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Distributed Database Management System

Distributed Database Management System (DDBMS) is a type of DBMS which manages a number of databases hoisted at diversified locations and interconnected through a computer network.

It provides mechanisms so that the distribution remains oblivious to the users, who perceive the database as a single database.

Features of distributed database management system

- It is used to create, retrieve, update and delete distributed databases.
- It synchronizes the database periodically and provides access mechanisms by the virtue of which the distribution becomes transparent to the users.
- It ensures that the data modified at any site is universally updated.

Factors Encouraging DDBMS

The following factors encourage moving over to DDBMS

1. Distributed Nature of Organizational Units

Most organizations in the current times are subdivided into multiple units that are physically distributed over the globe. Each unit requires its own set of local data.

2. Need for Sharing of Data

The multiple organizational units often need to communicate with each other and share their data and resources.

3. Support for Both OLTP and OLAP

Online Transaction Processing (OLTP) and Online Analytical Processing (OLAP) work upon diversified systems which may have common data. Distributed database systems aid both these processing by providing synchronized data.

4. Database Recovery

One of the common techniques used in DDBMS is replication of data across different sites. Replication of data automatically helps in data recovery if database in any site is damaged.

Advantages

- Management of distributed data with different levels of transparency like network transparency, fragmentation transparency, replication transparency, etc.
- Increase reliability and availability

- Easier expansion
- Reflects organizational structure
- Protection of valuable data.

Disadvantages

- Complexity
- Economics — increased complexity and a more extensive infrastructure means extra labour costs
- Security
- Concurrency control poses a major issue. It can be solved by locking and timestamping.