Mohamed Seddik Ben Yahia University- Jijel

Faculty of Exact Science and computer **Year: 2024- 2025**

Department of Computer Science (2nd year sts) **Teacher: H. Kemiha**

Lesson1: Computer Network

Activity1: Look at the picture of the components of a typical LAN and label the following words to their definition: a modem – a bridge – a router – a gateway – a backbone – Network Interface Cards- a node - LAN- a client – Internet – a server.

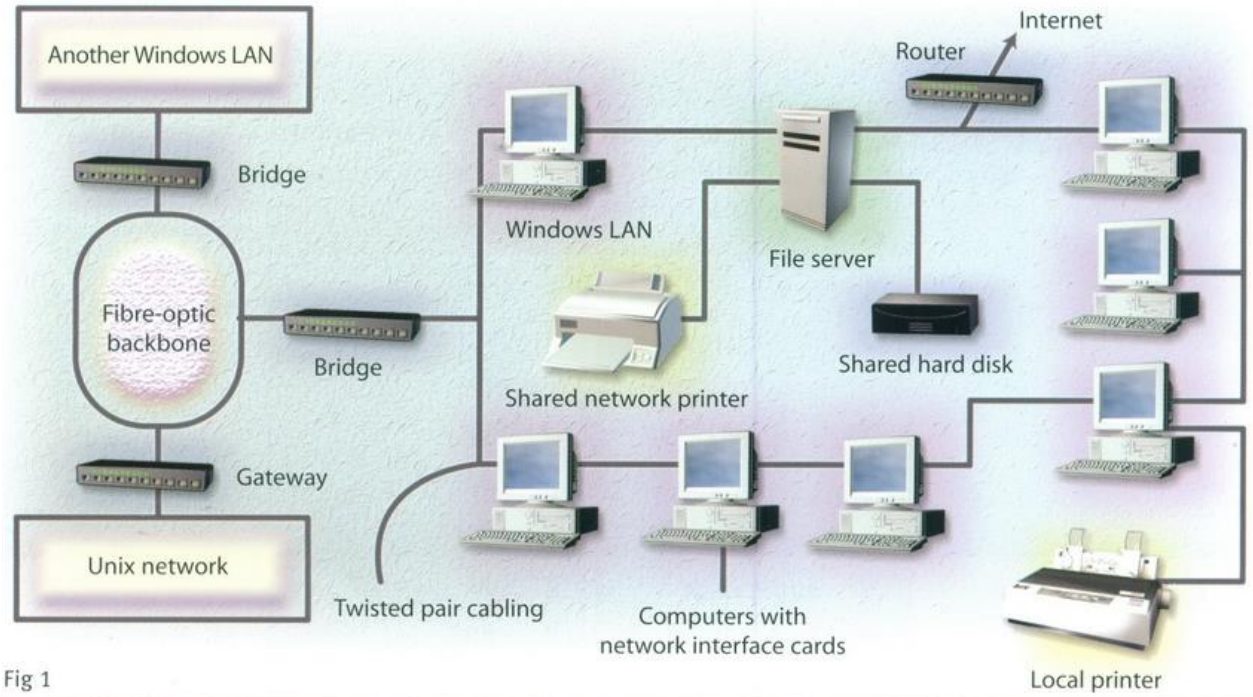

Fig 1

[ ] is a hardware and software combination used to connect the same type of networks. Bridges can also partition a large network into two smaller ones and connect two LANs that are nearby each other.

[ ] is a special computer that directs communicating messages when several networks are connected together. High-speed routers can serve as part of the Internet backbone.

[ ] is an interface that enables dissimilar networks to communicate, such as two LANs based on different topologies or network operating systems.

[ ] is the main transmission path, handling the major data traffic, connecting different LANs together.

[ ] is a network contained within a small area, for example a company department.

[ ] is a device for converting digital signals to analogue signals and vice versa to enable a computer to transmit and receive data using an ordinary telephone line.

[ ] is a hardware component, typically a circuit board or chip, installed on a computer so it can connect to a network.

[ ] is a powerful computer that stored many programs shared by all the clients in a network

[ ] is a large network of networks .

[ ] is a network computer used for accessing a service on a server.

[ ] is is a device or data point in a larger network. Each node is an endpoint for data transmissions or redistribution.

Activity 2 :

Read these descriptions of different physical topologies of communication networks and match them with the terms **: Bus - Ring - Star - Mesh - Hybrid**

1 All the devices are connected to a central station.

2 In this type of network there is a cable to which all the computers and peripherals are connected.

3 It integrates multiple basic topologies (e.g., star with bus, star with ring, etc.) depending on the network's requirements.

4 All devices (computers, printers, etc.) are connected to one another forming a continuous loop.

5 every device (or node) in the network is directly connected to every other device. This ensures that there are multiple paths for data to travel between any two devices.

Activity 3 : Which physical topology is being used?

Scenario 1: In a small office, each computer is connected to a central device, which then connects to the internet. If one computer fails, it does not affect the others. The central device is a switch, and the network is easily scalable by adding more computers to the switch. ……..

Scenario 2: A large corporation has several buildings connected in a complex web. Each building is interconnected directly with multiple other buildings, ensuring that there are multiple paths for data to travel between locations. If one connection fails, other paths ensure that data can still reach its destination.

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Scenario 3: A university campus network has different sections connected to each other, with each section having its own individual network configuration. Some sections use a star topology, while others use a bus topology. The network is set up in such a way that it combines these topologies to optimize performance and redundancy. ……..