

Advanced Services' Cisco ONS 15454 Multiservice Transport Platform (MSTP) Release 9.2 Advanced Topics and Data over DWDM Version 1



This lab-intensive course introduces you to the Cisco® ONS 15454 Multiservice Transport Platform (MSTP) dense wavelength-division multiplexing (DWDM) Release 9.2 advanced features and data. This course covers topics not covered in the Installation to Protection course. You will learn how the 40-channel mesh network is designed, and you will set up a six-node 32/40 channel mesh. In the mesh node network, you will set up associations with time-division multiplexing (TDM) nodes and create a six-node path-switched network using the DWDM network for connections. You will learn the important theoretical concepts that underlie data encapsulation and how they are put to use in the Cisco ONS 15454 MSTP system. You will gain practical knowledge and skills to successfully deploy data over DWDM in your network. In 12 hands-on labs, you will learn to configure the Cisco Transport Controller, the 2.5-Gb transponders, the 2.5-Gb and 10-Gb data cards, the Gigabit Ethernet and 10 Gigabit Ethernet enhanced crossponders, and the 10 Gigabit Add-Drop Multiplexer (ADM-10G). There is also a review of G.709 encapsulation, G.7041 Generic Framing Protocol (GFP), forward error correction, and Ethernet. Finally, the course explores the ADM10G card, which provisions TDM services directly from the DWDM shelves. Protected spans will be provisioned, and DS3 circuits routed through the ADM10G, and Gigabit Ethernet ports will be connected using TDM circuits. This course combines lecture materials and hands-on labs throughout to make sure that you are able to successfully deploy a Cisco ONS 15454 MSTP data over DWDM network.

Duration

Four days.

Target Audience

This course is for technical professionals, including designers, implementation staff, network operations center personnel, and support staff, who are involved with the deployment, operations, and maintenance of the Cisco ONS 15454 MSTP system.

Course Objectives

Upon completion of this course, you should be able to:

- Describe the principles of a Wavelength Cross-Connect (WXC)-based DWDM mesh network
- Understand and install the provisionable patch cord (PPC) association between the 15454 MSPP TDM ports and the DWDM mux/dmx ports, and install optical channel client connections to create a path-switched network
- List and describe the major features and benefits of the Cisco ONS 15454 MSTP data cards
- List and describe the major features and benefits of a Cisco ONS 15454 MSTP system for data over DWDM
- Configure the 2.5-Gb transponder, 2.5-Gb and 10-Gb data cards, and Gigabit Ethernet and 10 Gigabit Ethernet crossponders with appropriate G.709 options
- Configure the 2.5-Gb and 10-Gb data multiplexer cards
- Properly configure Ethernet options for Layer 1 transport using the Gigabit Ethernet and 10 Gigabit Ethernet crossponder cards
- Install Ethernet options for Layer 2 protected and unprotected data ring circuits using the Gigabit Ethernet and 10 Gigabit Ethernet crossponder cards
- Provision incoming class of service (CoS) marking by port and by customer VLAN and incoming traffic shaping
- Understand general queuing theory and set up quality of service (QoS) as implemented in the Gigabit Ethernet and 10 Gigabit Ethernet enhanced crossponder cards
- Install the ADM-10G protected and unprotected network, configure the cards, and create TDM and data circuits

Course Prerequisites

The following course is a prerequisite for this course:

- ONS 15454 MSTP Installation to Protection course

To locate Cisco courses that cover the listed prerequisites, go to the Cisco Training and Events webpage at www.cisco.com/web/learning/index.html.

Course Outline

The course outline is as follows:

- Cisco ONS 15454 Product Overview
- Safety
- General Review of Data
- Cisco Transport Controller Operations
- Mesh Network Using the ONS 15454 40-WXC Card
- Provisionable Patch Cords and Optical Channel Client Connections Circuits
- Cisco ONS 15454 MSTP Data Card Overview
- G.709 Encapsulation
- 2.5G Transponders and Encapsulation Options

- GFP G.7041
- 2.5-Gb and 10-Gb Data Multiplexer Enhanced Cards and Encapsulation Options
- Ethernet and VLANs
- 10GE-XP and GE-XP Enhanced Cards, Settings, and Circuits Layer 1
- Enhanced Crossponder Gigabit Ethernet Y-Cable Protection
- Quality of Service
- XP-E Cards Protected Ring, Incoming CoS Marking by Port and by Customer VLAN, Outgoing QoS
- ADM-10G Installation and Settings for Protected and Unprotected TDM Subnetworks
- ADM-10G Protection
- ADM-10G Circuits for DS3
- ADM-10G Circuits for Gigabit Ethernet
- Troubleshooting

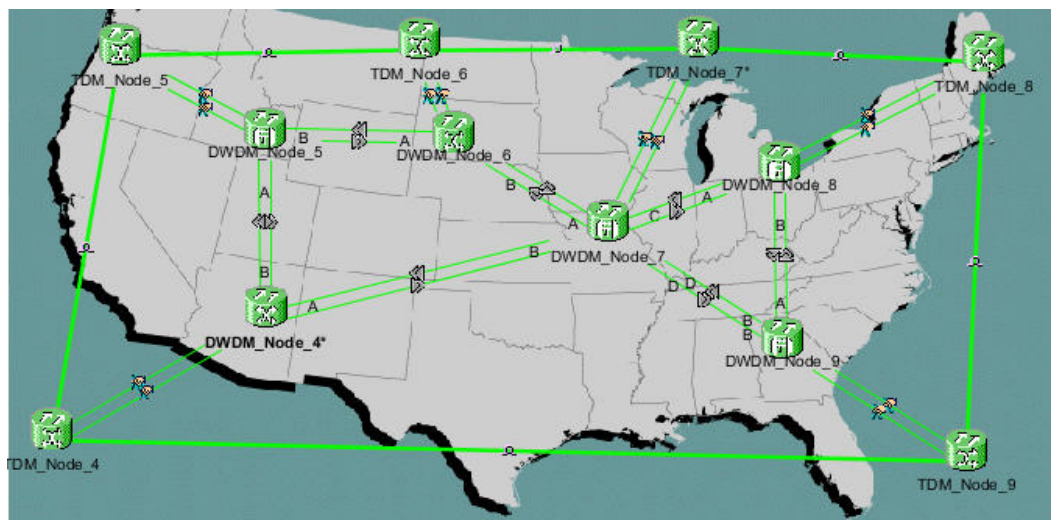
Lab Outline

The lab outline is as follows:

- Lab 1: Configure Cisco Transport Controller and Display Data Cards in the Ring Network
- Lab 2: Establish Six-Node 32/40 Channel Mesh Network
- Lab 3: PPC and OC48 Path-Switched Network Through DWDM
- Lab 4: Data Transport Using 2.5-GB Transponders
- Lab 5: Data Transport Using 2.5-Gb and 10-Gb DME Cards
- Lab 6: Data Transport Using 10 Gigabit Ethernet and GE Enhanced Crossponder Cards at Layer 1
- Lab 7: Y-Cable Protection for Gigabit Ethernet in the Enhanced Crossponder Cards
- Demonstration: Rate Restriction
- Lab 8: Data Transport Using 10 Gigabit Ethernet and GE Crossponder Cards in Layer 2 Ring, Including Incoming CoS Marking by Port and by Customer VLAN, Outgoing QoS
- Demonstration: Protection Switching and QoS in Action
- Lab 9: ADM-10G Network Setup Both Protected and Unprotected
- Lab 10: Protection in ADM10G
- Lab 11: DS3 Circuits in ADM10G
- Lab 12: Gigabit Ethernet Circuits in ADM10G

Lab Topology

Figure 1 shows the lab topology that is used in this course.

Figure 1. Lab Topology for ONS 15454 MSTP Advanced Topics and Data

Registration Information

For more information about schedules and registration for this course, contact aeskt_registration@cisco.com.

For More Information

For more information about Advanced Services Education course offerings, including custom training options, as well as Advanced Services Curriculum Planning Services and the Advanced Services Technical Knowledge Library (TKL), refer to the Advanced Services Education website at www.cisco.com/go/ase.



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