

WHAT IS CLAIMED IS:

1. A method of providing an end-user of an end-user software application (200, 120) with assistance from an agent (400) of an assistance center over a network (170) operating in a client/server mode allowing communication between a data processing device (400) of the agent associated to agent display means and a data processing device (100) of the end-user associated to end-user display means, the end-user software application (200, 120) enabling the end-user to establish an end-user session, characterized in that it comprises the following steps performed with at least one data processor:

- installing a server side (430) of a desktop sharing application in the data processing device (400) of the agent;
- storing in data storage means a contextual database (160) that records actions initiated by the end-user, said actions characterizing the end-user session;
- obtaining a duplication of said end-user session by running an agent software application (200, 450) based on said actions and providing the display means of the data processing device (400) of the agent with said duplication;
- establishing a communication between the data processing device (400) of the agent and the data processing device (100) of the end-user through the network (170);
- activating in the data processing device (100) of the end-user a client side (90) of the desktop sharing application to allow viewing on the end-user display means what is displayed on the agent display means;
- starting an assistance session (428) between the agent and the end-user.

2. The method according to claim 1 wherein obtaining a duplication of said end-user session includes duplicating all entries (125) already made by the end-user on a page (121) of the end-user session currently displayed on the end-user display means and that have not been processed yet by the end-user software (200, 120).

3. The method according to any one of the preceding claims wherein obtaining a duplication of the end-user session requires requesting assistance of the agent from the data processing device (100) of the end-user and wherein requesting assistance includes any one of the following steps:

- activating help requesting means (20) embedded in a page (121) of the end-user session that is displayed on the end-user display means,
- requesting an executable link, receiving said executable link at the data processing device (100) of the end-user and accessing said executable link.

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4. The method according to any one of the preceding claims wherein the step of establishing a communication comprises configuring a tunnel between the server side (430) of the desktop sharing application and the client side (90) of the desktop sharing application for displaying on the end-user display means what is displayed on the agent display means

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5. The method according to any one of the preceding claims where an assistance service application has a client side (70) in the data processing device (400) of the agent and a server side (300) remotely located from the data processing device (100) of the end-user and which communicates through the network (170) with the data processing device (400) of the agent and with the data processing device (100) of the end-user, and where the server side (300) of the assistance service application performs the following steps:

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- receiving from the data processing device (100) of the end-user a request for assistance,
- sending to the client side (70) of the assistance service application a request for assistance assignment,
- receiving an acceptance of assignment from the client side (70) of the assistance service application,
- establishing a communication between the server side (430) of the desktop sharing application and the client side (90) of the desktop sharing application for displaying on the end-user display means what is displayed on the agent display means.

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6. The method according to the previous claim wherein the step of establishing a communication comprises configuring a tunnel between the server side (430) and the client side (90) of the desktop sharing application by performing the following steps:

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- disposing a tunneling server (440) at the data processing device (400) of the agent ,
- disposing a tunneling proxy (60) at the server side (430) of the desktop sharing application,

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connecting said tunneling server (440) and said tunneling proxy (60).

7. The method according to any one of the two previous claims wherein the server side (300) of the assistance service application performs the following steps:

- 5       - after receiving the request for assistance and before sending a request for assistance assignment, retrieving all entries performed by the end-user and that has not been yet processed or transmitted to said end-user software application (200, 120),
- 10       - after receiving an acceptance of assignment, sending to the client side (70) of the assistance service application all entries performed by the end-user and that has not been yet processed or transmitted to said end-user software application (200, 120).

8. The method according to any one of the three previous claims wherein the server side (300) of the assistance service application is configured to perform the following steps:

- 15       - after receiving the request for assistance and before sending a request for assistance assignment, attributing a context identifier that uniquely defines the session of the end-user,
- 20       - after receiving an acceptance of assignment, sending to the client side (70) of the assistance service application the context identifier that uniquely defines the session of the end-user.

9. The method according to any one of the four previous claims wherein the server side (300) of the assistance service application is configured to perform the following step:

- 25       - after receiving from the data processing device (100) of the end-user a request for assistance, sending to the data processing device (100) of the end-user a page with an applet that embeds the client side (90) of the desktop sharing application.
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10. The method according to any one of the five previous claims wherein the server side (300) of the assistance service application is configured to perform the following step:

- 35       - after receiving from the data processing device (100) of the end-user a request for assistance, sending to the data processing device (100) of the end-user a

password that is associated to the end-user session and that is necessary to connect the data processing device (400) of the agent with the data processing device (100) of the user.

5        11. The method according to any one of the preceding claims where an assistance service application has a client side (70) in the data processing device (400) of the agent and a server side (300) of the assistance service application remotely located from the data processing device (100) of the end-user and which communicates through the network (170) with the data processing device (400) of the agent and with the data processing device (100) of the end-user, the client side (70) of the assistance service application carrying out the following steps:

- receiving from the server side (300) of the assistance service application a request for assistance assignment,
- providing the data processing device (400) of the agent with means for accepting or rejecting said request for assistance assignment,
- if the agent accepts said request for assistance assignment, then establishing a communication between the client side (90) of the desktop sharing application and the server side (430) of the desktop sharing application for displaying on the end-user display means what is displayed on the agent display means.

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12. The method according to any one of the preceding claims where said end-user software application (200) is run on a software application server (150) remotely located from the data processing device (100) of the end-user.

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13. The method according to the previous claims where said end-user software application (200) and said agent software application (200) are the same software application (200).

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14. The method according to any one of the two preceding claims where said end-user software application (200) is a web-based application running from a web server (150).

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15. The method according to any one of the three preceding claims where the server side (300) of the assistance service application is also run on said software application server (150).

16. The method according to any one of claims 12 or 14 where the server side (300) of the assistance service application and the end-user software application (200) are run on distinct servers.

5 17. The method according to any one of the claims 1 to 11 where said end-user software application (120) is run on the data processing device (100) of the end-user and the agent software application (450) is run on the data processing device (400) of the agent.

10 18. The method according to any one of the claims 1 to 11 where said end-user software application (120) is run on the data processing device (100) of the end-user, where the data processing device (100) of the end-user comprises storage means for storing the contextual database (160), and where said end-user software application (120) is linked to the contextual database (160) and is instrumented to record the  
15 actions initiated by the end-user in the contextual database (160).

19. A computer program product stored on a non-transitory computer readable storage medium, comprising computer readable code means causing at least one computer to operate the method of any one of the previous claims.

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20. A system for providing an end-user of a end-user software application (200, 120) with assistance from an agent (400) of an assistance center operating in a client/server mode, the end-user software application (200, 120) enabling the end-user to establish an end-user session, comprising a data processing device (100) of the  
25 end-user associated to end-user display means, a data processing device (400) of the agent associated to agent display means, a desktop sharing application comprising a server side (430) and a client side (90) and a network (170) configured to allow communication between said end-user software application (200, 120), the data processing device (100) of the end-user and the data processing device (400) of the  
30 agent,  
characterized in that the server side (430) of the desktop sharing application is installed in the data processing device (400) of the agent, in that the client side of the desktop sharing application is installed in the data processing device (100) of the end-user and in that it comprises:

- data storage means comprising a contextual database (160) that is configured to record the actions initiated by the end-user, said actions characterizing the end-user session;
- at least one processor configured to run an assistance service application, the assistance service application being arranged for:
  - obtaining a duplication of said end-user session by running an agent software application (200, 450) based on said actions;
  - providing the display means of the data processing device (400) of the agent with said duplication;
  - establishing a communication between the data processing device (400) of the agent and the data processing device (100) of the end-user through the network (170) to allow viewing on the end-user display means what is displayed on the agent display means, starting thereby an assistance session.

## Claims

1. A computer implemented method of providing assistance from an agent to an end-user, the method comprising:

5 storing actions initiated by the end-user in a contextual database, the actions characterizing an end-user session with a first software application, the session being opened from a first data processing device of the end-user;

receiving a request for assistance from the first data processing device;

10 retrieving, with a server side of an assistance service application, all entries performed by the end-user that have not been processed or transmitted to the first software application;

sending a request for assistance assignment from the server side of the assistance service application to a client side of the assistance service application;

15 receiving an acceptance of assistance assignment in the server side of the assistance service application from the client side of the assistance service application;

in response to receiving the acceptance of assistance assignment, sending the retrieved entries from the server side of the assistance service application to the client side of the assistance service application;

20 in response to receiving the request for assistance from the first data processing device, establishing a communication channel between the first data processing device and a second data processing device of the agent by configuring a tunnel between a server side of a desktop sharing application on the second data processing device and a client side of the desktop sharing application on the first data processing device;

25 duplicating the end-user session on the second data processing device based on the stored actions in the contextual database by opening a clone of the end-user session with a second software application on a third data processing device; and

displaying the duplicated end-user session on the first data processing device with the desktop sharing application,

30 wherein the server side of the assistance service application is located remotely from the first data processing device and the client side of the assistance service application is located on the second data processing device.

2. The method of claim 1 wherein duplicating the end-user session includes duplicating all entries already made by the end-user on a page of the end-user session currently

35 displayed by the first data processing device and that have not been processed by the first software application.

3. The method of claim 1 wherein the end-user session is duplicated in response to the end-user requesting assistance by:

activating a help button embedded in a page of the end-user session that is

5 displayed on the first data processing device; or

requesting an executable link, receiving the executable link at the first data processing device, and accessing the executable link.

4. The method of claim 1 further comprising:

10 attributing, with the server side of the assistance service application, a context identifier that uniquely defines the end-user session; and

in response to receiving the acceptance of assistance assignment, sending the context identifier to the client side of the assistance service application.

15 5. The method of claim 1 further comprising:

in response to receiving the request for assistance, sending a page to the first data processing device with the server side of the assistance service application,

wherein the page includes an applet that embeds the client side of the desktop sharing application in the first data processing device.

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6. The method of claim 1 further comprising:

in response to receiving the request for assistance, sending, with the server side of the assistance service application, a password that is associated to the end-user session to the first data processing device, the password being necessary to connect the first data processing device with the second data processing device.

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7. The method of claim 1 further comprising:

after the request for assistance assignment from is received from the server side of the assistance service application, providing the agent with an option of accepting or

30 rejecting the request for assistance assignment on the second data processing device,

wherein the server side of the assistance service application is remotely located from the first data processing device, and the client side of the assistance service application is located in the second data processing device.

35 8. The method of claim 1 wherein the first software application is run on a software application server remotely located from the first data processing device.

9. The method of claim 8 wherein the first software application is a web-based application running from a web server.

5 10. The method of claim 8 wherein the server side of the assistance service application is run on the software application server.

11. The method of claim 8 wherein the server side of the assistance service application and the first software application are run on distinct servers.

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12. The method of claim 1 wherein the first software application and the second software application are the same software application.

13. The method of claim 1 wherein the first software application is run on the first data  
15 processing device.

14. The method of claim 1 wherein the first software application is run on the first data processing device, the contextual database is stored on the first data processing device, and the first software application is linked to the contextual database and is configured to record  
20 the actions initiated by the end-user in the contextual database.

15. The method of claim 1 wherein establishing a communication channel between the first data processing device and the second data processing device of the agent by configuring the tunnel between the server side of a desktop sharing application on the  
25 second data processing device and the client side of the desktop sharing application on the first data processing device comprises:

starting a tunneling server at the second data processing device;  
starting a tunneling proxy at the server side of the desktop sharing application; and  
connecting the tunneling server and the tunneling proxy.

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16. A computer program product stored on a non-transitory computer readable storage medium comprising computer readable code that, when executed by at least a first processing device of an end-user and a second processing device of an agent, causes the first and second processing devices to:

store actions initiated by an end-user in a contextual database, the actions characterizing an end-user session with a first software application, the session being opened from the first data processing device;

receive a request for assistance from the first data processing device;

5 retrieve, with a server side of an assistance service application, all entries performed by the end-user that have not been processed or transmitted to the first software application;

send a request for assistance assignment from the server side of the assistance service application to a client side of the assistance service application;

10 receive an acceptance of assistance assignment in the server side of the assistance service application from the client side of the assistance service application;

in response to receiving the acceptance of assistance assignment, send the retrieved entries from the server side of the assistance service application to the client side of the assistance service application;

15 in response to receiving the request for assistance from the first data processing device, establish a communication channel between the first data processing device and the second data processing device by configuring a tunnel between a server side of a desktop sharing application on the second data processing device and a client side of the desktop sharing application on the first data processing device;

20 duplicate the end-user session on the second data processing device based on the stored actions in the contextual database by opening a clone of the end-user session with a second software application on a third data processing device; and

display the duplicated end-user session on the first data processing device with the desktop sharing application,

25 wherein the server side of the assistance service application is located remotely from the first data processing device, and the client side of the assistance service application is located in the second data processing device.

17. A system for providing an end-user of a first software application with assistance from an agent, the system comprising:

30 a first data processing device of the end-user, the first data processing device including a processor;

a second data processing device of the agent, the second data processing device including a processor;

a third data processing device including a processor; and

35 program code stored in one or more of the first, second, and third data processing devices that, when executed by one or more of the processors, causes the system to:

store actions initiated by the end-user in a contextual database, the actions characterizing an end-user session with the first software application, the end-user session being opened from the first data processing device;

receive a request for assistance from the first data processing device;

5 retrieve, with a server side of an assistance service application, all entries performed by the end-user that have not been processed or transmitted to the first software application;

send a request for assistance assignment from the server side of the assistance service application to a client side of the assistance service application;

10 receive an acceptance of assistance assignment in the server side of the assistance service application from the client side of the assistance service application;

in response to receiving the acceptance of assistance assignment, send the retrieved entries from the server side of the assistance service application to the client side of the assistance service application;

15 in response to receiving the request for assistance from the first data processing device, establish a communication channel between the first data processing device and the second data processing device by configuring a tunnel between a server side of a desktop sharing application on the second data processing device and a client side of the desktop sharing application on the first data processing device;

20 duplicate the end-user session on the second data processing device based on the stored actions in the contextual database by opening a clone of the end-user session with a second software application on the third data processing device; and

display the duplicated end-user session on the first data processing device with the desktop sharing application,

25 wherein the server side of the assistance service application is located remotely from the first data processing device, and the client side of the assistance service application is located on the second data processing device.

18. The system of claim 17 wherein the third data processing device is a software application server remotely located from the first data processing device, and the first  
30 software application is run on the third data processing device.

19. The system of claim 17 wherein the first software application is run on the first data processing device, the contextual database is stored on the first data processing device, and the first software application is linked to the contextual database and is configured to record  
35 the actions initiated by the end-user in the contextual database.

20. The system of claim 17 wherein the program code is configured to configure the tunnel by:

starting a tunneling server at the second data processing device;

starting a tunneling proxy at the server side of the desktop sharing application; and

5 connecting the tunneling server and the tunneling proxy.

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