

Directory Services: The Foundation for Web Portals

Directory services provide information about the people using a portal, enabling personalization of their portal experience

By **Albert DeSimone**

In and of themselves, directory services are not very interesting to talk about. You can think of them as a database containing information about the people within an enterprise and the resources to which these people need access.

Portals, on the other hand, are very interesting as a topic of conversation — and have been for quite some time. Portals present a unified, personalized, and customized view of the resources and services within an enterprise to individuals affiliated with the enterprise. Within the academic enterprise, these resources and services include unstructured and structured Web content (pages and databases), Web-based e-mail, online registration, financial systems, online learning environments, library resources, events, personal calendars, search engines, people locators, and more.

Portals and Directory Services

Many academic enterprises are building, planning, or offering portals to individuals within their affiliated constituent groups — students, faculty, staff, and alumni. In addition to promoting community interaction and communication, these portals offer a concentrically focused experience of the enterprise. Individuals can access content and services pertinent to their community and further customize a “My” view of the enterprise.

Directory services provide the identity

database (the “My” recognition) of the individuals to whom the view is presented. The directory service functions — identity management, authentication, and authorization — provide the foundation through which self-created, user-centric information portals can be delivered. These functions relate to the Web portal in several ways. In addition, a portal-aware directory supports personalization.

Identity Management

The directory contains information about the people within the enterprise. It also contains information about the resources, services, applications, and data these people need to, and have permission to, access. In the vernacular of the directory, these people, and the resources and services, are all objects, and all the objects are described in the directory’s schema. The schema is like a blueprint of the enterprise’s user base and its IT infrastructure.

Associations and interrelationships between the animate objects (people) and the inanimate objects (the resources and services) are made using directory groups (or, again in the vernacular of the directory, containers). The academic enterprise, for example, would include a group for students and one for faculty. These groups contain subgroups (freshman, graduate, instructor, and so on). Because of the groups’ different roles within the enterprise, the objects associated with each group, and the individuals within each group, are different.

Secure Authentication Enabling Single Sign-On (SSO)

Through username/password pairs, those affiliated with the enterprise identify themselves through the Web portal. Ideally, this authentication is only required once (SSO) during a session. The Web portal, working in conjunction with the directory, assures that authentication credentials are passed as needed to the user-requested resources and services.

Authorization

Authenticated individuals are authorized to access resources and services based on attributes associated with each individual in the directory. The Web portal provides the presentation interface for those resources and services. Individuals within affiliated groups see different options and information based on that affiliation. A student in the English department may see something different from a student in the history department, and even more different from what a faculty member in the botany department sees.

Directory-Enabled Personalization

The portal can present more than a custom view, which is based on the constituent group and the individual’s relationship to the enterprise. A portal-aware directory, one tightly integrated with the portal, can facilitate personalization.

Personalization is based on preference, not relationship. The portal offers presentation options and preferences

related to appearance (colors, fonts, arrangement) and content (weather, stocks, news, Web sites). The user-selected options are stored in the directory. They are not stored as preferences on the client workstation or in a secondary database. The co-location of the custom and personal attributes supports more reliable recall of the complete experience each time individuals identify themselves to the portal.

Solutions and Standards

If the portal and the underlying directory service are closely tied, then it follows that one cannot be considered without the other. If an organization has deployed directory services, then this should influence either building of the portal (if developed in-house) or selection of a commercial option. If a portal has been deployed without regard to existing directory services, it would be wise to review the portal solution with respect to the underlying directory services.

According to the Gartner Research article "1H01 Directory Services Market and Magic Quadrant,"¹ about a dozen vendors offer products in the directory services market. The report concluded that only a handful of these products will be viable for the longer term. The article explicitly evaluated the directory products with respect to two factors: the amount of explicit independent software vendor (ISV) support for the directory and the ability of the vendor to leverage an installed base through existing channels and relationships.

In terms of explicit ISV support, the Sun-Netscape Alliance iPlanet directory server claims the best support from vendors of directory-enabled software (for example, Netegrity, Red Creek, Business Layers, Oblix, and others). Novell, because of its large installed base, also has very good support. Microsoft has always sought to secure the support of ISVs, and Gartner expects this trend to continue with Active Directory.

Novell's eDirectory, Microsoft's Active Directory, and the Sun ONE Directory Server (formerly iPlanet) have emerged as leaders in the directory services market. This emergence is further confirmed

by InternetWeek.com's exclusive research on directory services.² While a number of factors should be taken into account when evaluating directory services — including replication, security, and operating system support — compliance with the Lightweight Directory Access Protocol (LDAP) and Directory Services Markup Language (DSML) standards should also be considered.

LDAP

Commercial-grade directory-service solutions have two sides. On one side they are proprietary, and on the other they adhere to an accepted access standard known as LDAP. All three directory-service solutions exhibit this duality, enabling vendors to write applications that are tightly integrated with the directory and allowing for basic, "lightweight" access to the directory for other applications.

DSML

Support for DSML permits different directories to exchange information. Ideally, an enterprise would have a single directory service to contain all identity information. In reality, this may not be possible for all enterprises.

According to Gartner Research, "Enterprises should assume that they need to implement multiple directories, because of the lack of interoperability standards."³ Since multiple directory services may be required, with one being the core repository for directory information, support for an information exchange standard is very important. DSML appears to be the emerging standard.

Interoperability Preferred

As a cautionary conclusion, I would advise potential buyers to be wary of directory services that include application suites, which may preclude best-of-breed options. For example, a product that emphasizes e-mail application integration via standards (IMAP, POP, and so forth) as opposed to the vendor's solution provides added flexibility. Bundled applications certainly are worth evaluating, but keen attention to interoperability standards (LDAP, XML, and

others) should weigh heavily in any evaluation. *e*

Endnotes

1. J. Enck and N. MacDonald, "1H01 Directory Services Market and Magic Quadrant," Gartner, April 30, 2001, <<http://www.gartner.com>> (accessed June 8, 2002; access may be restricted).
2. "Directory Services: InternetWeek Exclusive Research," InternetWeek.com, <http://www.internetweek.com/directory/charts_822-6.htm> (accessed June 8, 2002).
3. J. Enck, "1H02 Directory Services Market and Magic Quadrant," Gartner, February 13, 2002, <<http://www.gartner.com>> (accessed June 8, 2002; access may be restricted).

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