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# NETWORKING CONCEPT

Class VIII , Ch-1

PERIOD-1



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# Learning Outcomes

- ***Learn the definition of Networking and its example.***
- ***Learn and remember the advantages of Networking.***
- ***Learn the components that are used for networking.***
- ***Learn about Rj 45 connector, switch, hub, modem, router etc.***



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# NETWORKING CONCEPT

## NETWORKING

A computer network can be defined as a group of computers and other peripheral devices that are linked together for the purpose of sharing data and hardware resources. For example, if one of the computers in a network has a printer attached to it, then all the computers in that network can access the printer and use it to print the documents as shown in Figure 1.1, where Computer A and B in a network can give the print command to the printer attached with Computer C.


**Figure 1.1: A Computer Network**

The computers in a network can communicate with each other as well as work independently. Each computer in a network is called a **Node**. The computers in a network can be linked through cables, telephone lines, radio waves, or infrared light beams.

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# ADVANTAGES OF NETWORKING

## EFFICIENT USE OF STORAGE MEDIA

It is better to store a shareable application data on a network drive than a copy of the application on each user's storage device. It is better to have one big hard disk in the server than to have small hard disks in different computers.

## PRESERVING INFORMATION

It is difficult to maintain regular backups on a number of stand-alone computers. When you keep backups on a central location, you have one place to look for the lost information.

## REDUCTION IN HARDWARE COSTS

In a network, the hardware devices that are not used very often, like modems, printers, scanners, CD-writers, etc. can be shared. This reduces the cost of the hardware.

## EFFICIENCY

In a network, the deletion, modification, or upgradation of the software/data is to be done at a single point only. This brings more efficiency and effectiveness into a working system.

## REDUNDANCY

A network reduces the need for hard copies of all documents. By sharing the soft copy of a file over the network, the need to share paper copies of reports or any other information can be eliminated or greatly reduced.

## QUICKEST DOCUMENT DELIVERY

Networking provides a facility to instantly deliver soft copies from one computer to the other computers throughout the world.

# NETWORKING COMPONENTS

## NETWORKING COMPONENTS

To establish wired networking in a group of computers, you require some additional components that are as follows:

### NETWORK CARD

A network card is used to physically attach a computer to a network, so that it can participate in network communication. **Ethernet Network Card** is the most commonly used network card. (Nowadays, most computer motherboards come with an inbuilt Network Card.)

Network Card

## NETWORKING CABLE

Modern Ethernet networks use twisted pair cable containing eight wires. These wires are arranged in a special order, and an RJ-45 connector (similar in design, but bigger than the connector used with the telephone wire) is crimped at both the ends of the cable.

Networking Cable

## MODEM

A modem enables you to connect your computer to the available internet connection over the existing telephone lines. It converts the digital signals of a computer into analog signals to enable their transmission via phone lines. At the destination, the receiving modem further converts the analog signal into digital signals so that the data can be understood at the receiving end. It comes as a separate part that can be installed on the Peripheral Component Interconnect (PCI) slots found on the mother board.

Modem

## HUBS AND SWITCHES

Hubs and Switches

Network cards are used to send and receive data being transmitted over the Ethernet cables. When a network has more than two computers, you cannot directly connect all the computers together. You need an interface through which the computers can be connected, and the data can be sent and received. This function is performed by a **hub** or **switch**. Hubs were the preferred medium in earlier times, but now switches are used because of their better efficiency.

A Hub/Switch performs the following functions:

- It acts as a central point of connection for all the computers on a network. Every computer plugs into the hub/switch.
- It helps to arrange the ports in such a way that if a PC transmits data, the data is sent over the other computer through its network card.

Basically, the hub/switch is a box with a set of RJ-45 ports. Each computer on a network is connected to the hub/switch via the Ethernet cable.

To establish **Wireless Networking**, you require the following components:

- **Wireless Network Cards** are used instead of the normal network cards that are used in the wired networks. Most laptop computers come with the inbuilt wireless network cards. **Radio signals** are used for transferring data, therefore Ethernet cable is not required.

Routers

- **Access Points** or **Routers** have a wireless antenna, which increases the communication range of the radio signals. Access Points can also be used to join a wired network, thus making the network a combination of wired as well as wireless networks.

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# Recap

- Networking is defined as set of one or more autonomous computer or peripherals are connected through wire or wireless to share their files and resources among them.
- The advantages are
- Efficient use of storage medium
- Reduction in Hardware cost
- Effirency
- Quickest Document Delivery. Etc
- Modem is modulator and demodulator.
- Router is used to connect multiple device wirelessly.



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# HOME ASSIGNMENT

1. What is Networking?
2. Write down the advantages of Networking?
3. How many components are required for networking?
4. What is Modem?



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# THANKING YOU

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