

Cisco Networks

Building Cisco Multilayer Switched Networks (BCMSN)

Course:ET912

Course Description

This course addresses the integration of routing and switching technologies to create an efficient campus network. Design, build, and configure a reliable campus network so that if any physical link, switch, or router fails, an end user won't know, while maintaining the performance to meet today's demanding application requirements, such as voice, video, and secure wireless technologies. Learn to design physical redundancy into your network and the necessary Layer 2 and 3 protocols to guarantee constant access to the campus network

Who should attend?

This course is intended for Networking Professionals who are implementing Cisco's Catalyst Switching technology. BCMSN is recommended for those pursuing Cisco Career Certification.

Pre-requisites

- Cisco Certified Network Associate (CCNA)

Course Objectives

- Create VLANs
- Propagate VLAN information with VTP
- Improve IP Routing performance with Multilayer Switching
- Implement HSRP for Fault Tolerant Routing
- Manage high bandwidth broadcasts with IP Multicast
- Implement secure wireless connectivity into the campus topology
- Use QoS to meet the service levels required by applications
- Secure the network and eliminate unwanted traffic
- Extend the campus through the use of Metropolitan Ethernet

Lab Equipments

Class Room Equipments

Cisco Catalyst 6500 Series

Student Equipments

Cisco Catalyst 3550
Cisco Catalyst 2950
Cisco Aironet 1130

Course Outline

1. Introduction to Campus Networks

- Course Introduction
- Campus Networks as part of an Enterprise Network
- Devices in a Nonhierarchical Network
- Layer 2 Network Issues
- Routed Network Issues
- What is a Multilayer Switch
- Issues with Multilayer Switches and VLANs in a Nonhierarchical Network
- The Enterprise Composite Model
- Benefits of the Enterprise Composite Model
- Campus Infrastructure Module

Hand-On Labs

Getting Started with Cisco Catalyst

2. Defining Virtual Networks (VLANs)

- Best practices for VLAN Topologies
- Implementing VLANs
- Implementing Trunks
- Propagating VLAN Configurations with VTP
- Correcting Common VLAN Configuration Errors

Hand-On Labs

Configuring VLANs and VTP

3. Implementing Spanning Tree

- Spanning Tree Protocol
- Preventing STP Forwarding Loops
- Implementing Rapid Spanning Tree Protocol (RSTP)
- Implementing Multiple Spanning Tree Protocol (MSTP)
- Configuring Link Aggregation and EtherChannel

Hand-On Labs

Configuring Primary / Backup Root Bridges
Implementing Rapid-PVST Spanning Tree
Implementing Multiple Spanning Tree
Configuring EtherChannel
Troubleshooting Spanning Tree

4. Implementing InterVLAN Routing

- Routing between VLANs
- Deploying CEF-Based Multilayer Switching
- Enabling Routing Between VLANs

Hand-On Labs

Routing Between VLANs

5. Implementing High Availability in a Campus Environment

- Configuring Layer 3 redundancy with HSRP
- Configuring Layer 3 Redundancy with VRRP and GLBP

- Implementing Hardware and Software Redundancy in Modular Switches
- Redundant Power Supply Configuration Commands

Hand-On Labs

Enabling and Optimizing HSRP

6. Wireless Client Access

- Introducing WLANs
- Wireless Theory and Standards
- Implementing WLANs
- Cisco WLAN
- Cisco Wireless Clients
- Configuring Basic WLAN

Hand-On Labs

Configuring Switches of WLANs
Configuring the Controller via the Web Browser
Setting up the Wireless LAN Controller
Configuring a Wireless Client

7. Configuring Campus Switches to Support Voice

- Planning for Implementation of Voice in a Campus Network
- Accommodating Voice Traffic on Campus Switches

Hand-On Labs

Configuring IP Telephony Support

8. Minimizing Service Loss and Data Theft in a Campus Network

- Switch Security Issues
- Protecting Against VLAN Attacks
- Protecting Against Spoof Attacks
- Securing Network Switches
- STP Security Mechanisms

Hand-On Labs

Apply Security Practices to Secure Devices
Applying Security Tools

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