

A.I.S. Class 25: Outline

- Learning Objectives for Chapter 4
- Telecommunications
- Networks
- Group Work for Chapter 4
- Group Project Stage 6

Learning Objectives for Chapter 4

- After studying this chapter you should be able to:
 - ◆ identify the five components of a telecommunications network,
 - ◆ distinguish between terminals and workstations,
 - ◆ explain the various types of transmission links, including physical and "through the air" links,
 - ◆ differentiate between alternative transmission methods such as analog and digital transmission, circuit switching and packet switching,

Learning Objectives for Chapter 4

- ◆ describe in general terms the functioning of line sharing devices and switches,
- ◆ explain the role of network architecture and standards,
- ◆ explain the OSI telecommunications model,
- ◆ distinguish between local area networks and wide area networks,
- ◆ describe alternative computer network configurations including ring, star, and bus networks,
- ◆ understand the various types of wide area networks, including the options for centralized data processing networks and distributed data processing networks,
- ◆ explain the concept of a client/server system,

Learning Objectives for Chapter 4

- ◆ understand the architecture and functioning of the Internet,
- ◆ distinguish between the Internet and Intranets,
- ◆ describe the operation of electronic data interchange arrangements between organizations,
- ◆ explain the concept of e-business and its emerging importance in the global economy.

Telecommunications

- Terminals and workstations
- Transmission links
- Transmission methods
- Line sharing and switching
- Architecture and standards

Terminals and Workstations

- Dumb terminals
- Intelligent workstations
- Network interface cards
- Net PCs

Transmission Links

- Twisted-pair cables
- Coaxial cables
- Fiber optic cables
- Infra-red transmission
- Microwaves
- Satellite transmission

Transmission Methods

- Analog
- Digital
- Circuit switching
- Packet switching
- Asynchronous
- Synchronous

Line Sharing and Switching

- Multiplexers (MUX)
 - ★ time
 - ★ frequency
- Front-end processors
- Bridges
- Routers
- Brouters
- Gateways

Architecture and Standards

■ ISO's OSI model

- ◆ physical
- ◆ link
- ◆ network
- ◆ transport
- ◆ session
- ◆ presentation
- ◆ application

Communication Protocols

- Full Duplex
(Duplex)
- Half Duplex
(Simplex)

Networks

- Local area networks
- Network topologies
 - ★ bus
 - ★ token ring
 - ★ star
 - ★ hybrid
- Novell NetWare
- Windows 2003 Server

Networks

- Wide area networks
- Modems
- ISDN
- DSL
- Cable Modems

Networks

■ Dedicated connections

- ★ T1

- ★ T3

■ Lines

- ★ switched

- ★ WATS

- ★ leased

Networks

- Centralized data processing
 - ★ point-to-point
 - ★ multidrop
 - ★ multiplexed
- Distributed data processing
- Client-server systems

Networks

■ Internet

- ★ Telnet
- ★ FTP
- ★ Usenet (News Groups)
- ★ E-mail
- ★ WWW
- ★ IRC
- ★ MUD

■ Intranets

■ Extranets

Networks

- Electronic Data Interchange (EDI)
- Electronic Funds Transfer (EFT, EFTPOS)
- Value Added Network (VAN)
- ASC.X12
- EDI via Internet

Electronic Commerce

- Web presence
- Business to consumer (B2C)
 - * *electronic retailing, banking, trading*
- Business to business (B2B)
 - * *e-procurement*
- Business to government (B2G)
- Business to employees (B2E)
- Individual to government

Electronic Commerce

■ Issues

- ★ **payment**
 - ◆ EFT
 - ◆ credit cards
 - ◆ electronic wallets
 - ◆ PayPal
 - ◆ e-cash
- ★ **security**
- ★ **privacy**
- ★ **authentication and non-repudiation**
 - ◆ WebTrust
- ★ **jurisdiction and legal issues**

Group Work for Chapter 4

- Discussion Questions
- Problems 1 & 2

Group Project Stage 6

■ Presentation