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(54) Title: METHOD AND APPARATUS FOR SYNCHRONIZING E-MAIL ADDRESSES

(57) Abstract: A method for synchronizing a user's e-mail addresses in two locations and validating the synchronized e-mail address is provided, wherein the two locations can be an authentication proxy and an integrated authorized site of the authentication proxy, or they can be the authentication proxy and a partner site of the authentication proxy. Also disclosed are several methods for maintaining the synchronized status and confirmed status when the user changes his e-mail address from either of the two locations.

METHOD AND APPARATUS FOR SYNCHRONIZING E-MAIL ADDRESSES

BACKGROUND OF THE INVENTION

TECHNICAL FIELD

The invention relates generally to online authentication technology. More particularly, the invention relates to a system and method for synchronizing user contact information between an authentication proxy and an authorized site.

DESCRIPTION OF THE PRIOR ART

The explosive growth of the Internet is changing the ways in which we communicate, conduct business, and pursue entertainment. A few years ago, electronic commerce (E-commerce) was just an interesting concept. Today, not only are consumers buying an enormous volume of goods or services over the Internet, but the business-to-business E-commerce has taken off as well.

The basic cell of E-commerce is an electronic transaction, which requires a buyer or user to fill out one or more electronic forms on screen and click a button, such as "send", "buy", or "submit". To complete such an electronic transaction, a user must go through an authentication process. In other words, the user must provide the seller or service provider with some information such as personal identification, contact information, or even financial information. The authentication process may take from several seconds to hours. Because each seller or service provider maintains its own authentication server and database, millions of sellers and service

providers might share thousands of millions of consumers or users. Some of the consumers or users might be required to go through the same or similar authentication process repetitively if they have transactions with many sellers or service providers. This repetitive authentication not only wastes consumers' precious time, but also burdens the sellers or service providers because they have to expand their databases to keep detailed authentication information for a growing number of users. This situation brings forth a technical need to create a universal, unified single-logon infrastructure wherein a specific user may be authenticated once for all and wherein the authentication result is widely recognized by a large number of sellers or service providers.

As of the current state of art, the user has to perform a substantially similar registration step at each online merchant or service provider site. Consequently, the user might have to create and memorize many ID's and passwords, and may have provided contact information such as an e-mail address.

E-mail is the most prevalent method for contacting someone on the Internet. The e-mail address identifies a user's electronic mailbox. Most online merchants or service providers requires a user to provide an e-mail address as contact information. Some sellers or service providers confirm the e-mail address by sending e-mail to the e-mail address and requiring the user to reply to the e-mail address. Over a period of time, e-mail addresses become invalid as a specific user changes their e-mail address and neglects to update their information at the online merchant or service provider site.

As a universal, unified single-logon infrastructure becomes prevalent, the e-mail addresses that sellers or service providers have gathered could be different for a specific user. It is likely that some of the different e-mail addresses are invalid.

What is desired is a method for selecting a valid e-mail address or the most desirable e-mail address and synchronizing the e-mail address between the authentication proxy and an integrated authorized site.

SUMMARY OF INVENTION

The invention discloses a method for synchronizing a user's e-mail addresses in two locations and validating the synchronized e-mail address. The two locations can be an authentication proxy and an integrated authorized site of the authentication proxy, or they can be the authentication proxy and a partner site of the authentication proxy. The invention also discloses several methods for maintaining the synchronized status and confirmed status when the user changes his e-mail address from either of the two locations.

In one preferred embodiment of the invention, a method for synchronizing and validating user contact information stored in two locations is provided. The method comprises the steps of: authenticating the user when the user signs in to an authentication proxy; synchronizing the user contact information between a first location and a second location; and validating the synchronized user contact information.

In another equally preferred embodiment of the invention, it is disclosed herein a method for synchronizing a first e-mail address of a user in an authentication proxy

and a second e-mail address of the user in an integrated authorized site of the authentication proxy. The method comprises the steps of: checking the first e-mail address and the second e-mail address; and if said first e-mail address is blank and said second e-mail address is set, copying said second e-mail address and a confirm status of said second e-mail address to said authentication proxy site.

In another equally preferred embodiment, the invention provides a method for confirming e-mail address change of a user from an old e-mail address to a new e-mail address in an authentication proxy and an integrated authorized site of said authentication proxy. The method comprises the steps of: sending a request confirmation e-mail message to said new e-mail address containing a confirm interface and sending a request cancellation e-mail message to said old e-mail address containing a cancellation interface; marking said user e-mail address change pending; and starting a response timer which is typically 72 hours.

In another equally preferred embodiment, the invention provides a method for validating an e-mail address of a user in authentication proxy. The method comprises the steps of: the user signing on to the authentication proxy; checking a confirm status of the e-mail address; and providing a graphical interface to the user when the confirm status of the e-mail address is unconfirmed; wherein the graphical interface comprises an e-mail not confirmed message, and a list of options comprises confirm later option, requesting new confirm e-mail option and specifying new e-mail address option.

In another equally preferred embodiment, the invention provides a method for registering a user of an authentication proxy to a partner site of the authentication proxy while keeping profile of the user synchronized. The method comprises the

steps of: the user registering at the partner site; the user changing profile fields other than e-mail address; and synchronizing the new profile data with the authentication proxy.

In another equally preferred embodiment, the invention provides a method for changing profile of a user in an authentication proxy while keeping e-mail address of the user confirmed. The method comprises the steps of: the user editing the profile; checking whether a confirm status of the e-mail address is change pending; validating of new profile data when the user submits the new profile data; and confirming profile change after new profile data are submitted.

In another equally preferred embodiment, the invention provides a method for synchronizing all profile data of a user from a partner site of an authentication proxy to the authentication proxy. The method comprises the steps of: the user submitting the profile data at the partner site to the authentication proxy; the user changing profile fields other than e-mail address; and synchronizing the first profile data with the authentication proxy.

In another equally preferred embodiment, the invention provides a method for synchronizing individual field of profile data of a user from a partner site of an authentication proxy to the authentication proxy. The method comprises the steps of: the user submitting an individual field change of the profile data at the partner site to the authentication proxy; the user changing a field in the first profile data other than e-mail address; and synchronizing the first profile data with the authentication proxy.

The invention is also applicable to other user contact information such as a phone number associated with a mobile device such as a two-way pager or a phone browser.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a flow diagram illustrating a method 100 for synchronizing and validating user contact information stored in two locations;

FIG. 2 is a flow diagram illustrating a method 200 for synchronizing a first e-mail address of a user in an authentication proxy and a second e-mail address of the user in an integrated authorized site of the authentication proxy;

FIG. 3A is a flow diagram illustrating details of step 208 in method 200 in one typical embodiment;

FIG. 3B is a flow diagram illustrating additional processing 310 of step 208 in method 200 in another typical embodiment;

FIG. 3C is a flow diagram illustrating additional processing 320 of step 208 in method 200 in another typical embodiment;

FIG. 4 is a flow diagram illustrating a method 400 for confirming e-mail address change of a user from an old e-mail address to a new e-mail address in an authentication proxy and an integrated authorized site of said authentication proxy;

FIG. 5A is a flow diagram illustrating a method 500 for validating an e-mail address of a user in authentication proxy;

FIG. 5B is a flow diagram illustrating additional processing 510 of method 500 in another typical embodiment;

FIG. 5C is a flow diagram illustrating additional processing 520 of method 500 in another typical embodiment;

FIG. 6A is a flow diagram illustrating a method 600 for registering a user of an authentication proxy to a partner site of the authentication proxy while keeping profile of the user synchronized;

FIG. 6B is a flow diagram illustrating additional processing 620 of step 607 in method 600 in another typical embodiment;

FIG. 7 is a flow diagram illustrating a method 700 for changing profile of a user in an authentication proxy while keeping e-mail address of the user confirmed;

FIG. 8A is a flow diagram illustrating additional processing 810 of step 703 in method 800 in another typical embodiment;

FIG. 8B is a flow diagram illustrating additional processing 820 of step 704 in method 800 in another typical embodiment;

FIG. 9A is a flow diagram illustrating a method 900 for synchronizing all profile data of a user from a partner site of an authentication proxy to the authentication proxy;

FIG. 9B is a flow diagram illustrating additional processing 910 of method 900 in another typical embodiment;

FIG. 10A is a flow diagram illustrating a method 1000 for synchronizing individual field of profile data of a user from a partner site of an authentication proxy to the authentication proxy; and

FIG. 10B is a flow diagram illustrating additional processing 1010 of method 1000 in another typical embodiment.

DETAILED DESCRIPTION

In one preferred embodiment of the invention, e-mail addresses are stored in the integrated authorized site and authentication proxy for one user ID. The e-mail addresses can be same or different. The e-mail address in the integrated authorized site can be confirmed or unconfirmed, and the e-mail address in the authentication proxy can also be confirmed or unconfirmed. When the e-mail address is changed in the integrated authorized site, a process for confirming the change will start.

FIG. 1 is a flow diagram illustrating a method 100 for synchronizing and validating user contact information stored in two locations. The method comprises the following steps: authenticating the user when the user signs in to an authentication proxy 101; synchronizing the user contact information between a first location and a second location 102; and validating the synchronized user contact information 103.

FIG. 2 is a flow diagram illustrating a method 200 for synchronizing a first e-mail address of a user in an authentication proxy and a second e-mail address of the user in an integrated authorized site of the authentication proxy. The email1 and email2 in the diagram refer to the e-mail addresses in the authentication proxy and in the integrated authorized site respectively.

The method 200 comprises the following steps: checking the first e-mail address and the second e-mail address 201; if said first e-mail address is blank and said second e-mail address is set, copying said second e-mail address and a confirm status of said second e-mail address to said authentication proxy site 202.

If said first e-mail address is set but said second e-mail address is blank, copying said first e-mail address to said integrated authorized site 203; and confirming e-mail address change to said first e-mail address 204. The details of step 204 are illustrated in FIG. 4 below.

If said first e-mail address is blank and said second e-mail address is blank, keeping said first e-mail address blank and said confirm status of said first e-mail address NULL 205.

If the first e-mail address is set and the second e-mail address is set, checking whether the first e-mail address is the same as the second e-mail address 206; if the first e-mail address is the same as the second e-mail address, copying said confirm status of said second e-mail address to said authentication proxy 207.

If the first e-mail address is not the same as the second e-mail address, asking the user to choose among the first e-mail address and the second e-mail address, or specify a synchronized e-mail address 208.

FIG. 3A is a flow diagram illustrating details of step 208 in method 200 in one typical embodiment. The step 208 comprises the following sub-steps: providing a graphical interface for the user to choose among the first e-mail address and the second e-mail address, or specify the synchronized e-mail address 301; the user selecting the second e-mail address 302; and copying the second e-mail address to the authentication proxy 303.

FIG. 3B is a flow diagram illustrating additional processing 310 of step 208 in method 200 in another typical embodiment. The additional processing 310 comprises the following steps: the user selecting the first e-mail address 311; copying the first e-mail address to the authorized site 312; confirming e-mail address change from said second e-mail address to said first e-mail address 313; and displaying an e-mail change message to the user 314. The details of step 313 are illustrated in FIG. 4 below.

FIG. 3C is a flow diagram illustrating additional processing 320 of step 208 in method 200 in another typical embodiment. The additional processing 320 comprises the following steps: the user specifying a third new e-mail address for authentication proxy 321; copying the third new e-mail address to the authorized site 322; confirming e-mail address change from said second e-mail address to said third new e-mail address 323; and displaying an e-mail change message to the user 324. The details of step 323 are illustrated in FIG. 4 below.

FIG. 4 is a flow diagram illustrating a method 400 for confirming e-mail address change of a user from an old e-mail address to a new e-mail address in an authentication proxy and an integrated authorized site of said authentication proxy. The method 400 comprises the following steps: sending a request confirmation e-mail message to said new e-mail address containing a confirm interface and sending a request cancellation e-mail message to said old e-mail address containing a cancellation interface 401; marking said user e-mail address change pending 402; starting a response timer which is typically 72 hours 403.

The method 400 further comprises the following steps: the user performing a confirm action through the confirm interface before the response timer expires 404; sending change confirmation e-mail message to said new e-mail address 405; and save said new e-mail address to said authentication proxy and said integrated authorized site and marking said confirm status of said new e-mail address confirmed in said authentication proxy and said integrated authorized site 406.

The method 400 further comprises the following steps: said user performing a cancel action through said cancel interface before said response timer expires 407; sending change cancellation e-mail message to said old e-mail address 408; and keep said old e-mail address and a confirmed status of said old e-mail address in said authentication proxy and said integrated authorized site 409.

FIG. 5A is a flow diagram illustrating a method 500 for validating an e-mail address of a user in authentication proxy. The method 500 comprises the following steps: the user signing on to the authentication proxy 501; checking a confirm status of the e-mail address 502; and providing a graphical interface to the user when the confirm status of the e-mail address is unconfirmed 503, wherein the graphical interface

comprising: an e-mail not confirmed message; and a list of options comprising: confirm later option, requesting new confirm e-mail option and specifying new e-mail address option; the user selecting the confirm later option 504; and directing the user to a first page after sign on 505.

FIG. 5B is a flow diagram illustrating additional processing 510 of method 500 in another typical embodiment. The additional processing 510 comprises the following steps: the user selects the requesting new confirm e-mail option 511; sending the new e-mail to the e-mail address containing a confirm interface 512; displaying a message to the user that the new e-mail containing the confirm interface has been sent to the e-mail address 513; said user performing a confirm action through said confirm interface 514; marking said confirm status of said e-mail address confirmed in said authentication proxy and said integrated authorized site 515; and sending e-mail message to said e-mail address to acknowledge confirmation 516.

FIG. 5C is a flow diagram illustrating additional processing 520 of method 500 in another typical embodiment. The additional processing 520 comprises the following steps: the user specifying the a new e-mail address for authentication proxy 521; copying the new e-mail address to an integrated authorized site of the authentication proxy 522; confirming e-mail address change to said new e-mail address 523; and displaying an e-mail change message to the user 524. The details of step 523 are illustrated in FIG. 4.

FIG. 6A is a flow diagram illustrating a method 600 for registering a user of an authentication proxy to a partner site of the authentication proxy while keeping profile of the user synchronized. The method 600 comprises the following steps: the user registering at the partner site 601; the user changing profile fields other than e-mail

address 602; and synchronizing the new profile data with the authentication proxy 603.

The method 600 further comprises the following steps: the user entering a new e-mail address while a confirm status of the e-mail address is change pending 604; and displaying a message to the user that the new e-mail address will be sent to partner site but not to the authentication proxy 605.

The method 600 further comprises the following steps: the user entering a blank e-mail address while the confirm status of the e-mail address is not change pending 606; and dealing with blank e-mail input by the authentication proxy 607.

The method 600 further comprises the following steps: the user entering a new e-mail address which is not blank when the confirm status of the e-mail address in the authentication proxy is not NULL 608; and displaying e-mail change message to the user 609.

The method 600 further comprises the following steps: the user entering a new e-mail address which is not blank when the confirm status of the e-mail address in the authentication proxy is NULL 610; and copying the new e-mail address to the authentication proxy and keeping a confirm status of the new e-mail address NULL 611.

FIG. 6B is a flow diagram illustrating additional processing 620 of step 607 in method 600 in another typical embodiment. The additional processing 620 comprises the following steps: displaying an e-mail address required message to the user and asking the user to reenter if an e-mail address is required by the partner site 621;

checking if synchronization of e-mail address is required when e-mail address is not required by partner site 622; and if synchronization is required, displaying a message to the user that no e-mail address is sent to partner site and the e-mail address in the authentication proxy remains 623.

FIG. 7 is a flow diagram illustrating a method 700 for changing profile of a user in an authentication proxy while keeping e-mail address of the user confirmed. The method 700 comprises the following steps: user editing the profile 701; checking whether a confirm status of the e-mail address is change pending 702; validating of new profile data when the user submits the new profile data 703; and confirming profile change after new profile data are submitted 704.

The method 700 further comprises the following steps: the user attempting to change e-mail address when the confirm status of the e-mail address is change pending 705; and displaying a message to the user that the e-mail address cannot be changed 706.

FIG. 8A is a flow diagram illustrating additional processing 810 of step 703 in method 800 in another typical embodiment. The additional processing 810 comprises the following steps: displaying an e-mail address required message to the user and asking the user to reenter if the user enters a blank e-mail address 811.

The additional processing 810 further comprises the following steps: displaying an invalid data message if any information other than e-mail address of the new profile data is invalid 812.

The additional processing 810 further comprises the following steps: displaying a submission error message if submission of the new profile data is not successful 813.

FIG. 8B is a flow diagram illustrating additional processing 820 of step 704 in method 800 in another typical embodiment. The additional processing 820 comprises the following steps: displaying a nothing changed message if no information of the new profile data is changed 821.

The additional processing 820 further comprises the following steps: displaying a profile data saved message if any information other than e-mail address of the new profile data is changed 822.

The additional processing 820 further comprises the following steps: if said confirm status of said e-mail address is NULL and a new e-mail address is entered, saving said new e-mail address to authentication proxy 823; keeping said confirm status NULL 824.

The additional processing 820 further comprises the following steps: displaying an e-mail change message to the user when no other information of the new profile data is changed 825.

The additional processing 820 further comprises the following steps: and displaying an e-mail change and profile saved message to the user when other information of the new profile data is changed 826.

FIG. 9A is a flow diagram illustrating a method 900 for synchronizing all profile data of a user from a partner site of an authentication proxy to the authentication proxy.

The method 900 comprises the following steps: the user submitting the profile data at the partner site to the authentication proxy 901; the user changing profile fields other than e-mail address 902; and synchronizing the first profile data with the authentication proxy 903.

FIG. 9B is a flow diagram illustrating additional processing 910 of method 900 in another typical embodiment. The additional processing 910 comprises the following steps: the user entering a new e-mail address while the confirm status of the e-mail address is change pending 911; and displaying a message to the user that the new e-mail address will be sent to partner site but not to the authentication proxy 912.

The additional processing 910 further comprises the following steps: the user entering a blank e-mail address while a confirm status of the e-mail address is not change pending 913; and displaying a message to the user that no e-mail address is sent to partner site and the e-mail address in the authentication proxy remains 914.

The additional processing 910 further comprises the following steps: the user entering a new e-mail address which is not blank when the confirm status of the e-mail address in the authentication proxy is not NULL 915; and displaying an e-mail change message to the user 916.

The additional processing 910 further comprises the following steps: the user entering a new e-mail address which is not blank when the confirm status of the e-mail address in the authentication proxy is NULL 917; and copying the new e-mail address to the authentication proxy and keeping a confirm status of said new e-mail address NULL 918.

FIG. 10A is a flow diagram illustrating a method 1000 for synchronizing individual field of profile data of a user from a partner site of an authentication proxy to the authentication proxy. The method 1000 comprises the following steps: the user an individual field change of the profile data at the partner site to the authentication proxy 1001; the user changing a field in the first profile data other than e-mail address 1002; and synchronizing the first profile data with the authentication proxy 1003.

FIG. 10B is a flow diagram illustrating additional processing 1010 of method 1000 in another typical embodiment. The additional processing 1010 comprises the following steps: the user entering a new e-mail address while the confirm status of the e-mail address is change pending 1011; displaying a message to the user that the new e-mail address will be sent to partner site but not to the authentication proxy 1012; and forcing the e-mail address back to the e-mail address in authentication proxy 1013.

The additional processing 1010 further comprises the following steps: the user entering a blank e-mail address while a confirm status of the e-mail address is not change pending 1014; and displaying a message to the user that no e-mail address is sent to partner site and the e-mail address in the authentication proxy remains 1015.

The additional processing 1010 further comprises the following steps: the user entering a new e-mail address which is not blank when the confirm status of the e-mail address in the authentication proxy is not NULL 1016; and displaying an e-mail change message to the user 1017.

The additional processing 1010 further comprises the following steps: the user entering a new e-mail address which is not blank when the confirm status of the e-mail address in the authentication proxy is NULL 1018; and copying the new e-mail address to the authentication proxy and keeping a confirm status of said new e-mail address NULL 1019.

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of the present invention.

Accordingly, the invention should only be limited by the Claims included below.

CLAIMS

1. A method for synchronizing and validating user contact information stored in two locations, said method comprising the steps of:

authenticating a user when said user signs in to an authentication proxy;

synchronizing said user contact information between a first location and a second location; and

validating said synchronized user contact information.

2. A method for synchronizing a first e-mail address of a user in an authentication proxy and a second e-mail address of said user in an integrated authorized site of said authentication proxy, said method comprising the steps of:

checking said first e-mail address and said second e-mail address; and

if said first e-mail address is blank and said second e-mail address is set, copying said second e-mail address and a confirm status of said second e-mail address to said authentication proxy site.

3. The method of Claim 2, further comprising the steps of:

if said first e-mail address is set but said second e-mail address is blank, copying said first e-mail address to said integrated authorized site; and

confirming e-mail address change to said first e-mail address.

4. The method of Claim 3, further comprising the step of:

if said first e-mail address is blank and said second e-mail address is blank, keeping said first e-mail address blank and said confirm status of said first e-mail address NULL.

5. The method of Claim 4, further comprising the step of:

if said first e-mail address is set and said second e-mail address is set, checking whether said first e-mail address is the same as said second e-mail address.

6. The method of Claim 5, further comprising the step of:

if said first e-mail address is the same as said second e-mail address, copying said confirm status of said second e-mail address to said authentication proxy.

7. The method of Claim 6, further comprising the step of:

if said first e-mail address is not the same as said second e-mail address, asking said user to choose among said first e-mail address and said second e-mail address, or specify a synchronized e-mail address.

8. The method of Claim 7, further comprising the steps of:

providing a graphical interface for said user to choose among said first e-mail address and said second e-mail address, or specify said synchronized e-mail address;

said user selecting said second e-mail address; and

copying said second e-mail address to said authentication proxy.

9. The method of Claim 8, further comprising the steps of:

said user selecting said first e-mail address;

copying said first e-mail address to said authorized site;

confirming e-mail address change from said second e-mail address to said first e-mail address; and

displaying an e-mail change message to said user.

10. The method of Claim 9, further comprising the steps of:

said user specifying a third new e-mail address for authentication proxy;

copying said third new e-mail address to said authorized site;

confirming e-mail address change from said second e-mail address to said third new e-mail address; and

displaying an e-mail change message to said user.

11. A method for confirming e-mail address change of a user from an old e-mail address to a new e-mail address in an authentication proxy and an integrated authorized site of said authentication proxy, comprising the steps of:

sending a request confirmation e-mail message to said new e-mail address containing a confirm interface and sending a request cancellation e-mail message to said old e-mail address containing a cancellation interface;

marking said user e-mail address change pending; and

starting a response timer which is typically 72 hours.

12. The method of Claim 11, further comprising the steps of:

said user performing a confirm action through said confirm interface before said response timer expires;

sending change confirmation e-mail message to said new e-mail address; and

save said new e-mail address to said authentication proxy and said integrated authorized site and marking said confirm status of said new e-mail address confirmed in said authentication proxy and said integrated authorized site.

13. The method of Claim 11, further comprising the steps of:

said user performing a cancel action through said cancel interface before said response timer expires;

sending change cancellation e-mail message to said old e-mail address; and

keep said old e-mail address and a confirmed status of said old e-mail address in said authentication proxy and said integrated authorized site.

14. A method for validating an e-mail address of a user in authentication proxy, comprising the steps of:

said user signing on to said authentication proxy;

checking a confirm status of said e-mail address; and

providing a graphical interface to said user when said confirm status of said e-mail address is unconfirmed;

wherein said graphical interface comprising:

an e-mail not confirmed message; and

a list of options comprising: confirm later option, requesting new confirm e-mail option and specifying new e-mail address option.

15. The method of Claim 14, further comprising the steps of:

said user selecting said confirm later option; and

directing said user to a first page after sign on.

16. The method of Claim 15, further comprising the steps of:

said user selects said requesting new confirm e-mail option;

sending said new e-mail to said e-mail address containing a confirm interface;

displaying a message to said user that said new e-mail containing said confirm interface has been sent to said e-mail address;

said user performing a confirm action through said confirm interface;

marking said confirm status of said e-mail address confirmed in said authentication proxy and said integrated authorized site; and

sending e-mail message to said e-mail address to acknowledge confirmation.

17. The method of Claim 16, further comprising the steps of:

said user specifying a new e-mail address for said authentication proxy;

copying said new e-mail address to an integrated authorized site of said authentication proxy;

confirming e-mail address change to said new e-mail address; and

displaying an e-mail change message to said user;

wherein said confirming step further comprising:

sending an e-mail message to said new e-mail address containing a confirm interface;

marking a confirm status of said new e-mail address change pending; and

starting a response timer which is typically 72 hours.

18. A method for registering a user of an authentication proxy to a partner site of said authentication proxy while keeping profile of said user synchronized, comprising the steps of:

said user registering at said partner site;

said user changing profile fields other than e-mail address; and

synchronizing said new profile data with said authentication proxy.

19. The method of Claim 18, further comprising the steps of:

said user entering a new e-mail address while a confirm status of said e-mail address is change pending; and

displaying a message to said user that said new e-mail address is to be sent to said partner site but not to said authentication proxy.

20. The method of Claim 19, further comprising the steps of:

said user entering a blank e-mail address while said confirm status of said e-mail address is not change pending; and

dealing with blank e-mail input by said authentication proxy.

wherein said dealing blank e-mail step further comprising:

displaying an e-mail address required message to said user and asking said user to reenter if an e-mail address is required by said partner site.

21. The method of Claim 20, further comprising the steps of:

said user entering a new e-mail address which is not blank when said confirm status of said e-mail address in said authentication proxy is not NULL; and

displaying an e-mail change message to said user.

22. The method of Claim 21, further comprising the steps of:

said user entering a new e-mail address which is not blank when said confirm status of said e-mail address in said authentication proxy is NULL; and

copying said new e-mail address to said authentication proxy and keeping a confirm status of said new e-mail address NULL.

23. The method of Claim 22, wherein said dealing blank e-mail step further comprises the steps of:

checking if synchronization of e-mail address is required when e-mail address is not required by partner site; and

if synchronization is required, displaying a message to said user that no e-mail address is sent to said partner site and said e-mail address in said authentication proxy remains.

24. A method for changing profile of a user in an authentication proxy while keeping e-mail address of said user confirmed, comprising the steps of:

said user editing said profile;

checking whether a confirm status of said e-mail address is change pending;

validating of new profile data when said user submits said new profile data; and

confirming profile change after new profile data are submitted.

25. The method of Claim 24, further comprising the steps of:

said user attempting to change e-mail address when said confirm status of said e-mail address is change pending; and

displaying a message to said user that said e-mail address cannot be changed.

26. The method of Claim 25, wherein said validating step further comprises the steps of:

displaying an e-mail address required message to said user and asking said user to reenter if said user enters a blank e-mail address.

27. The method of Claim 26, wherein said validating step further comprises the step of:

displaying an invalid data message if any information other than e-mail address of said new profile data is invalid.

28. The method of Claim 27, wherein said validating step further comprises the step of:

displaying a submission error message if submission of said new profile data is not successful.

29. The method of Claim 28, wherein said confirming step further comprises the step of:

displaying a nothing changed message if no information of said new profile data is changed.

30. The method of Claim 29, wherein said confirming step further comprises the step of:

displaying a profile data saved message if any information other than e-mail address of said new profile data is changed.

31. The method of Claim 30, wherein said confirming step further comprises the steps of:

if said confirm status of said e-mail address is NULL and a new e-mail address is entered, saving said new e-mail address to authentication proxy; and

keeping said confirm status NULL.

32. The method of Claim 31, wherein said confirming step further comprises the step of:

displaying an e-mail change message to said user when no other information of said new profile data is changed.

33. The method of Claim 32, wherein said confirming step further comprises the step of:

displaying an e-mail change and profile saved message to said user when other information of said new profile data is changed.

34. A method for synchronizing all profile data of a user from a partner site of an authentication proxy to said authentication proxy, comprising the steps of:

said user submitting said profile data at said partner site to said authentication proxy;

said user changing profile fields other than e-mail address; and

synchronizing said first profile data with said authentication proxy.

35. The method of Claim 34, further comprising the steps of:

said user entering a new e-mail address while the confirm status of said e-mail address is change pending; and

displaying a message to said user that said new e-mail address is to be sent to partner site but not to said authentication proxy.

36. The method of Claim 35, further comprising the steps of:

said user entering a blank e-mail address while a confirm status of said e-mail address is not change pending; and

displaying a message to said user that no e-mail address is sent to partner site and said e-mail address in said authentication proxy remains.

37. The method of Claim 36, further comprising the steps of:

said user entering a new e-mail address which is not blank when said confirm status of said e-mail address in said authentication proxy is not NULL; and

displaying an e-mail change message to said user.

38. The method of Claim 37, further comprising the steps of:

said user entering a new e-mail address which is not blank when said confirm status of said e-mail address in said authentication proxy is NULL; and

copying said new e-mail address to said authentication proxy and keeping a confirm status of said new e-mail address NULL.

39. A method for synchronizing individual field of profile data of a user from a partner site of an authentication proxy to said authentication proxy, comprising the steps of:

said user submitting an individual field change of said profile data at said partner site to said authentication proxy;

said user changing a field in said first profile data other than e-mail address; and

synchronizing said first profile data with said authentication proxy.

40. The method of Claim 39, further comprising the steps of:

said user entering a new e-mail address while the confirm status of said e-mail address is change pending;

displaying a message to said user that said new e-mail address is to be sent to partner site but not to said authentication proxy; and

forcing said e-mail address back to said e-mail address in authentication proxy.

41. The method of Claim 40, further comprising the steps of:

said user entering a blank e-mail address while a confirm status of said e-mail address is not change pending;

displaying a message to said user that no e-mail address is sent to partner site and said e-mail address in said authentication proxy remains; and

forcing said e-mail address back to said e-mail address in authentication proxy.

42. The method of Claim 41, further comprising the steps of:

said user entering a new e-mail address which is not blank when said confirm status of said e-mail address in said authentication proxy is not NULL; and

displaying an e-mail change message to said user.

43. The method of Claim 42, further comprising the steps of:

said user entering a new e-mail address which is not blank when said confirm status of said e-mail address in said authentication proxy is NULL; and

copying said new e-mail address to said authentication proxy and keeping a confirm status of said new e-mail address NULL.

44. A system for synchronizing and validating user contact information stored in two locations, comprising:

means for authenticating a user when said user signs in to an authentication proxy;

means for synchronizing a first contact information of said user in a first location and a second contact information of said user in a second location; and

means for validating a synchronized contact information of said user.

45. The system of Claim 44, wherein said synchronizing means further comprises:

a graphical interface for said user to choose among said first contact information and said second contact information, or specify said synchronized contact information.

46. The system of Claim 44, further comprising:

means for confirming contact information change of said user from an old contact information to a new contact information.

47. The system of Claim 44, wherein said validating means further comprises a graphical interface, said graphical interface comprising:

a contact information not confirmed message; and

a list of options comprising any of a confirm later option, a requesting new confirm message option, and a specifying new contact information option.

48. The system of Claim 44, further comprising:

means for synchronizing a profile of said user to a partner site when said user registers to said partner site.

49. The system of Claim 44, further comprising:

means for synchronizing said contact information of said user between said first location and said second location when said user changes his profile data.

50. The system of Claim 44, further comprising:

means for synchronizing all profile data of said user to a partner site while keeping said contact information synchronized and validated.

51. The system of Claim 44, further comprising:

means for synchronizing individual field of profile data of said user to a partner site while keeping said contact information synchronized and validated.

FIG. 1

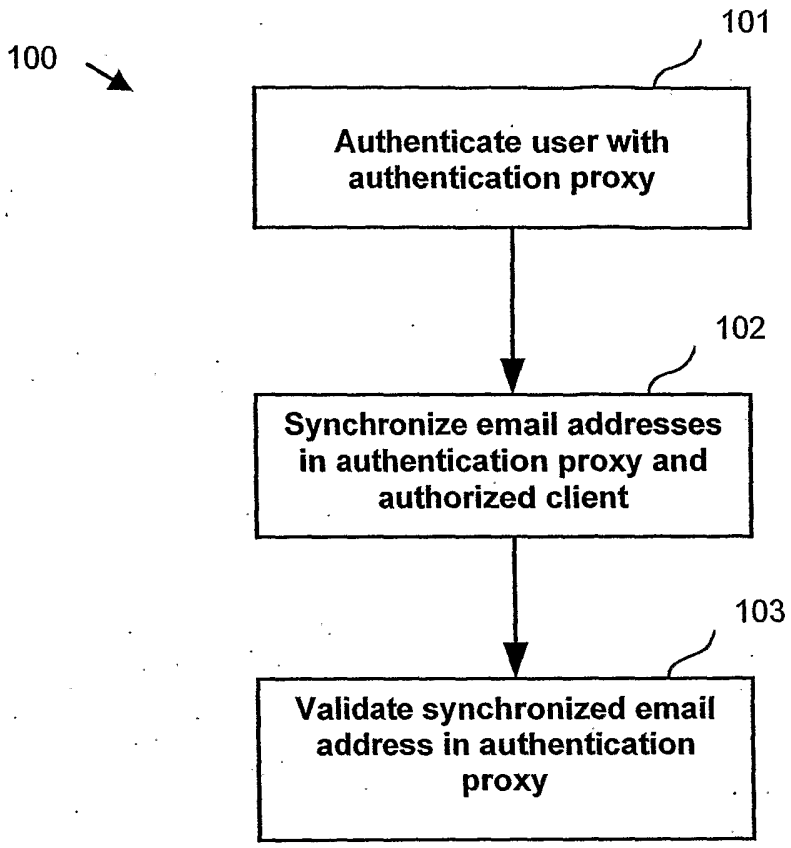

100
101
Authenticate user with authentication proxy
102
Synchronize email addresses in authentication proxy and authorized client
103
Validate synchronized email address in authentication proxy

FIG. 2

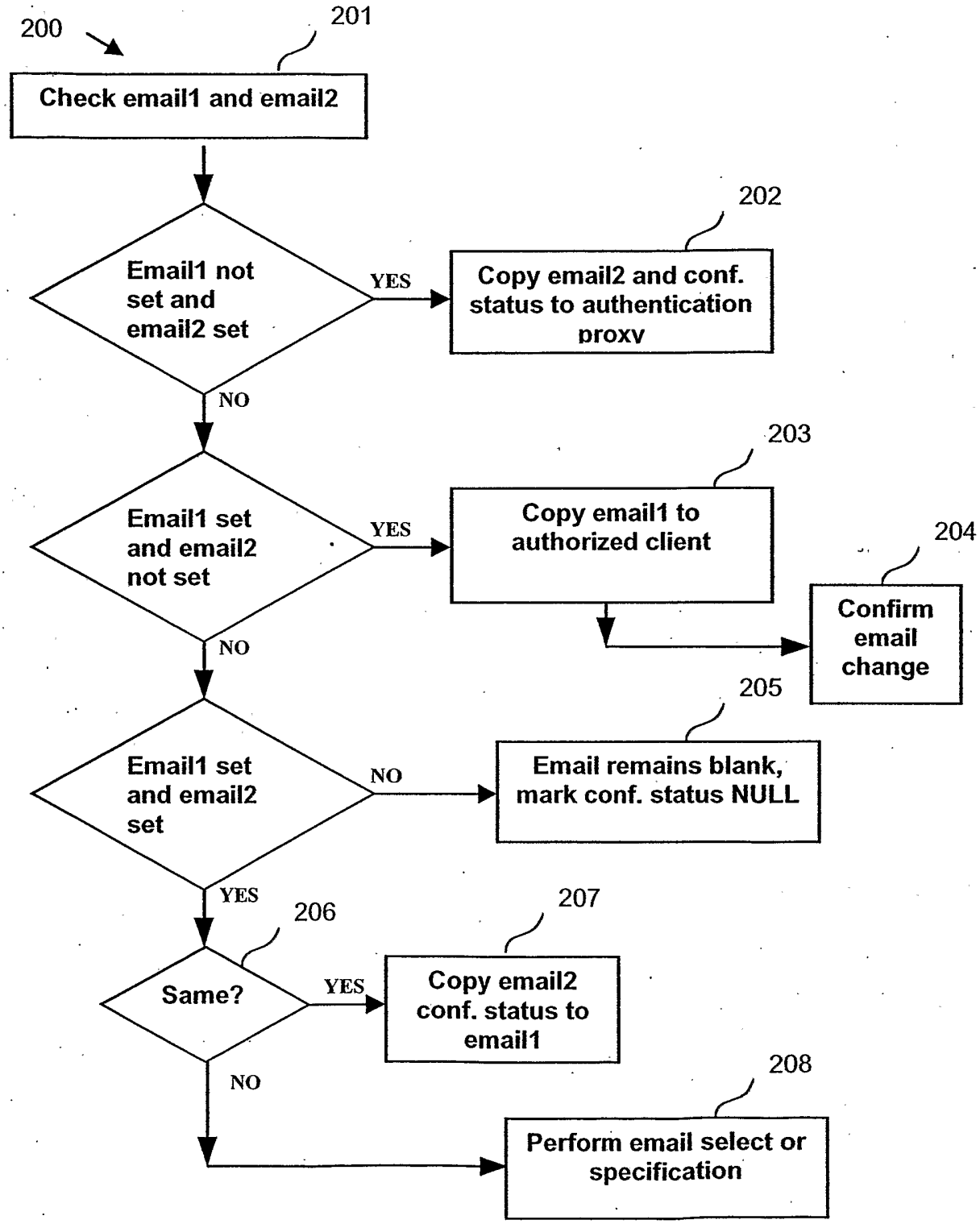

200
201
Check email1 and email2
Email1 not set and email2 set
YES
202
Copy email2 and conf. status to authentication proxy
NO
Email1 set and email2 not set
YES
203
Copy email1 to authorized client
204
Confirm email change
NO
Email1 set and email2 set
NO
205
Email remains blank, mark conf. status NULL
YES
206
Same?
YES
207
Copy email2 conf. status to email1
NO
208
Perform email select or specification

FIG. 3A

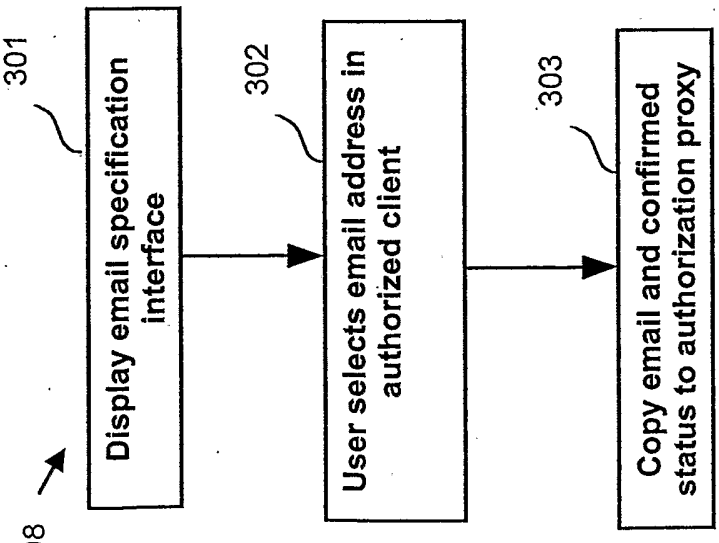

208
301
Display email specification interface
302
User selects email address in authorized client
303
Copy email and confirmed status to authorization proxy

FIG. 3B

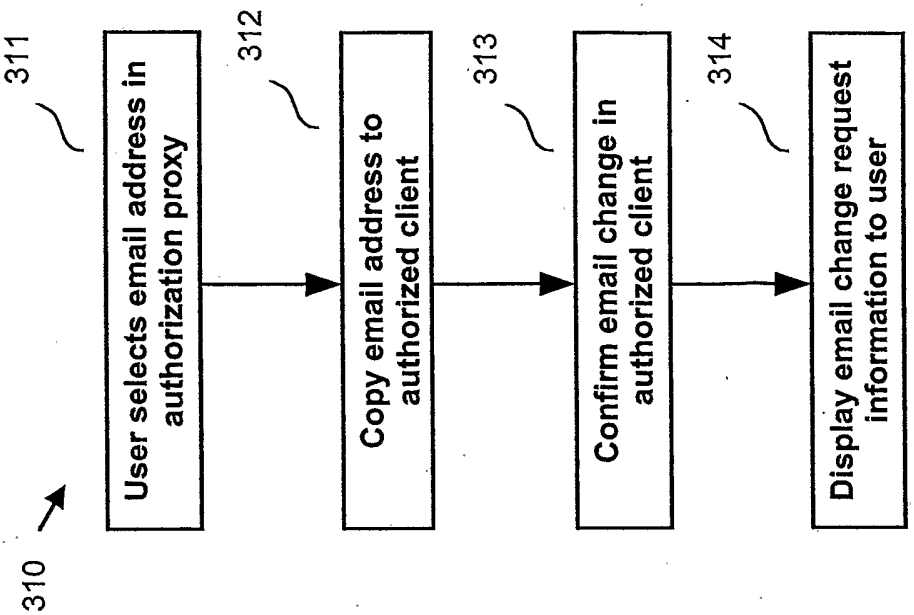

310
311
User selects email address in authorization proxy
312
Copy email address to authorized client
313
Confirm email change in authorized client
314
Display email change request information to user

FIG. 3C

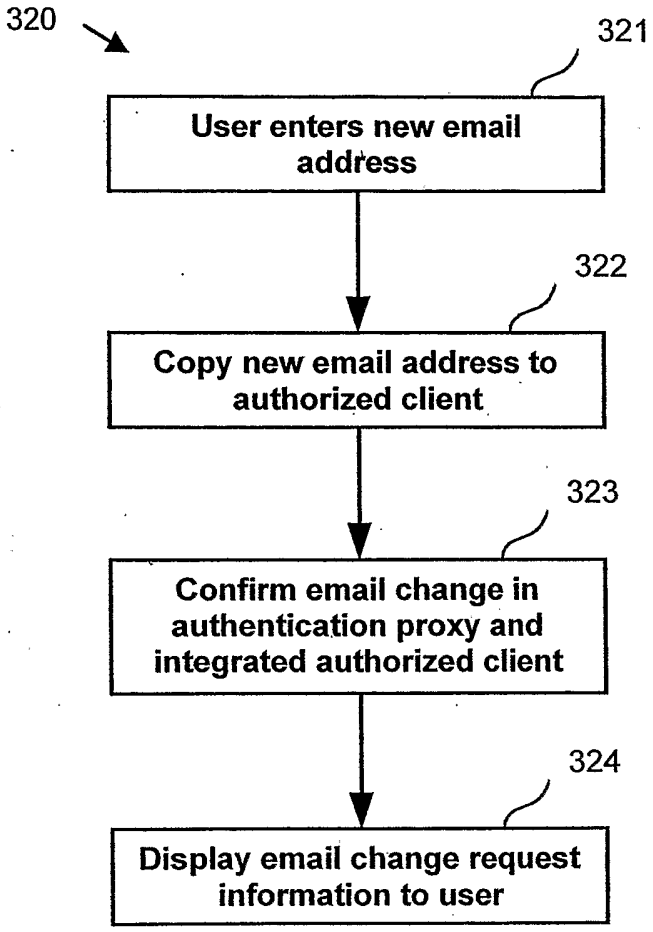

320
321
User enters new email address
322
Copy new email address to authorized client
323
Confirm email change in authentication proxy and integrated authorized client
324
Display email change request information to user

FIG. 4

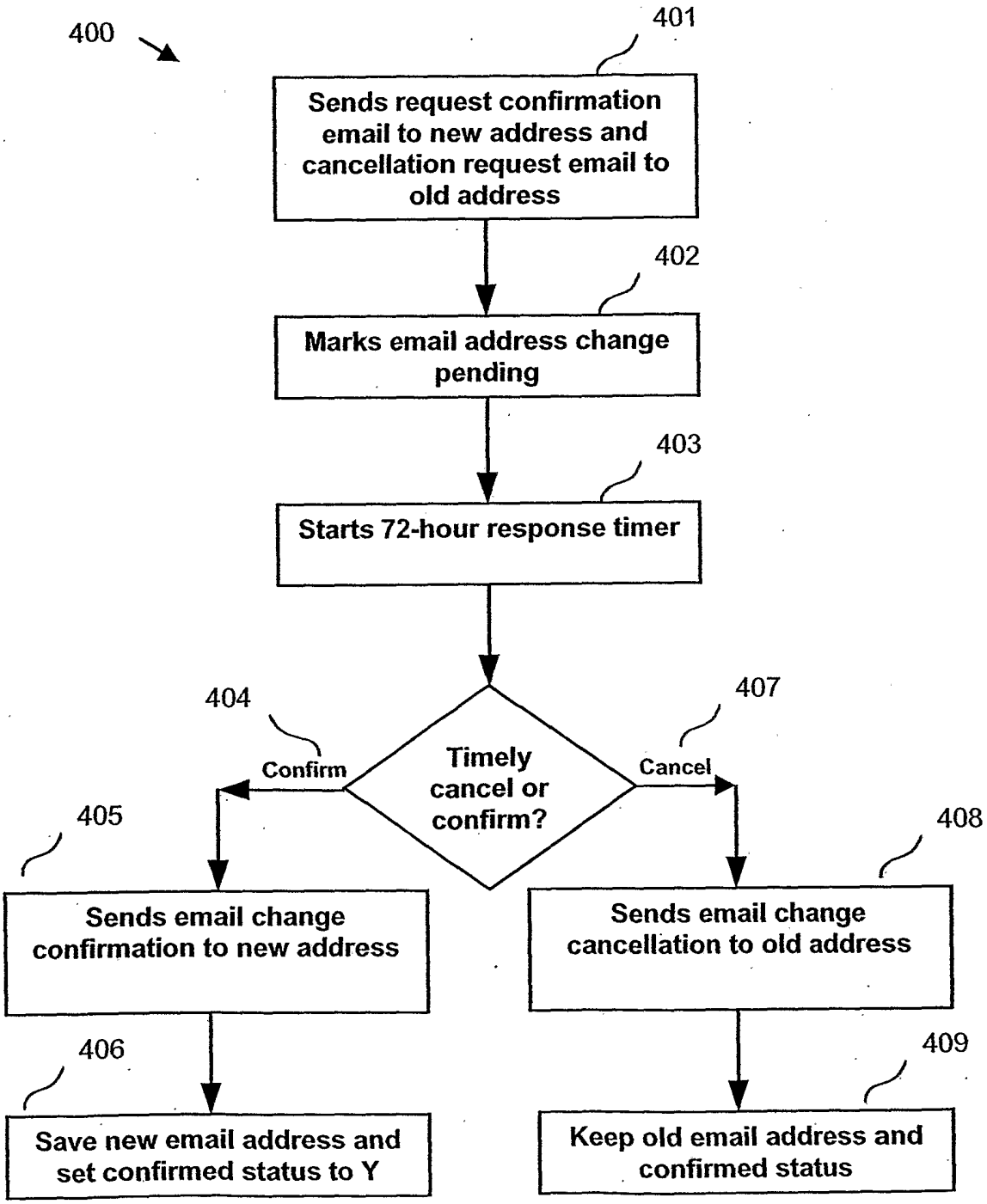

400
401
Sends request confirmation email to new address and cancellation request email to old address
402
Marks email address change pending
403
Starts 72-hour response timer
404
Confirm
Timely cancel or confirm?
407
Cancel
405
Sends email change confirmation to new address
408
Sends email change cancellation to old address
406
Save new email address and set confirmed status to Y
409
Keep old email address and confirmed status

FIG. 5A

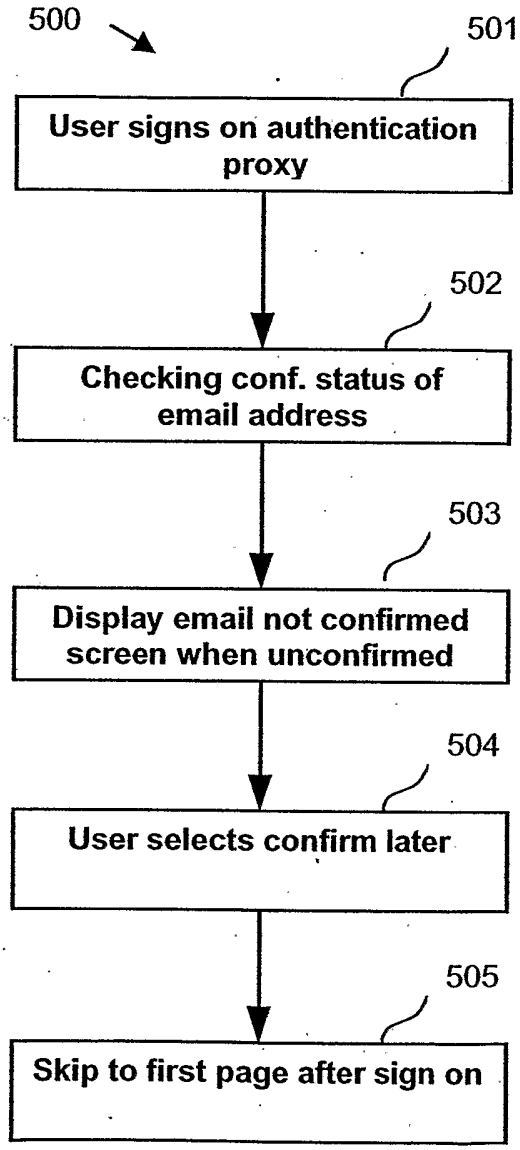

500
501
User signs on authentication proxy
502
Checking conf. status of email address
503
Display email not confirmed screen when unconfirmed
504
User selects confirm later
505
Skip to first page after sign on

FIG. 5B

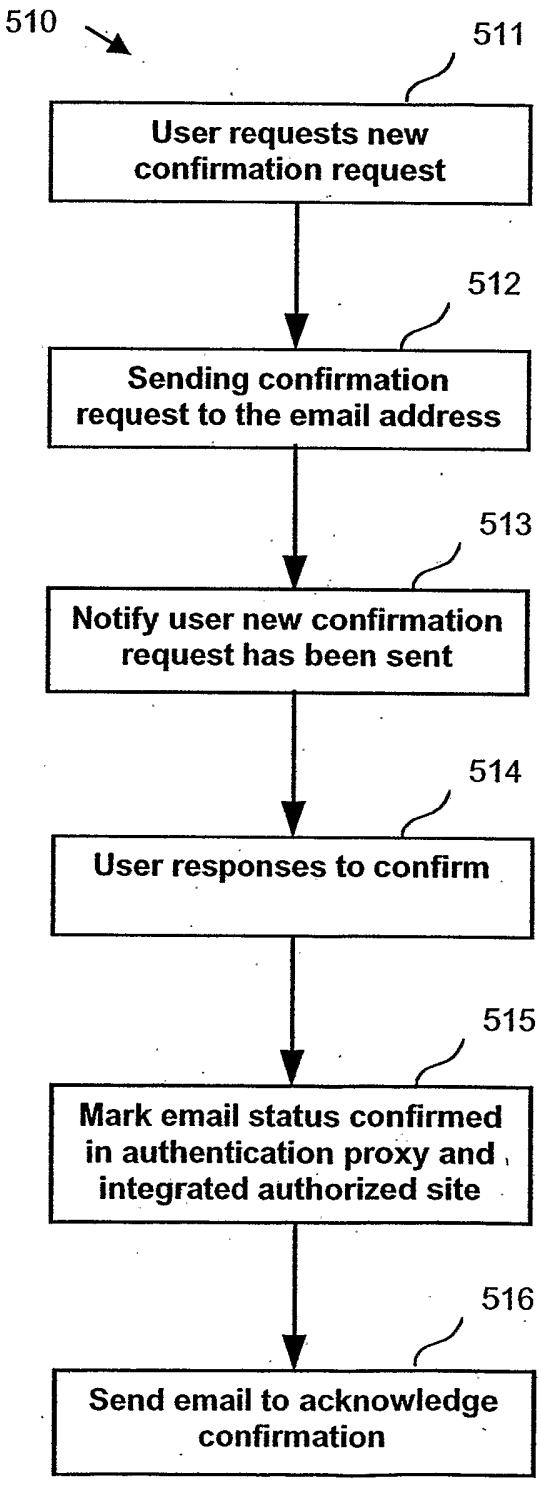

510
511
User requests new confirmation request
512
Sending confirmation request to the email address
513
Notify user new confirmation request has been sent
514
User responses to confirm
515
Mark email status confirmed in authentication proxy and integrated authorized site
516
Send email to acknowledge confirmation

FIG. 5C

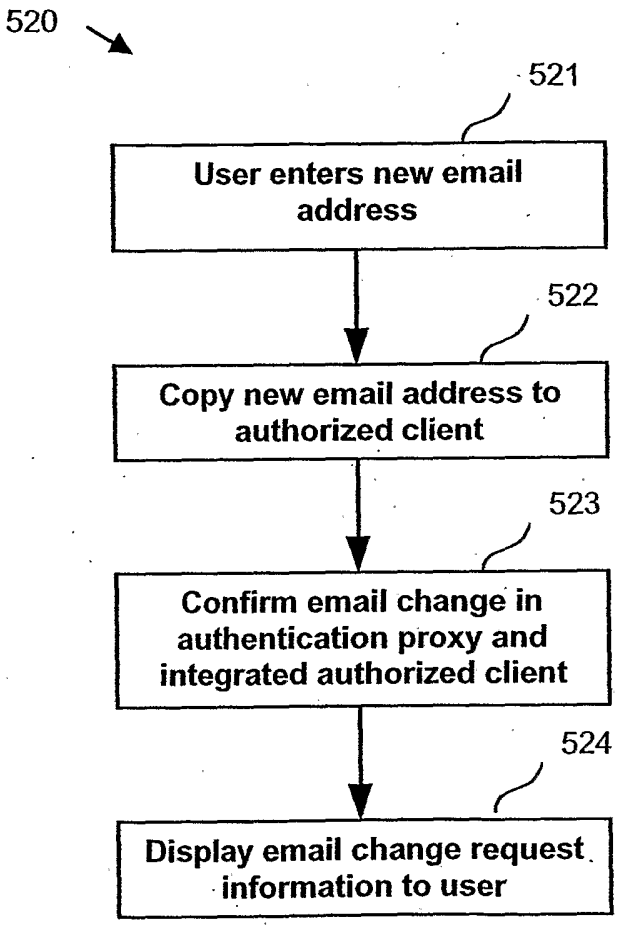

520
521
User enters new email address
522
Copy new email address to authorized client
523
Confirm email change in authentication proxy and integrated authorized client
524
Display email change request information to user

FIG. 6A

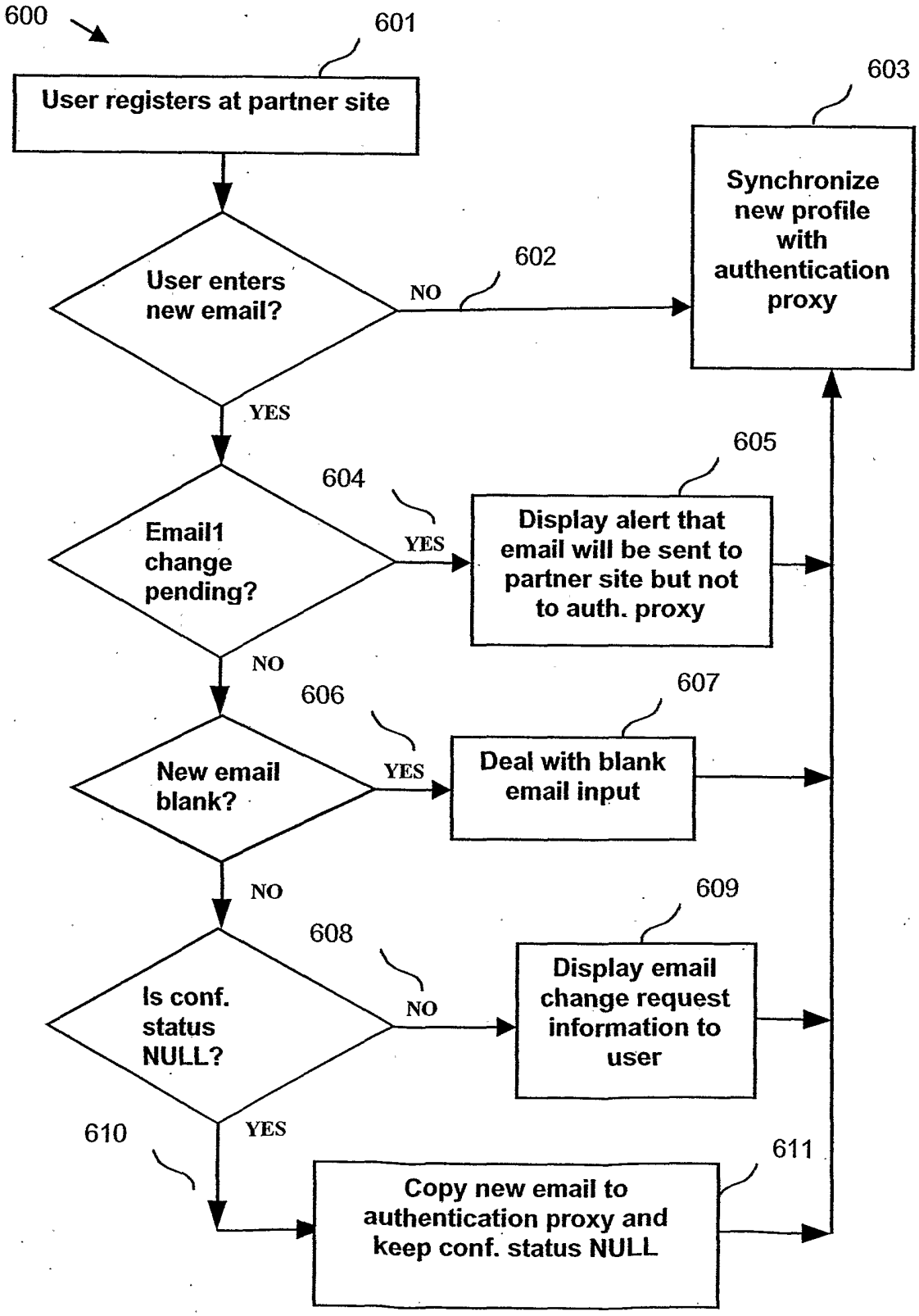

600
601
User registers at partner site
603
Synchronize new profile with authentication proxy
User enters new email?
602
NO
YES
604
Email1 change pending?
YES
605
Display alert that email will be sent to partner site but not to auth. proxy
NO
606
New email blank?
YES
607
Deal with blank email input
NO
608
Is conf. status NULL?
NO
609
Display email change request information to user
610
YES
611
Copy new email to authentication proxy and keep conf. status NULL

FIG. 6B

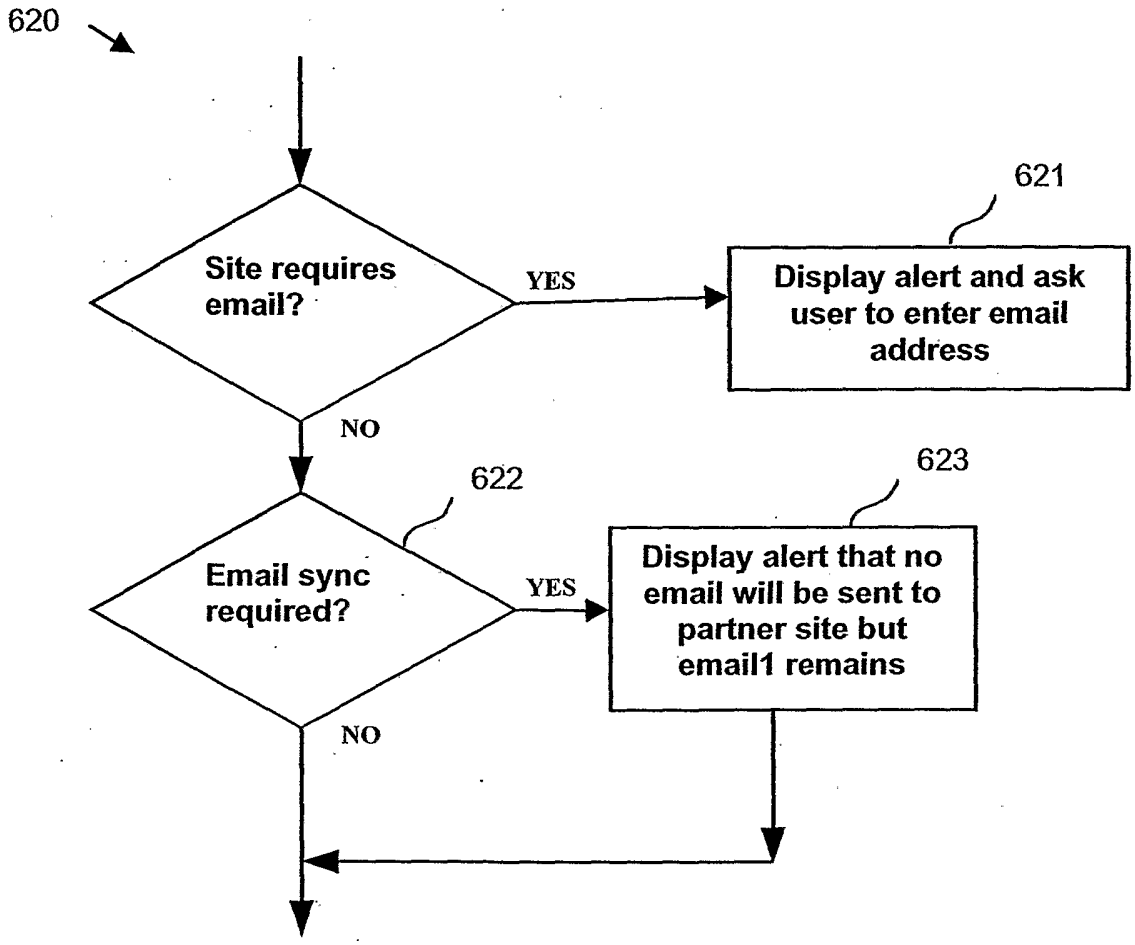

620
Site requires email?
YES
621
Display alert and ask user to enter email address
NO
622
Email sync required?
YES
623
Display alert that no email will be sent to partner site but email1 remains
NO

FIG. 7

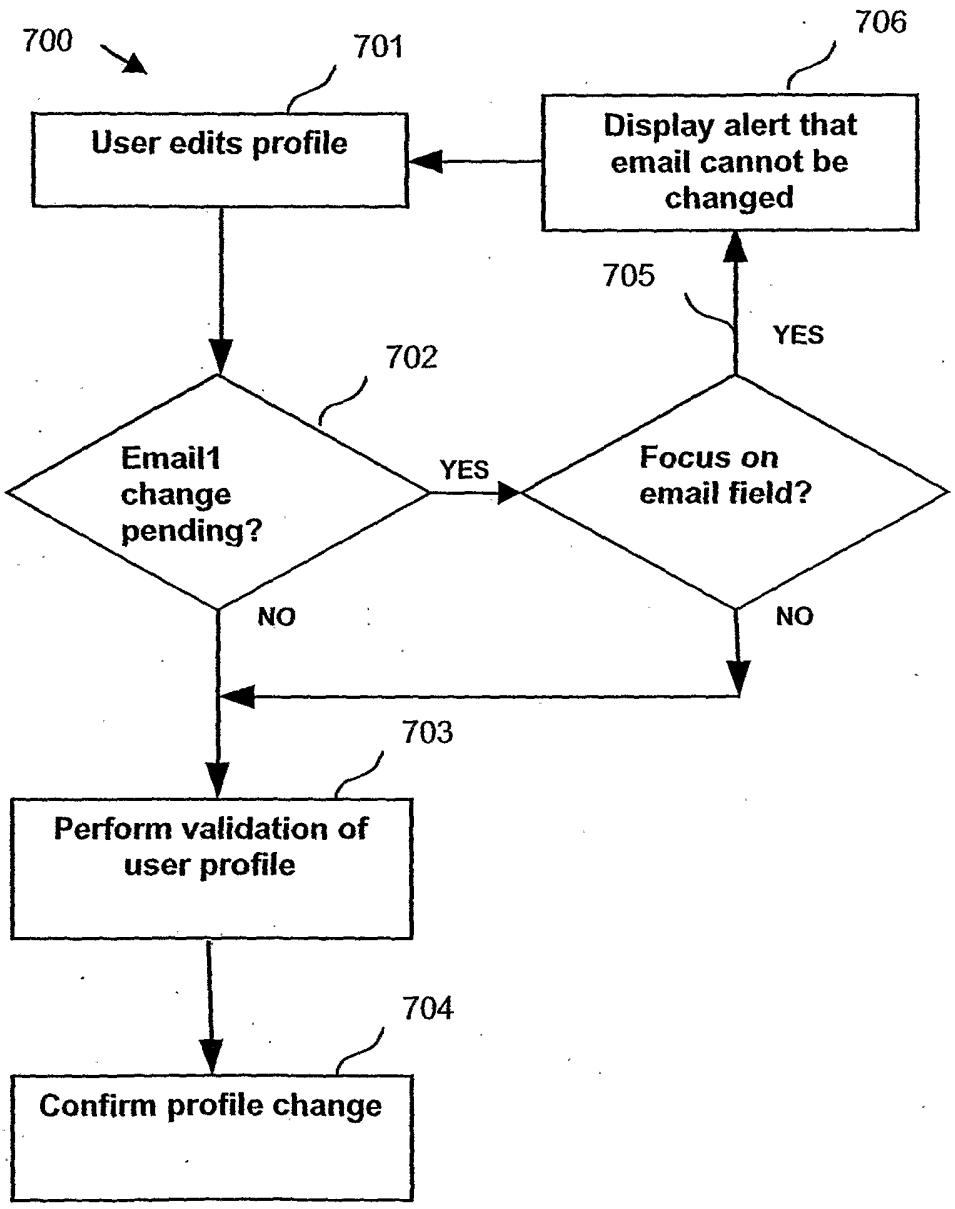

700
701
User edits profile
706
Display alert that email cannot be changed
705
YES
702
Email1 change pending?
YES
Focus on email field?
NO
NO
703
Perform validation of user profile
704
Confirm profile change

FIG. 8A

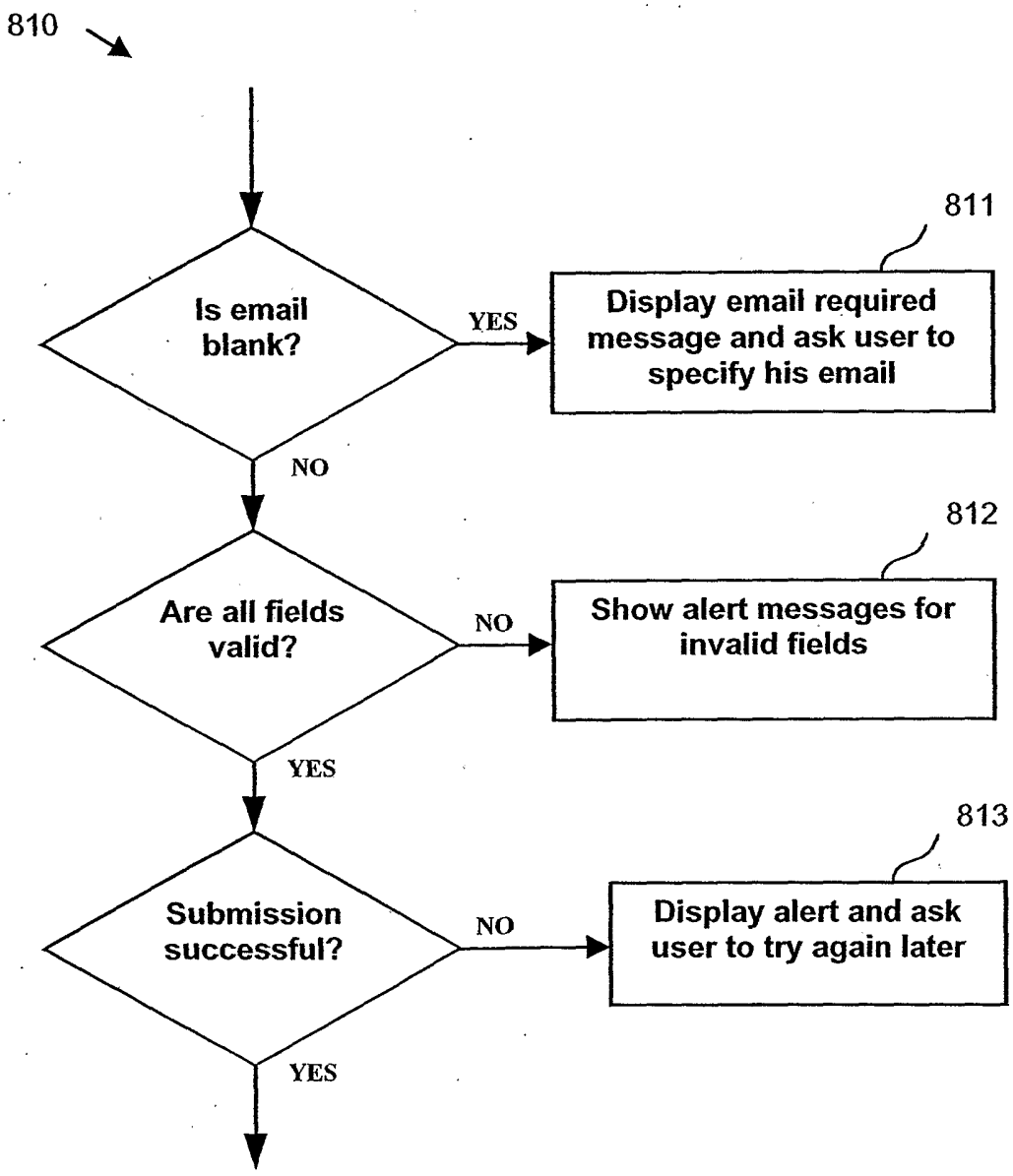

810
Is email blank?
YES
811
Display email required message and ask user to specify his email
NO
Are all fields valid?
NO
812
Show alert messages for invalid fields
YES
Submission successful?
NO
813
Display alert and ask user to try again later
YES

FIG. 8B

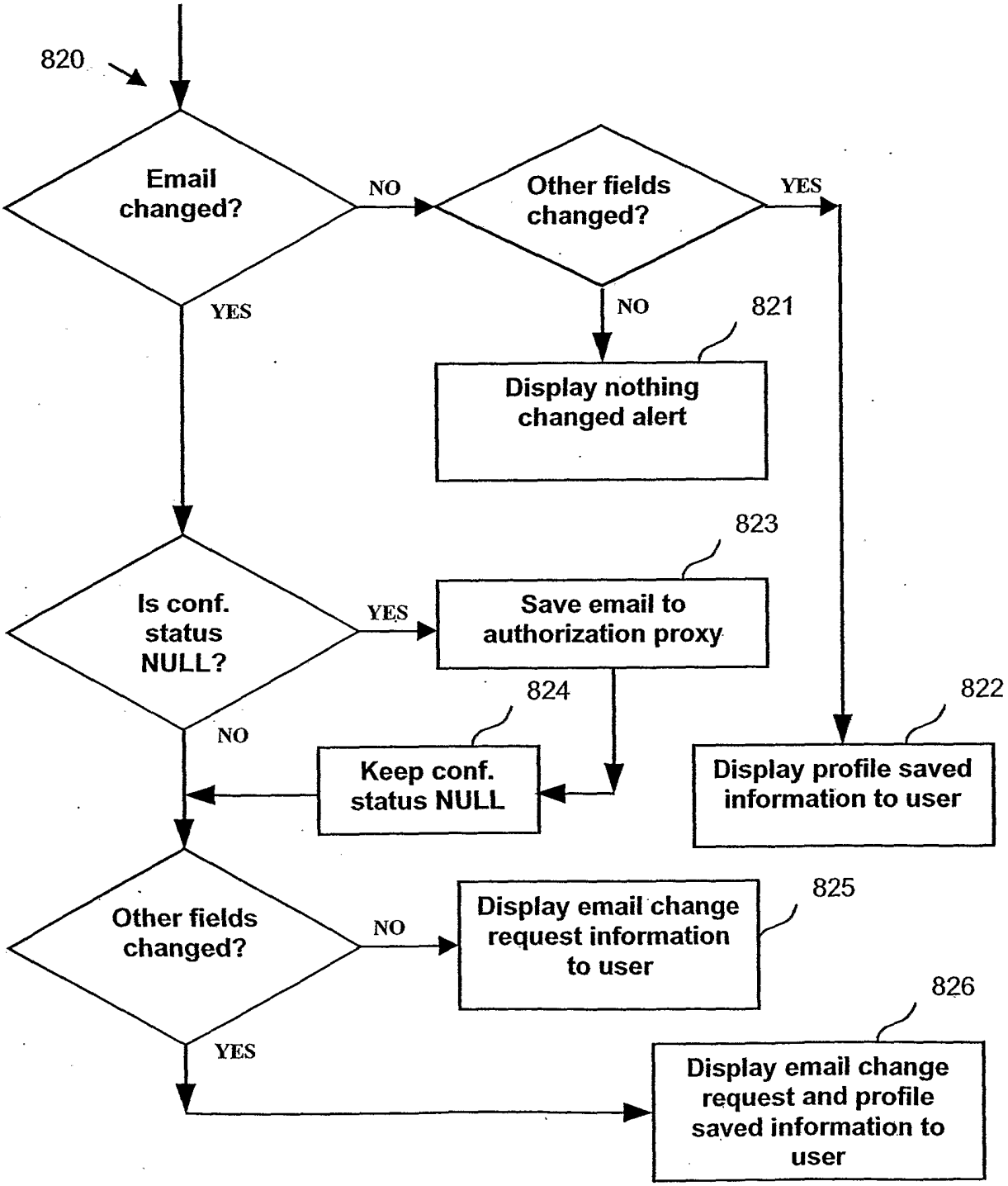

820
Email changed?
NO
Other fields changed?
YES
YES
NO
821
Display nothing changed alert
823
Is conf. status NULL?
YES
Save email to authorization proxy
824
822
NO
Keep conf. status NULL
Display profile saved information to user
Other fields changed?
NO
Display email change request information to user
825
826
YES
Display email change request and profile saved information to user

FIG. 9A

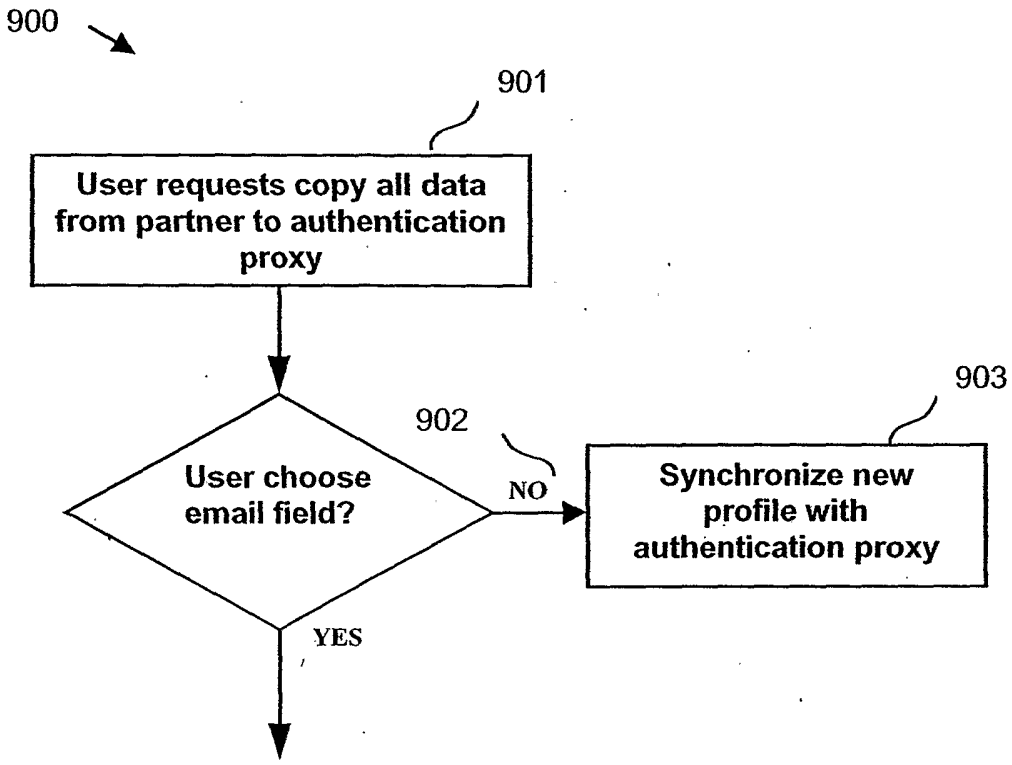

900
901
User requests copy all data from partner to authentication proxy
902
User choose email field?
NO
903
Synchronize new profile with authentication proxy
YES

FIG. 9B

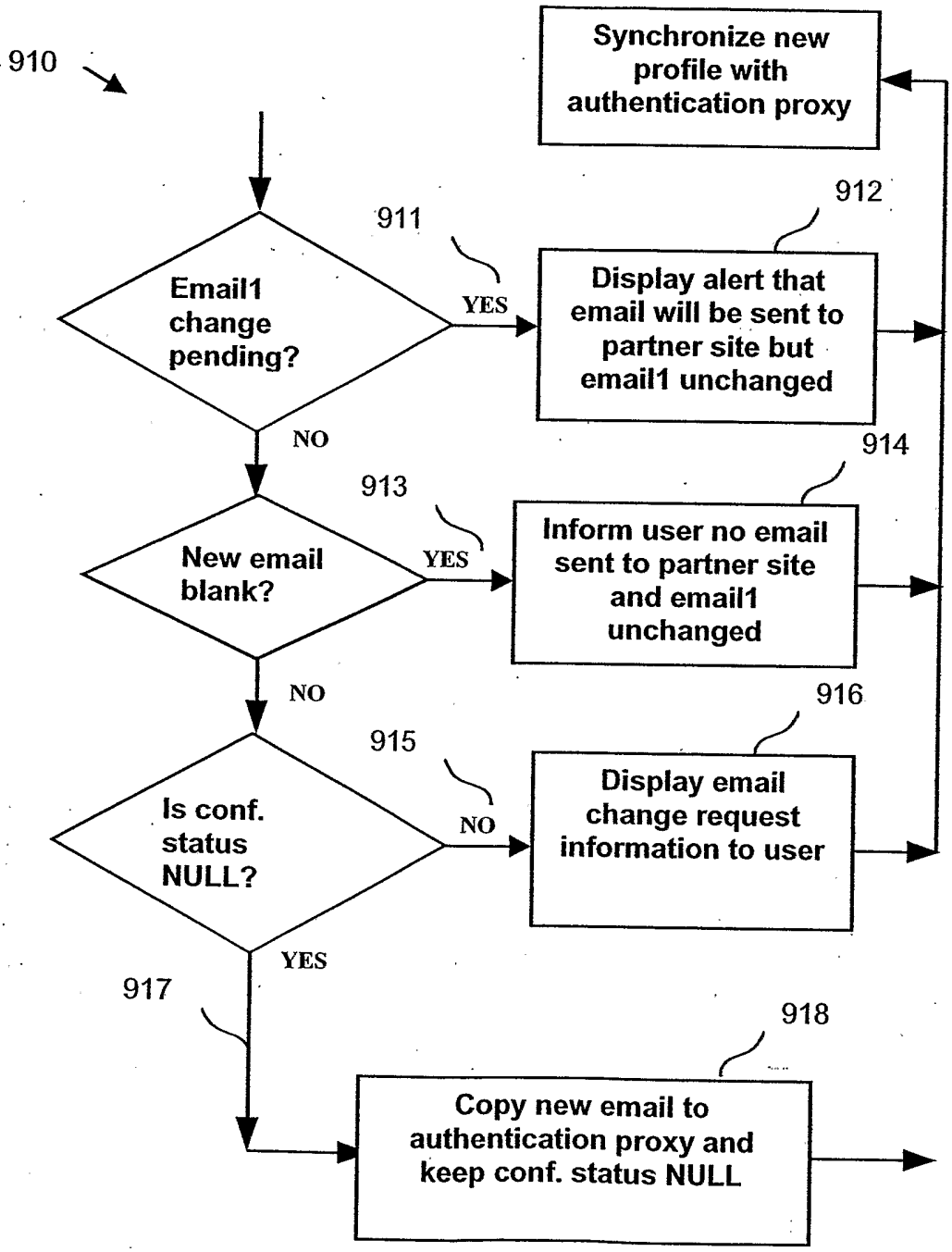

910
Synchronize new profile with authentication proxy
911
912
Email1 change pending?
YES
Display alert that email will be sent to partner site but email1 unchanged
NO
913
914
New email blank?
YES
Inform user no email sent to partner site and email1 unchanged
NO
915
916
Is conf. status NULL?
NO
Display email change request information to user
YES
917
918
Copy new email to authentication proxy and keep conf. status NULL

FIG. 10A

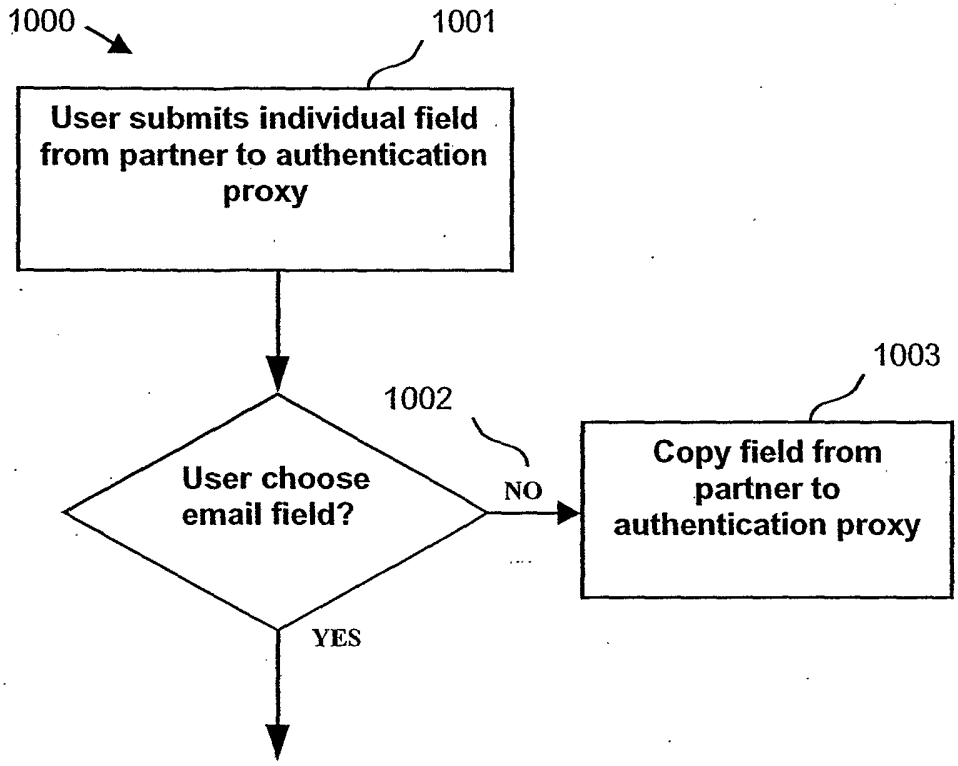
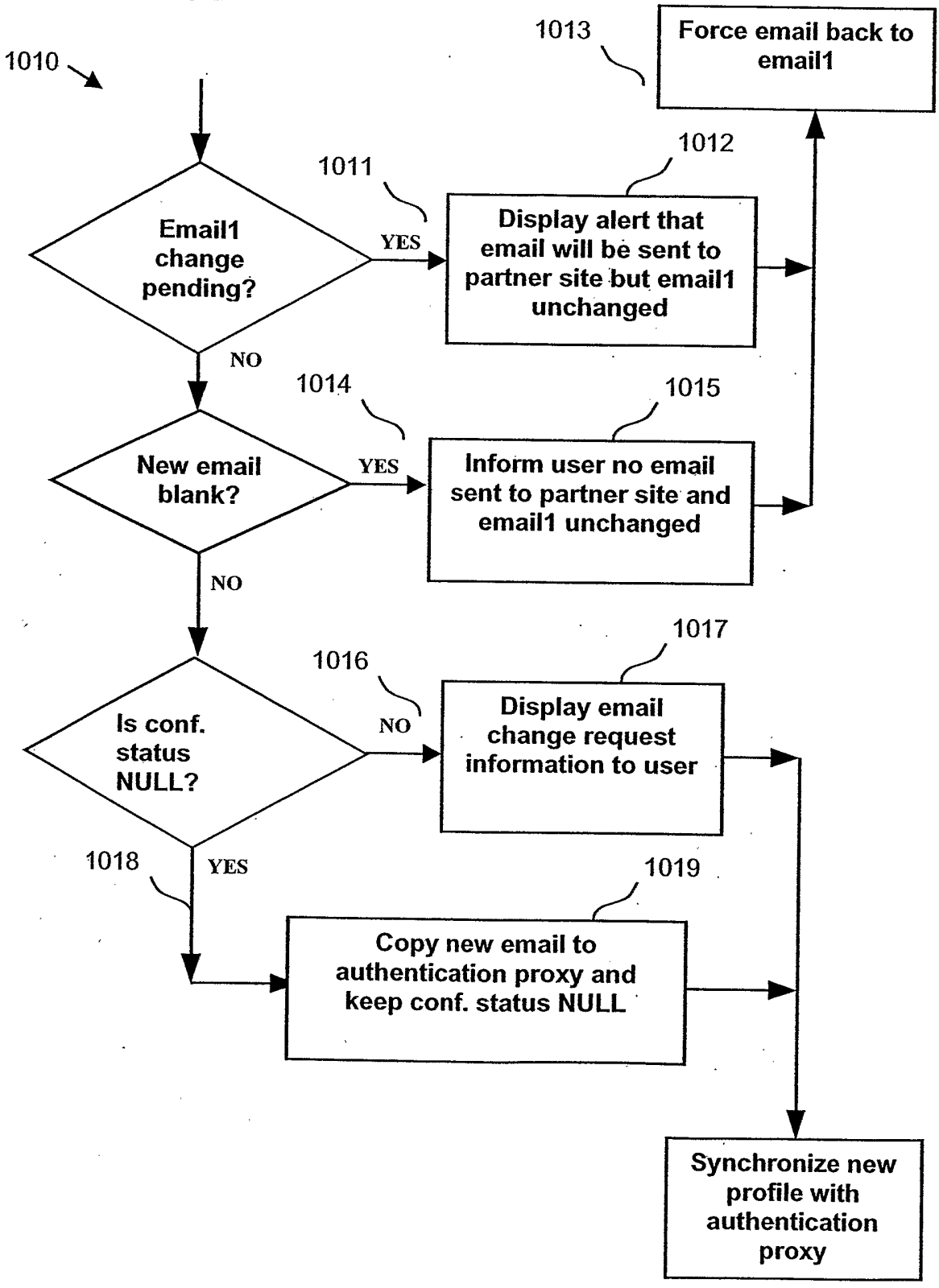

1000
1001
User submits individual field from partner to authentication proxy
1002
User choose email field?
NO
1003
Copy field from partner to authentication proxy
YES

FIG. 10B


1010
1011
Email1 change pending?
YES
1012
Display alert that email will be sent to partner site but email1 unchanged
1013
Force email back to email1
NO
1014
New email blank?
YES
1015
Inform user no email sent to partner site and email1 unchanged
NO
1016
Is conf. status NULL?
NO
1017
Display email change request information to user
1018
YES
1019
Copy new email to authentication proxy and keep conf. status NULL
Synchronize new profile with authentication proxy

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US03/24434

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04L 9/00
US CL : 713/168, 170

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 713/168; 709/206

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Please See Continuation Sheet

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2002/0103932 A1 (BILBREY ET AL) 1 AUGUST 2002; Fig. 9; Fig. 19A; page 10; Fig. 19C	1-3,11-18,24,34,39,44-51 --- 4-10
Y	US 2001/0005859 A1 (OKUYAMA ET AL) 28 JUNE 2001; Fig. 2; page 6	4-10

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
22 December 2003 (22.12.2003)	27 JAN 2004
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703)305-3230	Authorized officer Vincent Trans Telephone No. 703-305-9750

Form PCT/ISA/210 (second sheet) (July 1998)

INTERNATIONAL SEARCH REPORT

PCT/US03/24434

Continuation of B. FIELDS SEARCHED Item 3:
USPAT; DERWENT; US-PGPUB
search terms: universal, confirm, confirmation, electronic, mail, same