

Cisco CCNA Course Outline
Exam 640-802
8 days

The Cisco CCNA network associate certification validates the ability to install, configure, operate, and troubleshoot medium-size routed and switched networks, including implementation and verification of connections to remote sites in a WAN. This new curriculum includes basic mitigation of security threats, introduction to wireless networking concepts and terminology, and performance-based skills. This new curriculum also includes (but is not limited to) the use of these protocols: IP, Enhanced Interior Gateway Routing Protocol (EIGRP), Serial Line Interface Protocol Frame Relay, Routing Information Protocol Version 2 (RIPv2), VLANs, Ethernet, access control lists (ACLs)

Interconnecting Cisco Networking Devices Part 1 (ICND1) – Exam 640-822 – 4 days training

The 640-822 Interconnecting Cisco Networking Devices Part 1 (ICND1) is the exam associated with the Cisco Certified Entry Network Technician certification and a tangible first step in achieving the Cisco Certified Network Associate certification. Candidates can prepare for this exam by taking the Interconnecting Cisco Networking Devices Part 1 (ICND1) v1.0 course. This exam tests a candidate's knowledge and skills required to successfully install, operate, and troubleshoot a small branch office network. The exam includes topics on networking fundamentals; connecting to a WAN; basic security and wireless concepts; routing and switching fundamentals; the TCP/IP and OSI models; IP addressing; WAN technologies; operating and configuring IOS devices; configuring RIPv2, static and default routing; implementing NAT and DHCP; and configuring simple networks.

Chapter 1 - Building a Simple Network

Building a Simple Network
Common Physical Components of a Network
Interpreting a Network Diagram
Resource-Sharing Functions and Benefits
Network User Applications
Impact of User Applications on the Network
Characteristics of a Network
Physical Topology Categories
Logical Topologies
Bus Topology
Star Topology
Extended-Star Topology
Ring Topology
Dual-Ring Topology
Full-Mesh Topology
Partial-Mesh Topology
Connection to the Internet
Demo - Network Topology
Summary
Securing the Network
Closed/Open Networks
Threat Capabilities— More Dangerous and Easier to Use
E-Business Challenge
Adversaries, Adversary Motivations, and Classes of Attack
Common Threats

Password Attack Threat Mitigation
Summary
Understanding the Host-to-Host Communications Model
Understanding Host-to-Host Communications
Why a Layered Network Model?
The Seven Layers of the OSI Model
Data Encapsulation/De-Encapsulation
Peer-to-Peer Communication
Demo - OSI Model
TCP/IP Stack
TCP/IP Stack vs. the OSI Model
Summary
Understanding the TCP/IP Internet Layer
Internet Protocol Characteristics
Why IP Addresses?
IP PDU Header
IP Address Format: Dotted Decimal Notation
IP Address Classes: The First Octet
IP Address Ranges
Reserved Address
Public IP Addresses
Private IP Addresses
Demo - IP Address Basics
DHCP
DNS
Network Connection
ipconfig
Summary
Understanding the TCP/IP Transport Layer
Transport Layer

Better Value, Better Results!

**107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW**

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

Cisco CCNA Course Outline
Exam 640-802
8 days

Reliable vs. Best-Effort Comparison
 UDP Characteristics
 UDP Header
 TCP Characteristics
 TCP Header
 TCP/IP Application Layer Overview
 Mapping Layer 3 to Layer 4
 Mapping Layer 4 to Applications
 Establishing a Connection
 Three-Way Handshake
 Flow Control
 TCP Acknowledgment
 Fixed Windowing
 TCP Sliding Windowing
 TCP Sequence and Acknowledgment Numbers
 Demo - TCP
 Summary
 Exploring the Packet Delivery Process
 Layer 1 Devices
 Layer 2 Devices
 Layer 2 Addressing
 Layer 3 Devices and Their Function
 Layer 3 Addressing
 ARP
 ARP Table
 Host-to-Host Packet Delivery
 Default Gateway
 Demo - Protocols
 Host-Based Tools: ping
 Host-Based Tools: Table
 Host-Based Tools: tracer
 Summary

Understanding Ethernet
 Local Area Network
 LAN Components
 Functions of a LAN
 LAN Sizes
 Ethernet Evolution
 LAN Standards
 CSMA/CD
 Ethernet Frame Structure
 Communicating Within the LAN
 MAC Address Components
 MAC Addresses
 Summary
 Connecting to an Ethernet LAN
 Network Interface Card
 Comparing Ethernet Media Requirements
 Differentiating Between Connections
 100BASE-T GBIC
 Cisco Fiber-Optic GBICs
 Unshielded Twisted-Pair Cable
 RJ-45 Connector

RJ-45 Jack
 UTP Implementation (Straight-Through/Crossover)
 UTP Implementation: Straight-Through vs. Crossover
 Using Varieties of UTP
 Summary
 Chapter 1 Review
Chapter 2 - Ethernet LANs
 Ethernet LANs
 LAN Segment Limitations
 Extending LAN Segments
 Collisions
 Multiple Collision Domains
 Summary
 Solving Network Challenges with Switched LAN
 Technology
 Network Congestion
 Bridges
 LAN Switch
 LAN Switch Features
 Switches Supersede Bridges
 Switching Frames
 LANs Today
 VLAN Overview
 Summary
 Exploring the Packet Delivery Process
 Layer 2 Addressing
 Layer 3 Addressing
 Host-to-Host Packet Delivery
 Summary
 Operating Cisco IOS Software
 Cisco IOS Software
 Configuring Network Devices
 An Overview of Cisco Device Startup
 External Configuration Sources
 Cisco IOS User Interface Functions
 Cisco IOS Software EXEC Mode (User)
 Cisco IOS Software EXEC Mode (Privileged)
 Switch Command-Line Help Facilities
 Context-Sensitive Help
 Enhanced Editing Commands
 Router Command History
 Demo - Basic CLI
 Viewing the Configuration
 show running-config and show startup-config
 Commands
 Summary
 Starting a Switch
 Initial Startup of the Catalyst Switch
 Catalyst 2960 Switch LED Indicators
 Initial Bootup Output from the Catalyst 2960 Switch
 Initial Configuration of the Catalyst 2960 Switch Using
 Setup
 Logging In to the Switch and Entering the Privileged
 EXEC Mode

Better Value, Better Results!

107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

Configuring the Switch
 Configuring Switch Identification
 Configuring the Switch IP Address
 Configuring the Switch Default Gateway
 Saving Configurations
 Showing Switch Initial Startup Status
 Switch show version Command
 Switch show interfaces Command
 Managing the MAC Address Table
 Demo - Switch Configuration
 Summary
 Understanding Switch Security
 Common Threats to Physical Installations
 Configuring a Switch Password
 Configuring the Login Banner
 Telnet vs. SSH Access
 Configuring Port Security
 Verifying Port Security on the Catalyst 2960 Series
 Securing Unused Ports
 Disabling an Interface (Port)
 Summary
 Maximizing the Benefits of Switching
 Microsegmentation
 Duplex Overview
 Setting Duplex and Speed Options
 Showing Duplex Options
 The Hierarchy of Connectivity
 Loops
 Spanning Tree Protocol
 Summary
 Troubleshooting Switch Issues
 The Layered Approach
 Switched Media Issues
 show interface
 Excessive Noise
 Excessive Collisions
 Late Collisions
 Port Access Issues
 Duplex-Related Issues
 Speed-Related Issues
 Configuration Issues
 Summary
 Chapter 2 Review

Chapter 3 - Wireless LANs

Wireless LANs
 Market Trends
 Differences Between WLAN and LAN
 Radio Frequency Transmission
 Organizations That Define WLAN
 ITU-R with FCC Wireless
 IEEE 802.11 Standards Comparison
 Wi-Fi Certification

Summary
 Understanding WLAN Security
 Wireless LAN Security Threats
 Mitigating the Threats
 Evolution of Wireless LAN Security
 Wireless Client Association
 How 802.1X Works on the WLAN
 WPA and WPA2 Modes
 Summary
 Implementing a WLAN
 802.11 Topology Building Blocks
 BSA Wireless Topology— Basic Coverage
 ESA Wireless Topology— Extended Cover
 Wireless Topology Data Rates—802.11b
 Access Point Configuration
 Steps to Implement a Wireless Network
 Wireless Clients
 Common Wireless Network Issues
 Wireless Troubleshooting
 Summary
 Chapter 3 Review

Chapter 4 - LAN Connections

LAN Connections
 Routers
 Router Functions
 Path Determination
 Routing Tables
 Routing Table Entries
 Routing Metrics
 Distance Vector Routing Protocols
 Link-State Routing Protocols
 Summary
 Understanding Binary Basics
 Decimal vs. Binary Numbers
 Decimal and Binary Numbers Chart
 Powers of 2
 Decimal-to-Binary Conversion
 Binary-to-Decimal Conversion
 Demo - Conversion
 Summary
 Constructing a Network Addressing Scheme
 Flat Topology
 Subnetworks
 What a Subnet Mask Does
 Possible Subnets and Hosts for a Class C Network
 Possible Subnets and Hosts for a Class B Network
 Possible Subnets and Hosts for a Class A Network
 End System Subnet Mask Operation
 How Routers Use Subnet Masks
 Applying the Subnet Address Scheme
 Demo - Subnetting Part 1
 Octet Values of a Subnet Mask
 Default Subnet Masks

Better Value, Better Results!

**107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
 S45 9JW**

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

Cisco CCNA Course Outline
Exam 640-802
8 days

Procedure for Implementing Subnets
Eight Easy Steps for Determining Subnet Addresses
Example: Applying a Subnet Mask for a Class C Address
Example: Applying a Subnet Mask for a Class B Address
Example: Applying a Subnet Mask for a Class A Address
Demo - Subnetting Part 2
Demo - Subnetting Part 3
Summary

Starting a Router
Initial Startup of the Cisco Router
Bootup Output from the Router
Setup: The Initial Configuration Dialog
Setup Interface Summary
Setup Initial Global Parameters
Setup Initial Protocol Configurations
Setup Interface Parameters
Cisco AutoSecure
Setup Script Review and Use
Logging in to the Cisco Router
Router User-Mode Command List
Router Privileged-Mode Command List
show version Command
Demo - Router Configuration
Summary
Configuring a Cisco Router
Overview of Router Modes
Saving Configurations
Configuring Router Identification
Console-Line Commands
Configuring an Interface
Configuring an Interface Description
Configuring IP Addresses
Router show interfaces Command
Interpreting the Interface Status
Verifying a Serial Interface Configuration
Summary
Exploring the Packet Delivery Process
Layer 2 Addressing
Layer 3 Addressing
Host-to-Host Packet Delivery
Using the show OP Command
ping
traceroute
Summary
Understanding Cisco Router Security
Common Threats to Physical Installations
Configuring a Router Password
Configuring the Login Banner
Telnet vs. SSH Access
Demo - Passwords

Summary
Using the Cisco SDM
Cisco Router and Security Device Manager
What Is Cisco SDM?
Supported Cisco Routers and Cisco IOS Software Releases
Configuring Your Router to Support SDM
SDM Startup
Cisco SDM Main Window Layout and Navigation
Cisco SDM Wizards
Summary

Using a Cisco Router as a DHCP Server
Understanding DHCP
DHCP
Using a Router as a DHCP Server
DHCP Server Using a Router
Additional Tasks
DHCP Pool
Checking the DHCP Configuration
DHCP Pool Status
show ip dhcp conflict
Summary
Accessing Remote Devices
Using Telnet to Connect to Remote Devices
Viewing Telnet Connections
Viewing SSH Connections
Suspending and Resuming a Telnet Session
Demo - Telnet
Closing a Telnet Session
Using the ping and traceroute Commands
Summary
Chapter 4 Review

Chapter 5 - WAN Connections

WAN Connections
Understanding WAN Technologies
Wide-Area Network
Need for WANs
WANs vs. LANs
WAN Access and the OSI Reference Model
WAN Devices
Physical Layer: WANs
Serial Point-to-Point Connections
WAN—Multiple LANs
WAN Data-Link Protocols
WAN Link Options
Summary
Enabling the Internet Connection
Packet Switching
DSL
DSL Service Types Overview
DSL Considerations
Cable-Based WANs

Better Value, Better Results!

107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

The Global Internet
Getting an Interface Address from a DHCP Server
Network Address Translation
Port Address Translation
Translating Inside Source Addresses
Overloading an Inside Global Address
Gathering the Required Information
Configuring the Client: Interface and Connection
Configuring the Client: WAN Wizard
Configuring the Client: Encapsulation
Configuring the Client: IP Addressing
Configuring PAT: Advanced Options
Configuring PAT: Summary
Verifying the DHCP Client Configuration
Displaying Information with show Commands
Summary
Enabling Static Routing
Router Operations
Identifying Static and Dynamic Routes
Static Routes
Static Route Configuration
Static Route Example
Default Routes
Verifying the Static Route Configuration
Demo - Static Routes
Summary
Configuring Serial Encapsulation
Circuit Switching
Public Switched Telephone Network
PSTN Considerations
Leased Line
WAN Connection Bandwidth
Configuring a Serial Interface
Serial Interface show controller Command
Point-to-Point Considerations
HDLC and Cisco HDLC
Configuring HDLC Encapsulation
Leased Line 2
PPP
An Overview of PPP
Enable PPP Encapsulation
PPP Configuration Example
Verifying a Serial Interface Configuration
Verifying the HDLC and PPP Encapsulation
Configuration
Demo - Configuring Serial
Frame Relay
Frame Relay Devices and Virtual Circuits
ATM and Cell Switching
Summary
Enabling RIP
What Is a Routing Protocol?
Autonomous Systems: Interior or Exterior Routing
Protocols

Classes of Routing Protocols
Administrative Distance: Ranking Routes
Classful Routing Protocol
Classless Routing Protocol
Distance Vector Routing Protocols
Sources of Information and Discovering Routes
RIP Overview
RIPv1 and RIPv2 Comparison
IP Routing Configuration Tasks
RIP Configuration Example
Verifying the RIP Configuration
Displaying the IP Routing Table
debug ip rip Command
Demo - RIP
Summary
Chapter 5 Review

Chapter 6 - Network Environment Management

Discovering Neighbors on the Network
Cisco Discovery Protocol
Discovering Neighbors with Cisco Discovery Protocol
Using Cisco Discovery Protocol
Using the show cdp neighbors Command
Using the show cdp entry Command
Additional Cisco Discovery Protocol Commands
Creating a Network Map
Demo - CDP
Summary
Managing Router Startup and Configuration
Router Power-On Boot Sequence
Router Internal Components
ROM Functions
Finding the Cisco IOS Image
Loading the Cisco IOS Image from Flash Memory
Loading the Configuration
show running-config and show startup-config
Commands
Determining the Current Configuration Register Value
Configuration Register Values
show version Command
show flash Command
Summary
Managing Cisco Devices
Cisco IOS File System and Devices
Managing Cisco IOS Images
Verifying Memory and Deciphering Image Filenames
Creating a Software Image Backup
Upgrading the Image from the Network
Device Configuration Files
Cisco IOS copy Command
Cisco IOS copy Command Example
copy run tftp and copy tftp run Commands
show and debug Commands
Considerations When Using debug Commands

Better Value, Better Results!

107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

Commands Related to debug
Summary
Chapter 6 Review

Course Closure

Interconnecting Cisco Networking Devices Part 2 (ICND2) – Exam 640-816 – 4 days training

Course Introduction

Course Introduction

Chapter 1 - Small Network Implementation

Introducing the Review Lab
Cisco IOS User Interface Functions
Overview of Cisco IOS Configuration Modes
Help Facilities of the Cisco IOS CLI
Commands Review Discussion
Access to the Remote Labs
Summary
Chapter 1 Review

Chapter 2 - Medium-Sized Switched Network

Construction
Implementing VLANs and Trunks
Issues in a Poorly Designed Network
VLAN Overview
Designing VLANs for an Organization
Guidelines for Applying IP Address Space
Network Traffic Types
Advantages of Voice VLANs
VLAN Operation
VLAN Membership Modes
802.1Q Trunking
802.1Q Frame
Understanding Native VLANs
VTP Features
VTP Modes
VTP Operation
VTP Pruning
Configuring VLANs and Trunks
VTP Configuration Guidelines
Creating a VTP Domain
VTP Configuration and Verification Example
802.1Q Trunking Issues
Configuring 802.1Q Trunking
Verifying a Trunk
VLAN Creation Guidelines
Adding a VLAN
Verifying a VLAN
Assigning Switch Ports to a VLAN
Verifying VLAN Membership
Demo - VLAN
Executing Adds, Moves, and Changes for VLANs
Summary

Improving Performance with Spanning Tree
Interconnection Technologies
Determining Equipment and Cabling Needs
Advantages of EtherChannel
Demo - Bridging
Redundant Topology
Broadcast Frames
Broadcast Storms
Multiple Frame Copies
MAC Database Instability
Demo - STP
Loop Resolution with STP
Spanning-Tree Operation
STP Root Bridge Selection
Spanning-Tree Port States
Demo - BPDU
Describing PortFast
Configuring and Verifying PortFast
Spanning-Tree Operation Example
Spanning-Tree Path Cost
Spanning-Tree Recalculation
Per VLAN Spanning Tree Plus
PVST+ Extended Bridge ID
Demo - SwitchConfig
Rapid Spanning Tree Protocol
Default Spanning-Tree Configuration
PVRST+ Configuration Guidelines
PVRST+ Implementation Commands
Verifying PVRST+
Configuring the Root and Secondary Bridges
Configuring the Root and Secondary Bridges: SwitchA
Configuring the Root and Secondary Bridges: SwitchB
Summary
Routing Between VLANs
VLAN-to-VLAN Overview
Dividing a Physical Interface into Subinterfaces
Routing Between VLANs with 802.1Q Trunks
Summary
Securing the Expanded Network
Overview of Switch Security
Recommended Practices: New Switch Equipment
Recommended Practices: Switch Security
Port Security
802.1X Port-Based Authentication
Summary
Troubleshooting Switched Networks

Better Value, Better Results!

107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

Switches Troubleshooting
Troubleshooting Port Connectivity
Troubleshooting VLANs and Trunks
Troubleshooting VTP
Troubleshooting Spanning Tree
Summary
Chapter 2 Review

Classless Routing Overview
Summarizing Within an Octet
Summarizing Addresses in a VLSM-Designed Network
Route Summarization Operation in Cisco Routers
Demo - VLSM
Summarizing Routes in a Discontiguous Network
Summary
Chapter 3 Review

Chapter 3 - Medium-Sized Routed Network Construction

Reviewing Routing Operations
Static vs. Dynamic Routes
Demo - Static Route
What Is a Dynamic Routing Protocol?
Autonomous Systems: Interior and Exterior Routing Protocols
Classes of Routing Protocols
Selecting the Best Route Using Metrics
Administrative Distance: Ranking Routing Sources
Distance Vector Routing Protocols
Sources of Information and Discovering Routes
Maintaining Routing Information
Demo - RIP Review
Inconsistent Routing Entries: Counting to Infinity and Routing Loops
Counting to Infinity
Solution to Counting to Infinity: Defining a Maximum Routing Loops
Solution to Routing Loops: Split Horizon
Solution to Routing Loops: Route Poisoning and Poison Reverse
Solution to Routing Loops: Hold-Down Timers
Triggered Updates
Eliminating Routing Loops
Link-State Routing Protocols
OSPF Hierarchical Routing
Link-State Routing Protocol Algorithms
Benefits and Drawbacks of Link-State Routing
Summary
Implementing VLSM
Subnetting Review
Possible Subnets and Hosts for a Class C Network
Possible Subnets and Hosts for a Class B Network
Possible Subnets and Hosts for a Class A Network
Subnetting Review Exercise
What Is a Variable-Length Subnet Mask?
A Working VLSM Example
Understanding Route Summarization
Classful Routing Overview

Chapter 4 - Single-Area OSPF Implementation

Implementing OSPF
OSPF Overview
OSPF Hierarchy Example
Neighbor Adjacencies: The Hello Packet
SPF Algorithm
Configuring Single - Area OSPF
Configuring Loopback Interfaces
Verifying the OSPF Configuration
OSPF debug Commands
Demo - OSPF
Load Balancing with OSPF
OSPF Authentication
Configuring OSPF Plaintext Password Authentication
Plaintext Password Authentication Configuration Example
Verifying Plaintext Password Authentication
Summary
Troubleshooting OSPF
Components of Troubleshooting OSPF
Troubleshooting OSPF Neighbor Adjacencies
Troubleshooting OSPF Routing Tables
Troubleshooting Plaintext Password Authentication Problems
Summary
Chapter 4 Review

Chapter 5 - EIGRP Implementation

EIGRP Implementation
Implementing EIGRP
EIGRP Features
EIGRP Tables
EIGRP Path Calculation (Router C)
EIGRP Configuration
EIGRP and Discontiguous Networks Default Scenario Configuration
EIGRP and Discontiguous Networks with no auto-summary
Verifying the EIGRP Configuration
debug ip eigrp Command

Better Value, Better Results!

**107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW**

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

EIGRP Metric
EIGRP Load Balancing
EIGRP Unequal - Cost Load Balancing
Variance Example
Demo - EIGRP
EIGRP MD5 Authentication
EIGRP MD5 Authentication Configuration Steps
Configuring EIGRP MD5 Authentication
Example EIGRP MD5 Authentication Configuration
Verifying MD5 Authentication
Summary
Troubleshooting EIGRP
Components of Troubleshooting EIGRP
Troubleshooting EIGRP Neighbor Issues
Troubleshooting EIGRP Routing Tables
Troubleshooting EIGRP Authentication
Troubleshooting EIGRP Authentication Problem
Summary
Chapter 5 Review

Chapter 6 - Access Control Lists

Access Control Lists
Introducing ACL Operation
Why Use ACLs?
ACL Applications: Filtering
ACL Applications: Classification
Outbound ACL Operation
A List of Tests: Deny or Permit
Types of ACLs
How to Identify ACLs
IP Access List Entry Sequence Numbering
ACL Configuration Guidelines
Dynamic ACLs
Reflexive ACLs
Time-Based ACLs
Wildcard Bits: How to Check the Corresponding
Address Bits
Wildcard Bits to Match IP Subnets
Wildcard Bit Mask Abbreviations
Summary
Configuring and Troubleshooting ACLs
Testing Packets with Numbered Standard IPv4 ACLs
Numbered Standard IPv4 ACL Configuration
Numbered Standard IPv4 ACL Example 1
Numbered Standard IPv4 ACL Example 2
Numbered Standard IPv4 ACL Example 3
Demo - Standard ACL
Standard ACLs to Control vty Access
Demo - Access Class
Testing Packets with Numbered Extended IPv4 ACLs
Numbered Extended IPv4 ACL Configuration
Numbered Extended IPv4 ACL Example 1
Numbered Extended IPv4 ACL Example 2
Demo - Extended ACL

Named IP ACL Configuration
Named Standard IPv4 ACL Example
Named Extended IPv4 ACL Example
Commenting ACL Statements
Demo - Named ACL
Monitoring ACL Statements
Verifying ACLs
Troubleshooting Common ACL Errors
Summary
Chapter 6 Review

Chapter 7 - Address Space Management

Scaling the Network with NAT and PAT
Network Address Translation
Port Address Translation
Translating Inside Source Addresses
Configuring and Verifying Static Translation
Enabling Static NAT Address Mapping Example
Configuring and Verifying Dynamic Translation
Dynamic Address Translation Example
Overloading an Inside Global Address
Configuring Overloading
Overloading an Inside Global Address Example
Clearing the NAT Translation Table
Demo - NAT
Translation Not Occurring: Translation Not Installed in
the Table
Displaying Information with show and debug
Commands
Translation Occurring: Installed Translation Entry Not
Being Used
Sample Problem: Cannot Ping Remote Host
Solution: Corrected Configuration
Summary

Transitioning to IPv6
IPv4 and IPv6
Why Do We Need a Larger Address Space?
IPv6 Advanced Features
IPv6 Address Representation
IPv6 Address Types
IPv6 Unicast Addressing
IPv6 Global Unicast (and Anycast) Addresses
Link-Local Addresses
Larger Address Space Enables Address Aggregation
Assigning IPv6 Global Unicast Addresses
IPv6 EUI-64 Interface Identifier
Stateless Autoconfiguration
DHCPv6 (Stateful)
DHCPv6 Operation
IPv6 Routing Protocols
RIPng (RFC 2080)

Better Value, Better Results!

**107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW**

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com

Cisco CCNA Course Outline
Exam 640-802
8 days

IPv4-to-IPv6 Transition
Cisco IOS Dual Stack
IPv6 Tunneling
Manually Configured IPv6 Tunnel
Enabling IPv6 on Cisco Routers
IPv6 Address Configuration Example
Cisco IOS IPv6 Name Resolution
Configuring and Verifying RIPng for IPv6
RIPng for IPv6 Configuration Example
Summary
Chapter 7 Review

Chapter 8 - LAN Extension into a WAN

LAN Extension into a WAN
Introducing VPN Solutions
What Is a VPN?
Benefits of VPN
Site-to-Site VPNs
Remote-Access VPNs
Cisco Easy VPN
Cisco IOS IPsec SSL VPN (WebVPN)
VPN-Enabled Cisco IOS Routers
Cisco ASA Adaptive Security Appliances
VPN Clients
What Is IPsec?
IPsec Security Services
Confidentiality (Encryption)
Encryption Algorithms
DH Key Exchange
Data Integrity
Authentication
IPsec Security Protocols
IPsec Framework
Summary
Establishing a Point-to-Point WAN Connection with PPP
Typical WAN Encapsulation Protocols
An Overview of PPP

PPP Session Establishment
PPP Authentication Protocols: PAP
PPP Authentication Protocols: CHAP
Configuring PPP and Authentication Overview
Configuring PPP and Authentication
PPP and CHAP Configuration Example
Demo - CHAP
Verifying the PPP Encapsulation Configuration
Verifying PPP Authentication
Verifying PPP Negotiation
Summary
Establishing a WAN Connection with Frame Relay
Frame Relay Overview
Frame Relay Terminology
Selecting a Frame Relay Topology
Resolving NBMA Reachability Issues
Frame Relay Address Mapping
Frame Relay Signaling
Stages of Inverse ARP and LMI Operation
Configuring Basic Frame Relay
Configuring a Static Frame Relay Map
Configuring Frame Relay Subinterfaces
Configuring Frame Relay Point-to-Point Subinterfaces
Configuring Frame Relay Multipoint Subinterfaces
Verifying Frame Relay Operation
Demo - Frame Relay
Summary
Troubleshooting Frame Relay WANs
Components of Troubleshooting Frame Relay
Troubleshooting a Frame Relay Link That Is Down
Troubleshooting Frame Relay Remote Router
Connectivity
Troubleshooting Frame Relay End-to-End
Connectivity
Summary
Chapter 8 Review

Course Closure

Better Value, Better Results!

107 Coney Green Business Centre, Wingfield View, Clay Cross, Derbyshire,
S45 9JW

Telephone: 0845 054 3601

Fax: 01246 252862

Email: sales@cybacoach.com

www.cybacoach.com