



COMPUTER NETWORKING NOTICE

1) Introduction

Computer networking is the process of connecting computers and devices so they can **communicate and share resources** (like files, printers, and internet access). A network sends data using agreed “rules” so devices can understand each other.

Common Abbreviations Used

- **LAN** — Local Area Network
- **WAN** — Wide Area Network
- **MAN** — Metropolitan Area Network
- **PAN** — Personal Area Network
- **IP** — Internet Protocol
- **MAC** — Media Access Control
- **TCP** — Transmission Control Protocol
- **UDP** — User Datagram Protocol
- **HTTP** — Hypertext Transfer Protocol
- **HTTPS** — Hypertext Transfer Protocol Secure
- **DNS** — Domain Name System

2) Why Computer Networks Matter

- **Share information** (email, websites, messaging)
- **Share resources** (printers, storage, applications)
- **Access the internet**
- **Support remote work and collaboration**
- **Improve reliability and performance** in organizations

3) Basic Concepts to Know

a) Devices in a Network

- **Host/End device:** laptops, phones, servers
- **Router:** sends data between networks
- **Switch:** connects devices inside the same local network
- **Access Point (Wi-Fi):** connects wireless devices to the network

b) Network Types (Simple Overview)

- **LAN (Local Area Network):** a home, school, or office (small area)
- **WAN (Wide Area Network):** large areas (cities/countries) like the internet
- **MAN:** medium range (sometimes used by universities/regions)
- **PAN:** very short range (example: Bluetooth on a phone)

4) How Data Moves: A Simple Model

1. You send data from your device.
2. The device prepares the data into **packets** (small units of information).
3. Packets travel through routers/switches.
4. The destination device reassembles and processes the data.

5) Key Terms (Beginner-Friendly)

- **Packet:** the basic unit of data in most networks
- **IP Address:** identifies a device on a network (logical address)
- **MAC Address:** identifies a device's network interface (physical address)
- **Protocol:** the rules for communication (examples: TCP, UDP, HTTP)
- **Bandwidth:** how much data can be sent at once (speed capacity)
- **Latency:** delay before data arrives

6) Common Protocols (What They Do)

- **TCP:** reliable delivery (checks for errors, re-sends if needed)
- **UDP:** faster, less reliable (used when speed matters)
- **HTTP/HTTPS:** web communication
- **DNS:** translates domain names (like `example.com`) into IP addresses