Chapter 7
TELECOMMUNICATIONS, THE INTERNET, AND WIRELESS TECHNOLOGY

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Management Information System

Sources

- Management Information Systems, Ken Laudon & Jane Laudon, Prentice Hall

Cases

- Case 1: Telepresence Moves Out of the Boardrooom and Into the Field
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Learning Objectives

- What are the principal components of telecommunications networks and key networking technologies?
- What are the main telecommunications transmission media and types of networks?
- How does the Internet and Internet technology work and how do they support communication and e-business?
- What are the principal technologies and standards for wireless networking, communication, and Internet access?
- Why are radio frequency identification (RFID) and wireless sensor networks valuable for business?

Telecommunications and Networking in Today's Business World

- What is a computer network?
  - Two or more connected computers
  - Major components in simple network
    - Client computer
    - Server computer
    - Network interfaces (NICs)
    - Connection medium
    - Network operating system

Telecommunications and Networking in Today's Business World

- Components of networks in large companies
  - Hundreds of local area networks (LANs) linked to firmwide corporate network
  - Various powerful servers
    - Web site
    - Corporate intranet, extranet
    - Backend systems
  - Mobile wireless LANs (Wi-Fi networks)
  - Telephone network
  - Wireless cell phones

Telecommunications and Networking in Today's Business World

- Types of networks
  - Local-area networks (LANs)
    - Peer-to-peer
    - Topologies: star, bus, ring
  - Metropolitan and wide-area networks
    - Wide-area networks (WANs)
    - Metropolitan-area networks (MANs)

The Global Internet

- What is the Internet?
- Internet Addressing and Architecture
  - The Domain Name System
    - Hierarchical structure
    - Top-level domains
  - Internet Architecture and Governance
    - No formal management: IAB, ICANN, W3C
  - The Future Internet: IPv6 and Internet2

The Global Internet

CLIENT/SERVER COMPUTING ON THE INTERNET

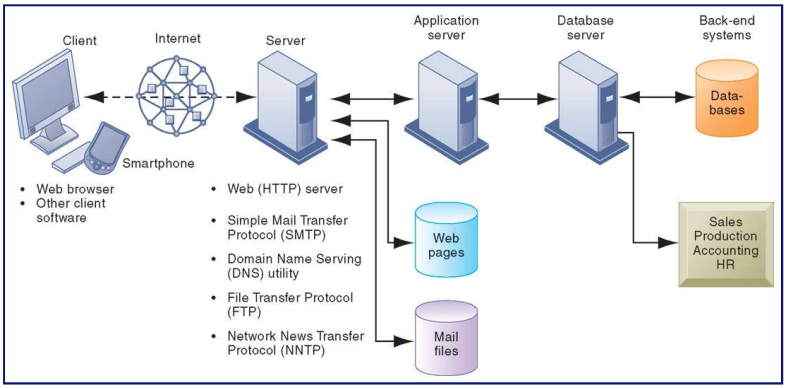


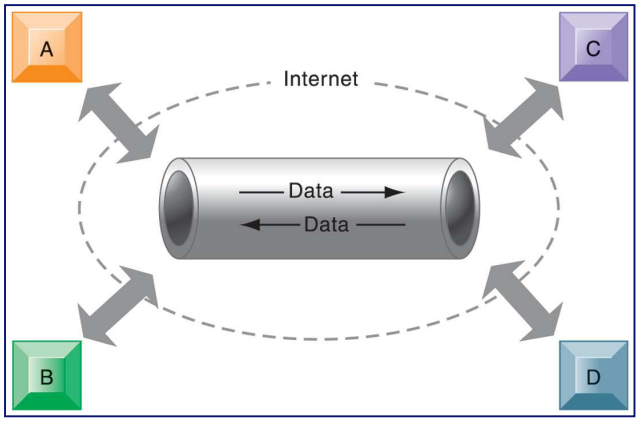
FIGURE 7-10 Client computers running Web browser and other software can access an array of services on servers over the Internet. These services may all run on a single server or on multiple specialized servers.

The Global Internet

A VIRTUAL PRIVATE NETWORK USING THE INTERNET

This VPN is a private network of computers linked using a secure "tunnel" connection over the Internet. It protects data transmitted over the public Internet by encoding the data and "wrapping" them within the Internet Protocol (IP). By adding a wrapper around a network message to hide its content, organizations can create a private connection that travels through the public Internet.

FIGURE 7-12



The Global Internet

- Web 2.0
  - Four defining features
    1. Interactivity
    2. Real-time user control
    3. Social participation
    4. User-generated content
  - Technologies and services behind these features
    - Cloud computing
    - Blogs/RSS
    - Mashups & widgets
    - Wikis
    - Social networks

The Global Internet

- Web 3.0 – the Semantic Web
  - Effort of W3C to add meaning to existing Web
  - Make searching more relevant to user
- Other visions
  - More "intelligent" computing
  - 3D Web
  - Pervasive Web
  - Increase in cloud computing, SaaS
  - Ubiquitous connectivity between mobile and other access devices
  - Make Web a more seamless experience

The Wireless Revolution

- Radio frequency identification (RFID)
  - Use tiny tags with embedded microchips containing data about an item and location, and antenna
  - Tags transmit radio signals over short distances to special RFID readers, which send data over network to computer for processing
  - Active RFID: Tags have batteries, data can be rewritten, range is hundreds of feet, more expensive
  - Passive RFID: Range is shorter, also smaller, less expensive, powered by radio frequency energy

The Wireless Revolution

- Radio frequency identification (RFID) (cont.)
  - Common uses:
    - Automated toll-collection
    - Tracking goods in a supply chain
  - Requires companies to have special hardware and software
  - Reduction in cost of tags making RFID viable for many firms

The Wireless Revolution

HOW RFID WORKS

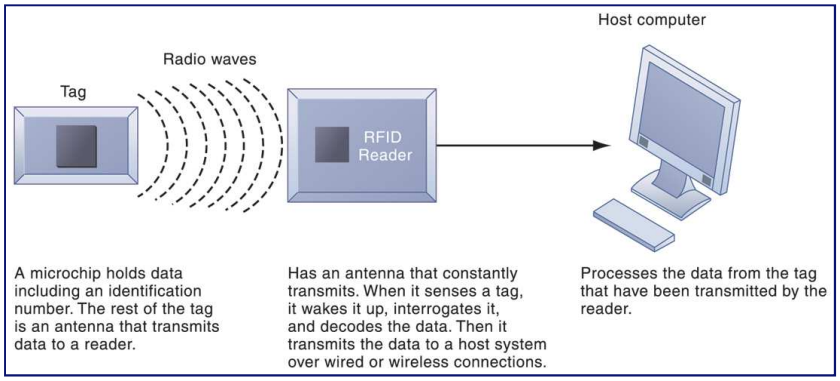


FIGURE 7-17 RFID uses low-powered radio transmitters to read data stored in a tag at distances ranging from 1 inch to 100 feet. The reader captures the data from the tag and sends them over a network to a host computer for processing.


Questions?