

Cisco NCS 2000 Software Release 10.9

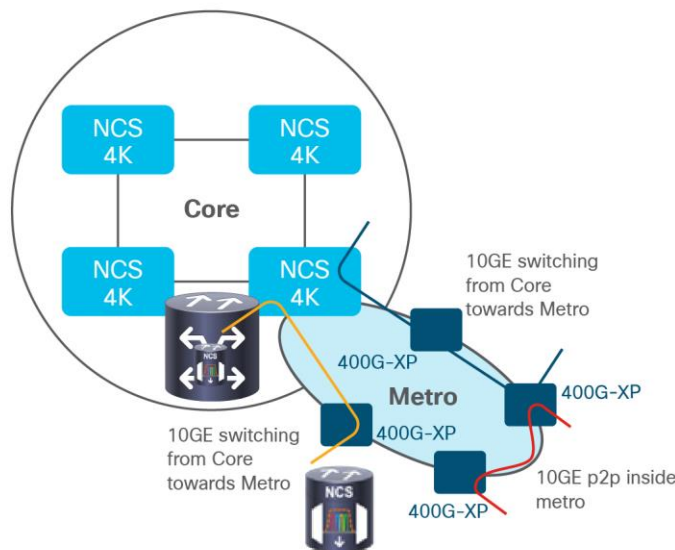
The Cisco[®] Network Convergence System (NCS) Family of products delivers an Evolved Programmable Network (EPN) that lets you simplify network operations, reduce network costs, and make your network more dynamic and profitable. The Cisco Network Convergence System 2000 Series (NCS 2000 Series) delivers agility, programmability, and massive scale across ultra-long-haul, metro, and enterprise optical networks.

News lead

Cisco NCS 2000 Software Release 10.9 introduces a list of enhancements with Optical Transport Network (OTN) Xconnect functionality, General Communication Channel 0 (GCC0) enablement, Quadrature Amplitude Modulation-8 (8QAM) modulation format, and Advanced Encryption Standard (AES) 256-based layer 0 encryption on the Cisco NCS 2000 400-G Xponder DWDM line module. NCS 2000 Software Release 10.9 supports Transponder (TXP) Remotization functionality with the Flex and Spectrum Switched Optical Network (SSON) software packages. This functionality enables transponder modules to be housed in the node independent of the ROADM degrees. Release 10.9 supports Media Channel Group (MCG) restoration with FLOW control plane, available with the SSON package.

New features

New software functionality and enhancements



The following new software features are available in Release 10.9 on the Cisco NCS 2000 Series:

- OTN Xconnect functionalities on the 400-GXP Line card

OTN Xconnect functionality on 400G-XP enables 10-GE / OC-192 / STM-64, OTU2 / 2e / 100-GE / OTU4 client switching across the network with 100G / 200G DWDM trunk wavelengths between the add/drop locations.

The Xconnect mode also supports the clients to be configured with protection using the SNC/I wherein each 10-GE/ OC192 / STM64, OTU2/2e, 100-GE, OTU4 client can be protected internally between the two trunks on the 400G-XP card enabled with 100G / 200G DWDM line interfaces.

- **8 QAM on 400 Gb DWDM Xponder module**

In Release 10.9, the NCS 2000 400-G Xponder supports the 8-QAM modulation format in the NCS2000-S software package that is equipped with FLOW control plane. It provides two 150G DWDM wavelengths that are co-routed in a media channel group. 8-QAM mode will be multiplexing 300G of client bandwidth to be transmitted over two CFP2 ports, each transponding 150G on the same path between the source and destination.

- **Pseudo Random Binary Sequence (PRBS) on the 400G DWDM Xponder module**

In Release 10.9 the 400G DWDM Xponder module supports enabling PRBS on the client interfaces to test the end-to-service link between two locations. This functionality is supported in both MXP mode and Xponder mode. The supported PRBS modes are PRBS 11 and 31.

- **Layer-0 encryption on the 400G DWDM Xponder module**

In Release 10.9 the 400G DWDM Xponder module supports enabling layer-0 encryption with AES 256 payload encryption for the OTU4 transmitted over 100-G / 200-G DWDM wavelengths. Encryption is done over the OTU4 between the two end points with a total point-to-point encrypted DWDM capacity of 400 Gbps. L-NCS2K-100GCRPK9= is the license that needs to be enabled per OTU4 on the line module. A total of four licenses are allowed per line card when operated in 200G QAM-16 modulation format for 400G of client capacity.

- **GCC0 enablement on 400-GXP Xponder module**

In Release 10.9 the NCS 2000 400-G DWDM Xponder supports the enablement of GCC0 on the DWDM trunk modules. Provisioning over GCC0 in GNE-ENE mode is available along with a software download and management over the GCC0 channel.

- **Transponder remotization on the NCS 2000 Flex software package**

In Release 10.9 the NCS 2000 Flex and SSON software package supports remotization of the transponder chassis in a node by using external PPC between the ROADM chassis and the TXP chassis. Modules that support this functionality are 100G / 200G DWDM line modules, MR-MXP module, and 10x10G module when paired with respective 100G DWDM line cards. The transponder node and the ROADM nodes must be on the same IP routing domain to have a control plane running on the entire network.

- **Media channel group restoration with the NCS 2000 Flow control-plane-enabled NCS2000-S package**

In Release 10.9 the NCS 2000 FLOW CP-based "S" software package supports Media Channel Group (MCG) restoration in which all the carriers inside the media channel group will be restored on the alternate path in case of fiber-route failures. This restoration functionality can help customers achieve reductions in network outage time. The user has an option to shrink the media channel group after restoration to the minimum size. This is required to maintain all media channels in the same group. All the media channels inside a media channel group inherit the restoration settings of the media channel group.

Upgrade path

NCS 2000 SW Release 10.9 upgrade paths include:

- 9.6.13 -> 10.9 (MSTP -> NCS, MSTP -> MSTP)
- 10.5.24 -> 10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)
- 10.5.27 -> 10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)
- 10.6.1 -> 10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)
- 10.6.2 -> 10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)
- 10.7->10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)
- 10.7.0.2->10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)
- 10.8->10.9 (MSTP -> NCS, MSTP -> MSTP, NCS -> NCS, NCS Flex -> NCS Flex)

Ordering information

Refer to Table 1 and Table 2 for the product identifiers and respective descriptions for the software packages and the hardware modules introduced in Release 10.9.

Table 1. NCS2K-400G-XP encryption and 8-QAM licenses ordering details

Product name	Description
L-NCS2K-8QAM=	WDM Port License - Upgrade to 8QAM (150G)
L-NCS2K-100GCRPK9=	License for Encryption on 100G Client for 400G-XP LC

Table 2. NCS 2000 Software Release 10.9 ordering details

Product name	Description
SF15454M-R1090K9	MSTP R10.9 Preloaded SW, TCC3,TNCE,TSCE,TNCS/O - NO WSON
SF15454MC-R1090K9	MSTP R10.9 Preloaded SW, TCC3,TNCE,TSCE,TNCS/O - WSON CP
SF-NCS2K-R1090K9	NCS 2K/MSTP - R10.9 SW, TNCE, TSCE, TNCS/O - WSON CP
SF-NCS2K-R1090FSK9	NCS 2K/MSTP - R10.9 SW, TNCE, TSCE, TNCS/O - FlexSpectrum
SF-NCS2K-R1090SSK9	NCS 2K/MSTP - R10.9 SW, TNCE, TSCE, TNCS/O - SSON
Software RTU license	
NCS2K-L-R1090FSK9	NCS 2K/MSTP - R10.9 SW, Upgrade SW RTU - FlexSpectrum
NCS2K-L-R1090SSK9	NCS 2K/MSTP - R10.9 SW, Upgrade SW RTU - SSON
NCS2K-L-R1090K9	NCS 2K/MSTP - R10.9 SW, Upgrade SW RTU - WSON CP
15454M-LIC-1090K9	MSTP - ANSI & ETSI, R10.9 - Upgrade License RTU - NO WSON
Software DVDs	
NCS2K-M-R1090FSK9=	NCS 2K/MSTP - R10.9 SW, Media (DVD) SW RTU - FlexSpectrum
NCS2K-M-R1090FSK9	NCS 2K/MSTP - R10.9 SW, Media (DVD) SW RTU - FlexSpectrum
NCS2K-M-R1090SSK9=	NCS 2K/MSTP - R10.9 SW, Media (DVD) SW RTU - SSON
NCS2K-M-R1090SSK9	NCS 2K/MSTP - R10.9 SW, Media (DVD) SW RTU - SSON
NCS2K-M-R1090K9=	NCS 2K/MSTP - R10.9 SW, Media (DVD) SW RTU - WSON CP
NCS2K-M-R1090K9	NCS 2K/MSTP - R10.9 SW, Media (DVD) SW RTU - WSON CP
15454M-R1090SWK9=	MSTP - ANSI & ETSI, R10.9 - RTU LIC DVD, NO WSON
15454M-R1090SWK9	MSTP - ANSI & ETSI, R10.9 - RTU LIC DVD, NO WSON

Product name	Description
E-delivery	
E-NCS2K-R1090FSK9=	NCS 2K/MSTP - R10.9 E-Del-OS SW, SW RTU - FlexSpectrum
E-NCS2K-R1090SSK9=	NCS 2K/MSTP - R10.9 E-Del-OS SW, SW RTU - SSON
E-NCS2K-M-R1090K9=	NCS 2K/MSTP - R10.9 E-Del-OS SW RTU - WSON CP
E-15454-R1090SWK9=	MSTP - ANSI & ETSI, R10.9 - E-Del-OS SW RTU LIC, NO WSON

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For more information

For more information regarding the Cisco NCS 2000, visit:

<https://www.cisco.com/c/en/us/products/optical-networking/network-convergence-system-2000-series/index.html>



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