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Routers In Computer Networks)

It is a networking device that forwards data packets b/w computer networks.

Router has a number of interfaces by which it can connect to a number of host system.

⇒ Whenever we talk about routers that means talk about internet.

Router work on 3-layers

- Physical
- Data link
- Network

Remarks

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Notes

Router **working** on **3-layer** means → ??

↓

Router **check MAC** address as well as **IP** address also.

↓

whenever talk about 'IP' means talk about **internet.**

functions of Routers

↳ forwarding

↳ Routing

↓

two major functions

Remarks

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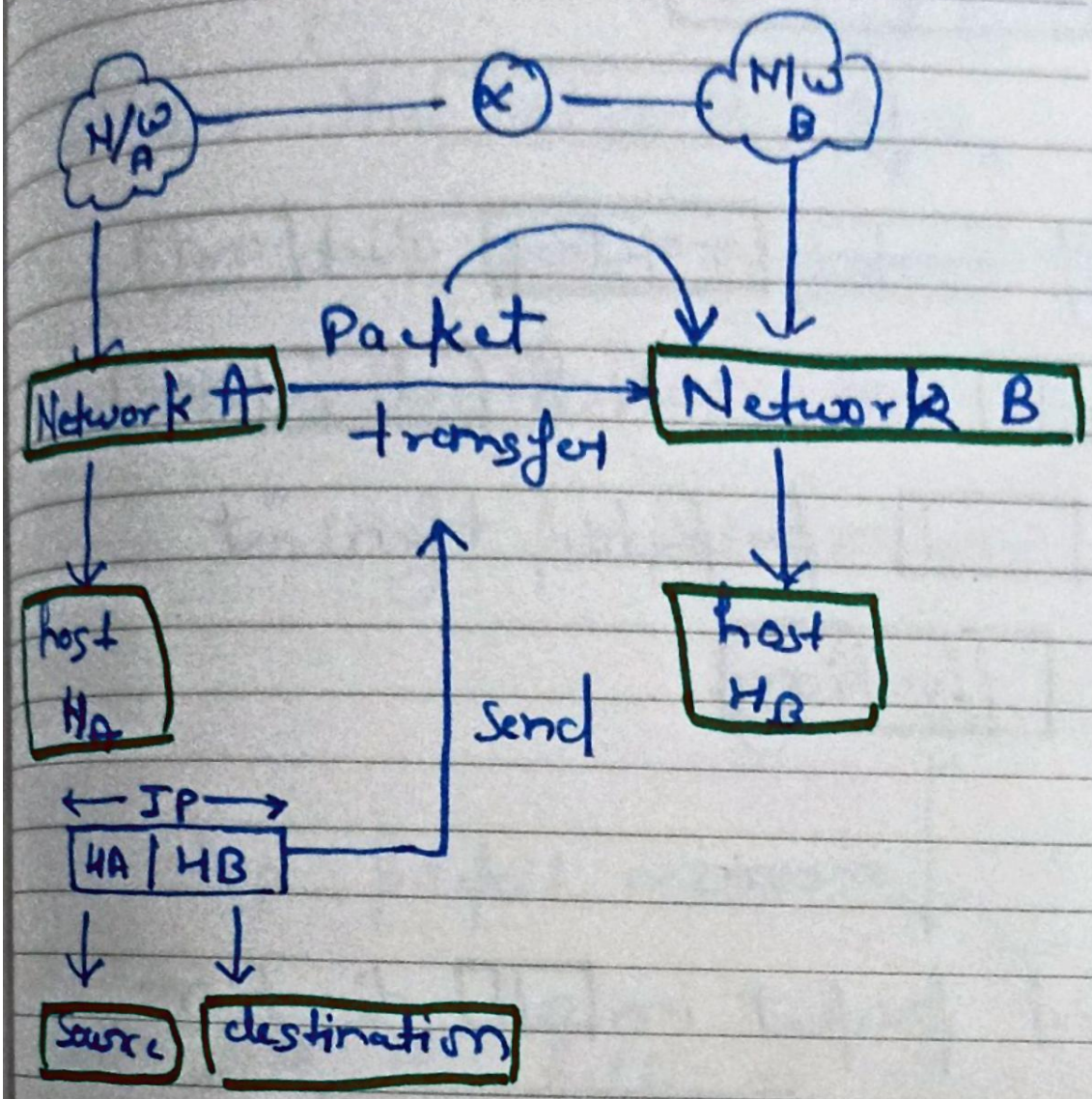

Router uses → Routing table

means

after checking with routing table → which direction packet should be sent.

it maintains which type of network is it connected.

Remarks

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Key point:

↓

If ~~rotel~~ **router** did **not** **decide** in which **direction** it **send** packets then it do **flooding**.

↓ means

send packet in **all** directions, a kind of **broadcasting**.

⇒ **Filtering** ?? **How in Routing**

↓

Remarks: by using **ARP** request, we check → IP address, → MAC address

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ARP requests works only within the network, here, router can decide to send this packet or not

→ sending packets means → forwarding

→ stop packet means → filtering

So, with the help of routing table we decide to send packets or not.

Routing table Uses

- RIP protocol
- distance Vector routing.

Remarks

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Point:

Inside router packet did not collide, another packet come then it store inside memory because router uses store and forward concept.

Remarks

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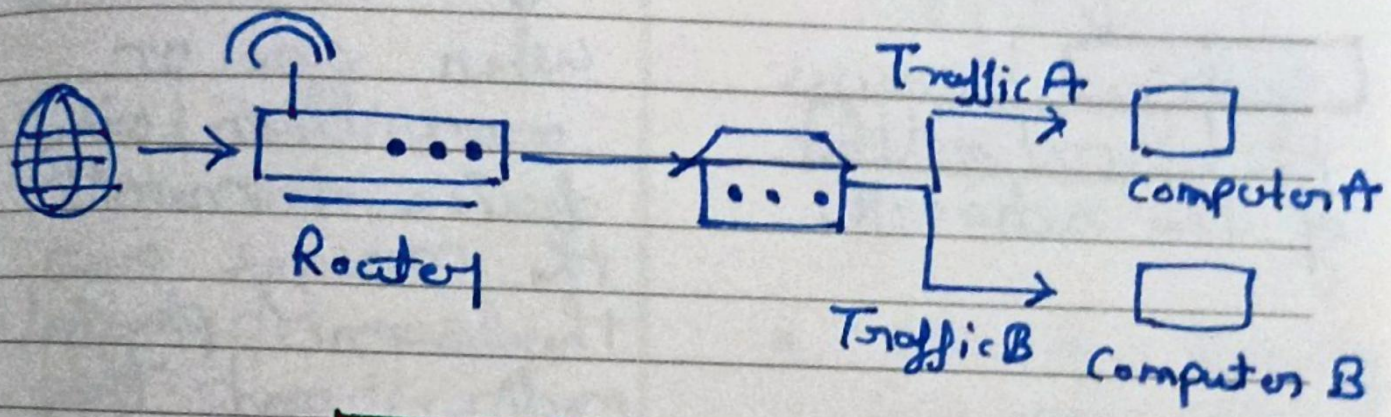
Switch (COMPUTER NETWORK)

connect devices within a **network** and **forward** data **packets** to those devices.

(LAN)
local Area Network



Switch

- **2 layer** → forward data based on **MAC** address
- **3-layer** → forward data based on **IP** address.

Remarks

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Why switching concept required ??

two reasons!

- **Bandwidth** → **switches** increases the **bandwidth** of the network.
- **Collision** → when one or more than one device transmit the message over the same physical media, and they collide with each other.
  → at that time **switching** technology is **implemented**.

Remarks

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Switch Vs Router

Switch	Router
• connect multiple network device.	• connect multiple switches.
• work on data link layer of OSI model.	• work on network layer of OSI model.
• Used within a LAN.	• Used in LAN or MAN
• provides only port-security.	• provides security measures to protect the network from security threats.
• Send information from one device to another in the form of frames.	• Send information from one network to another network in form of packets.

Remarks

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