

**Course Outline:** Interconnecting Cisco Networking Devices Part 2 (ICND2)

**Learning Method:** Instructor-led Classroom Learning

**Duration:** 5.00 Day(s)/ 40 hrs

**Overview:**

This course focuses on providing the skills and knowledge necessary to install, operate, and troubleshoot a small to medium-size branch office Enterprise network, including configuring several switches and routers, connecting to a WAN and implementing network security.

**Who Should Attend:**

Channel Partner / Reseller  
Customer  
Employee

**At Course Completion:**

The participants will be able to:

- To configure and troubleshoot a small network.
- Expand the switched network from a small LAN to a medium-sized LAN with multiple switches, supporting VLANs, trucking, and spanning tree.
- Describe routing concepts as they apply to a medium-sized network and discuss considerations when implementing routing on the network.
- Configure, verify, and troubleshoot OSPF.
- Configure, verify, and troubleshoot EIGRP.
- Determine how to apply ACLs based on network requirements, and to configure, verify, and troubleshoot ACLs on a medium-sized network.
- Describe when to use NAT or PAT on a medium-sized network, and configure NAT or PAT on routers.
- Identify and implement the appropriate WAN technology based on network requirements.

**Pre-requisite(s):** ICND1 - Interconnecting Cisco Network Devices 1

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**Outline:**

**Module 1: Small Network Implementation**

Configure, verify and troubleshoot a switch with VLANs and interswitch communications

- Describe enhanced switching technologies (including: VTP, RSTP, VLAN, PVSTP, 802.1q)
- Describe how VLANs create logically separate networks and the need for routing between them
- Configure, verify, and troubleshoot VLANs
- Configure, verify, and troubleshoot trunking on Cisco switches
- Configure, verify, and troubleshoot interVLAN routing
- Configure, verify, and troubleshoot VTP
- Configure, verify, and troubleshoot RSTP operation
- Interpret the output of various show and debug commands to verify the operational status of a Cisco switched network
- Implement basic switch security (including: port security, unassigned ports, trunk access, etc.)

**Module 2 & 3: Medium-Sized Switched Network Construction & Medium-Sized Routed Network Construction**

Implement an IP addressing scheme and IP Services to meet network requirements in a medium-size Enterprise branch office network

- Calculate and apply a VLSM IP addressing design to a network
- Determine the appropriate classless addressing scheme using VLSM and summarization to satisfy addressing requirements in a LAN/WAN environment
- Describe the technological requirements for running IPv6 (including: protocols, dual stack, tunneling, etc)
- Describe IPv6 addresses
- Identify and correct common problems associated with IP addressing and host configurations

**Module 4 & 5: Single Area OSPF Implementation & EIGRP Implementation**

Configure and troubleshoot basic operation and routing on Cisco devices

- Compare and contrast methods of routing and routing protocols
- Configure, verify and troubleshoot OSPF

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- Configure, verify and troubleshoot EIGRP
- Verify configuration and connectivity using ping, trace route, and telnet or SSH
- Troubleshoot routing implementation issues
- Verify router hardware and software operation using SHOW & DEBUG commands
- Implement basic router security

### Module 6 & 7: Access Control Lists & Address Space Management

Implement, verify, and troubleshoot NAT and ACLs in a medium-size Enterprise branch office network

- Describe the purpose and types of access control lists
- Configure and apply access control lists based on network filtering requirements
- Configure and apply an access control list to limit telnet and SSH access to the router
- Verify and monitor ACL's in a network environment
- Troubleshoot ACL implementation issues
- Explain the basic operation of NAT
- Configure Network Address Translation for given network requirements using CLI

- Troubleshoot NAT implementation issues

### Module 8: LAN Extension in to a WAN

Implement and verify WAN links

- Configure and verify Frame Relay on Cisco routers
- Troubleshoot WAN implementation issues
- Describe VPN technology (including: importance, benefits, role, impact, components)
- Configure and very PPP connection between Cisco routers

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