

GENERIC REMOTE ACCESS OF SOFTWARE APPLICATION

Field of the Invention

5 **[0001]** The present invention relates to computer remote accessing. In particular, the invention relates to a system and method for remotely accessing software application of client terminals via Internet connection.

Background

10 **[0002]** With increasing popularity of Internet usage, online applications via the Internet have becoming more and more common, especially for remote access and sharing applications. These applications include e-commerce, online education, and the like.

15 **[0003]** In e-commerce and online education, online demonstrations are popular with clients/users. These demonstrations are based on a pull technology where the demonstrations are available online and can either be viewed directly through any web-browsers or multimedia platforms, or downloaded to the clients' computer for later
20 viewing. These demonstrations can be in the form of small executable programs or applets, web-pages, or data files such as Microsoft® PowerPoint® files, or multimedia (video/sound) files. These demonstrations are pre-made and pre-configured for viewing by the clients/users.

25 **[0004]** Another Internet based application is a remote computer/desktop control or access, which allows a client computer to access and control a host computer remotely. The current way of controlling applications on another computer is usually through a remote viewer to view and control the remote host's applications via the application's graphical user interface. The client computer retains control of the
30 applications on the host computer at all times. Subject to the settings, the client computer requires downloading a desktop view of the host computer and it can manipulate view as if the client computer is the host computer.

[0005] For example, GoToMyPC marketed by Citrix Online, a division of Citrix Systems, provides a remote desktop access service that include features such as: guess invitation for allowing a client computer to invite a second person to view or share control of the host computer; drag-and-drop file transferring for moving files between computers; remote Sound for listening to sound on host computer and others. When the client computer is remote accessing/controlling the host computer, the client computer maintains a full access/control to the host computer.

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Summary

[0006] The present invention provides a remote access system and method for a network having a plurality of terminals. In accordance with one aspect, each of the terminals having one or more application, the remote access system comprises an agent module for residing in each terminal of the network. One of the agent module is adapted to conduct a remote accessing session on the other agent modules, the agent module transmitting a data file to other agent modules via the network. Upon receiving the data file, the other agent modules are adapted to execute an associated application among the one or more application that is associated with the data file. The agent module transmitting the data file is adapted to send user interface signals to the other agent modules to control the associated application on each of the terminals simultaneously.

[0007] In accordance with one embodiment, the agent module may have a synchronization mode for synchronizing the remote accessing session between the agent module transmitted the data file and the other agent modules. Further, the synchronization may be performed by exchanging protocol message between the agent module transmitted the data file and the other agent modules. The agent module transmitted the data file is operable to remotely capture screen shots of the associated applications executed by the other agent modules. It is possible that the synchronization between the agent module transmitted the file data and the other agent module during the remote accessing session is verified visually through the captured screen shots. Further, the user interface signals may include keystroke signals.

[0008] In yet another embodiment, the agent module transmitted the date file may be adapted to broadcast text messages to the other agent module. It is possible that the broadcasted text messages are stored in a clipboard of the terminals.

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[0009] In a further embodiment, the agent module may comprise an input controller for controlling priority of user interfaces for controlling the agent module. The input controller may comprises an on-screen keyboard for controlling the remote accessing session.

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[0010] In another aspect of the present invention, there is provided a method for remote accessing a plurality of terminals via a network, each of the terminals having a agent module residing thereon. The plurality of terminals include a control terminal and at least one client terminal. The method comprises steps of transmitting a data file from the control terminal to the at least one client terminals through the agent modules; executing an application associated with the data file of the client terminals; and transmitting input interface signals of the control terminal to control the executed application residing on the client terminal.

[0011] In accordance with one embodiment, the method may further comprise synchronizing the remote accessing session between the agent module of the control terminal and the agent modules of the client terminals. The method may further comprise exchanging protocol message between the agent module of the control terminal and the agent modules client terminals. The method may further comprise capturing screen shots of the applications of the client terminals remotely from the control terminal. It is possible that the synchronization between control terminal and the client terminals during the remote accessing session is verified visually through the captured screen shots. Further the user interface signals may include keystroke signals.

[0012] In yet another embodiment, the method may further comprise broadcasting text messages from the agent module of the control terminal to the agent modules of the client terminals. It is possible that the method further comprises storing the broadcasted text messages in a clipboard of the client terminals.

[0013] In a further embodiment, the method may further comprise controlling priority of user interfaces for controlling the agent module of the control terminal. The control of the remote accessing session may be with an on-screen keyboard of the agent module of the control terminal.

Brief Description of the Drawings

[0014] This invention will be described by way of non-limiting embodiments of the present invention, with reference to the accompanying drawings, in which:

[0015] FIG. 1 illustrates a schematic block diagram of network of a plurality of terminals having a remote access system in accordance with an embodiment of the present invention;

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[0016] FIG. 2 illustrates a flow diagram of a remote access session in accordance with one embodiment of the present invention;

[0017] FIG. 3A exemplifies a main window of a control agent module in accordance with one embodiment of the present invention;

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[0018] FIG. 3B exemplifies an in-tray window of a control agent module in accordance with one embodiment of the present invention; and

[0019] FIG. 3C exemplifies a control screen of a control agent module in accordance with one embodiment of the present invention.

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Detailed Description

[0020] In line with the above summary, the following description of a number of specific and alternative embodiments are provided to understand the inventive features of the present invention. It shall be apparent to one skilled in the art, however that this invention may be practised without such specific details. Some of the details may not be described at length so as not to obscure the invention. For ease of reference, common reference numerals will be used throughout the figures when referring to the same or similar features common to the figures.

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[0021] FIG. 1 illustrates a schematic block diagram of a network 100 of a plurality of terminals having a remote access system in accordance with one embodiment of the present invention. The plurality of terminals connect to the network 100 via standard network connections, such as LAN, wireless LAN, WAN and etc. The network 100 may be an Intranet or Internet. Each of the terminals is provided with software applications such as word processing applications, graphic processing applications, and etc.

[0022] Still referring to FIG. 1, the network 100 comprises a control terminal 110 and client terminals 150. The control terminal 110 comprises a control agent module 111, an input controller 112, applications 113 and data files 114. Each client terminal 150 comprises a client agent module 151, client applications 153 and client data files 154. The control agent module 111 and the client agent module 151 are required by the remote access system to allow interaction between the control terminal 110 and client terminals 150. The input controller 112 controls inputs from user interfaces of the control terminal 110. The user interfaces include a keyboard, a pointing device such as a mouse, on-screen keyboard (or soft-keyboard), and the like. The applications 113 and the client applications 153 include any software applications such as word processing application, graphic processing application, and etc., which are installed on the respective terminals. The data files 114 and the client data files 154 include any data files that are associated with any of the applications 113 and the client applications 153. For example, files with a name extension of "pdf" associates with Adobe® Reader®, a name extension of "doc" associates with Microsoft® Word, a

name extension of "xls" associate with Microsoft® Excel, and etc. The examples above are provided by way of example, not limitation, it is well understood that one application 113 or 153 may associate with different type of data files, and vise versa.

5 [0023] Still referring to FIG. 1, during a remote access session, the control agent module 111 at the control terminal 110 and the client agent modules 151 at the client terminals 150 are executed. The control agent module 111 connects to the client agent module 151 via the network 101. The control agent module 111 can select the client agent module 151 from a list of recorded contacts or by specifying the IP
10 addresses of the client terminals 150 to be connected. Once the connection is established, the control agent module 111 can transfer a data file 114 to the client agent modules 151 via the network 100. The data file 114 can be transferred to the client agent modules 151 through drag-and-drop the relevant data file onto the control agent module 111 or though file browsing interface of the control agent module 111. Once
15 the data file 114 is transferred to the client terminals 150, the client agent modules 151 store the data file 114 at the local storage medium as the client data files 154. It can be stored temporary on the client terminals 150 and be deleted right when the remote access session ends, or be stored permanently on local storage medium. The control agent module 111 executes the data file 114 with one of the applications 113 associated
20 therewith. The client agent module 151 executes the client data file 154 with one of the client applications 153 associated therewith. The executed client applications 153 becomes an active client application on the client terminals

[0024] Still referring to FIG. 1, when the control agent 111 senses an input
25 signal from any of the user interfaces of the control terminal 110, the input signal is transmitted to the client agent modules 151. Upon receiving the input interface signal, the client agent modules 151 execute a relevant input signal at the client terminals 150 without a need to execute the relevant input signal through user interfaces of the client terminals 150. For example, when an input key "A" is executed on a keyboard or an
30 on-screen keyboard (via a pointing device) of the control terminal 110, the control agent module 111 executes an input signal that corresponds to the input key "A" on the control terminal 110 and transmits the input signal to the client agent module 151. When the client agent module 151 receives the input signal (i.e. the corresponding

signal for key "A"), the client agent modules 151 executes the input signal on the client terminals 150 to provide an input key "A" to the active application 153 of the client terminals 150. Similarly, when other keys is executed on the control terminal 110, the signals corresponding to the executed keys are sent from the control agent module 111
5 to the client agent module 151, and the client agent module 151 executes the relevant key on the active application executed by the client agent module 151.

[0025] Still referring to FIG. 1, the input controller 112 is adapted to control priorities of the user interfaces for the control terminal 110. A user of the control agent
10 module 111 can selectively control and limit the input signals from a specific user interface to be transmitted to the client terminals 150. For a non-limiting example, the control agent module 111 can be configured to send only the input signals that comes from the on-screen keyboard and maintain the signals from the keyboard and the pointing device for general operations for the control terminal 110.

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[0026] In the present embodiment, as input signals of user interfaces, such as keystroke signals, are broadcasted from the control terminal 110 to the client terminals 150, a generic remote controlling of the client terminals 150 simultaneously can be achieved without the need for modifying or understanding the architecture of the target
20 applications. Further, unlike other remote accessing system and method, there is no need to gain full control of the client terminals 150. The remote control session affects only the client application 153 that executed with the client data file 154 transferred from the control agent module 111. Users of the client terminals 150 are able to proceed with other computing tasks while the remote session is running on the
25 background.

[0027] During the remote accessing session, the control agent module 111 activates a synchronization mode to synchronize activities of the remote accessing session with exchange protocols. The exchange protocols are followed by each of the
30 transmission sent to ensure that the remote accessing session is synchronized between the control terminal 110 and the client terminals 150. The exchange protocols include a sending protocol message and a replying protocol message. The sending protocol message comprises information of the transmission sent by the control agent module

111, which includes a header, client identities, a data file name, a application name associated to the data file name, a command signal, a synchronization mode option, and/or data content. The header is an identifier of the type of data activities that are transmitted by the control agent module 111, which includes files transferring, commands signaling, files retrieval and message transferring. The rest of the sending protocol message may contain information that appropriate to the header. For example, the header of file transferring contains at least the data file name of the transferred data file, and the application name that associated to the transferred data file name. In response to the sending protocol message from the control agent module 111, the client module agent 151 replies with the reply protocol message. The reply protocol message contains the status of each transmission activity. The reply protocol message comprises an identity of the client agent module 151, a status of the transmission, and/or data content. The status includes transferred successful, file creation error, clipboard insertion successful, display message successful and command signal transmitted successful. In the event that there is unsuccessful transmission, the control agent module 111 may resend the transmission to the specific client agent module 151. Further, when there is no reply from a specific client agent module 151 within a predetermined time, the control agent module 111 would resend the data file or the control signal to that client agent module 151.

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[0028] Further, the control agent module 111 and the client agent modules 151 record a process identity of the applications 113 and 153 for each data file 114 that are transmitted over the network 100. When a plurality of data files are executed along with the associated applications 113 and 153, agent modules 111 and 151 can transmitted the command signals to the target applications based on the process identity, thereby synchronize the applications activities between the control terminal 110 and client terminals 150.

[0029] According to one embodiment, a user of the client terminal 150 can perform other computing activities as desired. During which, the client agent modules 151 and the client applications 153 executed by the client agent modules 151 remain on the background process of the terminals 150 and await any transmissions from the control agent module 111. When the control agent module 111 transmitted a control

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signal to the client agent module 151, the client agent modules 151 proceed to execute the control signal to the target client application 153 even when the target application 153 is not an active client application 153.

5 [0030] In an alternative embodiment, when a data file 114 is transmitted from the control agent module 111 to the client agent modules 151, the control agent module 111 is adapted to receive screen shots captured by the client agent modules 151 during the remote accessing session. In this alternative embodiment, the control agent module 111 does not need to launch an associated application 113 for the data file 114
10 transmitted to the client agent modules 111. Only the client agent modules 151 execute the associated client applications 153, and client agent modules 151 capture a screen shot when the associated client applications 135 are successfully executed with the transmitted data file 154 (or the client data file 154). Further screen shots of the client terminals 150 are captured for every data files and control signals transmitted.
15 Thereby, the user of the control agent module 111 can perform the remote accessing session via visually verifying the captured screen shots.

[0031] In another embodiment, the control agent module 111 can be controlled to capture screen shots anytime as desire.

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[0032] In the above embodiments, the control agent module 111 and the client agent module 151 are provided as a separate agent module. The control agent module 111 is configured to interact with the client agent module 151 and send files and commands to the client agent module 151. In accordance with an alternative
25 embodiment, an agent module model include the capabilities of both control agent module 111 and client agent module 151 is provided for residing in the control terminal 110 and client terminals 150.

[0033] FIG. 2 illustrates a flow diagram of a remote access session in
30 accordance with one embodiment of the present invention. The flow diagram is explained in conjunctions with FIG. 1. In step 201, the control agent module 111 and the client agent modules 151 are executed by users. A group of client agent modules 151 to be connected thereto are selected on the control agent module 111 in step 202.

The user of the control agent module 111 selects a data file 114 to be transferred to the group of client agent modules 151 in step 203. The selection of the data file 114 can be carried out by drag-and-drop onto the control agent module, or by way navigation window(s). In step 204, the client agent modules 151 checks if the data file 114 is successfully sent to the client terminals 150. If the file is not sent successfully sent, the relevant client agent module 151 send a request to the control agent module 111 to resend the data file 114. Upon receiving the data file 114 successfully on the client terminals 150, the client terminals 150 stores the data file 114 on a local storage medium as a client data file 154. In step 205, the client agent module 151 of the client terminals 150 executes a client application 153 that associates with the client data file 154. Each client agent module 151 responds to the control agent module 111 for the data file 114 transferring and the client application 153 execution statuses. In step 206, the client agent modules 151 listen to command signals from the control agent module 111. These command signals include keystrokes that input to the control agent module 111. When the client agent modules 151 receive the command signals, the command signals are executed on the client application 153 in step 207. In steps 208 and 209, the client agent modules 151 store an information status of the client application 153 on the client terminals 150 and send a monitoring status of the client application 153 to the control agent module respectively.

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[0034] In accordance with one embodiment, in the step 203, the control agent module 111 further searches and executes an application 113 that associated with the data file 114. The control agent module 111 identifies the application 113 by retrieving caption texts of all the applications 113 installed on the control terminal 110 and does a matching by the file name of the data file 114. The application 113 that matched with the data file 114 is then executed.

[0035] In accordance with one embodiment, in the step 205, the client agent module 151 further searches and executes a client application 153 that associated with the client data file 154. The client agent module 111 identifies the client application 153 by retrieving caption texts of all the client applications 153 installed on the client terminal 150 and does a matching by the file name of the client data file 154. The application 153 that matched with the client data file 114 is then executed.

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[0036] In the above steps, the control agent module 111 executes and controls the client applications 153 of the transferred data file 114 via the client agent modules 151 without retaining full control of the remote terminal via the network 100.

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[0037] FIG. 3A exemplifies a main window 310 of the control agent module 111 in accordance with one embodiment of the present invention. The main window 310 comprises an out-tray box 311, a terminal list 313 and a status display bar 316. The out-tray box 311 listed out the data files 114 that are sent to the client terminals 151. To add a new data file 114 for transferring to the client terminals 151, the user can simply drag-and-drop a selected data file 114 on the out-tray box 311. To delete any of the data file 114 from out-tray box 311, the user can click a delete button 312 located below the out-tray box 311 with a pointing device. When the data file 114 is dropped into the out-tray box 311, a corresponding application 113, 153 is executed on the control terminal 111 and the client terminals 151. The terminal list 313 lists all the terminals, including the control terminal 110 that are connected to the remote access system. The terminal list 313 can also be used to add and remove the client terminals 151 from the remote access system. As shown, the terminals' name and the corresponding IP address of the terminals are provided in the terminal list 313. For benefit of the user of the control terminal 110, the terminal list 313 may further show statuses of the terminal. For example, when a new client terminal 150 is added to the terminal list 313, its name and IP address may be shown red while the control agent module 111 is attempting to connect to the client terminal 150. Likewise when a data file is being sent to the client terminal 150. When the client terminal's 150 name and IP address are shown in black, the client terminal 150 is ready. Below the terminal list 313, there is provided a send command button 314 and a capture screen button 315. When the send command button 314 is pressed, an on-screen keypad window is provided for providing input commands. The input commands on the on-screen keypad can be selected via a pointing device of the control terminal 110. When the capture screen button 315 is pressed, screen shots of the target application 153 on the client terminals are captured and sent back to the control terminal 111. The status display bar 316 displays the status of the remote access session.

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[0038] FIG. 3B exemplifies an in-tray window 320 of the control agent module 111 in accordance with one embodiment of the present invention. The in-tray window 320 displays all the data files 114 that are transferred to the client terminals 151. The in-tray window 320 is also used for selecting the active data file 114.

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[0039] FIG. 3C exemplifies a control screen 330 of the control agent module 111 in accordance with one embodiment of the present invention. The control screen 330 is activated by pressing the send command button 314 of FIG. 3A. The control screen 330 comprises a window 332, a on-screen keypad 334 and a text box 336.

10 When the send command button 314 of FIG. 3A is pressed, a screen shot of the active client application 153 of the client terminal 150 is captured and displayed on the window 332 for user's visual verification. The user can use the on-screen keypad 334 for performing the remote accessing session. For each command signal sent, a new screen shot of the client application 153 of the client terminal 150 is captured and

15 refreshed on the window 332. Depending on the application and requirement, the on-screen keypad 334 can be a full key layout, such as an IBM PC keyboard layout, or a partial key layout that contains only some of the useful function keys. The text box 336 is used to enter text thereon for broadcasting to the client terminal 150. User of the control agent module 111 can choose to broadcast the text via a pop-up message

20 window on the client terminals 151, or to store directly in a clipboard of the client terminal 151 where users of the client terminals 151 may paste the text in a desired client application 153.

[0040] Still referring to FIG. 3C, where the remote accessing session includes more than one client terminals 151, all screen shots of the active client application 153 of the client terminals 151 are captured and displayed on the window 332 as thumbnail pictures. The user of the control agent module 111 can select any of the thumbnail pictures for viewing.

30 [0041] In another embodiment, the control agent module 111 selects a client file directly by only sending over the commands to control the client or the specific application.

[0042] In an embodiment, the preferred commands to be sent from the control agent module 111 to the client agent modules 151 are preferred to be the control terminal's 110 input signals, such as keystrokes. As the input signals are generic, the remote access system does not require a database of all specific commands different applications available in the market.

[0043] The present invention provides a real-time generic application of auto-launching software application(s) based on a data file transferred from a control terminal to one or more remote client terminal and remotely controlling the software application(s) with commonly used function keys in real time. For example, when a Microsoft® PowerPoint® file is being transferred to the one or more client terminal, the PowerPoint® application reside in the respective client terminal is launched automatically to display the file and the sender/initiator can navigate the presentation with function keys.

[0044] In this invention, it is proposed that a resident program sitting on the computer will do the job of launching the application of the data file which is associated to. The resident program will then listen to commands from the initiator. The initiator can then send generic commands to control the application without retaining control of the application at all times.

[0045] The present invention can be used for example, collaborative E-learning for delivering lectures to a group of students at a remote location in real time. An example of the E-learning is illustrated herewith below in conjunction with the FIGs. 1-3:

[0046] In an online tutorial for Microsoft® Excel, a lecturer uses a pre-stored Excel data file 114 for the illustration. During the remote session, the lecturer sends the pre-stored Excel data file 114 to the student terminals 150 via the control agent module 151 of the lecturer's terminal 110. When the client agent module 151 of the student terminals 150 receives the Excel data file 114, the Excel program is automatically launched at the lecturer and students' terminals. The screens of the lecturer and the students' terminals show an active Excel program with the Excel data

file 114 opened. When the lecturer is moving the cursor among the cell of Excel spreadsheet with the on-screen keyboard, the key signals are broadcast to the client agent modules 151, and the movements of the cursor are mirrored on the Excel spreadsheet of the Excel program of the student terminals 150. Similarly, when the lecturer selects any commands or provides any input to the spreadsheet of the lecturer's terminal 110, the input signals for selecting the commands or providing the input are broadcast to the client agent modules 151, and the client agent modules 151 executed the same command and input to mirrored the Excel spreadsheet's input of the lecturer's terminal 110 on the Excel spreadsheet of the student terminals 151. During the remote access session, the lecturer may choose another data file 114 of different type and executed an associated application 113, when necessary, and the data file 114 is transmitted to the client agent module 151 and an corresponding application 153 is executed automatically.

15 [0047] Another example of application of the present invention is virtual sales/marketing presentation. The remote access system can run a PowerPoint® slide presentation via the internet-based file transfer across the internet while the presenter can manage the slide presentation remotely and can collaborate/interact with the audience of different locations at the same time.

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[0048] In yet another example application, the present invention can be used for virtual organisation of workflow within and between companies, organizations or institutions of different geographical locations.

25 [0049] For the present invention, the input signals, command signals or the like referred hereto are inputs relate to human-computer interactions. The inputs can be produced by any user interfaces, such as keystrokes with a keyboard, movements of a computer mouse, and selections with a touch-screen, for the user employs to control the terminal and the agent module.

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[0050] While specific embodiments have been described and illustrated, it is understood that many changes, modifications, variations and combinations thereof

could be made to the present invention without departing from the scope of the invention.

CLAIMS

1. A remote access system for a network having a plurality of terminals, each of the terminals having one or more application, the remote access system comprising:
 - 5 an agent module for residing in each terminal of the network, wherein one of the agent module is adapted to conduct a remote accessing session on the other agent modules, the agent module transmit operable to transmit a data file to other agent modules via the network, and upon receiving the data file, the other agent modules are adapted to execute an associated application among the one or more application that
 - 10 associated with the data file,
wherein the agent module transmitted the data file is adapted to send user interface signals to the other agent modules to control the associated application on each of the terminals simultaneously.
- 15 2. The remote access system according to claim 1, wherein the agent module having a synchronization mode for synchronizing the remote accessing session between the agent module transmitted the data file and the other agent modules.
3. The remote access system according to claim 2, wherein the synchronization is
- 20 performed by exchanging protocol message between the agent module transmitted the data file and the other agent modules.
4. The remote access system according to claim 1, wherein the agent module transmitted the data file operable to remotely capture screen shots of the associated
- 25 applications executed by the other agent modules.
5. The remote access system according to claim 4, wherein synchronization between the agent module transmitted the file data and the other agent module during the remote accessing session is verified visually through the captured screen shots.
- 30 6. The remote access system according to claim 1, wherein the user interface signals include keystroke signals.

7. The remote access system according to claim 1, wherein the agent module transmitted the data file is adapted to broadcast text messages to the other agent module.
- 5 8. The remote access system according to claim 7, wherein the broadcasted text messages are stored in a clipboard of the terminals.
9. The remote access system according to claim 1, wherein the agent module comprises an input controller for controlling priority of user interfaces for controlling
10 the agent module.
10. The remote access system according to claim 9, wherein the input controller comprises an on-screen keyboard for controlling the remote accessing session.
- 15 11. The remote access system according to claim 1, wherein the network is Internet.
12. A method for remote accessing a plurality of terminals via a network, each of the terminals having a agent module residing thereon, wherein the plurality of terminals include a control terminal and at least one client terminal, said method comprising:
- 20 transmitting a data file from the control terminal to the at least one client terminals through the agent modules;
- executing an application associated with the data file of the client terminals; and
- transmitting input interface signals of the control terminal to control the executed application residing on the client terminal.
- 25 13. The method according to claim 12, further comprising synchronizing the remote accessing session between the agent module of the control terminal and the agent modules of the client terminals.
- 30 14. The method according to claim 13, further comprising exchanging protocol message between the agent module of the control terminal and the agent modules client terminals.

15. The method according to claim 12, further comprising capturing screen shots of the applications of the client terminals remotely from the control terminal.

16. The method according to claim 15, wherein synchronization between control terminal and the client terminals during the remote accessing session is verified visually through the captured screen shots.

17. The method according to claim 12, wherein the user interface signals include keystroke signals.

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18. The method according to claim 12, further comprising broadcasting text messages from the agent module of the control terminal to the agent modules of the client terminals.

19. The method according to claim 18, further comprising storing the broadcasted text messages in a clipboard of the client terminals.

20. The method according to claim 12, further comprising for controlling priority of user interfaces for controlling the agent module of the control terminal.

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21. The method according to claim 20, further comprising controlling the remote accessing session with an on-screen keyboard of the agent module of the control terminal.

22. The method according to claim 12, wherein the network is Internet.

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