
SN 16000 – Field Maintenance

Course Number:

201031

Course Description:

This course provides the necessary skills for personnel who are responsible for the field maintenance of the SN 16000 in the network. Through a series of instructor-led discussions and hands-on exercises, the student will learn how to successfully use the Sycamore Command Line Interface (CLI) for initial node configuration, use TL1 to manage, provision, and troubleshoot the switch, and use SilvxSource to manage, provision, and troubleshoot the switch.

Prerequisites:

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

Duration:

2 Days

Course Topics:

Introduction to Sycamore Optical Networking

- The Intelligent Optical Switched Network
- SN 3000 Optical Access Switch
- SN 3000 Applications
- SN 9000 Intelligent Multiservice Switch
- SN 9000 Applications
- SN 16000 Optical Core Switch
- SN 16000 Applications
- SilvxManager

Hardware Architecture Overview

- SN 16000 Switch Chassis
- SN 16000 Port Chassis
- SN 16000 Control Modules
- SN 16000 Line Cards

Switch Architecture Overview

- SN 16000
 - Functional Redundancy
 - Data Plane Connectivity
 - Data Plane Functionality
 - Control Plane Connectivity
 - Control Plane Functionality
 - Timing Plane
 - Optical Backplane

Hardware Module Overview

- SN 16000
 - SMC
 - TRC
 - AIC
 - PMC
 - GSC
 - 24 x OC-3:12/STM-1:4 GPIC
 - 8 x OC-48/STM-16 GPIC
 - 2 x OC-192/STM-64 GPIC
 - USC
 - 1 x OC-192/STM-64 LIM
 - 4 x OC-48/STM-16 LIM
 - 1 x 10 GigE LIM
 - 10 x 1 GigE LIM

Initial Hardware Setup

- SN 16000
 - Chassis DIP Switch Settings
 - Single Chassis
 - Multi-Chassis
 - Optical Trunk Cable Connections
 - 128 x 128
 - 256 x 256
 - 512 x 512
 - Timing Interfaces

- Multi-Chassis Timing Connections
- Ethernet Management Interfaces
- Multi-Chassis Control Connections
- Console Interfaces
- Installing Hardware Modules
- System Power Overview

Sycamore Command Line Interface

- CLI Login
- CLI Top Level
- CLI Top Level – Show Command
- Display Mode
- Config Mode
- Config Mode – Show Command
- Saving the Configuration
- Naming the Node
- Setting IP Characteristics
- Setting Ethernet Port Characteristics
- Initializing OSPF
- OSPF Show Command
- Setting a Default Route
- Trunk Configuration Mode
- Trunk Configuration Mode – Show Command
- Port Configuration Mode

TL1 Access

- TL1 Overview
- TL1 Command Syntax
- Setting the Node Name
- Edit the Node Date & Time
- Retrieve Alarms
- Retrieve the Event Log
- Retrieve the Audit Trail
- Retrieve a List of Active users
- Add a User
- Edit a User Password
- Delete a User
- Retrieve Access Control Configuration
- Retrieve the Management Ethernet Interface
- Retrieve the Router ID
- Add an OSPF Interface
- Retrieve OSPF Interface Information
- Delete an OSPF Interface
- Provision a Cross-Connect

- Retrieve Cross-Connect Information
- Delete a Cross-Connect
- Retrieve Port Information
- Retrieve Port Statistics
- Add a Card to a Node
- Retrieve Card Information
- Delete a Card from a Node
- Retrieve Timing Information
- Reset/Reboot a Node/Card
- Modify a Port for Loopback Mode
- Initiate a Port Loopback
- Retrieve Port Loopback Information
- Release a Port Loopback

SilvxSource Access

- Accessing SilvxSource
- Logging Into SilvxSource
- The Object Tree
- Resetting the SMC Cards
- Force Swapping SMC Cards
- Adding Users
- Configuring the Node Optical Hierarchy
- Viewing/Modifying Port Attributes
- Configuring Time/NTP Server
- Configuring System Timing Manager
- Configuring External Timing Sources
- Configuring Monitor Ports
- Configuring Line Timing Ports
- Configuring the System Timing Source List
- SSM Status
- Displaying Node View
- Displaying Node Inventory
- Viewing/Modifying Node Attributes
- Port PM Statistics
- Port Threshold Crossing Alerts
- Viewing Alarms
- Card Resets

Troubleshooting & Diagnostics

- System Diagnostic Capabilities
- Power On Self Test
- TRC – LED Status
- SMC – LED Status

- AIC – LED Status
- GSC – LED Status
- PMC – LED Status
- GPIC – LED Status
- Timing – Follow the Leader Strategy
- Timing – Troubleshooting Tips
- Port Loopbacks
- Initiating a Port Loopback
- Event & Alarm Processing
- SONET/SDH Alarm Structure
- Network Failure Scenarios
- Trunk Configuration Settings
- Management Connectivity Issues