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22388 U.S. PTO 60/502619 09/15/03

PROVISIONAL APPLICATION FOR PATENT COVER SHEET

This is a request for filing a PROVISIONAL APPLICATION FOR PATENT under 37 CFR 1.53(c).

INVENTOR(S)

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☐ *Additional inventors are being named on the ____ separately numbered sheets attached hereto*

TITLE OF THE INVENTION (280 characters max)

DRAG & DROP APPLICATION MANAGEMENT

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ENCLOSED APPLICATION PARTS ***(check all that apply)***

☒ Specification *Number of Pages* **22**

☒ Drawing(s) *Number of Sheets* **6**

☐ Application Data Sheet. See 37 CFR 1.76

☐ CD(s), Number

☐ Other (specify)

METHOD OF PAYMENT OF FILING FEES FOR THIS PROVISIONAL APPLICATION FOR PATENT *(check one)*

☒ Applicant claims small entity status. See 37 CFR 1.27.

☒ A check or money order is enclosed to cover the filing fees

☐ The Commissioner is hereby authorized to charge filing fees or credit any overpayment to Deposit Account Number **04-1577**

☐ Payment by credit card. Form PTO-2038 is attached.

FILING FEE AMOUNT ($): **$80.00**

The invention was made by an agency of the United States Government or under a contract with an agency of the United States Government.

☒ No.

☐ Yes, the name of the U.S. Government agency and the Government contract number are: _____

Respectfully submitted,

SIGNATURE

Date **09/15/03**

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REGISTRATION NO. *(if appropriate)* **26,868**

Docket Number: 14448PRO

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USE ONLY FOR FILING A PROVISIONAL APPLICATION FOR PATENT

This collection of information is required by 37 CFR 1.51. The information is used by the public to file (and by the PTO to process) a provisional application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 8 hours to complete, including gathering, preparing, and submitting the complete provisional application to the PTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, D.C. 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Box Provisional Application, Assistant Commissioner for Patents, Washington, D.C.

P19SMALL/REV05

Google Exhibit 1107
Google v. VirtaMove
Oracle Ex. 1107
Oracle v. VirtaMove, IPR2025-00965

Drag & Drop Application Management

Field of the Invention

The invention relates to computer software. In particular, the invention relates to software that manages the operation of a data center.

Background of the Invention

There has been an unprecedented proliferation of computer systems in the business enterprise. This has been a response to an increase in the number and changing nature of software applications supporting key business processes.

Management of computer systems required to support these applications has become an expensive proposition. This is partially due to the fact that each of the software applications are in most cases hosted on an independent computing platform. The result is an increase in the number of systems to manage.

Summary of the Invention

According to one broad aspect, the invention provides a method of installing a software application on a computing platform. The method includes displaying a software application icon representing the software application and a computing platform icon representing the computing platform. A selection of the software application for installation is received using the software application icon. A selection of the computing platform to which the software application is to be installed is received using the computing platform icon. Installation of the selected software application is then initiated on the selected computing platform.

In some embodiments, the computing platform is a remote computing platform.

In some embodiments, the selection of the software application is received with the use of a graphical user interface in response to the software application icon being pointed to using a pointing device.

In some embodiments, the pointing device is a mouse.

In some embodiments, the selection of the computing platform is received in response to the software application icon being dragged over the computing platform icon and the software application icon being dropped.

In some embodiments, the installation of the selected software application on the selected computing platform is initiated in response to the software application icon being dropped over the computing platform icon.

In some embodiments, upon initialization, the selected computing platform is tested to determine whether it is a valid computing platform.

In some embodiments, upon initialization, a user account is created for the selected software application.

In some embodiments, upon initialization, files specific to the selected application software are installed on the selected computing platform.

In some embodiments, upon initialization, file access permissions are set to allow a user to access the application.

In some embodiments, upon initialization, a console on the selected computing platform is updated with information indicating that the selected software application is resident on the selected computing platform.

In accordance with a second broad aspect, the invention provides a method of de-installing a software application from a computing platform. The method includes displaying a software application icon representing the software application and a computing platform icon representing the computing platform on which the software application is installed. A selection of the software application for de-installation using the software application icon is received. A selection of the computing platform from which the software application is to be de-installed using the computing platform icon is also received. De-installation of the selected software application from the selected computing platform is then initiated.

In some embodiments, the computing platform is a remote computing platform.

In some embodiments, the displaying comprises displaying the software application as being installed on the computing platform with the use of the software application icon and the computing platform icon.

In some embodiments, the selection of the software application is received with the use of a graphical user interface in response to the software application icon being pointed to using a pointing device.

In some embodiments, the pointing device is a mouse.

In some embodiments, the selection of the computing platform is in response to the software application icon being dragged away from the computing platform icon and the software application icon being dropped.

In some embodiments, upon initialization, the selected computing platform is tested to determined whether it is a valid computing platform for de-installation of the software application.

In some embodiments, upon initialization, any process associated with the selected software application is stopped.

In some embodiments, upon initialization, data file changes specific to the software application are copied back to a storage medium from which the data file changes originated prior to installation.

In some embodiments, upon initialization, a user account associated with the selected software application is removed.

In some embodiments, upon initialization, a console on the computing platform is updated with information indicating that the selected software application is no longer resident on the selected computing platform.

In accordance with a third broad aspect, the invention provides an article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for installing a software application on a computing platform. The computer readable code means in the article of manufacture has computer readable code means for performing any of the above method steps for installation.

In accordance with a fourth broad aspect, the invention provides an article of manufacture comprising a computer usable medium having computer readable program code means embodied therein for de-installing a software application from a computing platform. The computer readable code means in the article of manufacture has computer readable code means for performing any of the above method steps for de-installation.

In accordance with a fifth broad aspect, the invention provides a GUI (Graphical User Interface) adapted to perform any of the above method steps for installation or de-installation.

In accordance with a sixth broad aspect, the invention provides a GUI adapted to display a software application icon representative of a software application available for installation and display a computing platform icon representative of a computing platform. The GUI is responsive to a selection of the software application icon and the computing platform icon by initiating installation of the software application on the computing platform.

In accordance with a seventh broad aspect, the invention provides a GUI adapted to display a software application icon representative of a software application and display a computing platform icon representative of a computing platform, the GUI being responsive to a selection of the software application icon and the computing platform icon by initiating de-installation of the software application from the computing platform.

In accordance with an eighth broad aspect, the invention provides a GUI adapted to display a software application icon representative of a software application

installed on a computing platform, the GUI being responsive to a selection of the software application icon by initiating de-installation of the software application from the computing platform.

In some embodiments of the invention, the selection is made using a drag and drop operation.

In accordance with an ninth broad aspect, the invention provides a method of de-installing a software application from a computing platform. The method includes displaying a software application icon representing the software application installed on a computing platform. A selection of the software application for de-installation from the computing platform is received using the software application icon. The de-installation of the selected software application from the computing platform is then initiated.

In some embodiments, the selection of the application icon is in response to the software application icon being dragged away.

In some embodiments, the de-installation of the selected software application from the computing platform is initiated in response to the software application icon being dropped.

Accordingly, the invention relates, in part to methods of installing and removing software applications through a selection such as, for example, a graphical drag and drop operation.

In some embodiments of the invention, functions of the GUI support the ability to select an object, move it and initiate an operation when the object is placed on a specific

destination. This process has supported operations including the copy and transfer of files.

Some embodiments of the invention extend this operation to allow software applications, represented by a graphical icon, to be installed in working order following a drag and drop in a graphical user interface.

Brief Description of the Drawings

Preferred embodiments of the invention will now be described with reference to the attached drawings in which:

Figure 1 is a schematic showing the operation of the invention, according to an embodiment of the invention;

Figure 2 is a schematic showing software application icons collected in a centralized file storage medium and a remote computing platform icon, according to another embodiment of the invention;

Figure 3 is a screen snapshot of an implementation according to the schematic of Figure 2;

Figure 4 is a flow chart of a method of initializing icons of Figure 3;

Figure 5 is a flow chart of a method of installing a software application on a computing platform in response to a drag & drop operation of Figure 2; and

Figure 6 is a flow chart of a method of de-installing a software application from a computing platform in response to a drag & drop operation of Figure 2.

Detailed Description of the Preferred Embodiments

The following definitions are used herein:

Storage repository: A centralized disk based storage containing application specific files that make up a software application.

Computing platform: A computer hardware platform having an operating system is referred to as a computing platform. As such, a computing platform is suitably configured and ready to host software applications.

GUI (Graphical User Interface): A computer-based display that presents a graphical interface by which a user interacts with a computing platform by means of icons, windows, menus and a pointing device is referred to as a GUI.

Icon: An icon is an object supported by a GUI. Normally an icon associates an image with an object that can be operated on through a GUI.

Aspects of the invention include:

- GUI supporting drag & drop operations
- Icons
- Storage medium
- Console
- Network connections
- One or more computing platforms

While software applications are represented as graphical icons, they are physically contained in a storage medium. Such a storage medium consists, for example, of disk-

based file storage on a server accessible through a network connection.

A computing platform is a computer with an installed operating system capable of hosting software applications.

When a software application icon is "dropped" on a computing platform the applications associated with the icon are installed in working order on the selected platform. The computing platform is generally remote with respect to either the platform hosting the graphical interface or the server hosting the storage medium. This topology is not strictly required, but rather a likely scenario.

Referring to Figure 1, shown is a schematic showing the operation of the invention, according to an embodiment of the invention. A graphical icon representing a specific software application is displayed through a graphical user interface. Also displayed is an icon representing a remote computing platform upon which a software application can be hosted. Only one computing platform icon is shown; however, it is to be understood that several computing platform icons each representing a respective remote or local computing platform may also be displayed. Similarly, several software application icons may be displayed depending on the number of software applications available. The software application is selected, through the use of a graphical user interface, by pointing to its software application icon and using a mouse click (or other pointing device). The software application icon is dragged over top of the remote computing platform icon and dropped. The drop initiates the operation of installing software applications on the remote computing platform.

Referring to Figure 2, shown is a schematic showing software applications icons collected in a centralized file

storage medium and a remote computing platform icon, according to another embodiment of the invention. The software applications icons collected in the file storage medium, as shown, are graphical icons each representing respective software applications which are entries in the file storage medium. The computing platform icon represents a computing platform available to host any one or more of the software applications represented by the software icons. When one of the software application icons is selected, dragged, and dropped on a computing platform icon the respective software applications installed on the remote computing platform corresponding to the computing platform icon.

Referring to Figure 3, shown is a screen snapshot of an implementation according to the schematic of Figure 2. The screen snap shot shows, as an example implementation, software application and computing platform icons. Available software applications corresponding to software application icons fs0, ts0, and ts1 are grouped under the heading "Data Center 1". Computing platforms available to host software applications are featured under the heading "Repository" and are represented by computing platform icons CRM, MySQL, WebServer, Video, and Skeleton. Operations involve selecting a software application icon, dragging it over a candidate computing platform icon and releasing, or dropping it on the computing platform icon. The selected software application will then be installed in working order on the selected computing platform. The reverse is true for removal of a software application from a selected computing platform. De-installation is accomplished by selecting an application installed on a compute platform and dragging to the repository. The application in question is shown to be associated with a compute platform in graphical fashion. In one embodiment, as shown in figure 3, applications are associated with a compute platform in hierarchical order, or

in a tree view. An application connected to a compute platform as root in a tree view is selected and dropped onto the repository. This initiates the de-install operation.

Referring to Figure 4, shown is a flow chart of a method of initializing the icons of Figure 3. An icon such as a computing platform icon or software application icon is created as a GUI (Graphical User Interface) object. Drop handler operations are then associated to the computing platform icon. In particular, any operation required for installation is associated with the icon.

1.Installation

As discussed above with reference to Figures 1 to 3, the installation process is initiated by a drag & drop of a software application icon, from a storage medium, to a top of a computing platform icon. An install drop handler implements the installation of the software application.

The install drop handler performs several tasks on the destination computing platform:

- Tests whether the computing platform is a valid computing platform;
- Creates a user account for the software application;
- Installs application specific files so that they are accessible to the remote computing platform;
- Sets file access permissions such that a new user can access its applications;
- Starts a first application; and

- Updates a console showing that the selected software application is resident on the selected computing platform.

These steps will now be described with reference to Figure 5 which is a flow chart of a method of installing a software application on a computing platform in response to the drag & drop operation of Figure 2. As discussed above, in operation the installation process is invoked when a software application icon is dropped on a computing platform icon. The method steps of Figure 5 are performed by an install drop handler. During installation, a verification is performed to determine whether the selected computing platform is a valid candidate for installing a selected software application. If the computing platform is a valid candidate, a user account is created for the software application; otherwise, the installation process ends. Once the user account is created, application files associated with the software applications are installed on the selected computing platform so that they are accessible to the computing platform. File access permissions are then set such that one or more new users can access the application being installed. A first application is then started. In some embodiments, an application, for example accounting or payroll, represent several programs/processes. In order to start the accounting/payroll service a first application is started that MAY in turn start other programs/processes. The first program is started. It is then up to the specific service, accounting/payroll, to start any other services it requires.

A console on the selected computing platform on which the software application is being installed is then updated with information to show that the selected software application is resident on the selected computing platform. The console is

operational on any desktop computing platform for example, Unix, Linux and Windows.

2. Removal of application software from a computing platform

With reference to Figure 3, the removal process is initiated by a drag & drop operation of a software application icon from a computing platform icon to the repository. For this purpose each computing platform icon shows, with the use of associated software application icons (not shown in Figure 3), each application software installed on the computing platform.

The de-installation of application software from a selected computing platform is done by a remove drop handler which performs the following tasks on the selected computing platform:

- Tests whether the computing platform is a valid computing platform; (Tests are made to verify whether the computing platform is operational. For example, it may have been taken off-line due to a problem or routine maintenance. If so, then applications should not be removed or installed until this state changes.)
- Stops processes associated with the software application;
- Copies application specific data file changes from the computing platform back to the storage medium;
- Removes user accounts associated with the software application; and
- Updates the console to show that the selected software application is resident in the repository.

These steps will now be described with reference to Figure 6 which is a flow chart of a method of de-installing a software application from a computing platform in response to a drag & drop operation of Figure 2. The state of the platform is verified to determine whether it is valid. The state includes, for example, on-line, off-line (a problem state) or maintenance (off-line, but for a scheduled task). If the state of the platform is valid and a process or processes associated with a software application selected to be de-installed are stopped; otherwise the de-installation process ends. Once the processes are stopped, application specific data file changes are copied from the computing platform back to the storage medium. This is a process of capturing changes that may have taken place while the application ran and that need to be saved for future instances when the application runs again. For example, payroll may be run every other week. Changes made to the system, accrued amounts, year to date payments, etc. will need to be saved so that when payroll is run the next time these values are updated. It may be required (depending on how the operator configures a system) to copy changes made when payroll ran back to the repository so that the next time payroll is run these values are installed along with the application.

Any user account associated with the selected software application is removed and a console on the computing platform from which the selected software application is being de-installed is updated with information to show that the selected software application is resident in the repository.

Using the method steps of Figures 5 and 6, software applications are therefore installed on a computing platform and removed from the computing platform through a graphical user interface drag and drop operation.

A number of programming languages may be used to implement programs used in embodiments of the invention. Some example programming languages used in embodiments of the invention include, but are not limited to, C++, Java and a number of scripting languages including TCL/TK and PERL.

Installation of software applications is preferably performed on computing platforms that are remote from a console computing platform. However, some embodiments of the invention also have installation of software applications performed on a computing platform that is local to a console computing platform.

Numerous modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the appended claims, the invention may be practised otherwise than as specifically described herein.

WE CLAIM:

1. A method of installing a software application on a computing platform, the method comprising:

displaying a software application icon representing the software application and a computing platform icon representing the computing platform;

receiving a selection of the software application for installation using the software application icon;

receiving a selection of the computing platform to which the software application is to be installed using the computing platform icon; and

initiating the installation of the selected software application on the selected computing platform.

2. A method according to claim 1 wherein the computing platform is a remote computing platform.

3. A method according to claim 1 or 2 wherein the selection of the software application is received with the use of a graphical user interface in response to the software application icon being pointed to using a pointing device.

4. A method according to claim 3 wherein the pointing device is a mouse.

5. A method according to claim 3 or 4 wherein the receiving a selection of the computing platform is in response to the software application icon being dragged over the computing platform icon and the software application icon being dropped.

6. A method according to claim 5 wherein the initiating the installation of the selected software application on the selected computing platform is in response to the software application icon being dropped over the computing platform icon.

7. A method according to anyone of claims 1 to 6 further comprising, upon initialization, testing whether the selected computing platform is a valid computing platform.

8. A method according to anyone of claims 1 to 7 further comprising, upon initialization, creating a user account for the selected software application.

9. A method according to anyone of claims 1 to 8 further comprising, upon initialization, installing files specific to the selected application software on the selected computing platform.

10. A method according to claim 9 further comprising, upon initialization, setting file access permissions to allow a user to access the application.

11. A method according to anyone of claims 1 to 10 further comprising starting the selected software application.

12. A method according to anyone of claims 1 to 11 further comprising, upon initialization, updating a console on the selected computing platform with information indicating that the selected software application is resident on the selected computing platform.

13. A method of de-installing a software application from a computing platform, the method comprising:

displaying a software application icon representing the software application and a computing platform icon representing the computing platform on which the software application is installed;

receiving a selection of the software application for de-installation using the software application icon;

receiving a selection of the computing platform from which the software application is to be de-installed using the computing platform icon; and

initiating the de-installation of the selected software application from the selected computing platform.

14. A method according to claim 13 wherein the computing platform is a remote computing platform.

15. A method according to claim 13 or 14 wherein the displaying comprises displaying the software application as being installed on the computing platform with the use of the software application icon and the computing platform icon.

16. A method according to anyone of claims 13 to 15 wherein the selection of the software application is received with the use of a graphical user interface in response to the software application icon being pointed to using a pointing device.

17. A method according to claim 16 wherein the pointing device is a mouse.

18. A method according to claim 16 or 17 wherein the displaying a software application icon comprises displaying

software application icon as being installed on the computing platform and wherein the selection of the application icon and the selection of the computing platform are in response to the software application icon being dragged away from the software application icon.

19. A method according to claim 18 wherein the initiating the de-installation of the selected software application from the selected computing platform is in response to the software application icon being dropped.

20. A method according to anyone of claims 13 to 19 further comprising, upon initialization, testing whether the selected computing platform is a valid computing platform for de-installation of the software application.

21. A method according to anyone of claims 13 to 20 further comprising, upon initialization, stopping any process associated with the selected software application.

22. A method according to anyone of claims 13 to 21 further comprising, upon initialization, copying data file changes specific to the software application back to a storage medium from which the data file changes originated prior to installation.

23. A method according to anyone of claims 13 to 22 further comprising, upon initialization, removing a user account associated with the selected software application.

24. A method according to anyone of claims 13 to 23 further comprising, upon initialization, updating a console on the computing platform with information indicating that the

selected software application is no longer resident on the selected computing platform.

25. An article of manufacture comprising:

a computer usable medium having computer readable program code means embodied therein for installing a software application on a computing platform, the computer readable code means in said article of manufacture comprising:

computer readable code means for performing the method steps of any one of claims 1 to 12.

26. An article of manufacture comprising:

a computer usable medium having computer readable program code means embodied therein for de-installing a software application from a computing platform, the computer readable code means in said article of manufacture comprising:

computer readable code means for performing the method steps of any one of claims 13 to 24 and 32 to 34.

27. A GUI (Graphical User Interface) adapted to perform the method steps of anyone of claims 1 to 24 and 32 to 34.

28. A GUI (Graphical User Interface) adapted to display a software application icon representative of a software application available for installation and display a computing platform icon representative of a computing platform, the GUI being responsive to a selection of the software application icon and the computing platform icon by initiating installation of the software application on the computing platform.

29. A GUI (Graphical User Interface) adapted to display a software application icon representative of a software

application and display a computing platform icon representative of a computing platform, the GUI being responsive to a selection of the software application icon and the computing platform icon by initiating de-installation of the software application from the computing platform.

30. A GUI (Graphical User Interface) adapted to display a software application icon representative of a software application installed on a computing platform, the GUI being responsive to a selection of the software application icon by initiating de-installation of the software application from the computing platform.

31. A GUI (Graphical User Interface) according to anyone of claims 29 to 30 wherein the selection is in response to a drag and drop operation.

32. A method of de-installing a software application from a computing platform, the method comprising:

displaying a software application icon representing the software application installed on a computing platform;

receiving a selection of the software application for de-installation from the computing platform using the software application icon;

initiating the de-installation of the selected software application from the computing platform.

33. A method according to claim 32 wherein the selection of the application icon is in response to the software application icon being dragged away.

34. A method according to claim 33 wherein the initiating the de-installation of the selected software application from the computing platform is in response to the software application icon being dropped.

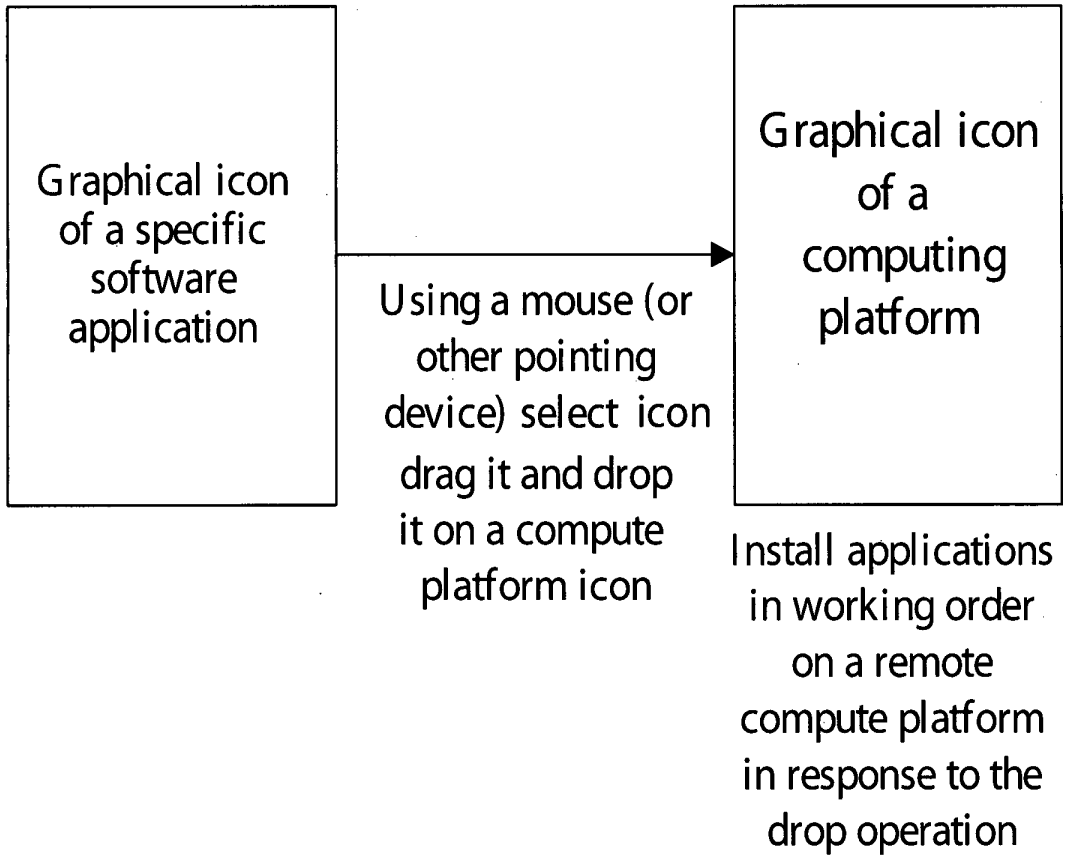
Graphical icon of a specific software application
Using a mouse (or other pointing device) select icon drag it and drop it on a compute platform icon
Graphical icon of a computing platform
Install applications in working order on a remote compute platform in response to the drop operation

FIG. 1

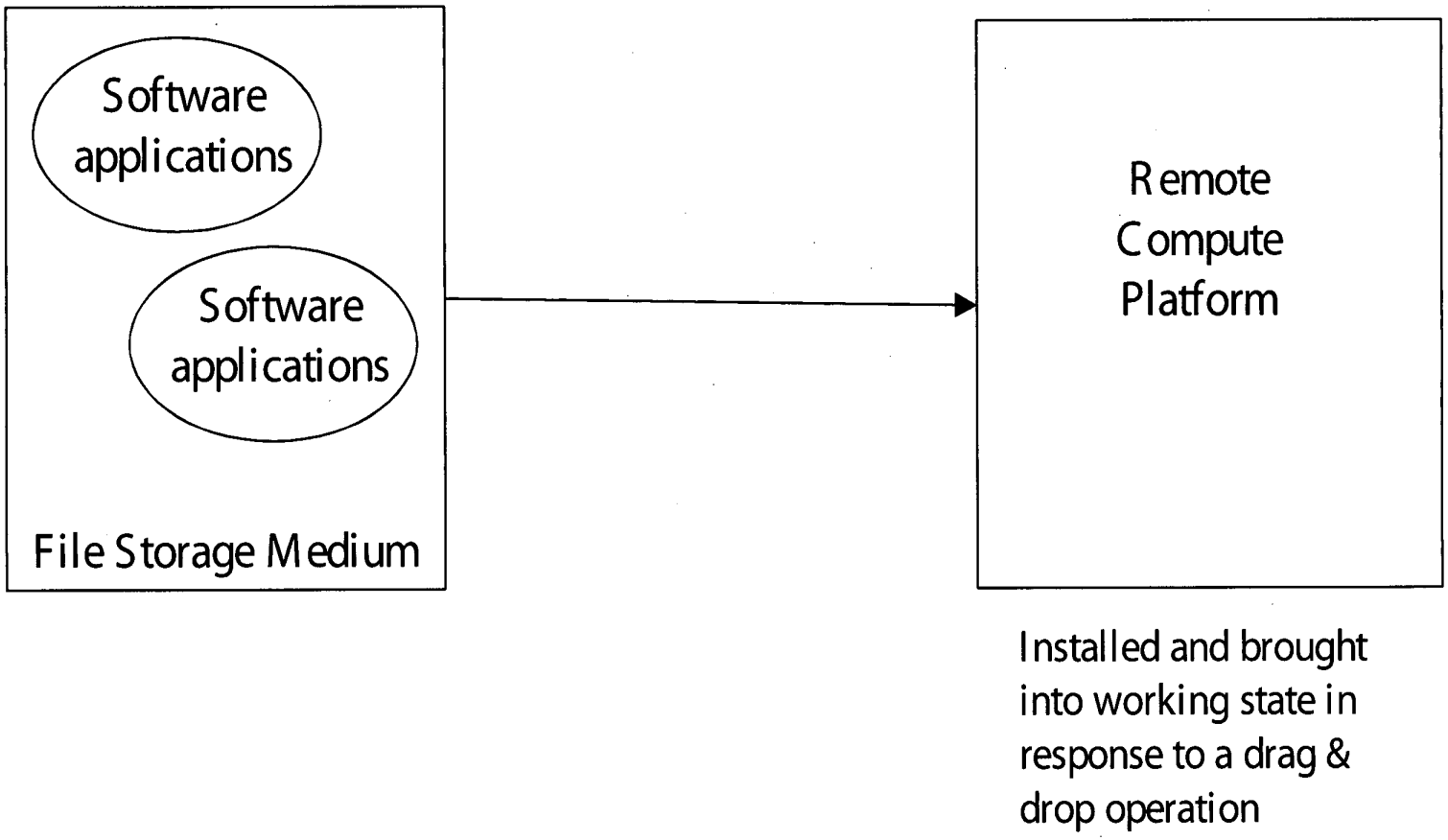
Software applications
Software applications
File Storage Medium
Remote Compute Platform
Installed and brought into working state in response to a drag & drop operation

FIG. 2

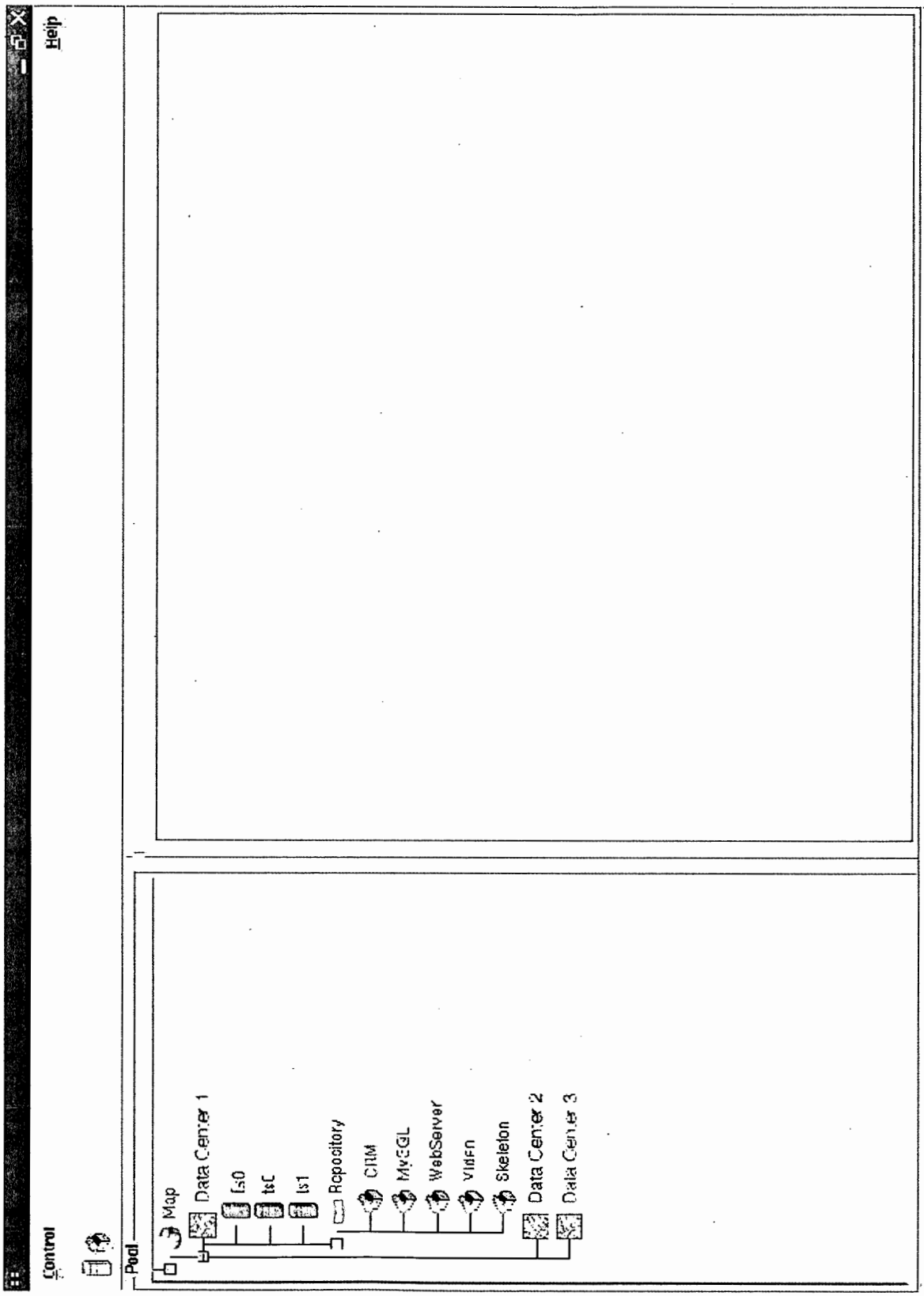
Control
Help
Pool
Map
Data Center 1
Repository
CRM
MyEGL
WebServer
Skeleton
Data Center 2
Data Center 3

FIG. 3

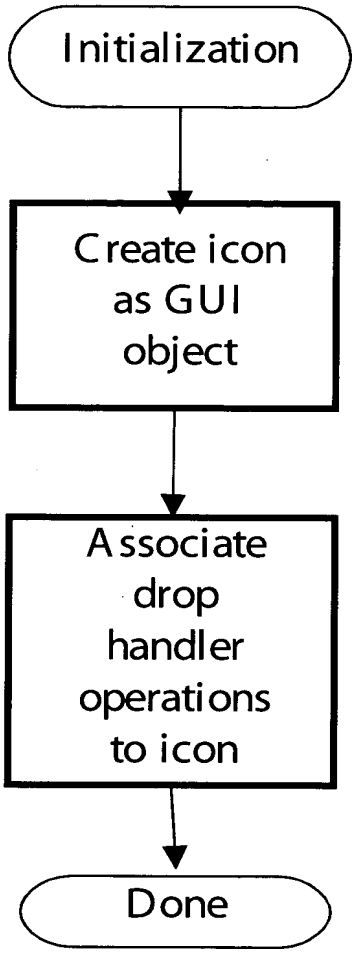
Initialization
Create icon as GUI object
Associate drop handler operations to icon
Done

FIG. 4

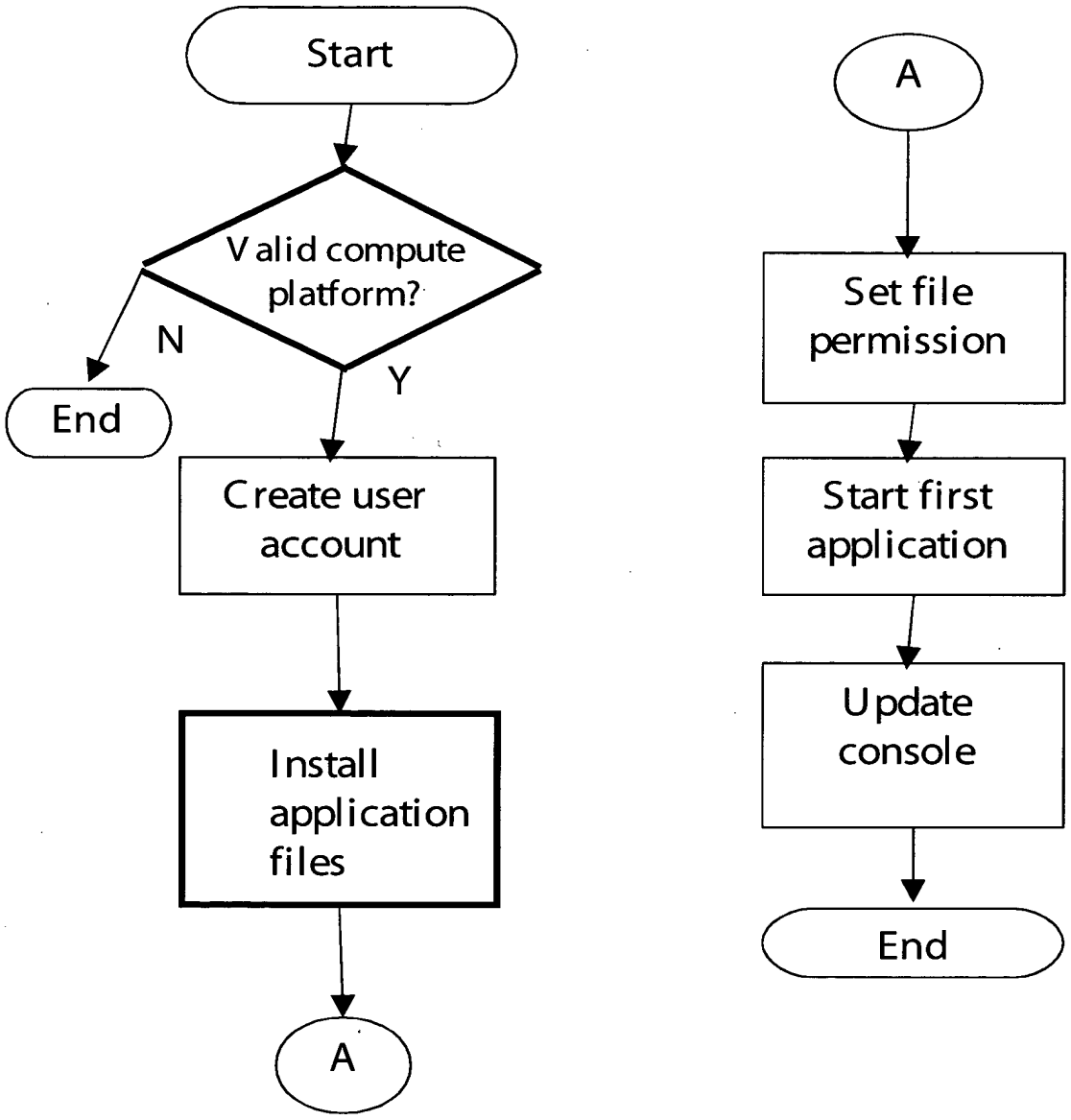
Start
Valid compute platform?
N
Y
End
Create user account
Install application files
A
A
Set file permission
Start first application
Update console
End

FIG. 5

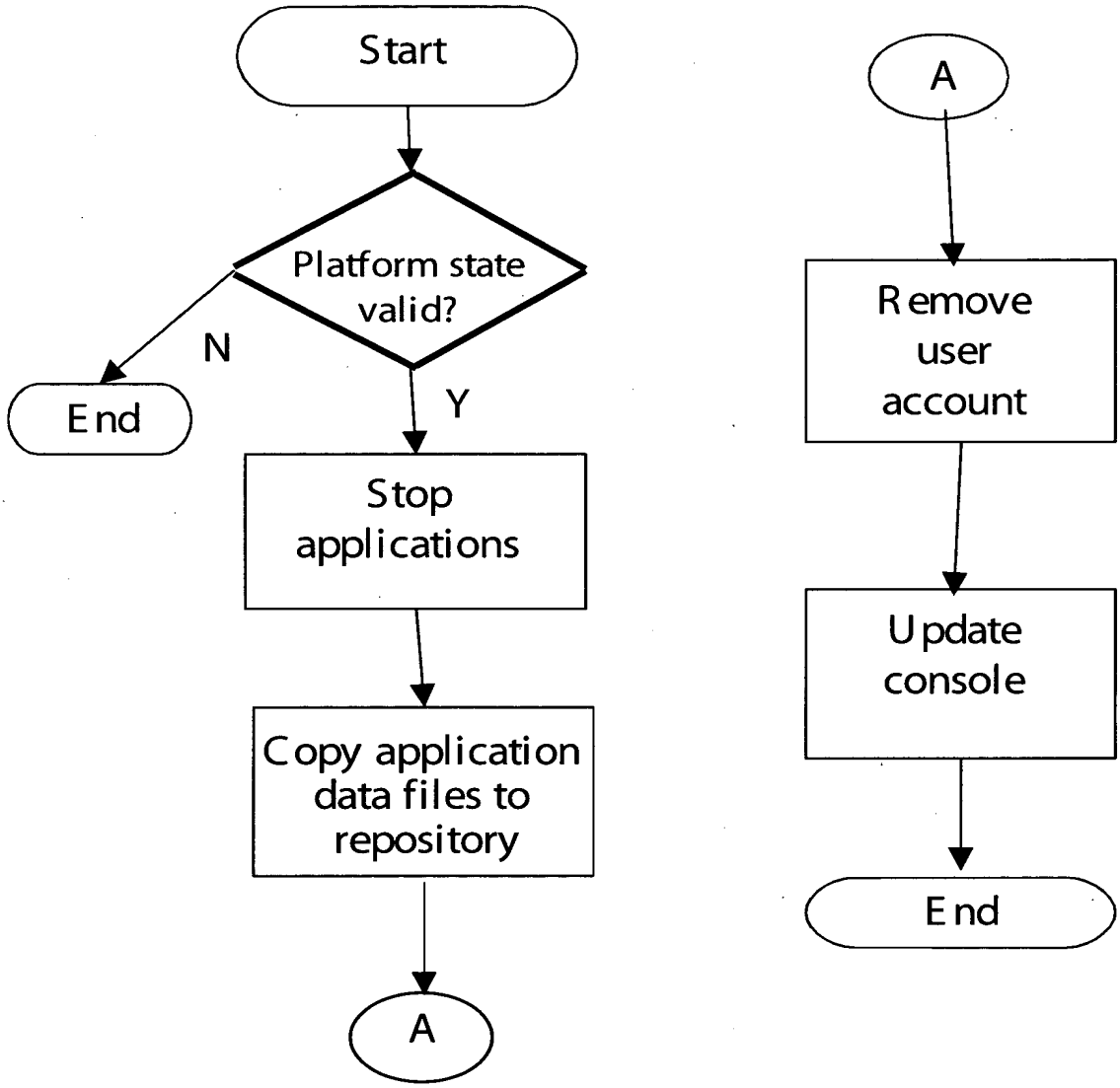
Start
Platform state valid?
N
End
Y
Stop applications
Copy application data files to repository
A
A
Remove user account
Update console
End

FIG. 6

PATENT APPLICATION SERIAL NO. _____

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE
FEE RECORD SHEET

09/16/2003 HVUONG1 00000076 60502619
01 FC:2005 80.00 OP

PTO-1556
(5/87)

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