

**VIDEO CONFERENCING DIRECTORY SERVICES SYSTEMS AND
METHODS THEREFOR**

FIELD OF THE INVENTION

5 The present invention relates to videoconferencing, and in particular the connection of individuals and businesses through video conferencing.

BACKGROUND OF THE INVENTION

10 Video conferencing products have existed for a number of years in the form of dedicated hardware units, and recently in the form of software packages running on personal computers. In these products, the two participants of a video conference must have compatible hardware (where hardware units are used), or compatible software packages (where personal computers are used). In either case, one of the participants must dial up the other participant, with the other participant being prepared to receive the
15 call. In general, the connection is done by way of an integrated services digital network (ISDN) line or a wide area network (WAN). While telephone lines are sometimes used, the transmission speeds are generally too slow to provide good quality video. Compared with using the telephone, the connection process is relatively cumbersome, and even more so when a participant does not know the ISDN number or network address of the
20 person he wants to contact.

 Video conferencing technology would be useful for enabling customers to conduct business with businesses, and for businesses to conduct trade with one another. However, in its current state of development, video conferencing technology is not suitable for such business use. This is particularly true with the advent of the Internet,
25 and various video systems are presently being used over the Internet. The technology is currently too expensive and cumbersome to use, and does not have a volume of use which is sufficient for a business to justify the capital costs of purchasing the equipment and leasing an ISDN line or higher speed line.

SUMMARY OF THE INVENTION

The present invention is directed to overcoming the aforementioned drawbacks by providing methods and apparatuses which enable video conferencing technology to be more accessible and cost effective for businesses by attracting and routing a large volume
5 of customers to the business.

Broadly stated, the present invention encompasses systems for providing videoconferencing services over a wide area network, such as the Internet, comprising a web site accessible to users of the network, the site having a directory of entities which are available for videoconferencing over the network. The web site permits the users to
10 initiate a videoconference with a desired entity in the directory by selection of the entity. The systems according to the present invention further include a server for connecting the videoconference equipment of a user with the video conference equipment of the entity selected by the user, and for transmitting videoconference data between the user's videoconference equipment and the entity's videoconference equipment using the
15 network. In a preferred embodiment, the entities are arranged in a plurality of categories, with each category relating to a corresponding subject matter.

Methods according to the present invention provide a site accessible to users of the network whereby the site comprises a directory of entities which are available for videoconferencing over the network. The methods enable the users to initiate a
20 videoconference with a desired entity in the directory by selection of the entity, and thereafter connect the videoconference equipment of the user with the video conference equipment of the selected entity. The methods according to the present invention transmit videoconference data between the user's videoconference equipment and the entity's videoconference equipment using the network.

25 Accordingly, it is an object of the present invention to video conferencing technology more accessible to users of networks.

It is a further object of the present invention to increase the volume of video conferencing calls to an entities, such as businesses, to levels which support the capital costs of purchasing the equipment and leasing an ISDN line or higher speed line.

30 It is yet another object of the present invention to provide users of the network

with a central location to contact businesses and organizations.

These and other object and advantages of the invention will become apparent from a review of the specification.

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BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block schematic diagram of a video conferencing directory services system for connecting a conference user to a selected entity according to the present invention.

10 FIG. 2 is a view of a first representative text page provided to a user of the network by the system according to the present invention.

FIG. 3 is a view of a second representative text page provided to a user of the network by the system according to the present invention.

DETAILED DESCRIPTION OF THE INVENTION

15 FIG. 1 shows a schematic block diagram of a video conferencing directory services system 100 according to the present invention and its application environment. System 100 enables a stand-alone conference user 10 to establish a video conference with one of a number of entities 11-14 hosted by system 100. In preferred applications of the present invention, user 10 is a potential customer of products, services, information, or
20 labor of the entities 11-14, which are typically businesses, although the entities may include government entities, non-profit groups, trade associations, or even other individuals. System 100 establishes a first level of packet communication with user 10 through a digital packet network 20, such the Internet. The first level of packet communication is preferably in the form of text-based data pages which are sent by
25 digital data packets between these two entities and read by user 10 with a software browser, such as MICROSOFT Internet Explorer. The data packets are sent according to the Transmission Control Protocol (TCP), as based upon the Internet Protocol (IP), also known as TCP/IP. These protocols are well known to those of ordinary skill in the digital packet and video conferencing arts, and a detailed description thereof is not needed in
30 order to make and use the present invention.

The text-based web pages present user 10 with a list of entities which may be contacted for a video conference. A return command link is provided on the text-based page for each listed entity and is displayed on the user's computer screen as an icon or hypertext phrase (such as the name of the company). User 10 may activate any one of the return command links by selecting, e.g., "clicking" his mouse button on, the displayed representation of the command link. When activated, the user's browser returns the command link back to system 100 with an instruction to establish a video conference call with the selected company.

The conference call between the user 10 and the selected entity is preferably performed by relaying data packets from the user's conferencing equipment to the entity's conferencing equipment through system 100. For this, system 100 establishes a second level of packet communication with user 10 through digital packet network 20, and a line of communication with the selected entity (one of 11-14) through a connection line (e.g., an ISDN line), or through digital packet network 20. An ISDN line connection is currently preferred since it currently is believed to have a higher quality. However, the precise manner of connection is not important, and it can be expected that the preferred modes of connection will evolve rapidly. As shown in the exemplary application of FIG. 1, an ISDN line 21 connects system 100 to entity 11, an ISDN line 22 connects system 100 to entity 12, and an ISDN line 23 connects system 100 to entity 13 through and ISDN exchange 15 and another ISDN line 25. Entity 14 is connected to system 100 through digital packet network 20. A conferencing packet from user 10 to entity 11 (or entity 12) is conveyed through network 20 to system 100, and then routed from the system to the entity through ISDN line 21 (or 22). A conferencing packet from the entity to user 10 traverses the reverse path. ISDN lines 21 and 22 are leased lines which are dedicated connections between system 100 and entities 11 and 12.

In the example of FIG. 1, entity 13 does not have a leased ISDN line, and system 100 contacts entity 13 through an ISDN exchange 15. Exchange 15 is like a conventional analog telephone exchange; it assigns each user a telephone number and enables users to call one another at rate that is charged by the minute or the hour. To establish contact with entity 13, system 100 dials the exchange 15 with the assigned number for entity 13.

If entity 13 is not using its ISDN line 25 with another call, the exchange 15 will connect system 100 to entity 13 through ISDN lines 23 and 25. The packets between system 100 and entity 13 will flow in the same manner as they flow in the connection between system 100 and entity 11.

5 Entity 14 is coupled to system 100 through packet network 20. A conferencing packet from user 10 to entity 14 is conveyed through network 20 to system 100, and then routed from system 100 to entity 14 through network 20. A conferencing packet from entity 14 to user 10 traverses the reverse path. Entity 14 is identified on network 20 by a corresponding IP address.

10 Before describing the specifics of system 100, we will describe an exemplary text page that can be generated by system 100, as shown in FIG. 2. The text page may comprise the main website page for the video conferencing directory system. The exemplary page has four categories of computer related companies: Semiconductor companies, Computer Makers, Software Distributors, and Internet Service Providers.

15 Between two and four companies are listed under each category. Without loss of generality, the companies are named "Entity A" through "Entity L" for the purposes of discussion. A return command link is associated with each company, as indicated by the underlining in the figure. This link permits a user to initiate a videoconference with a desired entity in the directory by selecting of the entity. The text page is provided to the

20 same for all users, and may be updated with new listings of companies as they become available. It may be appreciated that the main page of the web site may only list the categories of the directory, in which case it will have hypertext links for each category to corresponding sub-pages which lists the companies. In this construction, each sub-page for a category lists the companies that fall under the category, and includes the return

25 command links for the listed companies. And as described in greater detail below, the main page of the web site may have a search box to search for entities (e.g., companies) based on key words provided by the user, and may also provide access to a complete listing of companies for the user to view.

30 Turning now to a more detailed description, an exemplary system 100 comprises a network signal port 101 adapted to connect to digital packet network 20, a primary

server 110 which establishes the first level of packet communication with user 10, a secondary server 120 which establishes the second level of packet communication with user 10, a memory storage unit 105 for storing information and data needed by the servers 110 and 120, a communication link 115 between servers 110 and 120, and a plurality of connection ports 131-133 which establish connections with entities 11, 12 and 13 (connection to entity 13 is done through exchange 15). Each of the connection ports has a respective port identifier. Each of servers 110 and 120 comprises a central processing unit (CPU), memory, and one or more sets of control instructions (software) stored in the memory (either partially or wholly) for directed the operation of its central processing unit. In some implementations, servers 110 and 120 may share the same CPU and memory when the CPU is operated with a multi-tasking operating system. In either case, servers 110 and 120 may be collectively viewed as a computer processing system.

The CPU of each server (whether separate or combined) is connected to network signal port 101 through the CPU's data bus and a I/O network card mounted on the data bus in any of the manners that are known to the computer art. The CPU of secondary server 120 is connected to each of connection ports 131-133 through the CPU's data bus and a port interface mounted on the data bus in any of the manners that are known to the computer art. The communication link 115 between servers 110 and 120 can be implement in a number of ways. If servers 110 and 120 have separate CPU's, link 115 may be established by any of a number of known methods, such as packet communication over network 20, or through a serial or parallel communication link set up between servers. In the case that the two servers 110 and 120 share the same CPU and memory, link 115 can be established by any inter-process messaging software provided by the operating system which is running the CPU, or by a segment of shared memory the CPU's memory or in storage unit 105.

Primary server 110 comprises a first set of instructions which direct its CPU to detect a request for contact by user 10. The primary server 110 further comprises a second set of control instructions that responds to a request for contact by user 10, and which directs its CPU to output a list of one or more entity names to the user along with at least one command link associated with each entity name in the list. The names of the

entities are stored in a memory segment of memory storage 105. The return command link may also be stored in a memory segment of storage 105, or may be generated from the entity names. The entity names and command links are preferably provided in text page format that is readable by the user's network interface (e.g., network browser). An
5 example format is the HTML format currently used to construct Internet web pages. Each return command link provided in the web site's text pages is constructed so that it can be returned to the server's CPU by user 10 in a manner that directs the primary server 110 to establish a conferencing connection between the user and the entity associated with the command link. By selectively choosing which of the command links to send
10 back, user 10 is able to select which entity he wants to call. The text-page list of entities provided to the user is outputted by primary server 110 onto network signal port 101 in the form of one or more data packets.

In preferred implementations of the present invention, each text page outputted by the second set of instructions is identified by a corresponding Uniform Resource Locator
15 (URL). For example, the main web page for the directory services system may have the URL of: "http://www.DirectoryServices.com/index.html". "Http://" identifies a high-level packet communication protocol used to interpret the packets, "www.DirectoryServices.com" is an alphanumeric name identifier for the IP address of first server 110, and "index.html" identifies a data file in the memory storage 105 which
20 holds the names of the categories contained in the web site's main page, and /or one or more of the names and command links for the entities listed on the directory services system. URL's are commonly used on the Internet to identify files of information on servers, and to identify scripts which compile information from databases which are associated with the servers. In typical embodiments of the present invention, the first set
25 of instructions on server 110 scans the incoming data packets on network signal port 101 for URL requests which are sent by the user and which match the files or scripts on server 110 that provide the main page and sub-pages of the directory web site. The matching URL's found by the first set of instructions are provided to the second set of instructions, which accesses the specified files or executes the specified scripts, and
30 thereafter outputs the content of the files or the content produced by the scripts to the user

over network 20.

Primary server 110 comprises a third set of control instructions which respond to the presence of a return command link provided on network signal port 101 by user 10. The presence of the return command link is preferably detected by the first set of control instructions of server 110. The third set of instructions directs the server's CPU to communicate with the secondary server 120 over communication link 115 in order to establish the video-conferencing connection. The third set of control instructions is given a name which enables it to be located from network 20 and executed. For the purposes of illustration and without loss of generality, the third set of control instructions may comprise an Active Server Pages (ASP) script and may be assigned the name "connect.asp". The script may be stored in the "/scripts" directory of the server's file system (e.g., storage 105). The third set of instruction is then fully located on the server by the following call from the user's browser: "/scripts/connect.asp". By the conventions established for the HTML protocol, the user's browser knows to send this command link to the server which provided the text page that contains it. In our case, that server is server 110.

FIG. 2 shows an exemplary text page generated by the second set of instructions of primary server 110. The presence of the command link for each entity is shown on the page by a highlight and an underline, which is the conventional representation for a hyperlink. Using the conventional HyperText Mark Up Language (HTML), the text-page coding of an exemplary command link for Entity A is:

```
<B><a href="/scripts/connect.asp?serial_of_Entity_A.html">Entity A </a></B>
```

where */scripts/connect.asp* is the path location and name of the ASP script representing the third set of instructions, where "*serial_of_Entity_A.html*" is a file which contains connection information for Entity A, and where "" is an HTML tag that identifies "*/scripts/connect.asp?serial_of_Entity_A.html*" as a command link. "*Serial_of_Entity_A*" is a unique serial number that is assigned to Entity A. For example, the serial number 00000001 may be assigned to Entity A (with the

corresponding file being 00000001.html), and the serial number 00000002 may be assigned to Entity B (with corresponding file 00000002.html). The text which is to be underlined as hypertext appears between this HTML tag and the closing HTML tag . The text which appears between the opening and closing tags <a> and is printed on the user's screen with underlining to indicate that a command link is associated with the printed text, in this case the text appears as Entity A. When user 10 selects the underlined text, such as by "clicking" his mouse on the text, he instructs his browser to return the command link to system 100. The returning of the command link causes the server 110 to run the third set of instruction (/scripts/connect.asp), which reads file "serial_of_Entity_A.html" to effect the desired connection. The tags and place the intervening text in bold type.

As another example, the third set of control instructions may comprise a Common Gateway Interface (CGI) script which may be assigned the name "connect.bin", and which may be stored in the "/cgi-bin" directory of the server's file system. The third set of instruction is fully located on the server by the following call from the user's browser: "/cgi-bin/connect.bin". An exemplary return command link which executes this set of instructions is:

Entity A

where *entity=A* is the parameter identifier (*entity*) and value (A) representing "Entity A". As before, the text Entity A is printed on the user's screen, and when he selects the underlined text, such as by "clicking" his mouse on the text, he instructs his browser to return the command link to system 100. The return of the command link executes the instructions in connect.bin with the passed parameter of entity=A, which tells the instructions which entity to connect with.

In preferred embodiments of the present invention, a plurality of connection IP addresses are allotted to the secondary server 120. Any one of these IP addresses may be used to establish a video-conferencing connection between server 120 and user 10. The values of these IP addresses is known by primary server 110, and/or can be obtained from server 120 through communication link 115. In these preferred embodiments of the present invention, primary server 110 receives a return command link from user 10 which

specifies the entity with which the user wishes to video-conference. The third set of instructions (*e.g.*, connect.asp) of primary server 110 responds and directs its CPU to assign one of the IP addresses of secondary server 120 for the user's conference with the selected entity. The third set of instructions also direct its CPU to inform the secondary
5 server 120 over communication link 115 that a user will be calling the secondary server 120 at the assigned IP address with a request to communicate with the selected entity. Secondary server 120 uses a memory which associates the names and/or port identifiers (or IP addresses) of the entities with the server's allotted IP addresses, and uses a set of instructions which direct its CPU to receive the information from primary server 110 and
10 to update this memory in accordance with the assignment provided by the received information. The memory so used by secondary server may be within itself or may be within memory storage 105. Thus, when called by the user, secondary server 120 accesses this memory to determine which entity to call to establish the desired video-conferencing connection.

15 Next, primary server 110 has a fourth set of instructions which directs its CPU to send back a conferencing web page to user 10. This web page opens a conferencing window on the user's computer, and launches the user's local video-conferencing software with a direction to call secondary server 120 at the assigned IP address. In a preferred implementation, the user's video-conferencing hardware comprises the INTEL
20 PROSHARE 500 with the associated software; however, it will be appreciated that the invention may be practiced with any video-conferencing software. Prior to receiving the conferencing web page sent by server 110, user 10 has preferably exited (*e.g.*, terminated) from his video-conferencing software.

When called by user 10 at the assigned IP address, secondary server 120 executes
25 a set of control instructions which direct its CPU to establish a video-conferencing connection between user 10 and the connection port (131-133) or IP address that corresponds to the selected entity. As indicated above, primary server 110 has previously informed secondary server 120 of the entity selected by the calling user, and thus secondary server can then readily determine which of connection ports 131-133 or IP
30 address to use for the given entity name. Alternatively, primary server 110 may know

this information before hand, and provide it to secondary server 120 directly.

When secondary server 120 determines that the user has terminated his video-conference with the selected entity, server 120 informs server 110 over link 115 that the assigned IP address is now available for a new video-conference.

5 In the above example, the task of assigning the allotted IP addresses of secondary server 120 has been done by primary server 110. However, it may be appreciated that this task can also be done by secondary server 120. Specifically, secondary server 120 can maintain in its memory a real-time correspondence between its allotted IP addresses and the company names (or port identifiers) currently assigned to the IP addresses. If no
10 company is currently assigned to an allotted IP address, a NULL indicator may be associated to the allotted IP address. Then, when primary server 110 initially contacts server 120 to indicate that user 10 wishes conference with a selected entity, control instructions on secondary server 120 direct its CPU to find an available IP address, to then provide the available address to primary server 110, and to update its memory to
15 indicate that the entity provided by primary server 110 is assigned to the IP address that was found to be available. When secondary server 120 determines that the user has terminated his video-conference with the selected entity, server 120 assigns a NULL indicator for the IP address.

 In some implementations, it may be possible to have a number of allotted IP
20 addresses for server 120 which is equal to or greater than the number of entities on the directory services system. In this case, the IP addresses may be assigned to the entities in a set relationship before operation begins, and servers 110 and 120 would not have to assign IP addresses in real time. Rather, the servers would then keep track of which IP addresses are currently being used in conference calls so that two users do not try to call
25 the same IP address of server 120 at the same time.

 In view of the above description, it is within the skill of an ordinary web internet programmer to construct the set of instructions for the servers using the computer language of his choice.

 In the above embodiments, the user's local software has been launched and
30 directed to call secondary server 120 in order to establish the video-conference. In other

embodiments of the present invention, the secondary server 120 is directed to call user 10 in order to establish the video-conference. Currently, these embodiments are less preferred to those where user 10 calls secondary server 120. In these less-preferred embodiments, the first or third set of instructions of primary server 110 determines the IP address of user 10. Other means for determining the user's IP address may be used and are well known to the art. In addition, the third set of instruction is modified to provide the selected company and the user's IP address to secondary server 120 over communication link 115, and to direct secondary server 120 to call the user on his IP address and to call the selected company on its corresponding communication port (or IP address).

As indicated above, the second set of instructions on the primary server 110 provides the names of the companies available on the Directory services system 100, and their associates command links. The set of instructions may be augmented to enable the users to access the full listing in alphabetical order, as shown in the text page of FIG. 3. This is accessed by the user selecting the hyperlink identified as "**Click here for Full Directory Listing**" provided at the lower-left side of the text page shown in FIG. 2. The listing in FIG. 3 provides the names and command links of all of the entities, as well as a description of each entity. The description for each entity is provided directly below each company name, and is stored in memory storage 105. Referring to FIG. 2, user 10 may search for a sub-set of entity names which match his selection criterion, such as "semiconductor companies." To do this, the user clicks onto the search box in the lower right-hand corner of the screen shown in FIG. 2, and then inputs keywords (*e.g.*, search terms) for the company that he is interested in. Once the keywords are entered, the user hits the "enter" key (sometimes labeled as the "return" key) on his keyboard, and the keywords are sent from the user's browser to server 110 for processing. Server 110 sends back a page similar to that shown in FIG. 3, but with only those companies whose names and/or descriptions match one or more of the user's keywords. The search box may be implemented with the well known POST method using `<FORM>`, `</FORM>`, and `<INPUT>` hypertext tags. The `<INPUT>` tags sets up the text box in a manner that allows the user to enter key words for searching. When the user hits the ENTER or RETURN

key on his keyboard, the user's browser returns a command link to server 110 which contains the keywords typed in the text box and the name of an ASP script or a CGI script which is to be executed in order to search the entity names and descriptions for matches with the keywords. The name of this script is contained in the <FORM> tag.

- 5 The entity names and descriptions are stored in memory storage 105. The results of the search are formatted in an HTML page and sent to user 10.

In view of this description, it is within the skill of an ordinary web internet programmer to construct the set of instructions using the computer language of his choice.

- 10 While the present invention has been particularly described with respect to the illustrated embodiments, it will be appreciated that various alterations, modifications and adaptations may be made based on the present disclosure, and are intended to be within the scope of the present invention. While the invention has been described in connection with what is presently considered to be the most practical and preferred embodiments, it
- 15 is to be understood that the present invention is not limited to the disclosed embodiments but, on the contrary, is intended to cover various modifications and equivalent arrangements included within the scope of the appended claims.



WHAT IS CLAIMED IS:

1. A system for providing videoconferencing services over a wide area network, such as the Internet, comprising:

5 a site accessible to users of the network comprising a directory of entities which are available for videoconferencing over said network, said site permitting users to initiate a videoconference with a desired entity in said directory by selection of the entity; and

10 a server for connecting the videoconference equipment of a user with the video conference equipment of the entity selected by the user and for transmitting videoconference data between said user's videoconference equipment and said entity's videoconference equipment using said network.

15 2. The system of Claim 1 wherein said directory comprises a plurality of categories, and wherein the entities of said directory are allocated among said categories.

3. The system of Claim 1 wherein said server connects the user's equipment and said entity's equipment by establishing a first connection between the user's equipment and said server and a second connection between said entity's equipment and said server, and by relaying the data between the user's equipment and the entity's equipment
20 through said first and second connections.

4. The system of Claim 3 wherein said first connection comprises said network.

25 5. The system of Claim 3 wherein said second connection comprises said network.

6. The system of Claim 3 wherein said second connection comprises a digital transmission line.

30 7. The system of Claim 1 wherein said site comprises means for searching the list of company names for matches with one or more key words.



8. A Video conferencing directory services system for connecting a conference user to a selected entity, the user having access to digital packet communication network, said system comprising:

- 5 a network signal port adapted to connect to the digital packet network;
- a plurality of connection ports with respective port identifiers, each connection port being adapted to connect to a digital transmission line;
- a first memory adapted to store the names of a plurality of entities;
- a second memory adapted to store an assignment of port identifiers associated
- 10 with the entities;
- a computer processing system coupled to said network signal port and said connection ports;
- a first set of instructions which direct said computer processing system to detect a request for contact by the user;
- 15 a second set of control instructions responsive to a request for contact which directs said computer processing system to output a list of one or more entity names stored in said first memory to the user along with at least one command link associated with each entity name in said list, each said return command link being constructed so that it can be returned to the computer processing system by the user and can direct said
- 20 computer processing system to establish a conferencing connection between the user and the entity associated with said command link, said list being output on said network signal port in the form of one or more data packets, said first set of instructions further directing said computer processing system to detect the presence of a return command link provided on said network signal port by the user;
- 25 a third set of control instructions responsive to the receipt of a return command link which directs said computer processing system to determine from the second memory the port identifier or IP address assigned to the entity specified in the returned command link, and to thereafter execute a fourth set of control instructions to establish a conferencing connection between the user and the entity associated with said command
- 30 link.



9. The system of Claim 8 wherein a plurality of connection IP addresses are allotted to the computer processing system;

5 wherein said third set of instructions selects one of the connection IP addresses and associates with it the communication port or IP connection address of the entity specified in the returned command link;

10 wherein said fourth set of instructions comprises instructions that direct the computer processing system to send a conferencing web page to the user, said conferencing web page being output on said network signal port in the form of one or more data packets, said conferencing web page opening a conferencing window on the user's computer and launching the user's local video-conferencing software with a direction to call the computer processing system at the assigned IP address; and

15 wherein said computer processing system comprises a fifth set of instructions which direct the computer processing system to establish a video-conferencing connection between user 10 and the entity specified in the returned command link through the connection port or IP address assigned to the specified entity.

10. The system of Claim 8 further comprising means for determining the IP address of the user; and

20 wherein said fourth set of instructions direct said computer processing system to call the user at his IP address, and to call the specified entity on the connection port or IP address assigned to the specified entity.

11. A method of providing videoconferencing services over a wide area network, 25 such as the Internet, comprising the steps of:

(a) providing a site accessible to users of the network comprising a directory of entities which are available for videoconferencing over said network;

(b) enabling said users to initiate a videoconference with a desired entity in said directory by selection of the entity;

30 (c) connecting the videoconference equipment of a said user with the video



conference equipment of the entity selected by said user; and

(d) transmitting videoconference data between said user's videoconference equipment and said entity's videoconference equipment using said network.

5 12. The method of Claim 11 wherein said step (a) comprises the steps of establishing a plurality of categories in said directory, and allocating said entities of said directory among said categories.

10 13. The method of Claim 11 wherein said step (d) comprises the steps of establishing a first connection between said user's equipment and said server and a second connection between said entity's equipment and said server, and relaying the data between the user's equipment and the entity's equipment through said first and second connections.

15 14. The method of Claim 11 wherein step (b) comprises the step of presenting the user with a list of said entities with a set of corresponding return command links, said list and return command links being output on the network to the user's network address in the form of one or more data packets that are readable by a network browser;

 wherein step (c) comprises the steps of receiving back from the user a return
20 command link and establishing a conferencing connection between the user and the entity corresponding to said returned command link.

 15. A method of providing videoconferencing services over a wide area network between a user and a selected entity through a central processing system, the user and the
25 central processing system having access to a digital packet communication network, said method comprising the steps of:

 (a) presenting the user with a list of entities which may be selected and a set of corresponding return command links, said list and return command links being output on the network to the user's network address in the form of one or more data packets that are
30 readable by a network browser;



(b) receiving back from the user a return command link; and
(c) establishing a conferencing connection between the user and the entity
corresponding to said returned command link, said step comprising the step of conveying
data packets between the user and the selected entity through the central processing
5 system.

16. The method of Claim 15 wherein a plurality of connection IP addresses are
allotted to the central processing system;
wherein said step (c) further comprises the step of sending an instruction to the
10 user's computer to launch the user's local video-conferencing software with a direction to
call the computer processing system at an IP address allotted to the central processing
unit.

17. The method of Claim 11 wherein step (b) comprises the steps of
15 (d) receiving one or more key words from a user;
(e) searching said directory of entities for matches with the received one or more
key words; and
(f) presenting the user with a list of entities which match said one or more key
words and a set of return command links corresponding to said matching entities, said list
20 and return command links being output on the network to the user's network address in
the form of one or more data packets that are readable by a network browser.

18. The method of Claim 11 wherein step (c) comprises the steps of receiving
back from the user a return command link and establishing a conferencing connection
25 between the user and the entity corresponding to said returned command link.