Course ID
MPLSEA
Course Duration
2-3 days

Course Title
MPLS: Emerging Applications

Related Courses

- MPLS: A Short Tutorial (1 day, MPLS1D)
- MPLS: Integrated Routing with End-to-End QoS for the Next Generation Networks (2-3 days, MPLS)
- Multimedia Applications: IMS, SIP, and VoIP (2 days, MULTIMEDIA)
- IP-Based Systems: TCP/IP and Mobile IP (2-3 days, IPSYS)
- Internetworking with TCP/IP Version 6 (2-3 days, IPV6)
- ATM: A Survival Course (3 days, ATM)

Aimed At

Those with a technical background and familiarity with data networking concepts and with MPLS who wish to acquire a more detailed knowledge of MPLS's capabilities and future direction. This course is suitable for technical professionals who design and implement MPLS networks.

Group Size

5-25

Prerequisites

You should have some prior familiarity with data networking concepts and TCP/IP. An understanding of Frame Relay, ATM, and TDM is helpful.

Course in a Nutshell

This course provides a high-level review of Multi Protocol Label Switching (MPLS) basics followed by a detailed discussion of some of the up-and-coming features of MPLS such as circuit emulation, Multicast applications, scalability enhancements, and OAM features.

Customize It!

We will be pleased to customize this course to your specific needs, usually at little-to-no additional cost, by adding or omitting topics, increasing or decreasing the level of detail, or making other changes as requested. Those who need a detailed technical treatment of the subject should consider our longer MPLS course listed under Related Courses.

Learn How To

Upon course completion, you will be able to:

- Summarize the key capabilities and features of MPLS
- List the newer features of MPLS
- Describe the basic architecture of MPLS
- Explain the operation of MPLS
- List the major MPLS services and applications

Course Outline

- Introduction
  - Why MPLS
  - Players involved with the MPLS specs
  - Basic MPLS framework
  - Today's MPLS applications
- MPLS Control Plane
  - Routing Protocols
    - Non-TE
    - OSPF-TE
    - IS-IS-TE
  - Signaling Protocols
    - LDP
    - RSVP-TE
- MPLS Data Plane
  - Shim header format
  - Cell-mode header format
  - Frame-relay mode header format
  - GMPLS
- MPLS VPNs
  - Layer 3: BGP-based
  - Layer 2: Point-to-point
  - Layer 2: Multipoint
  - Layer 1 circuit emulation
- MPLS TE
  - TE Parameters
  - CSPF algorithm
  - Backup mechanisms
  - QoS guarantees
- Emerging MPLS Applications
  - Multicast/triple play
  - Inter-AS/CSC
  - Circuit emulation
  - Hierarchical LSPs
  - Resilience and OAM
- Multicast L2/L3
  - Mcast backbone requirements
  - P2MP LSPs
  - P2MP PW
  - BGP P2MP

- mVPN

- Inter-AS/CSC
  - Inter-carrier requirements
  - MPLS-ICI
  - Multi-segment PW
- Circuit Emulation
  - SAToP
  - CESoPSN
  - TDMoIP
  - CEM
- Hierarchical LSP's
  - Route aggregation and H-LDP
  - Hierarchical resource reservation
- MPLS Resilience and OAM
  - Node/network level recovery
  - LSP/PW ping/traceroute
  - VCCV
  - PW redundancy
  - MC-LAC
  - MPLS/Ethernet OAM interworking
- Conclusion: Recap, Q/A, and Evaluation

How You Will Learn

- You will learn from someone who is knowledgeable and experienced in MPLS and related technologies.
- We will conduct this class as an interactive lecture, with plenty of opportunity for participation and discussion of issues of interest to you.
- If you already know something about data networks, we will build on that knowledge. If your background is less technical, we will review the necessary background material before proceeding with the class, using examples and analogies to simplify the complex topics.
- You will receive a copy of the instructor presentation for review and reference after the class.

Revised *Jan 21, 2008*