



DURATION: 5 DAYS

COURSE CODE: SWITCH

FORMAT: LECTURE/LAB

COURSE DESCRIPTION

In this course, you will gain the knowledge and skills needed to create an efficient and expandable enterprise network. You will focus on Layer 2 and multilayer switch functions including VLANs, trunks, inter-VLAN routing, port aggregation, spanning tree, first hop redundancy, as well as network security and high availability features.

WHO SHOULD ATTEND

Network engineers and technicians, Support engineers, Systems engineers, Network analysts, Senior network administrators, Anyone involved in planning, implementing, verifying, and troubleshooting switch-based solutions in enterprise networks

LEARNING OBJECTIVES

Components of the Cisco Enterprise Campus Architecture including the operation of Layer 2 and multilayer switches

Switching Database Manager (SDM) templates and how they are used

Implementing device features including LLDP and PoE VLANs and trunks and how VTP works

Configuring a device to be a DHCP server and relay agent, for both IPv4 and IPv6

Configuring Layer 2 and Layer 3 port aggregation

Different types of spanning tree protocols and mechanisms, including STP, RSTP, and MST

PREREQUISITES

Taking ICND1 v2.0 and ICND2 v2.0 (or CCNAX v2.0) is highly recommended

Know how to:

- Configure network fundamentals, including the ability to establish Internet, LAN, and WAN connectivity using both IPv4 and IPv6

- Operate and support a medium-sized LAN that has multiple switches, including VLANs, trunking, and spanning tree functionality

- Troubleshoot IPv4 and IPv6 connectivity issues

- Configure and troubleshoot EIGRP and OSPF, for both IPv4 and IPv6

- Configure devices for SNMP, Syslog, and NetFlow

- Manage network device security, Cisco device configurations, Cisco IOS images, and licenses

- Implementing inter-VLAN routing on both a router and a multilayer switch

- Network high availability including NTP, SNMPv3, IP SLA, port mirroring, and switch virtualization

- First hop redundancy protocols for IPv4 and IPv6 including HSRP, VRRP, and GLBP

- Implementing network security features including port security, storm control, DHCP snooping, IP source guard, dynamic ARP inspection, VLAN ACLs, and private VLANs

- Using an external authentication server in your network, including implementing IEEE 802.1x

COURSE OUTLINE

1. Basic Concepts and Network Design

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

2. Campus Network Architecture

- Implementing VLANs and Trunks
- Introducing VTP
- Implementing DHCP
- Implementing DHCP for IPv6
- Configuring Layer 2 Port Aggregation

3. Spanning Tree Implementation

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

4. Configuring Inter-VLAN Routing

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

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

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

7. Campus Network Security

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

LABS

- 1: Discovering the Network and Investigating the CAM
- 2: Configuring VLANs, Trunking, and DHCP
- 3: Configuring DHCPv6
- 4: Configuring EtherChannels
- 5: Troubleshooting Common Trunking and EtherChannel Issues
- 6: Configuring STP and RSTP
- 7: Troubleshooting RSTP
- 8: Configuring MST
- 9: Configuring Inter-VLAN Routing on Routers
- 10: Configuring Inter-VLAN Routing on Multilayer Switches
- 11: Configuring NTP
- 12: Configuring Cisco IOS IP SLAs
- 13: Configuring HSRP
- 14: Configuring VRRP
- 15: Configuring GLBP
- 16: Configuring HSRP for IPv6