

Introduction to Networking and Data Communication - Computer Studies Form 4 Notes

- [Definition of terms used in Networking](#)
 - [Network](#)
 - [Computer Network](#)
 - [Network Server.](#)
 - [Clients \(workstations\)](#)
 - [Data Communication](#)
 - [Signal modulation and demodulation](#)
 - [Multiplexing and Demultiplexing](#)
 - [Frequency \(f\)](#)
 - [Baud](#)
 - [Baud rate](#)
 - [Band](#)
 - [Bandwidth](#)
 - [Guardband](#)
 - [Baseband signal](#)
 - [Broadband transmission](#)
 - [Attenuation](#)
- [Modes of data communication](#)
 - [Simplex transmission](#)
 - [Half duplex transmission](#)
 - [Full duplex transmission](#)
 - [Factors to consider when selecting a data transmission system](#)
- [Purpose of Networking](#)
 - [Resource sharing](#)
 - [Remote communications](#)
 - [Distributed processing facilities](#)
 - [Cost effectiveness](#)
 - [Reliability](#)
- [Limitations \(disadvantages\) of networking](#)
 - [Security issues](#)
 - [High initial cost](#)
 - [Moral and cultural effects](#)
 - [Spread of terrorism and drug trafficking](#)
 - [Over-reliance on networks.](#)
- [Types of computer networks](#)
 - [Local Area Network \(LAN\).](#)
 - [Metropolitan Area Network \(MAN\).](#)
 - [Wide Area Network \(WAN\).](#)
 - [Differences between a Local Area Network and a Wide Area Network.](#)
- [Elements \(components\) of networking](#)
 - [Data communication \(Transmission\) media.](#)
 - [Communication Devices](#)
 - [Network software](#)
- [Network Topologies](#)
 - [Logical and physical topologies](#)
- [Communication of data in a network.](#)
 - [Point-to-point communication.](#)

- [Broadcast communication.](#)
- [Packet- switching](#)
- [Transmission impairments](#)
 - [Attenuation](#)
 - [Distortion](#)
 - [Noise](#)
- [Network models](#)
 - [Centralized computer model.](#)
 - [Distributive computing](#)
 - [Collaborative model.](#)
- [Categories of networks](#)
 - [Peer-to-Peer network.](#)
 - [Server-based networks.](#)
- [Network Security](#)
 - [Share level security](#)
 - [User-level security](#)

[Definition of terms used in Networking](#)

[Network](#)

- A Network can be defined as a collection of independent entities that are arranged in such a manner as to exchange data, information or resources.

Examples of networks:

- Road network: - this is the interconnection of roads in a country, continent or throughout the world. Road networks facilitate the transfer of goods & services from one area to another.
- Telephone network (voice networks): - it includes the many lines that criss-cross a country, and enables people to communicate.
- Railway network.
- Nervous system.

[Computer Network](#)

- A computer network can be defined as a collection 2 or more computers connected together using transmission media (e.g., telephone cables, or Satellites) for the purpose of communication and sharing of resources.
- Usually there can be from 2 to hundreds or even thousands of computers on the network. Apart from computers, other devices such as Printers, plotters, fax machines, modems, etc can also be connected to the network.
- The term Transmission media refers to any physical or non-physical link between 2 or more computers, and in which a signal can be made to flow from source to destination.

[Network Server.](#)

- Computer networks usually have one computer reserved as the “Mother” of all the other computers on the network.
- A Server is a powerful computer that provides services (shared resources) to the other computers on the network. It enables information, resources & network devices to be shared by users on a computer network.
- Network servers;