

Multi-protocol Label Switching Training Program (MPLS)



This Program is ideally suited to following individuals who are:

- Fresh University Graduates and like to learn MPLS technology.
- Already working class who are willing to update and learn the new methodologies of MPLS and its implementation
- Datacenter, Professional, Network and Telecom Engineers and Professional may also learn MPLS.

Program is offered by: 3D Educators – Trainers & Consultants

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Program Details

Inauguration

The Training Program will be inaugurated by a senior member of 3DEducators

Program Structure

Number of classes in a week	Two Class Per Week
Duration of each class	2-Hour
Total Duration	48 Hours

Other Learning Activities:

Labs Interactive with CISCO	8
Presentations by Trainees	1

About the Program Designer & Instructor

The "MPLS" Program has been designed by the International company CISCO and will be conducted by Senior most consultants who having the huge experience of training and implementation On CISCO System. They have worked with various large multinational organizations and provide the training in local and abroad.

The Trainers who are conducting this program have the following positions in the different organization:

- ✓ CCIE, CCNP, CCNA
- ✓ Telecom Engineers
- ✓ CISCO Engineers

They trainers are foreign qualified and having the degrees of PhD, MBA (MIS), BE (Telecom), MCSE + I, MCDDBA, A+ Certified and CCIE, CCNP, and CCNA Certified. s

Program Syllabus

COURSE CONTENTS:

Course outline MPLS

Understanding MPLS Network

Overview

Module objective

Introducing MPLS Networks

- The MPLS Conceptual model
- Router switching mechanisms
- MPLS architecture
- MPLS Labels
- Label switch Routers
- LSR component Architecture

Assigning MPLS Labels to Packets

- Overview
- Objectives
- Labels allocation in a frame mode MPLS Environment
- Label distribution and advertisement
- Populating the LFIB table
- Packet propagation across an MPLS network
- Penultimate Hop popping

Route Selection

- Basics
- Standard IP and MPLS
- IP Forwarding
- MPLS Label Distribution
- Label Switched Path (LSP)
- Explicitly Routed LSP (ER-LSP): Basics, Example, Advantages



- Hop-by-Hop versus Explicit Routing

Virtual Private Networks

- Overview of VPNs
- Connection-Oriented VPNs
- Connectionless VPNs
- Comparison of VPN Technologies
- Advantages of MPLS VPNs

Packet-Based MPLS VPNs

- Basics of MPLS and BGP
- MPLS VPN Operation
- Verifying VPN Operation
- BGP Route Reflectors
- Carrier-over-Carrier MPLS VPNs
- Internet Access over MPLS VPNs
- Trace Route Enhancements
- MPLS VPN Management

MPLS Traffic Engineering

- The Need for Traffic Engineering on the Internet
- Unequal-Cost Load Balancing via Metric Manipulation
- Advantages of MPLS Traffic Engineering
- MPLS Traffic Engineering Elements (Dynamic/Static LSPs)
- MPLS Traffic Engineering Configuration
- Configuration Case Study of an MPLS Traffic-Engineered Network (IS-IS)
- Configuration Case Study of an MPLS Traffic-Engineered Network (OSPF)

MPLS Quality of Service

- Introduction to Quality of Service
- Integrated Services
- IP Precedence
- Differentiated Services



- Modular QoS CLI
- MPLS Implementation of DiffServ
- MPLS VPN Support of QoS
- MPLS QoS Implementation
- Configuring QoS for MPLS VPNs
- MPLS QoS Case Study

MPLS Design and Migration

- MPLS VPN Design and Topologies
- Migrating MPLS into an ATM Network
- ATM MPLS Design Criteria
- Designing MPLS Networks
- Additional MPLS Design Considerations

DiffServ Support in MPLS

- Basics
- Types of LSPs for DiffServ Support
- EXP-Inferred-PSC LSP (E-LSP)
- Label-Only-Inferred-PSC LSP (L-LSP)
- Bandwidth Reservation for E-LSP and L-LSP

Implementing Frame Mode MPLS

- Overview
- Objective
- Defining MPLS VPN
- MPLS VPN Architecture
- Propagation of Routing Information across the P-Network
- End to End Routing Information Flow
- MPLS VPNs and Packet Forwarding
- Module Summary
- Module self-check
- Module self-check answer key

- MPLS Traffic Engineering
- MPLS Quality of Service