview of the Routed Optical Networking solution and its features. It also lists the caveats.

Routed Optical Networking Overview

Routed Optical Networking simplifies complex multilayer networks by collapsing network layers and minimizing the functional overlap. Routed Optical Networking also improves the overall network efficiency by optimizing each layer of the network. The architecture also integrates open data models and standard APIs, enriching powerful automation making Routed Optical Networking easier to operate than legacy networks.

Routed Optical Networking is able to provide improvements and simplification because it:

- Leverages state of the art optical and routing technologies to converge services over an IP infrastructure connected by a simplified DWDM layer
- Merges IP and private line services onto a single unified IP layer
- Simplifies end-to-end network architecture
- Utilizes a modern software stack that spans across network management and control planes
- Improves the capacity and cost efficiency of networks
- Has a smaller carbon footprint
- Offers unified capacity planning, unified EMS, unified path optimization, orchestration, and assurance
- Provides an automation ecosystem with open, programmable, and modular components
- Total Cost of Ownership savings across CapEx and OpEx

Routed Optical Networking utilizes high-density routers, high-capacity ZR or ZR+ pluggable digital coherent optics, simplified DWDM line systems, and end-to-end multi-layer automation to create next generation networks.

What's New in Routed Optical Networking 3.0

Feature	Release	Description
Automation Starter Solution	Crosswork Hierarchical Controller 8.0	Automation Starter Solution accelerates adoption of Routed Optical Networking by simplifying the installation and deployment of the overall Routed Optical Networking solution. It is a simplified automation stack that is used to manage ZR/ZR+ optics in Cisco routers. The primary difference between the starter and full solution is the absence of Crosswork Network Controller in the Starter solution.
Support for QDD-based Optical Line System	Cisco IOS XR Release 7.11.1	The following routers support Cisco QSFP-DD Pluggable Open Line System Modules (QSFP-DD OLS): • NCS-57B1-6D24-SYS and NCS-57B1-5DSE-SYS routers. • NCS-57C3-MOD and NCS-55A2-MOD routers (only through NC57-MPA-2D4H-S modular port adapter)

Support for 100G-ZR coherent transceivers	Cisco IOS XR Release 7.11.1	The following routers support DP01QSDD-ZF1:
		• N540-24Q8L2DD-SYS
		• NCS-57B1-6D24H-S
		• NCS-57B1-5D24-SE
		• NCS-57D2-18DD-S
		• NC57-48Q2D-S
		• NC57-48Q2D-SE-S
		• NC57-MOD-S and NC57-MPA-2D4H-S on:
		  • NCS-55A2
		  • NC55-MOD
		  • NC57-MOD
		  • NCS-57C3

Support for 400G-ER coherent transceivers	Cisco IOS XR Release 7.11.1	The following routers support DP04QSDD-ER1: • NC57-18DD-SE

Feature	Release	Description
Cisco Optical Site Manager	Cisco IOS XR Release 7.11.2	Cisco Optical Site Manager runs as an extra application on IOS-XR on the NCS 1010 and is packaged with NCS 1010 IOS-XR releases. Cisco Optical Site Manager provides site-level management for an NCS 1010 network built using multiple disaggregated NCS 1010 devices. It offers a single communication point for controllers such as Cisco Optical Network Controller. The web UI allows users to perform management and assurance tasks related to the site nodes such as viewing alarms, performance statistics, and performing OAM functions like OTDR and connectivity verification.
Cross Launch between Automation software suite applications	Cisco Optical Site Manager 7.11.2 Crosswork Hierarchical Controller 8.0 Cisco Crosswork Network Controller 6.0 Cisco Optical Network Controller 3.1	You can now setup SSO login for Cisco Optical Site Manager, Crosswork Hierarchical Controller, Cisco Crosswork Network Controller, and Cisco Optical Network Controller. After setting up SSO, you can cross-launch among these applications. For example, you can launch the node functional view in Cisco Optical Site Manager from the Link Assurance application in Crosswork Hierarchical Controller.

Feature Support

Table 1: Routed Optical Networking Features

Product	Features	Release
• 8201-SYS • 8202-SYS • 8101-32FH • 8201-32FH • 8800-LC-36FH • 88-LC0-36FH-M • 88-LC0-36FH • NC57-24DD • NC57-18DD-SE • NC57-36H6D-S • NCS-57B1-6D24-SYS • NCS-57B1-5DSE-SYS • A99-10X400GE-X-SE • A99-10X400GE-X-TR • A9K-20HG-FLEX-SE • A9K-20HG-FLEX-TR • A9K-8HG-FLEX-SE • A9K-8HG-FLEX-TR • A9903-20HG-PEC-FC • NCS-55A2-MOD-S(E)-S • N540-24Q8L2DD-SYS • N540-24Q8L2DD-SYS • NC57-MOD-S • NCS-57C3-MOD(S)-SYS • NCS-57C1-48Q6-SYS • NC55-MOD-A(-SE)-S • NC57-48Q2D-S(E)-S	• Support for QDD-400G-ZR-S and QDD-400G-ZRP-S • OpenConfig support for ZR/ZR+	IOS XR 7.11.1

Product	Features	Release
• N540-24Q8L2DD-SYS • NCS-57B1-6D24H-S • NCS-57B1-5D24-SE • NCS-57D2-18DD-S • NC57-48Q2D-S • NC57-48Q2D-SE-S • NCS-57B1-6D24-SYS • NCS-57B1-5DSE-SYS • NCS-57C3-MOD(S)-SYS • NC57-MOD-S • NCS-57D2-18DD-SYS • NC55-MOD-A(-SE)-S • NC57-48Q2D-S(E)-S	Support for 100G-ZR coherent transceiver DP01QSDD-ZF1	
NC57-18DD-SE	Support for 400G-ER coherent transceiver DP04QSDD-ER1	
• NCS-57B1-6D24-SYS • NCS-57B1-5DSE-SYS • NCS-57C3-MOD • NCS-55A2-MOD	Support for QDD-based Optical Line System	
• NCS-57C3-MOD • 8x10G SFP+ PLE MPA (NC55-OIP-02) • NCS-55A2-MOD	• Support for Private Line Emulation using Circuit Emulation (CEM) • OpenConfig support for ZR/ZR+	
	• Support for Cisco 400G QSFP-DD High-Power (Bright) Optical Module DP04QSDD-HE0	

Product	Features	Release
• NCS-57C3-MOD • 8201-32FH • 8201-24H8FH • A9K-20HG-FLEX-SE/TR • A9K-8G-FLEX-SE/TR • NC57-24DD • NC57-18DD-SE • NC57-36H6D-S • NCS-57B1-6D24-SYS • NCS-57B1-5DSE-SYS • NCS-57C3-MOD(S)-SYS • NC57-MOD-S • NCS-57C1-48Q6-SYS • NCS-57D2-18DD-SYS • NC55-MOD-A(-SE)-S • NC57-48Q2D-S(E)-S • NCS-55A2-MOD(-SE)-S		
• NCS1K-MD-64-C module • NCS 2000 shelf • NCS 2000 line cards	Simple optical line systems	SVO, Release 12.3.1
• NCS 1010 shelf • NCS 1010 line cards • NCS 1K breakout shelf and modules • NCS 1K MD32 filters		IOS XR 7.11.2
NETCONF and YANG ZR/ZR+ Programmability	Support for NETCONF and YANG models. NETCONF is a standard based and XML encoded protocol. You can use YANG to create device configuration requests or the requests for operational data.	IOS XR 7.11.1

Product	Features	Release
Telemetry	Support for telemetry data. Model-driven telemetry allows network devices to continuously stream real-time configuration and operating state information to subscribers.	IOS XR 7.11.1
Cisco Evolved Programmable Network Manager	Support for QDD-400G-ZR-S and QDD-400G-ZRP-S optics on Release 1.0 GA platforms. It also displays optical performance monitoring and fault data. Support for QDD-based Optical Line System Support for NCS 1010 Optical Nodal Assurance	7.1.2

Crosswork Hierarchical Controller	Crosswork Network Controller and Crosswork Hierarchical Controller integration is supported for hierarchical multi-vendor, multi-domain, and multi-layer visualization across service, IP and, optical layers for new deployments and deployments on existing networks. Crosswork Hierarchical Controller supports:
	• Routed Optical Networking multi-layer service provisioning
	• Routed Optical Networking multi-layer discovery and visualization:
	  • Topology and inventory discovery from Cisco Optical Network Controller (optical layer) and Crosswork Network Controller (routing layer)
	  • Optical and routing service discovery from Crosswork Network Controller and Cisco Optical Network Controller
	• UI support for Routed Optical Networking service management
	• Cross-Link Connectivity Verification between router and NCS 1010 using Link Manager application
	• Embedded NSO container for the Routed Optical Networking Starter Solution
	• Contextual Cross Launch: SSO and cross-launch between Crosswork Hierarchical Controller, Cisco Optical Network Controller, Cisco Optical Site Manager, Cisco Crosswork Network Controller
		8.0

Product	Features	Release
Cisco Optical Network Controller	• Optical domain controller • Support for ZR/ZR+ wavelength services on Cisco NCS 2000 and NCS 1010 devices • Standardized TAPI model • Eight applications for various functions like Node management, Alarms, Assurance • Path compute, topology discovery and control plane functions	3.1
Cisco Optical Site Manager	• Site-level management for an NCS 1010 network built using multiple disaggregated NCS 1010 devices • Single communication point for controllers • Management and assurance tasks related to site nodes such as viewing alarms, performance statistics, and performing OAM functions like OTDR and connectivity verification	IOS XR 7.11.2
Cisco Crosswork Network Controller	Cisco Crosswork Network Controller is a network automation solution for deploying and operating IP transport networks. Its unified user interface allows real-time visualization of the network topology and services, as well as service and transport provisioning. Cisco Crosswork Network Controller is the IP domain controller. Crosswork Optimization Engine manages SR-TE Policy and RSVP-TE tunnel lifecycle. Circuit Style Manager in Crosswork Optimization Engine also enables Circuit-Style SR-TE Bandwidth Call Admission Control.	6.0
NSO Routed Optical Networking Core Function Pack	Supports unified IP and optical provisioning for ZR/ZR+ optics on Cisco routers.	3.0.0
Cisco Optical Network Planner	Support for designing and validating networks of the NCS 2000 series and NCS 1010 devices. Cisco ONP must be used to perform the final network feasibility analysis and generate production network designs.	5.2
Cisco WAN Automation Engine	Support for creating and maintaining a model of the current network through the continual monitoring and analysis of the network and the traffic demands that are placed on it. This tool is used for IP planning.	7.6.2

Caveats

The open caveats are:

Identifier	Headline
CSCwj42985	[IOS-XR CLI] RON Adapter - PM Data collection fails for IOS-XR Nodes with mutiple HCO instances
CSCwi10214	Vigor NC57-48Q2D-S,NC57-48Q2D-SE-S-Four hundred Gig ports are not listed in ENTITY physical-MIB
CSCwh09155	PLE:NCS5500 CEM Traffic getting loadbalanced in the P-Node as J/J+ causing datapath flap
CSCwi09674	[HCO - CNC, IOS-XR Adapter] - adapter installation fails with adapter name in Uppercase
CSCwh08178	User must manually configure NTP server after deployment of the OVA file
CSCwi56180	PLE port in the loopback mode not working for the Fiber Channel interface
CSCwj38237	In CONP BRK8 A/D(DIR) Port numbering starts from 1, while in Physical Device/COSM starts form Port 0
CSCwj58201	[CONC] During service deletion, ONC also deletes service related NEPs
CSCwj39839	[CONP]Fiber span definition only have the Fiber information for one direction, missing for the other
CSCwi82342	OTS ports belongs to QDD-OLS pluggable have few issues on the chasisis view
CSCwj58141	[CONC] Spectrum values appear under "uuid" key during the service creation

Bug Search Tool

Cisco Bug Search Tool (BST) is a web-based tool that acts as a gateway to the Cisco bug tracking system that maintains a comprehensive list of defects and vulnerabilities in Cisco products and software. BST provides you with detailed defect information about your products and software.

Related Documentation

Use this guide along with the following referenced publications:

- Cisco Optical Network Planner Configuration Guide, Release 5.2
- Cisco WAE 7.6.0 Installation Guide
- Cisco Crosswork Network Controller 6.0 Installation Guide
- Cisco Network Services Orchestrator 6.1.9 Documentation

- Cisco Crosswork Network Controller 6.0 Administration Guide
- Cisco Crosswork Hierarchical Controller Administration Guide
- Cisco Optical Network Controller 3.1 Configuration Guide
- Cisco NSO Transport-SDN Function Pack Bundle User Guide 6.0
- Installation Guide for Cisco Evolved Programmable Network Manager 7.1
- Cisco NSO Routed Optical Networking Core Function Pack Documentation
- Hardware Installation Guide for Cisco NCS 1010 and Cisco NCS 1000 Passive Modules
- Cisco NCS 1010 Configuration Guides

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