

Tutorial: LDAP Directory Services - Just Another Database Application?

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Abstract

The key driving force behind general-purpose enterprise directory services is for providing a central repository for commonly and widely used information such as users, groups, network service access information and profiles, security information, etc. Acceptance of the Lightweight Directory Access Protocol (LDAP) as an access protocol has facilitated widespread integration of these directory services into the network infrastructure and applications.

Both directory and relational databases are data repositories sharing the characteristic that they have mechanisms for dealing with schema and structure of information and are suitable for systematically organized data. This tutorial describes characteristics of directories such as schema information, query language and support, storage mechanisms required, typical requirements imposed by applications, etc. We then explain the differences between a directory and relational database, and show how the two are required to co-exist in a typical enterprise.

An essential characteristic assumed for information stored in directories is that it is relatively static and that the queries are mostly read only. We describe typical directory applications to validate this assumption and project the requirements imposed on them as these applications evolve. We then describe areas of overlap between traditional databases and directories, describe some database and directory integration solutions adopted in the market, and identify areas in which directory deployment can benefit from the experience gathered by the database community.

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ACM SIGMOD 2000 5/00 Dallas, TX, USA
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Tutorial Outline

Introduction to directory technology

- Hierarchical namespace
- Object classes, attributes, and indices
- Search filters and scope
- LDAP API

Directory application scenarios

- User/group management applications
- Using directories in security applications

Directory Design parameters

- Namespace design
- Storage implementations
- Constraint checking
- Server controls
- Replication

Databases and directories in perspective

- Top ten reasons why directories get deployed
- Top ten reasons why databases get deployed
- Challenges ahead for directory deployment
- Performance results for sample queries
- How the directory can benefit from present database technology

Duration: 1.5 hours