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网格环境中模式复用的异构数据库访问和集成方法

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Abstract
Recently the research about heterogeneous database access and integration is booming in grid technology and related applications. UDMGrid (university digital museum grid) is devoted to the integration and sharing of resources from 12 university digital museums with grid technology, and it is necessary for UDMGrid to investigate the mechanism and method for heterogeneous specimen-database access and integration. In this paper, an effective schema-reusable method on database access and integration in UDMGrid (UDMGrid-DAI) is presented. It includes a schema-reusable virtual database to define the global uniform or heterogeneous database resources, and to describe the concepts and their relations of one or one sort of scientific domain through virtual tables and virtual columns. It also includes the ways of database registering and query mapping to the virtual databases based on the above virtual database mechanism. Furthermore, This UDMGrid-DAI provides a consistent interface to the virtual databases through the registry processing and the virtual database services. Finally, the experimental results demonstrate the work of this paper, and show that this schema-reusable mechanism of virtual database is correct and useful on database access and integration, especially in UDMGrid.

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摘要
如何为网格环境的资源使用者提供异构数据库资源的全局统一视图和一致访问接口,是网格技术及其应用的关键问题和研究热点.由于大学数字博物馆网格(university digital museum grid,简称UDMGrid)需要整合和共享分布在8个城市12个大学数字博物馆的异构数据库资源,因此提出了一种网格环境下模式复用的异构数据库访问和集成方法(database access and integration in UDMGrid,简称UDMGrid-DAI).该方法首先提出了一种模式复用的虚拟数据库构建策略,定义了异构数据库资源的全局统一视图;在此基础上给出了数据库资源注册方式和虚拟数据库查询映射方法,为资源使用者提供了访问数据库的一致访问接口;最后,在UDMGrid的异构数据库资源环境下,实验了从数据库资源注册到使用的全过程,验证了UDMGrid-DAI方法的正确性和实 用性.

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