

지능 에이전트를 이용한 연합데이터베이스 모델의 설계

An Intelligent Agent Approach to Federated Database Systems

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Abstract

As the need of information sharing of the distributed data in different autonomous organizations increases, federating multiple database systems gains wider acceptance for holding together the distributed data. Traditional federated database systems have been efficient in supporting information sharing by providing a tightly-coupled architecture that have multi-layered schema and a set of associated processors transforming a schema at one layer to schema at adjacent layers. However, they are less effective in handling the changes in component databases as well as in meeting adaptively the diverse autonomous data management needs from member organizations.

To remedy the limitations, this paper proposes a new approach that can integrate multiple heterogeneous databases with increased autonomy and flexibility, and adapt dynamically to changes in the component databases. It provides a loosely-

coupled federated database system architecture that adopts knowledge-based agents and message-based integration framework. In this framework, members of a federation can manage their local database schema and data offering policy autonomously and inform their schema and policy to the outside by maintaining individual knowledge-bases as a communication protocol. Intelligent agents take care of the rest of the data management tasks such as global query processing, temporary changes management of local database schema and data offering policy. Using the knowledge bases and message-based communication protocol, intelligent agents translate diverse data request messages from one format to another and adaptively adjusting requests to adapt to local databases whose schema and data offering policy are ever-changing. A prototype system is developed as an application of federated PACS.