4.4.2 Physical Network Topology Troubleshooting Facts

When troubleshooting physical problems, it helps to identify the fault domain. The fault domain is the location of a physical problem. It's often manifested when you identify the boundary between communicating devices. For example, if a cable break occurs, a given host might be able to communicate with some devices, but not others. When you identify the fault domain, you identify the boundaries of communication and the most probable location of the physical problem.

The following table compares how a single break in the network affects device-to-device communication for specific topologies:

Topology	Effect
Bus	A break in the network bus means that the end of the network bus is no longer terminated. For this reason, a break in the bus typically means that no devices can communicate. Consider the following examples: ▪ When a cable on the network breaks, each end of the cable on either side of the break loses its termination. ▪ When a cable becomes loose or is disconnected, the computer is not connected to the network; this also creates an end that is not terminated. Likewise, when a terminator becomes loose, there is an end that is not terminated. It is difficult to identify the location of a break on a true bus network.
Star	A break in a star means that the device connected to the central device through that cable can no longer communicate on the network. All other hosts will be able to communicate with all other devices.
Ring	A break in the ring means that messages can only travel in one direction (downstream) to the break. Computers can send messages downstream to other devices, but cannot receive any responses because of the break.
Mesh	A break in a single link in a mesh topology has no effect on communications. Data can be routed to the destination device by taking a different (though sometimes longer) path through the mesh topology.