

HETEROGENEOUS AND MOBILE DATABASES

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Abstract

The conventional notion of timely and reliable access to global information sources is rapidly changing. Users have become much more demanding in that they desire and sometimes even require access to information “anytime, anywhere.” The extensive diversity in the range of information that is accessible to a user at any given time is also growing at a rapid rate. Furthermore, rapidly expanding technology is making available a wide breadth of devices with different memory, storage, network, power, and display requirements to access this diverse data set.

Classical distributed database systems monolithically offer distribution transparency and higher performance. However, with the advances in technologies this monolithic approach is insufficient. In the new computational environment data distribution issue has been evolved to the data integration from several heterogeneous databases.

Multidatabases are designed to deal with this issue. They are designed to allow timely and reliable access to large amount of heterogeneous and autonomous data sources in an environment that is characterized as “sometime, somewhere.” Within the scope of these systems, multidatabase researchers have addressed issues such as autonomy, heterogeneity, transaction management, concurrency control, transparency, and query resolution. These solutions are based upon fixed clients and servers connected over a reliable network infrastructure. However, the concept of mobility, where a user accesses data through a remote connection with a portable device, has introduced additional complexities and restrictions in a multidatabase system. These include:

- A reduced capacity network connection,
- Processing and resource restrictions, and
- Effectively locating and accessing information from a multitude of sources.

A multidatabase system (MDBS) with such additional restrictions is called a mobile data access system (MDAS).

This course extensively discusses multidatabase systems and mobile data access systems, moreover it will studies traditional distributed database issues within the framework of MDBSs and MDASs.