SYSTEM AND METHOD FOR INTERROGATING THE INTERNET WITH USER ADDRESS BOOK FACILITY

This invention relates to a system and method for providing electronic mail address information to a user interrogating the Internet at a location remote from a server to which the user belongs but which the user is himself unable to specify.

The present Applicant has previously proposed a method and system for interrogating the Internet to identify a server to which a user at a remote location belongs but which the user himself is unable to specify, thereby providing an electronic mail (e-mail) gateway service which requires no technical information from the end user but only his e-mail address and associated password.

This system for identifying a server to which a user at a remote location belongs includes: an access database containing records of servers supporting a predetermined electronic mail protocol or protocols; and a remote access mail client associated with the database and having access to the Internet Domain Name System (DNS) database and to a search engine associated with the protocol or protocols, the remote access mail client being arranged to require from the user the user's electronic mail address and password, to parse the mail address to identify and remove the user identity from the mail address and thereby obtain a presumed domain name of the user's server, to interrogate the access database to determine whether it contains a record of a server corresponding to the presumed domain name, and to retrieve the record of any corresponding server thus identified as the server to which the user belongs.

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In the event that the access database contains no corresponding server record, the remote access mail client implements a succession of alternative strategies involving interrogating the Internet until the relevant server is identified and the user's e-mail can be retrieved and directed to the user at the remote location.

The user may have several e-mail accounts each associated with an address book and it is an object of the present invention to render the existing e-mail retrieving system more user friendly.

Accordingly, in one aspect, the present invention provides a system for providing electronic mail address information to a user interrogating the Internet at a location remote from an electronic mail server to which the user belongs but which the user is unable to specify, including an access database, a remote access mail client operative to identify the user's server, and an address book database, wherein the remote access mail client comprises means for creating in the address book database an address book for use by a plurality of specified electronic mail addresses and means for controlling access to the address book in the address book database in dependence upon whether the electronic mail address supplied by a user is one of the plurality of specified electronic mail addresses.

The plurality of specified electronic mail addresses may belong to a single user or to a plurality of different users sharing the same address book.

In the case of a plurality of different users sharing the same address book, the remote access mail client comprises means for assigning to the different users different access rights to the shared address book.

In one embodiment of the invention, the remote access mail client comprises means for creating an address book in the address book database by asking a primary user to choose an address book log-in identity and password and recording the address book log-in and password in a first table.

Preferably, the remote access mail client comprises means for assigning a unique system address book identity to the primary user and recording the system address book identity in a second table.

Conveniently, the remote access mail client comprises means for recording in a third table electronic mail address information provided by the primary user for listing in the address book.

To enable the address book to be shared with a secondary user, the remote access mail client may comprise means for recording the name and electronic mail address of the secondary user supplied by the primary user in a fourth table together with the primary user's system address book identity and the access right granted to the secondary user by the primary user, and means for then storing the name, electronic mail address and access right of the secondary user in the second table.

In another aspect, the invention provides a method of providing electronic mail addresses to an Internet user at a location remote from an electronic mail server to which the user belongs but which the user is unable to specify, including providing an access database, a remote access mail client for interrogating the access database and the Internet to determine the server to which the user belongs, and an address book database, the method comprising creating in the address book database an address book for use by a plurality of specified

electronic mail addresses and controlling access to the address book in the address book database in dependence upon whether the electronic mail address supplied by a user is one of the plurality of specified electronic mail addresses.

In order that the invention may be more readily understood, an embodiment thereof will now be described, by way of example with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of an Internet interrogation system embodying the present invention;

Figure 2 is a diagram illustrating the manner in which an address book is accessed or created in an address book database of the Figure 1 system;

Figure 3 is a diagram showing the steps in creating an address book in the address book database of the Figure 1 system;

Figure 4 shows exemplary entries made in four tables during creation of an address book in the address book database;

Figure 5 shows a main address book screen display presented to a user on obtaining access to an address book in the address book database;

Figure 6 shows a subsidiary screen display presented to a primary user of the address book on clicking on the icon "SHARE WITH" on the main screen display; and

Figure 7 is a flow chart illustrating the updating of the address book by a primary user on obtaining access to his address book in the address book database.

Referring firstly to Figure 1, a system embodying the present invention for providing a user with access to the Internet at a location remote from the user's electronic mail server comprises a web based electronic mail software application or remote access mail client 1. Associated with the remote access mail client is a dynamic access database 2 containing records of servers which support a specified electronic mail protocol or protocols, such as the Post Office Protocol (POP3) and the Internet Message Access Protocol (IMAP4).

The remote access mail client 1 also has access to the Internet generally and, in particular, to the Domain Name System (DNS) database 3 which correlates domain names and numerical IP addresses, to the WHOIS server 4 holding the IP address blocks allocated to domains, organisations and companies and to the POP3/IMAP4 search engine 5.

It is assumed that the user who wishes to gain access to the Internet electronic mail system with minimal information has available at the remote location a computer 6 with Internet access and a browser 7 through which the user can gain access to the remote access mail client 1. The computer 6 may, for example, be any suitable computer served by any Internet Service Provider (ISP) local to a hotel or office to which the user has travelled.

The user's electronic mail server 8 which supports POP3/IMAP4 and which is to be identified and contacted by the remote access mail client 1 is shown in phantom lines in Figure 1.

The method by which the user's server is identified is, in outline, as follows. The user is required first to log into the ISP at the computer 6 and then access the remote access mail client 1 via the browser 7. On contacting the remote access mail client 1, the user is invited by the homepage of the system to type in merely the user's electronic mail address and log-in password and then to press ENTER. Thereupon the remote access mail client initiates a sequence of actions in stages in order to attempt to identify a subscribing user's server 8 from the minimal information provided by the user. Upon identifying the user's server, the remote access mail client 1 provides the server with the address and password to retrieve the user's mail and deliver it to the user at computer 6 at the remote location.

The system may also incorporate other electronic mailing features, such as composing, forwarding, copying of mail to third parties and deleting of messages.

The details of the sequence of actions initiated by the remote mail client 1 to identify the user's server 8 and retrieve the user's electronic mail are not material to the present invention and will not therefore be described further here.

The present invention is concerned with another facility provided by the remote access mail client 1, namely the provision of a remotely accessible electronic mail address book as will now be described in more detail.

Referring again to Figure 1, the remote access mail client 1 is also associated with an address book database 9 containing electronic mail address books 10

for subscribing users of the system. The user at the remote location can also use the computer 6 to access address books 10 in the database 9 to which he has access rights.

Each address book 10 is owned by a primary user who may have a plurality of electronic mail accounts. To enable the primary user to retrieve the address book when using different electronic mail accounts, remote access mail client 1 enables an address book 10 to be shared by different electronic mail accounts of the primary user. To further extend the scope of this sharing feature, the address book 10 can also be shared with one or more other electronic mail accounts belonging to a secondary user, i.e. someone other than the primary user himself. To safeguard the contents of the address book, the primary user can determine the rights of access to the address book for each of the users sharing the address book. Only the primary user has full access rights, with any secondary users having more restricted rights which, for example, only permit the user to read and/or add to the contents of the address book.

The accessing and use of the address book facility will now be described in more detail with reference to Figures 2 to 8 of the drawings.

Figure 2 illustrates the basic operation of the system. Having logged into the ISP at the computer 6 and having accessed the remote access mail client 1 via the browser 7, the user is invited by the homepage of the system to type in merely the user's electronic mail address and log-in password. The user is then provided with a number of option icons, such as, for example, "RETRIEVE MAIL" and "ADDRESS BOOK".

Upon the user clicking "ADDRESS BOOK" in step S1 of Figure 2, the system first determines whether (step S2) or not (step S3) an address book already exists for that user. If so, the address book is displayed to the user in step S4. If not, the user is invited to input a password and then to create an address book in step S5. A newly created empty address book for completion by the user is then displayed to the user in step S6. When the user in question next accesses the address book database, the system will thus proceed to step S2 and this address book will then be displayed to the user in step S4.

The procedure by which a primary user A creates an address book 10 will now be described with reference to Figures 3 and 4. In step S5.1, the user is assigned or asked to choose an address book log-in ID and password and a record "User A; Password;..." is written to a first Table 1 which thus records address book ownership and password information. Next, in step S5.2, a unique system address book ID is assigned to user A and a record "User A; User A's system address book ID; Primary User;..." is written to a second Table 2 which thus links users, associates address books and specifies the access rights. Table 2 links to a third Table 3 where all the electronic mail address details of the address book are stored.

If User A wishes to grant access rights to a secondary user at this stage, he is invited to enter the details and the granted access rights of the secondary user B in step S5.3 and this information is recorded as "User A's system address book ID; User B; User B's electronic mail address; Access rights;..." in a fourth Table 4 which thus lists address books, the various users and their access rights. A record is then written to Table 2 as "User B; User A's system address book ID; Access rights;...". Thereafter, when User B checks his electronic mail via the remote access mail client 1 and clicks "ADDRESS BOOK", the system will

find from Table 2 that user B is linked to user A's address book and will compare with Table 4 where there is a user A record allowing user B access to user A's address book. If the two records agree, the system will display user A's address book to user B. Figure 4 shows exemplary records entered in the Tables 1 to 4 as a result of a primary user A creating an address book and granting restricted access rights to a secondary user B during the procedure described with reference to Figure 3.

The use of an assigned encrypted system address book ID and cross-referencing between the Tables improves the security of the system. The Tables can be stored in any suitable file format.

Figure 5 shows, by way of example, one possible form of the address book screen 12 which is displayed to a user upon gaining access to an address book 10 in the database 9. The screen 12 presents a list of electronic mail addresses 13, a table 14 of other address books to which the primary user has access and a number of action icons, including a "SHARE WITH" icon 15.

Upon clicking the " SHARE WITH" icon 15, the primary user is presented with a further change share screen 16, an exemplary format for which is shown in Figure 6. This change share screen 16 displays a list 17 of secondary users currently authorised to access user A's address book and provides a number of action icons, including "SHARE WITH", "EDIT" and "DELETE" icons 18, 19 and 20.

Figure 7 illustrates the use of the change share screen 16 to effect changes in the users granted access to a primary user A's address book. The following description is on the basis that user A is the owner of the address book and

alone has full access rights to the address book. As indicated in Figure 7, user A clicks on the "SHARE WITH" icon on the address book screen 15 to display the change share screen 16.

Clicking on "SHARE WITH" enables user A to specify the details of a new secondary user B to whom user A wishes to grant access rights. After entry of the correct details in the share with new friend box 21 and email address box 22 and selection of the desired access right of "read only" or "write and read" at 23, user A may click on the confirm button 24 to accept the entries or on the cancel button 25 to reject the entries. Clicking on the confirm button 24 causes the details of the new secondary user B to be recorded in Tables 2 and 4, thereby giving user B access to user A's address book, and adding the details of user B to the list 17 of secondary users displayed on screen 16.

Clicking on EDIT enables user A to edit user B's entries in Tables 2 and 4 to modify the access rights granted to user B, the modified status being entered in the list 17.

Clicking on DELETE enables user A to delete user B's record entirely, thereby denying user B future access to user A's address book, user B's details then being removed from list 17.

In order to prevent a user's address book being accessed by another unauthorised user while the authorised user's is logged-in, a cookie may be employed to assign a unique hidden ID to each session to maintain the user's operations on the address book. If another Internet user is aware of the user's session, he will thus not be able to hack into the session without the cookie ID. Also, a given ID could be restricted to use by a single user in any session, so

that the cookie will detect and block an unauthorised user trying to hack into the authorised user's session using the same ID.

From the above description it will be appreciated that a system embodying the present invention provides a primary user with flexible access to an address book whichever one of a plurality of email accounts the user is currently operating. Moreover, the primary user's address book can be shared with other, secondary users whose access rights can be determined by the primary user.

A system embodying the present invention requires no third party software installation, being fully supported by the web browser 7 which is, in any event, the essential software requirement in the Internet world and is developing rapidly. The disincentive of having to install and use additional third party software is therefore removed from the new Internet user.

The user's address book can be retrieved from any remote location where the user has access to the basic requirements of an Internet connection and a web browser. There is no need for the user to take along his address book software and data file when not at his desk, since the user can check his electronic mail and access his address book from a customer's office, hotel, cyber café or other premises in a remote location having the necessary facilities.

In addition to providing remote access to the user's address book, a system embodying the present invention can also ensure data integrity in that changes in the address book made in the user's office will be updated to the server and the updated information can thus be accessed at the user's home location or when travelling in a remote location.

CLAIMS

1. A system for providing electronic mail address information to a user interrogating the Internet at a location remote from an electronic mail server to which the user belongs but which the user is unable to specify, including an access database, a remote access mail client operative to identify the user's server, and an address book database, wherein the remote access mail client comprises means for creating in the address book database an address book for use by a plurality of specified electronic mail addresses and means for controlling access to the address book in the address book database in dependence upon whether the electronic mail address supplied by a user is one of the plurality of specified electronic mail addresses.

2. A system according to Claim 1, wherein the plurality of specified electronic mail addresses belong to a single user.

3. A system according to Claim 1, wherein the plurality of specified electronic mail addresses belong to a plurality of different users sharing the same address book.

4. A system according to Claim 3, wherein the remote access mail client comprises means for assigning to the different users different access rights to the shared address book.

5. A system according to any preceding Claim, wherein the remote access mail client comprises means for creating an address book in the address book database by asking a primary user to choose an address book log-in identity and password and recording the address book log-in and password in a first table.

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6. A system according to Claim 5, wherein the remote access mail client comprises means for assigning a unique system address book identity to the primary user and recording the system address book identity in a second table.

7. A system according to Claim 6, wherein the remote access mail client comprises means for recording in a third table electronic mail address information provided by the primary user for listing in the address book.

8. A system according to Claim 6 or 7, wherein the remote access mail client comprises means for enabling the address book to be shared with a secondary user by recording the name and electronic mail address of the secondary user supplied by the primary user in a fourth table together with the primary user's system address book identity and the access right granted to the secondary user by the primary user, and means for then storing the name, electronic mail address and access right of the secondary user in the second table.

9. A system according to Claim 8, wherein the remote access mail client comprises means for comparing the data in the second and fourth tables and allowing the secondary user access to the address book if the data agrees.

10. A method of providing electronic mail addresses to an Internet user at a location remote from an electronic mail server to which the user belongs but which the user is unable to specify, including providing an access database, a remote access mail client for interrogating the access database and the Internet to determine the server to which the user belongs, and an address book database, the method comprising creating in the address book database an address book for use by a plurality of specified electronic mail addresses and

controlling access to the address book in the address book database in dependence upon whether the electronic mail address supplied by a user is one of the plurality of specified electronic mail addresses.

11. A method according to Claim 10, comprising creating the address book for use by a single user to whom the plurality of specified electronic mail addresses belong.

12. A method according to Claim 10, comprising creating the address book for use by a plurality of different users who share the same address book and to whom the plurality of specified electronic mail addresses belong.

13. A method according to Claim 12, comprising assigning to the different users different access rights to the shared address book.

14. A method according to any one of Claims 10 to 13, comprising creating an address book in the address book database by asking a primary user to choose an address book log-in identity and password and recording the address book log-in and password in a first table.

15. A method according to Claim 14, comprising assigning a unique system address book identity to the primary user and recording the system address book identity in a second table.

16. A method according to Claim 15, comprising recording in a third table electronic mail address information provided by the primary user for listing in the address book.

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17. A method according to Claim 15 or 16, comprising enabling the address book to be shared with a secondary user by recording the name and electronic mail address of the secondary user supplied by the primary user in a fourth table together with the primary user's system address book identity and the access right granted to the secondary user by the primary user, and then storing the name, electronic mail address and access right of the secondary user in the second table.

18. A method according to Claim 17, comprising comparing the data in the second and fourth tables and allowing the secondary user access to the address book if the data agrees.

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