

Interconnecting in IP Networks

As the communications industry transitions to wireless and wireline converged networks to support voice, video, data and mobile services over IP networks, a solid understanding of IPv4 and IPv6 networking along with their use for inter-networking is a must for all telecom professionals. As the services and applications of wireless networks continue to expand, the backbone must evolve to support them. Multi-Protocol Label Switching (MPLS) is designed to make the backbone fast, scalable and manageable, and capable of carrying heavy traffic, supporting QoS. This course presents a technical overview including a discussion on the architecture of MPLS, the components of the MPLS network and the supporting protocols required for MPLS. It is a modular introductory course only on MPLS basics as part of the overall eLearning IP fundamentals curriculum.

Intended Audience

This course is intended for anyone seeking a basic level overview of the MPLS and IP interconnecting architectures.

Objectives

After completing this course, the student will be able to:

- Describe the motivation behind MPLS
- State the role of MPLS in the convergence of networks
- List key applications of MPLS
- Sketch the architecture of MPLS
- Describe the important components and operations of MPLS
- Describe how MPLS is used to set up layer 3 and layer 2 VPNs

What You Can Expect

- Self-Paced Duration: 1.5 HOUR

Outline

1. Why MPLS?

- 1.1 Advantages of MPLS
- 1.2 New applications

2. MPLS Networks

- 2.1 MPLS domain
- 2.2 Label edge router
- 2.3 Label switch router

3. MPLS Terminology

- 3.1 Label Switched Paths (LSP)
- 3.2 Forward Equivalence Class (FEC)
- 3.3 Structure of a label

4. Packet Forwarding Along LSPs

- 4.1 Label Forwarding Information Base (LFIB)
- 4.2 Packet forwarding along LSPs
- 4.3 Label stacking

5. MPLS and Virtual Private Networks

- 5.1 VPNs support in MPLS
- 5.2 Layer 3 and Layer 2 VPNs establishment in MPLS
- 5.3 Label stacking and VPNs
- 5.4 MPLS based L2 VPN solutions