IT, Telecommunication & Networking

SCANDINAVIAN ACADEMY
Training and Development

Course: Introduction to TCP_IP and Internet Security

Code	City	hotel	Start	End	price	Hours
683	Frankfurt (Germany)	Hotel Meeting	2024-04-08	2024-04-12	5450 €	25

Overview

This is an overview of the TCPIP Suite of protocols. It is designed for audiences new to the world of TCP/IP. It is an instructor led presentation course with some computer based practical exercises

Objectives

- Be introduced to the various protocols that are covered by TCP/IP
- Learn about the development and limitations of Internet Protocol Addressing
- Learn how to plan and configure a TCP/IP based network
- Learn some of the tools used to troubleshoot TCPIP networks

Course Outline

Introduction

- History of TCP/IP
- Standards Bodies – The Internet
- TCP/IP Architecture
- The TCP/IP Suite
- Standards Bodies – ISO
- Open System Interconnection
- ISO OSI 7-layer model
- Layered Protocols

The Internet Protocol

- Internet Protocol
- Internet Protocol Version 4 Addressing
- Internet Protocol Routing
- IPv4 Address Classes
- Classfull IPv4 Address Ranges
- Multicast Addresses
- IPv4 Reserved Addresses
- IPv4 Address Assignment
- IPv4 Private Network Addressing

- Address Exercise
- IP Address Allocation
- Dynamic IP Address Allocation – RARP
- Dynamic IP Address Allocation – BOOTP
- Dynamic IP Address Allocation – DHCP
- Windows DHCP Commands
- The IPv4 Header
- IP Fragmentation
- IP Precedence
- Differentiated Services – DiffServ

Address Resolution

- Protocol Encapsulation with TCP/IP
- Address Resolution Protocol (ARP)
- Default Gateway
- Connecting Hosts

IP Address Limitations

- Limitations of the Classfull System
- Subnet Motivation – IP Addresses
- Subnet Extensions
- Subnetting
- Subnet Mask Application
- Defining Subnetworks
- Subnetworking in Action
- Subnet Granularity
- Subnet Mask Application
- Subnet/Supernet Calculators
- What is IPv6?

ICMP

- Internet Control Message Protocol
- PING
- PING Options
- TraceRoute
- PathPing

The Transport Layer

- TCP Concepts
- Simple Reliability

- TCP Segment
- TCP Port Numbers
- User Datagram Protocol (UDP)
- UDP Segment
- UDP versus TCP

IP Routing

- Routers and Routing
- Static Routing
- Static Routing
- Dynamic Routing
- Dynamic Routing Protocols
- Routing Information Protocol
- RIP Versions
- RIP Responses
- Open Shortest Path First
- An OSPF Network
- OSPF Costs
- Link State Algorithm
- The OSPF Hello Message
- OSPF Convergence

NAT & NAT with PAT

- Introduction
- Overview
- Network Address Translation
- Dynamic NAT with Port Address Translation
- NAT with Port Address Translation

The Domain Name System

- The Domain Name System
- The Domain Name Space
- Windows DNS Configuration
- Testing DNS

The Process Layer

- Processes
- File Transfer Protocol
- Trivial File Transfer Protocol
- Telnet

- Modern Network Management
- Simple Network Management Protocol
- Components of SNMP

The Scandinavian Academy employs modern methods in training and skills development, enhancing the efficiency of human resource development. We follow these practices:

- **Theoretical Lectures:**
  - We deliver knowledge through advanced presentations such as PowerPoint and visual materials, including videos and short films.
- **Scientific Assessment:**
  - We evaluate trainees skills before and after the course to ensure their progress.
- **Brainstorming and Interaction:**
  - We encourage active participation through brainstorming sessions and applying concepts through role play.
- **Practical Cases:**
  - We provide practical cases that align with the scientific content and the participants specific needs.
- **Examinations:**
  - Tests are conducted at the end of the program to assess knowledge retention.
- **Educational Materials:**
  - We provide both printed and digital scientific and practical materials to participants.
- **Attendance and Final Result Reports:**
  - We prepare detailed attendance reports for participants and offer a comprehensive program evaluation.
- **Professionals and Experts:**
  - The programs scientific content is prepared by the best professors and trainers in various fields.
- **Professional Completion Certificate:**
  - Participants receive a professional completion certificate issued by the Scandinavian Academy for Training and Development in the Kingdom of Sweden, with the option for international authentication.
- **Program Timings:**
  - Training programs are held from 10:00 AM to 2:00 PM and include buffet sessions for light meals during lectures.