Cisco Implementing Cisco IP Switched Networks (CCNP Switch)

Meet the expert: As a certified Microsoft Instructor, Ken has focused his career on various security aspects of computer and network technology since the early 1980s. He has offered a wide variety of IT training and high level consulting projects for Fortune 500 companies globally. Through the course of his extensive career, he has taught a full line of Microsoft, CompTIA, Cisco, and other high level IT Security curricula.

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Course description: The Implementing Cisco IP Switched Networks training is designed to help students prepare for Cisco CCNP(R) certification. The SWITCH course is one of three components in the CCNP curriculum. SWITCH is designed for network engineers with at least one year of professional work experience, who are ready to advance their skills and work independently on complex network solutions. Students will learn to plan, configure and verify the implementation of complex enterprise switching solutions using Cisco's Campus Enterprise Architecture. The course also covers secure integration of VLANs, WLANs, voice and video traffic into campus networks.

Course outline:

Network Design
- Introduction
- Hierarchical Design
- Access Layer
- Distribution Layer
- Core Layer
- Collapsed Core Option
- Collapsed Core
- Summary

Switch Types
- Introduction
- Types of Switches
- Routed vs. Switched Architecture
- Layer 2 Switching
- Other Switchng Tables
- Multilayer Switching at the Access Layer
- How the Frame is Re-written at L3
- Cisco Distributed Hardware Model
- Summary

Switching Methods
- Introduction
- Introduction
- Switching Methods eNotes
- Route Caching
- Topology-Based Switching
- What Is SDM
- The New CDP
- Turn LLDP on
- What Power Options You Have
- What Can You Power and PoE
- PoE eNotes
- PoE Negotiation
- Enabling PoE
- Summary
- Summary

VLAN
- Introduction
- VLAN Configuration
- Demo: VLAN Basics
- Demo: Create VLAN
- Demo: Set up VLANs
- Demo: Empty VLANs
- CAM
- CAM/VLAN eNotes
- Why VLANs?
- Summary

Trunking
- Introduction
- Trunking
- DTP
- Demo: Review
- Demo: Trunking
- Demo: Ranges
- Summary

Trunking Connections
- Introduction
- Native VLAN
- Trunk Connections
- End-to-End VLAN
- VLAN Types eNotes
- Voice VLANs
- Demo: Voice VLANs
- Demo: Connect Voice Devices
- Summary

Connecting the Access Point
- Introduction
- Connecting the AP
- VLAN Trunking Protocol
- VTP Modes eNotes
- VTP Review
- Summary

VTP Versions
- Introduction
- VTP Versions
- Demo: VTP
- Demo: Automatic Domain Joining
- Configure Client IP Addresses
- Summary

DHCP Commands
- Introduction
- DHCP Commands
- DHCP Bindings
- Demo: Configure DHCP Server
- Demo: Assign DHCP Server
- DHCP Broadcasts
- Summary

DHCP and IPV6
- Introduction
- DHCP and IPv6
- SLAAC eNotes
- DHCP in IPv6
- Summary

IPv6 Demo
- Introduction
- Demo: Introduction
- Demo: IPv6
- Demo: Configure DHCP
- Demo: Prefix Delegation
- Summary

EtherChannel Protocols
- Introduction
- EtherChannel Protocols
- EtherChannel Requirements
- What Must Match
- Demo: EtherChannel
- EtherChannel Load Balancing
- Demo: Load Balancing
- Summary

Spanning Tree
- Introduction
- Types of STP
- STP Operation eNotes
- BPDU eNotes
- Summary

Root Bridge
- Introduction
- BPDU Types
- Electing the Root Bridge
- Root Bridge eNotes
- STP Transition States
- Summary

PVST
- Introduction

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- PVST
- Demo: Per-VLAN Spanning Tree
- Demo: VTP and Trunking
- Demo: Change Root Bridge
- Influencing the Root Bridge Election
- Summary

Cost and Priority
- Introduction
- Changing Cost and Priority eNotes
- Manipulate a Path
- Demo: Cost and Priority
- Convergence Time
- RSTP Port States
- Change of Port States
- Running RSTP
- Spanning Tree Security Overview
- Summary

UplinkFast
- Introduction
- UplinkFast eNotes
- BackboneFast eNotes
- Configure UplinkFast and BackboneFast
- PortFast and BPDU Guard eNotes
- BPDU Filter
- Root Guard
- Demo: PortFast
- Summary

Unidirectional Problems
- Introduction
- Unidirectional Problems eNotes
- Loop Guard
- Hardware Failure
- Flex Links
- Flex Links eNotes
- Multiple Spanning Tree
- MST Design eNotes
- Internal Spanning Trees
- MST and STP
- Summary
- Summary

VLAN Routing
- Introduction
- Router on a Stick
- Demo: Build a Network
- Demo: Sub-Interfaces
- Demo: Add a Host
- Demo: Router on a Stick
- Summary

External Routing
- Introduction
- Pros and Cons of an External Router
- Using an MLS
- SVI eNotes
- Layer 2 to Layer 3
- Summary

Switch Virtual Interface
- Introduction
- Demo: Build a Network
- Demo: Add Addresses
- Demo: Create VLAN Interfaces
- Demo: SVI Routing
- L3 Switch Interface eNotes
- Requirements for an SVI
- EtherChannel on L3
- Summary

Set Switch Time
- Introduction
- Time Setting
- Demo: Manually Set Time
- NTP
- NTP Continued
- NTP Modes
- Example Setup eNotes
- Demo: NTP Settings
- Hierarchy Options of NTP
- Demo: Secure NTP
- Summary

NTP and SNMP
- Introduction
- NTP Versions
- SNTP
- Overview of SNMP
- Versions of SNMP
- SNMP Best Practices
- Steps to Configure SNMPv3
- Demo: SNMP
- Demo: SNMP Groups
- Summary

SLA
- Introduction
- IP SLA
- Get IOS IP SLA Diagram eNotes
- IP SLA Source/Responder
- SLA eNotes
- Demo: IP SLA
- Demo: Run IP SLA Test
- Summary

SLA Responders
- Introduction
- SLA Operation with Responder eNotes
- Responder Time Stamps
- Demo: SLA Responder
- SPAN
- Terminology
- Remote SPAN
- Simple Steps to Configure SPAN
- Summary

StackWise
- Introduction
- RSPAN
- StackWise
- StackWise eNotes
- Benefits of StackWise
- Switch Supervisors
- Supervisor Redundancy Modes
- VSS
- Summary

FHRP and HSRP
- Introduction
- The Need for FHRP eNotes
- Example of FHRP eNotes
- HSRP Toplogy eNotes
- Configuration of HSRP eNotes
- Demo: HSRP
- Demo: Set up Router 2
- Demo: Pre-empt
- Summary

HSRP Continued
- Introduction
- What Is HSRP Pre-empt
- HSRP Transition Steps
- HSRP State Transitions
- STP and HSRP
- Can You Load Share
- Interface Tracking
- Tracking Objects eNotes
- Demo: HSRP Failover and Tracking
- Object Tracking Goals
- Summary

Timers and VRRP
- Introduction
- HSRP Timers
- HSRP Versions
- VRRP
- VRRP eNotes
- Demo: Configure VRRP
- Demo: Using VRRP
- Minor Changes
- VRRP Authentication and Tracking
- Summary
- GLBP
- GLBP Election
- Overview of GLBP eNotes
- Summary
- Summary

Security Best Practices
- Introduction
- OSI Layers Security
- Layer 2 Security
- Best Practices
- Best Practices Continued
- Rogue Devices
- Layer 2 Attacks
- Summary

Port Security
- Introduction
- MAC Flooding eNotes
- Port Security eNotes
- Demo: Create Network
- Demo: Port Security
- Port Errors
- Port-Based ACL
- Storm Control
- Demo: Storm Control
- AAA Framework
- Authentication
- RADIUS and TACACS
- Summary

RADIUS and TACACS
- Introduction
- RADIUS and TACACS+
- RADIUS and TACACS+ eNotes
- Demo: AAA Configuration Options
- Demo: AAA Groups
- Limitations
- Physical Security
- 802.1x
- 802.1x eNotes
- 802.1x Configuration
- Summary

DHCP Spoofing
- Introduction
- DHCP Spoofing Attacks eNotes
- Cisco DHCP Spoofing eNotes
- IP Source Guard
- ARP Spoofing eNotes
- DAI
- Dynamic Trunking Protocol
- VLAN Hopping
- VACLs
- Why PVLANs eNotes
- Isolated Ports

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- Protected Ports
- Summary