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## HARDWARE (ICT) CLASS – 12TH(NETWORKING)

# LAST CLASS : CMOS & BIOS

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**CMOS -** CMOS is known as Complementary Metal Oxide Semiconductor. This hardware is used in the motherboard. CMOS is a memory that store information about BIOS settings. It also stores information about system date and time as well as hardware settings.

- CMOS is a battery used in the motherboard. CMOS battery lifetime is 10 years in a proper environment.
- Therefore, CMOS is a battery as well as memory. CMOS and BIOS work together in a computer system.

**History :**

- The Motorola 146818 chip was the first RTC and CMOS RAM chip to be used in early IBM computers.
- It capable of storing a total of 64 bytes of data.
- The system clock used 14 bytes of RAM, additional 50 bytes for storing system settings.
- Today, most computers have moved the settings from CMOS and integrated them into the
- Southbridge or Super I/O chips.
- It also lies in digital cameras.


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# NETWORKING

# NETWORKING

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**Networking-** A network is a group of systems. They are connected to allow sharing of resources such as files or printers or sharing of services such as an Internet connection.

There are two aspects of setting up a network:

- The hardware used to connect the systems together and the software installed on the computers. It allows them to communicate.

The network hardware is made up of two basic components:

- The entities that want to share the information or resources, such as servers and workstations.
- The medium that enables the entities to communicate, which is a cable or a wireless medium.

There are many types of computer networks –

1. Local area networks (LANs).
2. Wide area networks (WANs).
3. Campus area networks (CANs). & Home area networks (HANs).
4. Metropolitan area networks (MANs).

# HISTORY OF NETWORK

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## History Of Computer Networking-

- It is geographically dispersed.
- The university research mainframes are connected.
- It was done for defense related work in the United States during 1950′s.
- The first commercial mainframe commissioned in US.
- The network used for airline passenger in 1964.
- They were used for information and reservations in the United States.
- 1968 Nation wide air traffic control in the United States.
- 1970′s: The Advanced Research Projects Agency Network (ARPANET) connects Computers from multiple vendors scattered across the United States.
- 1980 Xerox, Digital Equipment Corp. and Intel announce the Ethernet standard for office networking.

# LOCAL AREA NETWORK (LAN)



**Local Area Network (LAN)-** A local area network (LAN) is a computer network that interconnects computers within a limited area such as a Home, School, Computer laboratory, or Office building using network media.

## Characteristics of a LAN environment

1. The stations on the network are peers.
2. Any station can initiate data exchange.
3. It can be done with any other station.
4. Full connectivity among all stations.
5. It is fully administered by the owner.
6. It runs over a shared transmission.
7. The medium may be often cabling.
8. The network is confined to a small area.
9. It may be with a single building or a cluster of buildings.
10. The data rate is high—several Mbps (million bits per second).

# LOCAL AREA NETWORK (LAN)

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**Purpose of a LAN -** A LAN permits users to share resource.

- Hardware, software or user created files.
- Sharing of resources makes it possible to maximize the investments made in each resource.
- Ideally, distant resources should appear to be local to the user.

**Benefits of a LAN -** Also when implemented, LANs are expected to achieve certain benefits:

- To improve interaction between staff.
- To reduce/control costs.
- It provides standardized hardware usage.
- It also facilitates standardized software usage.

**Objectives of an effective LAN -** When implemented, LANs are expected to achieve certain basic objectives:

- To improve employee productivity.
- To improve information management.

# LAN HARDWARE

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**LAN Hardware -** A LAN can be thought of as a system composed of a series of building blocks.

These blocks can be added and configured as needed the hardware components found on a typical LAN include the following items:

- Transmission channel.
- The medium which connects the network devices.
- Network Interface Cards (NICs) for attached devices.

The hardware components found on a typical LAN include the following items:

- Servers
  - ✓ File servers
  - ✓ Print servers
  - ✓ Communications servers
- Stations
  - ✓ Local
  - ✓ Remote
  - ✓ Hubs and switches

# METROPOLITAN AREA NETWORK (MAN)



## Metropolitan Area Network (MAN) –

- The communication infrastructures that have been developed in and around large cities.
- Commonly used in school campuses or large companies with multiple buildings.
- It is larger than a LAN, but smaller than a WAN.
- It is also used to mean the interconnection of several LANs by bridging them together.
- This sort of network is also referred to as a campus network.

## Advantages of MAN :

- It connects all of your computers and servers together on the network and is typically very fast, like 100 Megabits per second (Mbps) or 1000 Mbps.

## Applications of MAN :

- Email and surfing the internet are the some examples of MAN.

# WIDE AREA NETWORK (WAN)

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## Wide Area Network (WAN) –

- A WAN spans a large geographic area. & it includes a state, province or country.
- WANs often connect multiple smaller networks.
- They are such as local area networks (LANs) or metro area networks (MANs).
- Single networks that connect different sites.
- WANs are Characterized by High Cost and Low Speeds.
- High cost per bit transmitted compared to LANs.
- Consequently, lower speeds (most commonly 128 kbps to a few megabits per second).
- This speed usually is aggregate throughput shared by many users.
- Much slower than LAN speeds (100 Mbps to 1 Gbps to the desktop).

## WAN Purposes –

- Internet access & Link sites within the same corporation.
- Provide remote access to individuals who are off site.

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# THANK'S

## NEXT CLASS (TOPOLOGIES )