

Network Topology

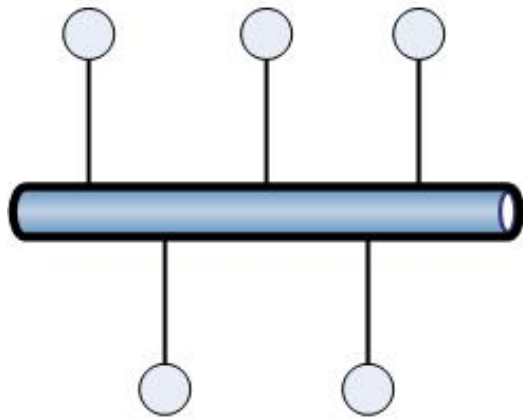
by:

Engr. Joseph Ronald Cañedo

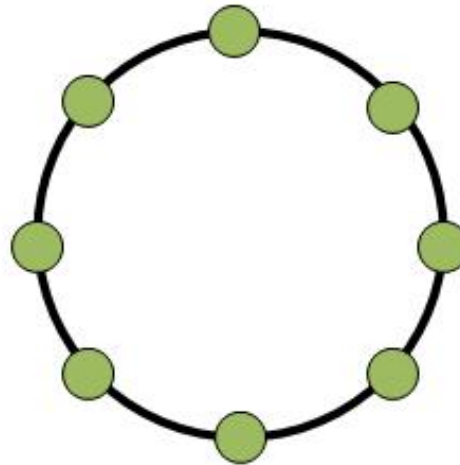
Outline

- Overview
- Physical vs. Logical Topologies
- Bus Topology
- Star and Extended-Star Topologies
- Ring Topologies
- Mesh and Partial Mesh Topologies
- Wireless Networks
- Summary

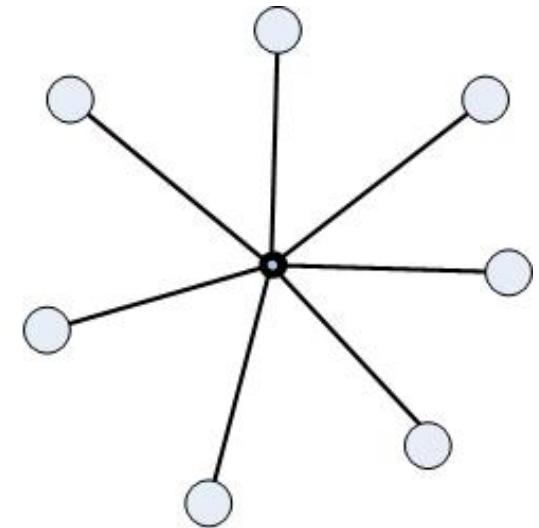
Physical Topology Categories



Bus Topology

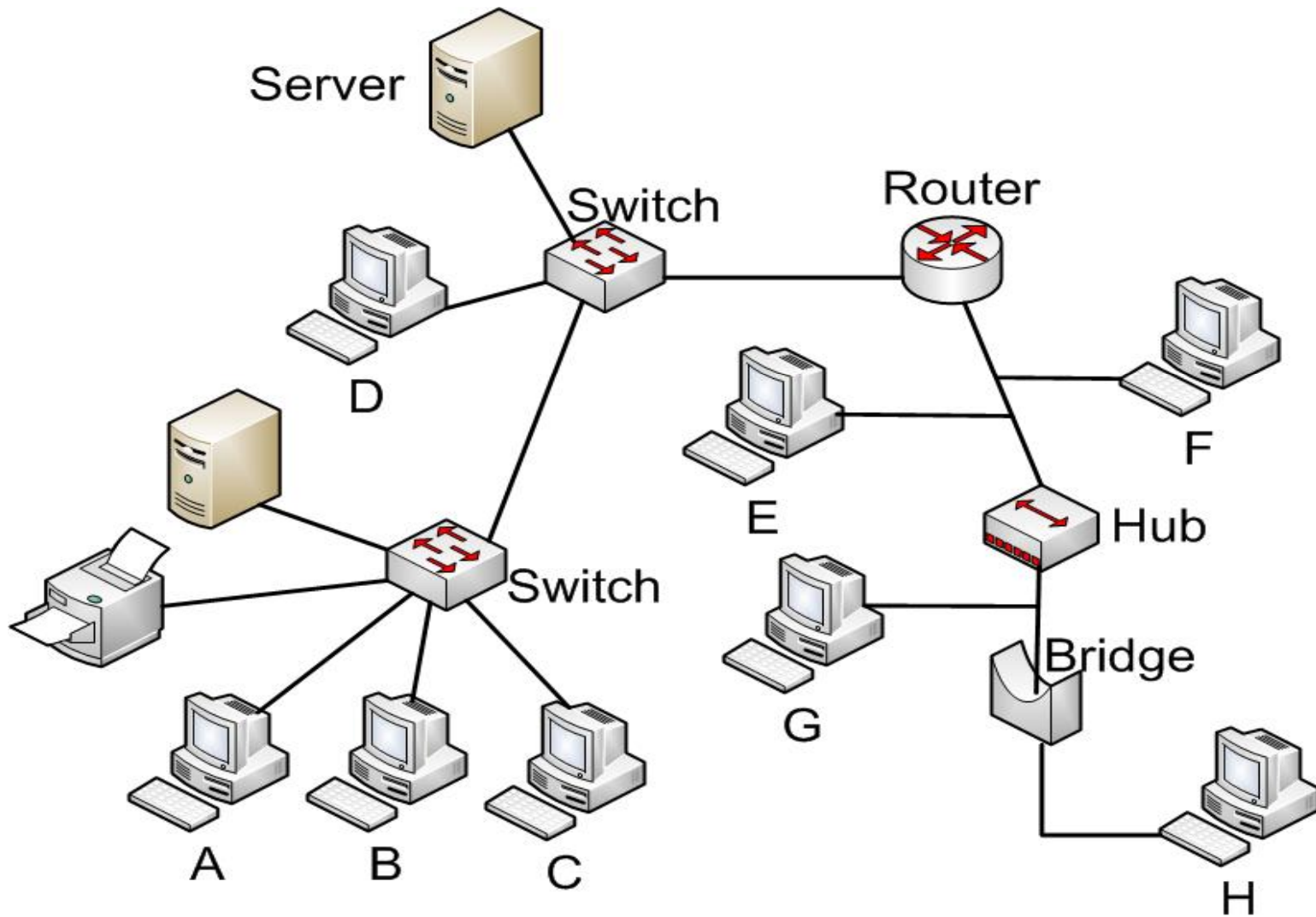


Ring Topology

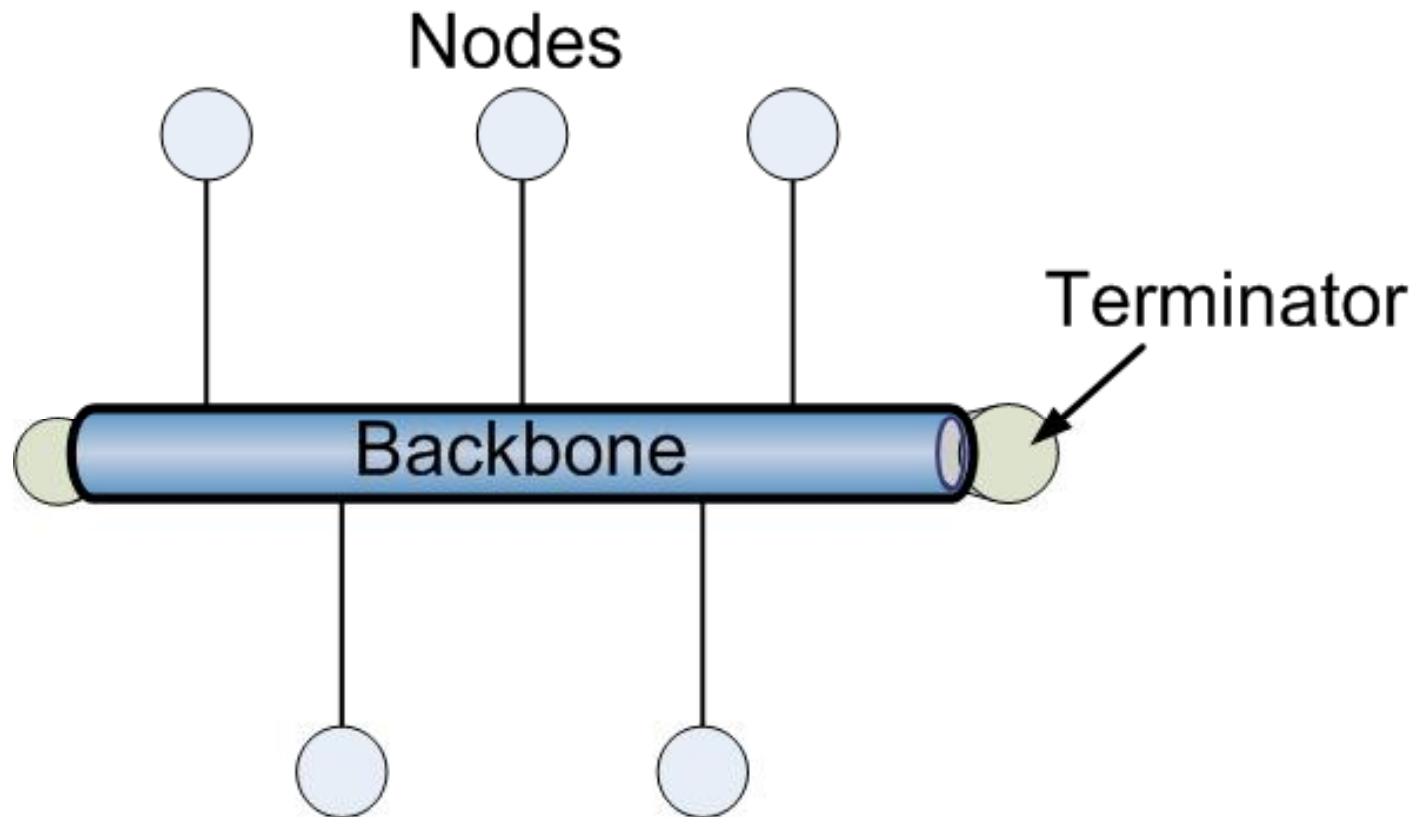


Star Topology

Logical Topologies



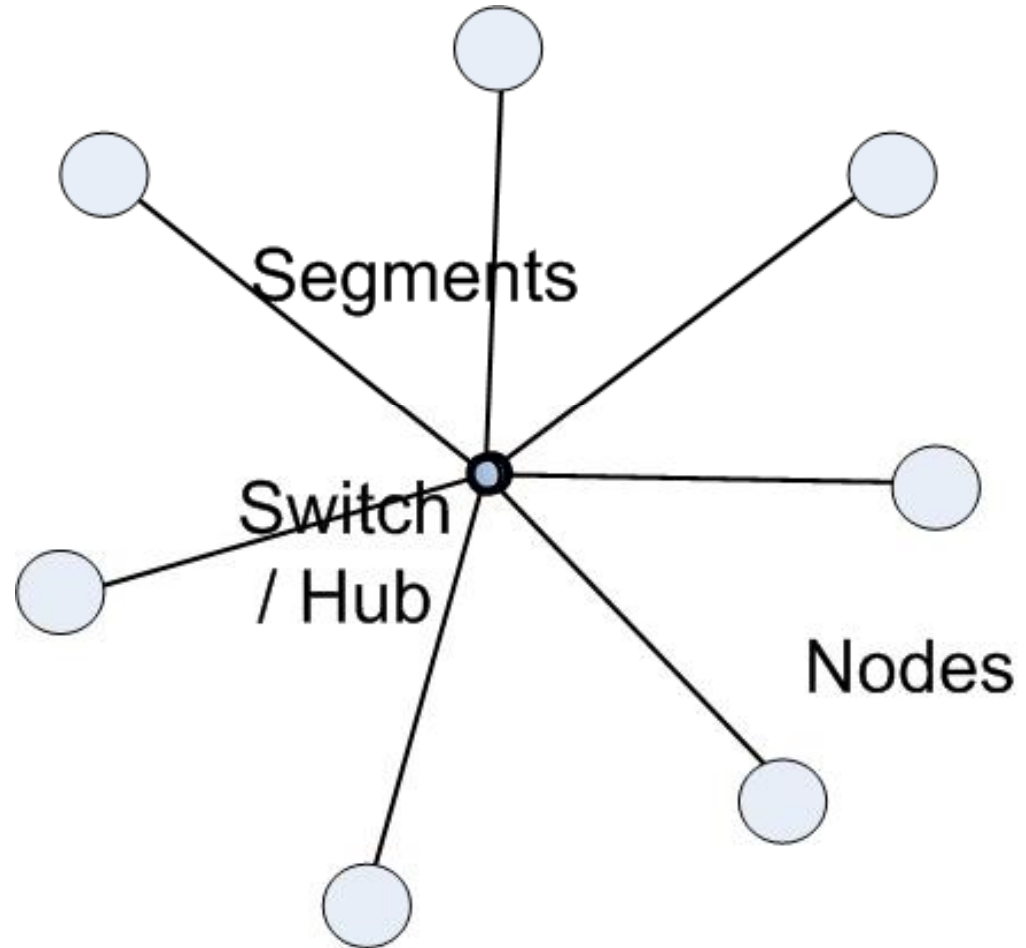
Bus Topology



- All devices receive the signal

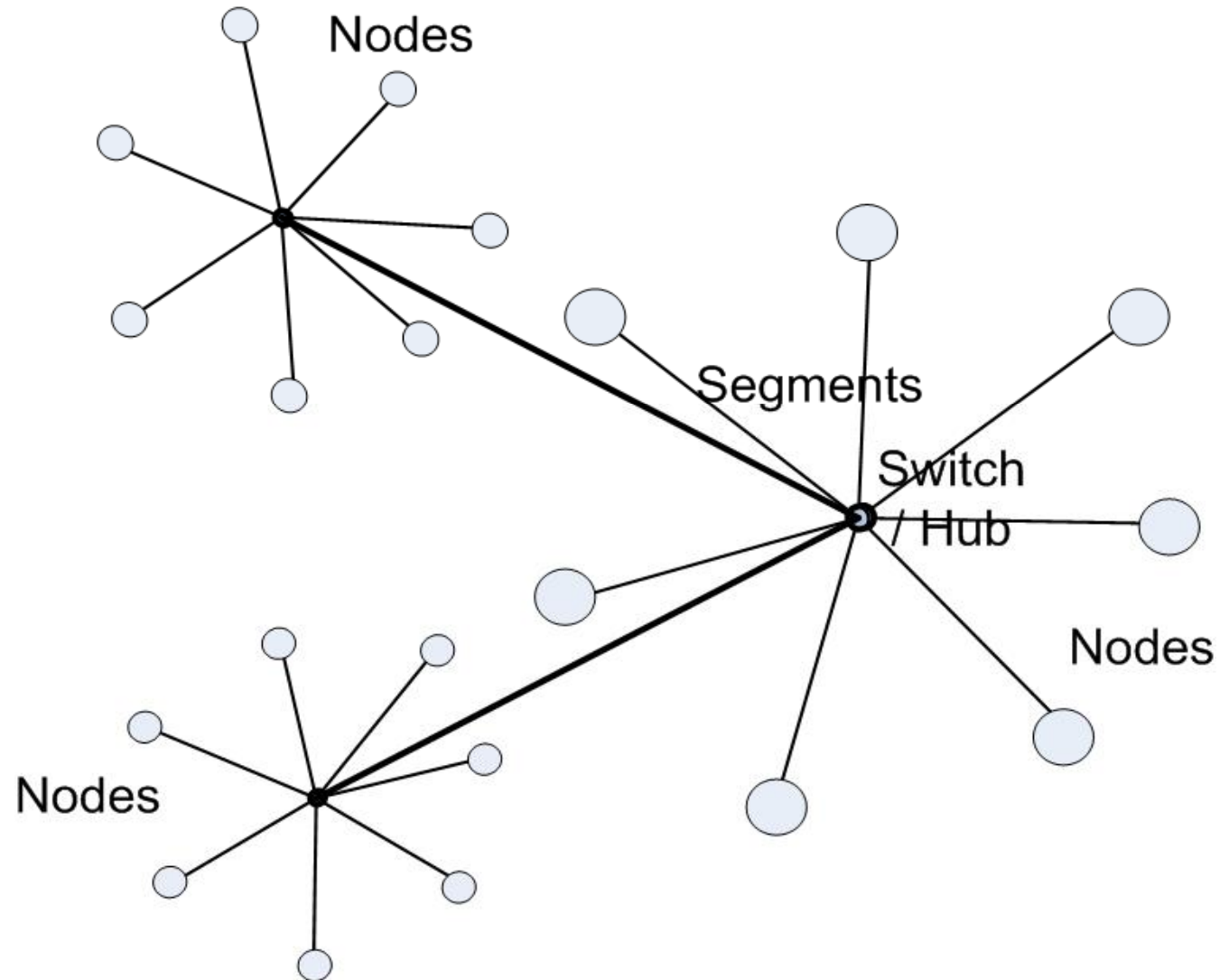
Star Topology

- Transmission go through a central point called switch/hub.
- Single point of failure



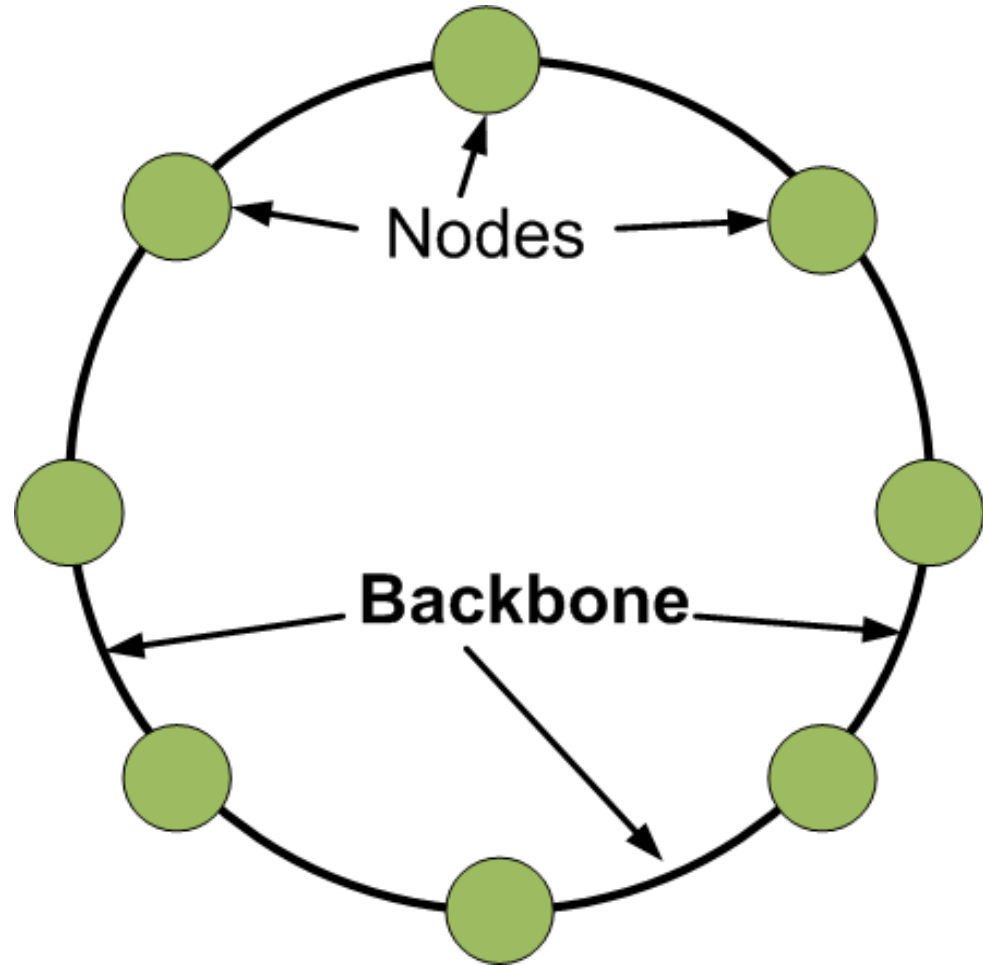
Extended-Star Topology

- More resilient than star topology

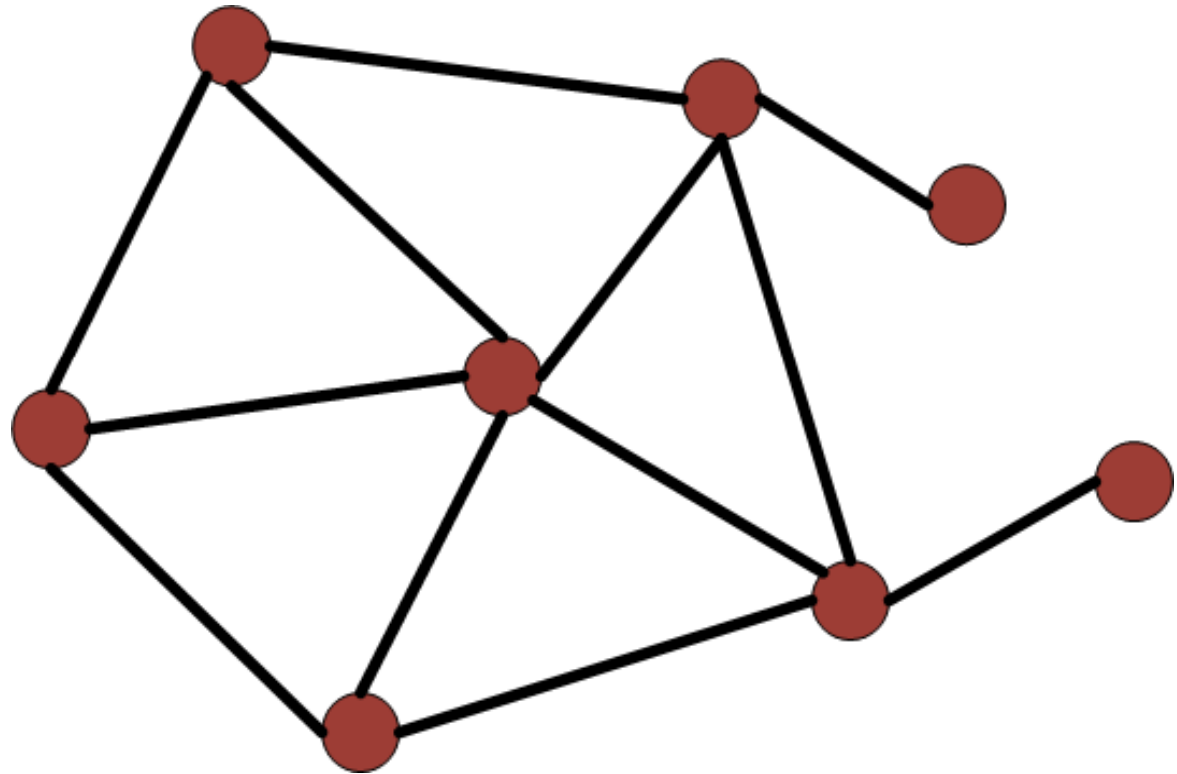


Ring Topology

- Signals travel around ring.
- Single point of failure



Mesh Topology

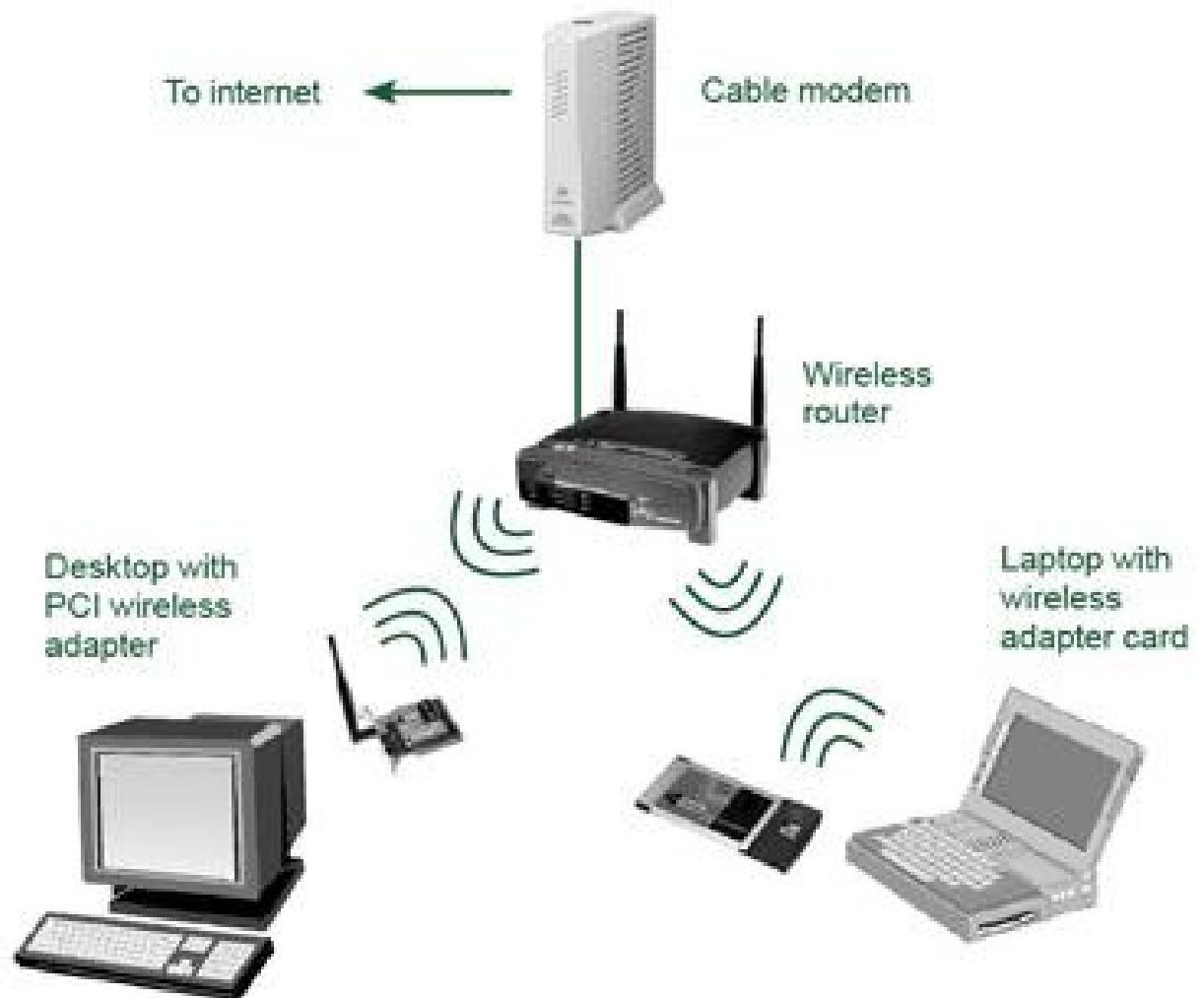


- Highly fault tolerant
- Expensive to implement

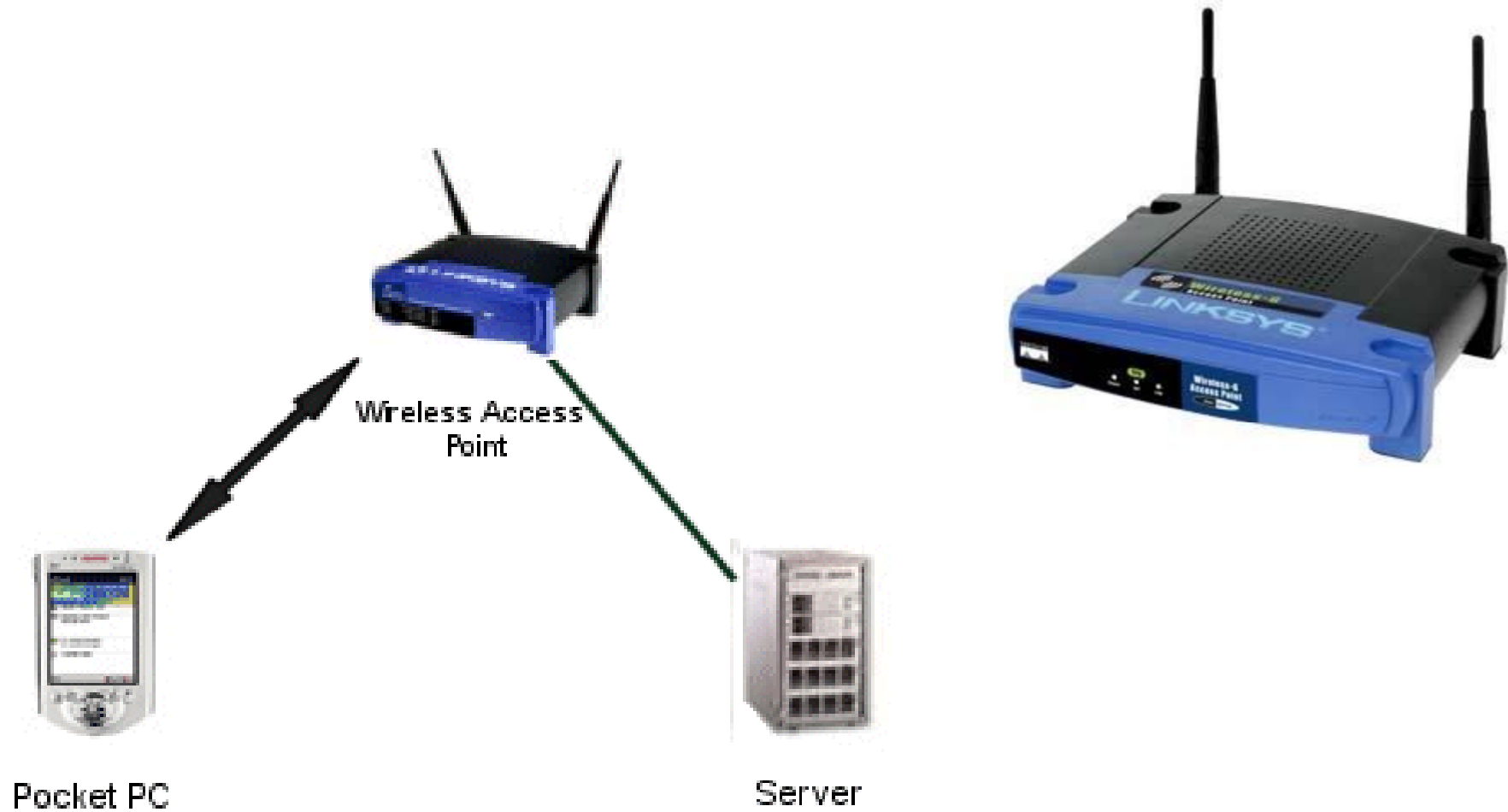
Wireless Networks

Benefits

1. Convenience
2. Mobility
3. Productivity
4. Deployment
5. Expandability
6. Cost



Access Points



Summary

- A physical topology describes the layout for wiring the physical devices, while a logical topology describes how information flows through a network.
- In a physical bus topology, a single cable effectively connects all the devices.
- In a physical star topology, each devices in the network is connected to the central device with its own cable.
- When a star network is expanded to include additional networking devices that are connected to the main networking device, it is called an extended-star topology.

Summary

- In a ring topology, all hosts are connected in the form of a ring or circle. In a dual-ring topology, there are two rings to provide redundancy in the network.
- A full mesh topology connects all devices to each other, while in a partial-mesh topology, at least one device has multiple connections to other devices.
- Instead of cables, wireless communication uses RFs or infrared waves to transmit data between devices on a network. Some common applications of wireless data communication include accessing the internet using a cellular phone, home or business internet connection over satellite, sending data between two hand-held computing devices, and using a wireless keyboard and mouse for the PC.

