METHOD FOR INSTALLING AND SETTING UP ELEMENTS AUTOMATICALLY FOR INTERNET COMMUNICATION AND AUTOMATIC INTERNET ACCESS, AND INTERNET SERVICE SYSTEM USING THE METHOD

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to a method for accessing the Internet, and more particularly, to a method for installing and setting up diverse elements automatically for Internet communications and automatic Internet access, and Internet service system using the method.

2. Description of the Related Art

Currently, in order for an individual user to use Internet services, first, a device such as a modem for communications must be installed in a PC, and second, elements for Internet communications, for example, an adaptor for telephone connection or TCP/IP protocol, must be installed or set up. Also, in order to access Internet services, subscription to an Internet service provider (ISP), or non-subscription based services using such non-subscription based billing server(for example, Infoshop server in Korea Telecom) that can communicate with modem and provide billing service on a non-subscription basis.

As indicated above, the ways for using Internet services can be divided into subscription-based services and non-subscription-based services. In respective ways, methods for installing and setting up elements for Internet communications and Internet access (hereinafter referred to as "Internet access method") are as follows.

First, referring to FIG. 1, an Internet access method and a billing method on a subscription-based service will now be described.

First, a user subscribes to an ISP by using a telephone or fax 16. Next, the user installs a dedicated program or diverse elements for Internet communications into a local PC 10, and sets up the PC 10 for Internet services in order to access the Internet. Also, charges for Internet service use are billed through mailing of dedicated bills 18.

Now, referring to FIG. 2, the Internet access method and a billing method in a non-subscription-based service will be described. A user installs diverse elements for Internet communications into a local PC 20 and sets up the PC for Internet services 22, and then accesses Internet services through a non-subscription based billing server 24. When a user uses the non-subscription based service, a telephone charge bill includes charges for Internet services 26, which is a more convenient way than a subscription-based service.

However, the two methods described above have the following shortcomings.

First, in subscription-based services, registration for Internet service requires the use of a telephone or fax, and dedicated bills are required for payment for service use, which is inconvenient. Particularly, those who use the Internet only a few days out of the month have to register for services, which is inconvenient and not economical.

In the meantime, in non-subscription-based services, the process of installing and setting up diverse elements for Internet communications is considerably inconvenient when performed manually, and also Internet access requires several manual input processes, which is inconvenient. Particularly for novice computer users, it is difficult to follow the installation procedures even when a users manual is provided.

SUMMARY OF THE INVENTION

To solve the above problems, it is an objective of the present invention to provide a method for installing and setting up elements for Internet communications and automatic Internet access. The method automatically installs and sets up diverse elements for Internet communications and also provides automatic Internet access, and solves inconvenient billing problems which is a shortcoming of the subscription-based services.

It is another object to provide an Internet service system using the method.

BRIEF DESCRIPTION OF THE DRAWINGS

The above objectives and advantages of the present invention will become more apparent by describing in detail a preferred embodiment thereof with reference to the attached drawings in which;

FIG. 1 is a conceptual diagram for showing a method for Internet access and billing for use in subscription-based services;

FIG. 2 is a conceptual diagram for showing a method for Internet access and billing for use in non-subscription-based services;

FIG. 3 is a conceptual diagram for showing a method for installing and setting up elements automatically for Internet communications and automatic Internet access according to an embodiment of the present invention;

FIG. 4 is a flowchart of a method for installing and setting up elements automatically for Internet communications according to an embodiment of the present invention;

FIG. 5 is a flowchart of a method for automatic Internet access after installation of elements according to an embodiment of the present invention;

FIG. 6 is a block diagram of an Internet service system on a non-subscription basis, using a method for installing and setting up elements automatically for Internet communications and automatic Internet access according to an embodiment of the present invention;

FIG. 7 illustrates an example of a remote server for billing in the Internet service system shown in FIG. 6; and

FIG. 8 is a block diagram of an Internet service system on a subscription basis, using a method for installing and setting up elements automatically for Internet communications and automatic Internet accessing according to another embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

A preferred embodiment of the present invention will be described below with reference to the accompanying drawings.

FIG. 3 is a conceptual diagram for showing a method for installing and setting elements automatically for Internet communications and automatic Internet access according to an embodiment of the present invention.

By a program for automatic installing/setting up of elements 32 and a program for automatic Internet accessing 34, installation and setting up of elements for Internet communications and Internet access are automatically carried out at a time. An access server 38 links a local PC 30 to the Internet 40, and uses a telephone bill for billing per use.

FIG. 4 is a flowchart showing a method for installing and setting up elements automatically for Internet communications according to an embodiment of the present invention.

Diverse elements installed in a user computer system for Internet communications are checked in step 402. The elements include calling registered information, a modem driver, TCP/IP protocol, a telephone connection adaptor, telephone connection networking, among others.

Whether or not all elements are installed is checked in step 404.

Methods for checking and installing each element are described in the following table 1.

When all elements are not installed, that is, when any one or more elements are not installed, the uninstalled elements are automatically installed in step 406. Here, when uninstalled elements are installed, appropriate versions are installed for the user computer system.

Whether or not the combination of versions of elements are appropriate is checked in step 408. The reason for checking it is that when the version combination between already installed elements and those elements installed in the step 406 are not mutually appropriate, crashes between elements can occur, and after all elements are in the state where the elements are not appropriately installed.

The result of checking indicates that the version combination is not appropriate, the elements are deleted and reinstalled in step 410.
At this time, the entire version combination can be made appropriate mutually by deleting and reinstalling those elements which were installed in the step 406, otherwise by deleting and reinstalling any one or more elements among the elements already installed in the system. The important thing is to make the version combination of the entire elements mutually appropriate.

Table 1

elements	check points	installation
call registration information	check information of user location (country and region), check phone settings (tone/pulse)	When information of user location is not available, lead a user to input the information, and install calling registration information by changing phone setting to tone
modem driver	check whether or not a modem driver is correctly installed by checking dial tone	When installation is not carried out or all modems installed are improperly set, perform a reinstall process, and when a plurality of modem drivers are correctly set, select one modem driver by a user
TCP/IP protocol	check whether or not it is installed	install automatically when installation is not carried out
telephone connection adaptor	check whether or not it is installed	install automatically when installation is not carried out
telephone connection networking	check whether or not is installed and check version	install automatically the most appropriate version to the operating system version only when installation is not carried out

Through the above process, diverse elements for Internet communications are automatically installed and set up for the Internet user is automatically performed.

FIG. 5 is flowchart showing a method for automatic Internet access after installation of elements according to an embodiment of the present invention.

Information to be used in access Internet is collected in step 502.

Whether or not connection items exist in telephone connection networking is checked in step 504. The connection items are those items required in accessing Internet, for example, specific telephone number for connecting to non-subscription based billing server.

When connection items exist, steps 506 through 524 are performed.

First, when connection items exist, and when the communication environment uses internal lines, internal numbers are set in the computer system in step 506.

Whether or not items are connected through pseudo point-to-point protocol (PPP) is checked in step 508.

When items use pseudo PPP for connection, whether or not the window supports script is checked in step 510.

When the window supports scripts, calling is performed by using the connection items, and then the connection process is performed by automatic connection script in steps 512 and 514.

When the window does not support scripts, calling is performed by using the connection items, and then the connection process is performed by Hooking in steps 518 and 520. Here, Hooking means a program performs an automatic connection process instead of a user.

When items do not use a pseudo PPP in connection, calling is performed by using connection items in step 516.

Whether or not the Internet is successfully accessed is checked in step 522.

When the Internet is successfully accessed, the process is finished. Otherwise, other access numbers are tried for connection in step 524. Then, the steps from 502 are carried out again.

When dial-up networking has no connection items, connection items appropriate for the operating system are generated in step 526. For example, first,

whether the operating system is Windows 95/98/2000, or Windows NT is checked. When the operating system is Windows 95/98/2000, the Registry file is used to generate new items. When the operating system is Windows NT, an appropriate file, for example, a .pbk file, is used to generate new items.

Settings required for telephone connection (for example, phone number, regional code, DNS, Gateway, etc.) are performed in step 528.

Whether or not Pseudo PPP is used for connecting the items is checked in step 530.

When Pseudo PPP is used for connecting the items, then whether Windows supports scripts or not is checked in step 532.

When Windows supports scripts, an automatic connection script is generated in step 534.

When Pseudo PPP is not used for connecting the items, or when Windows does not support scripts, or after generation of the automatic connection script, the steps from 506 are performed.

Through the above process, an Internet connection is automatically performed.

FIG. 6 is a block diagram of a non-subscription based Internet service system, using a method for installing and setting up elements automatically for Internet communications and automatic Internet accessing according to an embodiment of the present invention

The system shown in FIG. 6 has a local PC 60 and a connection server 62.

Also, the local PC 60 includes a control unit 602, a modem 604, and a memory unit 606. The memory unit 606 stores programs for installing and setting up diverse elements automatically for Internet communications, and a program for automatic Internet access after installing the elements.

The program for installing and setting up elements automatically checks whether or not whole elements required for Internet communications are properly installed in the user computer system, and when the result of the check indicates that one or more elements are not installed, the program installs the elements of appropriate versions for the computer system. The program checks whether or not the version combination of the already installed elements and the newly installed

elements are mutually appropriate. When the result of the check indicates the version combination is not appropriate, the program deletes and reinstalls one or more elements in the whole elements until the version combination becomes appropriate. In addition, the program requests Internet access with connection items for Internet access, and when the connection items are not available, the program generates connection items appropriate for the operating system of the computer system and tries to access Internet services.

The control unit 602 operates programs stored in the memory unit 606 according to user commands. The local PC 60 requests Internet access through the modem 604.

The connection server 62 has a remote billing server 622 and a PPP server 624. Having a modem function in itself and being capable of billing, the remote billing server 622 receives an Internet access request from the modem 604 of the local PC 60 via telephone lines, transforms the request in the form of TCP/IP protocol, and passes the request to the PPP server 624. In general, the Internet includes a plurality of computers connected through the TCP/IP protocol, and the PPP server is one of many elements that enables a user to use TCP/IP through telephone lines.

In addition, the connection server 62 prepares a bill , for example, based on connection time, for a user, who accessed the Internet 64. The server 62 makes the bill sent to the user, by including the bill in a telephone bill. By doing so, the remote billing server 622 carries out the function of billing service users.

FIG. 7 illustrates an example of a remote server for billing in the system shown in FIG. 6.

Referring to FIG. 7, non-subscription based billing server 630 receives an Internet access request from the local PC 60 through telephone lines, transforms the request in the form of non-TCP/IP protocols such as X.25 or Frame Relay protocols, and passes the request to a non-TCP/IP-to-TCP/IP conversion server 632. The non-TCP/IP-to-TCP/IP conversion server 632 converts non-TCP/IP protocol into TCP/IP protocol to pass to the PPP server 624. Here, non-subscription based billing server 630 can include function of the non-TCP/IP-to-TCP/IP conversion

server 632. In this case, a non-TCP/IP-to-TCP/IP conversion server 632 is unnecessary.

The PPP server 624 supports the TCP/IP protocol in order for the local PC 60 to be linked to the Internet 64.

FIG. 8 is a block diagram of an Internet service system, using a method for installing and setting up elements automatically for Internet communications and automatic Internet access according to another embodiment of the present invention.

In FIG. 8, the same reference numbers are used for the same elements as those used in FIG. 6.

FIG. 6 shows a non-subscription-based Internet service system, while FIG. 8 shows a subscription-based Internet service system, for example, an Internet access system using a dedicated program.

Accordingly, a billing function of a remote server 74 shown in FIG. 8 is an elective function. That is, billing can be performed or it may not be performed. In addition, after receiving an Internet access request from the local PC 60, the remote server 72 authenticates the request through an authentication unit 74 to connect the PPP server 624.

In the meantime, the method for installing and setting up elements for Internet communications according to the present invention can be prepared in a program. In this case, the steps included in the method according to the present invention can be stored in computer readable storage media. The storage media includes magnetic storage media (e.g., ROMs, floppy disks, hard disks, etc.), optically readable media (e.g., CD-ROMs, DVDs, etc.), and carrier waves (e.g., transmission over the Internet).

For example, a program according to a method of the present invention can be stored in a CD-ROM, and when the program stored in the CD-ROM is operated after being set up in a computer, anyone including beginners can easily access Internet services. Preferably, however, the computing environment includes a 486 or over CPU, a modem of 14,400bps or faster, a web browser (Explorer 3.0 or over, or Netscape 3.0 or over), and Windows 95/98/2000/NT operating system.

In addition, a key which is not frequently used (for example, the scroll lock key) is set up as an Internet key and by buttoning the key one time, the Internet is directly accessed, which provides a great convenience to users.

The present invention is not limited to the above embodiment, and it will be understood by those skilled in the art that various changes in form and details may be made therein without departing from the spirit and scope of the invention as defined by the appended claims.

Therefore, the scope of the claims according to the present invention is not limited to the above description, but limited to the appended claims.

According to the embodiment of the present invention, diverse elements for Internet communications are automatically installed and set up and Internet access is automatically performed, while inconvenience of billing which is a shortcoming of the subscription-based service can be solved. That is, installing and setting up a modem, a telephone connection adaptor, TCP/IP, etc., required for Internet communications are automatically performed, and at the same time, automatic Internet access is performed just by operating a program, which enables everybody to enjoy Internet services. In addition, charges for use can be included in telephone charge bills, which make payment simpler. In particular, those who use the Internet at home only a few days a month can access Internet when they need, which makes them use Internet services more conveniently and economically.

What is claimed is:

1. A method for installing and setting up elements automatically for Internet communications and automatic Internet access, the method for accessing the Internet from a user computer system comprising the steps of:

(a) checking whether or not all elements required for Internet communications are installed in a user computer system;

(b) when the result of the check in step (a) indicates that one or more elements are not installed, installing the elements of appropriate versions for the computer system;

(c) checking whether or not version combinations of all elements, which include elements already installed in the computer system and elements newly installed in the step (b), are mutually appropriate;

(d) when the result of the check in step (c) indicates that the version combinations are not appropriate, deleting and reinstalling one or more elements among all the elements until the version combinations are appropriate; and

(e) trying to connect to the Internet through connection items when connection items for Internet access are available, and trying to connect to the Internet after generating connection items appropriate for the operating system of the computer system when connection items are not available.

2. The method for Internet accessing of claim 1, the method further comprising a step of trying to access the Internet through another connection number when the result of checking indicates failure after checking whether or not Internet access is successful.

3. The method for Internet access of claim 1 or claim 2, wherein the elements are one or more of calling registration number, a modem driver, TCP/IP protocol, a telephone connection adaptor, and telephone connection networking.

4. An Internet service system using a method for installing and setting up elements automatically for Internet communications and automatic Internet access, the system comprising:

a local PC for checking whether or not all elements required for Internet communications are installed in a user computer system; when the result of the check indicates that one or more elements are not installed, installing the elements of appropriate versions for the computer system; checking whether or not version combinations of all elements, which include elements already installed in the computer system and elements newly installed, are mutually appropriate; when the result of the check indicates that the version combinations are not appropriate, deleting and reinstalling one or more elements among all the elements until the version combinations are appropriate; and trying to connect to the Internet through connection items when connection items for Internet access are available, and trying to connect to the Internet after generating connection items appropriate for the operating system of the computer system when connection items are not available;

a remote billing server for receiving an Internet access request from the local PC and converting the request in the form of TCP/IP protocol, and for billing Internet users; and

a point-to-point protocol (PPP) server for accessing the Internet through the TCP/IP protocol converted in the remote billing server.

5. The Internet service system of claim 4, wherein the remote billing server performs billing of non-subscription-based service users.

6. The Internet service system of claim 5, wherein the remote billing server comprising:

Non-subscription based billing server for receiving an Internet request from the local PC through telephone lines, and converting the request in the form of the non-TCP/IP protocol, and

after Internet connection, performing billing based on using time; and

an Non-TCP/IP-to-TCP/IP conversion server for converting the Non-TCP/IP protocol, converted at Non-subscription based billing server, in the form of the TCP/IP protocol, and passing the PPP server.

7. The Internet service system of claim 5, wherein the remote billing server comprising:

Non-subscription based billing server for receiving an Internet request from the local PC through telephone lines, and converting the request in the form of the non-TCP/IP protocol, and converting the Non-TCP/IP protocol into the TCP/IP protocol, and passing the PPP server, and
after Internet connection, performing billing based on using time.