Introduction to MPLS

Description

Multi-Protocol Label Switching, MPLS, has long became the core for cellular and landline networks, along with some adaptation by large-scale private networks. In this course we describe the technology, its core protocols and how it is implemented in provider networks.

Objectives

Upon completion of this course, the student will be able to:

- Understand the architecture of MPLS networks
- Understand the main protocols and how they are implemented
- Understand how MPLS networks are integrated in service provider networks

Target Audience

R&D, engineering and technical Support, IT and communications managers

Prerequisites

Good knowledge in networking and TCP/IP

Duration

1 Day

Outline

1. MPLS Basics and Operation
    - The concept of MPLS
    - Benefits of MPLS
    - Applications of MPLS
    - The control and data lanes
        - The data plane and label forwarding
        - The control plane, routing, multicast routing, VPN routing, TE and QoS
2. Technology basics and Architecture
    - Label definition
    - Network structure

- LSR and E-LSR
- Label Switch Path
- Label stack

- Technology basics – Labels and LDP
  - LDP operation
  - Label Distribution
- TE – Traffic Engineering
  - TE – Overview
  - TE information distribution
  - TE LSPs
  - RSVP
- Segment Routing
  - Operations principles (brief)
- Network examples

3. MPLS VPN Technology (1.0H)
   - Virtual Private Networks
   - MPLS VPN Architecture
   - BGP in MPLS networks
   - VRFs and services
   - MPLS VPN Routing and Forwarding tables
     - MPLS VPN Routing Requirements
     - MPLS VPN Routing - CE Router Perspective
   - VPLS and VPLS architecture
     - VPLS control and data plane
     - VPLS signalling