MIS

CHAPTER 14

EMERGING TRENDS, TECHNOLOGIES, AND APPLICATIONS

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Apple strategy

Khan Academy

Predator Drones

Hossein BIDGOLI

Strategy & Competitive Advanatage

Apple strategy

Pull and Push Technologies

- Recent trends in software and service distribution include:
  - **Pull technology**
    - User states a need before getting information
    - Entering a URL in a Web browser to go to a certain Web site
  - **Push technology (Webcasting)**
    - Web server delivers information to users who have signed up for this service
    - Supported by many Web browsers
    - Also available from vendors
    - Delivers content to users automatically at set intervals or when a new event occurs

Application Service Providers

- **Application service providers (ASPs)**
  - Provides access to software or services for a fee
- **Software as a service (SaaS)**, or **on-demand software**
  - Model for ASPs to deliver software to users for a fee
  - Software might be for temporary or long-term use
  - Users don't need to be concerned with new software versions and compatibility problems

Twitters Jack Dorsey

Application Service Providers (cont'd.)

- Users can also save all application data on the ASP's server
  - Software and data are portable
- Advantages:
  - Similar to outsourcing
    - Less expensive
    - Delivering information more quickly
- Other advantages and disadvantages
- Vendors:
  - Google, NetSuite, Inc., and Salesforce.com

Virtual Reality

- Goal of **virtual reality (VR)**:
  - Create an environment in which users can interact and participate as they do in the real world
- VR technology
  - Uses computer-generated, three-dimensional images to create the illusion of interaction in a real-world environment

Types of Virtual Environments

- **Egocentric environment**
  - User is totally immersed in the VR world
  - Most common technology used with this environment is a head-mounted display (HMD)
- **Exocentric environment**
  - Data is still rendered in 3-D
  - Users can only view it onscreen
  - Main technology used in this environment is 3-D graphics

Exhibit 14.2

VR Components

Virtual Reality Applications

- Military flight simulations
- Medicine for “bloodless” surgery
- Entertainment industry
- Will one day be used for user interfaces in information systems
- Current applications:
  - Applications for the disabled
  - Architectural design
  - Education
  - Flight simulation
  - Videoconferencing
  - Group support systems

Predator Drones

Obstacles in Using VR Systems

- Not enough fiber-optic cables are currently available for a VR environment capable of re-creating a conference
- Problems must be solved:
  - Confusion between the VR environment and the real environment
  - Mobility and other problems with HMDs
  - Sound representation
  - Additional computing power

Radio Frequency Identification: An Overview

- **Radio frequency identification (RFID) tag**
  - Small electronic device consisting of a small chip and an antenna
  - Provides a unique identification for the card or the object carrying the tag
  - Don't have to be in contact with the scanner to be read
  - Can be read from a distance of about 20 feet

Radio Frequency Identification: An Overview (cont'd.)

- Two types of RFID tags:
  - Passive
    - No battery
    - Best ones have about 10 years of battery life
  - Active
  - Usually more reliable than passive tags
- Technical problems and issues of privacy and security

Coke info

Trends in Networking

- Recent trends in networking technologies
- Many are already used in many organizations
  - Wireless technologies and grid computing
- Newer but attracting a lot of attention:
  - WiMAX and cloud computing

Grid Computing

- Connecting different computers to combine their processing power to solve a particular problem
- “Node”
  - Each participant in a grid
- Processing on overused nodes can be switched to idle servers and even desktop systems
- Advantages:
  - Improved reliability
  - Parallel processing nature
  - Scalability

Cloud Computing

- Platform incorporating many recent technologies under one platform, including
  - SaaS model, Web 2.0, grid computing, and utility computing
- Variety of resources can be provided to users over the Internet
- Example:
  - Editing Word document on an iPhone
- Same advantages and disadvantages as distributed computing

Cloud Computing (cont'd.)

- Services typically require a fee
- Some are free
- Google Apps
- Icloud

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Nanotechnology

- Incorporates techniques that involve the structure and composition of materials on a nanoscale
- Nanometer is one billionth of a meter (10-9)
- Current technology for making transistors and other components might reach their miniaturization limits in the next decade
- Some consumer goods incorporating nanotechnology are already on the market
  - Nanomaterials

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Summary

- New trends:
  - Software as a service
  - Virtual reality
  - RFID
  - Networking
  - Grid, utility, and cloud computing
  - Nanotechnology

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