

Introduction to Computers

With thanks to Dr. Haipeng Guo
Lecture 1

Introductory Stuff

- ◆ Have Fun!
- ◆ Please turn off your phones!



Introductory Stuff

- ◆ This will be a relatively interactive course. Feel free to stop me, shout at me, argue,... etc.
- ◆ If you have trouble understanding me (I expect that you will),
TELL ME!
- ◆ I will try to speak more clearly and slowly.

Outline of this Lecture

- ◆ Introduction
- ◆ What is a Computer?
- ◆ The Components of a Computer
- ◆ What Makes a Computer So Powerful?
- ◆ Networks and the Internet
- ◆ Computer Software
- ◆ Types of Computers
- ◆ Information System Element
- ◆ Computer Usages and Computer Applications ⁴

Using Computers



- ◆ Checking email
- ◆ ATM
- ◆ Instant Messaging
- ◆ Doing homework
- ◆ Research
- ◆ Blogging
- ◆ Playing games
- ◆ ...

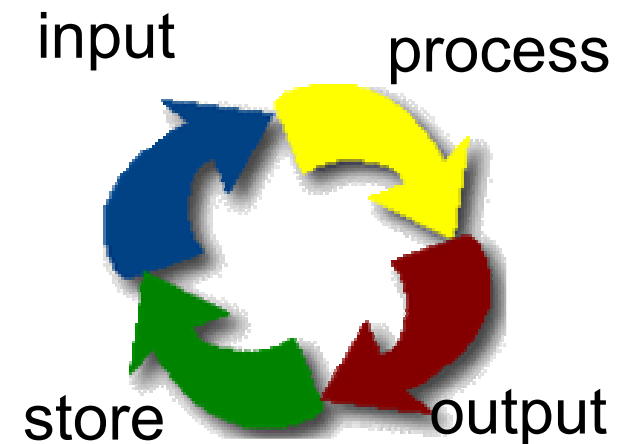


Computer Literacy

- ◆ What is computer literacy?
 - having knowledge and understanding of computers and their uses
 - refers to the ability to use applications rather than to program
- ◆ Why is computer literacy important?
 - Computers are everywhere nowadays
 - One study alleges that “...those with less access to technology are less successful!”

What is a Computer?

- ◆ A computer is
is an electronic machine or device
executing the instructions in a program
- ◆ A computer can
accept data,
manipulate or process the data,
produce results,
and store the results



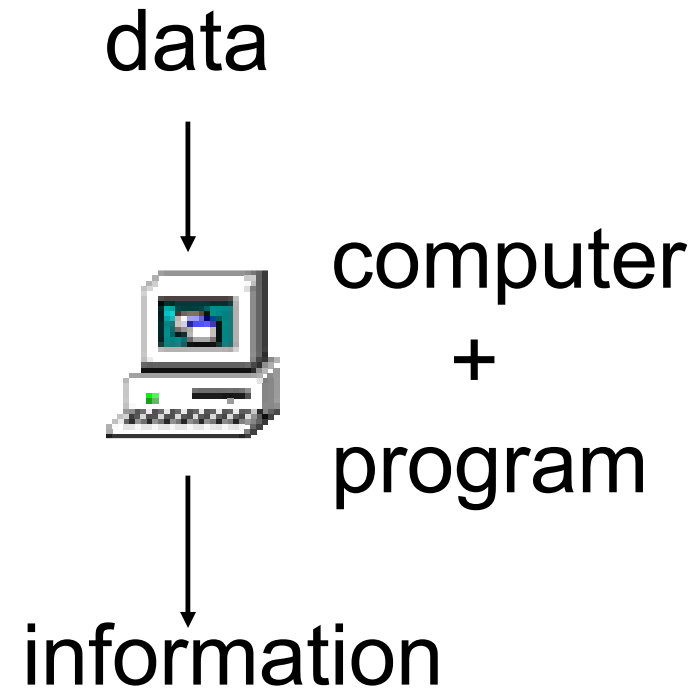
Data and Information

◆ Data

- Raw facts, figures, and symbols

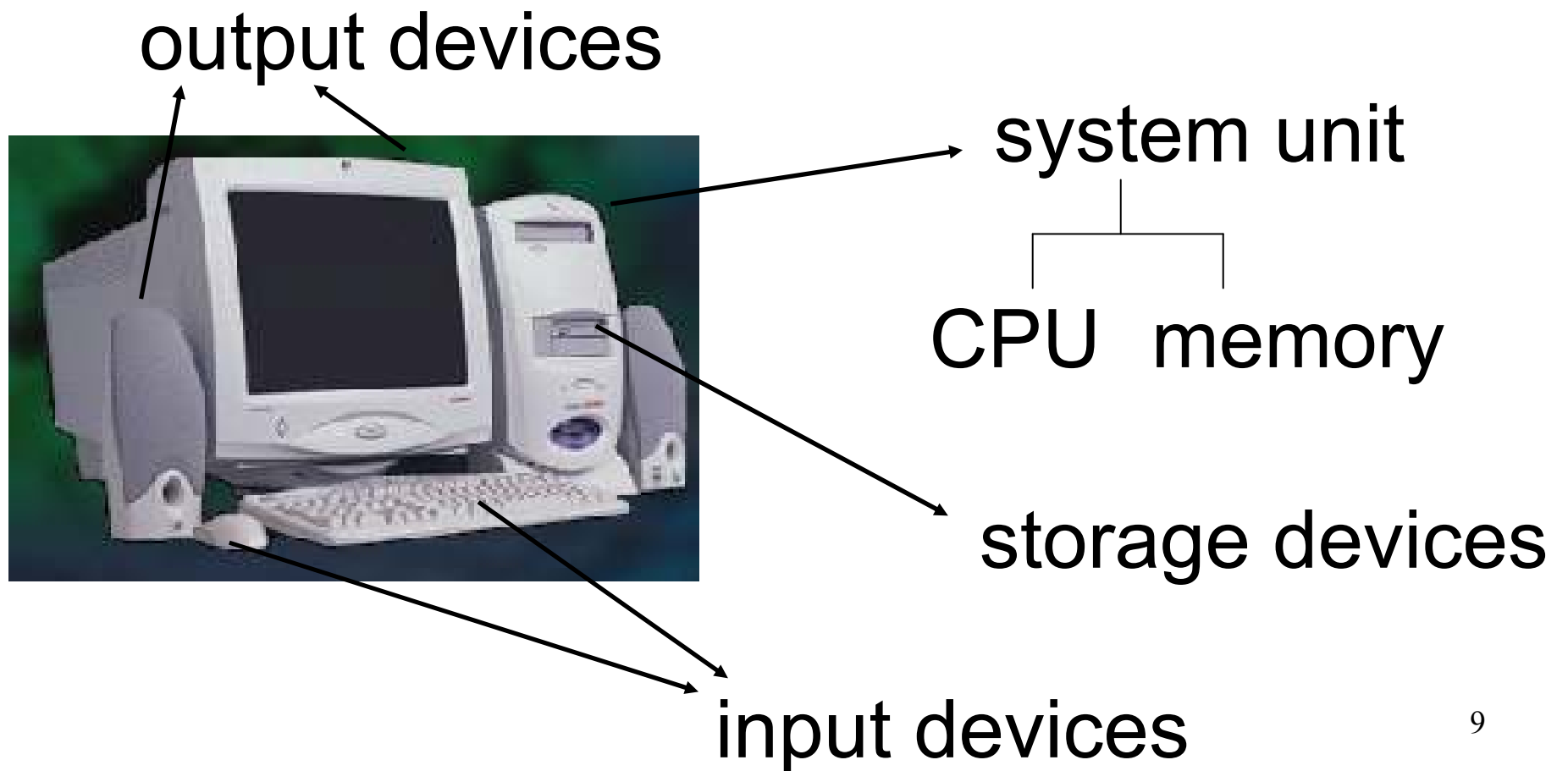
◆ Information

- organized, meaningful, and more useful
(to people)



Computer Components

Hardware: the physical parts of the computer



Input Devices

- ◆ To get data and instructions into the computer

- keyboard

- mouse

- Microphone (audio data)

- PC camera (video data)

- Scanner (image input)



Output Devices

- Monitor



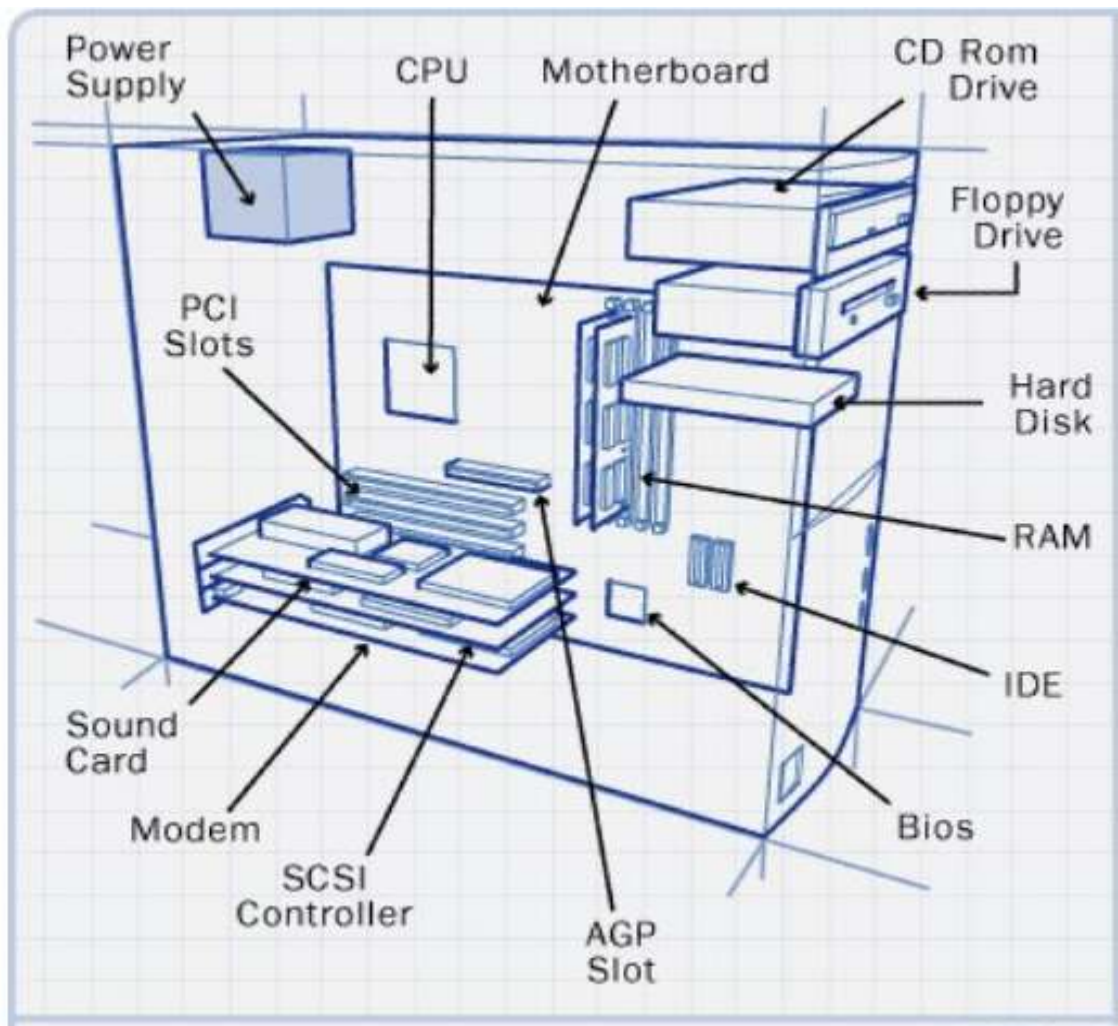
- Printer



- speaker



System Unit: Inside the Case



The motherboard



CPU



Memory



Storage Devices

Hard disk



USB flash disk



floppy disk



CD/VCD/DVD drive



Why is a Computer Powerful?



1) Speed

A computer can do billions of actions per second



2) Reliability and Accuracy

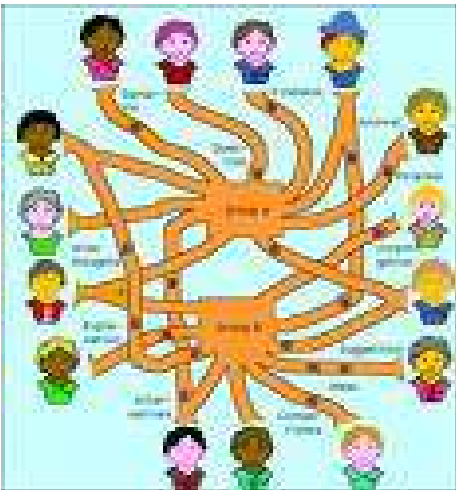
Failures are usually due to human error, one way or another

Why is a Computer Powerful?



3) Storage

A computer can keep huge amounts of data

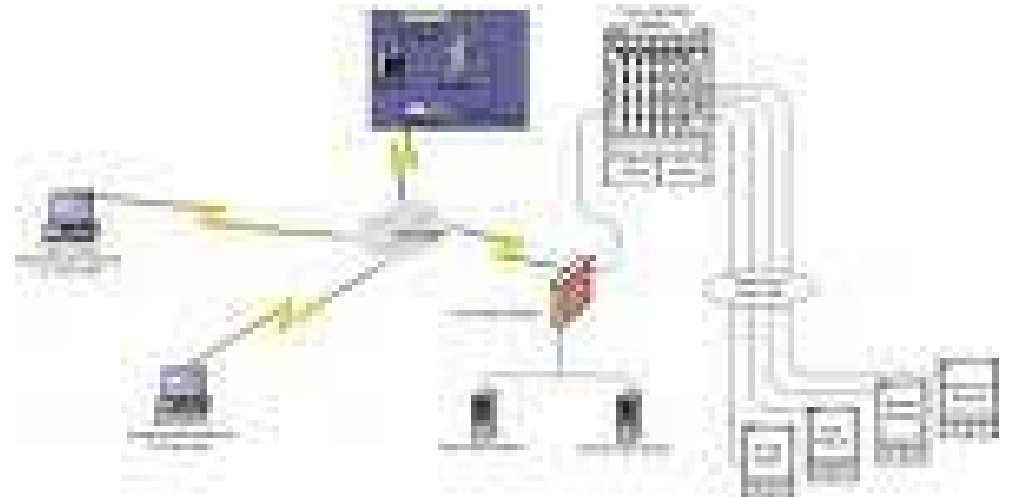
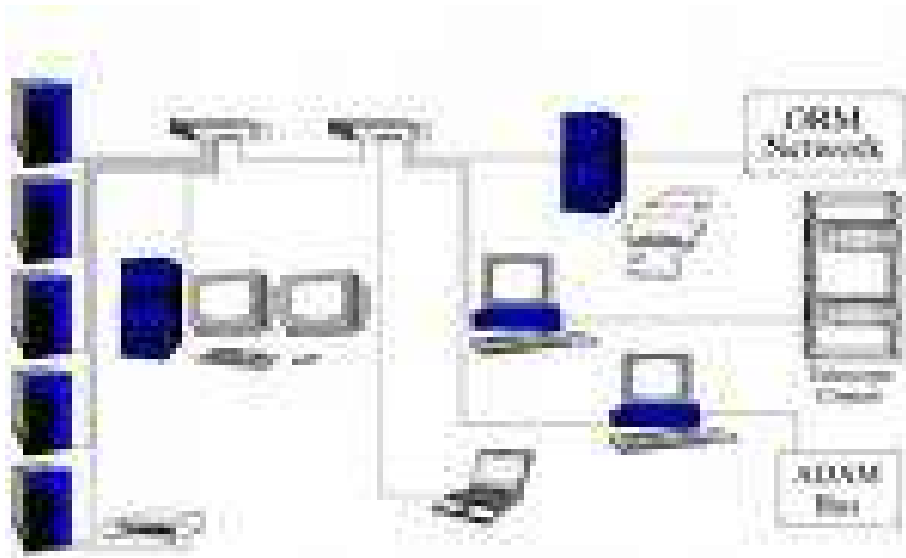


4) Communications

Computers connected with each other can share resources

Network and Internet

- ◆ A network is a collection of computers and devices
- ◆ Networks allow users to share resources



What is a LAN?

- ◆ Local Area Network
- ◆ A group of computers and devices
- ◆ In a limited geographic area



What is the Internet?

- ◆ Worldwide connection of networks



Inter- and Intra-

◆ Definition for: **inter-**

- A prefix meaning between or among
- An **internet** (The Internet) is a network between networks

◆ Definition for: **intra-**

- A prefix meaning within
- An **intranet** is a network within a building or organisation

World Wide Web (WWW)?

- ◆ The WWW, or the Web, is one application that runs on the Internet
- ◆ It is made up of billions of documents called Web pages
- ◆ These pages can contain text, graphics, sound, video and are connected together by links



Computer Software

- ◆ Programs that give instructions to the hardware about what to do and how to do it
- ◆ System Software
 - Programs that perform system tasks
 - For example: Operating Systems (WinXP, Linux, MacOS)

Computer Software

◆ Application Software

- Programs that perform user-specific tasks
- E.g. word processing, spreadsheets, databases, web applications ...

◆ Software is (usually) written by programmers

- Why "usually"?

Types of Computers

- ◆ Personal Computers (**PCs**)
 - Desktop computers
 - Laptop or notebook computers
 - handheld computer
 - personal digital assistant (**PDA**)
- ◆ Servers
 - Workstations
 - Mainframes
 - Supercomputers

Personal Computers



PC and compatibles use the Windows operating system



Apple Macintosh uses the Macintosh operating system (Mac OS)

Notebook & Handheld Computers

◆ Notebook



◆ Handheld Computers

- Fit in your hand
- Also called pocket computers



PDA

- ◆ Personal Digital Assistant (PDA)



- ◆ Web-enabled PDA

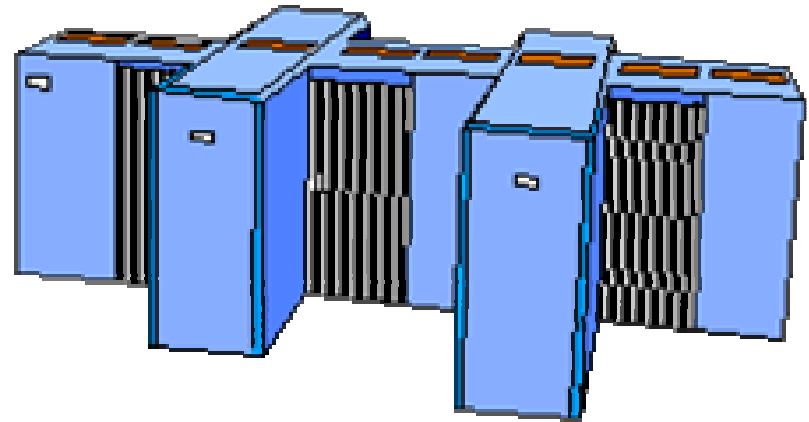


Workstations, Mainframes, Supercomputers

Workstation



Mainframe



Supercomputer

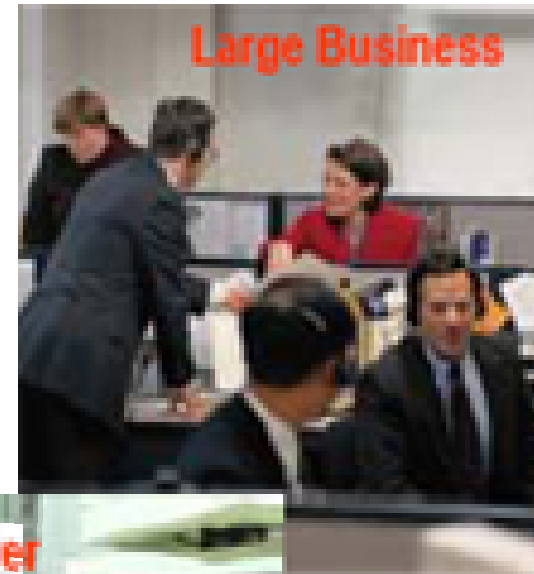
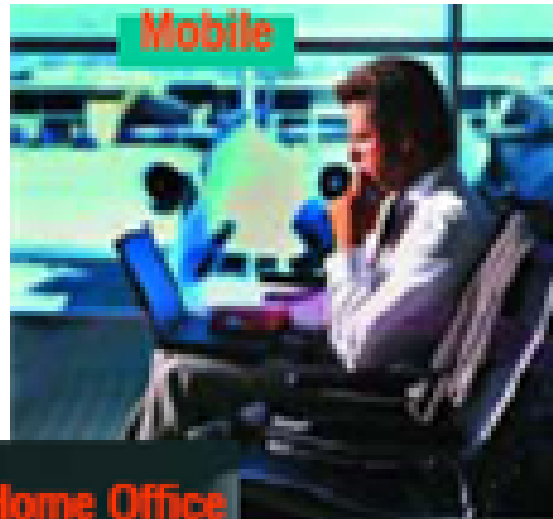


An Information System

- ◆ Besides computer hardware and computer programs, an information system also includes the procedures, documentation, and management to make a computer system run smoothly
 - Hardware
 - Software
 - Data
 - People
 - Procedures



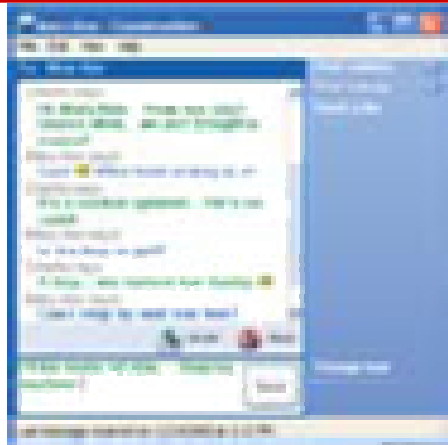
Examples of Computer Usage



Small Office/Home Office



Applications for Home Users



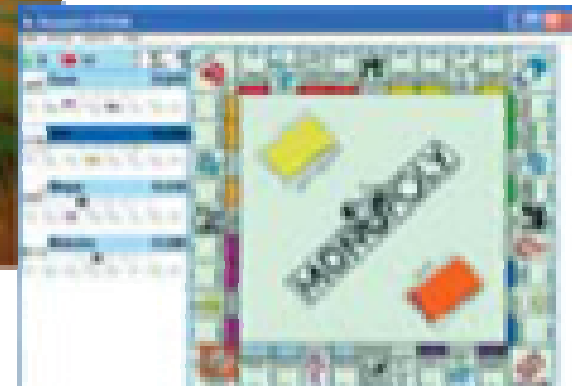
communications

Web access



personal finance
management

entertainment



Applications for a SOHO user



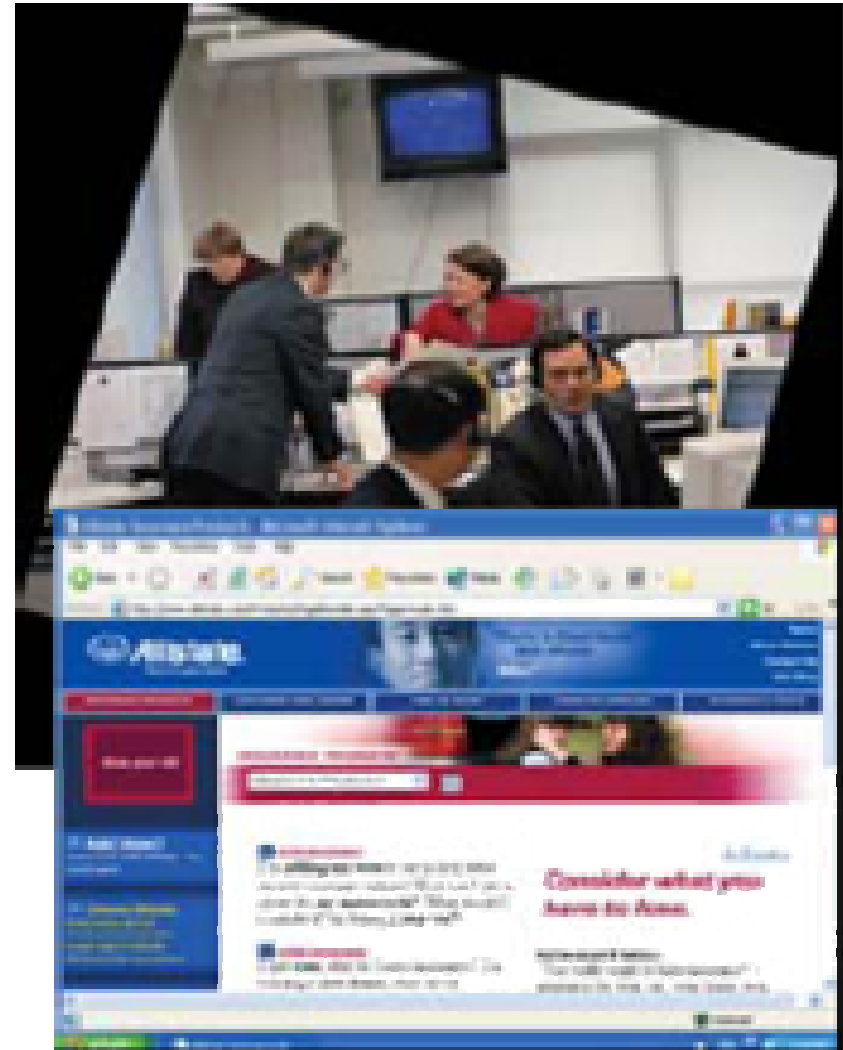
Applications for Mobile User

- ◆ Wireless network
- ◆ Notebook or PDA
- ◆ Productivity software
- ◆ Presentation software



Large Business Applications

- ◆ Network
- ◆ Desktop publishing
- ◆ Accounting
- ◆ Telecommunication
- ◆ Sales management
- ◆ Scheduling



Computer Applications in Society

- ◆ Learning
- ◆ Online banking
- ◆ Online investing
- ◆ Health care
- ◆ Research
- ◆ Publishing
- ◆ Travel arrangements
- ◆ Computer-aided Design (CAD)
- ◆ Computer-aided Manufacturing (CAM)
- ◆

Summary of this Lecture

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