Network Topologies

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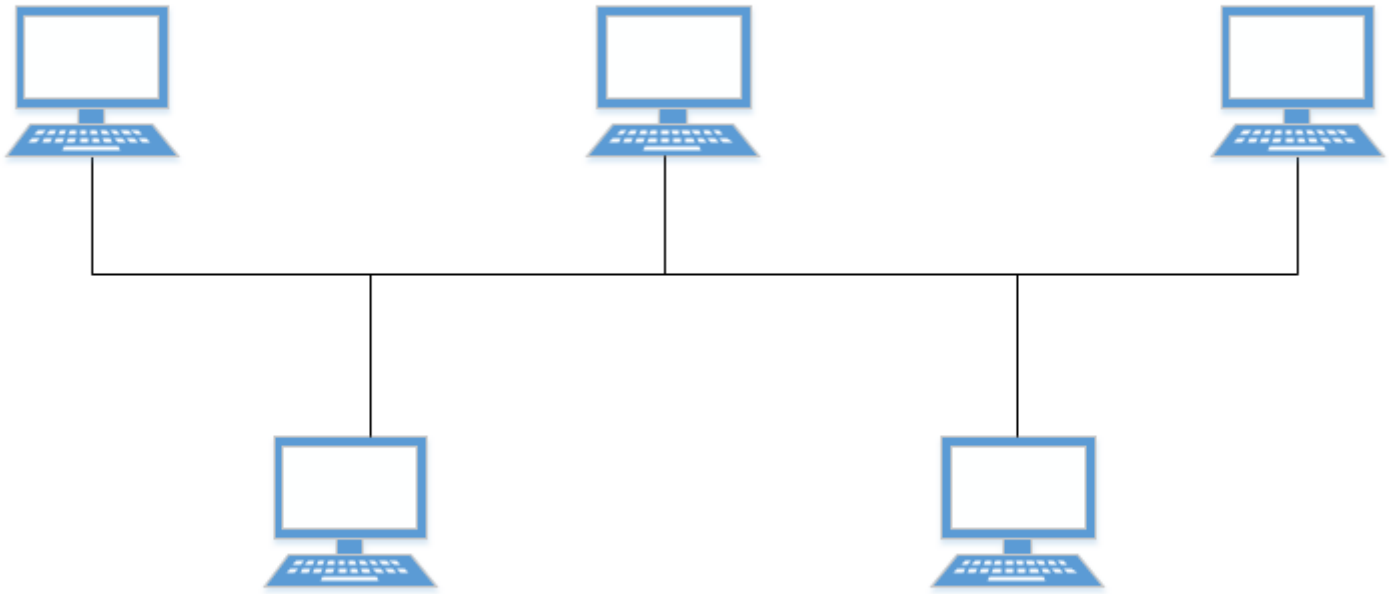
Bus Topology



Bus Topology

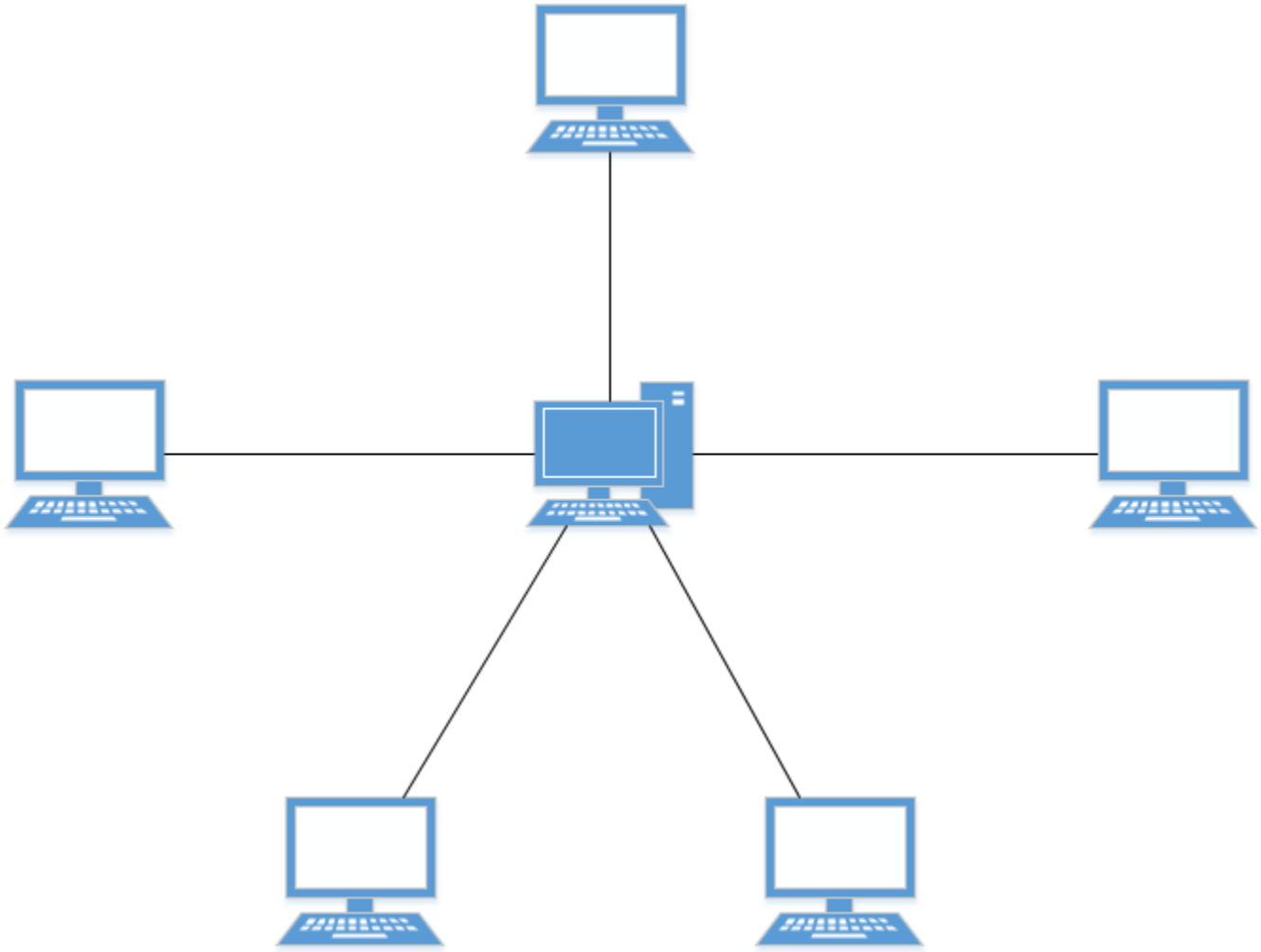
Pros

- Good for smaller networks
- Easy to maintain and to set up
- More cost effective for small networks

Cons

- Faults are more difficult to identify
- A fault on the “bus” can lead to a failure for other devices on the bus
- Each device can see the data transmitted
- Doesn’t handle excessive network traffic well

Star Topology



Star Topology

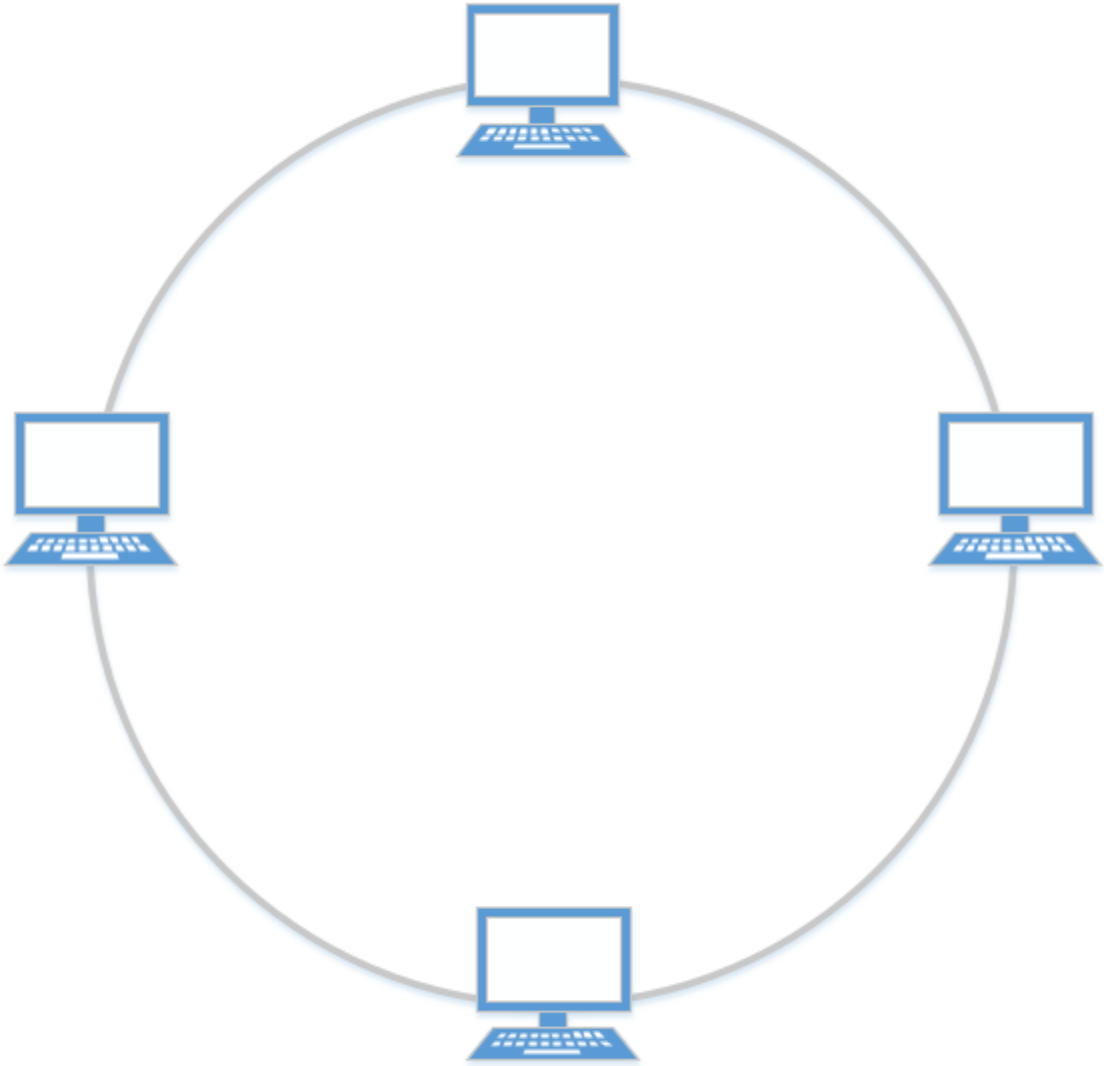
Pros

- Good fault tolerance, as each device has its own “pathway”
- Handles network traffic better than the bus topology
- Easy to detect/identify faults

Cons

- Expensive to set up
- Central failure leads to failure of all devices on the network
- Central hub determines the number of devices that can be added to the network

Ring Topology



Ring Topology

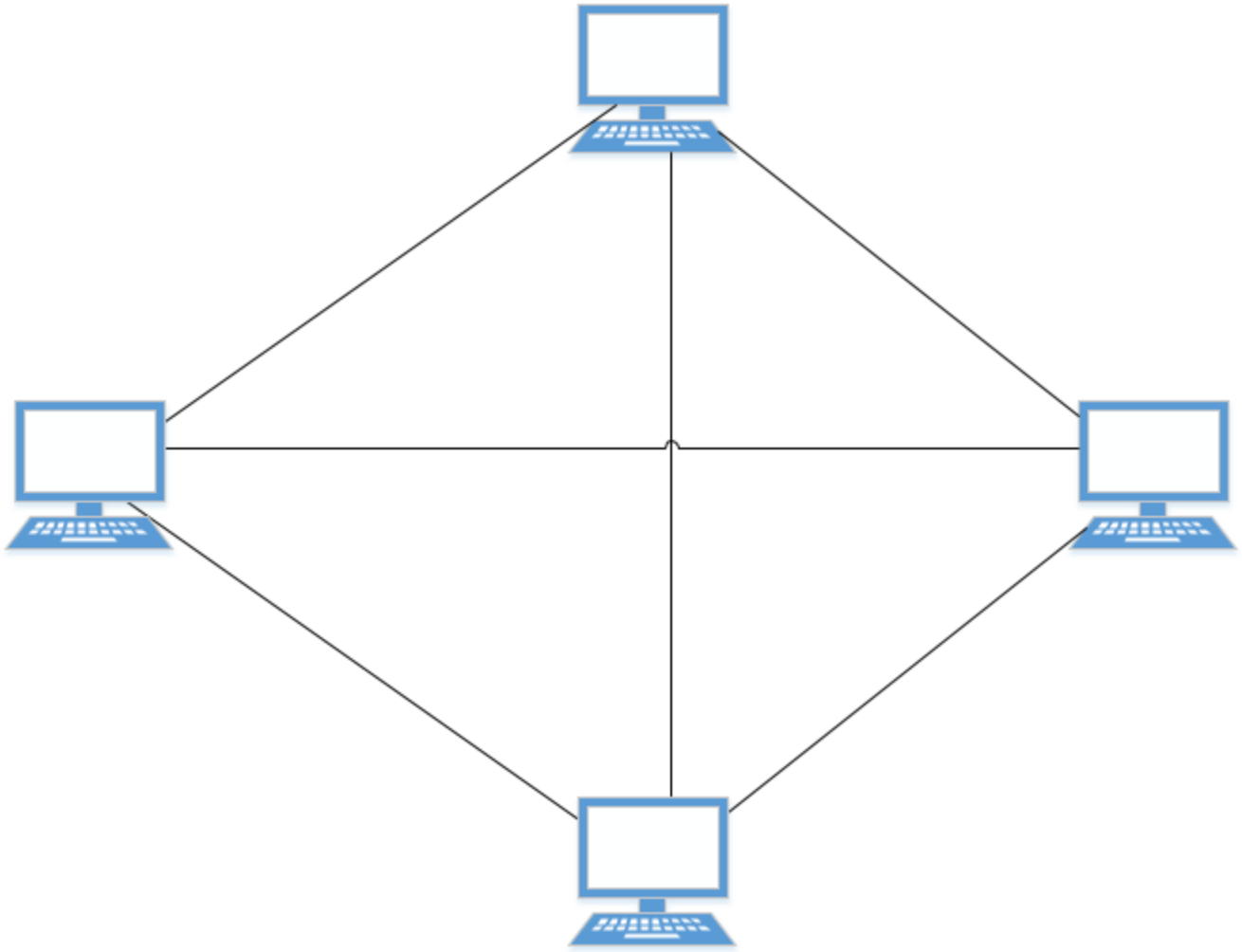
Pros

- High-speed data transmission
- More efficient than a bus
- Easy to identify faults
- More cost effective than the star topology

Cons

- Transmission speed can be slower depending on the direction the data must go
- Data transmission is uni-directional
- High number of devices on the network can slow down transmission
- Very little fault tolerance
- If one device fails, the network fails

Mesh Topology



Mesh Topology

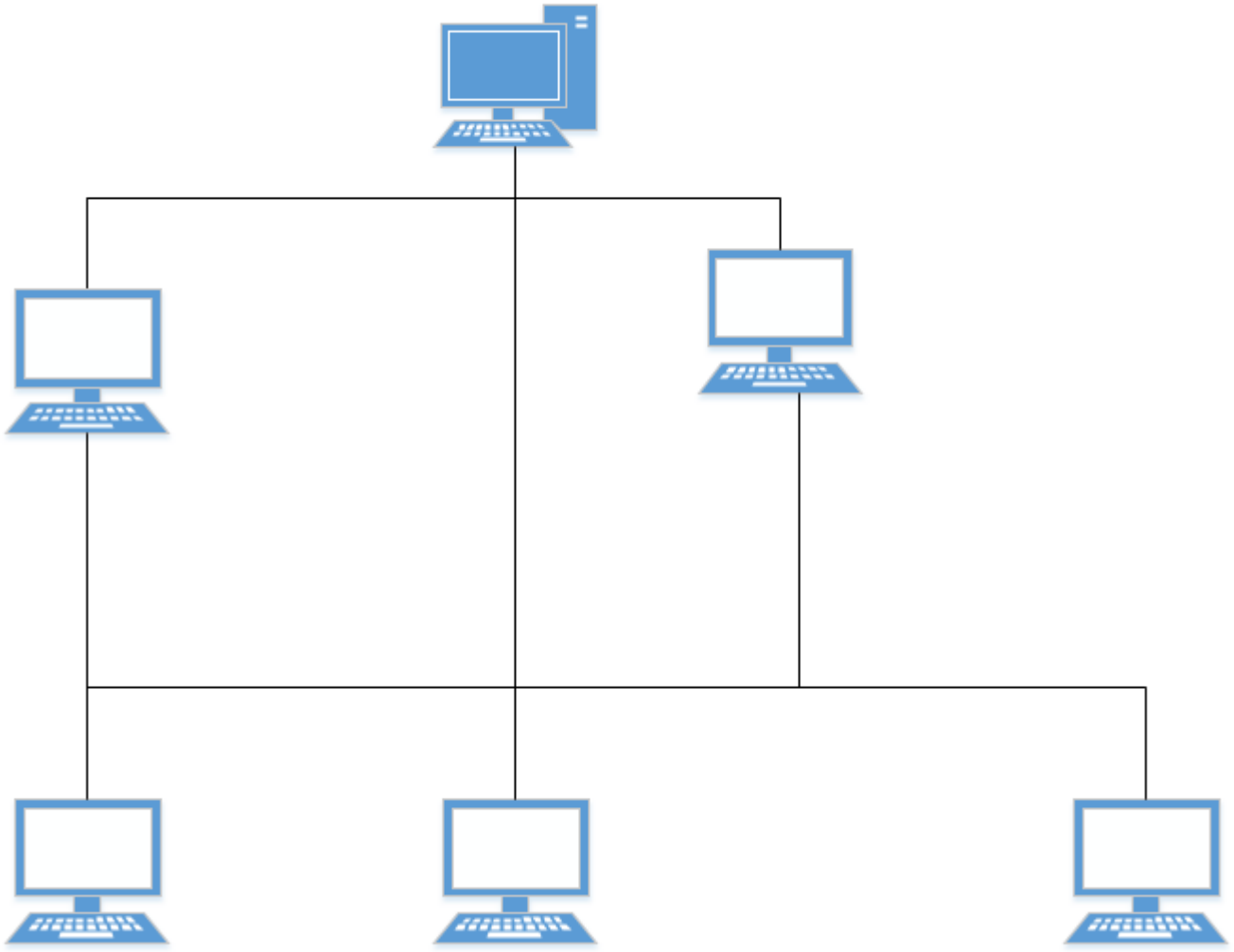
Pros

- Can handle heavy traffic due to efficient pathing
- Data can be transmitted to multiple devices from the same source
- High fault tolerance
- Fault identification is easy because all connections are directly between two devices

Cons

- Expensive to establish
- Difficult to maintain
- In a hard-wire connection, a lot of cables are required

Tree Topology



Tree Topology

Pros

- Fault identification is easy
- Good for handling multiple geographical areas that run off the same network
- Good fault tolerance, as the failure of one branch does not mean the failure of another
- The network can be easily expanded

Cons

- Difficult to maintain due to its complexity
- Tree topologies still have a central bus, which can fail and result in total network failure.
- Capacity of the central bus still determines the capacity of the network