
Building Core Networks with BGP, OSPF and MPLS

Duration: 5 Days **Course Code: BCMPL**

Overview:

This 5 day course uses a combination of lecture, white papers, and hands-on laboratory exercises to teach participants how to design, deploy, and maintain an Internet Service Provider (ISP) backbone. It is focused on the operational design and scaling principles of routing protocols used in large-scale networks. The premise of the course is to provide adequate hands-on practice with techniques used in implementing protocols such as OSPF, BGP, and MPLS in an ISP network so that students learn the techniques and can use them in their production network.

Target Audience:

This course is intended to introduce engineers and managers to Service Provider networking including BGP and MPLS design and implementation. The course will extend basic knowledge of OSPF and BGP and introduce MPLS and MPLS services such as VPN. Customers connecting to such services would also benefit from the course.

Objectives:

- Identify the critical factors for scalability of a given large network design.
 - Implement an IGP, such as OSPF, into a large scale multi-layer network using best current practices for scalability
 - Implement BGP into a large scale multi-layer network using best current practices for scalabilityControl routing policy by influencing the BGP path selection process using route maps and prefix lists
 - Implement multihoming strategies
 - Implement and verify MPLS functionality in a large scale multi-layer network
 - Implement and verify MPLS VPN connectivity in intra-AS environments
 - Implement and verify MPLS Traffic Engineering practices
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Prerequisites:

- Field experience using the IOS command line interface (CLI) to configure, maintain and troubleshoot Cisco routers as this course is lab-intensive.
- Cisco IOS, routing fundamentals and IP addressing knowledge as covered in ICND (Interconnecting Cisco Networking Devices) course, or equivalent experience. CCNA certification is the preferred source to gain this knowledge.
- TCP/IP network design knowledge

Testing and Certification

Currently No Exam for this course

Follow-on-Courses:

- MPLS – Implementing Cisco MPLS
 - MPLST- Implementing Cisco MPLS Traffic Engineering and other Features
 - BGP – Configuring BGP on Cisco Routers
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Content:

Introduction to Building Core Networks with OSPF, BGP and MPLS Boot Camp

- Objectives

ISP Network Design 1

- Topology
- IP Addressing
- Routing Protocols

Navigating the Lab 1

- What are best current practices for Basic configuration
- What are some Command Line Shortcuts
- Lab Topology
- Lab Network Implementation Package
- What is the ISP/MPLS Lab Topology

Implementing OSPF 1

- Link State Protocol
- OSPF
- Scaling OSPF
- OSPF Deployment
- Configuring OSPF

Implementing BGP 1

- What is BGP
- What is eBGP
- Configuring BGP

Scaling BGP

- BGP Scaling Issues and Solutions
- Peer Groups
- Dynamic Reconfiguration
- Scaling with Route Reflectors
- What are Confederations

Implementing BGP Policy Control

- Routing Policy
- Applying Policy with BGP
- How does BGP Control Routing Policy
- How Do I configure Routing Policy

ISP Case Study – PIPEX 1

- Network Design Principal
- PoP Design Principle
- Routing configuration
- Services Locations

Implementing MPLS 1

- What ; Why MPLS.
- How Does MPLS Work
- What Can I Do With MPLS
- How Do I Configure MPLS

Implementing MPLS Virtual Private Network (VPN)

- What is a VPN
- How Do MPLS VPNs Work
- What are Some MPLS VPN Scaling Techniques
- How Do I Configure MPLS VPN's

Implementing MPLS Traffic Engineering (TE)

- Why Traffic Engineer
- How Does MPLS-TE Work
- What Can I Control with MPLS-TE
- How Do I Configure MPLS

AToM and L2 VPNs

- What is AToM
- How Does AToM Work
- How Do I configure AToMWhat are Layer 2 VPNs

Further Information:

For More information, or to book your course, please call us on 353-1-814 8200

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