Lecture 3

Database Systems

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A little review

- Advantages of database
- Components of database
  - Case tools, dbms, DB, repositoty, User interface
- Cast or risks of databases
- When not to use database

Types of DBMS

General-purpose DBMS: can store and accessed is either textual or numeric

Multimedia DBMS: can now store pictures, video clips, and sound messages.

Geographic information systems (GIS): can store and analyze maps, weather data, and satellite images.

Data warehouse& OLAP DBMS: systems are used in many companies to extract and analyze useful information from very large databases for decision making.

Real-time DBMS: and active database technology is used in controlling industrial and manufacturing processes.

Types of Databases

- Several strategies are available for deploying and using databases in organizations.
- There are two generic database architectures
  - Centralized
  - Distributed

Central Computer Database

“ If collection of data or facts are stored at single side is called centralized database.”

There are three common examples of centralized databases:

- A Personal computer database
- A central computer database
- A Client/Server database

Personal Computer Database

“Single user database, which is used by single user. “

Common Applications:

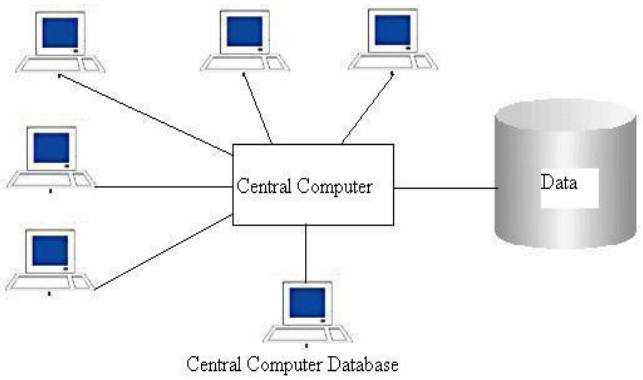
- Simple accounting system
- Inventory used in small scale business

Central Computer Database

- The Data that most applications in large organizations access is stored on a central computer.
- Depending on the size of the organization, the central computer is usually a mainframe or a minicomputer.
- Central computer database often involve very large, integrated databases that must be accessed by a large number of users. Usage is often intense, with several hundred transactions per second being processed.

Common Applications:

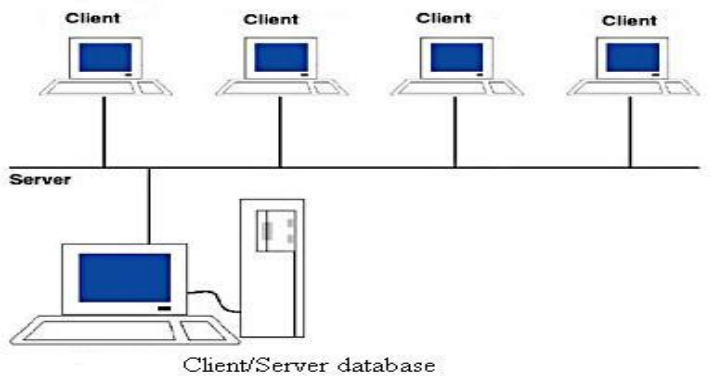
- **Airline reservation systems**
- **Financial institutions**
- **Express delivery companies**



Client/Server Database

- "Client / Server architecture is designed for the **distribution of work** on a computer network in which many clients may share the services of a single server."
- **Client/Server architecture has three components**
  - Client
  - Server
  - Network

Client/Server Environment



Client/Server database

Benefits

- Many clients can share resources
- Clients' applications can be designed with no dependency on the physical location of data.
- Essay to manage concurrent access
- Provide independence between applications components and reduce costs.

Distributed Database

- "Distributed database system is a set of database stored on more than one CPU in such a way that users *precise* the data as a single large database where as infect it is several smaller database."
- "A distributed database is a single logical database that spread physically across computer in multiple locations"

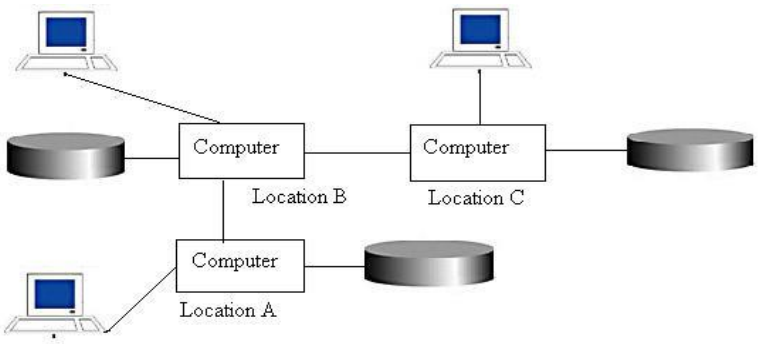
Categories of Distributed Databases

"When applied to databases, the term homogeneous means that the database technology is the same (or at least compatible) at each locations and that the data at various locations are also compatible "

The following conditions would probable exist:

- The computer operating systems used at each of the locations are the same, or at least they are highly compatible
- The data models used at each of the locations are the same.
- The database management systems used at each locations are the same, or at least they are highly compatible .
- The data at the various locations have common definitions and formats.

Homogeneous Databases

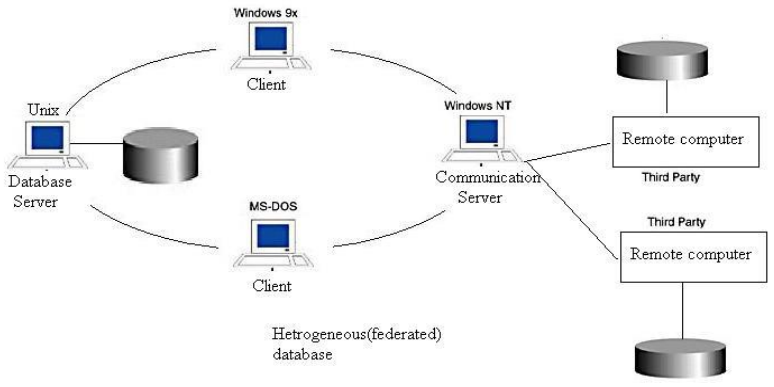


Homogeneous databases

Heterogeneous Database

"When applied to databases, the term heterogeneous means that the database technology is not same at each locations and that the data at various locations are also not compatible "

Heterogeneous Database



Lecture summery