Learning Services

Cisco Training on Demand

Building Core Networks with OSPF, IS-IS, BGP and MPLS Bootcamp (BCN)

Overview

Building Core Networks with OSPF, IS-IS, BGP, and MPLS Bootcamp (BCN) is a Cisco Training on Demand course that provides you with the required knowledge and skills to design, deploy, operate, and maintain an ISP backbone network.

This course takes you through the process of building a network from scratch, starting with Interior Gateway Protocols (IGP), moving to Border Gateway Protocols (BGP), and then to Multi-Protocol Label Switching (MPLS). The course begins by asking the question, What is an interior gateway protocol? and then proceeds to distinguish the two interior link-state protocols: Open Shortest Path First (OSPF) and Intermediate System to Intermediate System (IS-IS), as well as their characteristics.

You also learn how to set up a basic BGP configuration. BGP is a path-vector protocol that exchanges routing information between autonomous systems. You learn to set up interior and exterior neighbor peering sessions and policies because we don’t always want to advertise certain routes to certain neighbors. Peering session policy is accomplished with multiexit discriminator (MED) and local preference, and there are two ways to establish criteria for multihoming. Multihoming, or multiple connections, is a strategy that reduces the potential for catastrophic failure should any one router in a network fail. Basic MPLS configuration and VPN functionality is examined to see how they ensure isolated and secure traffic. This course also shows how to build traffic-engineering tunnels from head-end router to tail-end router, and test how dynamic traffic rerouting occurs to maintain traffic flow.

Interested in purchasing this course in volume at discounts for your company? Contact ctod-sales@cisco.com.
Duration
The Building Core Networks Training on Demand course consists of 5 modules and 56 lessons, totaling more than 14 hours of video, along with 11 hands-on lab exercises.

Target Audience
The BCN course is intended for network professionals, including designers, implementers, and support staff who are involved with the design and deployment of large-scale networks for large enterprises or high-end ISP networks that use scalable technologies, such as IS-IS, OSPF, BGP, or MPLS.

Objectives
After completing this course, you should be able to:

- Identify the critical factors for availability, scalability, and manageability
- Implement an IGP (either OSPF or IS-IS) in a large-scale hierarchical network using current best practices for scalability
- Implement BGP in a large-scale hierarchical network using best practices for scalability
- Control routing policy by influencing the BGP path selection process, using route maps, prefix lists, and community strings
- Implement multihoming strategies using MEDs and local preference
- Implement and verify MPLS functionality in a large-scale network
- Implement and verify MPLS VPN connectivity in intra-autonomous-system environments
- Implement and verify MPLS traffic engineering practices
- Implement Layer 2 VPNs using Any Transport over MPLS (AToM)

Course Prerequisites
Before taking this course, you should have working knowledge and skills about the following:

- Cisco CCENT® certification or Interconnecting Cisco Networking Devices Part 1 (ICND1) training, or equivalent course or work experience
- Exposure to TCP/IP network design

Course Outline
- Module 0: Welcome and Introduction
- Module 1: Building Core Networks
- Module 2: Implementing Link-State Protocols (IS-IS & OSPF)
- Module 3: Border Gateway Protocol
- Module 4: Implement & Troubleshoot MPLS
Labs Outline

This course contains 11 hands-on virtual lab exercises, powered by Cisco Learning Labs and Cisco IOL (Cisco IOS® Software on Linux). Following in Figure 1 is the topology used in one of the labs in the course.

**Figure 1.** Topology from One Lab in Course

The labs included in this course are:

- Lab 2-1A: Configure and Verify OSPF in the Core Network
- Lab 2-1B: Configure and Verify IS-IS in the Core Network
- Lab 3-1: Configure and Verify Basic IBGP
- Lab 3-2: Configure and Verify EBGP
- Lab 3-3: Scale BGP with BGP Peer Templates and Route-Reflectors
- Lab 3-4: Configure BGP Route Filtering
- Lab 3-5: Configure Multihoming Policy
- Lab 4-1: Configure and Verify MPLS
- Lab 4-2: Configure Intranet MPLS VPNs
- Lab 4-3: Configure Extranet MPLS VPNs
- Lab 4-4: Configure MPLS-TE
Instructor: Randy Aubel

Randy Aubel, with more than 25 years as a technology instructor, has been teaching Cisco technologies exclusively for 7 years. Currently based in Georgia, Aubel travels the world to teach Cisco students about a wide variety of technologies. A veteran of teaching this course, Aubel is privileged to bring you his knowledge and expertise through this Cisco Training on Demand.

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.

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