Major Transformations in Computing
What Will I Learn?

In this lesson, you will learn to:

- Relate major transformations enabled by changes in computing to day-to-day activities
- Define and give an example of these terms: hardware, operating system, software
- Identify examples of e-businesses that use database software and explain how it is essential to their success
- Explain the overall mission of the Oracle Corporation
Why Learn It?

History provides perspective for where we are today in information technology.

If we know where we have come from, it is easier to understand where we are today, and where we are likely to go in the future.

The first job you do after you graduate may not exist in 20 years’ time!
Tell Me / Show Me

Key Terms

- **Hardware**: the physical “bits and pieces” of a computer, for example keyboard, screen, mouse, disk drive, memory
- **Software**: programs (sets of instructions) which tell the hardware what to do.
- **Operating system**: a software program which directly controls and manages the hardware, for example Microsoft Windows.
- **Application**: a software program which carries out specific tasks on behalf of computer users.
Tell Me / Show Me

Key Terms (continued)

- **Client**: a workstation or desktop computer including a screen, keyboard, and mouse. Clients communicate directly with human computer users.
- **Server**: a more powerful computer that accepts work requests from clients, does the work, and sends results back to the client.

Every time you request information from a Web page, your client computer sends the request to a database on the server. The server retrieves the data from the database, converts it into useful information and sends the information back to the client.

If you pursue a career in IT you will hear and use these terms nearly every day!
Tell Me / Show Me

History of Computer Systems:

1970s
The database software resided in the mainframe computer. Almost all of the computer processing was done on these large mainframe computers. Some of these computers were larger than your classroom!
Tell Me / Show Me

1970s (continued)

Smaller computers, or “dumb terminals”, were used to access the large mainframe and execute commands. The terminals depended on the mainframe and displayed the results only after the processing was completed in the mainframe. They were not capable of much processing on their own.
1980s
As personal computers (PCs) became faster and widely available, processing moved from the mainframes to the clients.

Because the PCs had their own software and were capable of doing some processing on their own, they came to be known as “smart clients” or “workstations.”
1980s (continued)

Having the processing power within the client machine ushered in a wave of graphical user interface (GUI) applications. Many of the common applications today (Word, Excel, PowerPoint) were born during this era.
Tell Me / Show Me

The Problem of Isolated, Nonintegrated Systems

Having multiple applications on multiple client workstations created new problems. In this example, different software on different systems requires integration. This is usually troublesome and expensive. If an upgrade is made to a software application, each and every server plus each and every client must be upgraded.
Tell Me / Show Me

The Problem of Isolated, Nonintegrated Systems (continued)

Think of a school district updating school grades on one system and attendance on another. When a student graduates, all this information needs to be brought together. Without an integrated system, this can be a painful process. Especially if there are thousands of students who attend thousands of days of school! Who will pull all that data together? How?
Tell Me / Show Me

1990s
Oracle’s strategy is to use the Internet and fast processing servers to meet the needs of organizations in storing data and producing information.

1990s and Beyond

Database Server: Software
Application Server: Software
Thin Clients: GUI Interface, Browser
Tell Me / Show Me

1990s (continued)

The software that manages the data is on the database server. It performs processing for storage and retrieval. Applications for business operations sit on the application server. It performs processing for document creation, developing, interacting or manipulating the data.
Tell Me / Show Me

1990s (continued)

Clients can have applications of their own, but the essential business applications are accessed from the clients using an Internet browser.
Tell Me / Show Me

Grid Computing: The New Model

In the grid-computing model, all of an organization’s computers in different locations can be utilized just like a pool of computing resources. Grid computing builds a software infrastructure that can run on a large number of networked servers. A user makes a request for information or computation from his/her workstation and that request is processed somewhere in the grid, in the most efficient way possible.
Tell Me / Show Me

Grid Computing: The New Model (continued)

Grid computing treats computing as a utility, like the electric company. You don’t know where the generator is or how the electric grid is wired. You just ask for electricity and you get it.
Tell Me / Show Me

View the video clip “Software Powers the Internet.”
Participate in the ensuing discussion to be led by the instructor.
Tell Me/ Show Me

Business Terminology

- **Finance**: refers to businesses that deal primarily with money
- **Logistics**: can be defined as the planning, execution, and control of the movement and placement of people and/or goods
- **Commerce**: involves transactions (sales and purchases) having the objective of supplying commodities
- **Procurement**: refers to all of the processes involved in requesting, ordering, auditing and paying for goods and services
- **Distribution**: the commercial activity of transporting and selling goods from a producer to a consumer
Tell Me / Show Me

Terminology
Key terms used in this lesson include:
Application
Client
Grid computing
Hardware
Infrastructure
Operating system
Server
Software
Finance
Logistics
Commerce
Procurement
Distribution
Summary

In this lesson, you have learned how to:

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• Define and give an example of these terms: hardware, operating system, software
• Identify examples of e-businesses that use database software and explain how it is essential to their success
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Summary

Practice Guide
The link for the lesson practice guide can be found in the course resources in Section 0.