NETWORK CONFIGURATION AND TROUBLESHOOTING

Course number : 125

Overview

The ability to provide users with constant access to critical data is essential for the success of today's rapidly evolving networks. In this training course, you gain a comprehensive set of tools and techniques needed to proficiently configure and maintain networks, as well as identify and resolve problems related to cables, wireless connections, protocols, and applications.

What you'll learn

- Configure, maintain, and troubleshoot multiple network configurations
- Implement VLANs in a switched network
- Access and secure your wireless network
- Manage IP address assignments and subnetting

Who should attend

Pre-requis

- Networking experience at the level of:
    - Course 124, Introduction to Networking

Outline

Networking Overview

Fundamentals of a network

- Types of networks
- Hardware and software

Applying the OSI model to troubleshooting

- Executing a troubleshooting methodology
- Employing fault isolation at each layer

Connecting the Physical Layer

Distinguishing media terminology

- Twisted pair
- Fiber
- Wireless
- EIA/TIA standards

Cabling and port configuration

- Strategies for successful configuration
- Validating wiremap with cable scanner
- MDI/MDI-X port configuration
- Specifying various fiber types

Building the Data Link Layer

Working with network adapters

- Designating Layer 2 MAC address
- Demystifying access methods
- Displaying NIC configuration

Assessing LAN topologies

- Logical and physical topologies
- Star
- Hybrid
- Mesh

LAN and WAN standards at Layer 2

- 802 standards
- Wireless
- Fast and Gigabit Ethernet
- xDSL
- Cable modem
- Frame Relay
- ATM
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Interfacing with the network

- Testing speed and duplex settings
- Authenticating using 802.1X and EAP

Switching at the Data Link Layer

Analyzing protocols

- Differentiating Ethernet and 802.3 frame formats
- Capturing and filtering traffic with Wireshark

Solving network congestion

- Deploying switches
- Interpreting Layer 2 traffic

Implementing VLANs

- Defining the VLAN
- Port tagging with 802.1Q
- Interconnecting VLANs across switches

Wireless Networking

Traversing the wireless topology

- Network types and standards
- Selecting infrastructure or ad hoc mode
- IBSS
- BSS
- ESS

Building the wireless network

- Setting up the access point
- Configuring the SSID on a client
- Securing the wireless traffic

Integrating the Network and Transport Layers

The role of TCP/IP

- TCP/IP protocol suite

- OSI model vs. TCP/IP model

Configuring IP addresses

- Public vs. private addresses
- Allocating addresses with DHCP
- Managing addresses with ifconfig/ipconfig
- Resolving address conflicts

Enabling the routing function

- Subnetting and the adjacency test
- Interpreting a routing table

Investigating protocol headers

- TCP
- UDP
- IP
- ARP
- ICMP
- Identifying common protocol issues

Troubleshooting the Application Layer

Managing OS functions

- File
- Print
- Messaging
- Database

Fine-tuning network services

- DNS
- Web services
- Debugging name resolution with nslookup

Schedule

Location Dates Status

Tuition

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