Hands-On
Cisco Routers / Switches Simplified
Installation, Configuration, Maintaining and Troubleshooting

BTS
Real-World Experience

Course Description

This powerful Hands-On course will cover the essentials in successfully Implementing and supporting Cisco routers/switches in your organization's environment. A practical approach will be accomplished by building, adding, modifying, and troubleshooting a Cisco router network in class. Additional components such as switches, hubs, TFTP, servers will be added to build a realistic network. Debug commands and protocol analyzers will be utilized. The instructor will introduce configuration and hardware faults into the network to test the students newly acquired knowledge. This class is designed to be light on theory and heavy on practical application. More than half of class time will be spent performing Hands-On labs.

To be successful in this technology, Hands-On Experience is a MUST! We have many students that come back through this specific course even after passing their Certification exam to get more Hands-On practical experience by having this complex routing simplified. This course will provides 'Hands-On' Real-World experience by having students Configure, Implement and Debug over a LIVE in-class Cisco Router network.

Students Will Learn

- **Understand how to move around the Cisco IOS command executive.**
- **Configure a Cisco router for IP routing.**
- **Create and apply successful IP subnet addresses.**
- **Configure RIP and OSPF routing protocols .**
- **Become aware of how switching and routing can compliment one another.**
- **Configure a Cisco switch for access ports and trunking.**
- **Configure access lists for performance and security purposes.**
- **Become familiar with the various show commands for configuration verification and troubleshooting.**
- **Examine routing protocols using router debug commands.**
- **Examine routing protocols using a protocol analyzer.**
- **Troubleshoot a Cisco router network using PING, trace route, debug, and telnet.**
- **And more**

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Target Audience

This is not a CCNA Exam focused course, this course is geared for to give attendees a practical Hands-On experience using Cisco Routers/Switches.

Contractors, facilities managers, systems engineers, telecom managers and anyone involved in the implementation, Configuration, support, installing, maintaining, troubleshooting and or working in a Cisco Router environment.

Prerequisites

A basic understanding of Telecommunications, Networks and Internetworking Applications or equivalent knowledge.

Course Outline

Module I.   A Jump Start on the Cisco IOS

A. User interface characteristics
B. The command executive
C. User and executive privilege mode
D. Context sensitive help
E. Editing features using the Cisco IOS
F. Router memory: ROM, NVRAM, RAM and Flash
G. Types of router ports
H. Using the setup command
I.   Techniques for accessing routers and their security
J. Writing configuration files to a TFTP server
K. and more...

Module II.   Overview of Network Architectures

A. TCP/IP layered architecture and its components
B. TCP/IP applications
C. IP addressing structure and subnetting
D. Relationship between the local physical address and IP address
E. Managing IP addresses: RARP, BootP and DHCP
F. IP and ICMP
G. Routing protocols: RIP, OSPF, NLSP, IGRP and EIGRP
H. and more...

Module III.   IP Router Configuration

A. Configuring IP addresses and routing protocols
B. Configuring static routes
D. Required IP configuration commands
E. IP routing tables
F. Associated show commands
G. Access lists
H. and more...

Module V.   VLAN Connectivity

A. Introduction to VLANs
B. Dot 1Q trunking
C. VLAN Priorities
D. VLANs for security and resource control
E. and more...

Module VI.   Switch Configuration

A. Differences between LAN switching and routing
B. Advantages and disadvantages
C. Spanning Tree
D. Access Port and Trunking configuration
E. VLAN configuration
F. and more...

Module VII.   Troubleshooting a Cisco Router and Switch Environment

A. Router and Switch network troubleshooting techniques
B. Additional troubleshooting tools: WAN testers, protocol analyzers
C. Ping and its variations, trace route
D. Debug commands
E. and more...

Notes

Experiments

Experiment 1 Construct a Cisco router network and use PING and trace route to test for successful communication.
Experiment 2 Configure a workstation for a default router.
Experiment 3 HyperTerminal Exercise Setting up a HyperTerminal connection into the router console port.
Experiment 4 Access a Cisco router from its management port for configuration purposes.
Experiment 5 Command Line Interface Basics and Basic Commands.
Experiment 6 Utilize basic router commands to configure passwords and show configuration options on the router.
Experiment 7 Configure name services for your Cisco router.
Experiment 8 Configure an IP static route.

Experiment 9 Interconnect all classroom routers and test for network integrity.
Experiment 10 Configure router configuration for RIP networking.
Experiment 11 View RIP routing communication using DEBUG commands.
Experiment 12 View RIP routing communication using a protocol analyzer.
Experiment 13 Configure a router for OSPF networking.
Experiment 14 View OSPF routing communication using DEBUG commands.
Experiment 15 View OSPF protocols using your protocol analyzer.
Experiment 16 Configure Cisco's Switches for Access Ports
Experiment 17 Configure Cisco Switches for 802.x Trunking.
Experiment 18 Configure VLAN connectivity on Cisco Switches.
Experiment 19 View Switch configurations through command line interface commands.
Experiment 20 Load Cisco router and switch configurations to a remote TFTP server.
Experiment 21 Access a Cisco router and switch using telnet.
Experiment 22 Using telnet access other classroom routers for configuration and diagnostic information.
Experiment 23 Use PING and its variations to troubleshoot a router network.
Experiment 24 Create Cisco router simple access lists for security.
Experiment 25 Create Cisco router advanced access lists for security.
Experiment 26 Your instructor will place various configuration and
hardware faults into the Cisco router network. Students will exercise various tools
they have learned to use for fault isolation in these typical router network issues.
And More...

Delivery Method

Instructor led with numerous "Hands-On labs and exercises.

Equipment Requirements
(This apply's to our hands-on courses only)

BTS always provides equipment to have a very successful Hands-On course. BTS also encourages all attendees to bring their own equipment to the course. This will provide attendees the opportunity to incorporate their own gear into the labs and gain valuable training using their specific equipment.

Course Length

3 Days

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