



IT Fundamentals

Unit - Networking

2.7.3 - Network Devices

IT Fundamentals Objectives (FC0-U61)

Objective 2.7 - Explain basic network concepts.

- Devices
 - Modem
 - Router
 - Switch
 - Access point
 - Firewall

Grade Level(s)

8, 9

Cyber Connections

- Networks & Internet

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Network Devices

Get Connected

When connecting computers (securely) to a network, most often the Internet, a variety of devices, both hardware and software, are needed. One of the first devices, which any home Internet user is aware of is the **modem**. The modem is a device that converts a digital bit stream into an analog signal (modulation) and converts incoming analog signals back into digital signals (demodulation). For reference, a telephone line is an analog communications channel and sounds are analog signals.

The next necessary device (which may be part of the modem) is a **router**. A router is a device that connects separate networks. It forwards a packet from one network to another based on the network address for the protocol being used. One example is an IP router which looks only at the IP network number.

A broader category of devices (of which a router is one example) is a **switch**. A switch is a device that filters and forwards network traffic predetermined by certain protocols. Another example of a switch is a bridge, a device that connects two networks and passes traffic between them based only on the node address.

The final piece of (solely) hardware is an (wireless) **access point** (WAP). An access point is a device that creates a wireless local area network. An access point connects to a wired router, switch, or hub via an Ethernet cable, and projects a wireless signal over a designated area.

For security, it is important to have a **firewall**. A firewall is a program (software) or device (hardware) that acts as a barrier to keep destructive elements out of a network or specific computer. Some personal computers include built-in firewalls, like most modern Apple and Window's PCs.