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# Sycamore Optical Switching – Provisioning

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**Course Number:**

201028

**Course Description:**

This course provides the necessary skills for personnel who are responsible for the provisioning of Sycamore Optical Switches in the network. Through a series of instructor-led discussions and hands-on exercises, the student will learn how to successfully provision trunks and circuits, as well as various protection schemes such as APS 1+1, UPSR, BLSR, Dynamic Mesh restoration, and Ethernet Services. SilvXManager will be used during the class to allow students to practice various procedures.

**Prerequisites:**

General knowledge of SONET/SDH, network management, APS 1+1, UPSR, BLSR, and IP technologies.

Sycamore Optical Switching – NOC Operations

**Duration:**

2 Days

**Course Topics:**

SN 3000 Switch Architecture

- SN 3000 Chassis
- Data Plane Connectivity
- Data Plane Functionality
- Control Plane Connectivity
- Control Plane Functionality

- Timing Plane

#### SN 9000 Switch Architecture

- SN 9000 Chassis
- Data Plane Connectivity
- Data Plane Functionality
- Control Plane Connectivity
- Control Plane Functionality
- Timing Plane

#### SN 16000 Switch Architecture

- Functional Redundancy
- Data Plane Connectivity
- Data Plane Functionality
- Control Plane Connectivity
- Control Plane Functionality
- Timing Plane
- Optical Backplane

#### Optical Routing & Signaling

- BroadLeaf Optical Routing
- OSPF Hello Protocol
- OSPF Adjacencies
- OSPF Route Determination
- Network Convergence
- Link State Advertisements
- BroadLeaf Optical Signaling
- Multi Protocol Label Switching (MPLS)
- Label Distribution Protocol (LDP)
- Path Setup
- Sycamore Circuits
- Assigning Circuits to VPNs

#### Provisioning Trunks

- Trunk Configuration Parameters
- Conduit IDs
- Assigning Trunks to VPNs
- Defining VPNs
- Trunk Manager
- Defining New Trunks
- Defining Trunks from a Map

- Trunk Status
- Viewing/Modifying Trunk Attributes

#### Provisioning Mesh Protection

- Dynamic Restoration
- Conduit Diversely Routed Circuits (CDRC)
- Diversely Routed Circuits (DRC)
- M:N Trunk Restoration
- Manual Path Provisioning
- Circuit Manager
- Defining New Circuits
- Adding a New Circuit from a Map
- Viewing/Modifying Circuit Attributes
- Circuit Status
- External Commands

#### Provisioning Linear APS Protection

- Linear/Multiplex Section Protection
- Provisioning Linear/Multiplex Section Protection
- Creating Path Protection Groups
- Path Protection Group Attributes
- Modifying Path Protection Groups
- Path Protection Group Status
- External Commands

#### Provisioning UPSR Protection

- UPSR/SNCP Protection
- UPSR/SNCP Theory of Operations
- UPSR/SNCP Applications
- Provisioning UPSR/SNCP
- Creating Add/Drop Cross Connects
- Creating Passthru Cross Connects
- Modifying Path Protection Group Parameters

#### Provisioning BLSR Protection

- BLSR/MS-SPRing Protection
- 2F/4F BLSR Architecture
- 4F BLSR Theory of Operations
- BLSR Transoceanic Protocol
- Provisioning BLSR/MS-SPRing
- Creating a New Ring
- Modifying Ring Attributes

- Adding Nodes to Rings
- Ring Protection Groups
- Defining Ring Topology
- Creating Ring Circuits
- Displaying Circuit Paths
- External Commands

#### Provisioning Low Order Services

- Low Order Service Trunks and Services
- Provisioning Low Order Service Trunks
- Provisioning Low Order Cross Connects
- Provisioning UPSR/SNCP
- Provisioning End-to-End Low Order Services
- Provisioning Local Low Order Services

#### Provisioning Ethernet Services

- Ethernet Over SONET
- SONET/SDH Encapsulation of Ethernet Traffic
- Port-based Ethernet Services
- Flow-based Ethernet Services
- VLAN Tagged/MPLS Labeled Frames
- Virtual Concatenation Groups (VCG)
- Differential Delay
- Link Capacity Adjustment Scheme (LCAS)
- Flow Control
- Bandwidth Profiles
- Loopbacks
- Provisioning Ethernet Port Attributes
- Creating Virtual Concatenation Groups
- Creating Constituent Circuits
- Creating Ethernet Services
- Viewing/Modifying Virtual Concatenation Group Attributes
- Viewing/Modifying Constituent Circuits Attributes
- Constituent Circuits PM Statistics
- Viewing/Modifying Ethernet Services Attributes
- Ethernet Services PM Statistics

#### Using Project Scheduler

- Functional Overview
- Project Scheduler Rules & Limits
- Project Components

- Project Scheduling Tool
- Adding a New Step
- Add a New Operation
- Deploying a Project
- Project History