TIM 50 - Business Information Systems

Lecture 19

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Announcements

- Review Sessions for final exam to be announced soon
  - Final Exam: Thursday 3/22, 7:30-10:30 pm
- Final Business Paper Due 3/15
ISP Topology

Telephone Company
Local Office

Telephone Switch

ISP Point of Presence

DSL Modem

DSL Modem

DSL Modem

DSLAM

Leased Line to NAP

To Telephone Network

Local Loop

Local Loop

Local Loop
Large E-Business

Incoming HTTP Requests

Load Balancer

Presentation Logic (Assembling Web page)

Web Servers

Databases

Logic Flow of Interaction

Application Servers

Interconnected with Gigabit Ethernet or other technology

Customers

Merchandise

Orders
Web Caching

- Speed up web page loading by storing previously seen components locally

http://www.ucsc.edu

Cache on Hard Drive
Content Distribution Networks (AKAMAI)

Local Office or ISP

Web Page

Large Company

Web Server

INTERNET

Akamai Server

NSP 1

NSP 2
The World Wide Web

- **Search engines**
  - Started in early 1990s as relatively simple software programs using keyword indexes

- **search engine marketing** – major source of revenue
  - Keyword auctions
The World Wide Web

- **Web 2.0** -- Refers to more interactive Internet-based services
  - **Blogs**: chronological, informal Web sites created by individuals using easy-to-use Weblog publishing tools
  - **RSS (Really Simple Syndication)**: syndicates Web content so content can be automatically placed into another setting
  - **Wikis**: collaborative Web sites where visitors can add, delete, or modify content on the site
Major Web Search Engines

Google is the most popular search engine on the Web, handling 56 percent of all Web searches.

Figure 6-14
Intranets and Extranets

- **Intranets**
  - Use existing network infrastructure with Internet connectivity standards software developed for the Web.
  - Create networked applications that can run on many types of computers.
  - Protected by firewalls.

- **Extranets**
  - Allow authorized vendors and customers access to an internal intranet.
  - Used for collaboration.
  - Also subject to firewall protection.
• Cellular systems
  • 2G -- Competing standards for cellular service
    • United States: CDMA
    • Most of rest of world: GSM
  • Third-generation (3G) networks
    • UMTS (GSM extension) ATT
    • CDMA 2000
  • 4G
    • LTE, WiMax
The Wireless Revolution

- Wireless computer networks and Internet access
  - **Bluetooth (802.15)**
    - Links up to 8 devices in 10-m area using low-power, radio-based communication
    - Useful for personal networking (PANs)
  - **Wi-Fi (802.11)**
    - Set of standards: 802.11a, 802.11b, 802.11g, 802.11n
    - Used for wireless LAN and wireless Internet access
    - Use **access points**: device with radio receiver/transmitter for connecting wireless devices to a wired LAN
How RFID Works

A microchip holds data including an identification number. The rest of the tag is an antenna that transmits data to a reader.

Has an antenna that constantly transmits. When it senses a tag, it wakes it up, interrogates it, and decodes the data. Then it transmits the data to a host system over wired or wireless connections.

Figure 6-17

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.
Imagine you are the CIO of a supermarket chain with a loyalty card. Your loyalty card collects sales data from your customers. You want to run complex algorithms to do targeted marketing to your customers.

- Would you do this in a public Cloud, or internal data center?

You are launching a new web service to provide restaurant reviews in a locality. You do not know how much traffic your new service will generate.

Would you do this in a public Cloud, or internal data center?