Information Systems
ISM 3011

Fall 2004
Unit 5B

Assignment for Next Class

- Read case studies chapter 6
- Review exam study guide #1
- Work on assignment 1

Database Management Systems (DBMSs)

- Provide a user view
- Create and modify the database
- Store and retrieve data
- Manipulate data
- Produce reports

Open Database Connectivity (ODBC)

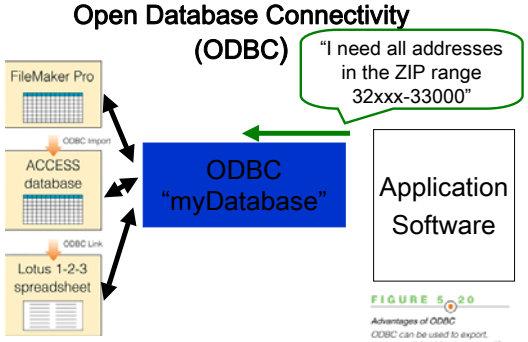
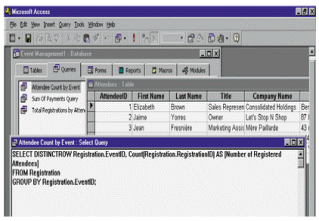


FIGURE 5.20
Advantages of ODBC
ODBC can be used to export, import, or link tables between different applications.

Structured Query Language

FIGURE 5.15
Structured Query Language
SQL has become an integral part of most relational database packages, as shown by this screen from Microsoft Access.



Confused?

DBMS

Database

SQL

ODBC

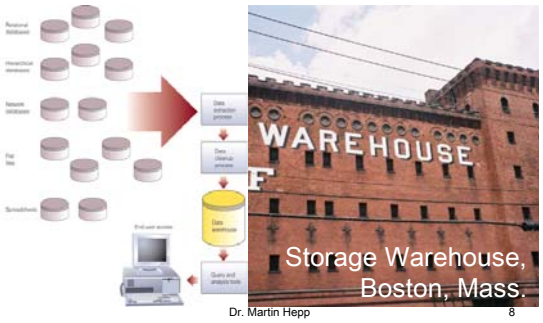
Database

DBMS

ODBC

SQL

Data Warehouses



Comparison of OLTP and Data Warehousing

Characteristic	OLTP Database	Data Warehousing
Purpose	Support transaction processing	Support decision support
Source of data	Business transactions	Multiple files, databases—data internal and external to the firm
Data access allowed users	Read and write	Read only
Primary data access mode	Simple database update and query	Simple and complex database queries with increasing use of data mining to recognize patterns in the data
Primary database model employed	Relational	Relational
Level of detail	Detailed transactions	Often summarized data
Availability of historical data	Very limited—typically a few weeks or months	Multiple years
Update process	On-line, ongoing process as transactions are captured	Periodic process, once per week or once per month
Ease of update	Routine and easy	Complex; must combine data from many sources; data must go through a data cleanup process
Data integrity issues	Each individual transaction must be closely edited	Major effort to "clean" and integrate data from multiple sources

TABLE 5.3
Comparison of OLTP and Data Warehousing

Data Mining

TABLE 5.4
Common Data Mining Applications

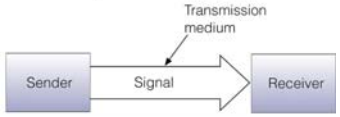
Application	Description
Branding and positioning of products and services	Enable the strategist to visualize the different positions of competitors in a given market using performance (or importance) data on dozens of key features of the product in question and then to condense all that data into a perceptual map of just two or three dimensions
Customer churn	Predict current customers who are likely to go to a competitor
Direct marketing	Identify prospects most likely to respond to a direct marketing campaign such as telephone solicitation or direct mailing
Fraud detection	Highlight transactions most likely to be deceptive or illegal
Market basket analysis	Identify products and services that are most commonly purchased at the same time (e.g., nail polish and lipstick)
Market segmentation	Group customers based on who they are or on what they prefer
Trend analysis	Analyze how key variables (e.g., sales, spending, promotions) vary over time

Telecommunications and Networks

Chapter 6

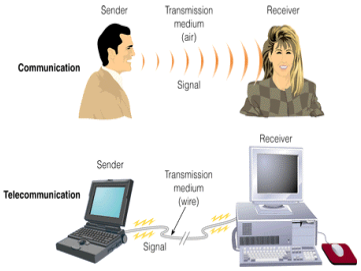
Communications

FIGURE 6.1
Overview of Communications
The message (data and information) is communicated via the signal. The transmission medium "carries" the signal.



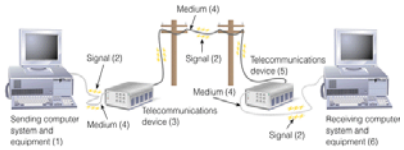
Communications

FIGURE 6-2
Communication and Telecommunication
In human speech, the sender transmits a signal through the transmission medium of the air. In telecommunication, the sender transmits a signal through a cable or other telecommunication medium.



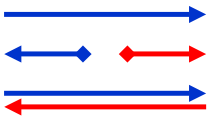
Telecommunications

FIGURE 6-3
Elements of a Telecommunications System
Telecommunications devices relay signals between computer systems and transmission media.



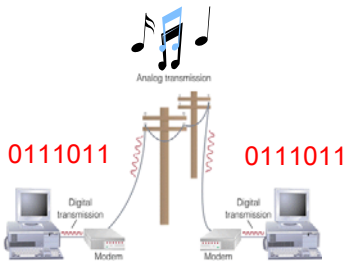
Basic Communications Channel Characteristics

- Simplex channel
- Half-duplex
- Full-duplex channel



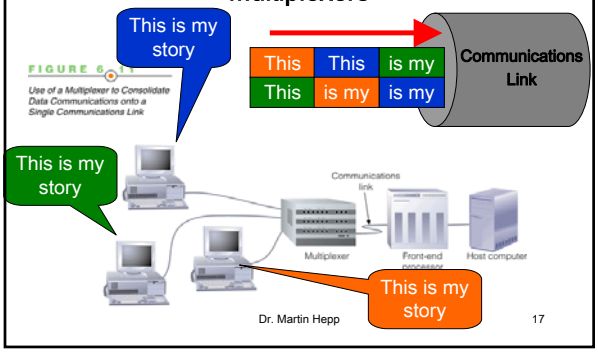
Modems

FIGURE 6-10
How a Modem Works
Digital signals are modulated into analog signals, which can be carried over existing phone lines. The analog signals are then demodulated back into digital signals by the receiving modem.



Multiplexers

FIGURE 6-11
Use of a Multiplexer to Consolidate Data Communications onto a Single Communications Link



Front-End Processors

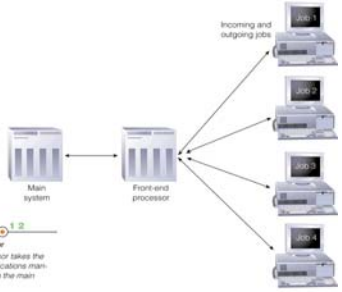


FIGURE 6-12
Front-End Processor
A front-end processor takes the burden of communications management away from the main system processor.

Some content with kind permission of
Thomson Course Technology

Cellular Transmission

FIGURE 6-9

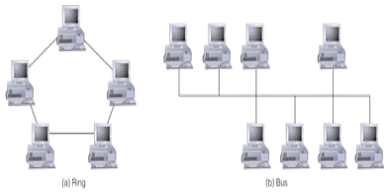
A Typical Cellular Transmission Scenario

Using a cellular car phone, the caller (1) dials the number. The signal is sent from the car's antenna to the low-powered cellular antenna located in that cell (2). The signal is sent to the regional cellular phone switching office, also called the mobile telephone subscriber office (MTSO) (3). The signal is switched to the local telephone company switching station located nearest the call destination (4). Now integrated into the regular phone system, the call is automatically switched to the number originally dialed (5), all without the need for operator assistance.

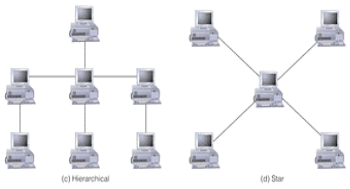
Network Concepts and Considerations

- Network topology
  - Ring network
  - Bus network
  - Hierarchical
  - Star network
  - Hybrid network
- Network types
  - Local Area Networks
  - Wide Area Networks
  - International networks
  - Home and small business networks

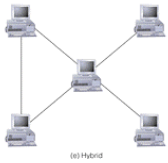
Network Topology



Network Topology



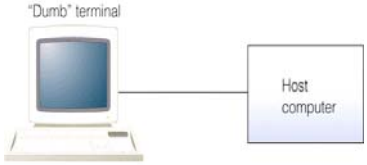
Network Topology



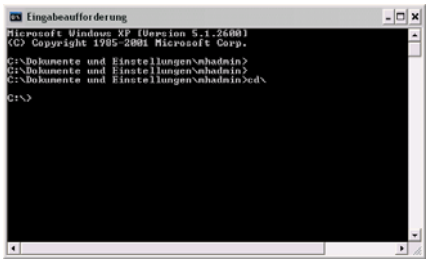
Terminal-to-Host

FIGURE 6-18

Terminal-to-Host Connection

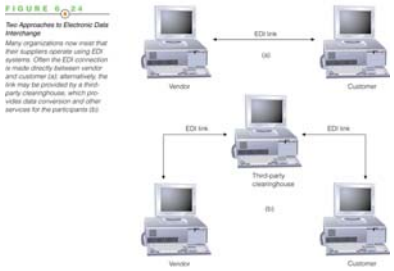


Terminal-to-Host



Dr. Martin Hepp 25

Electronic Data Interchange (EDI)



Dr. Martin Hepp 26

Thank you!

The slides will be available on the internet at
http://ruby.fgcu.edu/courses/mhepp/
(-> CRN80097)

Dr. Martin Hepp 27

Some content with kind permission of Thomson Course Technology