Preparation Troubleshooting and Maintaining Cisco IP Networks

SWITCH v2.0, 5-day ILT, includes major updates and follows an updated blueprint. However, note that this course does not cover all items listed on the blueprint. Some older topics have been removed or simplified, while several new IPv6 routing topics have been added. Course content has been adapted to Cisco IOS Software Release 15 and technically updated. Course also introduces new type of labs, called discovery labs. Discovery labs are instructor guided lab through which student explores new topics in an interactive way. All labs are developed only as virtual labs. To get the full course experience, you should cover everything, including Introduction, Discovery labs, Summary, and Module Self-Check.

Who Needs to Attend

- System Engineers
- Network Consultants
- System Integrators
- Cisco Channel Partners

Course Certifications

This course is part of the following Certifications:

- CCNP Routing & Switching
- CCDP Design

Prerequisites

It is recommended, but not required, that students have the knowledge to:

- Describe network fundamentals
- Establish Internet and WAN connectivity (IPv4 and IPv6)
- Manage network device security

- Operate a medium-sized LAN with multiple switches, supporting VLANs, trunking, and spanning tree
- Troubleshoot IP connectivity (IPv4 and IPv6)
- Configure and troubleshoot EIGRP and OSPF (IPv4 and IPv6)
- Configure devices for SNMP, Syslog, and NetFlow access
- Manage Cisco device configurations, Cisco IOS images, and licenses

Course Objectives

Upon completing this course, students will be able to:

- Describe the hierarchical campus structure, basic switch operation, use of SDM templates, PoE, and LLDP
- Implement VLANs, trunks, explain VTP, implement DHCP in IPv4 and IPv6 environment, and configure port aggregation
- Implement and optimize STP mechanism that best suits your network - PVSTP+, RPVSTP+, or
  MSTP
- Configure routing on a multilayer switch
- Configure NTP, SNMP, IP SLA, port mirroring, and verify StackWise and VSS operation
- Implement First Hop redundancy in IPv4 and IPv6 environments
- Secure campus network according to recommended practices

Course Content

Module 1: Basic Concepts and Network Design

- Analyzing Campus Network Structure
- Comparing Layer 2 and Multilayer Switches
- Using Cisco SDM Templates
- Implementing LLDP
- Implementing PoE

Module 2: Campus Network Architecture

- Implementing VLANs and Trunks
- Introducing VTP
- Implementing DHCP
- Implementing DHCP for IPv6

- Configuring Layer 2 Port Aggregation

Module 3: Spanning Tree Implementation

- Implementing RSTP
- Implementing STP Stability Mechanisms
- Implementing Multiple Spanning Tree Protocol

Module 4: Configuring Inter-VLAN Routing

- Implementing Inter-VLAN Routing Using a Router
- Configuring a Switch to Route

Module 5: Implementing High Availability Networks

- Configuring Network Time Protocol
- Implementing SNMP Version 3
- Implementing IP SLA
- Implementing Port Mirroring for Monitoring Support
- Verifying Switch Virtualization

Module 6: First Hop Redundancy Implementation

- Configuring Layer 3 Redundancy with HSRP
- Configuring Layer 3 Redundancy with VRRP
- Configure VRRP With Load Balancing
- Configuring Layer 3 Redundancy with GLBP
- Configuring First Hop Redundancy for IPv6

Module 7: Campus Network Security

- Implementing Port Security
- Implementing Storm Control
- Implementing Access to External Authentication
- Mitigating Spoofing Attacks
- Securing VLAN Trunks
- Configuring Private VLANs