

**COURSE 114 MPLS, IP SECURITY, INTERNET, CONTENT AND CLOUD SERVICES**

A one-day course for non-engineers on security and carrier networks and services.

We'll begin with practical introduction to business IP services from carriers like AT&T, including the important concepts of Service Level Agreements and Class of Service. Without bogging down on details, we'll understand MPLS and how it is used by carriers internal to their networks for traffic management.

Next, we will survey of all of the different aspects of IP security, from basic network security design to encryption, VPNs and certificates and threats like viruses

This course finishes with the Internet, understanding what ISPs are, wholesale IP, Content Delivery Networks and Cloud services.

**1. CARRIERS AND CLASS OF SERVICE**

- Carrier Packet Network Basics
- Service Level Agreement
- Class of Service (CoS)
- Provider Equipment at the Customer Premise
- Service Assurance

**2. MPLS**

- Virtual Circuits
- MPLS: Label-Switched Paths & Label-Switching Routers
- MPLS VPNs for Business Customers
- MPLS and Diff-Serv to Support Classes of Service
- MPLS for Service Integration
- MPLS for Traffic Aggregation

**3. IP SECURITY**

- Risks, Measures and Policy
- Network Segmentation and Perimeters
- Packet Filtering and Port Filtering
- Firewalls & Stateful Packet Inspection
- Public Key Encryption, Authentication
- IPsec and Internet VPNs
- Digital Certificates
- Malicious Software: Viruses, Trojans
- VoIP Security Risk Areas

**4. THE INTERNET AND ISPS**

- The Inter-Net
- Domain Name System
- Internet Service Providers (ISPs)
- IP Interconnect: IXs, transit and peering
- Internet IP service vs. Business customer "MPLS" IP service
- The Internet of Things (IoT)

**5. CONTENT DELIVERY AND CLOUD SERVICES**

- Content Delivery Networks
- IPTV and Video Servers
- Netflix Appliance
- Virtualization
- Cloud Storage
- Cloud Computing