

Could LDAP Be the Next Killer DAP?

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About a year ago, Netscape Communications, with the support of more than 40 other companies, adopted the Lightweight Directory Access Protocol (LDAP). Notably absent from the list of early LDAP supporters, Microsoft came on board eight months later.

LDAP is a protocol that allows a program such as a browser or an e-mail package to perform directory lookups across a wide variety of directories, even if they run on different operating systems and directory environments. For example, LDAP could search the internal corporate directory stored on a corporate server or a publicly available directory (such as <http://www.four11.com> or <http://www.switchboard.com>).

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Without LDAP, when I want to look someone up on a directory service, I have to open the URL for the directory service, fill out some forms to narrow the search, and then finally cut-and-paste the address out of the directory service into the other application I'm using. LDAP integrates the act of searching the directory into my e-mail application. With LDAP, simply search for an e-mail address and other infor-

mation as part of composing a message.

Many simplistic protocols have existed over the years that promise to do the same thing. But LDAP appears to be the first such protocol that works across all major operating systems. Because it had such broad support, LDAP appeared to be our killer DAP (Directory Access Protocol). While everyone was sure that LDAP was the solution, no one seemed to know exactly what that solution would really look like.

At one time or another, LDAP proponents have made such various predictions as:

- *Instead of surfing from a home page or using a search engine, we will browse a hierarchical directory which contains all the information you are looking for, organized in a hierarchical node list (with "The World" at the top and working your way down through countries, organizations, units, and other levels).*
- *We will finally be able to convert from cumbersome e-mail addresses like `crs@msu.edu` to elegant e-mail addresses like `g=charles; s=severance; ou=Engineering; o="Michigan State University"; c=US`*
- *We will finally be able to convert from clumsy URLs like `mailto:crs@msu.edu` to simpler URLs like `LDAP:\\g=charles; s=severance; ou=Engineering; o="Michigan State University"; c=US`*

Usually when people first see the "next" killer application, they recognize it as such immediately. While people touted LDAP's features as evidence that it was the killer DAP, these features did not appear to me to indicate that LDAP was ever going to amount to much.

It seemed to me that the promise of LDAP was that you could send mail to "Charles Severance" from anywhere in the world and it would find its way to me. Now in my mind *that* would be a killer DAP.

In some ways, LDAP itself is not the critical element. A protocol alone is not enough. What's missing is a useful set of directory servers that support LDAP and client software that conveniently queries those servers using LDAP.

Well, as it turns out both of those things do exist. In Netscape Navigator 4.0, simply go to Edit | Search Directory, select the proper directory service, type in a person's name, press "Search" and—voila—you get a short list of the people who might match the name in question. From the interface shown in Figure 1, you are now two clicks away from sending an e-mail message to that person. Now *that* is a killer DAP—it's clearly obvious just how useful this feature will be.

WILL LDAP BE SUCCESSFUL?

Solving the directory services problem is simple and complex at the same time. Many other solutions have stepped up to solve this problem: CSO, WHOIS, DNS, and X.500. All previous protocols either solved a small but important subset of the directory services problem or were too large and cumbersome to be deployed in simple applications.

LDAP combines the best of a simple e-mail address lookup protocol such as CSO and it has the power of X.500 available if necessary. LDAP will prove its use in the simple situations like the one I described above, and when we begin to need more sophisticated capabilities, we will begin to gradually use the full power of the X.500 engine lurking underneath.

Furthermore, by using LDAP to look up information such as Internet Mail addresses or home page URLs, we avoid the use of the X.500 style mail addresses.



Figure 1. Using Netscape Navigator to find an e-mail address, a killer DAP.

IS IT GOOD FOR ANYTHING ELSE?

The ultimate value of LDAP in areas beyond looking up e-mail addresses depends on whether or not information will fit into a hierarchy and still be usable. In information technology, we have many examples of hierarchies:

- Home directories
- Yahoo
- Domain Name System
- Uniform Resource Locators
- Microsoft Windows Registry

In each of these situations, the hierarchy is constantly being changed and reorganized. It is very difficult to both keep the hierarchy clean and keep it useful at the same time. When things are moved around in a hierarchy to reflect a changed reality, either old references become invalid or some type of forwarding or linking mechanism is needed to maintain

upward compatibility for the old references.

If some forwarding or linking capability is used, then the hierarchy eventually is dominated by links that point to links that point to links that eventually point to real data. So, in some sense the hierarchical X.500 view of information will be faced with these same issues and must remain useful in the face of these continuous changes.

One of the great strengths of the Internet forms of addressing is that the hierarchy can be arbitrarily flattened at any point and an individual can exist simultaneously at many points in the

hierarchy. If X.500 and LDAP are not capable of representing this meshlike nature of reality, then LDAP will be successful but only as a protocol to query ad hoc data structures.

In summary, it appears that LDAP will indeed be the Rosetta stone for applications that need access to basic directory information. Using LDAP, client applications will be able to access basic directory information from any vendor's directory information server. Whether or not LDAP URLs will end up at the bottom of television and newspaper ads is still very unclear. ♦

For more information

<http://www.sun.com/sunworldonline/swol-10-1996/swol-10-ldap.html>
<http://home.netscape.com/newsref/pr/newsrelease126.html>