US008126990B2

(12) **United States Patent**
**Fiducci**

(10) **Patent No.: US 8,126,990 B2**
(45) **Date of Patent: Feb. 28, 2012**

(54) **DATA BACKUP AND TRANSFER SYSTEM, METHOD AND COMPUTER PROGRAM PRODUCT**

(76) Inventor: **Thomas E. Fiducci**, Chicago, IL (US)

( * ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 744 days.

(21) Appl. No.: **11/408,728**

(22) Filed: **Apr. 21, 2006**

(65) **Prior Publication Data**

US 2006/0242273 A1 Oct. 26, 2006

**Related U.S. Application Data**

(60) Provisional application No. 60/673,751, filed on Apr. 21, 2005.

(51) **Int. Cl.**
***G06F 15/177*** (2006.01)

(52) **U.S. Cl.** ..... **709/220**; 709/213

(58) **Field of Classification Search** ..... 709/213, 709/220–222; 707/3; 726/4
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

| | | | | |
|---|---|---|---|---|
| 6,351,776 | B1 | 2/2002 | O'Brien et al. | 709/245 |
| 6,571,245 | B2 | 5/2003 | Huang et al. | 707/10 |
| 6,704,873 | B1 | 3/2004 | Underwood | |
| 7,181,445 | B2 * | 2/2007 | Bebo et al. | 707/3 |
| 7,814,536 | B2 * | 10/2010 | Martherus et al. | 726/8 |
| 2002/0194205 | A1 * | 12/2002 | Brown et al. | 707/200 |
| 2004/0153830 | A1 * | 8/2004 | Cebula et al. | 714/38 |
| 2004/0230669 | A1 * | 11/2004 | Teh | 709/219 |
| 2004/0243686 | A1 * | 12/2004 | Schilders | 709/213 |
| 2005/0021613 | A1 | 1/2005 | Schmeidler et al. | |
| 2005/0097440 | A1 * | 5/2005 | Lusk et al. | 715/500.1 |
| 2006/0133414 | A1 * | 6/2006 | Luoma et al. | 370/466 |
| 2008/0028050 | A1 | 1/2008 | Fiducci | |
| 2008/0295156 | A1 * | 11/2008 | Kitada et al. | 726/4 |

OTHER PUBLICATIONS

A B Cryer. *Internet Virtual Storage*. 2004 <www.cryer.co.uk/resources/virtualstorage.htm> accessed on Jun. 22, 2004.

doneasy. *Carpefore, Inc. Launches its First Service Website*, doneasy.com. 2000-2003 <http://www.doneasy.com/about/press.php> accessed on Jun. 24, 2004.

doneasy. *Services*. 2000-2003 <http://www.doneasy.com/services/services.php?cmd=file> accessed on Aug. 20, 2004.

EMAIL ADDRESSES.com. *Calendars, To-Do Lists and PIMS*. <www.emailaddresses.com/email_pim.htm> accessed on Jun. 21, 2004.

info@ZNAIL.com. *ZNAIL "For easier living in a virtual world"*. 1998-2004 <http:znail.com> accessed on Jun. 22, 2004.

(Continued)

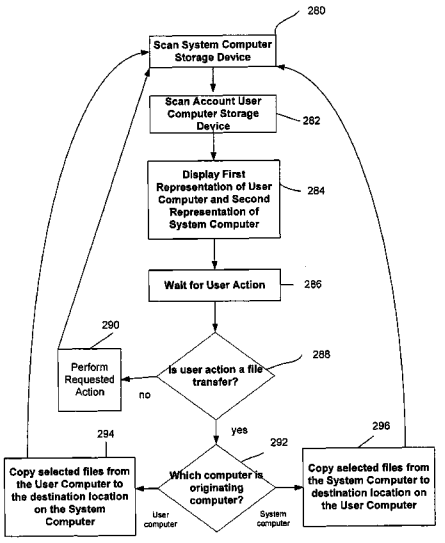
*Primary Examiner* — Kenneth R Coulter

(74) *Attorney, Agent, or Firm* — Greer, Burns & Crain, Ltd.

(57) **ABSTRACT**

A backup system having a plurality of accounts for copying selected data between one or more account user computers and a system computer where an account user's computer connects to the system computer via the Internet. Selected data is copied between the account user's computer and the system computer including, documents, media files, and email in any file type or format. Additionally, the system is compatible with all types of computers, including personal data assistants and mobile telephones, and all types of operating systems. All of the software to operate the system is resident on the system computer with no hardware or software required on the account user computer beyond a conventional web browser. The system also includes a scheduler, a contacts manager, a reminder generator and file transfer system for third-party users.

**18 Claims, 21 Drawing Sheets**



OTHER PUBLICATIONS

Infone LLC. *Infone Contacts and Calendars*. 2002-2004 <www.infone.com/info.xwt?view-contact.calendar> accessed on Jun. 21, 2004.

Norton e-zine. *Work the Web: Online File Storage*. <http://www.glencoe.com/norton/online/ezine/display_article.phtml?id=233> accessed on Jun. 21, 2004.

Yahoo Media Relations. *Yahoo! Calendar Introduces Time Guides*. 2001 <http://docs.yahoo.com/docs/pr/release397.html> accessed on Jun. 24, 2004.

Yahoo Media Relations. *Yahoo! Briefcase Is the One Place on the Internet to Keep Photos, Documents and Other Files*. 2001 <http://docs.yahoo.com/docs/pr/release352.html> accessed on Jun. 24, 2004.

Office Action, Mailing Date of Jul. 6, 2009, which issued in Applicant's co-pending U.S. Appl. No. 11/879,997.

USPTO Notice of Allowance relating to co-pending U.S. Appl. No. 11/879,997, mailed Jan. 19, 2010.

Amendment B, filed by Applicant on Apr. 6, 2010, for co-pending U.S. Appl. No. 11/879,997.

* cited by examiner

FIG. 1

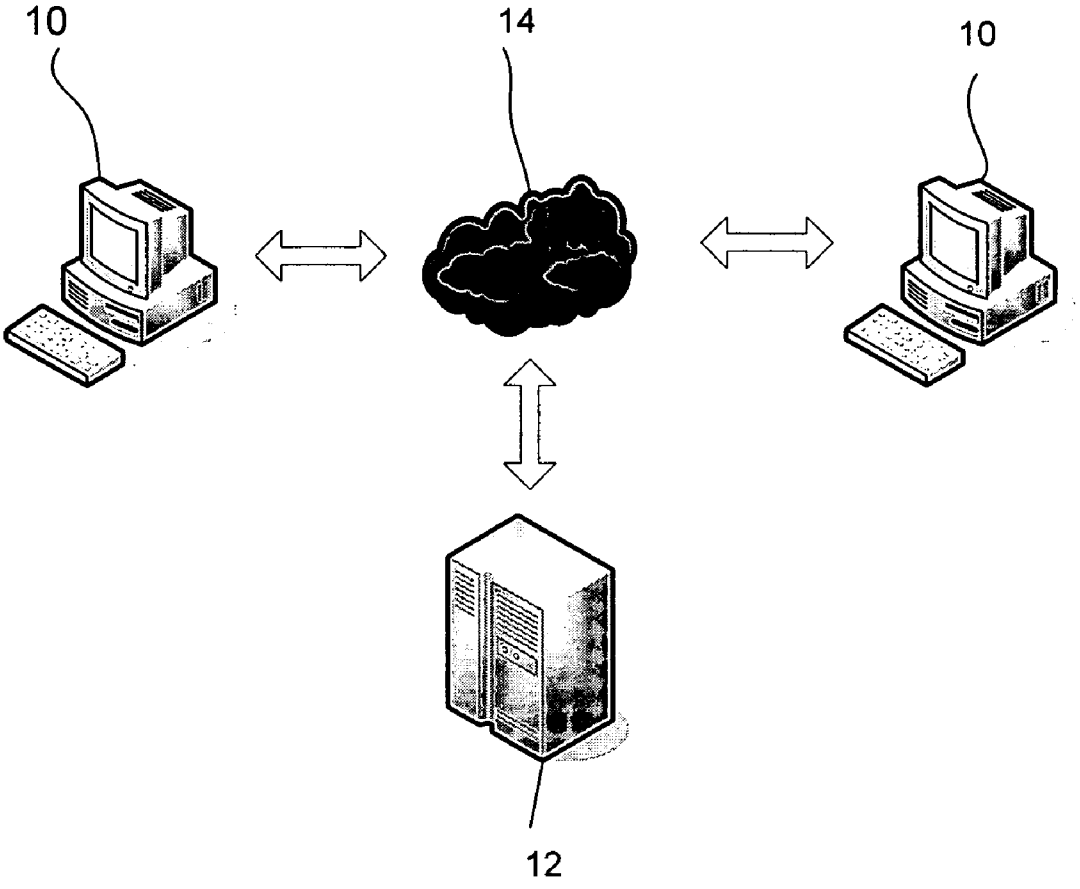


FIG. 2

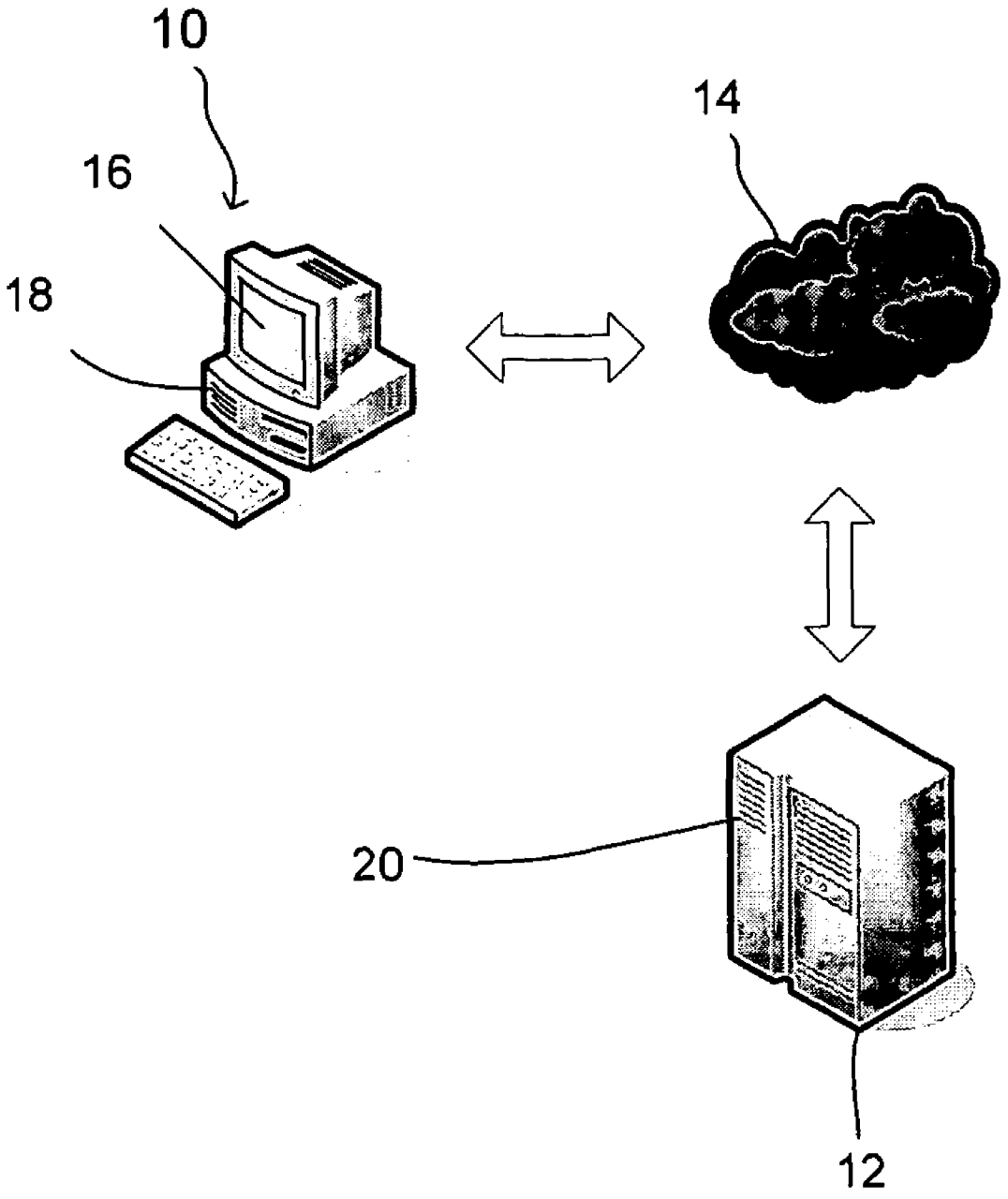


FIG. 3

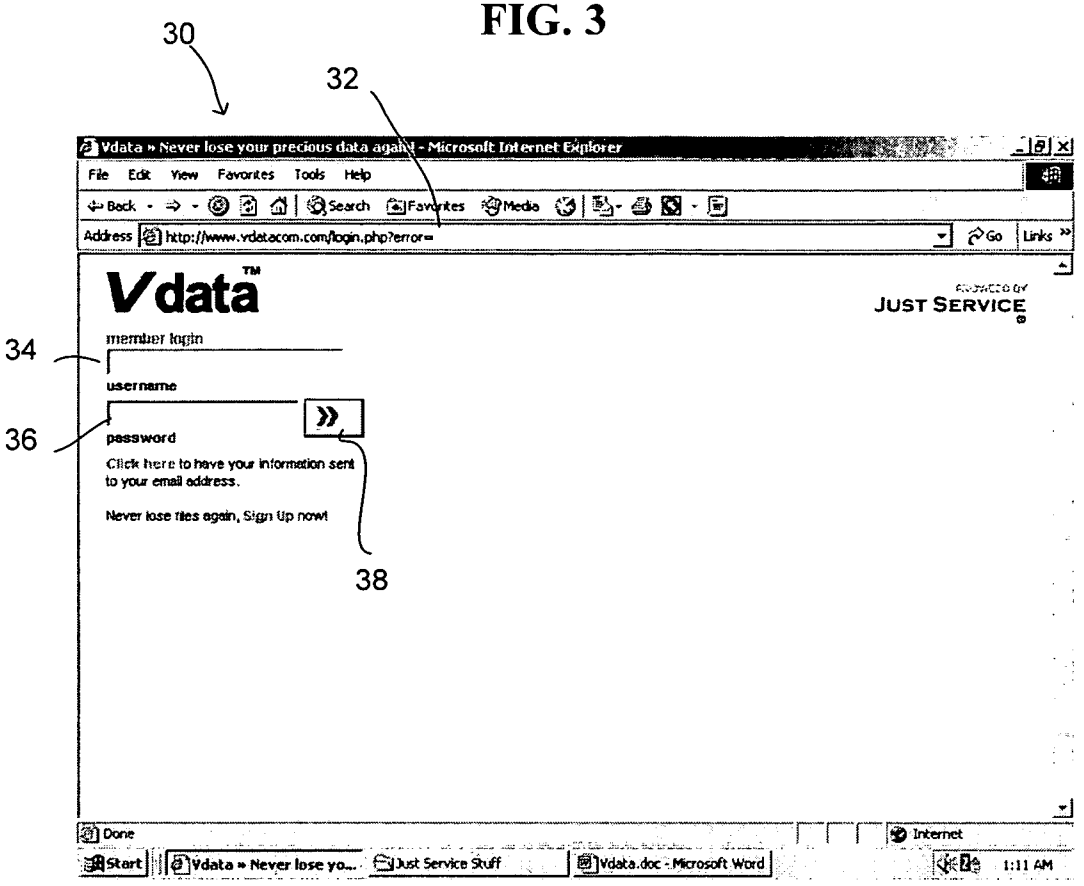

30
32
Vdata » Never lose your precious data again! - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdata.com/login.php?error=
Go Links
Vdata™
JUST SERVICE
34
member login
username
36
password
Click here to have your information sent to your email address.
Never lose files again, Sign Up now!
38
Done
Internet
Start
Vdata » Never lose yo...
Just Service Stuff
Vdata.doc - Microsoft Word
1:11 AM

FIG. 4

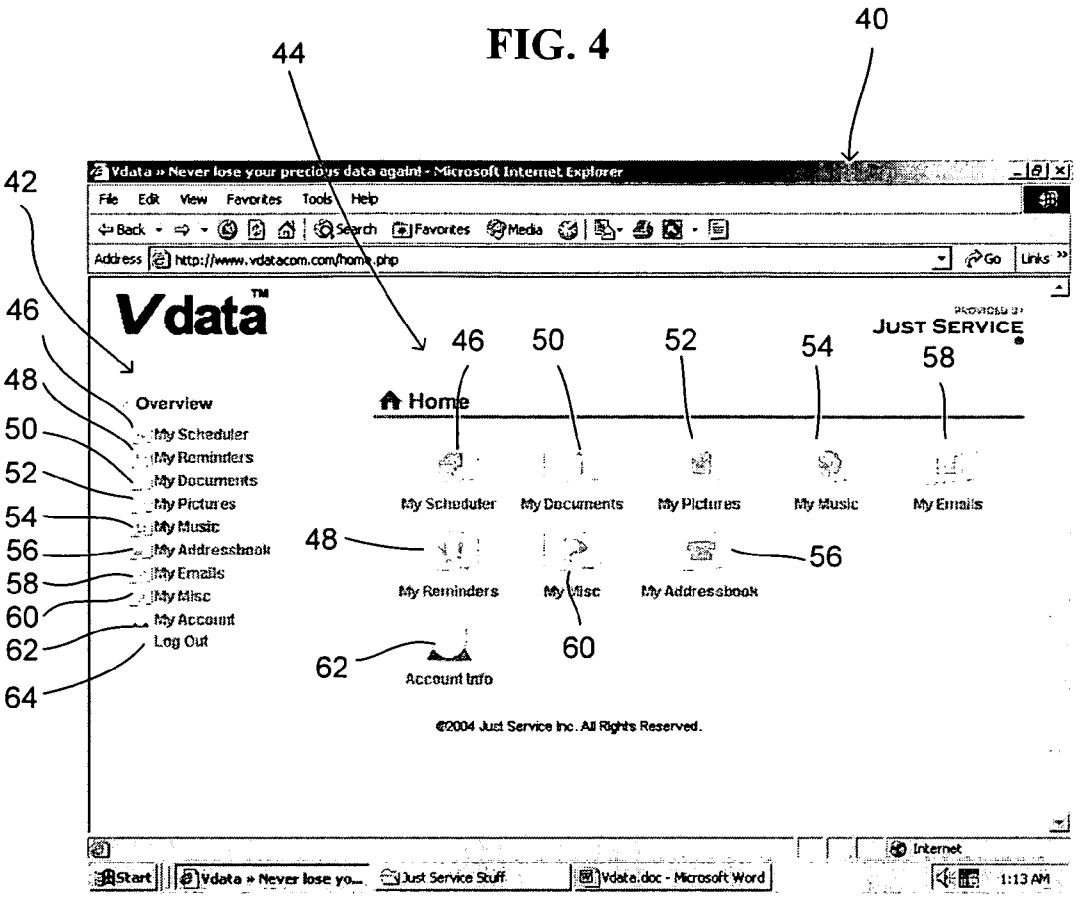
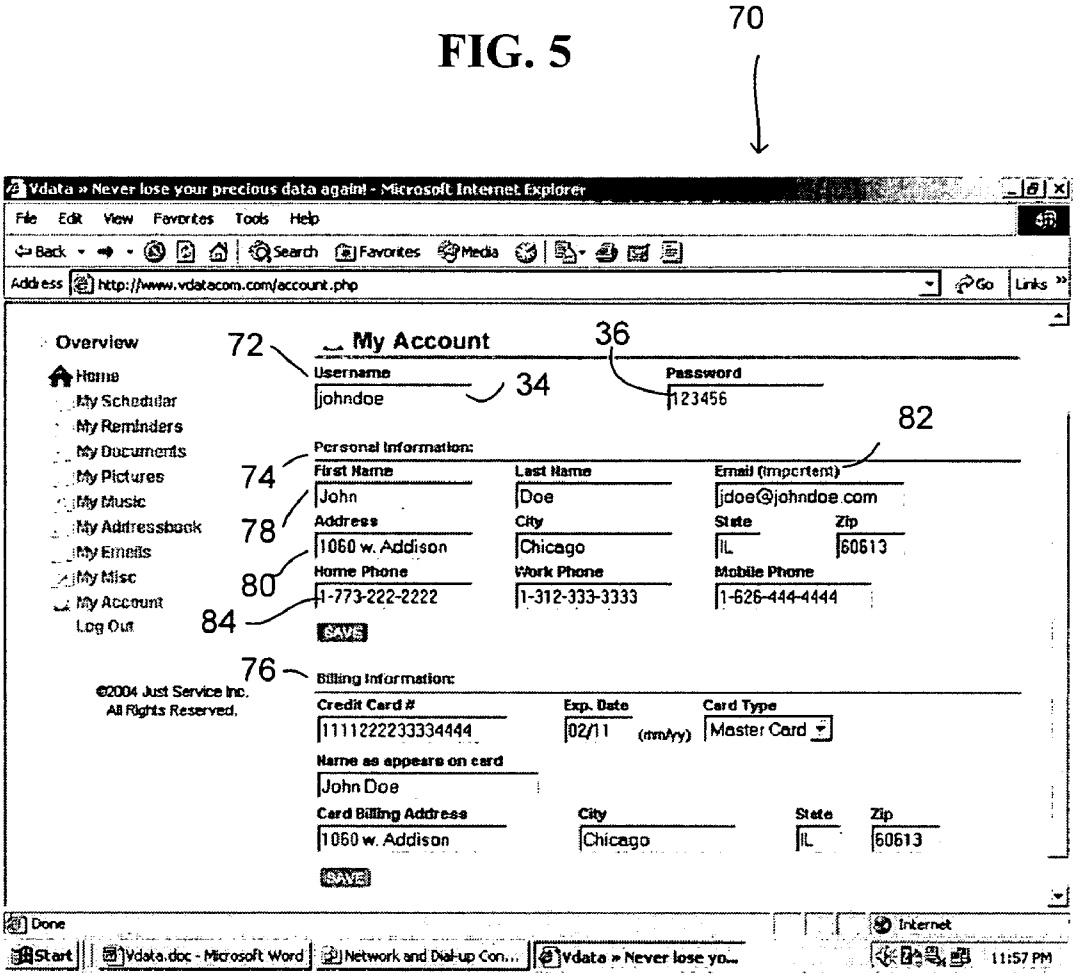

40
44
42
46
48
50
52
54
56
58
60
62
64
Vdata » Never lose your precious data again - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://www.vdatacom.com/home.php
Vdata™
JUST SERVICE
Overview
My Scheduler
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Log Out
Home
My Scheduler
My Documents
My Pictures
My Music
My Emails
My Reminders
My Misc
My Addressbook
Account Info
©2004 Just Service Inc. All Rights Reserved.
Start
Vdata » Never lose yo...
Just Service Stuff
Vdata.doc - Microsoft Word
Internet
1:13 AM

FIG. 5


70
Vdata » Never lose your precious data again! - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdatacom.com/account.php
Go Links
Overview
Home
My Scheduler
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Log Out
72
My Account
36
Username
34
johndoe
Password
123456
82
Personal Information:
74
First Name
John
Last Name
Doe
Email (important)
jdoe@johndoe.com
78
Address
1060 w. Addison
City
Chicago
State
IL
Zip
60613
80
Home Phone
1-773-222-2222
Work Phone
1-312-333-3333
Mobile Phone
1-626-444-4444
84
SAVE
76
Billing Information:
©2004 Just Service Inc.
All Rights Reserved.
Credit Card #
1111222233334444
Exp. Date
02/11
(mm/yy)
Card Type
Master Card
Name as appears on card
John Doe
Card Billing Address
1060 w. Addison
City
Chicago
State
IL
Zip
60613
SAVE
Done
Internet
Start
Vdata.doc - Microsoft Word
Network and Dial-up Con...
Vdata » Never lose yo...
11:57 PM

# FIG. 6

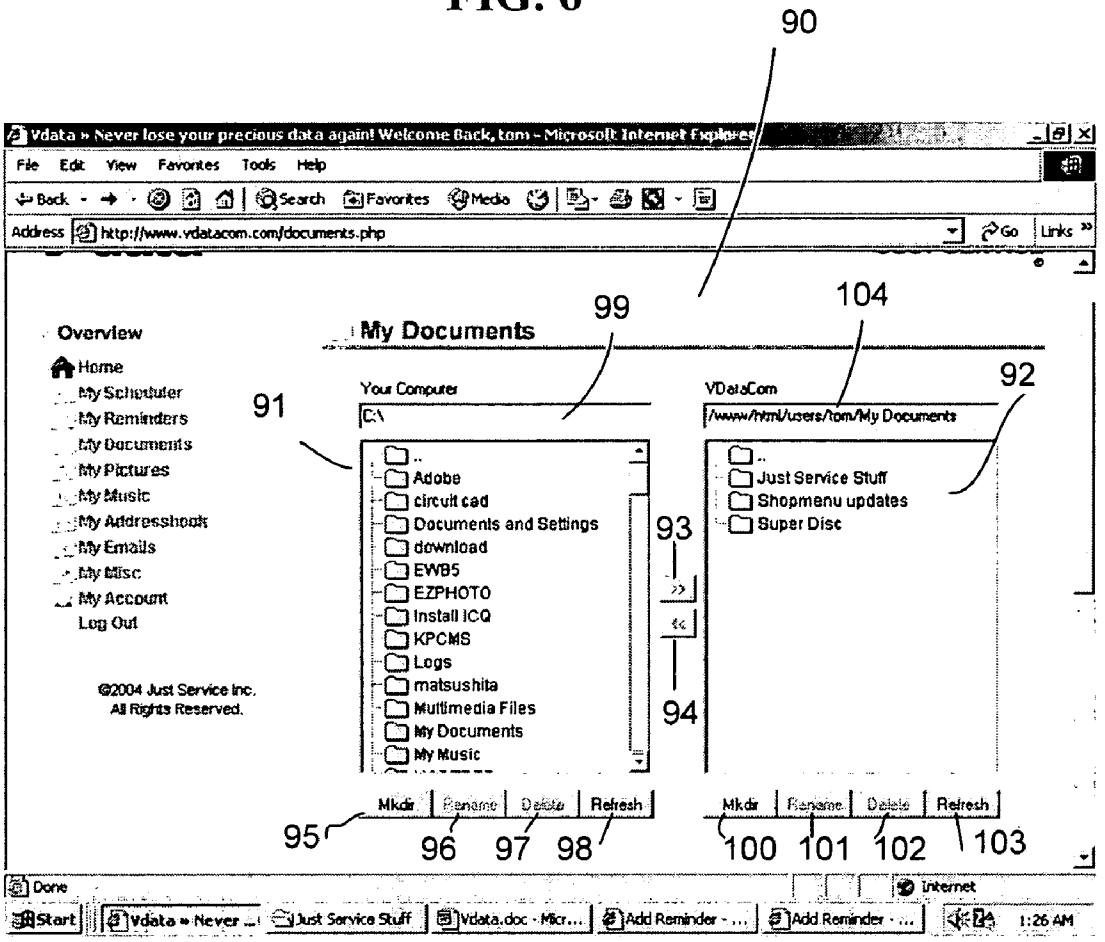

90
Vdata » Never lose your precious data again! Welcome Back, tom - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdata.com/documents.php
Go Links
Overview
Home
My Scheduler
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Log Out
©2004 Just Service Inc.
All Rights Reserved.
My Documents
99
104
91
92
Your Computer
C:\
VDataCom
/www/html/users/tom/My Documents
..
Adobe
circuit cad
Documents and Settings
download
EWB5
EZPHOTO
Install ICQ
KPCMS
Logs
matsushita
Multimedia Files
My Documents
My Music
..
Just Service Stuff
Shopmenu updates
Super Disc
93
94
Mkdir
Rename
Delete
Refresh
95
96
97
98
Mkdir
Rename
Delete
Refresh
100
101
102
103
Done
Internet
Start
Vdata » Never ...
Just Service Stuff
Vdata.doc - Micr...
Add Reminder - ...
Add Reminder - ...
1:26 AM

FIG. 7

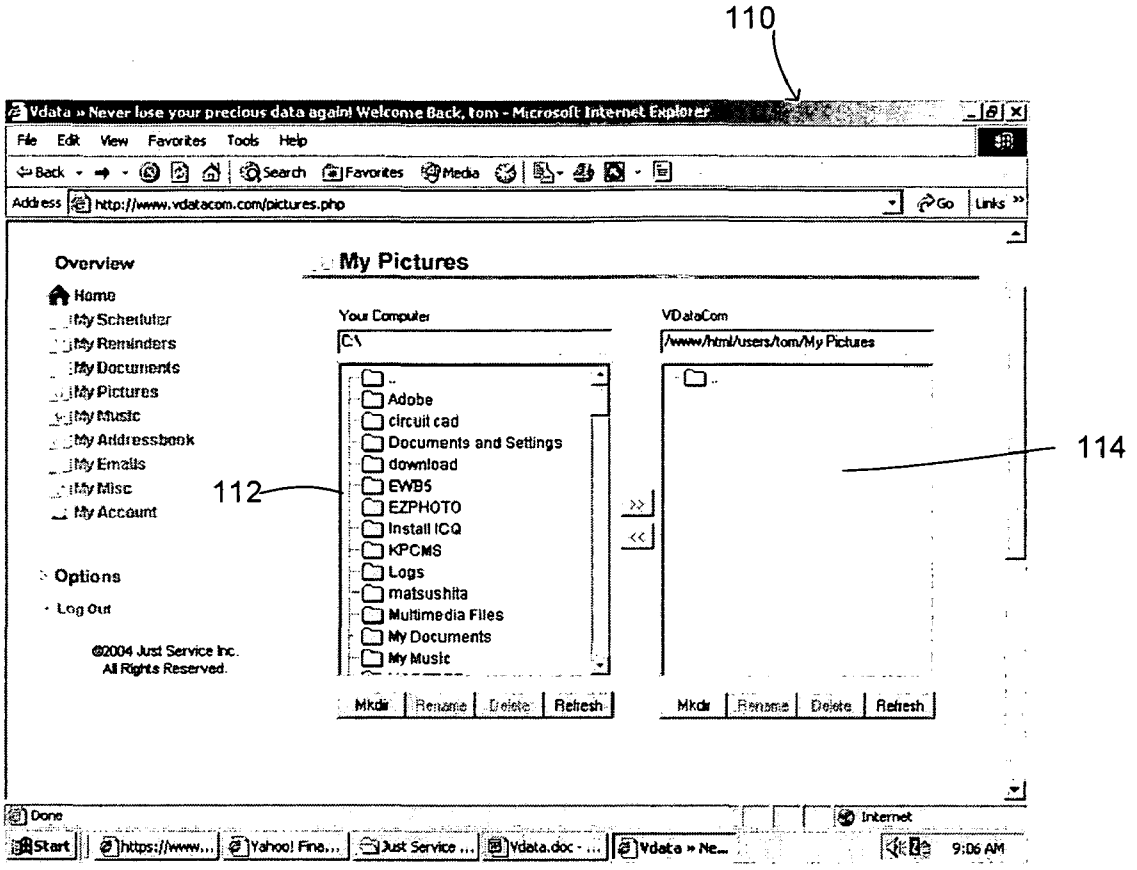

110
Vdata » Never lose your precious data again! Welcome Back, tom - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdatacom.com/pictures.php
Go Links
Overview
Home
My Scheduler
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Options
Log Out
©2004 Just Service Inc.
All Rights Reserved.
My Pictures
Your Computer
C:\
Adobe
circuit cad
Documents and Settings
download
EWB5
EZPHOTO
Install ICQ
KPCMS
Logs
matsushita
Multimedia Files
My Documents
My Music
VDataCom
/www/html/users/tom/My Pictures
Mkdir Rename Delete Refresh
Mkdir Rename Delete Refresh
112
114
Done
Internet
Start
https://www...
Yahoo! Fina...
Just Service ...
Vdata.doc - ...
Vdata » Ne...
9:06 AM

FIG. 8

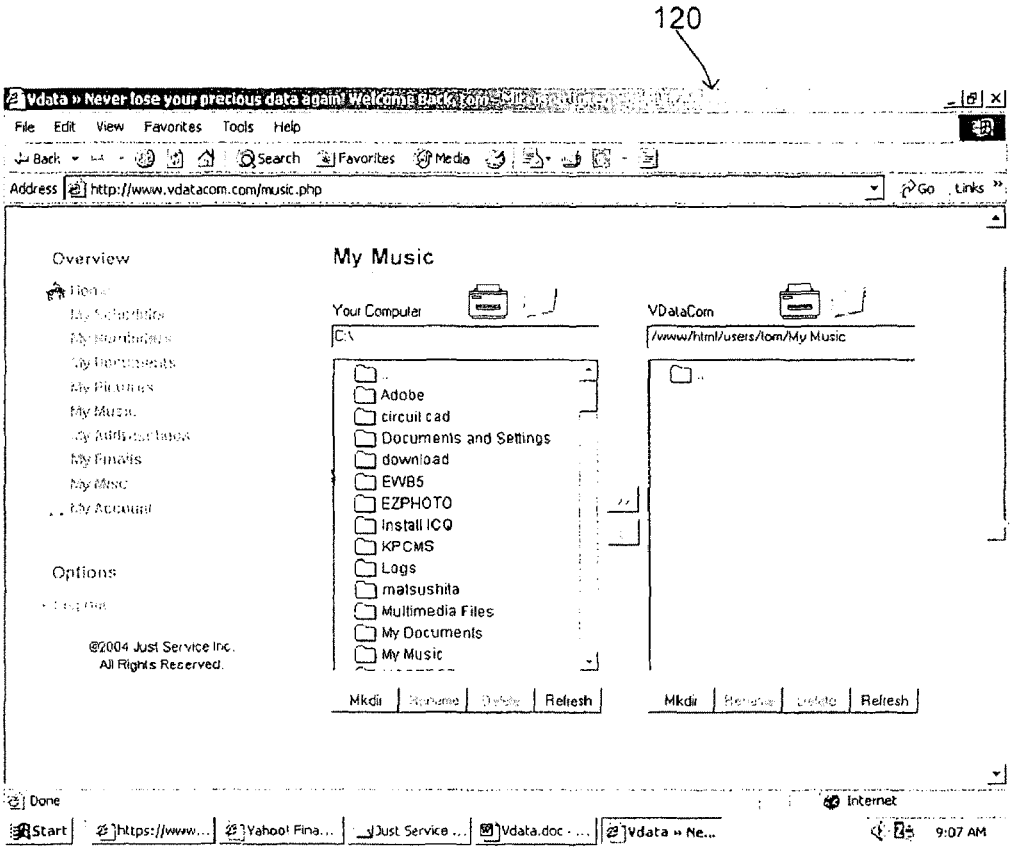

120
Vdata » Never lose your precious data again! Welcome Back, tom
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdatacom.com/music.php
Go Links
Overview
My Music
Options
©2004 Just Service Inc.
All Rights Reserved.
Your Computer
C:\
Adobe
circuit cad
Documents and Settings
download
EWB5
EZPHOTO
Install ICQ
KPCMS
Logs
matsushita
Multimedia Files
My Documents
My Music
Mkdir
Refresh
VDataCom
/www/html/users/tom/My Music
Mkdir
Refresh
Done
Internet
Start
https://www...
Yahoo! Fina...
Just Service ...
Vdata.doc - ...
Vdata » Ne...
9:07 AM

FIG. 9

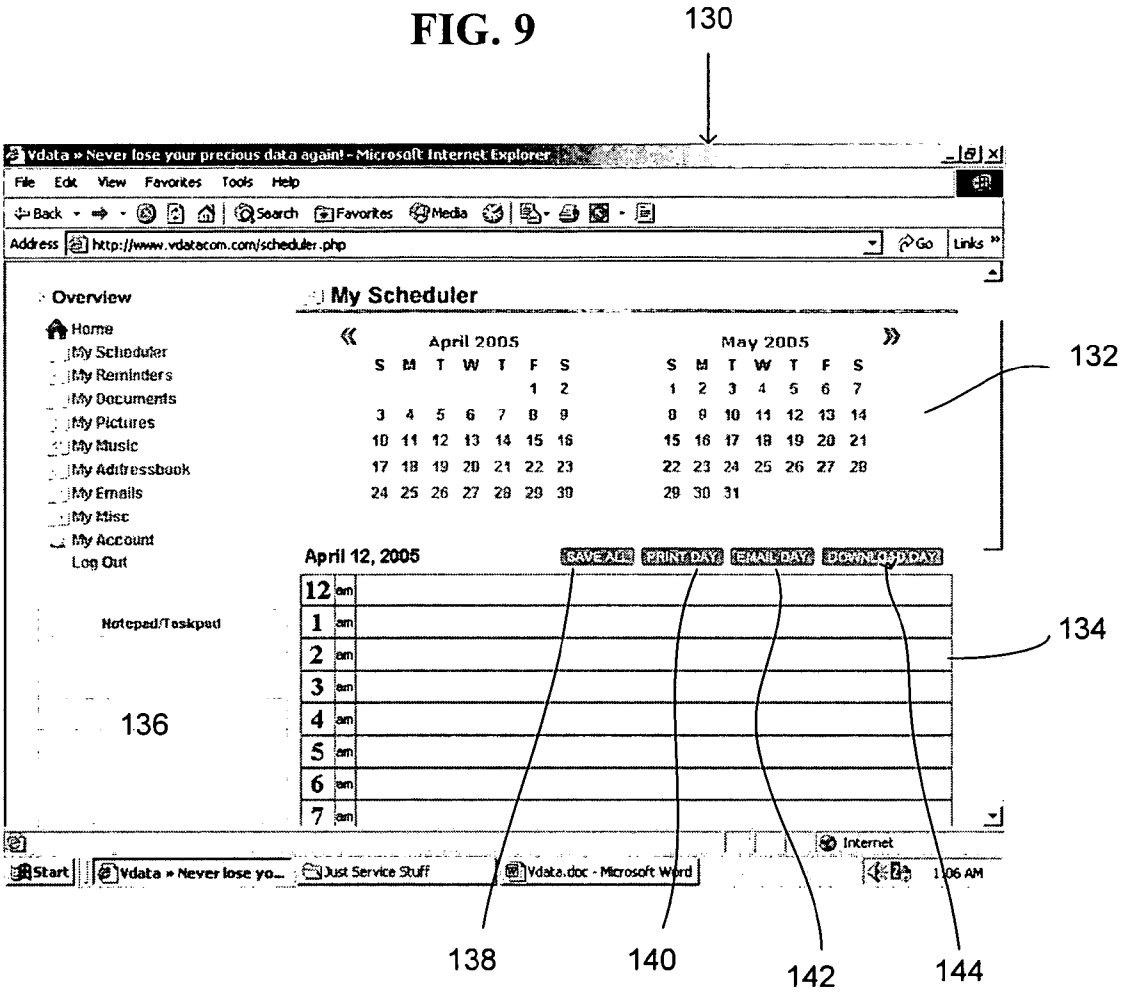

130
Vdata » Never lose your precious data again! - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdatacom.com/scheduler.php
Go Links
Overview
Home
My Scheduler
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Log Out
Notepad/Taskpad
My Scheduler
April 2005
May 2005
S M T W T F S
132
April 12, 2005
SAVE ALL
PRINT DAY
EMAIL DAY
DOWNLOAD DAY
12 am
1 am
2 am
3 am
4 am
5 am
6 am
7 am
134
136
Internet
Start
Vdata » Never lose yo...
Just Service Stuff
Vdata.doc - Microsoft Word
1:06 AM
138
140
142
144

FIG. 10

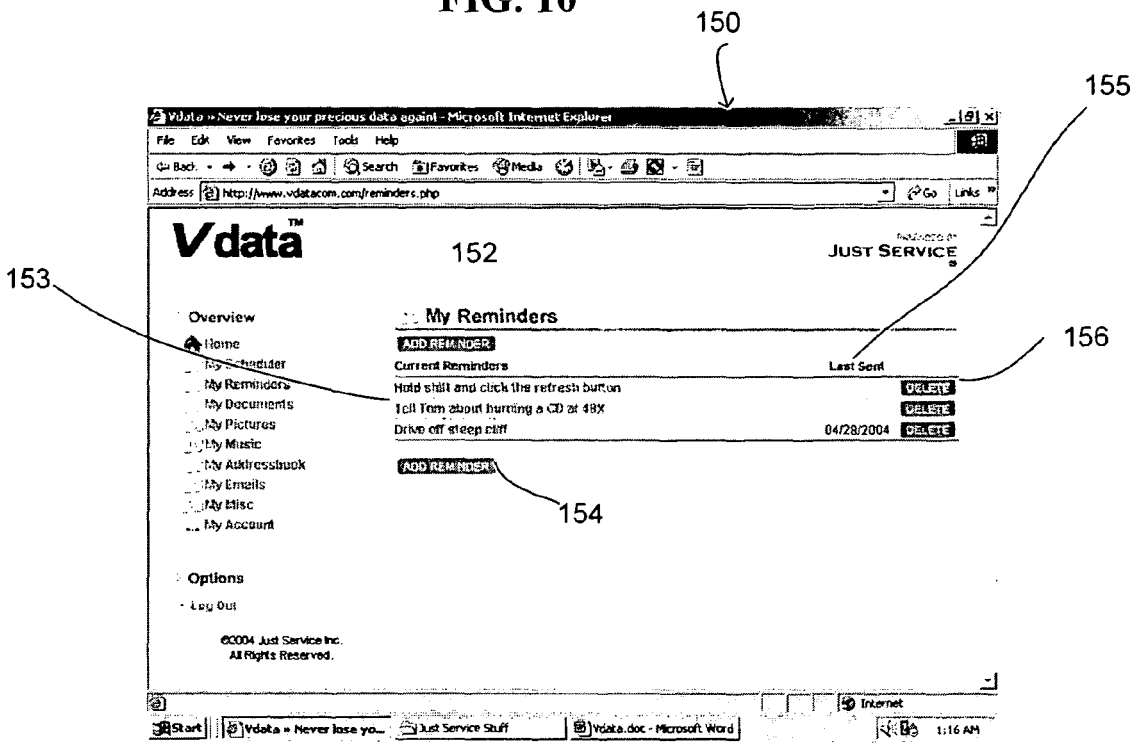

150
155
153
152
156
154
Vdata
JUST SERVICE
Overview
Home
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Options
Log Out
My Reminders
ADD REMINDER
Current Reminders
Last Sent
Hold shift and click the refresh button
DELETE
Tell Tom about burning a CD at 48X
DELETE
Drive off steep cliff
04/28/2004
DELETE
ADD REMINDER
©2004 Just Service Inc.
All Rights Reserved.
Internet
Start
Just Service Stuff
1:16 AM

FIG. 11

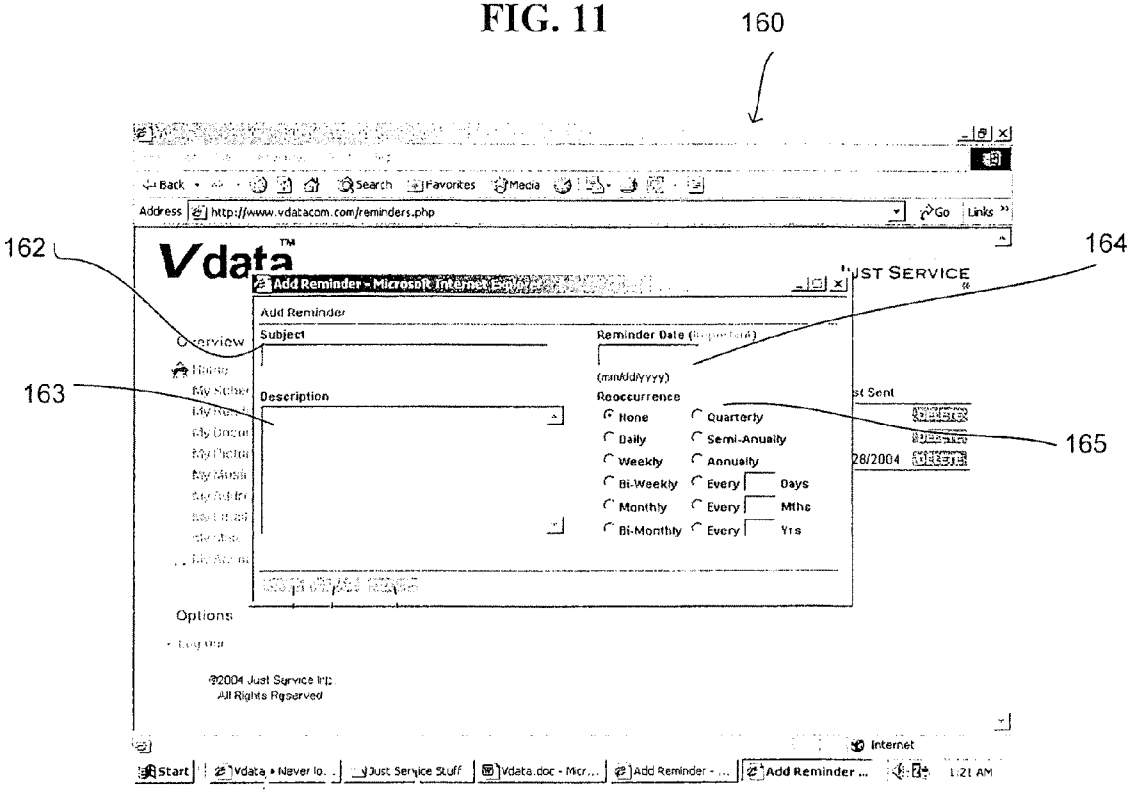

160
162
163
164
165
Vdata
Add Reminder - Microsoft Internet Explorer
Add Reminder
Subject
Reminder Date
(mm/dd/yyyy)
Description
Reoccurrence
None
Quarterly
Daily
Semi-Anually
Weekly
Annually
Bi-Weekly
Every Days
Monthly
Every Mths
Bi-Monthly
Every Yrs
Options
©2004 Just Service Inc
All Rights Reserved
Internet

FIG. 12

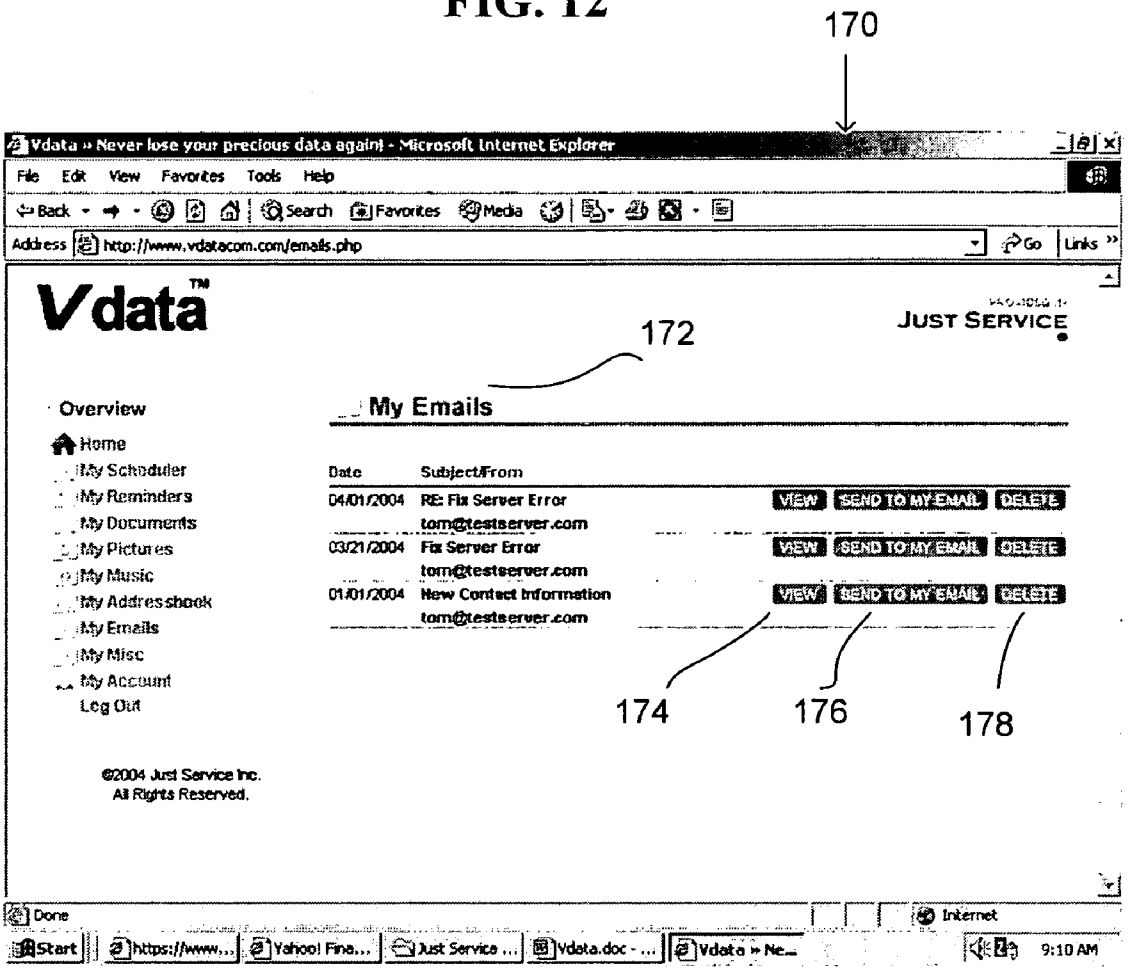

170
Vdata » Never lose your precious data again - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdatacom.com/emails.php
Go Links
Vdata™
JUST SERVICE
172
Overview
Home
My Scheduler
My Reminders
My Documents
My Pictures
My Music
My Addressbook
My Emails
My Misc
My Account
Log Out
My Emails
Date Subject/From
04/01/2004 RE: Fix Server Error tom@testserver.com VIEW SEND TO MY EMAIL DELETE
03/21/2004 Fix Server Error tom@testserver.com VIEW SEND TO MY EMAIL DELETE
01/01/2004 New Contact Information tom@testserver.com VIEW SEND TO MY EMAIL DELETE
174
176
178
©2004 Just Service Inc.
All Rights Reserved.
Done
Internet
Start
https://www...
Yahoo! Fina...
Just Service ...
Vdata.doc - ...
Vdata » Ne...
9:10 AM

FIG. 13

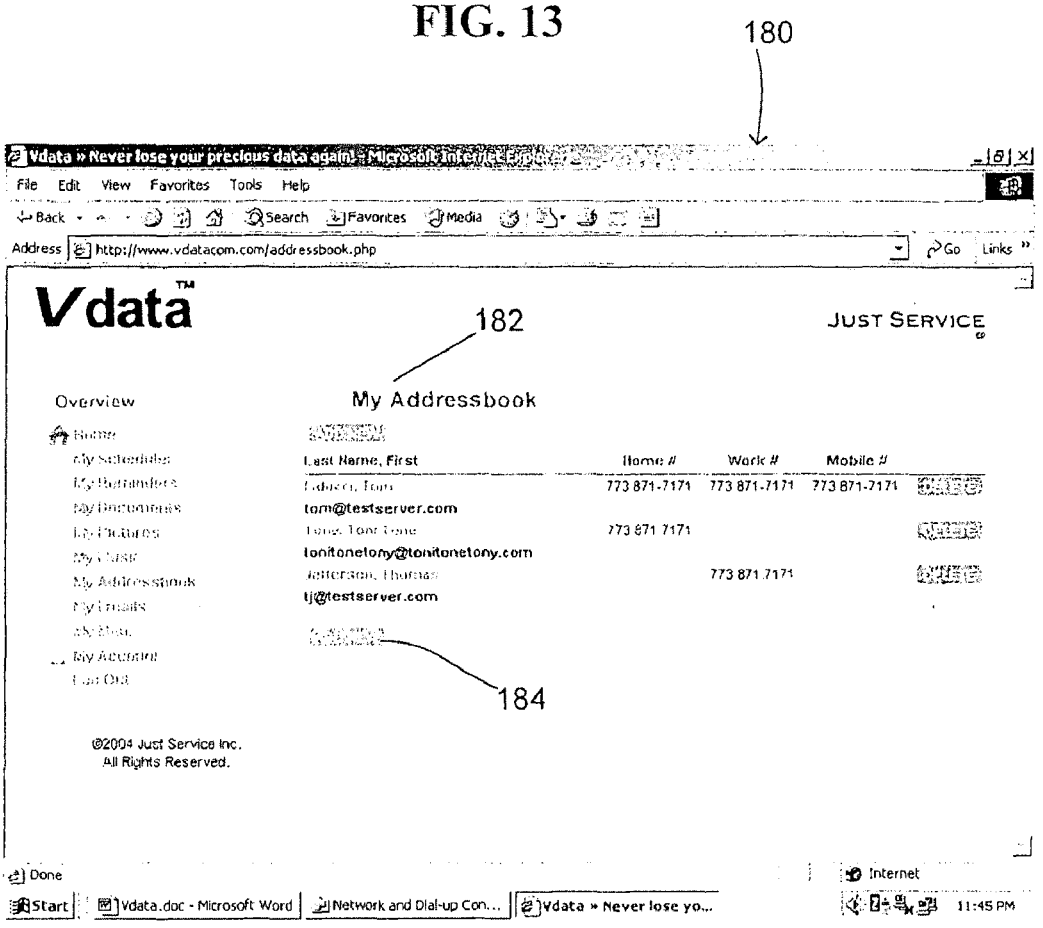

180
Vdata » Never lose your precious data again! - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.vdatacom.com/addressbook.php
Go Links
Vdata™
182
JUST SERVICE
Overview
My Addressbook
Last Name, First
Home #
Work #
Mobile #
773 871-7171
773 871 7171
tom@testserver.com
tonitonetony@tonitonetony.com
tj@testserver.com
184
©2004 Just Service Inc.
All Rights Reserved.
Done
Internet
Start
Vdata.doc - Microsoft Word
Network and Dial-up Con...
Vdata » Never lose yo...
11:45 PM

FIG. 14

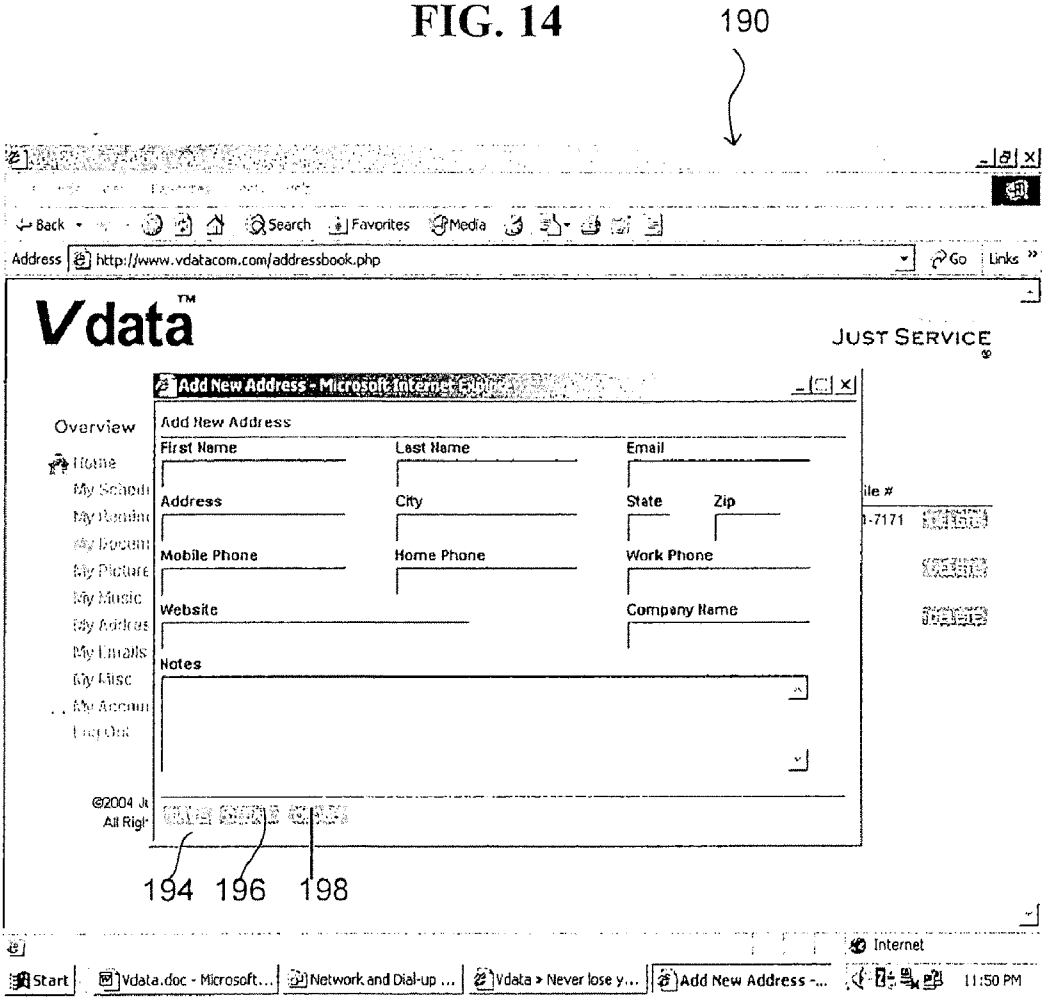

190
Back
Search
Favorites
Media
Address
http://www.vdatacom.com/addressbook.php
Go
Links
Vdata
JUST SERVICE
Add New Address - Microsoft Internet Explorer
Overview
Add New Address
First Name
Last Name
Email
Address
City
State
Zip
Mobile Phone
Home Phone
Work Phone
Website
Company Name
Notes
194
196
198
Internet
Start
Vdata.doc - Microsoft...
Network and Dial-up ...
Vdata > Never lose y...
Add New Address -...
11:50 PM

FIG. 15

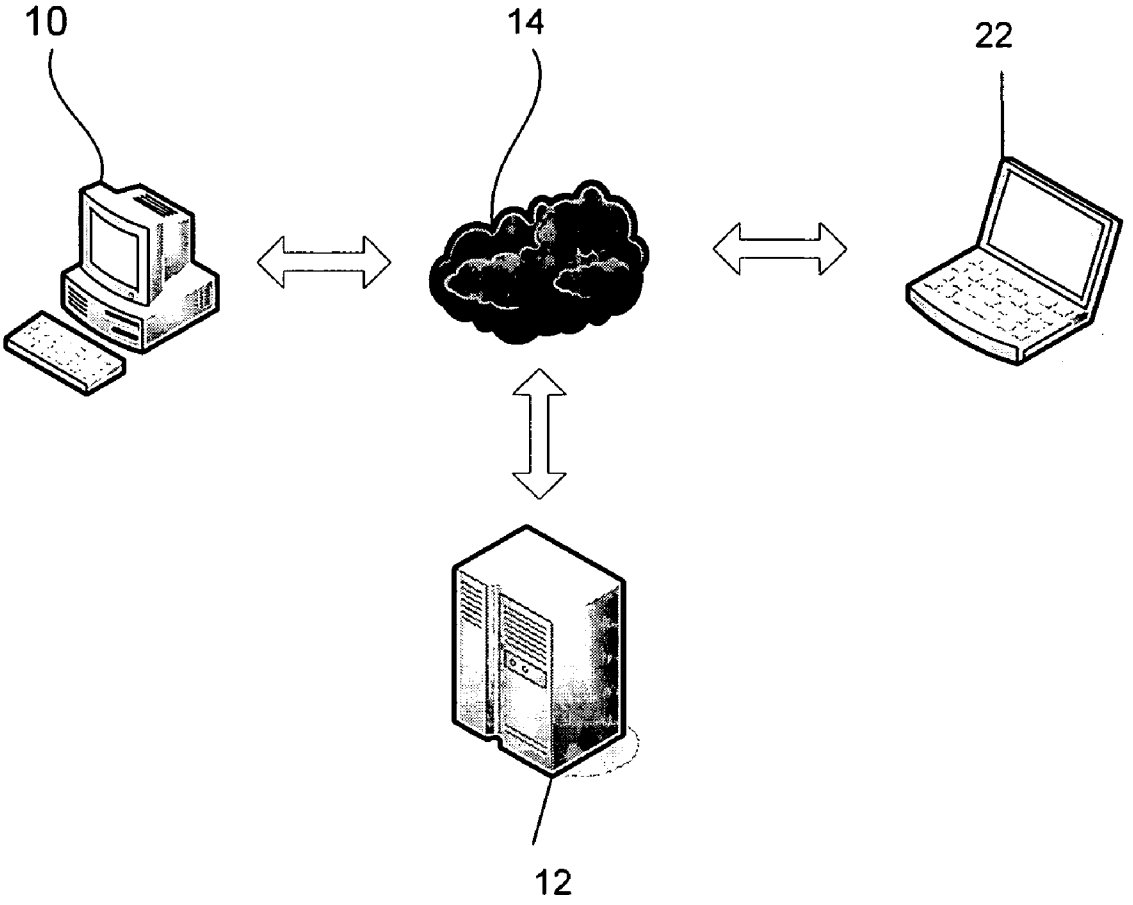


FIG. 16

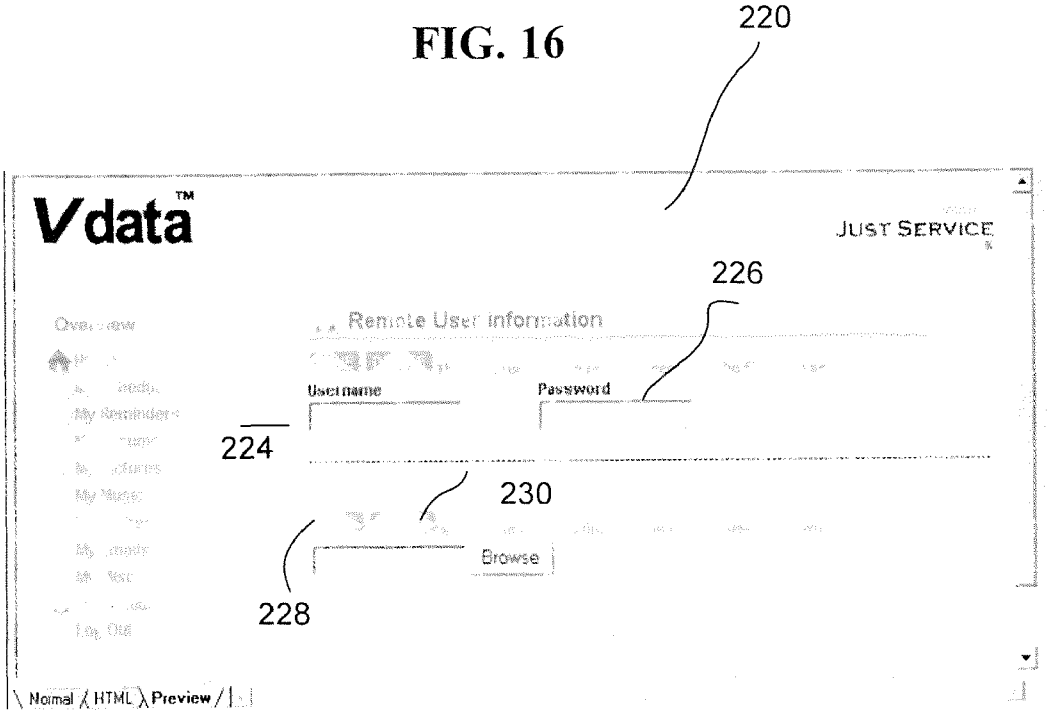

220
Vdata™
JUST SERVICE
226
Remote User Information
Username
Password
224
230
Browse
228
Normal
HTML
Preview

FIG. 17

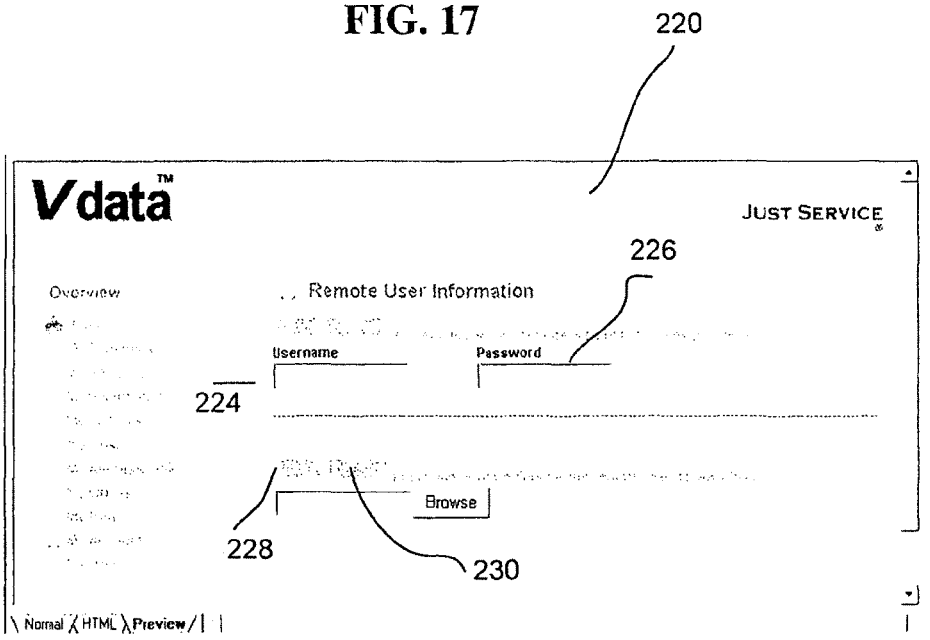

220
Vdata™
JUST SERVICE
226
Overview
Remote User Information
Username
Password
224
Browse
228
230
Normal HTML Preview

FIG. 18

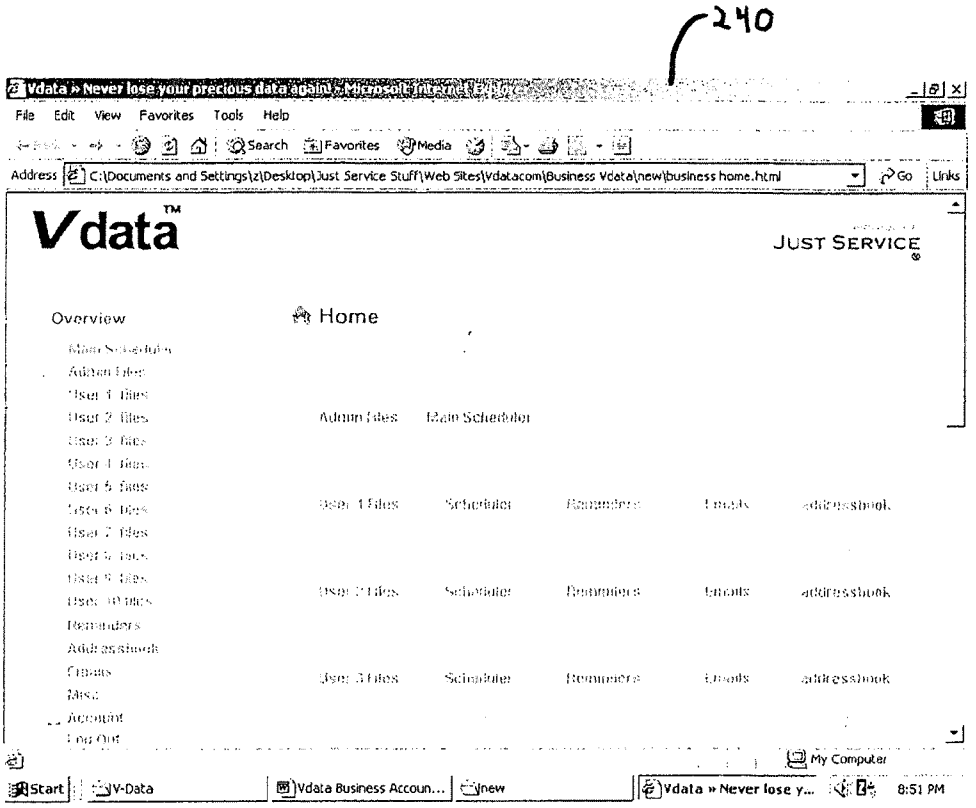

240
Vdata » Never lose your precious data again - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Search Favorites Media
Address C:\Documents and Settings\z\Desktop\Just Service Stuff\Web Sites\Vdata.com\Business Vdata\new\business home.html
Go Links
Vdata™
JUST SERVICE®
Overview
Home
Admin Files
Main Scheduler
User 1 Files
Scheduler
Reminders
Emails
addressbook
User 2 Files
Scheduler
Reminders
Emails
addressbook
Reminders
Addressbook
Emails
Scheduler
Reminders
Emails
addressbook
Misc
Account
Log Out
My Computer
Start
V-Data
Vdata Business Accoun...
new
Vdata » Never lose y...
8:51 PM

FIG. 19

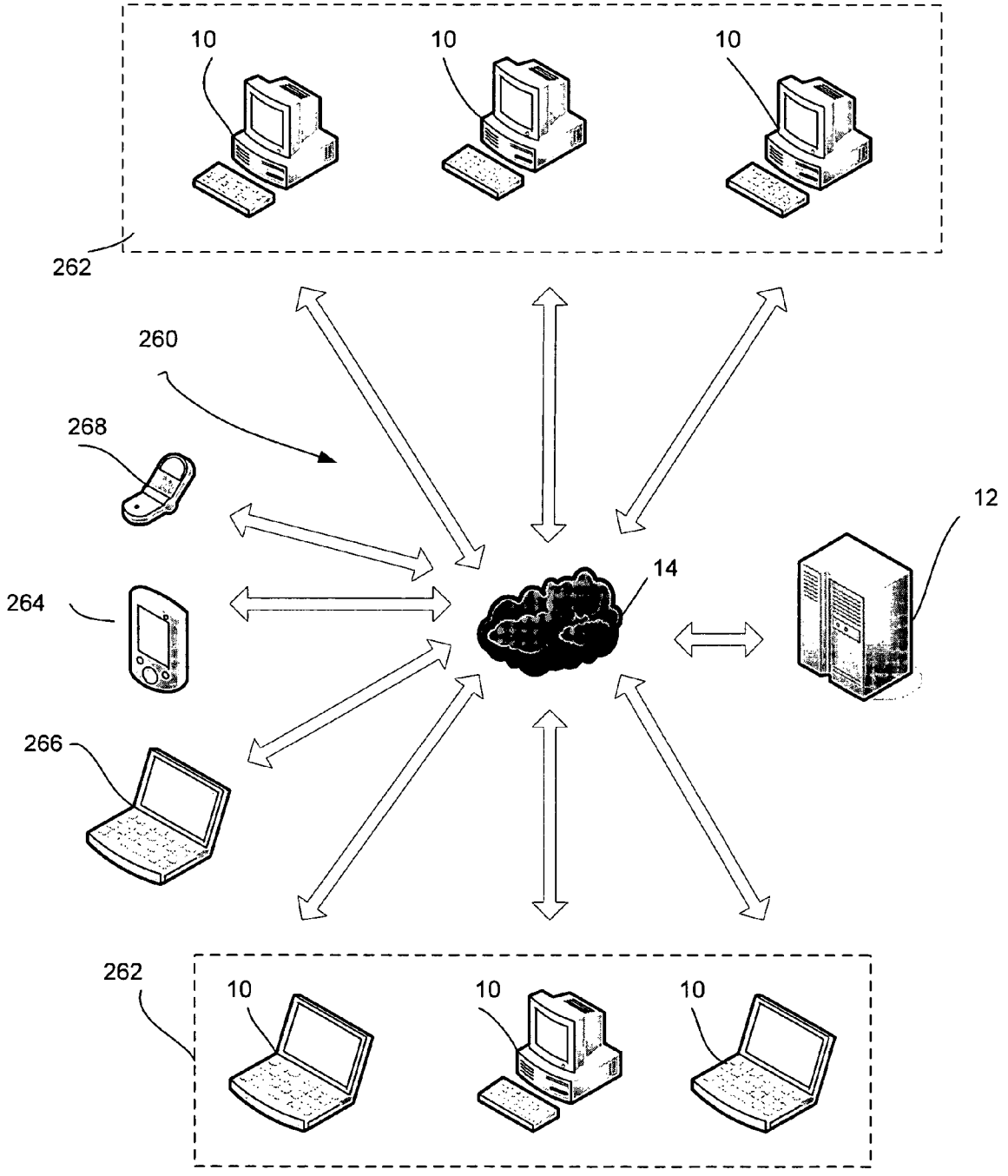
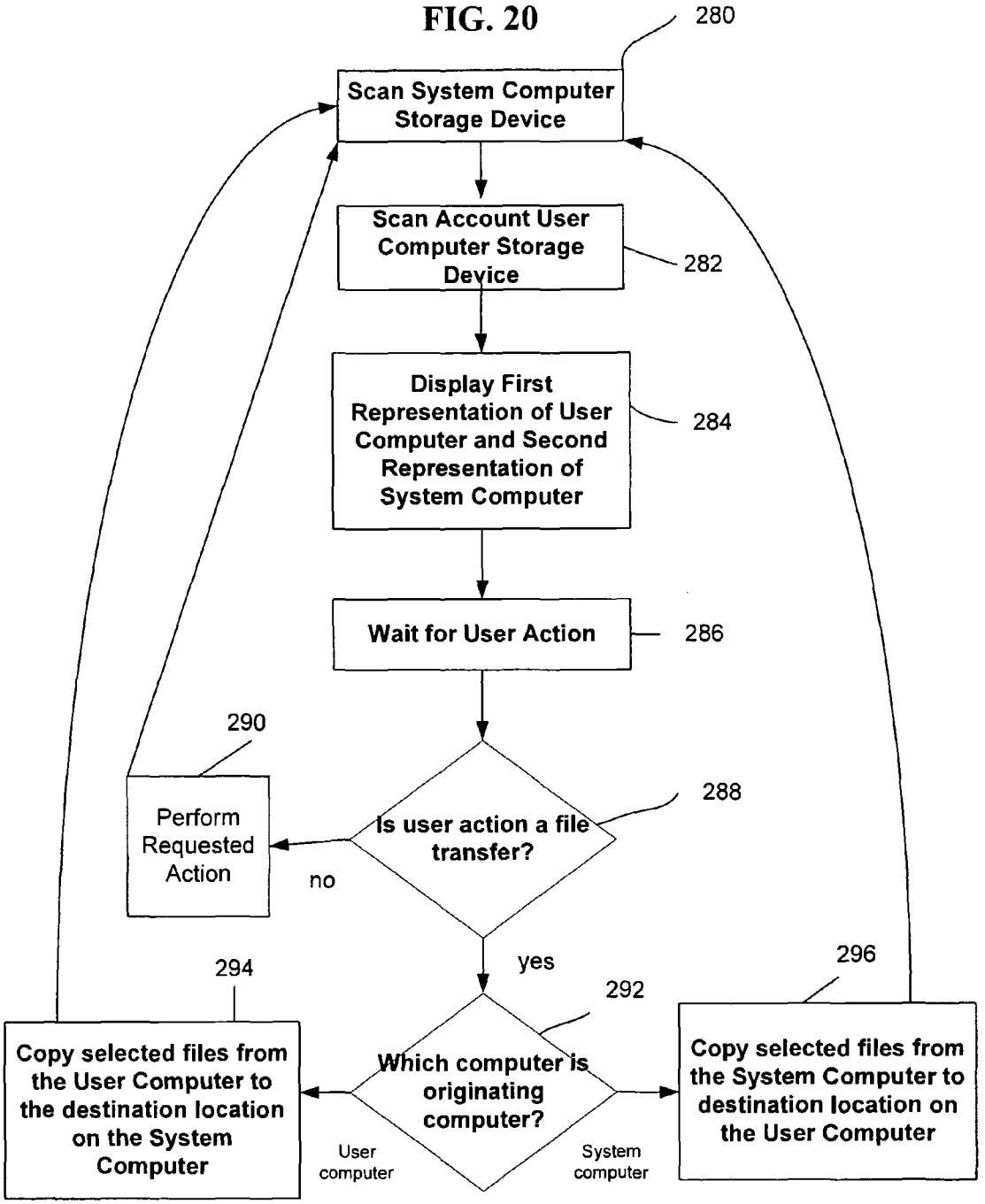
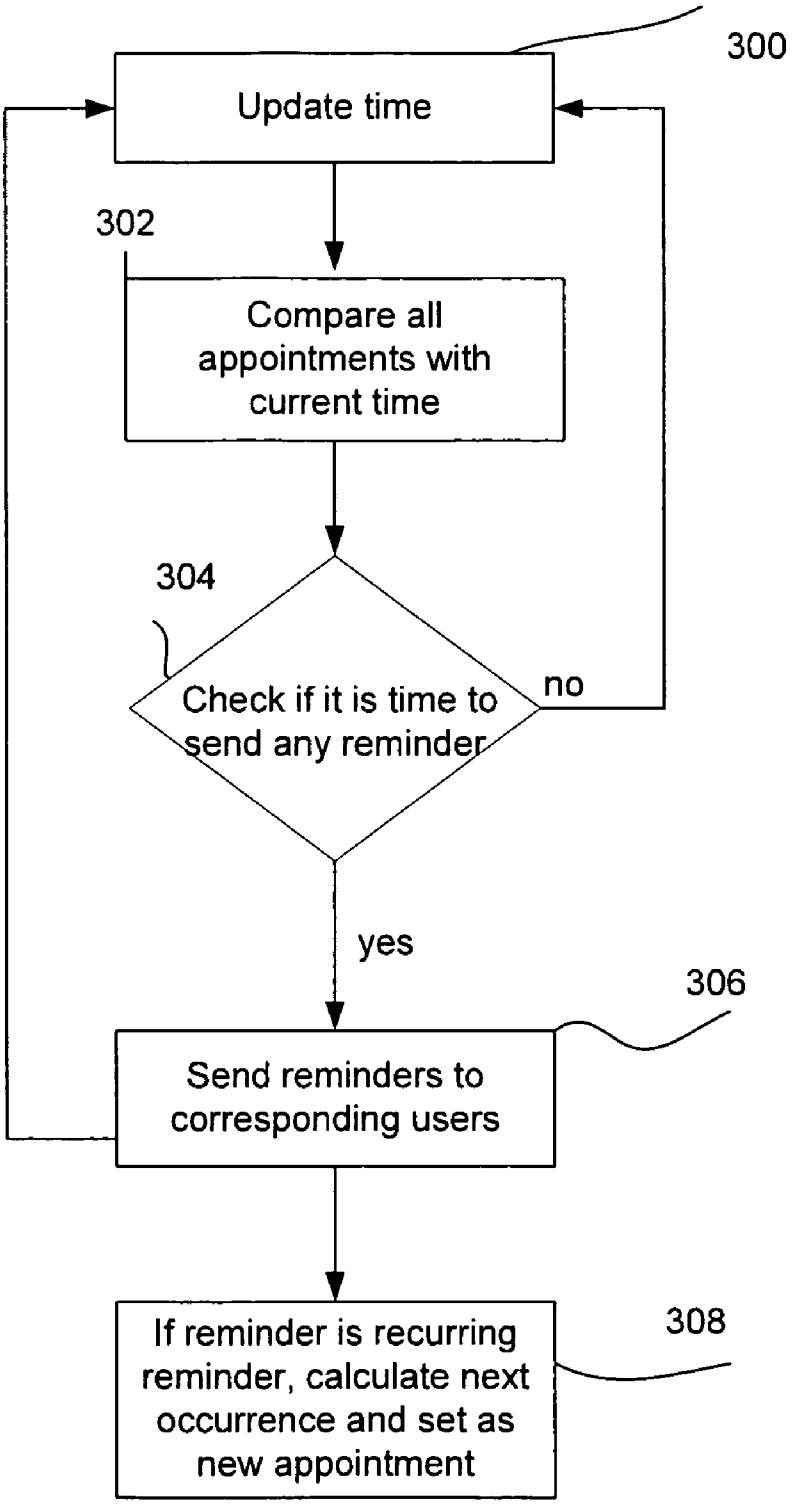


FIG. 20


280
Scan System Computer Storage Device
Scan Account User Computer Storage Device
282
Display First Representation of User Computer and Second Representation of System Computer
284
Wait for User Action
286
290
Perform Requested Action
Is user action a file transfer?
288
no
yes
294
292
296
Copy selected files from the User Computer to the destination location on the System Computer
Which computer is originating computer?
Copy selected files from the System Computer to destination location on the User Computer
User computer
System computer

# FIG. 21


300
Update time
302
Compare all appointments with current time
304
Check if it is time to send any reminder
no
yes
306
Send reminders to corresponding users
308
If reminder is recurring reminder, calculate next occurrence and set as new appointment

# DATA BACKUP AND TRANSFER SYSTEM, METHOD AND COMPUTER PROGRAM PRODUCT

## CROSS-REFERENCE

This application claims priority from U.S. Provisional Patent Application No. 60/673,751 filed Apr. 21, 2005.

## FIELD OF THE INVENTION

The subject application relates to a system, method and computer program product for computer data backup and storage, appointment scheduling, automatic reminder generating, and third-party data transfer.

## BACKGROUND OF THE INVENTION

With the increasing complexity of today's software and the proliferation of computer viruses, spyware and malware, computer crashes are not an uncommon occurrence. When a user's computer suffers a catastrophic crash, the computer may not restart properly or the user may discover that his hard drive has been damaged or erased. Such permanent damage to a user's files is particularly common where virus or malicious software is involved. When such damage occurs the data on the user's computer will be lost, unless the user has previously saved the files on other storage media other than the local computer's hard drive.

Data can also be lost due to physical damage of the computer or computer data storage device. Portable computers, including notebook computers, hand held computes such as personal data assistants ("PDA") and mobile telephones are particularly vulnerable to physical damage as well as theft. Often loss of the data is more significant than the loss or damage to the hardware. Accordingly, data backup is important.

Conventional file backup systems typically involve hardware and software that copy all files on a computer. The entire drive—including large programs, hidden files, and other extraneous data—is typically copied, compressed and then either stored on local storage media, such as an attached disk or a special partition of the user's computer hard drive. This process is time-consuming and typically must be done when the user is not already using the computer as the conventional backup process will be interrupted when the backup system attempts to copy a system file that is in use. Further, restoring a computer from a back-up is a tedious and lengthy process. The difficulty of this process is especially problematic if the user needs immediate access to data that was only saved on his damaged computer.

Another common problem is missed obligations, such as driver license renewal, license plate sticker renewal, annual payments and birthdays, just to name a few. Today it is the individual's responsibility to keep up with the many obligations, regardless of notifications by government agencies or the like. Even if a notice, e.g. license renewal, does not reach the individual, he/she is still held responsible. Appointment books in both manual and computerized from are commonly used to calendar dates, but these systems are not entirely satisfactory. Furthermore, if a computer-based calendar is used, and the computer is damaged or crashes, appointments and other dates are lost.

## OBJECTS OF THE INVENTION

It is an object of the invention to provide a system, method and computer program product whereby a user can easily select data to be copied to a system computer, and can also easily transfer data back to the user's computer once it has been repaired or to a new computer if the first computer cannot be repaired following a crash. It is also desirable that the data saved in the system computer may also include appointments, contact information, emails and other data.

It is also an object of the invention to solve compatibility problems between different types of computers, including PDA's and mobile telephones, and operating systems as pertains to data backup, storage and transfer.

It is a further object of the invention to provide a data backup and storage system, method and computer program product that operates without any need to install backup, file transfer, or other application software on the user's computer. It is desired to have a system that requires only conventional web browser software on the user's computer.

It is another object of the invention to provide a system, method and product that can provide reminders to the user of important appointments and dates, and whereby the dates and other data are secure.

It is a further object to have a multi-user version of the system, method and product that can host multiple users for backup data storage. A multi-user account is particularly suited for business applications, where an account administrator could manage the access levels of multiple sub-accounts, each sub-account corresponding to a single user.

Finally, it is an object to provide a system, method and product that quickly enables the transfer of files, especially large files, from one computer to another computer over the Internet.

## BRIEF SUMMARY OF THE INVENTION

One or more of the above-listed objects are met or exceeded by each of the embodiments of the data backup system, method and computer program product disclosed herein. The various embodiments disclosed combine ease of use with robust functionality. A system embodiment of the invention is provided for use by a plurality of account users to copy selected data between one or more account user computers and a system computer, each account user computer having a storage device, a display and means for operative connection to the Internet. The system comprises a system computer having a system storage device for storing and selectively retrieving data for each respective account, the system computer being operatively connected to the Internet. The system computer verifies account user identification for each account user computer seeking access to the system computer via the Internet. The system computer further scans the storage device of each verified account user computer and causes a first representation of at least a portion of the contents of the verified account user computer storage device and a second representation of at least a portion of the contents of the system computer storage device for the corresponding verified account to be displayed on each account user computer display. This enables the account user to select data files, folders or directories to be uploaded or downloaded to or from the system computer.

A computer program product embodiment of the invention comprises computer executable instructions stored on a system computer readable medium that when read causes one or more computers to execute the following steps: checking for an operative connection between the system computer and a network, and if the system computer is operatively connected; linking an account user computer to the system computer based on an account user identification; scanning the contents of a storage device associated with each linked account user

computer; scanning the contents of a partition on the system computer that has been associated with the account user identification; displaying a first representation of the contents of the storage device on the linked account user computer display; simultaneously displaying a second representation of the contents of the partition on the system computer on the linked account user computer display adjacent the first representation; and copying selected files between the connected first computer and system computer.

A method embodiment of the invention is provided for uploading and downloading data between a system computer and a plurality of account user computers, each account user having a system account and an account user identification, the system computer operatively connected to the Internet and capable of being accessed through a system website, the system computer having a data storage device capable of storing and retrieving data for each of a plurality of system accounts. For each user account, the method includes the steps of operatively connecting a first computer to the system website via the Internet; communicating account user identification; verifying account user identification and if verified, operatively connecting the system computer and the first computer; uploading selected data from the user first computer and storing the data on the system computer storage device; operatively connecting a second computer to the system website via the Internet; communicating account user identification; verifying account user identification and if verified; operatively connecting the system computer and the second computer; and downloading at least a portion of said selected data previously stored on the system computer storage device for the user account.

The data backup functions described above in regard to the system, program and method embodiments enable an account user to copy data from his/her computer to a system computer connected to the account user computer over the Internet. The data that can be copied includes documents, music files, image files, email and contact information in any file type or format. The system computer is a secure redundant system. If the user's computer fails for any reason, the copied data can be restored to a new or repaired computer or storage device. All of the software to operate the system is resident on the system computer. Unlike prior art backup systems, no hardware or software need be installed on the account user computer beyond a conventional, Java-compatible web browser, which is now a standard feature on nearly all computers. Because these conventional Internet tools are utilized, compatibility problems are solved allowing the system of the invention to function regardless of different hardware platforms and operating systems.

Preferred embodiments of the system also contain a scheduler, a contacts manager, a reminder generator and/or a file transfer system for third-party users. The scheduler includes the ability to store appointments for days or months in advance and then to either view, print, download or email a daily schedule to the user. The reminder generator is setup to track important dates, and generate periodic reminders. The contacts manager stores contact data in an electronic address book. All of these functions are resident in the secure, off-site redundant system computer. Accordingly, any damage to the account user's computer will not result in lost information. Further, because the system computer can be accessed by an account user from home, the office or practically any computer having Internet access, the system computer can be used as a virtual network server. Thus, for example, an account user can view his/her address book and other data from mobile computers, including notebooks, PDA's and mobile telephones.

The third-party file transfer system comprises a mechanism for the account user to create a second user name and password for access only to designated data. Accordingly, the account user can upload data files and folders to the system computer, and grant access to a third party to download those files. The process facilitates data transfer to third parties, and this is particularly well suited to the transfer of files too large for email transmission, and folders containing multiple files, which cannot be emailed as a folder.

Yet another embodiment of the backup system of the invention is directed to a multi-user system where a single account is divided into sub-accounts, which are managed by an account administrator, who can set various levels of access for the individual account users. Further, the account administrator can post items to a master schedule, which are then placed on the schedules of the holders of the sub-accounts.

Additional features and benefits of the backup system of the invention will become apparent from the drawings and detailed description of the preferred embodiments.

## BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

FIG. **1** is a schematic of a multi-user data transfer system.

FIG. **2** is a schematic of the system showing an account user computer linked to a system computer.

FIG. **3** is a display of a login screen enabling a user to access the data transfer system;

FIG. **4** is a display of a base or main menu page of the data transfer system;

FIG. **5** is a display of account information screen for a particular user of the data transfer system;

FIG. **6** is a display of a document transfer function of the data transfer system;

FIG. **7** is a display of a picture transfer function of the data transfer system;

FIG. **8** is a display for a music transfer function for the data transfer system;

FIG. **9** is a display for a scheduler function for the data transfer system;

FIG. **10** is a display of a reminder function for the data transfer system;

FIG. **11** is a display of a data entry screen for the reminder function;

FIG. **12** is a display for an email storage function of the data transfer system;

FIG. **13** is a display of the main screen for a contacts function of the data transfer system;

FIG. **14** is a display of a data entry screen for the contacts function;

FIG. **15** is a schematic showing an account user and remote user connected a system computer over the Internet;

FIG. **16** is a display of an account user screen for provision of remote user access;

FIG. **17** is a display is a display of a remote user access screen; and

FIG. **18** is a display of an alternate multi-user embodiment of the data transfer system, showing an account administrator's screen.

FIG. **19** is a schematic illustrating a virtual network.

FIG. **20** is a flowchart illustrating the operation of the file transfer system shown in FIGS. **6-8**.

FIG. **21** is a flowchart illustrating the operation of the reminder system shown in FIGS. **10-11**.

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Before discussing exemplary embodiments of the present invention in detail, it will be appreciated that the invention

may be embodied in a system, method, and/or a computer program product. For example, a method of the invention may be carried out by one or more users using computers, and a program product of the invention may include computer executable instructions that when executed by one or more computers cause one or more computers to carry out a method of the invention. Further, one or more computer(s) that contains a program product of the invention may embody a system of the invention. It will accordingly be appreciated that in describing a particular embodiment of the present invention, description of other embodiments may also be made. For example, it will be understood that when describing a method of the invention, a system and/or a program product of the invention may likewise be described.

Turning now to FIG. **1**, a first embodiment of the file backup system of the invention is shown. One or more account user computers **10** are connected to a system computer **12** over the Internet **14**. The account user computer **10** can be any type of computer, including mobile, home and office computers. The term "computer" is used herein to include any device having a processor capable of executing program instructions, including but not limited to personal computers, notebook computers, hand held personal digital assistants ("PDA") and mobile phones. As used herein the term "account user computer" refers to any computer from which an account user can access the Internet and system computer. As shown in FIG. **2**, account user computer **10** has a display **16** and at least one data storage device **18**, for example, a hard drive. Any type of hardware and operating system can be used. Web browser software is required, but any browser can be used provided it has a Java plug-in. Substantially all current browsers have Java. Beyond a common browser, no specialized hardware or software need be installed on account user computer **10** to fully utilize the features disclosed herein. Further, the data stored on computer **10** for which backup is desired, can be of any type or format. The present system thereby solves compatibility problems associated with different brands of computers, which is of particular significance with regard to handheld devices and mobile telephones.

System computer **12** preferably comprises multiple redundant computers with redundant data storage devices. In a preferred embodiment, system computer **12** comprises a secure, high speed Unix-based computer behind a 3-layered firewall system that performs a once a day backup of itself to three separate backup computers. System computer **12** includes least one storage device **20** that can store account user data and selectively retrieve data applicable to a specific account only. System computer **12** also hosts the software that operates the backup system of the invention. Because all of the software to operate the system is resident on the system computer, account users are spared the inconvenience and burden of loading or downloading specialized software onto their computers. It follows that all system updates are made only to the system computer, thereby sparing the account users for any need to periodically update software.

Referring now to FIG. **3**, in order to access system computer **12** from an account user computer **10**, the user navigates to a system website via the Internet, e.g., <vdatacom.com>, <vdataoffice.com>, <vdatanetworks.com>. After reaching the system website, the account user clicks on a login button, and a login screen **30** appears on user's display **18**, having been generated by system computer **12**. The user enters his or her user name **34** and password **36**, and then selects the enter button **38** to transmit this data to the system computer **12** for verification. This submission of the login and password information can be encrypted using conventional means. Other verification means can be used in lieu of or in addition to the user name and password, for example, the system software can be programmed to check and verify the serial numbers of component parts or other encrypted data unique to the system user computer.

Once the user has successfully accessed the system computer **12** by logging-in, base screen **40** is shown on display **18**, as shown in FIG. **4**. Base screen **40** optionally includes two different representations of the system functions. One representation is a list view **42** of the system functions and the other representation is an icon view **44** of the system functions. Each representation includes one or more of a scheduler link **46**, a reminder system link **48**, a document transfer system link **50**, a picture transfer system link **52**, a music transfer system link **54**, a contact storage link **56**, an email storage link **58**, a miscellaneous storage link **60**, and an account manager link **62**. A logout link **64** is also provided with the list view **42**. List view **42** preferably appears on every screen display of the system to enable the user to navigate between functions. Clicking any of the above links initiates a routine corresponding to the function associated with the selected link. The system computer **12** thereby functions a virtual network server. It allows the user to view and use data from almost any location, using nearly any type of computer, including hand held PDA's and mobile telephones.

In order to use the system, the user first establishes an account using an account manager **70** which is accessed through account manager link **62**. As shown in FIG. **5**, account manager link includes a template for entry of account-related information. Such information includes the account user identification (e.g., a user name **34** and password **36**), personal information **74** and billing information **76**. Personal information **74** includes a name **78**, a physical address **80**, an electronic communication address **82** (e.g., an email address), and phone numbers **84**. Billing information **76** includes standard credit card information including the credit card number, type expiration date, the name appearing on the card, and the card billing address.

Turning now to FIG. **6**, the document transfer system **90** is accessed through document transfer function link **50**. The system computer then scans the account user storage device **18**, and generates a first virtual representation **91** of at least a portion of the account user storage device **18**. The system also scans the system storage device **20** to retrieve previously stored data associated with the applicable user account and displays a second virtual representation of at least a portion of such data. These two representations can be displayed on the account user computer display **18** in any manner or sequence, but preferably they are displayed simultaneously, in a single window, side-by-side. The transfer system **90** display also includes at least one, but preferably plural data transfer buttons **93**, **94**. To copy data from account user storage device **18** to the system storage device **20**, the user selects one or more files, folders or directories to be transferred on the first virtual representation **91** and a destination location on the second virtual representation **92** and clicks on a first file transfer button **93**. To copy a file stored on the system storage device **20** to the account user's storage device, the user selects the files or folders to be transferred on the second virtual representation **92** and a destination location on the first virtual representation **91**, and clicks on a second transfer button **94**. Preferably, transfer buttons **93**, **94** include arrows to show the direction of file transfer. In operation the system copies the data from the source to the target regardless of data file format of file, for example, encrypted files will be transferred as is.

Each virtual representation includes options to create new directories **95**, rename files **96**, delete files **97**, or refresh **98**

the virtual representations to reflect recent files or directories copied from the storage device to the other. The user can create a new directory on the account user storage device **18** by selecting the directory creation function **95**. Files or folders on the account user storage device can be renamed by selecting the rename function **96**. The new name for the file or folder is entered at data entry box **99** for the first virtual representation **91**. Files or folders can be deleted from the account user storage device **18** by selecting files or folders on the first virtual representation **91** and selecting the delete option **97**. The virtual representations **91** can be refreshed to reflect recently copied files by selecting the refresh option **98**.

The user can create a new directory on the system storage device **20** by selecting the make directory function **100**. Files or folders on the system storage device can be renamed by selecting the renamer **101**. The new name for the file or folder is entered at data entry box **104** for the second virtual representation **92**. Files or folders can be deleted from system storage **20** by selecting files or folders on the second virtual representation **92** and selecting the delete option **102**. The second virtual representation **92** can be refreshed to reflect recently copied files by selecting the refresh option **103**.

Turning now to FIG. **7**, picture transfer system **110** is accessed by selecting the picture transfer system link **52** from base screen **40**. As with the document transfer function **52**, picture transfer system **110** includes a first virtual representation **112** of the account user storage device **18** and a second virtual representation **114** of the account user partition on the system storage device **20**. The picture transfer buttons operates in the same manner as the document transfer systems as described in reference to feature numbers **91-104** in FIG. **6**.

Similarly, the music transfer system **120**, shown in FIG. **8** also operates in the same manner as the document transfer function. The music transfer buttons operate in the same manner as the document transfer systems as described in reference to feature numbers **91-104** in FIG. **6**.

FIG. **9** shows the scheduler **130**, which is accessed by selecting scheduler link **46** from account user screen **40**. Scheduler **130** preferably has one or more monthly calendars **132** and a daily diary **134**. The daily diary **134** displayed corresponds to the day selected on the monthly calendar, where the user can view previously entered appointments and reminders. This area also contains an optional task notepad **136** whereby the user can enter notes or other information.

Once a calendar entry has been entered, the user stores it by selecting the save button **138**. The account user can also print his or her daily diary by selecting print button **140** or the user can email a daily calendar by selecting send button **142**. Alternatively, the user can download the daily calendar by selecting download option **144**. Preferably, the calendar function is compatible with the account user's mobile computer (s), such as a PDA.

The reminder system **150** is shown in FIGS. **10**. It is accessed by selecting the reminder system link **48** from any screen. Reminder screen **152** as shown in FIG. **10** provides a list of reminders, including the subject **153** and an indication of the last time that the reminder was generated **155**. The user may also add new reminders by selecting add reminder option **154**, or delete an existing reminder using delete option **156**. Each reminder may be added or deleted individually.

If the user selects the add reminder option **152**, an add reminder window **160** appears as shown in FIG. **11**. Window **160** presents a template that directs the user to input a reminder subject **162**, a reminder description **163**, and an initial date **164** of the reminder. The user may also select a frequency **165** that this reminder may be generated. The frequency can either be a single occasion, or it can be set for any periodic reoccurrence period, including daily, weekly, biweekly, monthly, bimonthly, quarterly, semiannually, annually; or it can be set to occur at specified number of days, months, or years. The reminder function enables the user to enter data that may not necessarily be in computer form that is of particular importance, for example, scheduled payments such as tax or credit card payments, and appointments that may already be in the scheduler.

The system is programmed to generate an email reminder to the account user based on the reminder date **164** and additionally based on the reoccurrence frequency **165** specified. The account user email address is preferably the account email address **82** described above. The system could be modified to accept alternative email addresses, however. Furthermore, other types of reminders could be generated in addition to or in lieu of email. All of the reminder data as well as the software are resident in the system computer **12**. Accordingly, reminders will not be affected if the account user computer **10** is damaged and replaced.

Turning now to FIG. **12**, an email storage system **170** lists the emails that have been saved to the system computer. Email can be saved to the system computer **12** by either forwarding selected emails to an email address associated with the system, or by exporting email from the account user email program. Saved email list **172** indicates the date that the email was originally received, the subject of the email and the original sender. To view a particular email, the user selects the corresponding view email button **174**. To send a particular email to the user's current email account (as defined by email address **80** entered in the account manager), the user selects the email send option **176**. To delete an email that is no longer of importance, the user selects the delete email option **178**.

Turning to FIG. **13**, the contact manager **180** is shown. Contact manager includes a contact list **182** where summary contact details are shown. Such summary contact details include the contact's name, email address, and phone numbers. To obtain more detailed information, the user selects the hyperlink associated with the entry, which is typically the contact's name. This screen also displays additional information and notes regarding the contact. To add a contact, add new contact button **184** is selected.

The "Add New" button **184** launches contact adder **190**, as shown in FIG. **14**, which presents a template whereby the user can enter the aforesaid contact information. Once contact information has been entered, the user can save this information by selecting the save button **194**. Alternately, the user can clear the contact fields by selecting the clear option **196**. The close button **198** terminates the contact adder **190** and returns the user to the contact manager **180**.

Preferably, the contact manager is compatible with PDAs, mobile telephones. Further, it is preferred that the account user computer contact files can be uploaded and stored in the contact manager. Thus, if the account user notebook computer, PDA or mobile phone is lost, damaged or stolen, the account user can log back into the system to download or view his/her contact data. This is also useful for individuals that upgrade or otherwise change equipment or service providers. In many cases, the address book from one mobile telephone will not work with another telephone. PDA handheld devices have the same problem; the data cannot be moved from one brand to another brand of PDA. With the present system the contact data stored in one mobile telephone or PDA can be transferred to another without compatibility problems.

The system also has a third-party data transfer function **210**, as shown in FIGS. **15-17**. Through this option an account user can use the system to transfer data to third parties, including files, folders and entire directories. Large data files and

folders can be easily transmitted that normally, due to their size, would be difficult or impossible to transfer electronically. Conventional email programs typically have a size limit on the files that can be transferred, typically between 1 and 10 MB. An extremely large file or folder, for example multimedia data, may not be transferred easily. In the past such files could only be transferred by saving them on portable media such as a CD-ROM, a flash drive or ZIP drive and sending the media to the third-party.

The basic arrangement third party data transfer is shown in FIG. **15** wherein a file on account user computer **10** can be transferred to a third-party computer **22**. To transfer data, the account user navigates to a remote user information screen **220** (FIG. **16**) and creates a third-party identification, e.g., a user name **224** and password **226** for the third-party user. Once created, the account user then uploads the selected files to the system computer **12** in a manner similar to that described above in reference to document transfer. The files are copied to a storage device on system computer **12**. The account user can save **228** or delete **230** files as desired. The account user then informs the third party of the web address of the system computer, and the third party user name and password, e.g., by telephone.

Turning now to FIG. **17**, the third-party user navigates to the system website, where a Remote User login page **210** is located. The third-party can then login to the system computer to access and download the designated data **220**. Preferably, the third-party user's access is limited to being able to download only the data specifically designated for transfer to the particular third-party by the account user. In addition, the third-party may be provided an option to upload files to the system for access by the account user. The third-party need not be an account user. Again, because all software is resident on the system computer, there is no need for third party to install or use any special hardware or software beyond a conventional web browser.

FIG. **18** shows an alternate embodiment **240**, particularly suited for business applications. In this system, a user account is divided into a plurality of sub-accounts. Preferably, a system administrator controls the respective properties of each sub-account. The system administrator may set up the account so that the levels of access for the sub-account users may vary. For example, a sub-account user may only be able to see his/her own files on the system computer. The sub-account user may also be limited in that he/she can only save files to the system computer but cannot access or download files from the system computer. Another user may be able to download and upload files but cannot delete any files. Another user may only be able to upload files with no other features allowed.

All sub-account files can be accessed by the system administrator, whereas to the individual user, his access will appear similar to that of the previous embodiment shown in FIGS. **1-14**. The system administrator will see an array of folders with each user having his own set of folders. However, the system administrator will also have access to a master scheduler whereby he/she can create appointments or reminders that appear on the calendars of all of the sub-account users.

FIG. **19** shows a schematic representation of a virtual server system **260** for a plural location business. The virtual server system comprises plural account user locations **262**, a mobile personal data assistant **264**, a mobile notebook computer **266**, and a mobile telephone **268**. Each location **262** has multiple computers.

The user of each computer including the mobile units **264**, **266**, **268** are preferably assigned a sub-account. The sub-account user computers may be linked in any manner to the Internet **14**. The sub-account user computers may have individual Internet connections. Preferably each location **262** has a high speed Internet backbone. As with previous embodiments, a system computer **12** is operatively connected to the Internet **14**. In this embodiment, it is not necessary for the locations **262** to have a local file server and related hardware. The system computer **12** functions as a virtual server for all locations as well as the mobile units. Thereby, the account user business can substantially reduce computer equipment and maintenance costs. Further, if the system server is operated and maintained by a third party, as contemplated, the overall savings to the account user business can be substantial. This is of particular value to start up businesses that lack the capital to purchase and maintain a local area computer network, businesses with multiple locations, and businesses where employees are frequently away from the office, e.g., salesmen.

Turning now to FIG. **20**, a flow chart for method and computer program embodiments of the data backup systems is provided. When a file transfer system option is selected, see FIG. **6**, the program first scans the system computer storage device **20** at step **280** locating data files and folders associated with the account user. At step **282**, the program scans the account user's computer storage device **18**. After completion of these two steps, the program displays **284** on the account user's computer display a first representation of at least a portion of the user computer storage device **91** and a second representation of at least a portion of the data files and folders associated with the user's account of the system computer **92** (as shown in FIG. **6**). The program then waits for a user action at step **286**.

When the user initiates an action, for example, by pressing one of buttons **93-103**, the computer evaluates which action has been requested at step **288**. At step **288**, the program determines whether a file transfer action has been requested (i.e., has the user pressed button **93** or **94**). If the user selected a different option, the system proceeds to step **290**, performs the requested action (make a new directory, delete a file, etc.) and returns to step **280**.

If a file transfer option is selected, the process then proceeds to step **292**, which determines which computer is the originating computer for the requested file transfer. If the user computer is the originating computer then the selected files are copied from at least one storage device **18** on the user's computer **10** to the destination location of the storage device **20** on the system computer **12** as show at step **294**. If the system computer is the originating computer then the selected files are copied from the storage device **20** on the system computer **12** to the destination location on the storage device on the account user computer **12** as shown at step **296**. After either step **294** or step **296**, the program cycles back to step **280**.

FIG. **21** shows a method of operation a computer program embodiment of the system reminder function. At step **300**, the program checks the current time as determined by a system clock incorporated into system computer **12**. At step **302**, the program compares all appointments with the current time. At step **304**, the program determines if it is time to send any reminders by looking for matches between the current time and the times associated with appointments entered by users into the system. If there are no matches, then the system cycles back to step **300**. If a match is found, the system sends and email reminder **306** to the email address stored in the account setup. The system then checks to see if the reminder was designed by the user to be a recurring reminder at step **308**. If the reminder is a recurring reminder, the system then

calculates the next occurrence of the appointment by adding frequency **165**, and schedules a new reminder.

While a particular embodiment of the file backup system has been described herein, it will be appreciated by those skilled in the art that changes and modifications may be made thereto without departing from the invention in its broader aspects and as set forth in the following claims.

The invention claimed is:

**1**. A data storage system having a plurality of accounts for copying selected data files between one or more account user computers and a system computer, each account user computer having a storage device, a display and means for operative connection to the Internet, the data storage system comprising:

the system computer having a system storage device with means for storing and selectively retrieving data files for each respective account, and file transfer software wherein the file transfer software is exclusively stored on the system computer; the system computer being operatively connected to the Internet and having means for the account users to access the system computer through a system website using a web browser;

means for verifying account user identification for each account user computer seeking access to the system computer via the Internet wherein the account user identification comprises a code unique to and embedded in the account user computer;

the system computer including means for scanning the storage device of a linked verified account user computer;

the system computer including means for causing a list of data files stored on the linked account user computer storage device and a list of data files stored on the system computer storage device for the corresponding verified account to be displayed in the web browser on the linked account user computer display;

means for receiving information indicating user selected data files from the list of data files stored on the linked verified account user computer storage device and the list of data files stored on the system computer storage device for the corresponding verified account; and

means for downloading selected data files from the linked account user computer storage device to the system computer storage device for the corresponding verified account and uploading selected data files from the system computer storage device for the corresponding verified account to the linked account user computer storage device.

**2**. The system of claim **1**, wherein the account user identification comprises an account user name and associated password.

**3**. The system of claim **1** wherein the displaying means displays the list of data files stored on the linked account user computer storage device and the list of data files stored on the system computer storage device for the corresponding verified account in a single window in the web browser on the linked account user computer display.

**4**. The system of claim **1**, further comprising the system computer including means for storing at least one appointment date for at least one account user, and means for generating at least one appointment reminder for the appointment date.

**5**. The system of claim **4**, wherein the system computer has means to store at least one electronic communication address for each account user, and wherein the appointment reminder is an email transmitted from the system computer to the email address associated with the at least one account user.

**6**. The system of claim **1**, wherein at least a portion of the accounts have sub-accounts each having a sub-account identification, further comprising means for verifying sub-account identification.

**7**. The system of claim **6**, further comprising means for setting varying levels of access for each sub-account.

**8**. The system of claim **6**, further comprising a master scheduler means for entering appointments for all or selected sub-accounts, whereby appointment entries in the master scheduler are placed on calendars for all or selected sub-accounts.

**9**. A computer program product comprising computer executable instructions stored exclusively on a system computer readable medium comprising:

checking for an operative connection between the system computer and the Internet, and if the system computer is operatively connected;

linking the system computer with an account user computer having a storage device based on verification of an account user identification;

scanning the data files and directories of the linked user computer storage device;

scanning the contents of data files and directories of a storage device on the system computer associated with the account user identification;

displaying data files and directories stored on the linked user computer storage device and data files and directories stored on the system computer associated with the account identification in a single window in a first web browser on the linked user computer display;

downloading selected data files from the linked user computer storage device to the system computer storage device associated with the account user identification and uploading selected data files from the system computer storage device associated with the account user identification to the linked user computer storage device;

associating a third party identification with the selected data files;

linking the system computer to a third-party computer based on verification of a third-party identification;

displaying in a second web browser on the linked third-party computer the selected data files associated with the corresponding third party identification; and

uploading the selected data files from the system computer to the linked third-party computer.

**10**. A computer program product as in claim **9**, further comprising storing at least one email address for an account, storing at least one appointment date and associated message for at least one user account, comparing a current date with stored appointment dates, and when the current date equals an appointment date, generating an email reminder with an associated message to the account email address.

**11**. A computer program product as in claim **10**, wherein the program executes the step of generating periodic email reminders on predetermined time intervals.

**12**. A method for a system computer to upload and download data between the system computer and a plurality of account user computers, each account user having a system account and an account user identification, the system computer operatively connected to the Internet and accessible through a system website using a web browser, the system computer having a data storage device capable of storing and retrieving unique user data for each of a plurality of system accounts, comprising the steps, for each user account:

linking the system computer to a first computer via the Internet;

receiving an account user identification from the first computer;

verifying the account user identification, and if verified,

scanning a storage device of the first computer,

downloading selected unique user data files from the first computer storage device and storing the unique user data files on the system computer storage device,

linking the system computer with a second computer via the Internet, wherein the second computer is one of a repaired first computer and a replacement for the first computer, the second computer having a second computer storage device;

receiving an account user identification from the second computer;

verifying the account user identification, and if verified;

uploading at least a portion of the selected unique user data files stored on the system computer storage device to the second computer storage device.

**13**. A method as in claim **12**, wherein the first computer is one of an office computer or home computer, and the second computer is the other.

**14**. A method as in claim **12**, further comprising displaying on a display of the second computer, at least a portion of the contents of data previously stored on the system computer for that account.

**15**. A method as in claim **12**, further comprising the step of simultaneously displaying on the second computer display a representation of at least a portion of the contents of a storage device of the second computer.

**16**. A method for a system computer to copy data from and to a plurality of account user computers, comprising the steps of:

establishing a plurality of system accounts, each account having an account user identification;

providing a system computer having a data storage device and file transfer software wherein the file transfer software is exclusively stored on the system computer, the data storage device capable of storing and retrieving data for each system account;

operatively connecting the system computer to the Internet;

providing account users access to the system computer via the Internet through a system website using a web browser;

verifying account user identification for each user computer seeking access to the system computer, and if verified for access, for each account:

operatively connecting the system computer to the account user computer;

scanning the contents of a storage device for the account user computer;

displaying in a single window in the web browser on a display of the account user computer a list of at least a portion of the data files stored on the account user computer storage device and at least a portion of the data files stored on the system computer for that account;

downloading selected data from the account user computer to the system computer and uploading selected data from the system computer to the account user computer.

**17**. A data storage system having a plurality of accounts for downloading selected data files and directories from one or more account user computers and uploading selected data files and directories from a system computer to one or more account user computers, each account user computer having a storage device, a display and means for operative connection to the Internet using a web browser, the data storage system comprising:

the system computer having file transfer software wherein the file transfer software is exclusively stored on the system computer, a system storage device adapted for storing and selectively retrieving data for each respective account, the system computer being operatively connected to a network;

software on the system computer for verifying account user identification for each account user computer seeking access to the system computer via the network;

the system computer adapted for scanning the storage device of a linked verified account user computer;

the system computer including software for displaying in a single window a list of data files and directories stored on the linked account user computer storage device and a list of data files and directories stored on the system computer storage device for the corresponding verified account on the linked account user computer display;

software allowing the system computer to receive information indicating selected data files and directories from the list of data files and directories stored on the linked verified account user computer storage device and the list of data files and directories stored on the system computer storage device for the corresponding verified account; and

software allowing the system computer to download selected data files and directories from the linked account user computer storage device and to store the selected data files and directories on the system computer storage device for the corresponding verified account and to upload selected data files and directories from the system computer storage device for the corresponding verified account to the linked account user computer storage device.

**18**. The system of claim **17** wherein a plurality of authorized users can access the data files and directories stored on the system computer storage device for the verified user account.

* * * * *