MARK EDWARD SOPER

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PEARSON IT CERTIFICATION

CompTIA® IT Fundamentals+ FC0-U61 Cert Guide

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PEARSON

Feature	Details
Display	External
External video output	Built-in port or none
Interface	Keyboard
	Mouse*
Wireless	N/A
Wired network	Gigabit Ethernet or 10G Ethernet (one or two ports)
Operating system(s)	Windows Server
	Linux server
Form factor	Tower, rack mount, blade

*Optional

Gaming Consoles

A *gaming console* (see Figure 13-5) is a specialized type of computer optimized for 3D gaming. Gaming consoles use specialized motherboards with integrated video, RAM, and processor. Unlike a standard computer, expansion options are proprietary and limited to controllers and additional storage. Current gaming console models include Blu-ray drives (BDs) and can also be used as Blu-ray players.

Figure 13-5 A Typical 3D Gaming Console

Although you can't upgrade a gaming console's RAM, processor, or video output, you can choose from two or more models with the latest consoles from Sony and Microsoft.

For example, the Sony PlayStation 4 Pro has three USB 3.0 (USB 3.1 Gen 1) ports, versus only two on the original PS4 and PS4 Slim. The PS4 Pro has a faster processor with much more powerful 3D graphics than its predecessors and can stream 4K video sources, compared to its predecessors, which support only 1080p output.

The Microsoft Xbox One X offers more RAM and a faster CPU and GPU than its predecessors (Xbox One and Xbox One S). The Xbox One S and One X support HDR and 4K Blu-ray, compared to the original Xbox One, which supports 1080p Blu-ray.

Table 13-6 compares the essential features of smartphones, tablets, laptops, workstations, servers, and gaming consoles.

Key Topic

Table 13-6 Computing Device Feature Comparison

Feature	Phone	Tablet	Laptop	Workstation	Server	Game
Upgradeable RAM	No	No	Varies	Yes	Yes	No
Upgradeable storage	Varies	Varies	Varies	Yes	Yes	Yes
Expansion slots	No	No	Varies	Yes	Yes	No
Charging	Yes	Yes	Yes	No	No	No
Built-in display	Yes	Yes	Yes	No	No	No
Upgradeable video output	No	No	No	Varies	Yes	No
Keyboard	Soft	Soft	Built in	Add-on	Add-on	No
Touchpad	No	No	Built in	No	No	No
Mouse	No	No	Add-on	Add-on	Add-on	No
Wi-Fi	Yes	Yes	Yes	Add-on	Add-on	Yes
Bluetooth	Yes	Yes	Varies	Add-on	Add-on	No
Wired network	No	No	Yes	Yes	Yes	Varies
Optional operating systems	No	No	Yes	Yes	Yes	No

IoT

IoT is short for the *Internet of Things*, a term that refers to intelligent devices capable of communicating via the World Wide Web. IoT devices are usually not full-fledged computers, but, depending on the device, have sensors, controllers, or other components that are Internet enabled (see Figure 13-6).

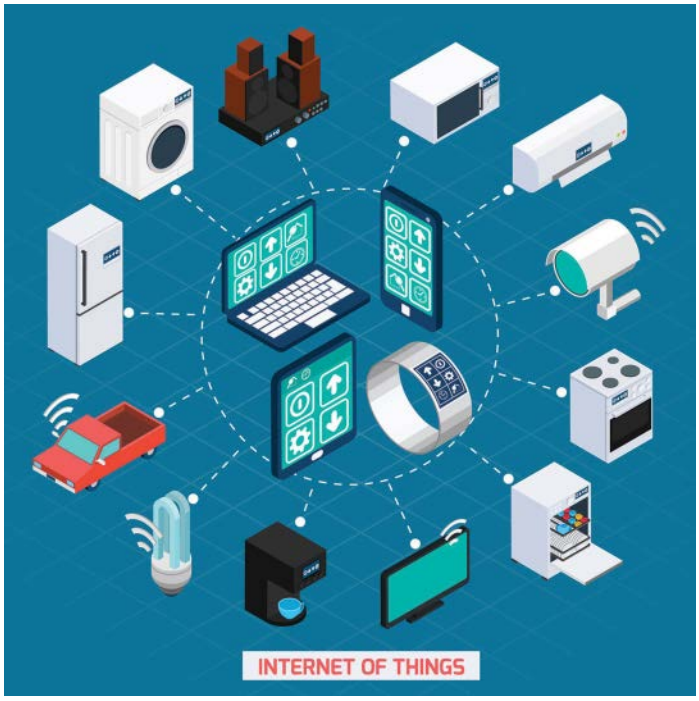

Figure 13-6 Many Different Types of Devices Are Now Part of the IoT.

IoT devices are designed to work with specific apps. It might be necessary to install an app on your smartphone to enable a connection to a particular IoT device.

NOTE The terms *Internet of Things* and *IoT* are not typically used by the vendors of these type of products. Look for "connected," "intelligent," "smart," or "powered by *technology name*" as you research or shop for IoT devices.

The connection between home automation systems and you is typically a *smart assistant* app, accessible through your smartphone or intelligent speakers. There are several competing technologies (Apple *HomeKit*, Nest, Amazon *Echo/Alexa*, *Google Home*, *Microsoft Cortana*, and *IFTTT*). Fortunately, many products support more than one technology.

Key Topic

To learn about products that support Apple HomeKit, the technology included in iOS for home automation and control, see https://www.apple.com/ios/home/accessories/ for compatible IoT equipment.

To learn about products that work with Nest, see https://nest.com/works-with-nest/.

To learn about products that work with Amazon Echo/Alexa, see https://www.amazon.com/Amazon-Echo-And-Alexa-Devices/b?node=9818047011.

To learn about products that work with Google Home, see https://store.google.com/product/google_home.

To learn about products that work with Microsoft Cortana, see https://www.windowscentral.com/every-smart-home-device-works-cortana.

To learn about IFTTT, a free web-based service for creating custom automation commands that can be used with social media, email, and home automation products, see https://ifttt.com/.

Home Appliances

IoT-enabled home appliances include refrigerators, ranges, microwave ovens, dishwashers, washing machines, and dryers (see Figure 13-7).

Key Topic

Figure 13-7 Examples of IoT Appliances

IoT-enabled devices can enable users to:

- Find out the refrigerator door was left open.
- Request more ice before a party.
- Use cameras inside the refrigerator to see what needs to go on the shopping list.
- Download and use customized wash and dry cycles.
- Preheat an oven.
- Scan food product barcodes to set cooking time and temp.
- Use Alexa or other smart home speakers to control appliances.
- Receive maintenance alerts when it's time to replace filters.

NOTE To learn more about IoT-enabled home appliances and software, check out these websites:

- **LG SmartThinQ**: www.lg.com/us/discover/smartthinq/thinq
- **Whirlpool Connected appliances**: www.whirlpool.com/home-innovations/connected-appliances.html
- **GE Connected appliances**: www.geappliances.com/ge/connected-appliances/
- **Samsung FlexWash**: https://www.samsung.com/us/explore/flex-wash/
- **Samsung Family Hub refrigerator**: https://www.samsung.com/us/explore/family-hub-refrigerator/overview/

Home Automation Devices

Home automation is a general term for many types of IoT-enabled devices you can use to automate lighting, power, cleaning, and window coverings (see Figure 13-8).

Key Topic

Some of these include:

- Intelligent speaker systems (Amazon Echo, Google Home, and so on)
- Smart LED lighting (Philips Hue, Lifx, and so on)
- Smart plugs and switches to retrofit existing lights, fans, space heaters, and other small appliances with IoT capabilities (Belkin WeMo, iDevices, iHome, Ecobee, and so on)
- Smart robotic vacuum cleaners (Neato Botvac, iRobot Roomba 880, Ecovacx Deebot, and so on)
- Window blinds and shades (HunterDouglas, Serena by Lutron, and so on)

Figure 13-8 Home Automation

To learn more about intelligent lighting see:

- **Philips Hue** https://www2.meethue.com/en-us
- **Lifx** (https://www.lifx.com/)
- **Eufy Lumos** (https://www.eufylife.com/collections/led).

To learn more about smart plugs and switches see:

- **Belkin's WeMo** https://www.belkin.com/us/Products/smarthome-iot/c/wemo/
- **iDevices** (idevicesinc.com)
- **iHome** (https://www.ihomeaudio.com/products/#/?department=73)
- **Ecobee Switch+** (https://www.ecobee.com/switch-plus/)

To learn more about smart robotic vacuum cleaners see:

- **Neato Botvac** (https://www.neatorobotics.com/smarthome/)
- **iRobot Roomba** (https://www.irobot.com/For-the-Home/Vacuuming/Roomba.aspx)
- **Eufy RoboVac** (https://www.eufylife.com/products/575/cleaning)