

AUTOMATIC DISCOVERY OF ALTERNATE MAILBOXES

BACKGROUND

[0001] In today's economy, people exchange dozens of email messages everyday. Some of the email messages a person receives may contain important information. Other ones of the email messages a person receives may not seem important when they are received, but are later discovered to be useful. For this reason, people tend to retain email messages, even email messages of questionable importance, for long periods of time.

[0002] Retention of such email messages may cause problems for institutions providing email messaging services. For instance, institutions may have to purchase large and expensive data storage systems to store old email messages. In other instances, institutions may configure users' computers to store the users' old email messages. Storing email messages on users' computers may increase retrieval costs during e-discovery. Configuring such email message storage solutions is typically difficult and requires manual configuration of users' computers.

[0002A] It is desired to address or ameliorate one or more disadvantages or limitations associated with the prior art, or to at least provide a useful alternative.

SUMMARY

[0003] In accordance with the present invention there is provided a method for configuring a client system to access a plurality of remotely-stored message mailboxes associated with a user, the method comprising :

automatically sending, from the client system to a server system via an electronic communications network, an autodiscover request that instructs the server system to provide to the client system an autodiscover response document, the autodiscover response document conforming to a scheme;

receiving, at the client system from the server system via the electronic

communications network, an autodiscover response responsive to the autodiscover request, the autodiscover response containing the autodiscover response document, the autodiscover response document comprising :

5 a first set of mailbox identification data that identifies to the server system
 a primary mailbox associated with a user, and
 an alternate mailbox element that contains a second set of mailbox
identification data that identifies to the server system an alternate mailbox associated with the
user, the alternate mailbox being a peer of the primary mailbox, wherein the alternate
mailbox element comprises display name information for the alternate mailbox;

10 after receiving the autodiscover response, using, at the client system, the first set of
mailbox identification data to access message objects in the primary mailbox; and

 after receiving the autodiscover response, using, at the client system, the second set of
mailbox identification data to access message objects in the alternate mailbox.

[0003A] The invention further provides an electronic computing device comprising :

15 a processing unit;

 a network interface that enables the electronic computing device to communicate via an
electronic communication network with a client system; and

 a computer-readable data storage system that stores instructions that, when executed by
the processing unit, cause the processing unit to :

20 automatically receive, from the client system via the electronic
communications network, an autodiscover request that instructs the electronic computing
device to provide to the client system an autodiscover response document conforming to a
schema ; and

 automatically send, to the client system from the electronic computing
25 device via the electronic communications network, an autodiscover response responsive to
the autodiscover request, the autodiscover response containing the autodiscover response

document, the autodiscover response document comprising :

a first set of mailbox identification data that identifies a primary mailbox associated with a user, thereby enabling the client system to access message objects in the primary mailbox, and

5 an alternate mailbox element that contains a second set of mailbox identification data that identifies an alternate mailbox associated with the user, thereby enabling the client system to access message objects in the alternate mailbox, the alternate mailbox being a peer of the primary mailbox, wherein the alternate mailbox element comprises display name information and legacy distinguished name information for the
10 alternate mailbox.

[0004] The invention further provides a computer-readable data storage medium comprising instructions that, when executed by a processing unit of an electronic computing device, cause the processing unit to :

automatically receive, from a client system via an electronic communications
15 network, an autodiscover request that instructs the electronic computing device to provide to the client system an autodiscover response document conforming to a schema, the autodiscover request identifying a primary mailbox;

automatically retrieve, in response to receiving the autodiscover request, a remote profile of a user associated with the primary mailbox from a Lightweight Directory Access
20 Protocol (LDAP) directory server that stores administrator-managed remote profiles of registered users of a messaging system;

automatically use the remote profile of the user associated with the primary mailbox to determine whether a user of the client system is allowed to access the primary mailbox ;

automatically send, when the user of the client system is not allowed to access the
25 primary mailbox, an error response via the electronic communications network to the client system;

automatically generate, when the user of the client system is allowed to access the primary mailbox, a first set of mailbox identification data using the remote profile, the first set of mailbox identification data specifying a first extensible markup language (XML) element that specifies a first legacy distinguished name that identifies the primary mailbox, a second XML element that specifies a first mailbox database distinguished name that identifies a mailbox database that stores the primary mailbox, a third XML element that specifies a first mailbox server name that identifies a mailbox server that provides access to the mailbox database identified by the first mailbox database distinguished name, and a fourth XML element that specifies a first server distinguished name that identifies a computing device at which the mailbox server identified by the first mailbox server name operates ;

automatically generate, when the user of the client system is allowed to access the primary mailbox, a second set of mailbox identification data using the remote profile of the user, the second set of mailbox identification data specifying a fifth XML element that specifies a second legacy distinguished name that identifies an archive mailbox, a sixth XML element that specifies a second mailbox database distinguished name that identifies a mailbox database that stores the archive mailbox, a seventh XML element that specifies a second mailbox server name that identifies a mailbox server that provides access to the mailbox database identified by the second mailbox database distinguished name, and an eighth XML element that specifies a second server distinguished name that identifies a computing device at which the mailbox server identified by the second mailbox server name operates ;

automatically send, to the client system via the electronic communication network, an autodiscover response responsive to the autodiscover request, the autodiscover response containing an autodiscover response document that is formatted as an XML document, the autodiscover response document comprising the first XML element, the second XML element, the third XML element, the fourth XML element, the fifth XML element, the sixth

XML element, the seventh XML element and the eighth XML element;

receive, from the client system after the autodiscover response is sent to the clientsystem, a first request to access email message objects in the primary mailbox; and

5 receive, from the client system after the autodiscover response is sent to the client system, a second request to access email message objects in the archive mailbox.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] Preferred embodiments of the present invention are hereinafter described, by way of non-limiting example only, with reference to the accompanying drawings, in which :

10 [0005A] Fig. 1 is a block diagram that illustrates an example system in which a client system is automatically configured to access message objects in a plurality of mailboxes stored at a server system.

[0006] Fig. 2 is a flowchart illustrating an example operation performed by an autodiscover server operating at the server system.

15 [0007] Fig. 3 is a block diagram illustrating example logical components of the client system.

[0008] Fig. 4 is a flowchart illustrating an example operation performed by the client system.

[0009] Fig. 5 is a block diagram illustrating example physical components of an electronic computing device.

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DETAILED DESCRIPTION

[0010] This disclosure is directed to automatically configuring a client system to access message objects in a plurality of mailboxes stored at a server system. As described herein, the client system sends an autodiscover request to the server system. In response, the server
25 system sends to the client system an autodiscover response that contains an autodiscover response document that comprises a primary mailbox element and at least one alternate

mailbox element. The client system uses a first set of mailbox identification data specified by the primary mailbox element to access message objects in a primary mailbox stored at the server system and uses sets of mailbox identification data specified by the alternate mailbox elements to access message objects in alternate mailboxes stored at the server system. Email messages are one example type of message objects. The alternate mailbox may be an archive mailbox that stores message objects that are used for occasional reference.

[0010A] As briefly described above, the present disclosure is directed to automatically configuring a client device to access message objects in a plurality of mailboxes stored at a server system. This disclosure discusses a set of figures. These figures are provided for purposes of explanation only and are not intended to represent a sole way of implementing these technologies. In other words, the figures illustrate mere examples.

[0011] Fig. 1 is a block diagram that illustrates an example messaging system 2 in which a client system is automatically configured to access message objects in a plurality of mailboxes stored at a server system. As illustrated in the example of Fig. 1, messaging system 2 comprises a client system 4. As used throughout this disclosure, a “client system” is a set of one or more physical electronic computing devices configured to utilize a network service. For example, client system 4 may be a set of one or more personal computers, laptop computers, mobile telephones, television set-top boxes, mainframe computers, standalone server devices, blade server devices, devices integrated into vehicles, handheld computing devices, personal digital assistants, media player devices, and other types of physical computing devices configured to utilize a network service. An example electronic computing device is described below with reference to Fig. 5.

[0063] Throughout this specification and the claims which follow, unless the context requires otherwise, the word “comprise”, and variations such as “comprises” and “comprising”, will be understood to imply the inclusion of a stated integer or step or group of integers or steps but not the exclusion of any other integer or step or group of integers or steps.

[0064] The reference in this specification to any prior publication (or information derived from it), or to any matter which is known, is not, and should not be taken as an acknowledgment or admission or any form of suggestion that that prior publication (or information derived from it) or known matter forms part of the common general knowledge in the field of endeavour to which this specification relates.

THE CLAIMS DEFINING THE INVENTION ARE AS FOLLOWS :

1. A method for configuring a client system to access a plurality of remotely-stored message mailboxes associated with a user, the method comprising:

5 automatically sending, from the client system to a server system via an electronic communications network, an autodiscover request that instructs the server system to provide to the client system an autodiscover response document, the autodiscover response document conforming to a schema;

receiving, at the client system from the server system via the electronic
10 communications network, an autodiscover response responsive to the autodiscover request, the autodiscover response containing the autodiscover response document, the autodiscover response document comprising:

a first set of mailbox identification data that identifies to the server system a primary mailbox associated with a user, and

15 an alternate mailbox element that contains a second set of mailbox identification data that identifies to the server system an alternate mailbox associated with the user, the alternate mailbox being a peer of the primary mailbox; wherein the alternate mailbox element comprises display name information for the alternate mailbox;

after receiving the autodiscover response, using, at the client system, the first set of
20 mailbox identification data to access message objects in the primary mailbox; and

after receiving the autodiscover response, using, at the client system, the second set of mailbox identification data to access message objects in the alternate mailbox.

2. The method of claim 1, wherein the autodiscover response document is an
25 extensible markup language (XML) document and the alternate mailbox element is an XML element.

3. The method of claim 1 or 2, wherein the alternate mailbox is an archive mailbox.

30 4. The method of claim 3, wherein using the second set of mailbox identification data to access message objects in the alternate mailbox comprises accessing, at the client system, individual ones of the message objects in the alternate mailbox without storing a copy of the alternate mailbox at the client system.

5. The method of any one of claims 1-4, wherein using the first set of mailbox identification data to access message objects in the primary mailbox comprises :

5 automatically sending, from the client system to the server system, a request to synchronize a copy of the primary mailbox stored at the client system with a copy of the primary mailbox stored at the server system; and

receiving, at the client system from the server system in response to the request, data that synchronizes the copy of the primary mailbox stored at the client system with the copy of the primary mailbox stored in the server system.

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6. The method of any one of claims 1-5,

wherein the first set of mailbox identification data specifies a first legacy distinguished name that identifies the primary mailbox, a first mailbox database distinguished name that identifies a mailbox database that stores the primary mailbox, a first mailbox server name that identifies a mailbox server that provides access to the mailbox database identified by the first mailbox database distinguished name, and a first server distinguished name that identifies a computing device at which the mailbox server identified by the first mailbox server name operates; and

20 wherein using the first set of mailbox identification data to access message objects in the primary mailbox comprises automatically accessing, at the client system, a mailbox identified by the first legacy distinguished name in a mailbox database identified by the first mailbox database distinguished name that is available through a mailbox server identified by the first mailbox server name that is operating at the computing device identified by the first server distinguished name.

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7. The method of any one of claims 1-6,

wherein the second set of mailbox identification data specifies a second legacy distinguished name that identifies the alternate mailbox, a second mailbox database distinguished name that identifies a mailbox database that stores the alternate mailbox, a second mailbox server name that identifies a mailbox server that provides access to the mailbox database identified by the second mailbox database distinguished name, and a second server distinguished name that identifies a computing device at which the mailbox server identified by the second mailbox server name operates; and

wherein using the second set of mailbox identification data to access

message objects in the alternate mailbox comprises automatically accessing, at the client system, the mailbox identified by the second legacy distinguished name in the mailbox database identified by the second mailbox database distinguished name that is available through the mailbox server identified by the second mailbox server name that is operating
5 at the computing device identified by the second server distinguished name.

8. The method of any one of claims 1-7, wherein automatically sending the autodiscover request comprises automatically sending the autodiscover request in response to an occurrence of an autodiscover event in a group of autodiscover events consisting of :
10 an expiration of a time-to-live timer, creation of a local profile, repair of a local profile, a failure condition, and a restart of a messaging client application.

9. The method of any one of claims 1-8, further comprising :
15 after receiving the autodiscover response, automatically determining, at the client system, whether a local profile of the user specifies a third set of mailbox identification data that is not included in the autodiscover response document; and
when the local profile of the user specifies the third set of mailbox identification data that is not included in the autodiscover response document,
20 automatically removing, at the client system, the third set of mailbox identification data from the local profile of the user.

10. The method of any one of claims 1-9, further comprising presenting, at the client system on a display device, a user interface that enables the user to interact with
25 message objects in the primary mailbox and message objects in the alternate mailbox.

11. The method of any one of claims 1- 10, wherein the message objects in the primary mailbox are email message objects and the message objects in the alternate mailbox are email message objects.
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12. An electronic computing device comprising :
a processing unit ;
a network interface that enables the electronic computing device to communicate via an electronic communication network with a client system; and

a computer-readable data storage system that stores instructions that, when executed by the processing unit, cause the processing unit to :

5 automatically receive, from the client system via the electronic communications network, an autodiscover request that instructs the electronic computing device to provide to the client system an autodiscover response document conforming to a schema; and

10 automatically send, to the client system from the electronic computing device via the electronic communications network, an autodiscover response responsive to the autodiscover request, the autodiscover response containing the autodiscover response document, the autodiscover response document comprising :

a first set of mailbox identification data that identifies a primary mailbox associated with a user, thereby enabling the client system to access message objects in the primary mailbox, and

15 an alternate mailbox element that contains a second set of mailbox identification data that identifies an alternate mailbox associated with the user, thereby enabling the client system to access message objects in the alternate mailbox, the alternate mailbox being a peer of the primary mailbox, wherein the alternate mailbox element comprises display name information and legacy distinguished name information for the alternate mailbox.

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13. The electronic computing device of claim 12, wherein the instructions further cause the processing unit to :

automatically retrieve, in response to receiving the autodiscover request, a remote profile of the user from a directory server; and

25 automatically use the remote profile of the user to identify mailboxes associated with the user, thereby identifying the primary mailbox and the alternate mailbox.

14. The electronic computing device of claim 13, wherein the remote profile of
30 the user is defined by input from an administrator without configuring the client system.

15. The electronic computing device of claim 13 or 14, wherein the instructions further cause the processing unit to :

generate the first set of mailbox identification data using the remote profile of the user; and

generate the second set of mailbox identification data using the remote profile of the user.

16. The electronic computing device of claim 15,

5 wherein the instructions cause the processing unit to generate the first set of mailbox identification data such that the first set of mailbox identification data specifies a first legacy distinguished name that identifies the primary mailbox, a first mailbox database distinguished name that identifies a mailbox database that stores the primary mailbox, a first mailbox server name that identifies a mailbox server that provides access
10 to the mailbox database identified by the first mailbox database distinguished name, and a first server distinguished name that identifies a computing device at which the mailbox server identified by the first mailbox server name operates; and

wherein the instructions cause the processing unit to generate the second set of mailbox identification data such that the second set of mailbox identification data specifies
15 a second legacy distinguished name that identifies the alternate mailbox, a second mailbox database distinguished name that identifies a mailbox database that stores the alternate mailbox, a second mailbox server name that identifies a mailbox server that provides access to the mailbox database identified by the second mailbox database distinguished name, and a second server distinguished name that identifies a computing device at which
20 the mailbox server identified by the second mailbox server name operates.

17. The electronic computing device of claim 16, wherein the instructions cause the processing unit to generate the second set of mailbox identification data such that the second legacy distinguished name is a first extensible markup language (XML) element,
25 the second mailbox database distinguished name is a second XML element, the second mailbox server name is a third XML element, and the second server distinguished name is a fourth XML element.

18. The electronic computing device of claim 16 or 17, wherein the instructions
30 cause the processing unit to generate the first set of mailbox identification data and the second set of mailbox identification data such that the first server distinguished name and the second server distinguished name identify different electronic computing devices within a server system.

19. The electronic computing device of any one of claims 13-18, wherein the Instructions further cause the processing unit to :

determine whether a user of the client system is allowed to access the primary mailbox ;

5 send to the client system an error response when the user of the client system is not allowed to access the primary mailbox ; and

send the autodiscover response when the user of the client system is allowed to access the primary mailbox.

10 20. A computer-readable data storage medium comprising instructions that, when executed by a processing unit of an electronic computing device, cause the processing unit to :

automatically receive, from a client system via an electronic communications network, an autodiscover request that instructs the electronic computing device to provide
15 to the client system an autodiscover response document conforming to a schema, the autodiscover request identifying a primary mailbox ;

automatically retrieve, in response to receiving the autodiscover request, a remote profile of a user associated with the primary mailbox from a Lightweight Discovery Access Protocol (LDAP) directory server that stores administrator-managed
20 remote profiles of registered users of a messaging system ;

automatically use the remote profile of the user associated with the primary mailbox to determine whether a user of the client system is allowed to access the primary mailbox ;

automatically send, when the user of the client system is not allowed to access
25 the primary mailbox, an error response via the electronic communications network to the client system ;

automatically generate, when the user of the client system is allowed to access the primary mailbox, a first set of mailbox identification data using the remote mobile profile, the first set of mailbox identification data specifying a first extendible markup
30 language (XML) element that specifies a first legacy distinguished name that identifies the primary mailbox, a second XML element that specifies a first mailbox database distinguished name that identifies a mailbox database that stores the primary mailbox, a third XML element that specifies a first mailbox server name that identifies a mailbox server that provides access to the mailbox database identified by the first mailbox database

distinguished name, and a fourth XML element that specifies a first server distinguished name that identifies a computing device at which the mailbox server identified by the first mailbox server name operates ;

5 automatically generate, when the user of the client system is allowed to access the primary mailbox, a second set of mailbox identification data using the remote profile of the user, the second set of mailbox identification data specifying a fifth XML element that specifies a second legacy distinguished name that identifies an archive mailbox, a sixth XML element that specifies a second mailbox database distinguished name that identifies a mailbox database that stores the archive mailbox, a seventh XML element that specifies a second mailbox server name that identifies a mailbox server that provides
10 access to the mailbox database identified by the second mailbox database distinguished name, and an eighth XML element that specifies a second server distinguished name that identifies a computing device at which the mailbox server identified by the second mailbox server name operates ;

15 automatically send, to the client system via the electronic communications network, an autodiscover response responsive to the autodiscover request, the autodiscover response containing an autodiscover response document that is formatted as an XML document, the autodiscover response document comprising the first XML element, the second XML element, the third XML element, the fourth XML element, the fifth XML element, the sixth XML element, the seventh XML element, and the eighth
20 XML element ;

receive, from the client system after the autodiscover response is sent to the clientsystem, a first request to access email message objects in the primary mailbox ; and

25 receive, from the client system after the autodiscover response is sent to the client system, a second request to access email message objects in the archive mailbox.