

Course ID

TCPIP2

Course Duration

2 days

Related Courses

Course Title

TCP/IP Networks: Advanced Topics

- TCP/IP Short-course (TCPIP1, 1 day)
- SDN: Software Defined Networks (SDN1, 1 day)
- SDN/NFV: Software Defined Networks & Network Functions Virtualization (SDN-NFV, 2 days)
- Modern Telecommunications Overview (TELECOM1, 2-5 days)

Aimed At

Managers and professionals, both corporate and Government, whose work requires an overview of TCP/IP Networks.

Prerequisites

- TCP/IP Networks: An Overview (TCPIP3, 3 days)

Course in a Nutshell

This course offers an in-depth look at IP and IP-based networks. Covered are Network Management with SNMP, Internet Security (Secure Shell, MPLS-based VPNs, Firewalls, IPSec), VoIP, ASON, OTN, Software-defined Networks (SDN), Network Functions Virtualization (NFV), M2M (Machine-to-Machine) communications, and Internet of Things (IoT).

Customize It!

We can tailor this course's content and technical depth to suit the audience backgrounds and needs.

Learn How To

- IP network management and control planes
- Security of IP-based networks
- How MPLS networks operate and how IP fits in with MPLS
- MPLS VPNs
- VoIP technology and security
- Ethernet and new very high speed Ethernet technologies and IP networks
- Familiarity with emerging services and their interaction with IP, including SDN (Software Defined Network), NFV (Network Function Virtualization), IoT (Internet of Things), and M2M (Machine-to-Machine) communications

Course Outline

- Course overview
- Review of IP essentials
- Network management
 - Nature of Internet traffic-heavy tails and implications
 - Simple Network Management Protocol (SNMP)
 - Network control planes
 - Criteria for network build out and optimal performance
 - Net neutrality and its implications
- Network security
 - Nature of threats and how they impact IP networks
 - Ways to secure IP traffic
 - QoS and IP security
- Secure shell (remote access)
 - Using SSH
 - SSH basics
 - SSH features and architecture
 - SSH protocol operation
 - SSH in action
- Using MPLS to create Virtual Private Networks (VPNs)
 - Tunneling protocols and PPTP
 - Layer 3 MPLS VPNs
 - Layer 2 MPLS VPNs
 - Advantages/disadvantages of MPLS for VPNs
- Network Address Translation (NAT)
 - Purpose of NAT
 - Using NAT
 - Four types of NAT
 - NAT in action
- Firewalls and packet inspection
 - What firewalls do
 - Types of firewalls
 - DMZs and how they work
 - Networx and EIS: The Einstein enclave
- IP security
 - IPSec in action
 - Introduction to IPSec
 - DNS Security
 - Security policies and implementations

- Ethernet, SONET and IP
 - The layer one-layer two problem
 - IP over DWDM?
 - High-speed Ethernet
 - IP over Ethernet
 - Post-SONET Ethernet
 - Future network architectures
- VoIP
 - Why VoIP has taken over
 - Packetized voice
 - VoIP protocols
 - Ways of implementing VoIP
 - Assembling VoIP systems
- Virtualization
 - Network Function Virtualization (NFV)
 - Virtualization on the communications side
 - Virtualization on the equipment side
- Internet of Things (IoT) and Machine-to-Machine (M2M) Communications
 - Internet of Things (IoT): What it is, architecture
 - Machine-to-Machine Communications (M2M): What it is, where it fits, architecture
- The cloud and IP networks
 - Brief history
 - What it can do and what it is expected to do in future
 - How cloud relates to telecom
 - The cloud and Network, EIS
- Emerging network technologies and IP
 - Optical Transport Network (OTN)
 - Generic Framing Protocol (GFP)
 - Next Generation Network (NGN)
 - Automatic Switched Optical Network (ASON)/Generalized MPLS (GMPLS)
- Software Defined Networking (SDN)
- IP Multimedia System (IMS)
 - What it is, goals
 - How it is envisioned to work
 - Relationship with other technologies

- Fixed/mobile convergence
- Course Summary

DCN

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