

Cisco® Networking: A Comprehensive Hands-On Introduction - 4 Days

Course 466 Overview

- You Will Learn How To**
- Successfully install and configure Cisco routers and switches to build internetworks
 - Create Cisco device configurations from scratch
 - Configure IP routing protocols
 - Troubleshoot complex IP routing problems
 - Perform software and hardware upgrades
 - Effectively manage and maintain Cisco routers with SNMP

Course Benefits This course provides a comprehensive introduction to deploying Cisco devices in an internetworked environment. Through extensive hands-on exercises, you gain the fundamental knowledge and skills you need to install, configure and troubleshoot Cisco routers.

Who Should Attend Network managers, technicians, consultants and designers who are involved in supporting, implementing and designing internetworks with Cisco routers. Familiarity with basic internetworking concepts at the level of Course 364, "Switches and Routers Comprehensive Introduction", is assumed.

Hands-On Training Extensive hands-on exercises include:

- Identifying and testing router components
- Editing router configuration files
- Interpreting routing tables
- Configuring RIP, EIGRP and OSPF
- Using **extended ping** and **trace**
- Recovering lost passwords
- Upgrading the Cisco IOS
- Backing up config files and router images
- Troubleshooting with debug commands

Cisco® Networking: A Comprehensive Hands-On Introduction - 4 Days

Course 466 Outline

Introduction and Overview

Internetworking fundamentals

- Internetworking terminology
- Protocol layering
- Routing vs. bridging

Cisco hardware/software architecture

- Distribution and core routers
- Internetwork Operating System (IOS) versions and licensing
- Addressing Cisco security vulnerabilities

Setting Up the Router

Accessing and controlling routers

- Console and AUX ports
- Remote and TFTP configuration

The Cisco bootstrap sequence

- Setting the configuration register
- Using the start-up configuration dialogue

Creating configuration files

- Selecting a configuration mode: global, interface, router, line
- IOS editing and help features

Implementing IP Routing

Initiating the basic IP configuration

- Assigning IP addresses and subnet masks
- Implementing access lists for enhanced security

The IP routing process

- Selecting a routing protocol
- Monitoring and maintaining routing tables
- Configuring RIP V1, RIP V2, EIGRP, OSPF

IP Routing Protocols

Review of routing concepts

- Distance Vector and Link State routing
- Evaluating routing metrics
- Configuring Routing Information Protocol (RIP)
- Differentiating between RIP V1 and V2
- Tailoring RIP V2 address summarisation and authentication
- Cisco Enhanced Interior Gateway Protocol (EIGRP)
- Transitioning to an OSPF single area network topology

Routing interaction issues

- Implementing static routes
- Route redistribution

Configuring Interface Parameters

Local area networks

- Ethernet
- Port speed
- Duplex settings

Wide area networks

- Leased lines
- ISDN
- Frame relay
- ATM
- Setting up ISDN dial-on-demand and dial backup

Troubleshooting Cisco Routers

Maintaining router operations

- Analysing interface problems
- Finding and resolving IP routing errors with **extended ping** and **trace**
- Fixing misconfigurations
- Leveraging ICMP and Cisco debug commands
- Validating Layer 2 connectivity with Cisco Discovery Protocol

Cisco Information Online

- Exploiting the Cisco documentation
- Contacting the Technical Assistance Center (TAC)

Applying Cisco Switches for LAN Connectivity

Switch theory of operation

- Preventing loops using Spanning Tree
- Controlling root switch selection

Working with VLANs

- Executing VLAN configuration
- Managing VLAN trunk lines
- ISL and 802.1Q trunks
- Routing between VLANs

Maintaining and Upgrading Cisco Routers

Planning software upgrades

- Selecting and testing the new IOS release
- Loading the new IOS images
- Recovering a corrupt IOS from the ROMMON prompt

Installing hardware upgrades

- Planning a hardware maintenance strategy
- Replacing boot ROMs
- Adding RAM and flash memory

Administering routers

- Securing router access
- Defining local access strings

- Harnessing TACACS+ to authenticate and monitor users
- Recovering lost passwords
- Backing up config files and router images

SNMP and management tools

- Exploiting Cisco's proprietary MIB
- Analysing router performance