

SWITCH: Implementing Cisco IP Switched Networks

Course Overview

This course provides students with the knowledge and skills to implement Cisco IP switched networks.

Course Introduction

4m

Course Introduction

Module 01 - Network Design

1h 28m

Network Design

Cisco Hierarchical Model

Hierarchical Design (eNotes)

Access Layer

Distribution Layer

Core Layer

Collapsed Core Option

Collapsed Core (eNotes)

Types of Switches

Routed vs. Switched Architecture (eNotes)

Layer 2 Switching

Other Switching Tables

Multilayer Switching at the Access Layer

How the Frame is Re-written at L3

Cisco Distributed Hardware Model

Switching Methods

Switching Methods (eNotes)

Route Caching

Topology-based Switching

What is SDM

The New CDP

Turning on LLDP

Supplying Device Power

What Power Options You Have

What can be Powered?

PoE Standards

PoE (eNotes)

PoE Negotiation

Configuring PoE

Module 01 Review

Module 02 - CAN

3h 12m

CAN
VLAN Review
CAM/VLAN (eNotes)
Why VLANs?
Configuring a VLAN
Demo - Basics of VLANs
Trunking
DTP
Demo - Creating a Trunk
Native VLAN
Trunk Connections
VLAN Deployment
Local VLANs
VLAN Types (eNotes)
Voice VLANs
Demo - Configuring a Voice VLAN
Connecting the AP
VTP
VTP Modes (eNotes)
VTP Neighbors
VTP Versions
Demo - Examining VTP
Using DHCP
DHCP Configuration Options
DHCP Commands
Other DHCP Configurations
Demo - Configuring DHCP
DHCP Issues
DHCP and IPv6
SLAAC (eNotes)
DHCP Can Still Be Used
DHCP Use
Demo - Configure Stateless DHCP
EtherChannel
EtherChannel Protocols
EtherChannel Requirements
What Must Match
Demo - Configure EtherChannel
EtherChannel Load Balancing
Demo - Load Balancing EtherChannel
Module 02 Review

Module 03 - Spanning Tree

2h 19m

Spanning Tree
Review STP
Types of STP
STP Operation (eNotes)
BPDU (eNotes)
Types of BPDUs

Electing the Root Bridge
Root Bridge (eNotes)
STP Transition States
PVST
Demo - Verify PVST
Influencing the Root Bridge Election
Changing Cost and Priority (eNotes)
STP Path Manipulation
Demo - STP Path Manipulation
STP Convergence Time
RSTP Port States
Change of Port States
STP Toolkit
STP Security
UplinkFast (eNotes)
BackboneFast (eNotes)
UplinkFast
BackboneFast
PortFast and BPDU Guard (eNotes)
BPDU Filter
Root Guard
Demo - PortFast and BPDU Guard
Unidirectional Problems (eNotes)
Loop Guard
Alternative to Loop Guard
Flex Links
Flex Links (eNotes)
What is MST
MST Design (eNotes)
MST
Migrating to MST
Module 03 Review

Module 04 - Inter-VLAN Routing

1h 9m

Inter-VLAN Routing
Router on a Stick
Demo - Router on a Stick
Pros and Cons of an External Router
Using an MLS
SVI (eNotes)
Routed Switch Ports
Demo - SVI
L3 Switch Interface (eNotes)
Requirements for an SVI
EtherChannel on L3
Module 04 Review

Module 05 - Advanced Switch Configuration Options

1h 56m

Advanced Switch Configuration Options

First: Time Setting

Demo - Setting the Clock Manually

NTP

NTP Modes

Example Setup (eNotes)

Demo - Configure NTP

Hierarchy Options of NTP

Demo - Securing NTP

NTP Versions

SNTP

Overview of SNMP

Versions of SNMP

SNMP Best Practices

Steps to Configure SNMPv3

Demo - Configure SNMPv3

What is Cisco IP SLA?

GET IOS IP SLA Diagram (eNotes)

IP SLA Source/Responder

SLA (eNotes)

Demo - SLA Configuration

SLA Operation with Responder (eNotes)

Responder Time Stamps

Demo - Configuring SLA Responder

Introducing SPAN

Terminology

Remote SPAN

Simple Steps to Configure SPAN

Steps to Configure RSPAN

Benefits of a Virtual Switch Chassis

Introducing StackWise

StackWise (eNotes)

Benefits of StackWise

Switch Supervisors

Supervisor Redundancy Modes

Introducing VSS

VSS Benefits

Module 05 Review

Module 06 - L3 FHRP

1h 25m

L3 FHRP

The Need for FHRP (eNotes)

Example of FHRP (eNotes)

HSRP - Topology (eNotes)

Configuration of HSRP (eNotes)

Demo - Configuring HSRP

What is HSRP Pre-empt

HSRP State Transition

HSRP State Transitions

STP and HSRP
Can You Load Share?
Interface Tracking
Tracking Objects (eNotes)
Demo - Configuring Tracking
Tracking Objectives
Authentication
HSRP Timers
HSRP Versions
What is VRRP
VRRP (eNotes)
Demo - Configuring VRRP
VRRP Settings
VRRP Authentication
VRRP Tracking
Summary
Introducing GLBP
GLBP Roles
GLBP Election
Overview of GLBP (eNotes)
GLBP Load Sharing
Module 06 Review

Module 07 - Security

1h 41m

Security
Security Issues
Switch Security
Best Practice
Rogue Devices
Attacks on Switches
MAC Flooding (eNotes)
Port Security (eNotes)
Demo - Port Security
Port-Errors
Port Based ACL
Storm Control
Demo - Storm Control
AAA Framework
Types of Authentication
RADIUS and TACACS+
RADIUS and TACACS+ (eNotes)
Demo - Configuring TACACS/RADIUS
Limitations of Both
Identity Based Networks
802.1X
802.1X (eNotes)
Configuring 802.1X
DHCP Spoofing Attacks (eNotes)
Cisco DHCP Snooping (eNotes)
IP Source Guard

ARP Spoofing (eNotes)
DAI
Switch Spoofing
VLAN Hopping
VACLs
Why PVLANS (eNotes)
PVLAN Port Types
Protected Ports
Module 07 Review
Course Closure

Total Duration: 13h 15m