TUTORIAL

Federated Database Systems for Managing Distributed, Heterogeneous, and Autonomous Databases

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Many organizations need to deal with distributed, preexisting, heterogeneous, and autonomous databases. They need ways to have evolutionary database expansion to promote data sharing among users and applications, and easier application development. This requires a technology that provides selective and controlled integration of such databases. Federated database systems can provide different levels of integration, with different implications on the degree of control and the preservation of autonomy of the individual database systems.

The tutorial will cover the following main topics:

- Issues of distribution, heterogeneity, and autonomy. Requirements for managing multiple databases.

- Ranges of Alternatives and Architectures including interoperable systems and federated databases. Terminology and taxonomy. A methodology of building and maintaining federated database systems.

- Concepts, enabling technologies, and tools, including Schema Translation, Schema Integration, Operation Transformation, Query Processing, View Update, and Transaction Management.

- State of Art using case studies of many prototype and recent commercial systems. A comparative analysis.