Chapter 8
Communications and Networks
Today

- Group work
- Review the 6 parts of the IT model
- Communications and networks
- Discussion
Think about it…

Imagine a traveling business person. This person’s company has its main office in Philadelphia. The business has other locations in Boston, Washington DC, and Chicago. This person needs to make contact with people at each location at least once per month.

• How does this business person use computer networks and communications?
• Name some of the communications this person would use.
What are some uses of communications technology?
What is needed for successful communications

- **Sending Device**
  - initiates instruction to transmit data, instructions, or information

- **Communication Device**
  - connects the sending device to the communications channel

- **Communication channel**
  - **Media** on which data, instructions, or information travel

- **Communication device**
  - connects the communications channel to the receiving device

- **Receiving device**
  - accepts transmission of data, instructions, or information
What type of data / information would be received on each of the following?
Communications Devices
What is a **wireless modem**?

- Allows access to the Web wirelessly from a notebook computer, a PDA, a smart phone, or other mobile device
- Typically use the same waves used by cellular telephones
Communications Devices

What is a network card?

- Adapter card, PC Card, or compact flash card that enables computer or device to access network
What is a **wireless access point**?

- Central communications device that allows computers and devices to transfer data wirelessly among themselves or to wired network
What is a **router**?

- Connects computers and transmits data to correct destination on network
- Routers forward data on Internet using fastest available path
Communications channels
Networks

What is a network?
- Collection of computers and devices connected via communications devices and transmission media

What is a local area network (LAN)?
- Network in limited geographical area such as home or office building
  - Metropolitan area network (MAN) connects LANs in city or town

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What is a wide area network (WAN)?

- Network that covers large geographic area using many types of media
- Internet is world’s largest WAN
What is a client/server network?

- One or more computers act as server and other computers, or clients, access server.
What is a peer-to-peer network?

- Simple network that connects fewer than 10 computers
- Each computer, or peer, has equal capabilities
What is network topology?

- Layout of devices in a network
  - Popular topologies are bus, ring, and star
- Bus network
  - All computers and devices connect to a central cable, or bus
What is a ring network?

- Cable forms closed ring, or loop, with all computers and devices arranged along ring
- Data travels from device to device around entire ring, in one direction
What is a **star network**?

- All devices connect to a central device, called hub
- All data transferred from one computer to another passes through hub
Network Topologies

- Star
- Bus
- Ring
What is a **home network**?

- **Multiple computers connected in home**
- **Several types of home networks**
  - **Ethernet** — connect computers via cable
  - **Powerline cable** — use electrical lines in house
  - **Phoneline** — use telephone lines
  - **HomeRF (radio frequency)** — wireless
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Discussion

You are on the road and need to call home. You dial your cellular telephone just as you pass a Pizza Hut. What are the first words you hear? “The Best Pizza Under One Roof.” Today’s technology makes it possible to deliver targeted advertising in all sorts of new ways. WindWire and DoubleClick, for example, both have wireless marketing and advertising networks that deliver targeted advertisements, coupons, and promotions to leading wireless Internet devices, including cellular telephones, PDAs, and two-way pagers.

- Will American users willingly accept wireless advertisements sent to them over cellular telephones and other mobile devices?
- What inducements might convince someone to accept the messages?
- Would you accept the advertising in return for a free service?
- How would you feel if the advertisements were targeted at your personal profile?