Interconnecting Cisco Networking Devices Part 2 (ICND2)

Course Overview

This course will teach students about implementing scalable medium-sized networks, troubleshooting basic connectivity, implementing an EIGRP-based solution, implementing a scalable, multiarea network, OSPF-based solution, wide-area networks, and network device management.

Course Introduction 3m
Course Introduction

Module 01 - Implementing Scalable Medium-Sized Networks 3h 55m
Troubleshooting VLAN Connectivity
VLAN Review
How to Create a VLAN
What is a Trunk
How to Configure a Trunk
DTP
VLAN Troubleshooting
Troubleshooting Trunks
Summary
Building Redundant Switched Topologies
Problems with Redundant Topologies
How Spanning-Tree Works
Versions of Spanning-Tree
PVST+
Changing the Bridge ID
Reviewing the STP Topology
What if STP Fails?
PortFast and BPDU Guard
Summary
Improving Redundant Switched Topologies with EtherChannel
What is EtherChannel
EtherChannel Protocols
How to Configure EtherChannel
Verify EtherChannel
Summary
Understanding Layer 3 Redundancy
Why Have Default Gateway Redundancy
Default Gateway Redundancy
FHRP
HSRP
HSRP Configuration
Introducing HSRP
HSRP (Cont.)

HSRP Track Interface
HSRP Load Balancing
Gateway Load Balancing Protocol
QoS
QoS Configuration
QoS Options
Marking
Queuing Methods
Congestion Avoidance
Summary
Demo - Initial Lab Setup
Demo - Optimizing STP
Demo - PortFast and BPDU Guard
Demo - Configuring EtherChannel
Demo - VTP
Demo - HSRP
Demo - QoS
Module 01 Review

Module 02 - Troubleshooting Basic Connectivity 1h 18m
Troubleshooting IPv4 Network Connectivity
Troubleshooting End-to-End
Verify End-to-End Connectivity
Verify Physical Connectivity
What is the Current and Desired Path?
Default Gateway Problems
DNS Issues
ACL Issues
Summary
Troubleshooting IPv6 Network Connectivity
IPv6 Address Types
How to Troubleshoot IPv6 Connectivity
Verify End-to-End Connectivity
Identifying the Path
Default Gateway Problems
DNS Problems
ACL Problems
Summary
Demo - Troubleshooting an ACL
Module 02 Review

Module 03 - Implementing an EIGRP-Based Solution 1h 37m
Implementing EIGRP
Dynamic Routing Protocols
Administrative Distance
Features of EIGRP
EIGRP Path Selection
The EIGRP Metric
Configuring EIGRP
Verify Neighbors

Verify EIGRP
EIGRP Load Balancing
Summary
Troubleshooting EIGRP
EIGRP Troubleshooting Components
Troubleshooting EIGRP Neighbors
EIGRP Routing Table Troubleshooting
Summary
Implementing EIGRP for IPv6
EIGRP for IPv6
EIGRP Commands for Configuration
Summary
Demo - EIGRP
Demo - Troubleshooting EIGRP
Demo - Routing Table Issues
Demo - EIGRP with IPv6
Module 03 Review

Module 04 - Implementing a Scalable, Multiarea Network, OSPF-Based Solution 2h 25m

OSPF Overview
Overview of the Link-State Routing Protocol
Data Stored in a Link-State Protocol
Metric
OSPF Adjacencies
Establishing OSPF Neighbor Adjacencies (eNotes)
Building the Link-State Database
What are OSPF Areas?
OSPF Router Types
Types of OSPF LSAs
Basic LSA Types (eNotes)
Summary
Multiarea OSPF Implementation
Single vs. Multiple OSPF Area
Planning for OSPF
Multiarea OSPF Configuration
Verify Multiarea OSPF
Summary
Troubleshooting Multiarea OSPF
OSPF Neighbor States
Troubleshooting OSPF
OSPF Neighbor Problems
Summary
Examining OSPFv3
OSPFv3
Configuring OSPFv3
Verify OSPFv3
Summary
Demo - Multicare OSPF
Demo - Troubleshooting OSPF

Demo - Configuring OSPF for IPv6
Module 04 Review

Module 05 - Wide-Area Networks 3h 32m
Understanding WAN Technologies
What is the WAN
WAN Components
WAN Serial Cabling
L2 WAN Protocols
Options for the WAN
Summary
Configuring Serial Encapsulation
What are Serial Links?
Configuring a Serial Interface
HDLC Protocol
Other Point-to-Point Protocols
Configuring PPP
PAP
CHAP
How to Configure CHAP
Verify CHAP
Troubleshooting Serial Interfaces
MLP
MLP Configuration
Verify MLP
PPPoE
PPPoE Client
Verify PPPoE Client
Summary
Establishing a WAN Connection Using Frame Relay
What is Frame Relay
Topologies
Reachability Issues
Frame Relay Signaling
Frame Relay Mapping
How to Configure Frame Relay
Point-to-Point and Multipoint Frame Relay
Configure Point-to-Point Frame Relay
Multipoint Frame Relay Configuration
How to Verify Frame Relay
Summary
Introducing VPN Solutions
Benefits of Secure VPNs
Other Cisco SSL Solutions
Characteristics of IPSec
Summary
Configuring GRE Tunnels
GRE Tunnel Overview
How to Configure the GRE
Verify the Tunnel

Summary
Demo - Enabling HDLC
Demo - Troubleshooting PPP
Demo - Frame Relay
Demo - External BGP
Demo - GRE Tunnel
Demo - Dialer Interface
Module 05 Review

Module 06 - Network Device Management 4h 21m
Configuring Network Devices to Support Network Management Protocols
Overview
SNMP Versions
Obtaining Data from an SNMP Agent
Configuring SNMP
What is Syslog?
Syslog Format
Syslog Configuration
NetFlow Overview
NetFlow Architecture
Configuring NetFlow
Summary
Managing Cisco Devices
Internal Components of a Router
What Does ROM Do?
Router Bootup Sequence
Configuration Register
Changing the Configuration Register
How the IOS is Found
IOS Loading
Loading the IOS Configuration File
Cisco IOS Integrated File System
Viewing the Integrated System
Managing IOS Images
Reading the IOS Filename
Backing Up the Image
Upgrading the IOS
Copy Command Results
Managing Device Configuration Files
Recovering the Enable Password/Secret
Summary
Licensing
Overview of Licensing
Verifying the Licenses
Installing a Permanent License
Installing an Evaluation License
Backup the License
Uninstalling the License
Password Recovery
Recovery

Config-Register
Summary
Demo - Managing Files
Demo - Logging
Demo - Syslog
Demo - Password Recovery
Demo - Superlab Initial Setup
Demo - Superlab
Module 06 Review
Course Closure

Total Duration: 17h 10m