Cisco NCS 2000 Series Deploying 96-Channel

Duration: 4 Days   **Course Code: OPT201**   **Version: 3.0**   **Delivery Method: Company Event**

Overview:

The Cisco® NCS 2000 Deploying 96-Channel Flex Spectrum course v3.0 is an instructor-led, lab-based, hands-on course offered by Cisco Learning Services. It covers how to plan, configure, and control optical networks using the Cisco Network Convergence System (NCS) 2000 Series Flex Spectrum platform.

In this course, you will design Flex Spectrum networks with multidegree reconfigurable optical add-drop multiplexer (ROADM) multishelf nodes using the Cisco Transport Planner software, learn how to install and turn up the hardware, and use the Transport Planner output to configure an optical network and circuits using the Cisco Transport Controller software. You will learn which components and configurations take advantage of and/or are required for the Flex Spectrum 96-channel feature. Then you will learn how to configure more advanced networks with the colorless, contentionless, and omnidirectional features, and to configure mesh nodes with multifiber pushon (MPO) cross-connects. Finally, you will learn how to use the many tools and features available with Transport Controller to perform maintenance, testing, and basic troubleshooting of your optical network.

Company Events

These events can be delivered exclusively for your company at our locations or yours, specifically for your delegates and your needs. The Company Events can be tailored or standard course deliveries.

Target Audience:

This course is designed for technical professionals who need to know how to deploy a Cisco NCS 2000 Series dense wavelength-division multiplexing (DWDM) network with Flex Spectrum. The primary audience for this course includes:
Designers
Systems engineers and implementation staff
Network operations center personnel
Technical support personnel who are involved with the deployment, operations, and maintenance of the Cisco NCS 2000 Series
Channel partners and resellers

Objectives:

- **Once you have completed the course you will be familiar with:**

- Hardware and components required and used with the Flex Spectrum feature

- Designing optical networks in the Cisco Transport Planner software

- Installing the hardware, including multishelf nodes

- Performing node turn-up and create circuits using the Cisco Transport Controller software

- Configuring optical networks with multidegree ROADM multishelf nodes

- Configuring optical networks with colorless, contentionless, omnidirectional, and MPO cross-connect advanced features

- The features and documentation with Transport Controller to perform maintenance, testing, and basic troubleshooting

Prerequisites:

The prerequisite for this course is the Cisco Fundamentals of Fiber Optics Technology (FFOT) video training.

To locate Cisco courses that cover the listed prerequisite, visit the Cisco Training and Events webpage at
http://www.cisco.com/web/learning/index.html

Content:

Module 1: DWDM and Flex Spectrum Foundation

- Introducing DWDM Terminology and Components
- What Is DWDM? ? DWDM Shelf Common Components
- Multishelf Node Basics ? Exploring Flex Spectrum Features
- What Is Flex Spectrum?
- Additional Flex Spectrum Features Introducing Network Topologies and Nodes
- DWDM Topologies
- Five Common 96-Channel Node Types
- Introducing the Management Software and Documentation
- Software for Design, O;M, and Network Management
- NCS 2000 Series Documentation
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Module 2: NCS 2000 Chassis and Cards

- Investigating the NCS 2000 Series Chassis and Common Equipment
- NCS 2000 Series Shelves for Flex Spectrum
- Common Equipment
- Investigating NCS 2000 Series Cards
- NCS 2000 Series Flex Spectrum Nodes and Cards
- Controller Cards ? Transponder, Muxponder, and Crossponder Cards
- Add/Drop (Multiplexer/Demultiplexer) Cards
- Amplifier Cards ? Miscellaneous Cards
- Passive Auxiliary Modules
- Flex Spectrum Chassis and Card Summary
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Module 3: Design ROADM Networks with Transport Planner

- Getting Started with Transport Planner
- Transport Planner Fundamentals
- Perform Price Updates Before Network Design
- Network Design's Five Main Steps
- Using Site Connection View
- Designing a 2-Degree ROADM Network
- ROADM Node Basics
- Designing the ROADM Network
- Examining the Connections
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Module 4: Hardware Installation and Multishelf

- Installing NCS 2000 Series Hardware
- Equipment to Rack-Mount
- NCS 2015 and NCS 2006 Basic Installation Steps
- NCS 2002 Basic Installation Steps Configuring Multishelf Networks
- Multishelf Configuration Notes
- Provisioning 2015 Multishelf
- Provisioning 2006 Multishelf
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Module 5: Node Turn-Up and Circuit Creation

- Performing Node Turn-Up in Transport Controller
- Four Phases of Multiservice Transport Platform (MSTP) Network Building
- Node Turn-Up Steps
- Creating Optical Channel Network Connection (OCHNC) Circuits
- OCHNC Basics and Prerequisites
- Create an OCHNC in a Wavelength Switched Optical Network (WSON)
- Post-Creation Verification
- Creating an Optical Channel Client Connection (OCHCC) Circuit
- OCHCC Creation Prerequisites
- OCHCC Circuit Results
- Install and Provision 10G Transponder Card
- Create Internal Connections/Patchcords
- Create an OCHCC Circuit
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Module 6: Advanced Feature Networks and Circuits

- Creating Colorless and Contentionless Add/Drop Networks
- Colorless Port Basics
- Contentionless Port Basics
- Creating Colorless Demands
- Complex Colorless Designs
- Creating a Colorless OCHCC
- Creating Omnidirectional and Contentionless Add/Drop Networks
- Omnidirectional Add/Drop Basics
- Omnidirectional 4-, 8-, and 12-Degree Mesh
- 4-, 8-, and 12-Degree Omnidirectional and Colorless
- Contentionless Add/Drop
- Creating Mesh Nodes with MPO Cross-Connects
- Create a Mesh Node
- Create an 8-Degree Node
- Building Blocks for Mesh Nodes Verifying Installed Cabling Connections for 20-SMR-FS-CV Cards
- Connections Verification (CV) Feature

Module 7: Testing, Maintenance, and Basic Troubleshooting

- Testing Optical Time Domain Reflectometers (OTDRs)
- OTDR Fundamentals
- Running OTDR
- Maintaining the Network, Shelf, and Cards
- Network Maintenance Features
- Node Maintenance Features
- Shelf Maintenance Features
- Card Maintenance and Performance Features
- Performing Basic Troubleshooting
- Troubleshooting Guide Layout
- Hierarchy of Alarms
- Using Functional View

Lab Outline

- Lab 1: Cisco Transport Controller
- Lab 2: Cisco Transport Planner
- Lab 3: Node Turn-Up
- Lab 4: OCHNC Circuits
- Lab 5: OCHCC Circuits
- Lab 6: Colorless Ports and Circuits
- Lab 7: Contentionless Circuits
- Lab 8: Connection Verification
- Lab 9: OTDR Testing
- Lab 10: Maintenance and Performance Monitoring
- Lab 11: NCS 2000 Troubleshooting

- Initial Setup for CV
- Install a Test Passive Unit
- Monitor a Loss Verification Test
- Power Levels in MF Modules
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Further Information:

For More information, or to book your course, please call us on Head Office 01189 123456 / Northern Office 0113 242 5931

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