NORTH-EX PUBLIC SCHOOL
(Senior secondary, affiliated to CBSE)
School block, Jain Nagar, Sector-38, Rohini, Delhi-81
**LESSON PLAN FOR CLASS IX (Computer Applications)**

*Note- Before reading about the topic you must check this link which will help you in understanding the topics.

You can download this or if you do not have facility to get printout then you can ask your ward to copy it in a simple notebook and must do exercise in the notebook.

TOPIC: - Computer Networking with Worksheet 3

1. Computer Network:

A **Computer Network** is a collection on interconnected computers and other devices to share data and other resources (hardware and software resources). Two computers or devices are said to be **interconnected** if they are capable of sharing and exchanging information with each other by following a protocol (set of rules).
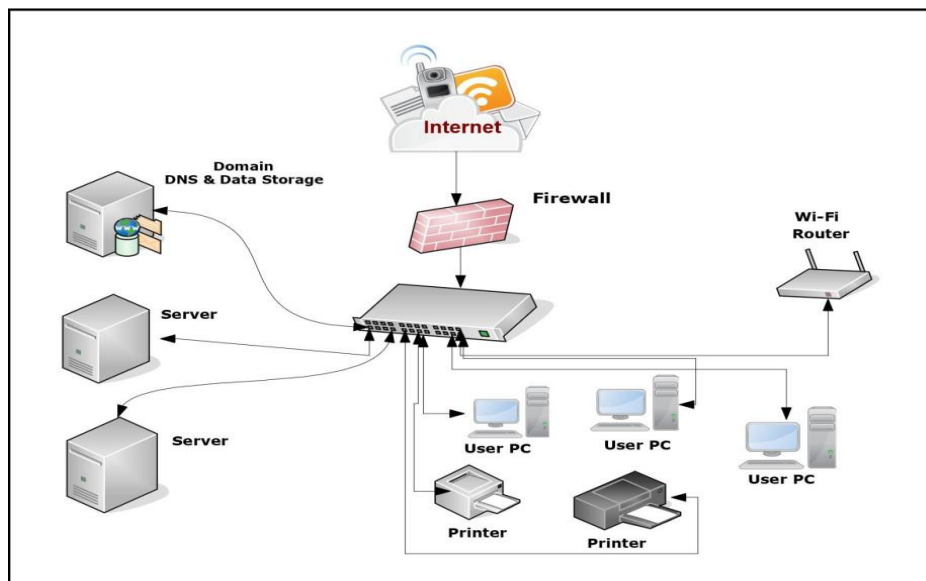

Fig. 1: The Network Diagram

2. Advantage of Computer Networks:

A network uses a distributed processing system in which a task is divided among several devices which are interconnected to each other. Therefore, instead of a single computer being responsible for completing the entire task, all the interconnected computers are responsible for completing the task assigned to them. This leads to better performance with high processing speed. Network have several advantages such as resource sharing, reduce communication cost, reliability of data, central storage of Data etc.

3. Structure of a Network:

A network comprises several components along with their functionalities that contribute to its smooth functioning. To form a network, a lot of hardware devices are required which are described as follows:

➢ **Sender:** A device or a computer that sends the data.
➢ **Receiver:** A device or a computer that receives the data.
➢ **Message:** Message is the information to be communicated. It may be text, image, audio or video.
➢ **Transmission Medium:** A transmission medium is a physical path through which the data flows from sender to receiver. A cable or wire or Radio waves can be the medium.
➢ **Protocol:** A set of rules that governs data transmission. It represents the communication methods which are to be followed by the sending and receiving devices.
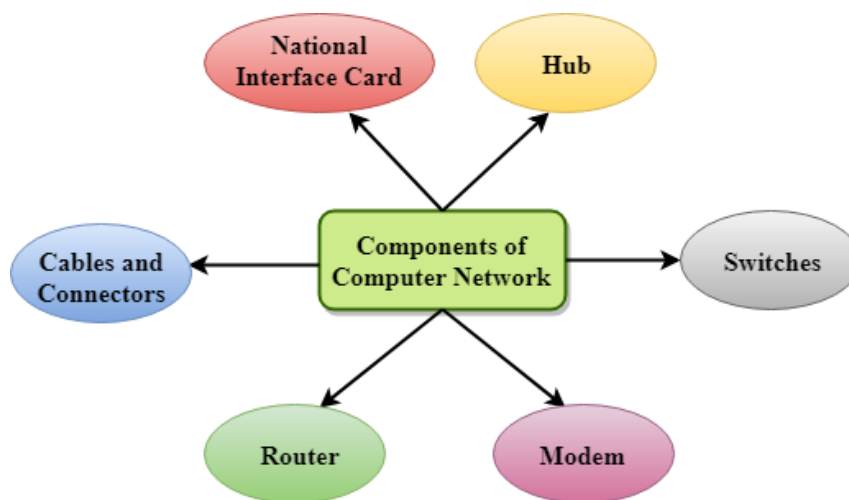
Fig. 2 Components of a Computer Network

4. **Types of Networks**

A computer network may be small or big depending upon the number of computers and other network devices linked together. Thus, networks vary in size, complexity and geographical spread. A computer network can be on a table, in a room, building, city, country, across continents or around the world.

Based on geographical spread, networks may be classified as-

➢ **PAN**
➢ **LAN**
➢ **MAN**
➢ **WAN**

4.1.   **Personal Area Network (PAN):**

The network that belongs to a single person or user is known as PAN. PANs are small networks used to establish communication between a computer and other handheld devices in the **proximity of up to 10 metres** using wired USB connectivity or wireless

systems like Bluetooth or Infrared. PANs are used to connect computers, laptops, mobiles and other IT-enabled devices to transfer files including emails, digital photos, audio and video etc. The Bluetooth technology implements PAN.


Fig. 4: A PAN (Personal Area Network)

4.2. Local Area Network (LAN):

LAN is a privately owned computer network covering a small geographical area (small physical area), like a home, office, or a building such as a school. It can cover an area spread over a few metres to a radius of a few kilometres.

Occasionally, a LAN can span a group of nearby buildings. In addition to operating in a limited space, a LAN is owned, controlled and managed by a single person or organization. A LAN can be set up using wired media (UTP, Coaxial Cables, etc.) or wireless media (Infrared, radiowaves). If a LAN is set up using unguided media, it is known as WLAN (wireless LAN) The key purpose of a LAN is to share resources. LAN users can share data, programs, printer, disk, modem, etc.

Data transfer rate speed over a Local Area Network can vary from 10 Mbps to 1 Gbps.
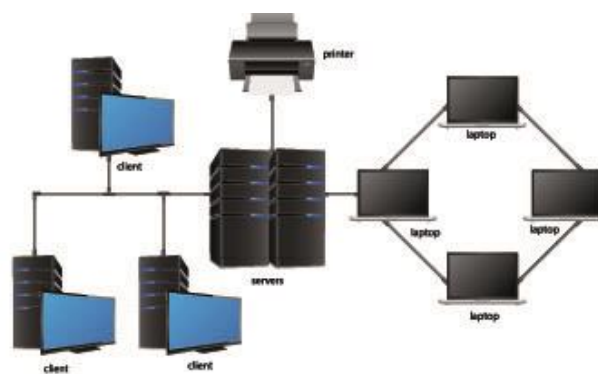
Fig 5. LAN

4.3. Metropolitan Area Network (MAN):

MAN is larger than a LAN and can cover a city and its surrounding areas. A MAN usually interconnects a number of LANs and individual computers. IT also shares the computing

resources among users. All types of communication media (guided and unguided) are used to set up a MAN. A good example of MAN is the interconnected offices of a Multinational Corporation (MNC) or cable television networks available in the whole city.
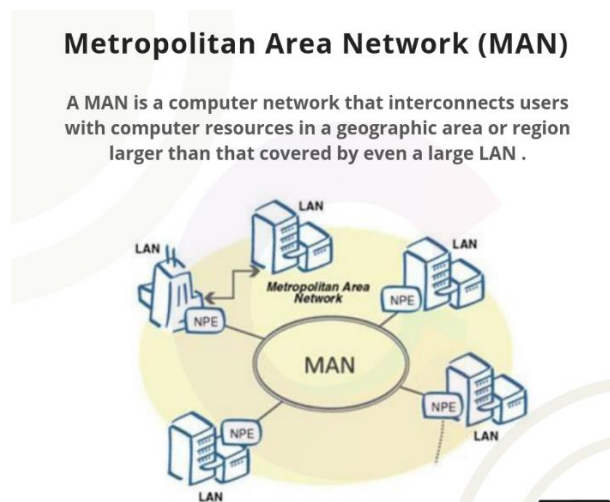

Fig 6. MAN

4.4. Wide Area Network (WAN):

A WAN interconnects all the computer across the world. WAN is a telecommunication network. This type of network spread over a large geographical area across countries and continents. WANs are generally used to interconnect several other types of networks such as LANs, MANs, etc. They facilitate fast and efficient exchange of information at a high speed and low cost. A WAN uses common carriers like satellite systems, telephone lines, etc.

A network of ATMs, banks, government offices, international organizations' offices, etc., spread over a country, continent, or covering many continents are example of WAN. The best well known example of a WAN is the internet. The **Internet** is the largest WAN spanning the entire planet.
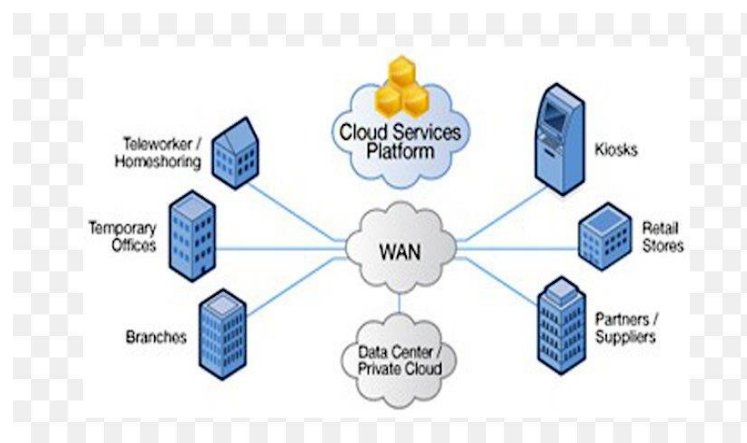

Fig 7. WAN

Parameter	PAN	LAN	MAN	WAN
Area Covered	Small Area (Up to 10 M radius	Building or Campus (Up to 10 KM)	City (Up to 100 KM radius)	Entire country, Continent or Globe
Networking Cost	Negligible	Inexpensive	Expensive	Very Expensive
Transmission Speed	High Speed	High Speed	Moderate Speed	Low Speed
Error Rate	Lowest	Lowest	Moderate	Highest
Network Device Used	WLAN, USB Dongle	LAN/WLAN, Hub/Switch, Repeater, Modem	Router, Gateway	Router, Gateway
Technology/Media Used	Infrared, Bluetooth	Ethernet, Wi-Fi	Optical fibre, Radio-wave, Microwave	Microwave Satellite

Worksheet 3

Attempt all questions & answers in your notebook.

Q1) What do you understand by computer network.

Q2) Mention any three components of Computer Network and write 1 line about them.

Q3) What do you understand by Protocol?

Q4) Write full form of A) WAN B) MAN C) LAN

Q5) Bluetooth is an example of _____ network.

Q6) Optical Fibre is an example of _____ network.

Q7) Differentiate between PAN, LAN, MAN & WAN. At least 5 difference to be mentioned.

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