Course ID
TCPIP1
Course Duration
1 day

Course Title
TCP/IP Short-course

Related Courses

- TCP/IP Networks Overview (TCPIP3, 3 days)
- TCP/IP Networks: Advanced Topics (TCPIP2, 2 days)
- 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

Some prior exposure to telecommunications networks and familiarity with IP will be helpful.

Course in a Nutshell

In this course, we will study the essential elements of modern IP-based telecom systems. We'll discuss IP and the Internet, the technologies behind them, and security issues. Included are topics such as Voice over IP (VoIP), Virtual Private Networks (VPN), Multi-Protocol Label Switched (MPLS), and SONET/SDH.

Customize It!

We can tailor this course's content and technical depth to suit the audience backgrounds and needs. Longer, more technical versions of this course are available.

Learn How To

- TCP/IP networking principles
- Protocols used in Internet
- How Internet operates
- Technologies used to implement IP
- Network security basics

Course Outline

- Course overview
- Protocols and layers
  - How a network operates
  - What a protocol is
  - Purpose of and need for protocols and standards
  - The OSI protocol stack and how it relates to types of systems and technologies
    - Understanding telecom in terms of layers
    - How layers relate to technologies
    - OSI stack and end-end telecommunications
- Internet Protocol (IP) and Transmission Control Protocol (TCP)
  - What they are
  - TCP/IP layers
  - How they work: Encapsulation
  - Protocols and interfaces
  - How modern networks utilize them
  - Bridges, routers, switches and network topology
    - LANs
    - Virtual LANs
    - Using devices to create desired LAN topology
- The Internet and how it works
  - Overview
  - IPv4 and IPv6 addressing
  - Packet headers and addresses
  - Internet Control Message Protocol (ICMP)
- Routing and forwarding of packets
  - Routers and routing tables
  - IP packet forwarding
  - Table lookup
  - Tunneling
  - Router architectures
- TCP and network management and control
  - Connections and the three-way handshake
  - TCP and flow control
  - Congestion management
- MPLS and IP switching
  - MPLS operation
    - Labels
    - Switching vs routing

        - Label switched paths
        - Services in an MPLS network: VPNs, pseudowires, etc.
    - MPLS architecture and IP
- The Domain Name System (DNS)
    - Basic operation
    - DNS hierarchy
    - Database and resolution
    - DNS in practice
- SMTP and email
    - Architectures for email
    - SMTP and email
    - Other email protocols
    - Using POP3
- HTTP and its operation
    - HTTP basics and history
    - HTTP coding
    - HTTP and web pages
- Internet security overview
    - Ways to secure IP traffic
    - Secure Sockets Layer (SSL)
    - Privacy, integrity, authentication
    - Public Key Encryption (PKE)
- Course Wrap-up

DCN *LfLnp*