

Client-Server System For Controlling Internet Browsing And Method Thereof

Field of the Invention

5 This invention relates generally to browsing of the Internet, such as the World Wide Web, using a client-server system. In particular, this invention relates to a client-server system for controlling Internet browsing and method thereof.

Background

10 Computers are known to form systems in which resources associated with such computers are shared. In such systems, computers for users to access information are known as clients. The information accessed is typically stored in or provided by other computers known as servers. Computers in a system having information for use by clients of that system are known as servers. Collectively,
15 clients and servers form a type of computer network that is commonly referred to as a client-server system.

 Connecting multiple client-server systems provides more resources compared to a single client-server system operating alone. When connected with complete or partial access to other client-server systems or to other types of computer networks in
20 the public domain, a client-server system can form a part of the Internet or a part of the World Wide Web (Web) that forms the Internet. To access the Internet or the Web, a client or a server typically requires special application software. Such software used to access the Internet or the Web is commonly referred to as a browser.

 For a client-server system in which simultaneous access to the Internet or the
25 Web is desired for two or more clients, control of the clients can be provided by one of the computers. For example, US Patent No. 5,944,791 issued to Scherpbier on August 31st 1999 describes a client-server system in which a pilot computer can control the Web browser of at least one passenger computer. However, a disadvantage of such a client-server system is that only the pilot computer controls
30 what is referred to as collaborative Web browsing and the passenger computer has only limited control features under certain conditions. Furthermore, any malfunction

of the pilot computer terminates collaborative Web browsing of the client-server system.

Thus, a need clearly exists for a client-server system to alleviate reliance on a single computer or client to control browsing. Accordingly, a client-server system
5 that provides more flexible browsing as well as improves reliability of the client-server system in browsing the Internet is desirable.

Summary

In accordance with one aspect of the invention, there is disclosed a client-server system having at least one server and a plurality of clients. The system
10 including:

means for registering the clients with the server to browse the Internet;

means for assigning a client as a master client to control browsing of the Internet by the clients in response to a request from the client to form at least one
15 session group and to serve as the master client;

means for controlling, by the master client, the clients to browse the Internet;

means for receiving, at the master client, a subsequent request from another client to serve as the master client to control browsing of the Internet by the clients;
and

20 means for determining, by the master client and in response to the subsequent request, whether to grant the subsequent request to the another client.

Preferably, the system can further include means for relinquishing control, by the master client when the subsequent request is granted, to means of the another
25 client for controlling the clients to browse the Internet.

Suitably, the system can further include means for retaining control by the master client when the subsequent request is not granted.

30 Preferably, the controlling means can include means for directing, by a user of the master client, a browser of the master client to an Internet site.

Suitably, the controlling means can further include means for activating a control module associated with the browser.

- 5 Preferably, the controlling means can further include means for transmitting, by the control module, an address of the Internet site to the server.

Suitably, the system can further include means for relaying, by the server, the address to other clients of the session group.

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Preferably, the system can further include:

 means for receiving, by control modules respectively associated with the other clients, the address from the server;

 and

- 15 means for driving, by the control modules, respective browsers of the other clients to the Internet site based on the address.

Suitably, the system can further include means for checking number of the clients in the session group.

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Preferably, the checking means can further include means for establishing a communications connection directly between the clients when the number of the clients is two.

- 25 Suitably, the system can further include means for granting the subsequent request to the another client via the communications connection.

- Preferably, the system can further include means for granting the subsequent request to the another client via the server when the number of the clients is more
30 than two.

Suitably, the controlling means can further include means for transmitting, by the control module, an address of the Internet site directly to the another client via at least one communications channel when number of the clients in the session group is two.

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In accordance with another aspect of the invention, there is disclosed a method for controlling Internet browsing in a client-server system. The client-server system has at least one server and a plurality of clients. The method includes the steps of:

- 10 registering the clients with the server to browse the Internet;
 assigning a client as a master client to control browsing of the Internet by the clients, the step of assigning being in response to a request from the client to form at least one session group and to serve as the master client;
 controlling, by the master client, the clients to browse the Internet;
15 receiving, at the master client, a subsequent request from another client to serve as the master client to control browsing of the Internet by the clients;
 and
 determining, by the master client and in response to the subsequent request, whether to grant the subsequent request to the another client.

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Preferably, the method can further include the step of relinquishing the controlling step, by the master client when the subsequent request is granted, to the another client.

25

Suitably, the method can further include the step of retaining the controlling step by the master client when the subsequent request is not granted.

Preferably, the controlling step can include the step of directing, by a user of the master client, a browser of the master client to an Internet site.

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Suitably, the controlling step can further include the step of activating a control module associated with the browser.

5 Preferably, the controlling step can further include the step of transmitting, by the control module, an address of the Internet site to the server.

Suitably, the controlling step can further include the step of relaying, by the server, the address to other clients of the session group.

10 Preferably, the method can further include the steps of:
receiving, by control modules respectively associated with the other clients, the address from the server;
and
driving, by the control modules, respective browsers of the other clients to
15 the Internet site based on the address.

Suitably, the method can further include the step of checking number of the clients in the session group.

20 Preferably, the checking step can include the step of establishing at least one communications channel directly between the clients when the number of the clients is two.

Suitably, the method can further include the step of granting the subsequent
25 request to the another client via the communications channel.

Preferably, the method can further include the step of granting the subsequent request to the another client via the server when the number of the clients is more than two.
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Suitably, the controlling step can further include the step of transmitting, by the control module, an address of the Internet site directly to the another client via at least one communications channel when number of the clients in the session group is two.

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In accordance with a further aspect of the invention, there is disclosed a computer program product having a computer usable medium having a computer readable program code means embodied therein for controlling Internet browsing in a client-server system. The client-server system has at least one server and a plurality of clients. The computer program product including:

10 computer readable program code means for registering the clients with the server to browse the Internet;

computer readable program code means for assigning a client as a master client to control browsing of the Internet by the clients in response to a request from the client to form at least one session group and to serve as the master client;

15 computer readable program code means for controlling, by the client, the clients when browsing the Internet;

computer readable program code means for receiving, at the client, a subsequent request from another client to serve as the master client to control browsing of the Internet by the clients;

20 and

computer readable program code means for determining, by the client and in response to the subsequent request, whether to grant the subsequent request.

25 Preferably, the computer program product can further include computer readable program code means for relinquishing control, by the master client when the subsequent request is granted, to computer readable program code means of the another client for controlling the clients to browse the Internet.

Suitably, the computer program product can further include computer readable program code means for retaining control by the master client when the subsequent request is not granted.

5 Preferably, the controlling means can include computer readable program code means for directing, by a user of the master client, a browser of the master client to an Internet site.

10 Suitably, the controlling means can further include computer readable program code means for activating a control module associated with the browser.

 Preferably, the controlling means can further include computer readable program code means for transmitting, by the control module, an address of the Internet site to the server.

15 Suitably, the computer program product can further include computer readable program code means for relaying, by the server, the address to other clients of the session group.

20 Preferably, the computer program product can further include:
 computer readable program code means for receiving, by control modules respectively associated with the other clients, the address from the server;
 and
 computer readable program code means for driving, by the control modules,
25 respective browsers of the other clients to the Internet site based on the address.

 Suitably, the computer program product can further include computer readable program code means for checking number of the clients in the session group.

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Preferably, the checking means can include computer readable program code means for establishing a communications connection directly between the clients when the number of the clients is two.

5 Suitably, the computer program product can further include computer readable program code means for granting the subsequent request to the another client via the communications connection.

10 Preferably, the computer program product can further include computer readable program code means for granting the subsequent request to the another client via the server when the number of the clients is more than two.

15 Suitably, the controlling means can further include computer readable program code means for transmitting, by the control module, an address of the Internet site directly to the another client via at least one communications channel when number of the clients in the session group is two.

Brief Description of the Drawings

20 A preferred embodiment of the invention is described hereinafter with reference to the drawings, in which:

FIG. 1 is a block diagram illustrating a client-server system for browsing the Internet in accordance with the preferred embodiment of the invention;

25 FIG. 2 is a flowchart showing registration of clients of the client-server system of FIG. 1 to form at least one session group for Internet browsing;

FIG. 3 is a flowchart showing communication of an Internet address in the client-server system of FIG. 1;

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FIG. 4 is a flowchart showing change of a master client in the client-server system of FIG. 1; and

FIG. 5 is a block diagram of an example of a client in the client-server system of FIG. 1.

Detailed Description

A client-server system having a plurality of clients and at least one server, a method and a computer program product for controlling Internet browsing are described. In the following description of a preferred embodiment, numerous details are described in order to provide a more thorough description of this embodiment. It becomes apparent to one skilled in the art, however, that the invention may be practised without such details. In other instances, well-known details have not been described at length so as not to obscure the invention.

Further to the above, it is to be noted that the client-server system is a type of computer network in which computers are referred to either as clients or servers.

The advantages of the embodiment of the invention are manifold. One advantage is that any user of the client-server system can control Internet browsing from any client. Consequently, browsing is more flexible for all users compared to known client-server systems.

Another advantage of the invention is that an Internet address can be communicated from one client to more than one other client via a server or directly to one other client. As a result of this, use of the server to relay the Internet address is not required unless there are more than two clients in a session group for Internet browsing. The client-server system of this invention is therefore efficient in the use of the server.

A further advantage of the invention is that reliability of the client-server system in browsing the Internet is improved. This improvement is because any client can serve as a master client. Consequently, malfunctioning of the master client does not terminate browsing of a session group as any other client from that session group
5 can then take over to serve as the master client.

Referring now to FIG. 1, a client-server system 10 for browsing the Internet 12 in accordance with a preferred embodiment of the invention is illustrated. System 10 includes at least one server 14 and a plurality of clients 16 of which only two are shown as illustrative examples. The server 14 includes a storage device 18 for storing
10 information. Each of the clients 16 has a browser 20 and a control module 22 associated with the browser 20. For Internet browsing, the clients 16 register with the server 14 to form at least one session group.

15 More than one session group can exist at the same time. Each session group has its own master. It is also possible for each client to be a member of more than one session group. In such instances, the client will have a separate browsing window for each of the session groups joined.

20 Registration 30 of the clients 16 is described using the flowchart shown in FIG. 2. Starting at step 31, the server 14 receives information from the clients 16 at step 32. Such information is then stored in the storage device 18. The information includes but is not limited to an alphanumeric identity name, the Internet protocol (IP) address, and a session identifier in the form of an alphanumeric string of
25 characters. Thereafter, depending on the information, the server 14 forms at least one session group with the clients 16 at step 33. At decision step 34, the server 14 determines whether there are more than two clients 16 in the session group. When there are only two clients 16, then the server 14 establishes a communications channel between the two clients 16 at step 35. Otherwise, for more than two clients
30 16, and following step 35, registration 30 proceeds to step 36. In step 36, the server 14 sends control information to the control module 22 in each of the clients 16 to

launch their respective browsers 20 and prepares these browsers for joint browsing in the session group.

Following the formation of a session group, browsing for the session group
5 can take place upon a client being assigned to be a master client. Referring now to FIG. 3, communication of an Internet address in system 10 is shown in flowchart 40. Starting at step 41, a request is received from a client 16 to be a master client for a session group. Thereafter, at step 42, the client 16 is assigned by the control module of the client 16 itself to be the master client. As this is the first time that the request is
10 made following the formation of the session group, the client 16 that is requesting the formation of the session group and to be the master client is thus assigned as the master client. Once assigned as the master client, the control module 22 launches the browser 20 of the client 16. From step 42, the flowchart 40 proceeds to step 43 in which a user directs the browser 20 of the master client to an Internet site.

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When already in the Internet site, the control module 22 of the master client detects an address of the Internet site (Internet address) at step 44. Then, at decision
20 step 45, the control module 22 of the master client checks whether there are more than two clients 16 in the session group. With more than two clients 16 in the session group, the control module 22 of the master client then transmits the Internet address to the server 14 at step 46. Upon transmitting the Internet address, the server 14 then relays at step 47 the Internet address to other clients 16 in the session group.
Following decision step 45, when there are only two clients 16 in the session group, the control module 22 of the master client transmits the Internet address to the other
25 client 16 forming the session group at step 48. The Internet address is transmitted to the other client 16 at step 48 via the communications channel established at registration 30. Thereafter, and following step 47 described earlier, the Internet address is received by the control modules 22 respectively associated with the other client(s) 16 at step 49. Upon receiving the Internet address, these control modules 22
30 then drive respective browsers 20 of such other client(s) 16 to the Internet site based on the Internet address at step 50.

The flowchart 40 describes communication of an Internet address from the master client to other clients 16 in a session group for Internet browsing. While this Internet browsing is being conducted, the master client may continue to control the other clients. However, another client 16 in the session group may subsequently request to serve as the master client to control the Internet browsing. A change of the master client of the session group as such is described below using flowchart 55.

Referring now to FIG. 4, the changing of the master client begins at step 56 in which the master client receives a subsequent request from another client 16 of the session group to serve as the master client. Upon receiving this subsequent request, the control module 22 of the master client determines whether to grant this request. When granted, the control module 22 of the master client generates a grant message at step 58. Otherwise, when not granted, the control module 22 of the master client generates a rejection message at step 59.

From both step 58 and step 59, the control module 22 of the master client determines at step 60 whether there is any communications channel between the master client and the another client 16. When there is a communications channel between the master client and the another client 16, the control module 22 of the master client sends the grant message or the rejection message directly to the another client 16 via the communications channel at step 61. Otherwise, the control module 22 of the master client sends the grant message or the rejection message to the another client 16 via the server 14 at step 62. Following step 61 or step 62, the control module 22 of the master client relinquishes control of browsing to the another client 16 after sending the grant message or retains control of browsing at step 63 after sending the rejection message. When the grant message is sent, the another client 16 then serves as the master client to control browsing for the session group. Otherwise, when the rejection message is sent, the another client 16 is not granted control of browsing for the session group.

The server 14 or the client 16 in the preferred embodiment of the invention can be implemented using a computer program product that includes, for example, a computer system 70 as shown in FIG. 5. In particular, the control module 22 can be implemented as software, or computer readable program code, executing on the
5 computer system 70.

The computer system 70 includes a computer 71, a video display 72, and input devices 73, 74. In addition, the computer system 70 can have any of a number of other output devices including line printers, laser printers, plotters, and other
10 reproduction devices connected to the computer 71. The computer system 70 can be connected to one or more other computers via a communications input/output (I/O) interface 75 using an appropriate communications channel 76 such as a modem communications path, an electronic network, or the like. The network may include a local area network (LAN), a wide area network (WAN), an Intranet, and/or the
15 Internet 12.

The computer 71 includes the browser 20, the control module 22, a memory 77 that may include random access memory (RAM) and read-only memory (ROM), input/output (I/O) interfaces 75, 78, a video interface 79, and one or more storage
20 devices generally represented by the storage device 18 in FIG. 1 and FIG. 5.

The video interface 79 is connected to the video display 72 and provides video signals from the computer 71 for display on the video display 72. User input to operate the computer 71 can be provided by one or more of the input devices 73, 74
25 via the I/O interfaces 75, 78. For example, a user of the computer 71 can use a keyboard as I/O interface 73 and/or a pointing device such as a mouse as I/O interface 74. The keyboard and the mouse provide input to the computer 71. The storage device 18 can consist of one or more of the following: a floppy disk, a hard disk drive, a magneto-optical disk drive, CD-ROM, magnetic tape or any other of a
30 number of non-volatile storage devices well known to those skilled in the art. Each of

the elements in the computer system 71 is typically connected to other devices via a bus 81 that in turn can consist of data, address, and control buses.

5 The method steps for controlling Internet browsing in the system 10 are effected by instructions in the software that are carried out by the computer system 70. Again, the software may be implemented as one or more modules for implementing the method steps. That is, the control module 22 can be a part of a computer readable program code that usually performs a particular function or related functions.

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In particular, the software may be stored in a computer readable medium, including the storage device 18. The computer system 70 includes the computer readable medium having such software or program code recorded such that instructions of the software or the program code can be carried out. The use of the
15 computer system 70 preferably effects advantageous apparatuses for controlling Internet browsing in the system 10 in accordance with the preferred embodiment of the invention.

The computer system 70 simply provides for illustrative purposes and other
20 configurations can be employed without departing from the scope and spirit of the invention. The foregoing is merely exemplary of the types of computers or computer systems with which the preferred embodiment of the invention may be practised. Typically, the processes of the preferred embodiment are resident as software or a computer readable program code recorded on a hard disk drive (generally depicted as
25 the storage device 18 in FIG. 1 and FIG. 5) as the computer readable medium, and read and controlled using the control module 22. Intermediate storage of the program code and media content data and any data fetched from the network may be accomplished using the memory 77, possibly in concert with the storage device 18.

30 In some instances, the program may be supplied to the user encoded on a CD-ROM or a floppy disk (both generally depicted by the storage device 18), or

alternatively could be read by the user from the network via a modem device connected to the computer 71. Still further, the computer system 70 can load the software from other computer readable media. This may include magnetic tape, a ROM or integrated circuit, a magneto-optical disk, a radio or infra-red transmission
5 channel between the computer and another device, a computer readable card such as a PCMCIA card, and the Internet 12 and Intranets including email transmissions and information recorded on Internet sites and the like. The foregoing is merely exemplary of relevant computer readable media. Other computer readable media may be practised without departing from the scope and spirit of the invention.

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The system 10 as described in the above preferred embodiment of the invention advantageously overcome or at least alleviate the disadvantages of conventional client-server systems for Internet browsing. In general, any client 16 in a session group can serve as the master client to control Internet browsing of the
15 session group. Upon being assigned as the master client, the client 16 has full control of the Internet browsing. Furthermore, malfunction of any client 16 serving as the master client does not terminate the Internet browsing of the session group as another client 16 of the session group can then take over as the master client.

20 After a session group is formed, whether Internet browsing has begun or not, the server periodically sends a 'watch-dog' request to each of the clients 16 (including the client 16 serving as the master client). If any of these clients 16 fails to response to this 'watch-dog' request, the server 14 then consider such clients 16 as 'inactive' or 'failed' and remove such clients 16 from the session group. In the event that the
25 master client fails to response to the 'watch-dog' request, the server 14 removes such a master client from the session group. A new master client is then assigned when a request to be the new master client is received from among the remaining clients 16. Thereafter, the control module 22 of each of the clients 16 in the session group updates any changes in the session group.

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In the foregoing description, a client-server system having a plurality of clients and at least one server, a method and a computer program product for controlling Internet browsing are described. Only one preferred embodiment is described. However, it becomes apparent to one skilled in the art in view of the
5 preferred embodiment that numerous changes and/or modifications can be made without departing from the scope and spirit of the invention.



Claims

1. A client-server system having at least one server and a plurality of clients,
said system including:
 - means for registering said clients with said server to browse
5 the Internet;
 - means for assigning a client as a master client to control browsing of
the Internet by said clients in response to a request from said client to form at
least one session group and to serve as said master client;
 - means for controlling, by said master client, said clients to browse the
10 Internet;
 - means for receiving, at said master client, a subsequent request from
another client to serve as said master client to control browsing of the Internet
by said clients;
 - and
 - 15 means for determining, by said master client and in response to said
subsequent request, whether to grant said subsequent request to said another
client.
2. The system as claimed in Claim 1, and further including means for
20 relinquishing control, by said master client when said subsequent request is
granted, to means of said another client for controlling said clients to browse
the Internet.
3. The system as claimed in Claim 2, and further including means for retaining
25 control by said master client when said subsequent request is not granted.
4. The system as claimed in Claim 3, wherein said controlling means includes
means for directing, by a user of said master client, a browser of said master
client to an Internet site.

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5. The system as claimed in Claim 4, wherein said controlling means further includes means for activating a control module associated with said browser.
- 5 6. The system as claimed in Claim 5, wherein said controlling means further includes means for transmitting, by said control module, an address of said Internet site to said server.
7. The system as claimed in Claim 6, further including means for relaying, by said server, said address to other clients of said session group.
- 10 8. The system as claimed in Claim 7, further including:
means for receiving, by control modules respectively associated with said other clients, said address from said server;
and
15 means for driving, by said control modules, respective browsers of said other clients to said Internet site based on said address.
9. The system as claimed in Claim 8, and further including means for checking number of said clients in said session group.
- 20 10. The system as claimed in Claim 9, wherein said checking means includes means for establishing a communications connection directly between said clients when said number of said clients is two.
- 25 11. The system as claimed in Claim 10, and further including means for granting said subsequent request to said another client via said communications connection.
- 30 12. The system as claimed in Claim 9, and further including means for granting said subsequent request to said another client via said server when said number of said clients is more than two.



13. The system as claimed in Claim 5, wherein said controlling means further includes means for transmitting, by said control module, an address of said Internet site directly to said another client via at least one communications channel when number of said clients in said session group is two.
14. A method for controlling Internet browsing of a client-server system, said client-server system having at least one server and a plurality of clients, said method including the steps of:
- 10 registering said clients with said server to browse the Internet;
 - assigning a client as a master client to control browsing of the Internet by said clients, said step of assigning being in response to a request from said client to form at least one session group and to serve as said master client;
 - 15 controlling, by said master client, said clients to browse the Internet;
 - receiving, at said master client, a subsequent request from another client to serve as said master client to control browsing of the Internet by said clients;
 - and
 - 20 determining, by said master client and in response to said subsequent request, whether to grant said subsequent request to said another client.
15. The method as claimed in Claim 14, and further including the step of relinquishing said controlling step, by said master client when said subsequent request is granted, to said another client.
16. The method as claimed in Claim 15, and further including the step of retaining said controlling step by said master client when said subsequent request is not granted.

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17. The method as claimed in Claim 16, wherein said controlling step includes the step of directing, by a user of said master client, a browser of said master client to an Internet site.
- 5 18. The method as claimed in Claim 17, wherein said controlling step further includes the step of activating a control module associated with said browser.
19. The method as claimed in Claim 18, wherein said controlling step further includes the step of transmitting, by said control module, an address of said
10 Internet site to said server.
20. The method as claimed in Claim 19, further including the step of relaying, by said server, said address to other clients of said session group.
- 15 21. The method as claimed in Claim 20, and further including the steps of:
receiving, by control modules respectively associated with said other clients, said address from said server;
and
driving, by said control modules, respective browsers of said other
20 clients to said Internet site based on said address.
22. The method as claimed in Claim 21, and further including the step of checking number of said clients in said session group.
- 25 23. The method as claimed in Claim 22, wherein said checking step includes the step of establishing at least one communications channel directly between said clients when said number of said clients is two.
24. The method as claimed in Claim 23, and further including the step of granting
30 said subsequent request to said another client via said communications channel.



25. The method as claimed in Claim 22, and further including the step of granting said subsequent request to said another client via said server when said number of said clients is more than two.
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26. The method as claimed in Claim 18, wherein said controlling step further includes the step of transmitting, by said control module, an address of said Internet site directly to said another client via at least one communications channel when number of said clients in said session group is two.
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27. A computer program product having a computer usable medium having a computer readable program code means embodied therein for controlling Internet browsing in a client-server system, said client-server system having at least one server and a plurality of clients, said computer
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- program product including:
- computer readable program code means for registering said clients with said server to browse the Internet;
 - computer readable program code means for assigning a client as a master client to control browsing of the Internet by said clients in response to

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 - a request from said client to form at least one session group and to serve as said master client;
 - computer readable program code means for controlling, by said client, said clients when browsing the Internet;
 - computer readable program code means for receiving, at said client, a

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 - subsequent request from another client to serve as said master client to control browsing of the Internet by said clients;
 - and
 - computer readable program code means for determining, by said client and in response to said subsequent request, whether to grant said subsequent

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 - request.



28. The computer program product as claimed in Claim 27, and further including computer readable program code means for relinquishing control, by said master client when said subsequent request is granted, to computer readable program code means of said another client for controlling said clients to
5 browse the Internet.
29. The computer program product as claimed in Claim 28, and further including computer readable program code means for retaining control by said master client when said subsequent request is not granted.
- 10 30. The computer program product as claimed in Claim 29, wherein said controlling means includes computer readable program code means for directing, by a user of said master client, a browser of said master client to an Internet site.
- 15 31. The computer program product as claimed in Claim 30, wherein said controlling means further includes computer readable program code means for activating a control module associated with said browser.
- 20 32. The computer program product as claimed in Claim 31, wherein said controlling means further includes computer readable program code means for transmitting, by said control module, an address of said Internet site to said server.
- 25 33. The computer program product as claimed in Claim 32, further including computer readable program code means for relaying, by said server, said address to other clients of said session group.



34. The computer program product as claimed in Claim 33, further including:
computer readable program code means for receiving, by control
modules respectively associated with said other clients, said address from said
server;
5 and
computer readable program code means for driving, by said control
modules, respective browsers of said other clients to said Internet site based
on said address.
- 10 35. The computer program product as claimed in Claim 34, and further including
computer readable program code means for checking number of said clients
in said session group.
- 15 36. The computer program product as claimed in Claim 35, wherein said
checking means includes computer readable program code means for
establishing a communications connection directly between said clients when
said number of said clients is two.
- 20 37. The computer program product as claimed in Claim 36, and further including
computer readable program code means for granting said subsequent request
to said another client via said communications connection.
- 25 38. The computer program product as claimed in Claim 35, and further including
computer readable program code means for granting said subsequent request
to said another client via said server when said number of said clients is more
than two.

39. The computer program product as claimed in Claim 31, wherein said
controlling means further includes computer readable program code means
for transmitting, by said control module, an address of said Internet site
directly to said another client via at least one communications channel when
5 number of said clients in said session group is two.

