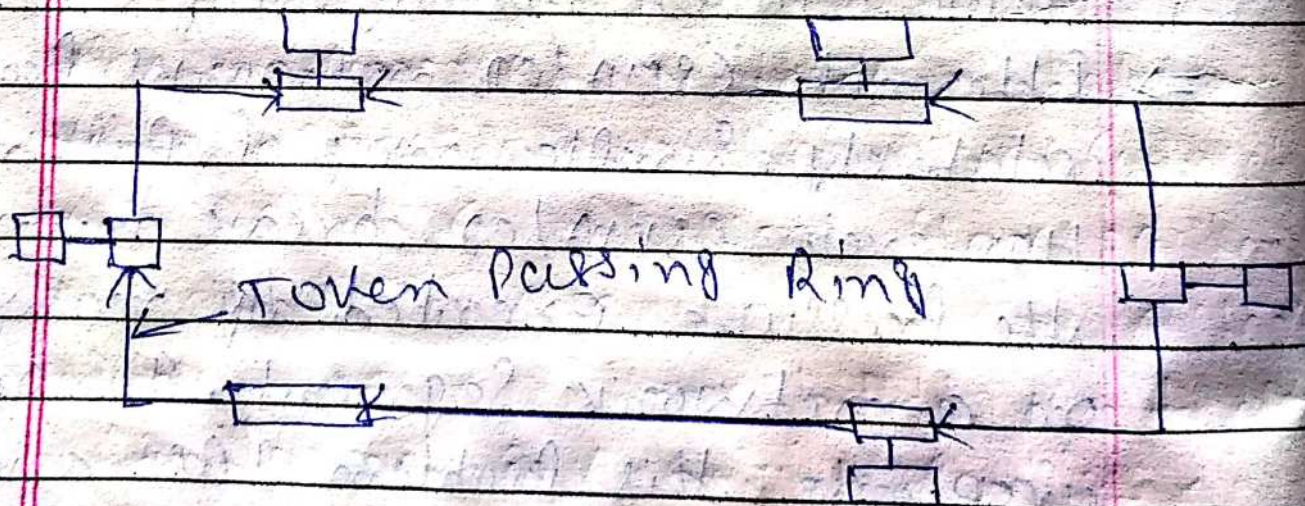


Another Computer. In token ring network by contrast a single special packet called a token is passed around the network. When a computer has data to transmit it wait until the token is available and then transmits a data packet while simultaneously releasing the token to the next computer in the line. Then the next computer grabs the token if it has data to transmit. Token ring is an IEEE 802.5 Standard whose topology is physically a star but logically a ring.



Topic: Network Device.

⇒ In the small function of network many devices play important roles.

1) Repeater:-

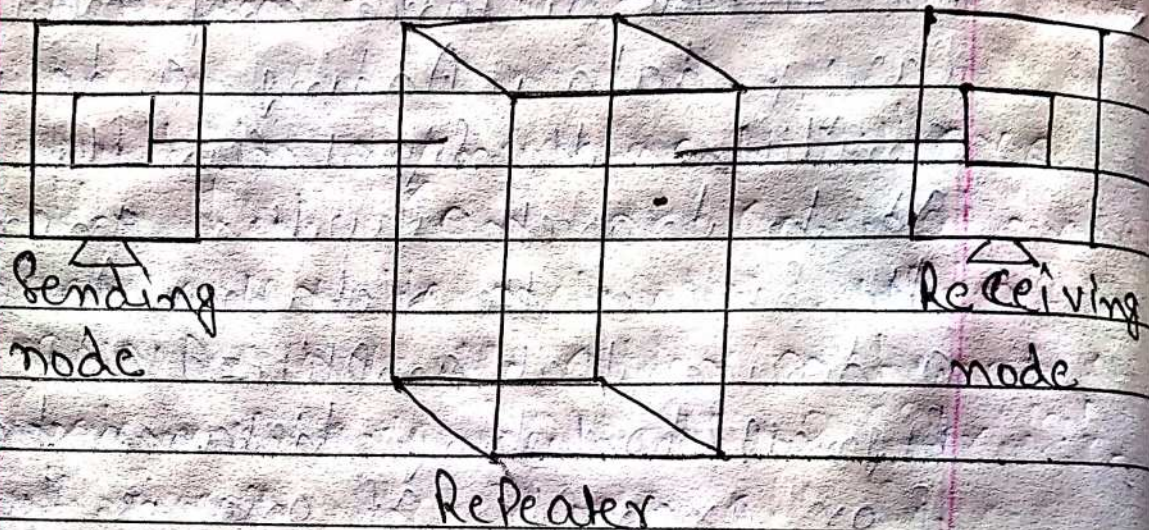
⇒ All transmission media we weaken the electromagnetic waves that travel through the media attenuation. Therefore limit the distant distance any media can carry data. Adding a device that amplify the signal can flow or allow it to travel further, increasing the size of the network. A repeater is a device that amplify and restore signal for long distance transmission. For example if one is connecting computers that are more than 100m apart using ethernet cables one will need a device that amplify signal to ensure data transmission. Devices that amplify signal in this way are called repeater. It has following two categories —

A) Amplifiers:-

⇒ Amplifiers simply increase the power of the incoming signal that is both signal and the noise. They are able to improve signal to noise in the analog type of system only.

B) Signal Regenerating Repeater:

⇒ Signal Regenerating Repeater - Create an exact duplicate of the incoming digital data.



Topic :- Hub & Concentrators

⇒ Intelligent LAN Concentrators usually just called Concentrators. Hub are used to connect network nodes to network backbone. nodes are connected to HUBS in a Physical Star Faishon, wheather they are used to for a star topology or a Ring topology network. A simple network might consist of just a hub or two smaller network usually don't require a network backbone. Hubs are virtually any network media type with the higher unit using replaceable moduals

to support multiple media types.

The Properties or Advantages of Hub's -

i) Hubs echo all data from each Port to all the other Ports on the Hub.

Although hubs are wired in a star fashion. They actually perform electrically more like a bus topology segment in this respect but topology segment because of this echoing no filtering or logic occurs to prevent collisions b/w packets being transmitted by any one of the connected nodes.

ii) Hubs can automatically partition a problematic node from the other nodes in effect, shutting down that node. Such partitioning occurs if a cable short is detected or if the hub Port is receiving excessive packets that are flooding the network or if some other serious problem is detected for a given Port of the hub.

Features of HUB:-

⇒ Hubs are becoming much more ~~com~~ sophisticated. They often have a number of advance built-in features -

i) Built-in management where the hub can be control managed over the network, using SNMP or, the other network management protocols & software.

ii) Auto sensing of different connection speeds. e.g. Ethernet Hubs can be automatically detect & run each node at either 10 Mbps (10BASE-T) or, 100 Mbps are common.

iii) High speed uplinks that connect the hub to a backbone. These usually operate at a ten times the basic speed of the hub.

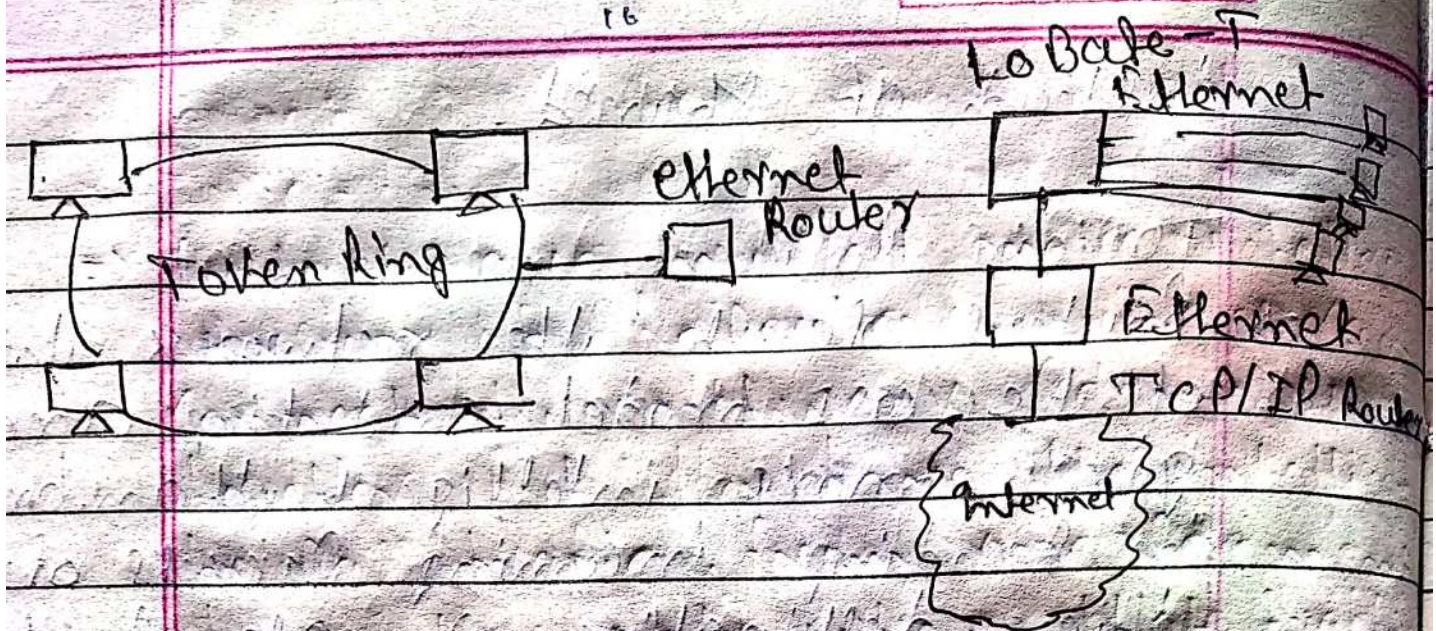
iv) Built-in switching where nodes on the HUB can be switched.

instead of shared.

Topic: Routers.

→ Routers operate at the network layer of the OSI model and they are given more intelligent than bridges in sending incoming packets off to their destination. Because routers operate at the network layer, a connection across a router requires only that the higher layers use the same protocols. The router can translate to anyone of the protocols at the layer 1 through 3 or any other protocols at layer 1 through 3. Router can connect both similar and dissimilar networks. They are often used in WAN links.

Routers actually become a node on a network and they have their own network address. They can perform other tricks to maximize network bandwidth & dynamically adjust to changing problems or traffic patterns on a network.

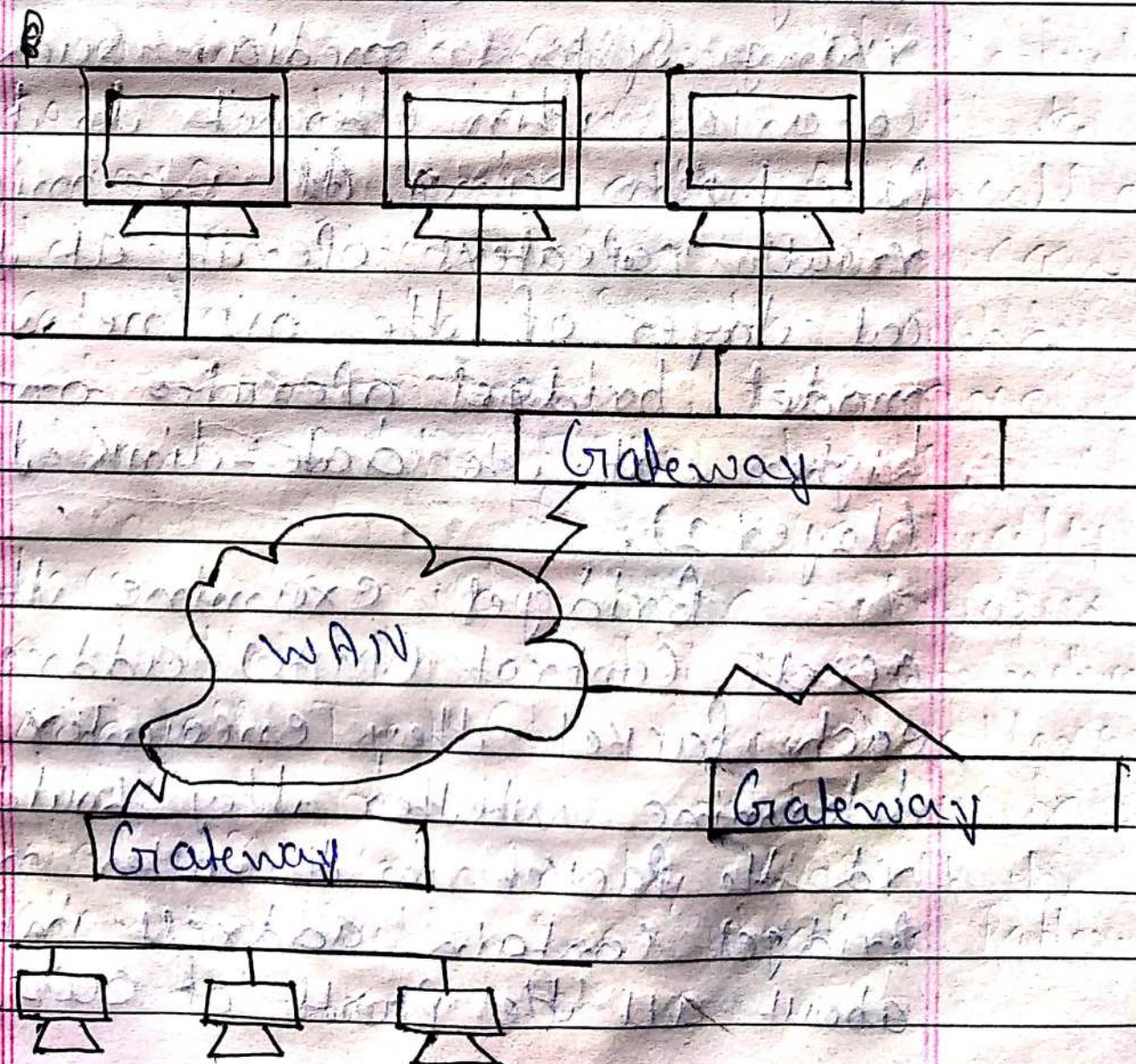


Topic: Gateway

⇒ Gateways are application specific interfaces that connect all seven layers of the OSI model when they are dissimilar at any or all levels. For instance if we need to connect a network that uses one of the OSI models to one using IBM's Systems Network Architecture model (SNA), use a gateway. Gateways can also translate from Ethernet to token ring. Although similar solution than gateway exists if we need such a translation because gateways must translate so much they tend to be slower than other solutions, particularly under heavy

loads.

The Primary use for gateways today is for handling e-mail. POP3 & SMTP are two examples of protocols that are handled by gateways. Most e-mail systems that can connect to disparate systems either use a computer set up as a gateway for that chore or let the e-mail server handle the gateway chores itself.



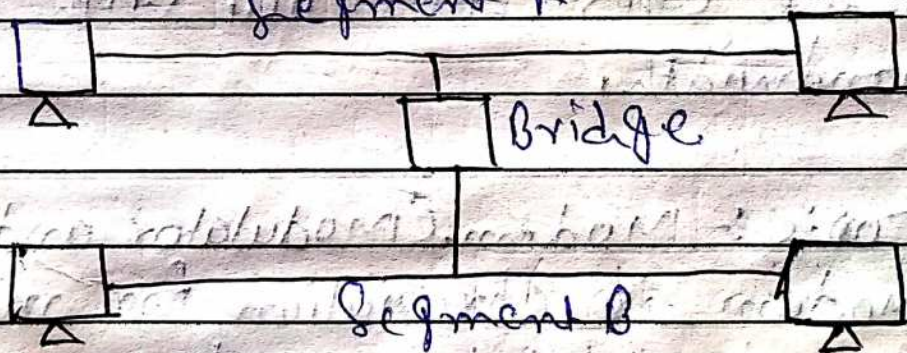
Q

Topic:- Bridges

⇒ Bridges are much more intelligent version of repeaters. Bridges can connect two network segments together but they have the intelligence to pass traffic from one segment to another only when that traffic is destined for the other segment. Bridges are used to segment networks into smaller pieces. Some bridges can span different networking system media. Such as co-axial to ethernet to twisted-pair token ring. As we might recall repeaters operate at the physical layer of the OSI/networking model bridges operate one layer higher, at the data-link layer (layer 2).

Bridges examine the media access control (MAC) address of each packet they encounter to determine whether they should forward the packet to the other network. Bridges contain address information about all the parts of our country.

network through either a static routing table. ~~For~~ we should use bridge only in smaller networks, or in case where we we where we would otherwise use a repeater, but would benefit from keeping traffic on one segment from being transmitted on the other segment unnecessarily often routers or switches offered solutions that perform better and create fewer problems. So examine these other option before choosing a bridge.



Bridge operates in the following means:-

- i) A Bridge receives all the signal from both Segment A & B.
- ii) The Bridge reads the address and discards all the signal from Segment A that need not to cross the bridge.

Topic: FDDI (Fiber distributed data interface)

⇒ FDDI is another ring based network and unlike token ring, it is implemented without hub although you can use device called connector. FDDI uses fiber optic cable to implement very fast & reliable network. It is a high performance fibre optic token ring LAN running at 100 mbps over distances up to 200km with up to one 1000 stations connected. FDDI is a set of ANSI and ISO (American national standard institute). It can be used in the same way as any of the other LANs but with 9M high bandwidth.

Topic: Modem (modulator and demodulator)

⇒ modem is abbreviation for modulator and demodulator. Modems are used for data transfer from one computer network to another computer network through telephone lines. The computer network works in digital mode while analog technology is used for carry messages across phone lines. Modulator converts from digital mode to

Analog mode at the transmitting end and demodulator convert the same from analog to digital at receiving end. The process of converting analog signals of one computer network into digital signals of another computer network is called modem so, they can be processed by a receiving computer is referred to as digitizing.

