



**Al-Mustaqbal University**

**College of Engineering and Technology**

**Department of Medical Instrumentation Techniques Engineering**

**Class: First Class**

**Subject: Principal Computer**

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**Lecture Address: Introduction to Computer Networks**

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# Introduction to Computer Networks



# Basics of Computer Networks:

**Network Definition:** A computer network consists of a group of devices •  
connected to each other to share resources.

## **Benefits of Networking:**

- 1- Information Sharing**
- 2- Device Sharing**
- 3- Software Sharing**
- 4- Information Security**

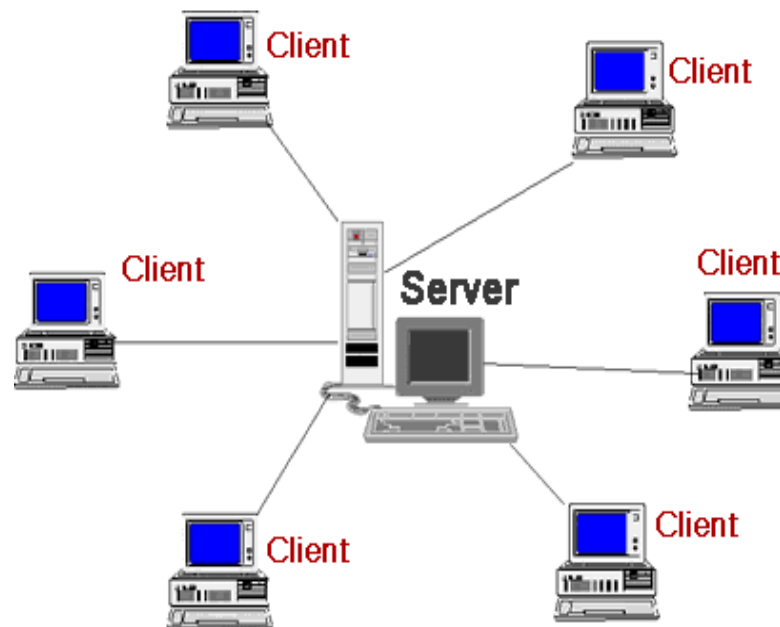


## Network Interaction Axis:

- **Network Terminology Related to Devices:**
- **Server:** High-performance computer systems with large storage and processing capabilities. They provide resources and services to the network and are considered the most important devices in the network.
- **Client:** Personal computers or terminal units that receive resources and services from the server. They do not have control privileges over the network.
- **Network Resources:** These refer to files, printers, and devices used within the network.

# Network Interaction Axis:

## The Client-Server Model

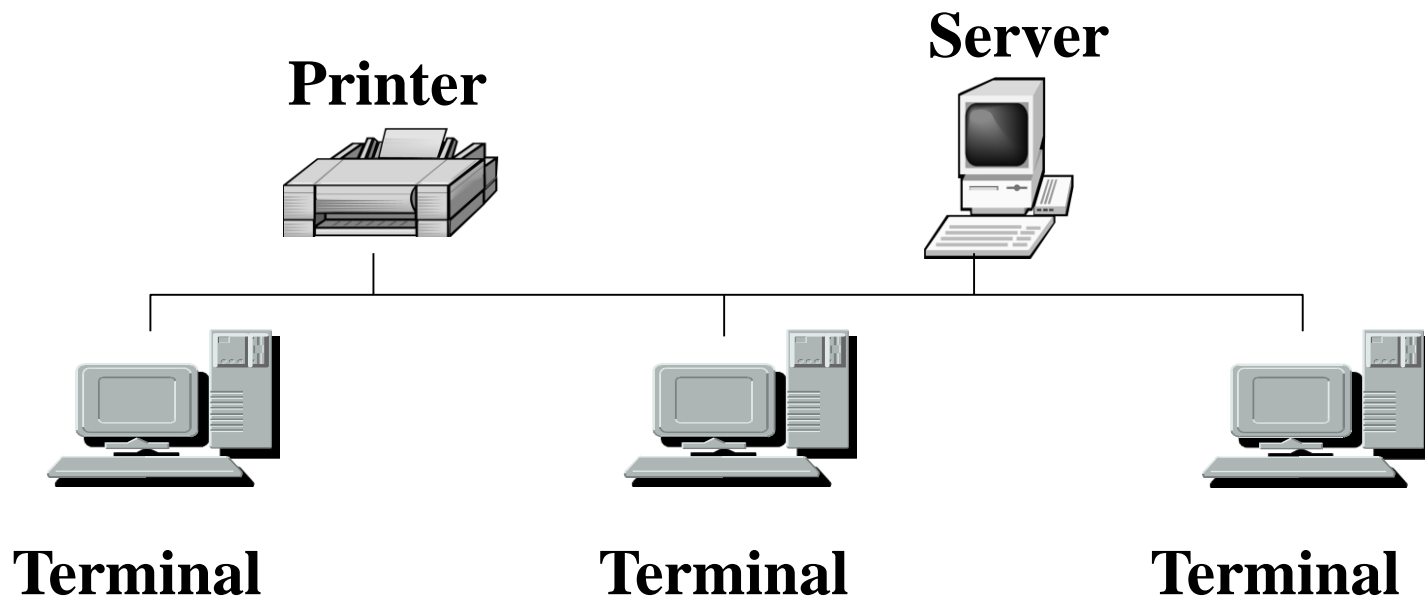




# Types of Networks Based on Distance:

**There are two main types of networks.**

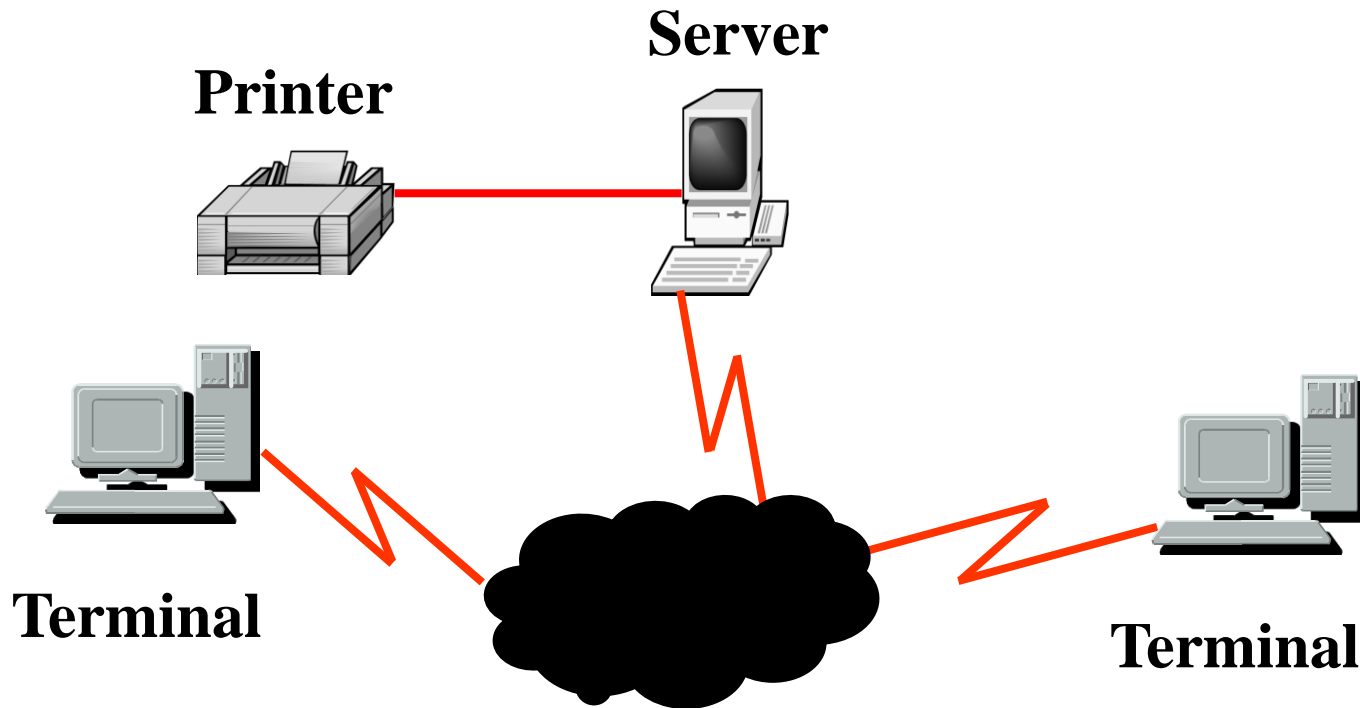
**Local Area Network (LAN)**





# Types of Networks Based on Distance

Wide Area Network (WAN) ■





# Internet

The Internet is a global network that connects various • computer networks on a local and global scale, creating an integrated system. It helps users navigate through the complex structure of this global system via telephone lines, satellites, and computers. It is an abbreviation for the phrase "International Network."

Note: "WWW" is an abbreviation for the term "World • Wide Web," and "HTTP" is an abbreviation for the protocol that enables the creation of links between different web pages, which stands for "Hypertext Transfer Protocol."





# Internet

## Areas of Internet Use: •

Accessing information on any topic you want with •  
great speed.

The Internet is considered a very good research •  
tool.

The Internet is a fertile field for marketing and •  
buying and selling operations.



- Benefits and Features of the Internet:
- **E-commerce:** Facilitates online buying and selling.
- **News:** Provides access to up-to-date news from around the world.
- **Email:** Enables quick and efficient communication through electronic mail.
- **Chat:** Allows real-time communication and conversation through various messaging platforms.
- **Software:** Offers access to a wide range of software and applications.
- **Research/Education/Religious Culture:** Provides resources for academic research, online learning, and access to religious and cultural content.



# Email

- It is a messaging service similar to regular mail but in an electronic way, which is the reason for its name. Each person has a unique address, and this address is never repeated.
- Sending an email is done instantly.
- Unlike using a phone, there is no need to worry about whether the recipient, who may live on the other side of the world, is available on the other end of the connection. They can read the emails they have received and respond at any time.



## Email

- Uses of email: Sending emails to an individual or a group of people, reading emails and replying to them, deleting and storing email messages, forwarding emails to different destinations, sending attachments with emails, etc.
- Requirements for sending and receiving email: To send and receive emails, you will need a computer, along with some computer components, software, and an internet connection.



# Viruses



# Viruses

- **Definition of a Virus:** A virus is a program designed with the intent to damage a computer system. It has the ability to attach itself to other programs and replicate itself.
- **Reasons for the Spread of Viruses:**
  - Lack of proper security measures
  - Downloading files or programs from untrusted sources
  - Opening infected email attachments
  - Using outdated or unpatched software
  - Sharing infected files via external storage devices
- **Types of Viruses:**
  - **Trojan Horse:** A malicious program that disguises itself as a legitimate file or program.
  - **Logic Bombs:** A virus that is activated based on a specific condition or trigger.
  - **Time Bombs:** A virus that is set to activate at a specific time or date.
  - **Trapdoor:** A backdoor that allows unauthorized access to a system without being detected.
  - **Worms:** A type of virus that spreads independently by exploiting vulnerabilities in a network.



# Viruses

- **Some Protection Methods:**
- Antivirus programs such as: (McAfee, Antivirus, Adware, Spyware)
- Creating backups.
- Firewall.
- Password.
- User awareness about not downloading any programs from untrusted sources onto their personal computers, and being cautious when dealing with free software, especially those distributed by computer stores.
- Scanning emails before opening them.