Learning Services

Cisco Training on Demand

Internetworking Technology Overview (ITO)

Cisco Training on Demand

Overview

The Internetworking Technology (ITO) Cisco® Training on Demand course is part of the Cisco Technical Assistance Center (TAC) curriculum. In the ITO course, you learn about common internetworking technologies as you build more specialized skills. All theory, design, implementation, and troubleshooting lessons are presented using on-demand video content.

Even if you are starting with little to no networking experience, you can quickly build confidence as you develop new internetworking skills. ITO presents technical content through clear descriptions of the specific problem each technology solves and established relevance of theoretical details.

In the ITO labs, you learn to configure, verify, and troubleshoot networks based on design criteria.

Interested in purchasing this course in volume at discounts for your company? Contact ctod-sales@cisco.com.

Duration

The ITO Training on Demand course consists of 11 modules and 83 lessons totaling more than 47 hours of video instruction, along with 14 hands-on lab exercises.

Target Audience

ITO is intended for anyone who is starting out in data networking or is a technical professional who needs to gain foundational and practical knowledge of data networking.

Objectives

After completing this course, you should be able to:

- Design a network to meet specific performance requirements
- Explain the differences between a collision domain, broadcast domain, and a subnet
- Describe how Layer 3–to–Layer 2 address resolution methods work
- Select the correct type of cable for various Ethernet, serial, time-division multiplexing (TDM), and asynchronous connections
- Make correct interconnections and know the differences between data terminal equipment (DTE) and data communications equipment (DCE) devices
- Use the OSI reference model to methodically build and troubleshoot networks
- Identify the key fields of protocol data units to support protocol multiplexing
- Use the Cisco IOS® Software command-line interface (CLI) to configure routers and switches
- Name the optimal Cisco IOS commands to verify and troubleshoot network problems
- Optimize performance of the Spanning Tree Protocol (STP) on a Layer 2 switched network
- Carry multiple VLANs over a single link with 802.1Q encapsulation
- Explain how routing works and the significance of the Layer 2 rewrite
- Implement basic network security principles
- Automatically allocate IP addresses to network devices using Dynamic Host Configuration Protocol (DHCP)
- Solve any subnetting challenges
- Simulate large networks with loopback interfaces
- Demonstrate understanding of routing by building a high-availability network that routes traffic using only static routes
- Describe the longest match process
- Use ping and traceroute to isolate and solve network connectivity problems
- Explain key differences between popular routing protocols
- Implement dynamic routing on an IPv6 network
- Describe when, where, and why Network Address Translation (NAT) is useful
- Explain the key differences between IPv4 and IPv6
- Use tunneling to send network traffic secretly through another network

Course Prerequisites

The knowledge and skills necessary before attending this course are:

- Basic working knowledge of the Internet, such as how to use browser applications

Course Outline

- Module 1: Theory and Prelab Preparation
- Module 2: Basic Switching STP (802.1d)
- Module 3: Trunks, VTP, VLANS, PVST+
- Module 4: IP Addressing, IP Testing, ARP Verification
- Module 5: Cisco IOS Exec Modes, VTYs, Improving Security, File System
- Module 6: Add End Stations, Optimize STP Performance
- Module 7: DHCP, Basic Inter-VLAN routing, CDP
- Module 8: Four Routers of Fun
- Module 9: Redundant Routing and Gateway of Last Resort
- Module 10: Routers Lie! R.I.P. to our Beloved Static Routes
- Module 11: "Stealth" IPv6 and RIPing

Labs Outline

This course contains 14 hands-on virtual lab exercises, powered by Cisco Learning Labs and Cisco IOL (Cisco IOS Software on Linux). The topology for all labs is shown in Figure 1.

Figure 1.   Topology for All Labs in ITO Course
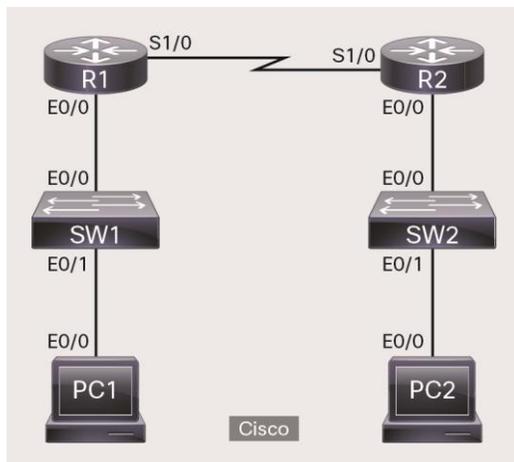
The labs included in this course are:

- Configuration Lab 1: Basic Router Configuration and the Command-Line Interface
- Configuration Lab 2: Configuring Static Routes
- Configuration Lab 3: Configuring RIP V2 Routing
- Configuration Lab 6: Router Configuration Challenge I
- Configuration Lab 7: Basic Switch Configuration and the Command-Line Interface
- Configuration Lab 8: Static VLAN Configuration and Trunking
- Configuration Lab 9: Switch Configuration
- Configuration Lab 10: Configuring Dynamic NAT with Overload

- Configuration Lab 11: IPv6 Router Configuration

- Troubleshooting Lab 1: Router Configuration

- Troubleshooting Lab 3: Switch and VLAN Problems

- Troubleshooting Lab 7: Router/NAT Configuration

- Troubleshooting Lab 8: Switch and VLAN Problems

- Troubleshooting Lab 9: IPv6 Configuration Problems

Instructor: Dave Broenen

Dave Broenen is a rational-process expert and technical trainer with more than 30 years of experience in computing and internetworking. His passion is to help others remove obstacles that stand between them and their true potential. Broenen focuses on skills development for technical professionals. Having a CCIE certification since 2000, Broenen has also been awarded the Kepner-Tregoe International Process Achievement Award for Innovation.

Supported Configurations

Cisco Training on Demand videos are supported on PCs, Macs, and tablets using one of the following browsers, or later: Mozilla Firefox 30, Google Chrome 35, and Apple Safari 6. The labs are supported on PCs and Macs but not on tablets.

Cisco Capital

Financing to Help You Achieve Your Objectives

Cisco Capital can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. Learn more.