

Introduction to Modern Data Comm

Course Description

This seminar will review data communication, including the seven layer data network model, covers WANs LANs MANs, and provides the building blocks for executives, technical leaders, and decision makers, to assume responsibility in any network related work or investment. This course is a basic introduction and prerequisite for future advanced courses.

Duration: 3 days

Course Outline

1. Introduction

- The communications revolution
- Modern networks
- Network definitions

2. Data Communications Standards

- The need for standardization / Organizations
- The OSI model
- The internet society

3. Data Communications Basics

- Transmission media
- Error handling

4. WAN Circuits - The Physical Layer

- WAN circuits (Point to point circuits, Modems & multiplexors, Digital circuits - E1/T1, PDH/SDH)
- Access technologies (ISDN, xDSL, ADSL, Cable)
- Physical interface functions
 - o The RS232 serial interface
 - o V.35, RS449, RS530, G.703

5. Wide Area Networks Data Link Layer

- Layer 2 functions
- Protocol definitions
- Modern link layer protocols
- HDLC

6. Wide Area Networks - The Network Layer

- Switching (Circuit & Packet switching)
- Routing
- Packet switching networks
 - o X.25, Frame relay, ATM

7. WAN Summary and Strategies

- Circuit vs packet switching
- Examples / Case studies

8. Local Area Network Technology

- LAN components
- IEEE 802 LAN standards
- Ethernet IEEE 802.3
- LAN hubs & switching
- High speed LANs
- Fast/Gigabit Ethernet
- Implementing a campus network

9. Internetworking

- Bridges, Routers / Routing algorithms - RIP, OSPF
- Gateways

10. The TCP/IP Protocol Suite

- TCP/IP model
- IP protocol and addressing
- The transport layer
- Ports and sockets
- ARP, DNS, DHCP
- Application protocol basics
- EMail and internet mail, The internet

11. Enterprise Issues

- Network Architecture
 - o Peer to peer, server architecture, Intranet
- Routing vs layer 3 switching
- LAN Management/SNMP
- Network security (Public key encryption, Firewalls)

12. Future Trends

- Voice over IP
- ASP - Application Service Providers
- B2B, B2C
- VPN - Virtual Private Networks
- Cellular Internet

Who should attend?

- Technical and non-technical professionals looking for a clear understanding of the foundations of modern communications technology.
- Computer professionals wishing to be brought up to par on the technical aspects of data communications.
- All those wishing for sound background for planning and implementing networks and networking technology.