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BASIC 7

WEEKLY LESSON PLAN – WEEK 2

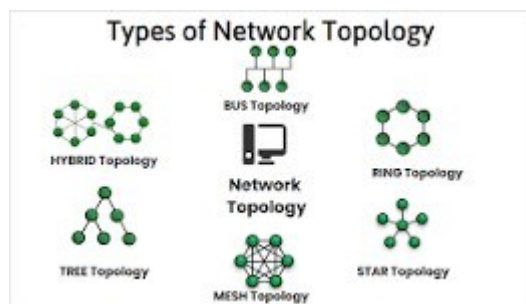
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|--------------------------------------|---|--|---|---|--|
| Strand: | Communication networks | | Sub-Strand: | Computer networks | |
| Content Standard: | B7.3.1.1 Identify the concept of computer networking for global communications | | | | |
| Indicator (s) | B7.3.1.1.1 Draw diagrams to illustrate features of the network topologies (Bus, Star, Ring, Mesh) B7.3.1.1.2 Describe types of networks [Personal Area Network (PAN),Local Area Network (LAN), Metropolitan Area Network (MAN), Wide Area Network (WAN)] | | Performance Indicator: Learners can identify the features of network topologies. | | |
| Week Ending | | | | | |
| Class | B.S.7 | Class Size: | | Duration: | |
| Subject | Computing | | | | |
| Reference | Computing Curriculum, Basic 7 Computing Textbook, Teachers Resource Pack, Learners Resource Pack. | | | | |
| Teaching / Learning Resources | Personal Computer, Poster, Pictures, Power Point Presentation. | | Core Competencies: | <ul style="list-style-type: none">Ability to construct knowledge from a non-linear hyper textual navigationBeing open-minded, adapting and modifying ideas to achieve creative results | |
| DAY/DAYE | PHASE 1 : STARTER | PHASE 2: MAIN | | | PHASE 3: REFLECTION |
| TUESDAY | Present some key hardware for setting up network systems for observation and identification. Eg. Hub, Switch, Cable, Server and Client Computers. | <ol style="list-style-type: none">Discuss with Learners the meaning of Network Topologies.Assist Learners to identify types of Network Topologies and their features.Present using Projector diagrams of Network Topologies.Learners practice drawing diagrams of well-elaborated network topologies. | | | <p>Reflect on the types of Network Topologies.</p> <p>Exercise;</p> <ol style="list-style-type: none">What are network Topologies?Explain 3 types of Network Topologies. |

5. Discuss the analysis of Network Topologies



Network Topology;

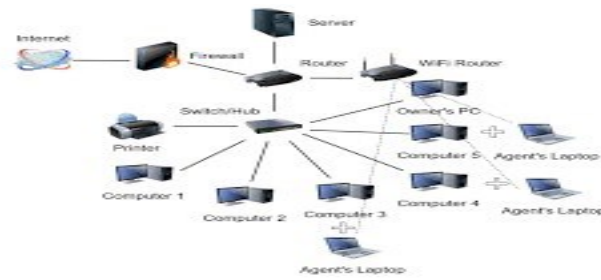
Network topology refers to how various nodes, devices, and connections on your network are physically or logically arranged in relation to each other. Think of your network as a city, and the topology as the road map. Just as there are many ways to arrange and maintain a city—such as making sure the avenues and boulevards can facilitate passage between the parts of town getting the most traffic—there are several ways to arrange a network. Each has advantages and disadvantages and depending on the needs of your company, certain arrangements can give you a greater degree of connectivity and security.



Types of Network Topology

6. Bus Topology. Bus topology is the kind of network topology where every node, i.e. every device on the network, is connected to a solo main cable line.
7. Ring Topology.

8. Star Topology.
9. Mesh Topology.
10. Tree Topology.
11. Hybrid Topology.



FRIDAY

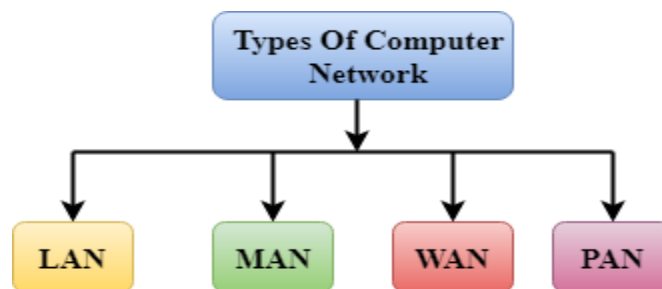
Through questions and answers, review Learners knowledge on the previous lesson.

1. Assist Learners to compare the various types of Networks.
2. Learners brainstorm to identify examples of Metropolitan Area Network (MAN), Wide Area Network (WAN) and Local Area Network (LAN).
3. Discuss with Learners on the advantages and disadvantages of the various types of Networks.

Computer Network Types

A computer network is a group of computers linked to each other that enables the computer to communicate with another computer and share their resources, data, and applications.

A computer network can be categorized by their size. A **computer network** is mainly of **four types**:



- LAN(Local Area Network)
- PAN(Personal Area Network)
- MAN(Metropolitan Area Network)
- WAN(Wide Area Network)

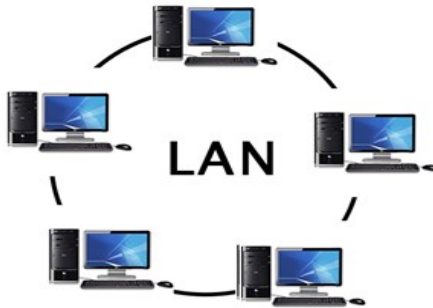
LAN(Local Area Network)

Summarize the lesson.

Exercise;

1. Write the full meaning of the following;
 - i. MAN
 - ii. LAN
 - iii. WAN
 - iv. WLAN
 - v. PAN
2. State 2 advantages and disadvantages of the types of Networks.

- Local Area Network is a group of computers connected to each other in a small area such as building, office.
- LAN is used for connecting two or more personal computers through a communication medium such as twisted pair, coaxial cable, etc.
- It is less costly as it is built with inexpensive hardware such as hubs, network adapters, and ethernet cables.

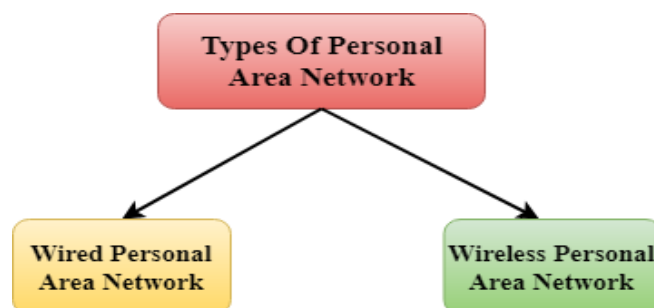


PAN(Personal Area Network)

- Personal Area Network is a network arranged within an individual person, typically within a range of 10 meters.
- Personal Area Network is used for connecting the computer devices of personal use is known as Personal Area Network.
- **Thomas Zimmerman** was the first research scientist to bring the idea of the Personal Area Network.
- Personal Area Network covers an area of **30 feet**.



There are two types of Personal Area Network:



- Wired Personal Area Network
- Wireless Personal Area Network

Wireless Personal Area Network: Wireless Personal Area Network is developed by simply using wireless technologies such as WiFi, Bluetooth. It is a low range network.

Wired Personal Area Network: Wired Personal Area Network is created by using the USB.

Examples Of Personal Area Network:

- **Body Area Network:** Body Area Network is a network that moves with a person. **For example**, a mobile network moves with a person. Suppose a person establishes a network connection and then creates a connection with another device to share the information.
- **Offline Network:** An offline network can be created inside the home, so it is also known as a **home network**. A home network is designed to integrate the devices such as printers, computer, television but they are not connected to the internet.

MAN(Metropolitan Area Network)

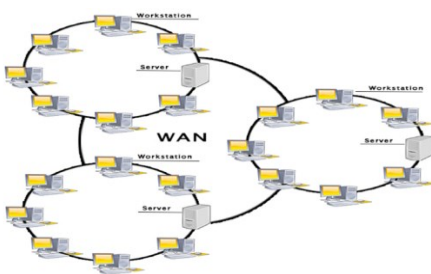
- A metropolitan area network is a network that covers a larger geographic area by interconnecting a different LAN to form a larger network.
- Government agencies use MAN to connect to the citizens and private industries.
- In MAN, various LANs are connected to each other through a telephone exchange line.

Uses Of Metropolitan Area Network:

- MAN is used in communication between the banks in a city.
- It can be used in an Airline Reservation.
- It can be used in a college within a city.
- It can also be used for communication in the military.

WAN(Wide Area Network)

- A Wide Area Network is a network that extends over a large geographical area such as states or countries.
- A Wide Area Network is quite bigger network than the LAN.



Examples Of Wide Area Network:

- **Mobile Broadband:** A 4G network is widely used across a region or country.

- **Last mile:** A telecom company is used to provide the internet services to the customers in hundreds of cities by connecting their home with fiber.
- **Private network:** A bank provides a private network that connects the 44 offices. This network is made by using the telephone leased line provided by the telecom company.

Advantages Of Wide Area Network:

- **Geographical area:** A Wide Area Network provides a large geographical area. Suppose if the branch of our office is in a different city then we can connect with them through WAN. The internet provides a leased line through which we can connect with another branch.
- **Centralized data:** In case of WAN network, data is centralized. Therefore, we do not need to buy the emails, files or back up servers.
- **Get updated files:** Software companies work on the live server. Therefore, the programmers get the updated files within seconds.

Disadvantages of Wide Area Network:

- **Security issue:** A WAN network has more security issues as compared to LAN and MAN network as all the technologies are combined together that creates the security problem.
- **Needs Firewall & antivirus software:** The data is transferred on the internet which can be changed or hacked by the hackers, so the firewall needs to be used. Some people can inject the virus in our system so antivirus is needed to protect from such a virus.

Name of Teacher:

School:

District: