# Network Topologies

## February 27, 2011

Ring Topology

A ring network connects machines in a virtual circle. In an office setting, the last computer in the ring will have a cable that returns back to the first network device. Coax cable and fiber optic technologies use the ring topology.

In the ring topology, a broken cable can cause communication problems on the entire network.
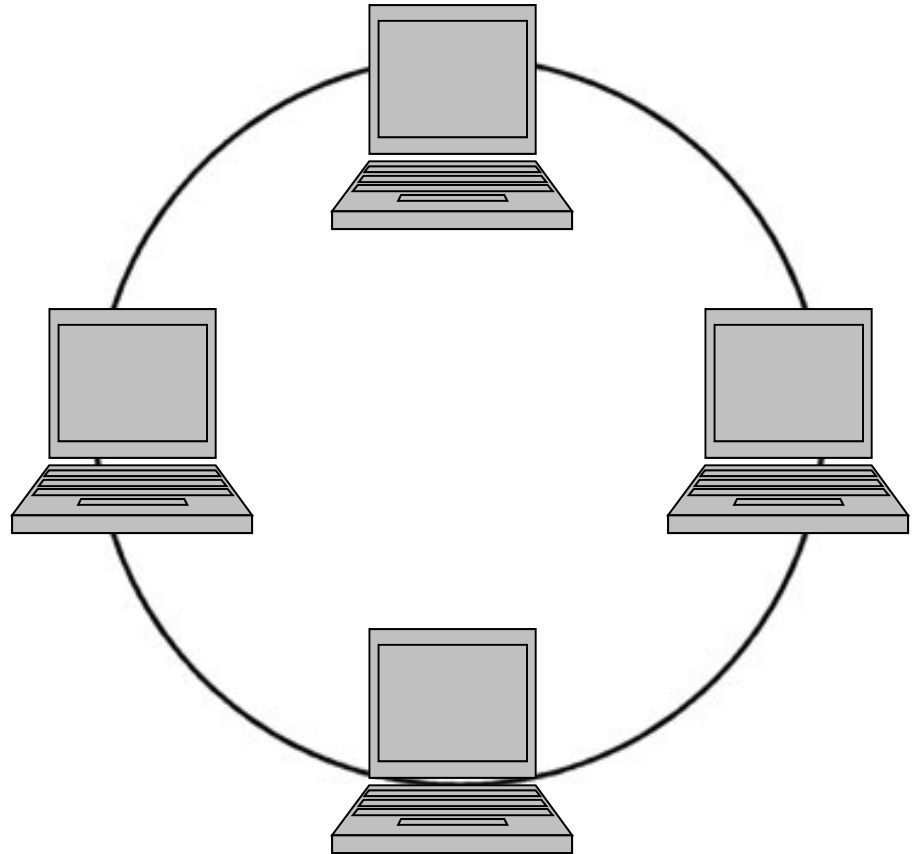
Bus Topology

A bus network connects machines in a line. In an office site, the cable that connects the computer devices together daisy chains from one machine to the next. Unlike the ring topology, we use a line terminator to identify the end of the bus line. Coax cable technology use the bus topology.
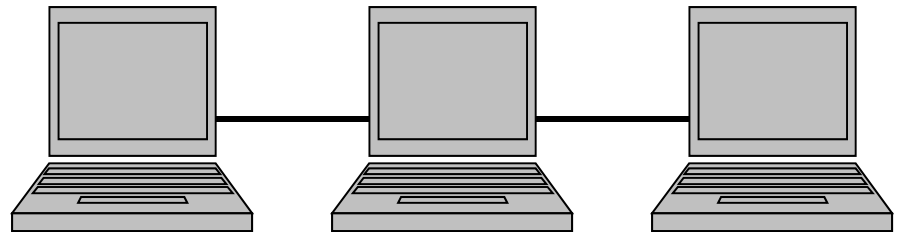
In the bus topology, a broken cable can cause communication problems on the entire network.
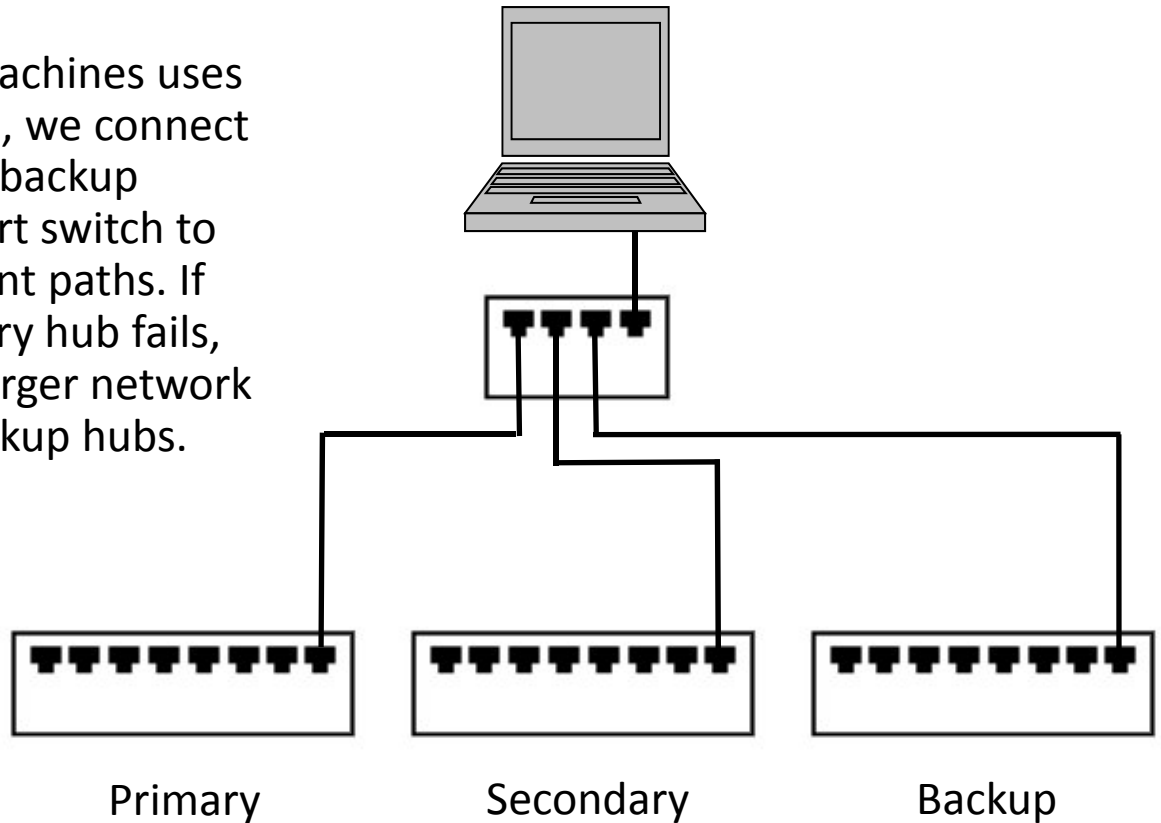
Star Topology

A star network connects machines from a centralized hub. In an office setting, each computer device connects to the hub. The most common technologies using the star topology is the 8 conductor patch cables and some fiber optic services.

In the star topology, a broken cable does not cause communication problems on the entire network, but just on that single connection.
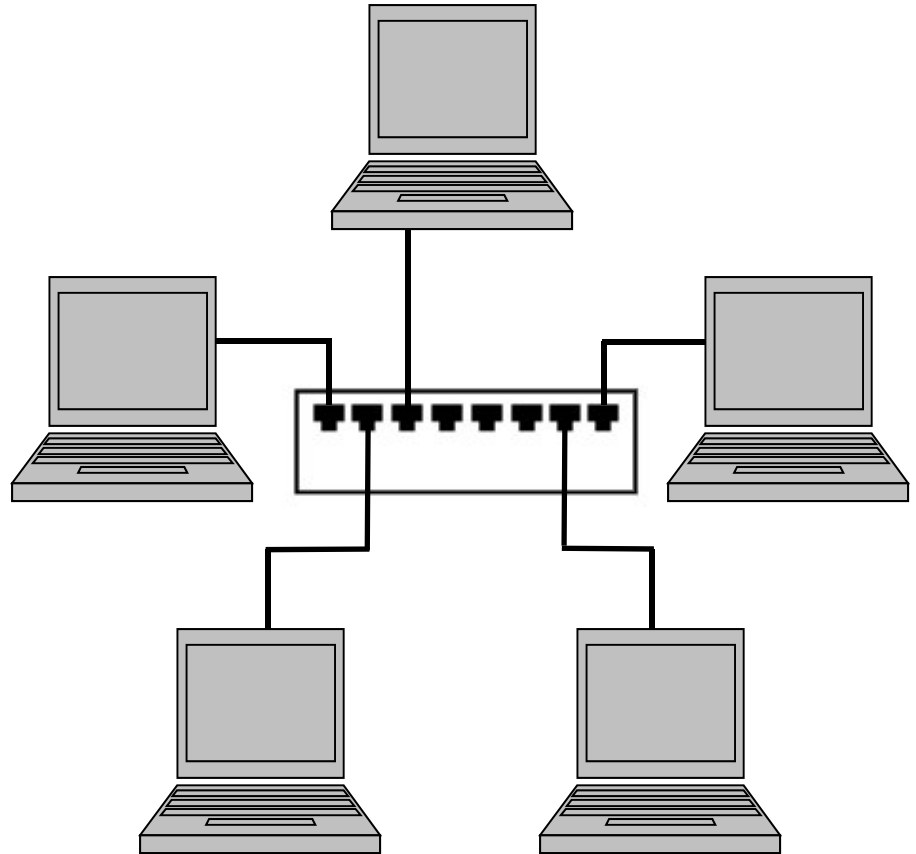
Mesh Topology

A mesh network connects machines uses redundancy. In this example, we connect to a primary, secondary and backup network hub by using a 4 port switch to send our signal along different paths. If the cable going to the primary hub fails, we can still connect to the larger network using the secondary and backup hubs.

Primary   Secondary   Backup

Hybrid Topologies

Network technicians can mix topologies. We can have a hub attached to a fiber optic ring. That same hub can then send and receive signals to their computer devices utilizing a star topology.

In another example, your Internet Service Provider (ISP) can use a bus topology to provide the Internet signal to your home. We can use a star topology in the home to connect to the ISP.
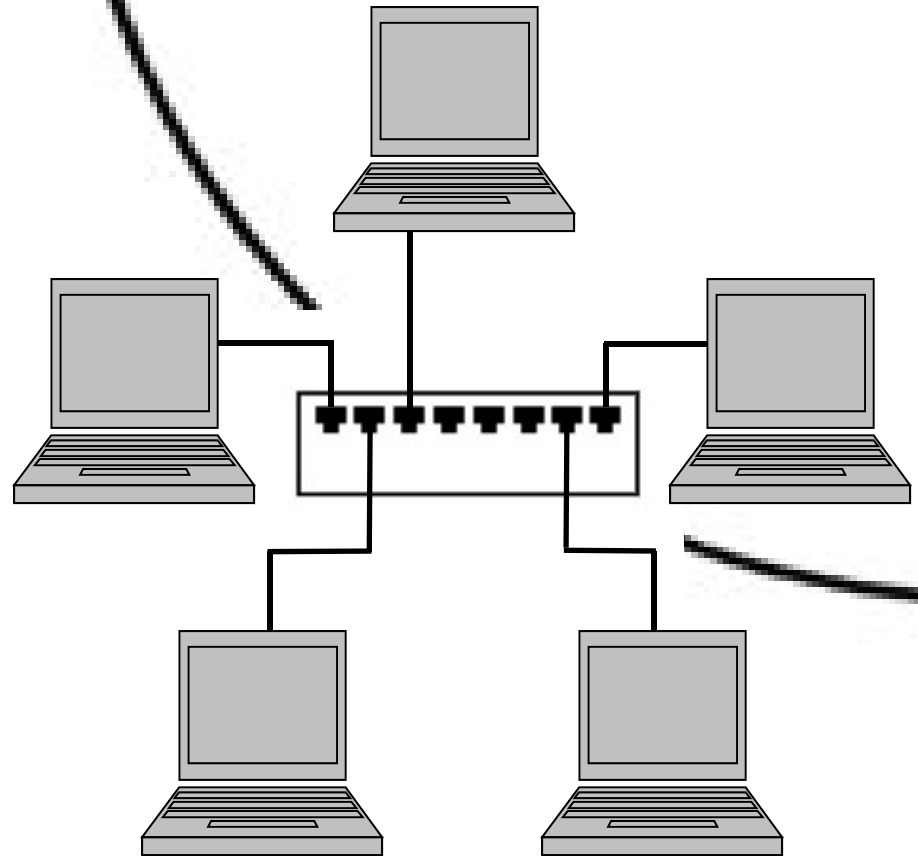
Exercise

Draw a network diagram of the computer lab in your school or office. Label the name of each computer, the IP address of the computer and the cable number that connects the device to the hub.

The diagram needs the name of the room, the date and your name. We can also indicate doors and windows to help orientate the person who is reading the diagram. Always be very neat when diagramming, so anyone can use your network blueprint for troubleshooting.

Computer 1
192.168.100.1

101

102

103

Computer 2
192.168.100.2

104

105

Computer 3
192.168.100.3

Computer 4
192.168.100.4

Computer 5
192.168.100.5