5. Topologies

Star 🌟

> uses a central hub/switch and each computer/devices in connected to the hub/switch.

> **Hub**: Packets will be send to every device
> **Switch**: Packets will only be send to the node where the recipient address matches.

- Packets has address of the recipient
- Sender transmits packets directly to the server
- Server reads the address and identifies where recipient is
- Server transmit packets directly to the recipient
- Server transmit packets only to the recipient

Pros

1. Less data collision
2. More secure
3. Node doesn't effect others

Cons

1. Set-up cost
2. Central hub effects all

Bus 🚌

> uses a sigle central cable to which all computers and devices are connected.

- Packets pass through every node
- Each node looks at each packet and determines whether or not the address of recipient in the package match the node address
- If so, the node accept the package.

- If not, the package is ignored.

Suitable for a small company or an office environment. (light traffic occurring)

Pros

1. Node doesn’t effect others
2. Easy to connect new nodes

Cons

1. Less secure
2. Heavy traffic
3. Main cable effects all

Mesh

- **Routing**: by giving the nodes routing logic, so that data/packets is directed to its destination by the shortest route.
- **Flooding**: simple send to all the nodes

Pros

- Failed link doesn’t affect other parts
- Secure

Cons

1. Hard to maintain
2. Need lots of cable

Hybrid

Pro

- Could have all the pros above

Cons

- Try to minimize the cost above
