GROUP-INDEPENDENT MESSAGE TRANSFER METHOD AND SYSTEM LENDING SPECIFIED APPLICATION MODULE

(57) Abstract: The present invention relates to a message delivery method and system, and more particularly to a message delivery method and system in a peer-to-peer independent message delivery group except any network server. The message delivery system includes at least one peer-to-peer independent message delivery group on a network using any kind of communication protocol. The message delivery group is composed of at least one member, wherein the member is independent of any members in other message delivery groups, so the former cannot transmit messages to the latter. The member may be a group subscriber who mainly receives messages, and therefore has the role of a client. On the other hand, the member may be a group manager who mainly transmits individual messages to each group subscriber or bundles of messages to all group subscribers, and therefore has the role of a server.
— with amended claims and statement

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.
GROUP-INDEPENDENT MESSAGE TRANSFER METHOD AND SYSTEM

LENDING SPECIFIED APPLICATION MODULE

Technical Field

5 The present invention relates to a message transfer method and system within a peer-to-peer independent message delivery group composed of a plurality of computer systems on a network except any network server.

Background Art

10 An internetwork is a complex structure in which pluralities of independent networks are interconnected. And, internetworking is a method for connecting a plurality of independent networks to a unified structure.

    FIG. 1 is a schematic illustration of a general internetwork.

    Referring to FIG. 1, a plurality of independent networks such as Ethernet 12, a

    Fiber Distributed Data Interface (FDDI) 14 and a Token ring 16, are connected by internetworking 10.

    Users operating within an independent network such as a Local Area Network (LAN), which is used for delivering data within small area, can utilize a plurality of different network structures within that specified area at need. For example, Ethernet 12, token ring 14 or FDDI 16 networks can be used as LAN structures. The Ethernet 12 uses
baseband. Also, Ethernet 12 includes a Carrier Sense Multiple Access with Collision Detection (CSMA/CD) with a 10Mbps band, the Fast Ethernet with a 100Mbps band and the Gigabit Ethernet with a 1Gbps band. The token ring 14 transfers a data frame with information between one computer system and another. The FDDI 16, however, uses a 100Mbps token passing method. Also, it is a LAN with a double ring structure and uses optical fibers as transfer media.

To give an example of internetworking, one LAN user transfers data to another LAN user through a Wide Area Network (WAN). In this case, the method for connecting a LAN to a WAN corresponds to internetworking.

When independent networks are connected with each other for interconnecting, consideration must be given to a service of each network layer, protocol addresses in each network, address structures, routing method for data delivering paths and sizes of delivered data packet.

These days, Internet is prevalent. The Internet connects independent networks all over world for the purpose of delivering one network user’s data to another network user at a great distance. Transmission Control Protocol/Internet Protocol (TCP/IP) is based on the Internet having a plurality of hosts, which have unit networks and individual IP addresses attached to the unit networks. Moreover, the Internet is a communication network capable of delivering data via independent networks such as a Public Switched Telephone Network (PSTN).
An IP layer is a network layer, specifically, the 3rd layer in a 7 layer Open System Interface. The IP layer takes charge of connecting the dependent and the independent parts of the network. An IP address is a unique address on the Internet. Each IP address is generally 32 bits. It can be divided into a part identifying a subnet within Internet and a part identifying a host on the subnet.

A network model for interconnecting users may be a centralized processing model, a client/server model or a peer-to-peer model. A peer-to-peer model interconnects users privately.

The centralized processing model used for the first network model provides high processing speed, fault tolerance and security for connections between a host and terminals. The host receives a query from at least one terminal about work-related operation data, supports data integrity and is in charge of security for excluding unauthorized users. Thus, related tasks between the host and terminals are cannot be almost worked. However, it is difficult to change the structure of networks based on the centralized processing model. Consequently, there are problems resulting from delays for servicing. Also, if a personal computer (PC) is used as a terminal device, a micro computing environment does not provide data integrity and security in data processing. However, because this network model has several advantages not existing in the terminal devices, a client/server model is disclosed.

The client/server model is mainly used on the Internet and makes possible the
shared use of resources.

FIG. 2 is a schematic illustration of a general client/server model.

Referring to FIG. 2, in the client/server model, a server 20 stores data in a database 21, and clients 22, 24 and 26 request and display the data. Therefore, processing operations are divided into back end operations by the server 20 of storing and providing data and front end operation by clients 22, 24 and 26 of requesting specified data. If the clients 22, 24 and 26 transmit a query requesting data to the server 20, the server 20 searches for the data in the database 21, performs the requested operation and provides the results to the clients 22, 24 and 26 through the network.

In this client/server model, the server 20 is always waiting for queries from the clients 22, 24 and 26. The clients 22, 24 and 26 transmit request signal to connect with the server 20. Therefore, the server 20 and clients 22, 24 and 26 have different roles. Moreover, the server 20 and clients 22, 24 and 26 are independent from hardware. That is, the server 20 must provide same services to the clients 22, 24 and 26 regardless of the Operating System (OS) or hardware used. Also, the entire system in the client/server model must not be influenced by the scale of the model according to the number of the server 20 or clients 22, 24 and 26.

An Internet user can hold a video-conference and can exchange data with any other user at any location. Moreover, the user can utilize electronic mail (e-mail) or messenger
for delivering letters or messages to other users. In addition, the user can provide text, image or moving picture data to any other user via a web server, and can search for desired information on the Internet, which is called a sea of information.

With the client/server module, a user can transmit messages and e-mails to other users coupled to a message server or a mail server. A sender for transmitting data sends messages to a receiving server coupled to a recipient via a transmission server and the recipient then receives message from the receiving server.

FIG. 3 is a schematic illustration of the procedure for delivering e-mail from one user to another based upon a server.

Referring to FIG. 3, users 32 and 38, who wish to transmit and receive e-mail, are coupled to mail servers 34 and 36 respectively. The mail servers 34 and 36 include a Post Office Protocol (POP) server and a Simple Mail Transfer Protocol (SMTP) server, which are used to transmit and receive the e-mail sent back and forth between the users 32 and 38. The mail servers 34 and 36 are interconnected via the Internet.

The POP is a protocol for receiving e-mail. The POP server and more advanced POP2 server utilize Port 109 of a TCP session. The more recent and much-used POP3 server utilizes Port 110. The SMTP server is a server for transmitting e-mail and is located in the application layer. The SMTP server utilizes a TCP session for safe transmission of e-mail.
FIG. 4 is a schematic illustration of the procedure for delivering e-mail when a
sender transmits the e-mail to a recipient through mail server.

Referring to FIG. 4, if a sender 32 makes and sends an e-mail to the mail
transmission server 34, the mail transmission server 34 stores the e-mail of the sender 32
and transmits the e-mail to the mail-receiving server 36 through the SMTP server. For
transmitting the e-mail through a plurality of routers on the Internet, the mail transmission
server 34 uses an IP address of the mail-receiving server 36 connected to the recipient 38.
The mail transmission server 34 can give different priorities to each user according to their
specified level. It can also store and transmit bulk mail, which has a volume up to a
specified size. Thus, there are many cases in which an e-mail written by a user can take a
long time to be transmitted from the mail transmission server 34 to the destination server.
The e-mail can take the shortest course or travel around through many routers. The time
required for transmitting e-mail to the mail-receiving server 36 is generally 500 about
milliseconds. When an e-mail arrives at the mail-receiving server 36 via the SMTP server,
the mail-receiving server 36 provides the e-mail to the recipient 38 via the POP3 server.
The time required to route the received e-mail from the SMTP server to the POP3 server
ranges from 30 seconds to a few minutes. The recipient 38 can check the received e-mail
using a mail application through the POP3 server. The time interval of check for the
received e-mail from the sender 32 can be altered according to the recipient’s settings in
their mail application.

Therefore, the time required for transmitting e-mail from the sender 32 to the recipient 38 can be influenced by the sender's specified priority in the mail transmission server 34, delivery time and the routing time in the mail-receiving server 36. So, the recipient 38 can receive e-mail from the sender 32 from several minutes to a few days. Ultimately, it is difficult to transmit messages rapidly and accurately using the client/server model. The client/server model is especially undependable for transmitting urgent news and information about stocks.

A message transfer system with a server includes a Master Control Program (MCP) for controlling message transfer between resources connected to a network. Because mail server, which controls the transmission of the e-mail, transfers messages by means of the MCP, the MCP acts as a gatekeeper supporting timing, routing and compatibility among the independent networks. Thus, the MCP is necessary for communication among a plurality of resources. Moreover, the server needs an Operating System (OS); however, an OS for the PC such as windows 98 cannot be used by a server.

Therefore, a server acting as a gatekeeper cannot guarantee the security of messages or data, because it only manages the delivery of data among clients.

On the other hand, a peer-to-peer model can provide a method for delivering messages or data via a direct path among users except a server.
FIG. 5 is a schematic illustration of a peer-to-peer model.

Referring to FIG. 5, in the peer-to-peer model, data and messages are delivered via a direct path between computer systems 52 and 54 except a server. That is, computer systems 52 and 54 process the transmission or receiving of messages on the same level. Generally, a computer system with large storage capacity and efficient computation ability is required as a server because the client/server model serves more than ten users located in different places. However, a peer-to-peer network called workgroup provides the same service to less than ten users. Public level security is used most frequently in peer-to-peer network security. A password is required for accessing a specified directory, file and resource such as a printer.

If computer systems are interconnected in a peer-to-peer network, the delivery time for mail or messages is decreased to less than 500 millisecond because of the reduction in the routing time via the POP or SMTP server. The loss of mail or messages in the delivery process can also be avoided. For these reasons, peer-to-peer models have been widely used for interconnecting computer systems of users within the same area in LANs.

The peer-to-peer model can provide greater speed, dependability and security in data and messages transmission than the client/server model. However, two disadvantages of peer-to-peer model are their low efficiency in data delivery and difficulty in managing individual users, because of the hardness for integrating management of the users owing to user’s individual management.
Recently, internet service is widely used that interconnects a plurality of users within peer-to-peer network and direct delivery of the message and data among the users.

Two representative services are Napster and Soribada.

The Napster program produced by Napster Co. is for linking users connected to the Napster server. The Napster server searches a user's information and mp3 files in a connected computer system and provides a list of user and mp3 files for other users. Thus, a user with a Napster program can access the information and mp3 files of other users in real time. The Napster server just provides a list of a user's information and mp3 files except storing any mp3 files.

A user who wishes to access messages or mp3 files connects directly with another user's computer system using its IP address. Thus, a user can exchange messages or desired data with other users while bypassing the Napster server.

That is, if a user selects another user of the Napster program to connect with, those users can exchange messages and data in real time by means of a direct peer-to-peer type of connection between them. The Napster program is provided at the Napster web site www.napster.com.

The Soribada program is similar to the Napster program. When users are authorized to access the Soribada web server, messages and data are exchanged among users by means of the Soribada program in real time. The Soribada program is provided at the Soribada web site www.soribada.com.
FIG. 6 is a schematic illustration of the procedure for delivering messages or data used by the Napster and Soribada programs.

Referring to FIG. 6, users 62 and 64 connect with a server 60 through the Internet. Then, users 62 and 64 can search a list containing IP addresses and information of other users connected to the server 60. The users 62 and 64 can each open his/her directory for mp3 files, image data or other data that other users might search for. Thus, a user can search through any other user’s information, select at least one item from the list of users and directly couple to the selected user using his/her IP address while bypassing the server 60. After a connection between users is established, messages and data are exchanged directly from one user to another.

For the sake of user’s searching for the list of another user connected to the server 60, the server 60 maintains session with each user 62 and 64. Thus, each user 62 and 64 can search another user’s connection to the server 60. Generally, the server 60 utilizes 1Mbyte for the maintenance of session with user respectively. Therefore, necessary memory size in the server 60 is increased in accordance with number of users connected to the server 60. If large number of users is connected to the server 60 simultaneously, data processing speed of the server 60 will be decreased.

The above network model is to combine the client/server model and the peer-to-peer model and is a method for delivering message and data through the direct path
between specified users after authentication for the users coupled to the server. The above network model limits the service into the users with authorized IP address. Thus, some users using proxy server or private IP address in the LAN cannot use the above network model. The private IP address expressly provided in the REC 1918 is a designated address block for using freely in the local area. Particularly, the private IP address is composed of 3 blocks; the first block is from 10.0.0.0 to 10.255.255.255, the second block is from 172.16.0.0 to 172.31.255.255 and the third block is from 192.168.0.0 to 192.168.255.255.

However, above model such as Napster or Soribada service needs a server to form at least one group for delivering message or data. This model cannot also support the security among the users because each user must couple to the server.

Also, since the time for delivering message or data via POP server or SMTP server is changed by the priority of user, some users dealing urgent problems cannot satisfy the delivering service.

Moreover, when a user intends to communicate with other user using different language, it is difficult for the users to deliver the message to the other user. Thus, it is fact that message delivery is not easy since the user must consider a language of the other user.

Also, since the prior message transmission systems are limited to the field for delivering test or simple message, they do not include function of document management
such as word processing or utilization of other applications.

Disclosure of the Invention

The present invention is intended to overcome the above-mentioned disadvantages.

Therefore, it is an object of the present invention to provide group-independent message transfer method and system by constituting message delivery group according to the user's request and supporting the role of server as well as client to the each user.

It is another object of the present invention to provide message transfer method and system by providing translation module to the users for receiving and recognizing message made in different language.

It is another object of the present invention to provide message transfer method and system by providing other objective application modules, for example, speech module, document processing module and chatting module. Thus, it can use objective module supporting high-speed data transfer in case of text message delivery.

To achieve the above objects, using communication protocol with peer-to-peer connection among a plurality of users' computer systems on a network except any server for transmitting messages, a group-independent message transfer system of the present invention may comprise a message delivery group including at least one user and forming at least one independent message delivery groups, which have independent relation with other groups, in which user's computer system belongs to a message delivery group may
not transmit message other users in another message delivery group, wherein the independent message delivery group may comprises a group management system acting as a server managing at least one member in the same independent message delivery group and transmitting message in a bundle to at least one members using their IP address, and at least one group subscriber system acting as a client entered in a message delivery group for receiving messages transmitted from the group manager acting as a server.

The group management system may comprise at least one independent message delivery group.

The group subscriber system may enter at least one independent message delivery group.

Moreover, using communication protocol with peer-to-peer connections among a plurality of users' computer systems on a network except any message transmission server for connecting users, a group-independent message transfer method of the present invention may comprise a step of forming at least one independent message delivery groups, which include at least one group subscriber system acting as a client and have independent relation with other message delivery groups, by group management system acting as a server in a message delivery group, a step of determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user, a step of storing in a connection list the IP address and information of the group subscriber system that have requested
connection whenever a connection is requested by at least one group subscriber system
registered in an independent message delivery group, and then closing the connection
session with the group subscriber system, a step of forming message according to content
recorded in the message writing window for transmission to at least one group subscriber
system in the independent message delivery group, and a step of opening the session for at
least one group subscriber system receiving the message and transmitting the message to
the corresponding group subscriber system using IP address.

The access request signal received may comprise at least one selected from a
group consisting of an IP address, a port number, ID, a password, a name, an e-mail and
information about the connecting line of the user requesting access.

The step of forming message may comprise a step of accessing an application
module usable for making message through an application module interface, and a step of
making a message using the accessed application module and adding a code for the
application module used in step of making message.

The application module may comprises at least one selected from a group
consisting of a translation module, a word processor module, a chatting module, a speech
processing module, a image processing and a moving picture processing module.

The step of accessing an application module may link a session of the application
module to the message writing window for using the accessed application module through
the message writing window.
The step of accessing an application module may access each application modules using different port numbers.

The code for the application module may comprise at least one selected from a group consisting of an application module code accessed by the group management system, a function code indicating the function used by the group management system from among the functions of the accessed application module, and a language code indicating language used by the group management system.

The message in the step of transmitting the message may be composed of ASCII code.

The message in the step of transmitting the message may further comprise error check data or transmission confirming data.

The group-independent message transfer method may further comprise a step of retransmitting the message to corresponding group subscriber system when an error for the message or transmission error occurs.

Moreover, using communication protocol with peer-to-peer connections among a plurality of users' computer systems on a network except any message transmission server for connecting users, a group-independent message transfer method of the present invention may comprise a step of forming at least one independent message delivery groups, which include at least one group subscriber system acting as a client and have independent relation with other message delivery groups, by group management system
acting as a server in a message delivery group, a step of determining a grant of access to
the independent message delivery group as a group subscriber system in accordance with
an access request signal received from at least one user, a step of storing in a connection
list the IP address and information of the group subscriber system that have requested
connection, in a connection list when a connection is requested by at least one group
subscriber system registered in an independent message delivery group and then closing
the connection session with the group subscriber system, a step of accessing an application
module usable by a message writing window for making message through an application
module interface, a step of forming message using the accessed application module
according to content recorded in the message writing window for transmission to at least
one group subscriber system in the independent message delivery group, a step of adding a
code for the application module used in formed message, and a step of opening the session
for at least one group subscriber system receiving the message and transmitting the
message to the corresponding group subscriber system using IP address.

The application module may comprise at least one selected from a group
consisting of a translation module, a word processor module, a chatting module, a speech
processing module, an image processing module and a moving picture processing module.

Moreover, using communication protocol with peer-to-peer connections among a
plurality of users’ computer systems on a network except any message transmission server
for connecting users, a group-independent message transfer method of the present
invention may comprise a step of forming at least one independent message delivery group, which include at least one group subscriber system acting as a client and have independent relation with other message delivery groups, by group management system acting as a server in a message delivery group, a step of a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user, a step of storing in a connection list the IP address and information of the group subscriber system, that have requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system, a step of providing an IP address of a second group subscriber system in independent message delivery group from a group management system to a first group subscriber system in the same message delivery group for ascertaining by the first group subscriber system, a step of forming message according to content recorded in the message writing window in the first group subscriber system, and a step of transmitting the formed message to the second group subscriber system using IP address.

Moreover, using communication protocol with peer-to-peer connections among a plurality of users' computer systems on a network except any message transmission server for connecting users, a group-independent message transfer method of the present invention may comprise a step of forming at least one independent message delivery group, which includes at least one group subscriber system acting as a client and has independent
relations with other message delivery groups, by means of a group management system
acting as a server with an authorized IP address in a message delivery group, a step of
determining a grant of access to the independent message delivery group as a group
subscriber system in accordance with an access request signal received from at least one
user with unauthorized IP address, a step of storing in a connection list information of the
group subscriber system, that has requested connection when a connection is requested by
at least one group subscriber system registered in an independent message delivery group
with an unauthorized IP address, and then supporting the connection session with the group
subscriber system, a step of forming a message according to content recorded in a message
writing window for transmission to at least one group subscriber system in the independent
message delivery group, and a step of transmitting the formed message in accordance with
the request of the group subscriber system, if the message to be transmitted is confirmed by
checks at regular intervals by the group subscriber system which has an unauthorized IP
address and is included to object to receive the message.

Moreover, using communication protocol with peer-to-peer connections among a
plurality of users' computer systems on a network except any message transmission server
for connecting users, a group-independent message transfer system of the present invention
may comprise a message delivery group management module for forming at least one
independent message delivery group by means of a group management system acting as a
server in a message delivery group and for managing information of at least one group
subscriber system acting as a client belonging to the independent message delivery group, a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user, a session management module for storing in a connection list information of the group subscriber system, that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system, and a message processing module for forming messages according to content recorded in the message writing window in order to transmit to at least one group subscriber system in the independent message delivery group and for transmitting the message to the corresponding group subscriber system using IP address by opening the session for at least one group subscriber system receiving the message.

The access request signal received may comprise at least one selected from a group consisting of an IP address, a port number, ID, a password, a name, an e-mail and information about the connecting line of the user requesting access.

The group-independent message transfer system may further comprise at least one application modules for using in making message, an application program interface for providing high level command to corresponding application module in order to call function of the application module by request of a user, a high level command processor for discriminating corresponding specific application module in accordance with the high
level command provided via said application program interface and for decoding the high level command in order to control corresponding application module, and an application module controller for accessing corresponding application module by converting the high level command provided from said high level command processor to low level command that are recognized by specific application module.

The application module may comprise at least one selected from a group consisting of a translation module, a word processor module, a chatting module, a speech processing module, an image processing module and a moving picture processing module.

The application module controller may comprise a command level mapper for converting the high level command provided from said high level command processor to low level command to be processed by corresponding specific application module, and a module interface acting as an interface for executing the high level command provided from said command level mapper in corresponding specific application module.

The group-independent message transfer system may further comprise a module linker for connecting session of an application module to the message writing window in order to execute the accessed application module through the message writing window.

The application module controller may call each application modules using different port numbers respectively.

The message processing module may further comprises a code processing module for add at least one selected from a group consisting of an application module code for
indicating the application module accessed at the user’s request, a function code indicating the function used by the group management system from among the functions of the accessed application module, and a language code indicating the language to be used by the group management system.

The message in the step of transmitting the message may be composed of ASCII code.

The message may further comprise error check data or transmission confirming data.

The group-independent message transfer system may further comprise a message transmission control module for retransmitting the message to corresponding group subscriber system when an error for the message or transmission error occurs.

Moreover, using communication protocol with peer-to-peer connections among a plurality of users’ computer systems on a network except any message transmission server for connecting users, a group-independent message transfer system may comprise a message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in a message delivery group and for managing the information of at least one group subscriber system acting as a client belonging to the independent message delivery groups, a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received
from at least one user, a session management module for storing in a connection list
information of the group subscriber system that has requested connection when a
connection is requested by at least one group subscriber system registered in an
independent message delivery group, and then closing the connection session with the
group subscriber system, at least one application modules for using in making message, an
application program interface for providing high level command to corresponding
application module in order to call function of the application module by request of a user,
an application module controller for accessing correspond application module by
converting the high level command provided from said application program interface to
low level command that are recognized by specific application module, and a message
processing module for forming message according to content recorded in the message
writing window in order to transmit to at least one group subscriber system in the
independent message delivery group and for transmitting the message to the corresponding
group subscriber system using IP address by opening the session for at least one group
subscriber system receiving the message.

Moreover, using communication protocol with peer-to-peer connections among a
plurality of users' computer systems on a network except any message transmission server
for connecting users, a group-independent message transfer system of the present invention
may comprise a message delivery group management module for forming at least one
independent message delivery group by means of a group management system acting as a
server in a message delivery group and for managing the information of at least one group subscriber system acting as a client belonging to the independent message delivery groups, a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user, a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group, and then closing the connection session with the group subscriber system, an IP address management module for requesting an IP address of second group subscriber system in the same message delivery group of first group subscriber system who belongs to independent message delivery group to a group management system and for storing the IP address of the second group subscriber system, and a message processing module for forming message according to content recorded through a message writing window in the first group subscriber system and for transmitting the formed message to the second group subscriber system using IP address.

Moreover, using communication protocol with peer-to-peer connections among a plurality of users' computer systems on a network except any message transmission server for connecting users, a group-independent message transfer system of the present invention may comprise a message delivery group management module for managing information
about at least one group subscriber system acting as a client, which has an independent relation with other message delivery groups, by means of a group management system acting as a server with an authorized IP address in a message delivery group, a subscriber system management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user with an unauthorized IP address, a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group with an unauthorized IP address and then supporting the connection session with the group subscriber system, a message processing module for forming a message according to content recorded in the message writing window for transmission to at least one group subscriber system in the independent message delivery group, and a message transmission control module for transmitting the formed message in accordance with the request of the group subscriber system, if the message to be transmitted is confirmed by checks at regular intervals by the group subscriber system which has an unauthorized IP address and is included to object to receive the message.

**Brief Description of the Drawings**

FIG. 1 is a schematic illustration of a general internetwork.
FIG. 2 is a schematic illustration of a general client/server model.

FIG. 3 is a schematic illustration of the procedure for delivering e-mail from one user to another based upon a server.

FIG. 4 is a schematic illustration of the procedure for delivering e-mail when a sender transmits the e-mail to a recipient through mail server.

FIG. 5 is a schematic illustration of a peer-to-peer model.

FIG. 6 is a schematic illustration of the procedure for delivering messages or data used by the Napster and Soribada programs

FIG. 7a is a schematic illustration of a group-independent message transfer system in accordance with one preferred embodiment of the present invention.

FIG. 7b is a schematic illustration of computer construction as server or client in a group-independent message transfer system in accordance with one preferred embodiment of the present invention.

FIG. 8 is a flow chart illustrating message transmitting/receiving process in the same message delivery group in accordance with one preferred embodiment of the present invention.

FIG. 9a is an illustration of recording process of user information for entering the message delivery group in the group-independent message transfer system in accordance with one preferred embodiment of the present invention.

FIG. 9b is an illustration of controlling process for the message delivery group by
the group subscriber entered as a member of the message delivery group in the group-independent message transfer system in accordance with one preferred embodiment of the present invention.

FIG. 10 is an illustration of confirming process for the registration information and connection state of the member entered message delivery group by the group manager acting as a server.

FIG. 11 illustrates a computer system that group manager or group subscriber can use in the message delivery system of the present invention.

FIG. 12 is a flowchart illustrating group-independent message transfer method in accordance with preferred embodiment of the present invention.

FIG. 13 illustrates group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 14 is an illustration of main screen in the group subscriber acting as a client in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 15 is an illustration for transmitting message from group manager playing a role of server to group subscriber in message delivery group in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 16 illustrates a schematic diagram of application module capable of accessing additively in the group-independent message transfer system in accordance with preferred
embodiment of the present invention.

FIG. 17 illustrates a schematic diagram in case of having application modules in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 18 illustrates a data format transmitted according to group subscriber’s request for connecting to group manager in a message delivery group in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 19 illustrates a data format of message transmitted from a group manager acting as a server to group subscribers in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 20 illustrates a data format of message transmitted from a group subscriber acting as a client to another group subscriber in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

FIG. 21 illustrates a data format transmitted for the case of using application module as well as message transmitting module in a message delivery group in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

<Designation of Important Components Represented in the Attached Drawings>
G1, G2, G3: message delivery group
100: computer system
112: main memory
120: CPU
124: registers
130: input device
200: message transfer system
210: message transmitting processor
212: message transmission module
231: message receiving screen control module
232: user information management module
233: message receiving module
300: application module
304: translation module
308: document processing module
250: application module controller
252: speech module interface
253: document processing module mapper
254: document processing module interface
255: chatting module mapper
70, 72, 74, 76, 78: user
110: memory system
114: secondary storage
122: ALU
126: control unit
140: output device
202: high level command processor
211: connecting screen control module
213: member management module
240: database
302: speech processing module
306: chatting module
192: application program interface
251: speech module mapper
256: chatting module interface
257: translation module mapper  258: translation module interface

Best Modes for carrying out the Invention

Hereinafter, preferred embodiments of the present invention will be described in more detail with reference to the accompanying drawings.

The present invention intends to provide a message delivering method and system that could be usable in the field demanded rapidness and correctness for delivering data such as stock information, prompt report and press news. Also, the present invention makes message to deliver quickly and correctly in the group for uniform working, for example, a group based on a doctor that transfers prescription of the doctor to a pharmacist or a nurse in the group.

Therefore, in the present invention, users are interconnected in the form of peer-to-peer so that the user’s computer system may have a role of server or client except any web server relaying the message. Also, the user can perform independent message delivery group in terms of assigning at least one other user connected to himself as group subscriber. Because the user can constitute such a message delivery group voluntarily, one user can be a group subscriber in a message delivery group simultaneously with group manager in another message delivery group. Thus, a group manager can transmit the message to each group subscriber in the same message delivery group at high speed nearly in real time and
he can receive the message as group subscriber in another message delivery group from the group manager of that.

Moreover, since the message delivery system of the present invention includes a translation module for each national language, when the received message does not correspond to the receiver’s language, the message is translated and displayed in the form of receiver’s language by accessing the translation module automatically.

Also, the message delivery system of the present invention transfers text message in the form of American Standard Code for Information Interchange (ASCII) code for transmitting message at high speed. In order to chat and document process additionally, the message delivery system lends the corresponding module instantly in accordance with the request from the user, transforms the message or document to binary or ASCII code and transmits that. Therefore, because the receiver can recognize the message or document in the form of binary or ASCII code using the corresponding module, the message delivery system can use diverse function at high transfer speed.

FIG. 7a is a schematic illustration of a group-independent message transfer system in accordance with one preferred embodiment of the present invention.

Referring to FIG. 7a, the group-independent message transfer system performs peer-to-peer connections among the users 70, ..., and 78. It is preferred to use IP addresses of the each user’s computer system for connecting the users 70, ..., and 78.
except any message server. Each user 70, ..., and 78 can select other user intended to connect.

For a group subscriber connects to a group manager to transmit message to him, the group manager must approve the connection. When a group subscriber requires a connection to the group manager, owing to an offer of an IP address from the group manager and approval for entrance to the message delivery group, the group subscriber can be included to the message delivery group. Thus, it is possible to support a complete security between the group subscriber and group manager. It is also possible for the group manager to transmit message at high speed to the remote group subscriber for the one-to-one connection in the same message delivery group.

For example, such as FIG. 7a, a message delivery group G1 includes user A 70, user B 72, user C 74 and user D 76 as group members. The user A 70 as a group manager acting as a server in the message delivery group G1 makes a message transmitted to the group subscribers 72, 74 and 76 acting as a client in the message delivery group G1 after the message is copied sequentially. That is, each group subscriber 72, 74 and 76 in the message delivery group G1 has a one-to-one connection respectively to the group manager user A 70.

Generally, when the group subscribers 72, 74 and 76 connect to the group manager 70 in the message delivery group G1 after the group G1 is generated, the group manager 70 maintains session with the group subscribers 72, 74 and 76 until they 72, 74 and 76
remove the connection. Normally, 1Mbyte memory size is used per one session for maintaining the session between the group manager 70 and group subscribers 72, 74 and 76. Therefore, message processing and transmission speed is decreased in accordance with increasing the number of group subscribers 72, 74 and 76 connected to the group manager 70.

To overcome the above problem, in the case of connection request from the group subscribers 72, 74 and 76, the group manager 70 acting as a server in the message delivery group G1 ascertains whether the group subscriber is a group member and approves a connection according to the result. After approval of the connection, the group manager 70 recognizes the IP addresses of the group subscribers 72, 74 and 76, stores them in the storage space and then closes the session for connecting to the group subscribers 72, 74 and 76. Thus, the group manager 70 does not use memory space for maintaining the session after approval of the connection. And then, the group manager 70 directly transmits message to the group subscribers 72, 74 and 76 in the message delivery group G1 using IP addresses of them 72, 74 and 76. It is preferred to attach IP address of the group subscribers 72, 74 and 76 and flag bit for checking the correct transmission to the message.

Therefore, each user can play a role of a server as a group manager in a message delivery group and can simultaneously play a role of a client as a group subscriber in another message delivery group.
FIG. 7b is a schematic illustration of computer construction as server or client in a group-independent message transfer system in accordance with one preferred embodiment of the present invention.

Referring to FIG. 7b, the group-independent message transfer system of the present invention may include users S1, ..., and S4 for transmitting message as group managers with a role of server, users C1, ..., and C7 for receiving message as group subscribers with a role of client and users S/C1, ..., and S/C3 with both roles of group manager and group subscriber.

Each users S1, ..., and S4 transmits message to at least one group subscribers S/C1, ..., and S/C3 in the message delivery group formed by himself. Thus, the users S1, ..., and S4 can receive message from another group manager because they do not belong to another message delivery group. However, they can receive message from the group subscriber in the same message delivery group through the one-to-one connection.

Each users C1, ..., and C7 as group subscriber plays a role of client who receives message from the group manager in the message delivery group of himself. Thus, the user does not transmit a bundle message – it is not one-to-one communication but distributed message for plurality of users - to the users in another or same message delivery group, but receives message transmitted from the group manager.

On the other hand, each users S/C1, ..., and S/C3 playing both role of the group manager and group subscriber transmits message to the group subscribers C1, ..., and C7...
in the message delivery group and receive message from the group managers S1, ..., and S4 in his message delivery group.

In consequence, a user in the group-independent message transfer system of the present invention can be a position of the group manager, group subscriber or both the position.

The group managers S1, ..., and S4 can have a position of the group subscriber in accordance with subscribing to another message delivery group such as dotted arrow. The group subscribers C1, ..., and C7 can also have a position of the group manager by forming other message delivery group any time.

FIG. 8 is a flow chart illustrating message transmitting/receiving process in the same message delivery group in accordance with one preferred embodiment of the present invention.

Referring to FIG. 8, a group subscriber requests a connection to the group manager in the message delivery group (s2). For the sake of requesting connection from the group subscriber to the group manager, the group subscriber must be entered to the corresponding message delivery group. The entrance for the message delivery group will include processes of group subscriber’s connecting to the group manager, providing his IP address and user information, and registering as a member in the message delivery group.
FIG. 9a is an illustration of recording process of user information for entering the message delivery group in the group-independent message transfer system in accordance with one preferred embodiment of the present invention.

Referring to FIG. 9a, a user who wishes to enter a specified message delivery group registers as a group subscriber using a program capable of delivering message in his computer system. The contents for registering may be composed of a user's ID, password, an IP address of a group manager acting as a of server in the message delivery group, a user's name, joint information (number of phone or mobile phone) and an e-mail address.

When the user requests entrance of the selected message delivery group by registering the user's information, the user's information is transmitted to the group manager of the message delivery group together IP address of the user. Thus, the group manager can determine the entrance for the user to the message delivery group according to the user's information who wishes to enter the message delivery group.

A group subscriber can enter one or more message delivery groups. A plurality of group registration window is displayed in the computer system in case of the user intends to enter a plurality of message delivery group.

A group manager acting as a server in the message delivery group can ascertain the group subscriber's information entered as member of the message delivery group according to the process of registration.
FIG. 9b is an illustration of controlling process for the message delivery group by
the group subscriber entered as a member of the message delivery group in the group-

independent message transfer system in accordance with one preferred embodiment of the
present invention.

Referring to FIG. 9b, after the user enters the message delivery group such as FIG.
9a, the group subscriber can manage the information of his entered message delivery group
displayed in the screen.

The information of the message delivery group entered by the group subscriber
may be composed of a group manager's name and IP address, ID and password having
used in the process of entering message delivery group by the group subscriber.
Preferably, the group subscriber can determine whether he receives message or not from
each entered message delivery groups and can change specification of another group
subscriber. And, the group subscriber can confirm his connected group presently among a
plurality of message delivery groups.

FIG. 10 is an illustration of confirming process for the registration information and
connection state of the member entered message delivery group by the group manager
acting as a server.

Referring to FIG. 10, the group manager acting as a server in the message delivery
group can ascertain information of the group subscriber in the message delivery group.
As it were, ID, password, name, connecting line (phone number or mobile phone), e-mail, connection statistics and IP address of the group subscriber transmitted from the user as a group subscriber in the process of subscribing are displayed in the screen. And, the group manager can ascertain the group subscriber being connected at present. The group manager can ascertain the IP address of the group subscriber, because it is transmitted to the group manager together a subscription request in the subscription to the message delivery group. Thus, the group manager can ascertain the member receivable the message promptly when the group manager transmits a message to the group subscriber in the message delivery group.

When the group subscriber requests a connection, the group manager ascertains whether the group subscriber is a group member of the message delivery group using the IP address, ID or name of the group subscriber. The group manager authenticates the connection request if the group subscriber is a group member of the message delivery group (s4). When the authentication for the connection is completed, a session between the group manager and group subscriber is closed (s8) after the IP address of the group subscriber having requested the connection is stored in the buffer of the group manager (s6) in order to decrease the used memory size and prevent the reduction of the message transmission speed. Because the group manager does not use other memory for connecting to each group subscriber in state of the session close, speed for transmitting and processing the message is not reduced although lots of group subscribers connect to the
group manager.

On the other hand, in order to intensify the security of the IP address between the group manager and group subscribers belong to the same message delivery group, cryptography can be used for delivering IP address. The IP address composed of 0～9 is encoded to alphabet or special symbol and the alphabet or special symbol instead of the IP address is transmitted. It is possible to intensify the security of the IP address in accordance with being decoded the alphabet or special symbol to the numeric, which means the IP address, by the receiver.

The group manager makes a message for transmission to the group subscriber in the message delivery group, abstracts the IP addresses of the group subscribers in connection state from buffer, and transmits the message to each group subscriber simultaneously (s12). Thus, the group subscribers 72, 74 and 76 in one message delivery group (G1) receive the message transmitted from the group manager 70 at almost same time.

When the group manager 70 takes responses of the reception (s14) meaning for the correct delivering from each group subscribers 72, 74 and 76, the sessions between the group manager 70 and group subscribers 72, 74 and 76 are closed (s16). On the other hand, the group manager needs to know whether the group subscriber confirms the message or not. Thus, when the group subscriber confirms the message transmitted from the group manager, the group manager can know the group subscriber's confirmation for
the message by the message confirming signal from the group subscriber (s19).

Except the message transmitting from the group manager 70 to the group subscribers 72, 74 and 76 by one side, it is possible to transmit the message from the group subscribers 72, 74 and 76 to the group manager 70 in a message delivery group G1. Thus, the group subscribers 72, 74 and 76 can only connect to the group manager 70 by one-to-one and cannot manage the other group subscriber in the message delivery group G1.

In the message delivery system of the present invention, the group manager can form a message delivery group and transmitting the message to the group subscriber with a general computer system using windows series as OS.

FIG. 11 illustrates a computer system that group manager or group subscriber can use in the message delivery system of the present invention.

Referring to FIG. 11, a computer system 100 of the group manager or group subscriber includes a memory system 110, at least one high speed Central Processing Unit (CPU) 120 in conjunction with the memory system 110, an input device 130 and an output device 140.

The CPU 120 includes an Arithmetic Logic Unit (ALU) 122 for performing computations, a collection of registers 124 for temporary storage of data and instructions, and a control unit 126 for controlling operation of the computer system 100. The CPU 120 may be a processor having any of a variety of architectures including Alpha from
Digital, MIPS from MIPS Technology, NEC, IDT, Siemens, and others, x86 from Intel and others, including Cyrix, AMD, and Nexgen, and PowerPC from IBM and Motorola.

The memory system 110 generally includes high-speed main memory 112 in the form of a medium such as Random Access Memory (RAM) and Read Only Memory (ROM) semiconductor devices, secondary storage 114 in the form of long term storage mediums such as floppy disks, hard disks, tape, CD-ROM, flash memory, etc. and other devices that store data using electrical, magnetic, optical or other recording media. The main memory 112 also can include video display memory for displaying images through a display device. Those skilled in the art will recognize that the memory system 110 can comprise a variety of alternative components having a variety of storage capacities.

The input and output devices 130 and 140 also are familiar. The input device 130 can comprise a keyboard, a mouse, and a physical transducer (e.g., a touch screen or microphone), etc. The output device 140 can comprise a display, a printer, and a transducer (e.g., a speaker), etc. Some devices, such as a network interface or a modem, can be used as input and/or output devices.

As is familiar to those skilled in the art, the computer system 100 further includes an operating system and at least one application program. The operating system is the set of software that controls the computer system’s operation and the allocation of resources. The application program is the set of software that performs a task desired by the user, using computer resources made available through the operating system. Both are resident
in the illustrated memory system 110.

In accordance with the practices of persons skilled in the art of computer programming, the present invention is described below with reference to acts and symbolic representations of operations that are performed by computer system 100, unless indicated otherwise. Such acts and operations are sometimes referred to as being computer-executed and may be associated with the operating system or the application system as appropriate. It will be appreciated that the acts and symbolically represented operations include the manipulation by the CPU 120 of electrical signals representing data bits which causes a resulting transformation or reduction of the electrical signal representation, and the maintenance of data bits at memory locations in memory system 110 to thereby reconfigure or otherwise alter the computer system's operation, as well as other processing of signals. The memory locations where data bits are maintained are physical locations that have particular electrical, magnetic, or optical properties corresponding to the data bits.

Each user can constitute the message delivery group voluntarily. FIG. 7 illustrates the case of 3 message delivery groups G1, G2 and G3. In message delivery group G1, a user A 70 plays a role of a server as group manager and user B 72, user C 74 and user D 76 play roles of clients as group subscribers. In message delivery group G2, the user C 74 is a group manager and the group subscribers for receiving the message transmitted from the user C 74 are the user A 70 and user E 78. Also, the message delivery group G3 is composed of a user B 72, user D 76 and user E 78. The user E 78 is
a group manager and, the user B 72 and user D 76 are group subscribers. Furthermore, each users 70, ... , and 78 can constitute at least one message delivery group and manage each group. Thus, the user acting as a group manager can transmit different messages to each message delivery groups.

FIG. 12 is a flowchart illustrating group-independent message transfer method in accordance with preferred embodiment of the present invention.

Referring to FIG. 12, a group subscriber selects a group manager for transmitting message independently and requests entrance as a member of the message delivery group in accordance with connecting to the selected the group manager. After the entrance to the message delivery group is authenticated by the group manager, the group subscriber as a member of the message delivery group can receive message transmitted from the group manager. In order to subscribe as a member of message delivery group, a group subscriber inputs IP address of a group manager on a message-delivering program installed in the computer system and transmits ID, name or IP address to the group manager. So, the group manager puts the ID, name or IP address of the group subscriber in his message delivery group.

In the state of subscription to the message delivery group, the group subscriber requests a connection to the group manager in peer-to-peer using the IP address of the group manager except any message transmission server (s20). The group manager
discriminates whether the group subscriber requesting connection to the group manager is a member of the message delivery group or not using the ID, name or IP address of the group subscriber (s22). If the group subscriber is a member of the message delivery group (s24), the IP address of the group subscriber is stored in the buffer and included in the present connection list, and session between the group subscriber and group manager is closed (s26). To close the session between the group manager and group subscriber like above is reason to decrease the memory size used for maintaining the session and prevent reduction of the processing speed caused by the connection of the group subscriber because the message is transmitted directly through the IP address of the group subscriber.

If the group manager intends to transmit a message to a plurality of group subscribers in the message delivery group (s28), the message manager transmits the message each group subscribers in the message delivery group using the IP addresses stored in buffer by opening the session after completion of the message (s30). The message delivery groups are interconnected in the form of peer-to-peer. Thus, it is possible to rapidly transmit message since routing time via message transmission server is unnecessary. Therefore, high-speed and security for transmitting the message can be accomplished in field of data delivering such as stock quotation which is fluctuated in a few seconds.

On the other hand, it is preferred to transmit the message together check bit for confirming message arrival or error of the transmission process after transmission of the
total message is completed, because transmission confirmation for each data packet increases the time for transmitting total message. Thus, the message can be retransmitted to the group subscriber, which does not receive the message correctly or has an error for transmission, by using check bit (s34). If the message is not retransmitted, the message can be transmitted to the mobile terminal of the group subscriber through Simple Message Service (SMS) server.

Otherwise, if the group subscriber uses flouting IP address or private IP addresses, which ranges from 10.0.0.0 to 10.255.255.255, from 172.16.0.0 to 172.31.255.255, and 192.168.0.0 to 192.168.255.255, it is impossible to transmit the message to the group subscriber using the IP addresses.

In this case, checking the existence of the message for the group manager at each regular time interval, the group subscriber can take the message from the group manager when the message is existed. Thus, the group manager only ascertains the group subscriber in the message delivery group, needless to store the IP address of the group subscriber in buffer.

Otherwise, it will be possible to transmit message to user using flouting or private IP address through a cache server equipped to a router on network such as U.S. Pat. No. 6,167,438. Also, transmitting the private IP address together authorized IP address of router or server connected to outer device from LAN in which private IP addresses are used or allocating port numbers to each users, the private IP addresses can be used in
transmitting message.

FIG. 13 illustrates group-independent message transfer system in accordance with preferred embodiment of the present invention.

Referring to FIG. 13, the group-independent message transfer system 200 includes a message transmitting processor 210 for acting as a server and a message receiving processor 230 for a client in the message delivery group. The process of transmitting and receiving of the message transmitting processor 210 and the message receiving processor 230 are controlled and managed by high level command processor 202. When a user plays a role of group manager, the user must store and manage the IP addresses, names or other information for the group subscribers in the message delivery group. Thus, the database 250 is needed for user’s information for the group subscribers.

The message transmitting processor 210 includes a connecting screen control module 211 for displaying the connected group subscribers in the screen, a message transmission module 212 for transmitting message to each group subscribers and a member management module 213 for managing information of the group subscribers in the message delivery group.

The connecting screen control module 211 displays information of the group subscribers connected to the group manager in the screen of the group manager for acting as a server of the group manager in the message delivery group. The message
transmission module 212 transmits the message made by group manager to each group
subscribers using IP address. The member management module 213 stores and manages
the user information such as a IP address, a name or a connecting line of the group
subscriber belonging to the message delivery group in database 250 and checks the
connecting state of the group subscriber.

The message receiving processor 230 includes a message receiving screen control
module 231 for displaying the received message in screen, a user information management
module 232 for managing the user information and a message receiving module 233 for
receiving the transmitted message.

The message receiving module 233 ascertains and receives the message
transmitted from the group manager acting as a server in the message delivery group. If
the group subscriber does not use authenticated IP address but private or flouting IP
address, the message receiving module 233 ascertains message ready to transmit to the
message delivery group owing to connect to the group manager in regular time interval.

When the message ready to transmit exists, the message receiving module 233 take the
message from the group manager. The user information management module 232 stores
and manages the user information such as an IP address, an ID, a name or a password.
The message receiving screen control module 231 displays the message transmitted from
the group manager in the user’s screen for ascertaining of the user. Because success of the
business depends upon transmitting speed of messages such as stock quotation, prompt
reports, press news of newspaper or broadcasting reporters, or information of auction
tending and futures trading, it is preferred to pop up the transmitted message in the screen
of the user automatically.

FIG. 14 is an illustration of main screen in the group subscriber acting as a client
in the group-independent message transfer system in accordance with preferred
embodiment of the present invention.

Referring to FIG. 14, the main screen in the group subscriber can be distinguished
into display screen for displaying received message and functional icons the group
subscriber could select.

A chatting icon makes possible to communication between a group manager acting
as a server and a group subscriber acting as a client or among the group subscribers in the
message delivery group. When the group manager or group subscriber selects the
chatting icon, the chatting module is accessed and the display screen will be converted to
chatting screen. A registration icon is used for user’s entrance to specified message
delivery group as group subscriber. The user must inputs information such as IP address,
name, ID, password or phone number for registering as group subscriber. A connection
icon is used for connecting the group subscriber to the group manager in selected message
delivery group among a plurality of groups registered by the group subscriber in
accordance with selection of the group subscriber.
FIG. 15 is an illustration for transmitting message from group manager acting as a server to group subscriber in message delivery group in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

Referring to FIG. 15, the group manager in the message delivery group can get the connected list of group subscribers at present and transmit the same message to the group subscribers belong to the message delivery group at the same time. Thus, the group manager can transmit prompt message such as stock quotation, stock news and press news to group members (group subscribers) that belong to the group manager as one lump package. On the other hand, the group manager can establish the system for transmitting e-mail or SMS message to mobile terminal of the group subscriber in the state of not connected.

Furthermore, the group-independent message transfer system of the present invention may include a translation function for delivering message among users using different languages, 1:1 chatting function between users or speaking function using speech. Also, it can use document processing function by accessing object beyond text message.

FIG. 16 illustrates a schematic diagram of application module capable of accessing additively in the group-independent message transfer system in accordance with preferred embodiment of the present invention.
Referring to FIG. 16, application module 300 includes a speech processing module 302 for making possible to dialogue using speech among users, translation module 304 for translating one language to another language, chatting module 306 for making possible to chat among users and document processing module 308 for making document. In addition to the modules of FIG. 16, a moving picture processing module for delivering moving data among users can also be included.

The speech processing module 302 converts speech signal entered from speech input device such as microphone to digital signal, e.g., binary code. The digital speech signal is transmitted to the group subscriber in the message delivery group through the same path with message transmission path from the group manager. The group subscriber received the digital speech signal converts that using speech processing module 302. The voice of the group manager is generated through the output device such as speaker in the computer system of the group subscriber. That is, the group subscriber can listen the speech signal transmitted through speech input device by speech output signal instead of the message of the group manager.

The translation module 304 is used for transmitting message among users (group managers and group subscribers) of different languages. When the translation module is used, a language code is added to the message for transmission. Therefore, the group subscriber interprets the language code added to message. If the transmitted message is composed of other language, the message will be translated to language of the group
subscriber by translation module and displayed to screen. Thus, users of different language in the same message delivery group can transmit message conveniently not considering any language.

The chatting module 306 displays the process of transmitting message from the group manager to the group subscriber or from the group subscriber to the group manager in message delivery group in one screen for ascertaining with each other. When the group manager opens a chatting window, a user who wishes to chat in the group subscribers can join the chatting. User (group manager and group subscriber) joined in chatting can transmit/receiver message via a window. Thus, users can transmit message on the same space like conversation with removing inconvenience of delivering the message through each windows.

Particularly, storing the contents of menus on the message processing window, the menus are displayed in the form of corresponding language in accordance with selecting the language module by the user. Thus, it is convenient to the user.

The document processing module 308 can use functions such as HANGUL or MS WORD in the message transfer system beyond simple message transmitting like text. When the group manager intends to make message using table, line or a various style of penmanship except the text message, a specified document processing module 308 is accessed by Application Program Interface (API). The useable document processing module 308 is limited to pre-specified application and interface for opening the document
processing module will be produced and embodied through a contract with a person who has a right for the application. For giving making facility of message through the document processing module 308, an executing screen of the document processing module 308 is displayed in the display screen of the message transfer system. That is, the display screen of the message transfer system is used as a session of the document processing module 308 except opening new session by executing the document processing module 308.

The message made by the document processing module 308 is transmitted with identification code for the document processing module 308. Thus, the group subscriber received the message can ascertain the message easily by accessing the document processing module 308 due to the identification code and displaying the message in the screen.

The above application modules can be used more effectively by agreeing on a using contract with a developer for each application modules that calls inner processing function and links substantially with message transmitting module.

FIG. 17 illustrates a schematic diagram in case of having application modules in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

This is described in the below referring to FIG. 17.
The group manager or group subscriber can use, for example, windows 98 as OS in the computer system. The OS provides high level command to API 192 and controls the operation of each application modules.

The group-independent message transfer system 200 includes a high level command processor 202; discriminates corresponding message transmitter 210, message receiver 230 or each application modules in accordance with a high level command from the API 192, decodes the high level command and transmits that to corresponding position. The message transmitter 210, message receiver 230 and application module controller 250 controls the operation of message transmitting, message receiving and application modules 302, 304, 306 and 308 in accordance with command provided from the high level command processor 202. The high level command processor 202 decides whether specified application module is or not in accordance with high level command provided from the API, decodes the high level command to a low level command capable of being perceived in specified application module when the corresponding application module is exist, transmits the command to specified mapper and controls transmittance of the message.

The application module controller 250 includes a plurality of mappers 251, 253, 255 and 257, and interfaces 252, 254, 256 and 258 to a speech module 302 for transmitting speech message, document processing module 308 for accomplish function of the word processor, a chatting module 306 for providing function of chatting with each other, and a
translation module 304.

The speech module mapper 251 receiving high level command transmitted from the high level command processor 202 for the sake of transmitting/receiving speech converts the command to a device level command to process in the speech module 302 and provides the device level command to the speech module 302 via the speech module interface 252. If a user intending to transmit message in a message delivery group inputs his voice in a speech input device like a microphone, the voice is converted into digital voice signal by the speech module 302 and the digital voice signal is transmitted to the group subscriber belong to the message delivery group. The group subscriber provides the digital voice signal, which received via the speech module mapper 251 and speech module interface 252, to the speech module 302. The speech module 302 converts the digital voice signal to voice and outputs that to a speech output device like speaker. Thus, the group subscriber can listen the voice contents transmitted from the group manager.

The document processing module mapper 253 and document processing module interface 254 are parts for making use the document processing module 308 in case of intending not to make text message but document with word processor by user. The document processing module mapper 253 converts high level command, which is for using document processing module 308, received from the high level command processor 202 to a device level command and provides the device level command to the document processing module 308 via the document processing module interface 254. For the
function of the document processing module 308, a session for document processing lends
the session of the message processing window temporarily not using new window. Since
the message transfer system 200 calls the document processing module 308, which is
closed in using the speech module 302, chatting module 306 or making text message, only
for a time to use the word processor according to a user's request, the speed and efficiency
for the data processing can be enhanced.

For example, document edit owing to the document processing module 308
include functions of file, edit, view, insert, format and tool. The function of file includes
file open, file close, save, save as, printer setting and print. The function of edit includes
copy, cut, find and change. The function of insert includes Hyper Text Mark-up
Language (HTML), image, clip art and document file. The function of format includes
text, file size and file format. The function of tool includes language and language
conversion.

When a user transmitting message using document processing module 308 makes
and transmits a message, a code for document processing module 308 used by the user is
added to the message. Thus, group subscriber can ascertain the document processing
module 308 used by the group manager in accordance with discriminating the added code
in the received message. Therefore, the group subscriber calls the corresponding
document processing module 308 and displays the message in the screen using the
accessed document processing module 308.
The chatting module 306 is part for the group managers or group subscribers belonging to a message delivery group to register as manager of chatting room and to dialogue with other user. For opening the chatting room, the chatting module mapper 255 receives the high level command from the high level command processor 202 and converts that into device level command to be ascertained by the chatting module 306. The device level command is provided to the chatting module 306 via the chatting module interface 256. Thus, users joined in chatting room can dialogue with each other by execution of the chatting module 306. In this case, it is preferred to have the chatting session lend the message processing window by accomplishing function of the chatting module 306 in the message transmission screen.

The translation module 304 accomplishes function of translation to native language of the group subscriber for being ascertained the message by the group subscriber. It is preferred to accomplish the translation module 304 in the process of not transmitting but receiving the message.

When the group manager makes a message and transmits the message to the group subscriber in the message delivery group, a code for used language by the group manager is added to the message. Thus, the group subscriber can ascertain the language of the message used by the group manager.

Therefore, if the transmitted message is not composed of the language for the group subscriber, the high level command processor 202 provides a command for
translating the message to the translation module mapper 257. The translation module mapper 257 converts the high level command to device level command to be processed by the translation module 304 and provides the device level command to the translation module 304 via translation module interface 258. Thus, the group subscriber can ascertain the message in the native language although the group manager transmits the message with different language.

On the other hand, the group manager in message delivery group can transmit the message translated in group subscriber’s language by storing language information for each group subscribers, when the group manager registers users who wish to enter into the message delivery group as group subscribers. That is, the group subscribers do not translate the message received from the group manager, but the group manager translates the made message into each language of group subscribers and transmits the translated message to each group subscribers. In this case, load of the group manager for transmitting message will be increased.

Specific member functions of the API 192 for accomplishing the above skill are described like below.

An open API is used for opening the message transmitting module or other application module in accordance with user’s request.

A close API is used for closing used modules.

A copy API is used for copying received message when the group manager acting
as a server in a message delivery group to a plurality of group subscribers.

A retrieve API is used for retrieving application module to be accessed in the
5 group-independent message transfer system.

A status API is used for determining operating status of message transmitting
module or other application modules.

An initialize API has a function to initialize message transmitting module or other
10 application modules for accessing.

A list API is used for ascertaining list of the user information related to group
subscribers in the message delivery group.

A register API has a function for registering information of the group subscribers
15 who wish to enter into a message delivery group.

An unregister API is used for excluding registration of the group subscriber
entered into a message delivery group.

A read API is used for interpreting message data received from a group manager
or group subscriber.

A write API is used for making message to be transmitted.

An attribute API is used for adding an attribute of application module to a message
or discriminating the attribute of application module added to the message.

In consequence, a private API is accomplished in accordance with used application
20 module or form of message and thus, group manager or group subscriber can make a
message and use specified application module.

In above, although the speech module, document processing module, chatting module and translation module have been used as application modules in terms of one embodiment, those skilled in the art will recognize that a moving picture processing module, image processing module and wireless transmitting module for communicating in wireless, etc, can be used.

Particularly, when a real time moving picture chatting is used, real time moving picture processing module can be used with function for transmitting text message.

Also, message delivering and chatting are accomplished between a group manager acting as a server and a group subscriber acting as a client in the message delivery group and between group subscribers in the same message delivery group. A group manager providing an IP address of a group subscriber in a message delivery group to another group subscriber in another message delivery group owing to request of another, each group subscribers can delivery message and chat with other group subscriber except a group manager.

An operation of the group-independent message transfer system of the present invention is controlled by allocating port numbers to group manager as server, group subscriber as client and to each application modules that are used by group manager and group subscriber.

For example, number 5000 as a primary port number for message delivering and
chatting is allocated to authentication for a role of server in accordance with the request of group subscriber in a message delivery group. Port number 6000 is used for message delivering and chatting as server of group manager and port number 6001 is used for chatting among group subscribers. Also, port number 7000 can be used for a group subscriber to connect to a group manager as server and port number 8000 can be used for a group subscriber to receive message transmitted from a group manager.

Such as above, data format delivering between group manager and group subscriber is described like below in accordance with a example allocating port numbers.

FIG. 18 illustrates a data format transmitted according to group subscriber's request for connecting to group manager in a message delivery group in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

Referring to FIG. 18, transmitted data in process of connection request may include destination IP address, port number, ID, password, user's name, e-mail, mobile phone and source IP address.

The source IP address is an IP address of a group subscriber requesting connection to a group manager and the destination IP address may be 16 bits of IP address of a group manager. When the group subscriber requests connection to the group manager, port number 5000 will be used for authenticating a role of server by the group manager. The
ID, password, user's name, e-mail and mobile phone is information of group subscriber who transmits message in case of entering into message delivery group and requesting connection to a group manager in a registered message delivery group. Also, the source IP address as an IP address of group subscriber for requesting connection to a group manager may be 16 bits.

FIG. 19 illustrates a data format of message transmitted from a group manager acting as a server to group subscribers in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

Referring to FIG. 19, a group manager acting as a server can transmit messages, in which each message has same contents, to a plurality of group subscribers in a message delivery group. For above object, destination IP address, port number, message content, error check bit and transmission confirming bit are included to the message.

The destination IP address is an IP address of group subscriber to be received message and destination IP addresses are added sequentially to a message to be transmitted to each group subscribers. If a plurality of group subscribers exist in a message delivery group, a group manager copies content of message as many as number of group subscribers and transmits the messages for each IP addresses of the group subscribers. Port number 8000 allocated for the group manager to play a role of client may be used.

The message content added by writing of group manager may be composed of
ASCII code for text message or binary code for word processor and file. The error check bit is used for judging occurrence of error in process of transmitting message, which include the error check bit, and the transmission confirming bit is a part for judging receipt of a transmitted message by a group subscriber. When the group subscriber receives the transmitted message normally, a response signal indicating normal receipt for the message is transmitted to the group manager. On the other hand, if the message would include error or would not be transmitted to the group subscriber for specified time, the message can be retransmitted or simple message can be transmitted to a mobile terminal of the group subscriber.

FIG. 20 illustrates a data format of message transmitted from a group subscriber acting as a client to another group subscriber in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

Referring to FIG. 20, a first group subscriber must know an IP address of a second group subscriber for transmitting message to the second group subscriber in the same message delivery group. Thus, the first group subscriber will request the IP address of the second group subscriber to a group manager. Such as FIG. 18, port number 5000 may be used for the group manager to authenticate a role of server.

After the first group subscriber recognizes the IP address of second group subscriber for transmitting message, he transmits a message composed of port number,
message content, source IP address, error check bit and transmission confirming bit using the IP address of second group subscriber as destination IP address. In here, port number 8000 may be allocated because the second group subscriber plays a role of client for receiving message. The source IP address is the IP address of the first group subscriber. The error check bit and transmission confirming bit are same as in FIG. 19. Thus, the second group subscriber can ascertain whom the user (the first group subscriber) having transmitted message is.

FIG. 21 illustrates a data format transmitted for the case of using application module as well as message transmitting module in a message delivery group in the group-independent message transfer system in accordance with preferred embodiment of the present invention.

Message transmitting using application module by a group manager referring to FIG. 21 is like below.

Data transmitted from a group manager to one or more group subscriber more includes a header indicating use of application module in message data illustrated FIG. 19 or FIG. 20. The header may include a code of used application module by the group manager, a function code used by the group manager selected from among the functions of an application module and a language code for controlling the translation module when the group manager uses different language than the group subscribers.
The code corresponding to application module used by the group manager is given to the chatting module, translation module, document processing module like a word processor and speech module except for making text message. Although a chatting module, translation module, document processing module and speech module are illustrated as application module in above, it will be appreciated that moving picture processing module and image processing module, etc, can be included. The function code indicates the function in an application module that is used by a user. For example, when a group manager uses a magnification in document processing function for the document processing module, the function code corresponds to that. The language code indicates a language used by group manager. A group subscriber discriminates the language code for transmitted message, translates and displays the message to his native language by actuating the translation module when languages between the group manager and group subscriber are different. Thus, the group manager for transmitting message makes a message in the same method with general message transmitting method except any function of translation although a group subscriber using different language in the message delivery group.

When a message is transmitted by the group-independent message transfer system described above, the rapid delivery of security message can be accomplished effectively through a group, such as composed of a plurality of investors who receive stock information from an expert. In addition, the group-independent message transfer system
may be used in a group with vertical grade such as a case that a doctor for treating writes out a prescription according to a result of examination and provides the prescription to another doctor or nurse in charge.

5 Industrial Applicability

As described above, based upon group-independent message transfer method and system of the present invention, rapid and correct message delivery is accomplished and security of the message is supported among users in a message delivery group by connecting a group manager and group subscribers in peer-to-peer except any web server and forming a group with a group manager as core.

Each user can arbitrarily perform a message delivery group in which the user plays a role of server and can register in another message delivery group. Thus, each user can be a server as well as a client and transmits message effectively in accordance with characteristic of the formed group.

Moreover, using translation module for translating the transmitted message to native language of the group subscriber, message delivery can be easily and efficiently accomplished although users in the same message delivery group are in use of different languages.

Moreover, the message transfer system can use various functions of application, which is performed by including private application module necessary for transmitting
message, with united function composed of such as speech, chatting and word processor in
addition to text message in accordance with selection of user.

Although the present invention has been described in detail in terms of various
embodiments, it is not intended that the present invention be limited to these embodiments.

Various modification and change within the spirit of the invention will be apparent to those
skilled in the art.
Claims

1. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any server for transmitting messages, said group-independent message transfer system comprising at least one independent message delivery group which includes at least one user system and has independent relations with other independent message delivery groups, in which a user system belonging to a independent message delivery group may not transmit a message to another user system in another independent message delivery group;

   wherein the independent message delivery group comprises

   a group management system acting as a server, which manages at least one user system in the same independent message delivery group and transmits messages to at least one user system using an IP address; and

   at least one group subscriber system acting as a client registered in said independent message delivery group to receive messages transmitted through the group management system acting as a server.

2. The system in claim 1, wherein said group management system may form

   at least one independent message delivery group.
3. The system in claim 1, wherein said group subscriber system may register at least one independent message delivery group.

4. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

- forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups via a group management system acting as a server for each independent message delivery group;

- determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from the at least one user system;

- storing in a connection list an IP address and information for the group subscriber system when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

- forming a message according to the content recorded in a message writing window
for transmission to at least one group subscriber system in the independent message
delivery group; and

opening the session for at least one group subscriber system receiving the message
and transmitting the message to the corresponding group subscriber system using its IP
address.

5. The method in claim 4, wherein the access request signal comprises at
least one selected from a group consisting of an IP address, a port number, an ID, a
password, a name, an e-mail address and information about the line connection of the user
system requesting access.

6. The method in claim 4, wherein said step of forming a message comprises
the steps of:

accessing an application module used for making messages by means of an
application module interface; and

making a message using the accessed application module and adding a code for the
application module.

7. The method in claim 6, wherein the application module comprises at least
one selected from a group consisting of a translation module, a word processor module, a
chatting module, a speech processing module, an image processing module and a moving picture processing module.

8. The method in claim 6, wherein said step of accessing an application module is performed by linking the session of the application module to the message writing window for using the accessed application module.

9. The method in claim 6, wherein said step of accessing an application module is performed by accessing each application modules using a different port number.

10. The method in claim 6, wherein the code for the application module comprises at least one selected from a group consisting of an application module code accessed by the group management system, a function code indicating functions performed by the group management system according to which functions are accessed through the application module, and a language code indicating the language used by the group management system.

11. The method in claim 4, wherein the message in said step of transmitting the message is composed of ASCII code.
12. The method in claim 4, wherein the message in said step of transmitting the message further comprises error check data or transmission confirmation data.

13. The method in claim 4 or claim 12 further comprising a step of repeating transmission of the message to the corresponding group subscriber system when an error in the message or in transmission process occurs.

14. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

- forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other message delivery groups by means of a group management system acting as a server in a independent message delivery group;

- determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

- storing in a connection list an IP address and information of the group subscriber system which has requested a connection when a connection is requested by at least one
group subscriber system registered in an independent message delivery group and then
closing the connection session with the group subscriber system;

accessing an application module through an application module interface using the
application module by means of a message writing window in order to make messages;

forming a message using the accessed application module according to the content
recorded in the message writing window for transmission to at least one group subscriber
system in the independent message delivery group;

adding a code for the application module used in said step of forming a message;

and

opening the session for at least one group subscriber system receiving the message
and transmitting the message to the corresponding group subscriber system using its IP
address.

15. The method in claim 14, wherein the application module comprises at
least one selected from a group consisting of a translation module, a word processor
module, a chatting module, a speech processing module, an image processing module and
a moving picture processing module.

16. A group-independent message transfer method using communication
protocol with peer-to-peer connections among a plurality of user systems via a network
except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other message delivery groups by means of a group management system acting as a server in a independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

storing in a connection list an IP address and information of the group subscriber system that has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

confirming an IP address of a second group subscriber system in an independent message delivery group derived from a group management system to a first group subscriber system in the same message delivery group in order to be identified by the first group subscriber system;

forming a message according to the content recorded in the message writing window in the first group subscriber system; and

transmitting the formed message to the second group subscriber system using its IP
address.

17. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other message delivery groups, by means of a group management system acting as a server with an authorized IP address in a independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system with an unauthorized IP address;

storing in a connection list information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group with an unauthorized IP address and then supporting the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and
transmitting the formed message in accordance with the request of the group subscriber system, if the message to be transmitted is confirmed by checks at regular intervals by the group subscriber system which has an unauthorized IP address and is included to object to receive the message.

18. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer system comprising:

- a message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in an independent message delivery group and for managing the information of at least one group subscriber system acting as clients belonging to the independent message delivery groups;

- a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system;

- a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group
and then closing the connection session with the group subscriber system; and

a message processing module for forming a message according to the content recorded in the message writing window in order to transmit it to at least one group subscriber system in the independent message delivery group and for transmitting the messages to the corresponding group subscriber system using its IP address by opening the session for at least one group subscriber system receiving the message.

19. The system in claim 18, wherein the access request signal comprises at least one selected from a group consisting of an IP address, a port number, an ID, a password, a name, an e-mail address and information about the connecting line of the user requesting access.

20. The system in claim 18 further comprising:

at least one application module for making messages;

an application program interface for providing high level command to corresponding application modules in order to access functions of the application module at the user system’s request;

a high level command processor for discriminating corresponding specific application modules in accordance with the high level command provided via said application program interface and for decoding the high level command in order to control
corresponding application module; and

an application module controller for accessing a corresponding application module by converting the high level command provided from said high level command processor to a low level command that can be recognized by a specific application module.

21. The system in claim 20, wherein the application module comprises at least one selected from a group consisting of a translation module, a word processor module, a chatting module, a speech processing module, an image processing module and a moving picture processing module.

22. The system in claim 20, wherein said application module controller comprises:

a command level mapper for converting the high level command provided from said high level command processor to a low level command to be processed by means of corresponding specific application module; and

a module interface acting as an interface for executing the high level commands provided from said command level mapper in corresponding specific application module.

23. The system in claim 18 further comprising a module linker for connecting sessions of an application module to the message writing window in order to
execute the accessed application module through the message writing window.

24. The system in claim 18, wherein said application module controller accesses each application module using different port numbers respectively.

25. The system in claim 18, wherein said message processing module further comprises a code processing module for adding at least one selected from a group consisting of an application module code indicating the application module accessed at the user system’s request, a function code indicating the function used by the group management system from among the functions of the accessed application module, and a language code indicating the language to be used by the group management system.

26. The system in claim 18, wherein the message in said step of transmitting the message is composed of ASCII code.

27. The system in claim 18, wherein the message further comprises error check data or transmission confirmation data.

28. The system in claim 18 or claim 27 further comprising a message transmission control module for repeating transmission of the message to a corresponding
group subscriber system when an error occurs in a message or in a transmission process.

29. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer system comprising:

an independent message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in a message delivery group and for managing the information of at least one group subscriber system acting as a client belonging to the independent message delivery groups;

a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system;

a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group, and then closing the connection session with the group subscriber system;

at least one application module for use in making message;

an application program interface for providing high level commands to
corresponding application modules in order to access functions of the application module at the user's request;

an application module controller for accessing corresponding application modules by converting the high level commands provided from said application program interface into low level commands that are recognized by specific application modules; and

a message processing module for forming messages according to the content recorded in the message writing window in order to transmit messages to at least one group subscriber system in the independent message delivery group and for transmitting the messages to corresponding group subscriber systems using their IP addresses by opening the session for at least one group subscriber system receiving the messages.

30. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer system comprising:

an independent message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in a message delivery group and for managing the information of at least one group subscriber system acting as a client belonging to the independent message delivery groups;
a subscriber management module for determining a grant of access to the
independent message delivery group as a group subscriber system in accordance with an
access request signal received from at least one user;

a session management module for storing in a connection list the information of the
group subscriber system that has requested connection when a connection is requested by
at least one group subscriber system registered in an independent message delivery group,
and then closing the connection session with the group subscriber system;

an IP address management module for requesting the IP address of a second group
subscriber system in the same message delivery group that belongs to the independent
message delivery group of a group management system and for storing the IP address of
the second group subscriber system; and

a message processing module for forming messages according to content recorded
in a message writing window in the first group subscriber system and for transmitting the
formed messages to the second group subscriber system using its IP address.

31. A group-independent message transfer system using communication
protocol with peer-to-peer connections among a plurality of user systems via a network
except any message transmission server for connecting user systems, said group-
independent message transfer system comprising:

an independent message delivery group management module for managing
information about at least one group subscriber system acting as a client, which has
independent relations with other independent message delivery groups, by means of a
group management system acting as a server with an authorized IP address in a
independent message delivery group;

a subscriber system management module for determining a grant of access to the
independent message delivery group as a group subscriber system in accordance with an
access request signal received from at least one user system with an unauthorized IP
address;

a session management module for storing in a connection list the information of the
group subscriber system that has requested connection when a connection is requested by
at least one group subscriber system registered in an independent message delivery group
with an unauthorized IP addresses, and then supporting the connection session with the
group subscriber system;

a message processing module for forming a message according to the content
recorded in the message writing window for transmission to at least one group subscriber
system in the independent message delivery group; and

a message transmission control module for transmitting the formed message in
accordance with the request of the group subscriber system, if the message to be
transmitted is confirmed by checks at regular intervals by the group subscriber system
which has an unauthorized IP address and is included to object to receive the message
32. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by digital processing unit, for transmitting messages to user systems interconnected within a peer-to-peer independent message delivery group, said message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups, via a group management system acting as a server for each independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from the at least one user system;

storing in a connection list an IP address and information for the group subscriber system when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and
opening the session for at least one group subscriber systems receiving the message and transmitting the message to the corresponding group subscriber system using its IP address.

33. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by a digital processing unit, for transmitting messages to user systems interconnected lending specified application modules within a peer-to-peer independent message delivery group, said message transfer method comprising the steps of:

- forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups, by means of a group management system acting as a server in an independent message delivery group;

- determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

- storing in a connection list an IP address and information of the group subscriber system, which has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;
accessing an application module through an application module interface and using the application module by means of a message writing window in order to make messages;

forming a message using the accessed application module according to the content recorded in the message writing window for transmission to at least one group subscriber system in the independent message delivery group;

adding a code for the application module used in said step of forming a message;

and

opening the session for at least one group subscriber system receiving the message and transmitting the message to the corresponding group subscriber system using its IP address.

34. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by a digital processing unit, for transmitting messages between group subscriber systems acting as clients within a peer-to-peer independent message delivery group, said message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups by means of a group management system acting as a server in an independent message delivery group;
determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

storing in a connection list an IP address and information of the group subscriber system that has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

confirming an IP address of a second group subscriber system in an independent message delivery group derived from a group management system to a first group subscriber system in the same message delivery group in order to be identified by the first group subscriber system;

forming a message according to the content recorded in the message writing window in the first group subscriber system; and

transmitting the formed message to the second group subscriber system using its IP address.

35. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by a digital processing unit, for transmitting messages to group subscriber systems with unauthorized IP addresses within a peer-to-peer independent message
delivery group, said message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups, by means of a group management system acting as a server with an authorized IP address in an independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system with an unauthorized IP address;

storing in a connection list information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group with an unauthorized IP address and then supporting the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and

transmitting the formed message in accordance with the request of the group subscriber system, if the message to be transmitted is confirmed by checks at regular intervals by the group subscriber system which has an unauthorized IP address and is included to object to receive the message.
1. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any server for transmitting messages, said group-independent message transfer system comprising at least one independent message delivery group which includes at least one user system and has independent relations with other independent message delivery groups, in which a user system belonging to a independent message delivery group may not transmit a message to another user system in another independent message delivery group;

wherein the independent message delivery group comprises

a group management system acting as a server, which manages at least one user system in the same independent message delivery group and transmits messages to at least one user system using an IP address; and

at least one group subscriber system acting as a client registered in said independent message delivery group to receive messages transmitted through the group management system acting as a server.

2. The system in claim 1, wherein said group management system may
form at least one independent message delivery group.

3. The system in claim 1, wherein said group subscriber system may register at least one independent message delivery group.

4. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

   forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups via a group management system acting as a server for each independent message delivery group;

   determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from the at least one user system;

   storing in a connection list an IP address and information for the group subscriber system when a connection is requested by at least one group subscriber
system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and

opening the session for at least one group subscriber system receiving the message and transmitting the message to the corresponding group subscriber system using its IP address.

5. The method in claim 4, wherein the access request signal comprises at least one selected from a group consisting of an IP address, a port number, an ID, a password, a name, an e-mail address and information about the line connection of the user system requesting access.

6. The method in claim 4, wherein said step of forming a message comprises the steps of:

accessing an application module used for making messages by means of an application module interface; and
making a message using the accessed application module and adding a code for the application module.

7. The method in claim 6, wherein the application module comprises at least one selected from a group consisting of a translation module, a word processor module, a chatting module, a speech processing module, an image processing module and a moving picture processing module.

8. The method in claim 6, wherein said step of accessing an application module is performed by linking the session of the application module to the message writing window for using the accessed application module.

9. The method in claim 6, wherein said step of accessing an application module is performed by accessing each application modules using a different port number.

10. The method in claim 6, wherein the code for the application module comprises at least one selected from a group consisting of an application module code
accessed by the group management system, a function code indicating functions performed by the group management system according to which functions are accessed through the application module, and a language code indicating the language used by the group management system.

11. The method in claim 4, wherein the message in said step of transmitting the message is composed of ASCII code.

12. The method in claim 4, wherein the message in said step of transmitting the message further comprises error check data or transmission confirmation data.

13. (amended) The method in claim 4 further comprising a step of repeating transmission of the message to the corresponding group subscriber system when an error in the message or in transmission process occurs.

14. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network
except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other message delivery groups by means of a group management system acting as a server in a independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

storing in a connection list an IP address and information of the group subscriber system which has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

accessing an application module through an application module interface using the application module by means of a message writing window in order to make messages;

forming a message using the accessed application module according to the content recorded in the message writing window for transmission to at least one group
subscriber system in the independent message delivery group;

adding a code for the application module used in said step of forming a message;

and

opening the session for at least one group subscriber system receiving the message and transmitting the message to the corresponding group subscriber system using its IP address.

15. The method in claim 14, wherein the application module comprises at least one selected from a group consisting of a translation module, a word processor module, a chatting module, a speech processing module, an image processing module and a moving picture processing module.

16. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other
message delivery groups by means of a group management system acting as a server in an independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

storing in a connection list an IP address and information of the group subscriber system that has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

confirming an IP address of a second group subscriber system in an independent message delivery group derived from a group management system to a first group subscriber system in the same message delivery group in order to be identified by the first group subscriber system;

forming a message according to the content recorded in the message writing window in the first group subscriber system; and

transmitting the formed message to the second group subscriber system using its IP address.
17. A group-independent message transfer method using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other message delivery groups, by means of a group management system acting as a server with an authorized IP address in an independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system with an unauthorized IP address;

storing in a connection list information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group with an unauthorized IP address and then supporting the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and
transmitting the formed message in accordance with the request of the group subscriber system, if the message to be transmitted is confirmed by checks at regular intervals by the group subscriber system which has an unauthorized IP address and is included to object to receive the message.

18. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer system comprising:

a message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in a independent message delivery group and for managing the information of at least one group subscriber system acting as clients belonging to the independent message delivery groups;

a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system;

a session management module for storing in a connection list the information of
the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system; and

a message processing module for forming a message according to the content recorded in the message writing window in order to transmit it to at least one group subscriber system in the independent message delivery group and for transmitting the messages to the corresponding group subscriber system using its IP address by opening the session for at least one group subscriber system receiving the message.

19. The system in claim 18, wherein the access request signal comprises at least one selected from a group consisting of an IP address, a port number, an ID, a password, a name, an e-mail address and information about the connecting line of the user requesting access.

20. The system in claim 18 further comprising:

at least one application module for making messages;

an application program interface for providing high level command to
corresponding application modules in order to access functions of the application module at the user system's request;

a high level command processor for discriminating corresponding specific application modules in accordance with the high level command provided via said application program interface and for decoding the high level command in order to control corresponding application module; and

an application module controller for accessing a corresponding application module by converting the high level command provided from said high level command processor to a low level command that can be recognized by a specific application module.

21. The system in claim 20, wherein the application module comprises at least one selected from a group consisting of a translation module, a word processor module, a chatting module, a speech processing module, an image processing module and a moving picture processing module.

22. The system in claim 20, wherein said application module controller comprises:
a command level mapper for converting the high level command provided from said high level command processor to a low level command to be processed by means of corresponding specific application module; and

a module interface acting as a interface for executing the high level commands provided from said command level mapper in corresponding specific application module.

23. The system in claim 18 further comprising a module linker for connecting sessions of an application module to the message writing window in order to execute the accessed application module through the message writing window.

24. The system in claim 18, wherein said application module controller accesses each application module using different port numbers respectively.

25. The system in claim 18, wherein said message processing module further comprises a code processing module for adding at least one selected from a group consisting of an application module code indicating the application module accessed at the user system’s request, a function code indicating the function used by
the group management system from among the functions of the accessed application
module, and a language code indicating the language to be used by the group
management system.

26. The system in claim 18, wherein the message in said step of
transmitting the message is composed of ASCII code.

27. The system in claim 18, wherein the message further comprises error
check data or transmission confirmation data.

28. (amended) The system in claim 18 or claim 27 further comprising a
message transmission control module for repeating transmission of the message to a
corresponding group subscriber system when an error occurs in a message or in a
transmission process.

29. A group-independent message transfer system using communication
protocol with peer-to-peer connections among a plurality of user systems via a network
except any message transmission server for connecting user systems, said group-
independent message transfer system comprising:

an independent message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in a message delivery group and for managing the information of at least one group subscriber system acting as a client belonging to the independent message delivery groups;

a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system;

a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group, and then closing the connection session with the group subscriber system;

at least one application module for use in making message;

an application program interface for providing high level commands to corresponding application modules in order to access functions of the application module at the user's request;
an application module controller for accessing corresponding application modules by converting the high level commands provided from said application program interface into low level commands that are recognized by specific application modules; and

a message processing module for forming messages according to the content recorded in the message writing window in order to transmit messages to at least one group subscriber system in the independent message delivery group and for transmitting the messages to corresponding group subscriber systems using their IP addresses by opening the session for at least one group subscriber system receiving the messages.

30. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer system comprising:

an independent message delivery group management module for forming at least one independent message delivery group by means of a group management system acting as a server in a message delivery group and for managing the information of at least one group subscriber system acting as a client belonging to the independent
message delivery groups;

a subscriber management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user;

a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group, and then closing the connection session with the group subscriber system;

an IP address management module for requesting the IP address of a second group subscriber system in the same message delivery group that belongs to the independent message delivery group of a group management system and for storing the IP address of the second group subscriber system; and

a message processing module for forming messages according to content recorded in a message writing window in the first group subscriber system and for transmitting the formed messages to the second group subscriber system using its IP address.
31. A group-independent message transfer system using communication protocol with peer-to-peer connections among a plurality of user systems via a network except any message transmission server for connecting user systems, said group-independent message transfer system comprising:

an independent message delivery group management module for managing information about at least one group subscriber system acting as a client, which has independent relations with other independent message delivery groups, by means of a group management system acting as a server with an authorized IP address in an independent message delivery group;

a subscriber system management module for determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system with an unauthorized IP address;

a session management module for storing in a connection list the information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group with an unauthorized IP addresses, and then supporting the connection session with the group subscriber system;
a message processing module for forming a message according to the content recorded in the message writing window for transmission to at least one group subscriber system in the independent message delivery group; and

a message transmission control module for transmitting the formed message in accordance with the request of the group subscriber system, if the message to be transmitted is confirmed by checks at regular intervals by the group subscriber system which has an unauthorized IP address and is included to object to receive the message.

32. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by digital processing unit, for transmitting messages to user systems interconnected within a peer-to-peer independent message delivery group, said message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups, via a group management system acting as a server for each independent message delivery group;

determining a grant of access to the independent message delivery group as a
group subscriber system in accordance with an access request signal received from the at least one user system;

storing in a connection list an IP address and information for the group subscriber system when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and

opening the session for at least one group subscriber systems receiving the message and transmitting the message to the corresponding group subscriber system using its IP address.

33. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by a digital processing unit, for transmitting messages to user systems interconnected lending specified application modules within a peer-to-peer independent message delivery group, said message transfer method comprising the steps
of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups, by means of a group management system acting as a server in an independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;

storing in a connection list an IP address and information of the group subscriber system, which has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

accessing an application module through an application module interface and using the application module by means of a message writing window in order to make messages;

forming a message using the accessed application module according to the content recorded in the message writing window for transmission to at least one group subscriber system in the independent message delivery group;
adding a code for the application module used in said step of forming a message;

and

opening the session for at least one group subscriber system receiving the message and transmitting the message to the corresponding group subscriber system using its IP address.

34. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by a digital processing unit, for transmitting messages between group subscriber systems acting as clients within a peer-to-peer independent message delivery group, said message transfer method comprising the steps of:

forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups by means of a group management system acting as a server in an independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with the access request signal received from at least one user system;
storing in a connection list an IP address and information of the group subscriber system that has requested a connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group and then closing the connection session with the group subscriber system;

confirming an IP address of a second group subscriber system in an independent message delivery group derived from a group management system to a first group subscriber system in the same message delivery group in order to be identified by the first group subscriber system;

forming a message according to the content recorded in the message writing window in the first group subscriber system; and

transmitting the formed message to the second group subscriber system using its IP address.

35. A computer-readable medium having stored thereon computer-executable instructions and realized in concrete by a program of instructions, which could be executable by a digital processing unit, for transmitting messages to group subscriber systems with unauthorized IP addresses within a peer-to-peer independent message delivery group, said message transfer method comprising the steps of:
forming at least one independent message delivery group which includes at least one group subscriber system acting as a client and has independent relations with other independent message delivery groups, by means of a group management system acting as a server with an authorized IP address in an independent message delivery group;

determining a grant of access to the independent message delivery group as a group subscriber system in accordance with an access request signal received from at least one user system with an unauthorized IP address;

storing in a connection list information of the group subscriber system that has requested connection when a connection is requested by at least one group subscriber system registered in an independent message delivery group with an unauthorized IP address and then supporting the connection session with the group subscriber system;

forming a message according to the content recorded in a message writing window for transmission to at least one group subscriber system in the independent message delivery group; and

transmitting the formed message in accordance with the request of the group subscriber system, if the message to be transmitted is confirmed by checks at regular intervals by the group subscriber system which has an unauthorized IP address and is included to object to receive the message.
STATEMENT Under Article 19

I/we amended claims under the article 19 of PCT. KR 2001-8123, KR 2000-54683, JP10-063598 and JP12-201146 are cited by examiner as the prior arts (hereinafter “prior arts”) in international search report.

KR 2001-8123 uses a X-web server and a X-Broker server for P2P or P2G communication. The X-web server and X-Broker server provide subscriber information to a user. However, the present invention does not use any server between users’ systems for Peer-to-Peer. In the present invention, a user collects subscriber information from each subscriber.

KR 2000-54683 uses a master server for transmitting group messages. The master server receives a message from a sender registered in one group and transmits the messages to members of the group. However, the present invention does not use any server between users’ systems for Peer-to-Peer. In the present invention, a user transmits group messages to others directly with Peer-to-Peer.

JP10-063598 uses a multicast server for transmitting messages, which include a group index, provided from a sender to a plurality of receivers. Using the group index, the multicast server transmits the message with a group index to the receivers according to the receivers’ requests. However, the present invention does not use any server between users’ systems for Peer-to-Peer. In the present invention, a user transmits messages to receivers directly using their IP addresses.

And, in the JP12-201146, a sender transmits a message, which includes an index group and a group name, to receivers for subscribing to a group, seceding from the
group or ready to communication respectively. When an index of the receiver belongs to the index group, the receiver acts the specified operation among the subscription, secession or ready to communication. Thus, the communication between the sender and receiver is accomplished. In the present invention, a receiver subscribes in one group, secede from the group or prepare for communication in the group, in which a sender acts as a server, before the sender made a message. Thus, the sender transmits messages to pre-specified receivers.

According to the above-mentioned differences, I/we amended claim 13 and claim 28 as followings:

13. (amended) The method in claim 4 further comprising a step of repeating transmission of the message to the corresponding group subscriber system when an error in the message or in transmission process occurs.

28. (amended) The system in claim 18 further comprising a message transmission control module for repeating transmission of the message to a corresponding group subscriber system when an error occurs in a message or in a transmission process.
FIG. 5
FIG. 12

START

GROUP SUBSCRIBER REQUESTS A CONNECTION TO THE GROUP MANAGER IN THE SAME MESSAGE DELIVERING GROUP

S20

IS THE GROUP SUBSCRIBER A MEMBER OF THE MESSAGE DELIVERING GROUP IN ACCORDANCE WITH THE ID, NAME OR IP ADDRESS?

S22

IS THE GROUP SUBSCRIBER A MEMBER OF THE SAME MESSAGE DELIVERING GROUP?

S24

NO

IP ADDRESS OF THE GROUP SUBSCRIBER IS STORED IN BUFFER AND SESSION IS CLOSED

S26

MESSAGE TRANSMITTING?

S28

NO

SESSION OPEN AND MESSAGE TRANSMITTING USING IP ADDRESS OF THE GROUP SUBSCRIBER STORED BUFFER

S30

TRANSMITTED MESSAGE IS ARRIVED CORRECTLY?

S32

NO

MESSAGE RETRANSMITTING OR MESSAGE TRANSMITTING THROUGH SMS SERVER

S34

YES

STOP
ADD PASSENGER

2001.2.1

CHATTING  REGISTRATION  CONNECTION  DELETE  QUIT
FIG. 16

300

302

SPEECH PROCESSING MODULE

304

TRANSLATION MODULE

306

CHATTING MODULE

308

DOCUMENT PROCESSING MODULE
<table>
<thead>
<tr>
<th>DESTINATION IP ADDRESS (16)</th>
<th>PORT NUMBER</th>
<th>ID</th>
<th>PASSWORD</th>
<th>USER'S NAME</th>
<th>E-MAIL</th>
<th>MOBILE PHONE</th>
<th>SOURCE IP ADDRESS (16)</th>
</tr>
</thead>
</table>

FIG. 18
FIG. 19

TRANSMISSION CONFIRMING BIT

ERROR CHECK BIT

MESSAGE CONTENTS

PORT NUMBER

IP ADDRESS

DESTINATION
<table>
<thead>
<tr>
<th>Destination IP Address</th>
<th>Port Number</th>
<th>Message Contents</th>
<th>Source IP Address</th>
<th>Error Check Bit</th>
<th>Transmission Confirming Bit</th>
</tr>
</thead>
</table>
INTERNATIONAL SEARCH REPORT

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04L 12/24 G06F 13/00 H04L 12/56

According to International Patent Classification (IPC) or to both national classification and IPC.

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H04L 12/24 G06F 13/00 H04L 12/56

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

KOREAN PATENTS AND APPLICATIONS FOR INVENTIONS SINCE 1975
KOREAN UTILITY MODELS AND APPLICATIONS FOR UTILITY MODELS SINCE 1975

Electronic database consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

<table>
<thead>
<tr>
<th>Category</th>
<th>Citation of document, with indication, where appropriate, of the relevant passages</th>
<th>Relevant to claim No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y</td>
<td>KR 2001-0008123 A (ENPIA CORP.) 5 FEBRUARY 2001</td>
<td>4, 5, 16-19, 30-32, 34, 35</td>
</tr>
<tr>
<td>Y</td>
<td>JP 10-063598 A (NTT) 6 MARCH 1998</td>
<td>4, 5, 16-19, 30-32, 34, 35</td>
</tr>
<tr>
<td>Y</td>
<td>JP 12-201146 A (NTT) 18 JULY 2000</td>
<td>4, 5, 16-19, 30-32, 34, 35</td>
</tr>
<tr>
<td>A</td>
<td>US 5,944,783 A (LINCO CORP.) 31 AUGUST 1999</td>
<td>4, 18, 32</td>
</tr>
<tr>
<td>A</td>
<td>US 6,094,676 A (HILGRAVE INCORP.) 25 JULY 2000</td>
<td>4, 18, 32</td>
</tr>
</tbody>
</table>

Further documents are listed in the continuation of Box C. See patent family annex.

Date of the actual completion of the international search

26 NOVEMBER 2001 (26.11.2001)

Date of mailing of the international search report

27 NOVEMBER 2001 (27.11.2001)

Name and mailing address of the ISA/KR

Korean Intellectual Property Office
Government Complex Daejeon, Dunsan-dong, Seo-gu, Daejeon
Metropolitan City 302-701, Republic of Korea

Authorized officer

HWANG, Eun Tack

Telephone No. 82-42-481-5688
# INTERNATIONAL SEARCH REPORT

**Box I** Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. **X** Claims Nos.: 1-3  
   because they relate to subject matter not required to be searched by this Authority, namely:  
   Claims 1-3 is considered to be a mere presentation of information and is subject matter which the International Searching Authority is not required to search under Article 17(2)(a) and Rule 39(v) PCT

2. **☐** Claims Nos.:  
   because they relate to part of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. **☐** Claims Nos.:  
   because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

**Box II** Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Search Authority found multiple inventions in this international application, as follows:

1. **☐** As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. **☐** As all searchable claims could be established without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. **☐** As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:  

4. **☐** No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:  

**Remark on Protest**  
**☐** The additional search fees were accompanied by the applicant's protest.  
**☐** No protest accompanied the payment of additional search fees.