ENG-401 - Introduction to Data Networks & TCP/IP

Description

This course is also available as a live distance learning course

A 3-day Training Program to provide participants with an introduction to data networks and TCP/IP. This Training Program delves into the nuts and bolts of the technologies and protocols that drive the Internet and today's corporate networks.

Prerequisite

No prerequisite is required for this Training Program.

Objectives

- Describe the fundamental principles of data networks
- Explain how the Ethernet protocol functions
- Define routing components, concepts and protocols
- Identify the features of the IP
- Present how to design an IP addressing plan
- Describe the Address Resolution Protocol (ARP) and Internet Control Message Protocol (ICMP)
- Provide the characteristics of Transmission Control Protocol (TCP) and User Datagram Protocol (UDP)

Topics

Introduction

- Evolution to data networks
- Bits and bytes: using 0s and 1s
- Open Systems Interconnection (OSI) and TCP/IP models

- Encapsulation and decapsulation
- Main elements and components

Link layer of the TCP/IP stack

- Link layer functions
- Network types and topologies
- Collision domains and the evolution to switching
- Ethernet: the de facto Local Area Network (LAN) standard

Network layer of the TCP/IP stack

- Network layer functions
- Inside the router: the heart of the network layer
- Routing concepts and protocols

Internet Protocol (IP)

- IP header
- IP addressing
- Subnetting, Variable Length Subnet Masking (VLSM) and Classless Inter-Domain Routing (CIDR)
- Network Address Translation (NAT)
- Case study: devising an IP addressing plan for a multi-site corporate network

ARP protocol

- ARP functions and operation
- ARP header
- Concept of a cache

ICMP protocol

- ICMP functions
- ICMP header
- ICMP messages
- ICMP applications: ping and traceroute

Transport layer of the TCP/IP stack

- Transport layer functions
- TCP features
- TCP header
- TCP concepts: connection management, sliding window and timers
- Example of TCP utilization: File Transfer Protocol (FTP) and HyperText Transfer Protocol (HTTP)
- UDP features
- UDP header

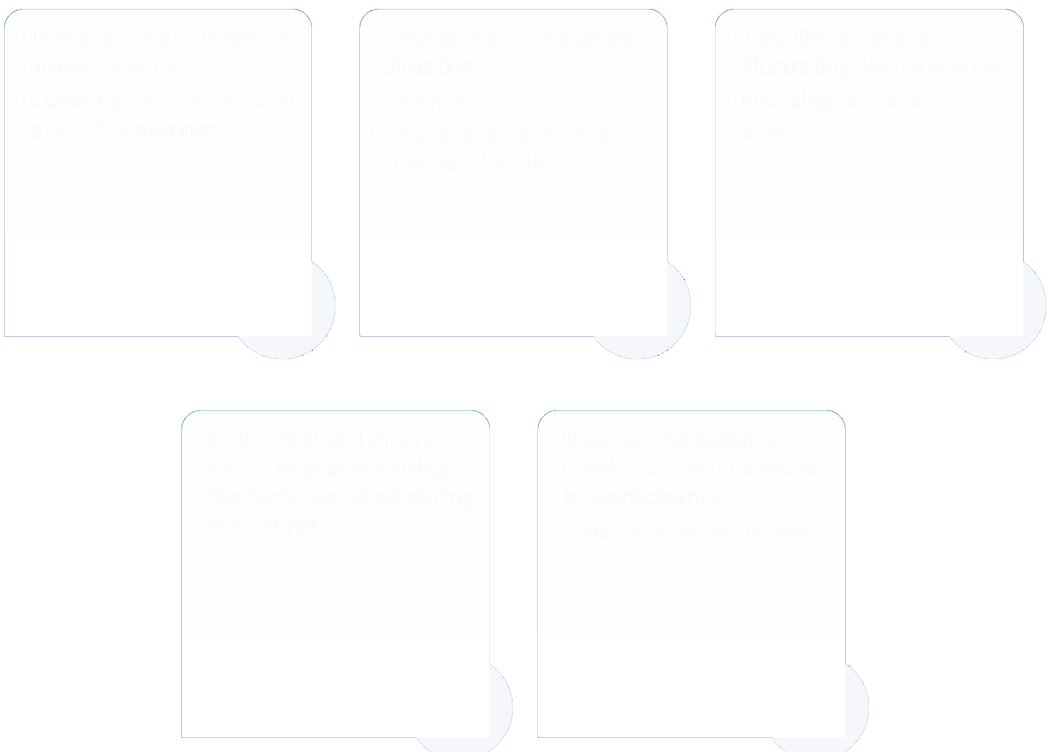
- Examples of UDP utilization: Domain Name System (DNS), Dynamic Host Configuration Protocol (DCHP) and real-time traffic transport
- TCP vs. UDP

Target Audience

- Technical personnel in engineering or operations interested in or needing to understand data networks and the Internet Protocol (IP) suite
- Technical managers or others looking to complement their skill-set by gaining a better understanding of IP data networks

Methodology

A combination of engaging activities and dynamic presentations to stimulate and maximize participants' learning.



Location

A selection of Neotelis' training courses is held in various cities around the world. Please contact us at training@neotelis.com for the complete Yearly Training Calendar.

Neotelis can also deliver in-house sessions of this course specifically for your organization. Please contact us at training@neotelis.com for more information and a Proposal.

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