

Networking

What is Networking?

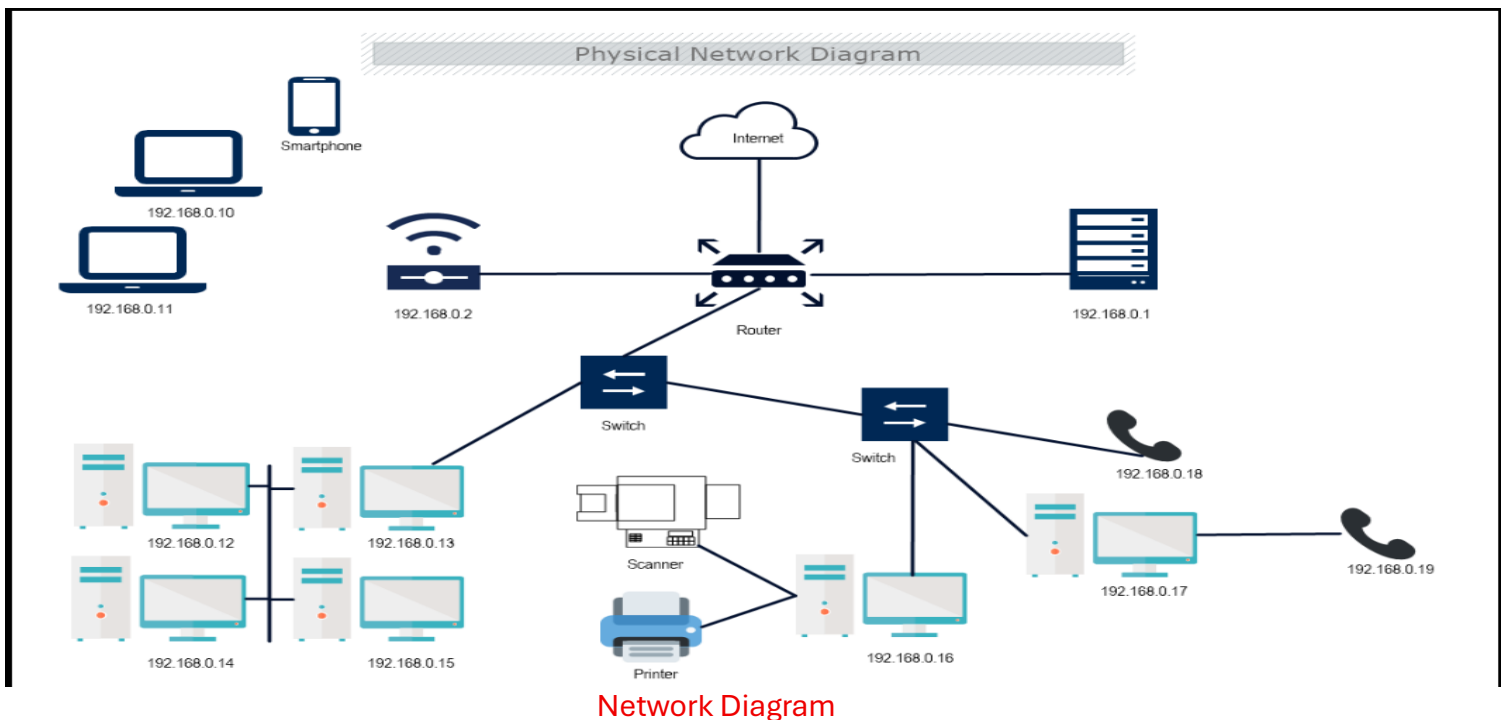
Computer Networking is the practice of connecting two or more devices so they can share data, resources, files, and services.

Purpose of Networking

- Data sharing
- Resource sharing (printers, storage servers)
- Communication (emails, messaging, video calls)
- Accessing internet
- Centralized management

Basic Components of a Network

1. Nodes – Computers, phones, servers
2. Transmission Medium – Wired (Ethernet cables), Wireless (WiFi, Bluetooth)
3. Network Devices – Router, Switch, Hub, Access Point
4. Protocols – Rules for communication (TCP, IP, HTTP, FTP)



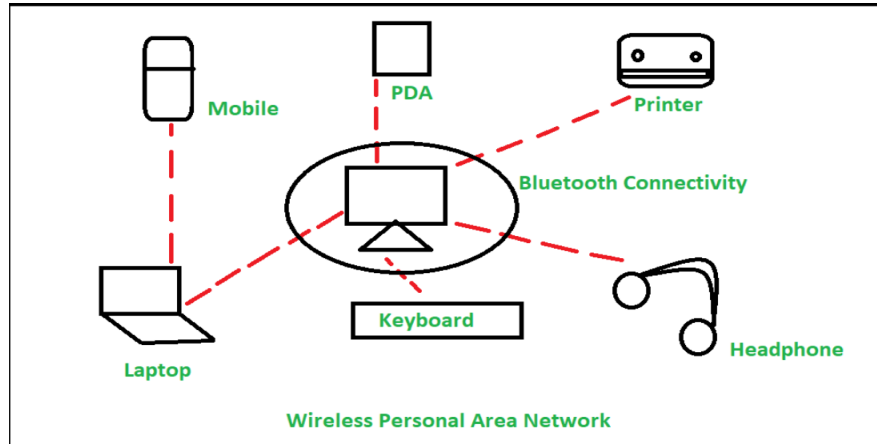
Types of Network (Based of Geography)

1. PAN — Personal Area Network

A PAN is the smallest network created around an individual (up to 10 meters).

Examples

- Connecting smartphone to laptop via Bluetooth
- Smartwatch connected to mobile
- Personal hotspot



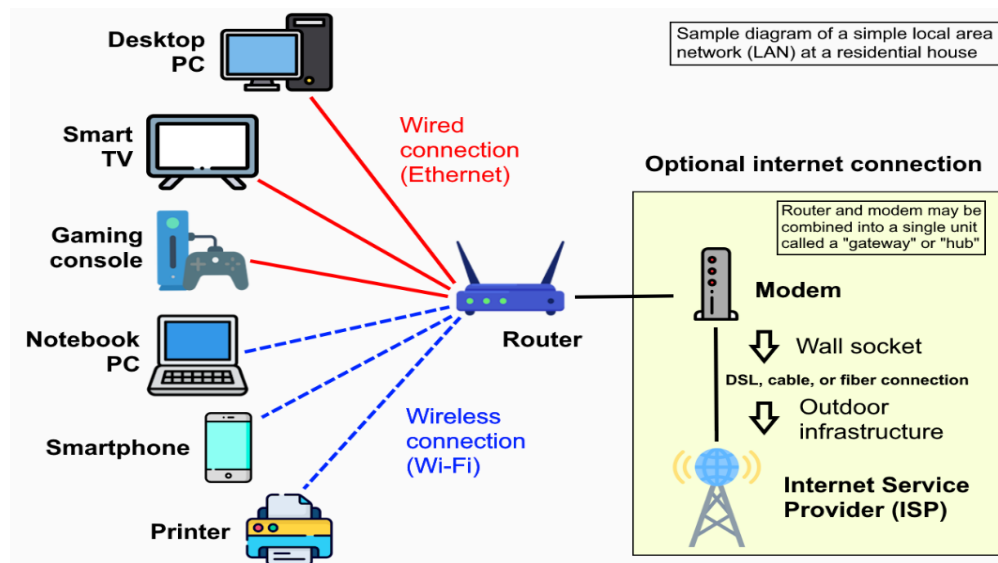
Personal area network

2. LAN — Local Area Network

LAN is a network inside a small area like a home, office, school, or building.

Examples

- WiFi in your home
- Office network
- School computer lab

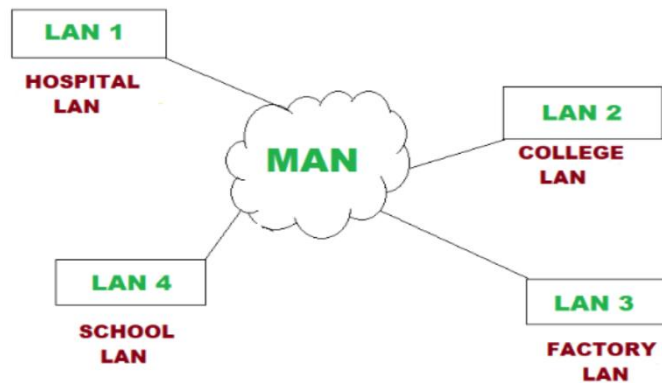


3. MAN — Metropolitan Area Network

MAN is a network covering an entire city or large campus.

Examples

- Cable TV networks
- City-wide WiFi
- University campus network



MAN - Metropolitan Area Network

4. WAN — Wide Area Network

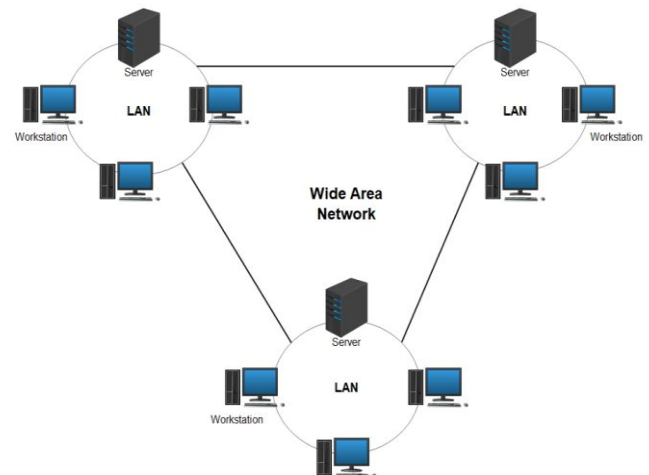
WAN covers large geographical areas—countries, continents, or even the world.

Major Example

Internet is the largest WAN in the world.

Characteristics

- Slower than LAN
- Expensive
- Public or private



WAN Diagram

