Ending the data free-for-all

White-pages information services reflect current push to systematize 'Net information / **Simson L. Garfinkel**

THE PUSH IS ON TO systematize the information that's flowing over the Internet. For the past few years, publishing on the 'Net has been a data free-for-all, with different businesses and organizations publishing the same kinds of on-line information in very different formats. In the coming year, the big push will be to deliver information in standard formats that can be easily understood by people and computers alike.

One of the best examples of this growing regularization is what's happening with Internet white pages. Over the past few years, a number of these so-called directory services have sprung up. Some of the most popular ones are Bigfoot, 411, Who Where, Info-Space, and Switchboard. With any of these systems, you can look up virtually anybody in the United States or Canada. The systems instantly scan through their database of the nation's white pages and display any matches. The services are free; the companies make their money by selling advertising space on their Web sites and by selling ancillary services.
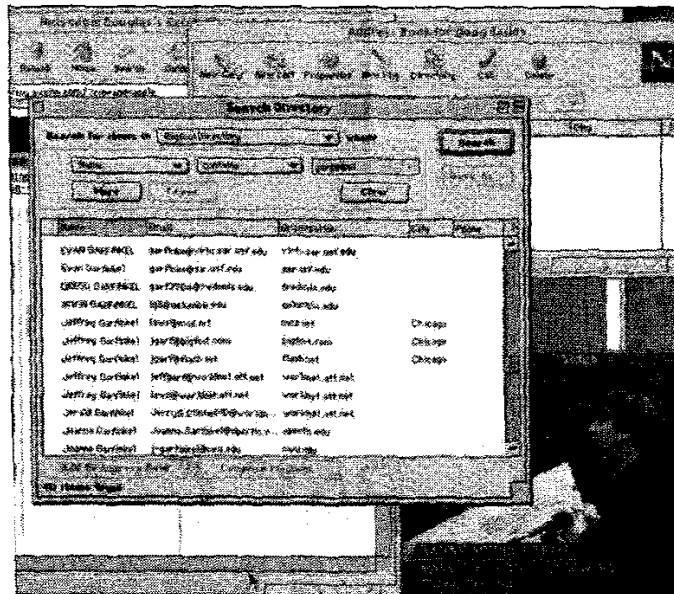
While all of these systems work in more or less the same way, they all have very different looks, and they all present their data in very different ways. While

artistic point of view, they can be a nightmare if you are trying to write a computer program that automatically takes the results from a database and do something useful – like dialing the phone or adding a person's name and information to your personal address book.

The solution to this electronic tower of Babel is something called LDAP, the lightweight directory access protocol. LDAP is an Internet standard that describes the entire process of looking up a per-

son's name and address from a network-based directory. With LDAP, questions to look up somebody in a database are all asked in a standard form, and the answers come back in a way that is easy for a computer program to understand.

To see LDAP in action, all you need is a copy of Netscape Communicator 4 or Microsoft's Outlook Express. Both of these programs have LDAP-enhanced address books. To look somebody up on the Internet, you just type in the name and select which LDAP server you want to use. The program goes out to the server, gets the information, and brings it back. Then you just click a button to add the person's name and address to your personal ad-

dress book.

Beyond convenience, LDAP shows the power of storing information in a common format and making it available over the Internet with common protocols. That's because any organization can put up its own LDAP server on the Internet. A university can put up its student or faculty phone book; a business can put up its employee directory. These servers can be set up to give different kinds of information to insiders and outsiders. Best of all, once the LDAP server is up and running, it works with any LDAP-enabled client. For all of these reasons, LDAP is gaining a lot of momentum in the business world.

If you are a business or organization that wants to put up your own LDAP server, you have two choices: buy or build. Today Netscape, Oracle, and Microsoft all sell LDAP directory servers for businesses. The University of Michigan also distributes a free server, but I've had trouble getting it to compile on my version of UNIX. Of course, to run an LDAP server on the Internet you'll need your own full-time Net connection, just as if you were running your own Web server.

LDAP can also be used for a lot more than looking up people's names and addresses. VeriSign has an LDAP server that lets you look up a person's public key, in case you want to send encrypted electronic mail. Clayton Donley, a Motorola expiate engineer in Beijing, has developed a system for using LDAP as the basis for a general-purpose access control system over the Internet. You can find his home page at http://www.geocities.com/SiliconValley/Bay/2131/.

Although LDAP is pretty cool,

Internet white pages. That's because it pulls the data out of the servers without forcing you to see the advertisements. Although this may sound great for consumers, ultimately that spells trouble for the white-pages companies.

What's interesting is that the proprietors of the 'Net white pages don't feel the same way I do. Several firms I spoke with say that even though they won't get the advertising revenue, they still welcome the brand recognition that comes from people using LDAP servers. And at InfoSpace, president Jain Naveen says that after you use his company's LDAP server to look up somebody's name, it will still be able to entice you to send that person cards or flowers – for which InfoSpace gets a nice commission.

"We can find other ways to get value from giving that value to people," says David Conway, product manager for directories at 411. "We don't plan to charge consumers or individuals directly to access it, but we might charge software companies who provide access to our LDAP server." Of course, those costs might ultimately be passed on to consumers.

The company is also distributing an LDAP plug-in for Microsoft's Outlook 97. The plug-in lets Outlook access 411's server – and displays advertisements to the user at the same time.

You can find out more information about LDAP at http://nswt.tuwien.ac.at/htdocs/ldap-html/. Stanford University has put together an LDAP FAQ and tutorial; it's at http://www.leland.stanford.edu/group/networking/directory/x500ldapfaq.html.

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