

# Communication and Network (Chapter 8)



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# 1.Introduction

We live in a time and society that is fully based on network. That is why information and network and communication is important for everyone.



## 2. Network and Communication

Network means connectivity and communication means sharing data between two devices.



### 3.

# Basic elements of communication

Four basic elements of communication systems

- Sending and receiving devices
- Computer or a specialized communication device
- Connection devices
- Interface between sending and receiving device

Data transmission specifications Rules and procedures that coordinate the device.



# 4.Connections

There are two types of connections.

- Physical connection
- Wireless connection



# 5.Modem

## Types of Modems:

- Digital subscriber line (DSL) High speed telephone lines
- Cable - Uses coaxial cable
- Wireless - Also known as WWAN



# 6.Connection device signals

Types of signals

- Analog
- Digital



# 7.Connection device signals

Types of signals

- Analog
- Digital



# 8.Data Trasmission

Bandwidth is how much information can move across the communication channel in a given amount of time.

Categories of bandwidth

1.Voiceband (or low bandwidth) - standard telephone 2. Medium band - leased lines for high-speed Mid-range computer and mainframes 3. Broadband for DSL, cable, satellite connections to the Internet 4.Baseband for individual connections for computers in close range



# 9. Network Architecture

- Network Topology - Physical arrangement of the network.
- Network Strategy - How the information and resources are shared.



# 10. Network Topology

1. Ring network
2. Star network
3. Tree network
4. Mesh network



# 11. Network Strategies

1. Client/Server Network - Central computers coordinate and supply services to other nodes on the network - Server provides access
2. Peer-to-Peer (P2P) Network - All nodes have equal authority - Can act as both client and server



# 12.Network Security

- Firewall - Hardware and software that controls access to network - Proxy server provides pass-through access - Protects against external threats
- Intrusion detection system (IDS) - Works with firewall to protect organization's network - Analyzes all incoming and outgoing network traffic
- Virtual private network (VPN) - Creates a secure private network connection between your computer and the organization



# Career in IT

## Network Administrator

1. Manages a company's LAN and WAN networks 2. Maintains networking hardware and software, diagnosing and repairing problems that arise 3. Candidates usually have a bachelor's or associate's degree in computer science, computer technology or information systems 4. Practical networking experience 5. Annual salary is typically between \$47,000 and \$64,000



# Thanks!

Any questions?

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