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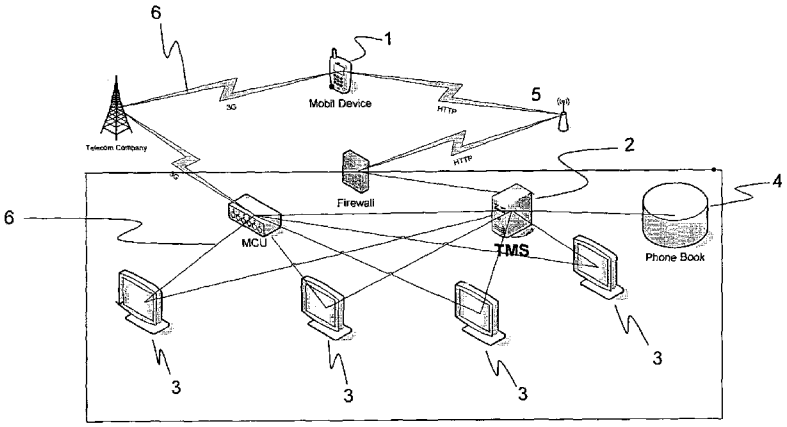


Fig. 1

Request code	Parameters	Explanation
01		Request connect
02	tlph, password	Request login
03	phonebookID, tlph	Request contactslist of selected phonebook
04	numCalls, numID, tlph1, type1, tlph2, type2,..., id1, id2...	Request conference
05	tlph	Request phonebooks

Table 1: Messages from client to server

(57) Abstract: The present invention introduces a novel method and system for scheduling Video Conferences calls and managing conference equipment from a mobile communication device, such as mobile phones and PDA's. This is utilised by controlling a management system, or in this context a Video Conference Management Programme (VCMP), to set up video conference calls between any from a client application on a mobile communication device. Having a VCMP to manage the calls also allows calls between protocols if a network gateway is available for use. In addition, an administrator can monitor the status of the call, and the VCMP can store call logs and statistics.

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SYSTEM AND METHOD FOR CONFERENCE MANAGEMENT

Field of the invention

The present invention relates to managing video conference equipment and scheduling of video conferences from mobile communication devices.

Background of the invention

Conventional videoconferencing systems comprise a number of end-points communicating real-time video, audio and/or data streams over and between various networks such as WAN, LAN and circuit switched networks.

In addition to traditional stationary video conferencing endpoints, mobile communication device such as mobile phones and PDA's have recently entered the visual communication marketplace. The increasing functionality and the constant advancements in transmission bandwidth for such devices, and their superior mobility, make them perfect devices for visual communication when travelling. Further, gateways provide interfacing between traditional video conferencing networks, e.g. WAN, LAN and circuit switched networks, and cellular telephone networks, e.g. 3G, rendering videoconferences between mobile communication devices and stationary end-points possible.

A number of videoconference systems residing at different sites may participate in the same conference, most often, through one or more MCU's (Multipoint Control Unit) performing i.a. switching functions to allow the audiovisual terminals to intercommunicate properly.

As videoconferencing involves various resourses and equipment simultaneously interoperating at different localizations and capabilities, there is a need for the

possibility to manage the resources involved both for scheduled and ad hoc videoconferences.

Videoconferencing systems are therefore often provided with a management system. A management system is a module that is used to schedule or book resources at any given point in time. The management system will allow a user to request resource usage at a given time, and either allow or disallow the usage at that time. Management systems are often used for scheduling the use of meeting rooms, network resources, video systems etc. The management system must be connected to a database containing updated information regarding all accessible resources like MCU's, gateways, routers, end-points etc. The management system normally operates with an intuitive web interface requiring no additional installation on the user terminal other than a conventional web browser.

As mentioned above, the increased functionality and available bandwidth of mobile communication devices has made them popular tools in business communication. Being able to conduct visual communication almost anywhere and anytime increases productivity and decision making. However, the lack of a global number plan for IP based telecommunication equipment and the fact that most IP based equipment is behind a firewall, makes it hard to access stationary endpoints or similar equipment from a mobile communication device. Further, if 3 or more participants (multipoint call) are designated for a conference call, the call must be set up via an MCU. Even though multipoint calls may be scheduled ad hoc in a video conferencing management system, the user may not have a computer nearby or the internet connection necessary to interface with such a system.

Further, in a typical office environment tens or even hundreds of employees may share access to a plurality of different video conferencing systems in meeting rooms or

the like. When utilizing different types of systems, operation and settings are easily forgotten. Since many employees share one or more endpoints, personal information such as last numbers called/received, speed dial listings, etc. are easily erased from such a shared endpoint.

Therefore, a user friendly, mobile and personalized system and method for ad-hoc scheduling of video conferences, and performing other management tasks, is needed.

"Vyke Mobile", referred to in the presentation "Vyke Low Cost Converged Communication", September 2006, in particular p. 24, published at http://www.vykecorporate.com/Tower-Vyke-September%202006v2.pdf, provides a java-client for mobile phones that allows setup of a point to point call between two regular mobile phones on the GSM network (Global System for Mobile Communication). Vyke Mobile works by sending your call information (where you are calling to and where you are calling from) to the Vyke platform via GPRS/Internet. Once the Vyke platform receives your information, it performs the action you have requested. Vyke Mobile allows you to define both the phone number you want to call to and the phone number you want to call from. As all communication between Vyke Mobile and the Vyke platform is via the Internet, the service will not function if the phone is not correctly configured. The phone must be capable of connecting to WAP/Internet. The Vyke Mobile solution is an audio only solution and only supports point-to-point calls.

Summary of the invention

It is an object of the present invention to provide methods, computer programs and a system for managing conference equipment from a client application on a mobile communication device.

The features defined in the independent claims enclosed characterise the methods, the computer programs and the system.

Brief description of the drawings

In order to make the invention more readily understandable, the discussion that follows will refer to the accompanying drawings, wherein

Figure 1 is a block diagram showing a typical configuration of a system according to the present invention,

Figure 2 is a flow diagram showing an exemplary client and server communication session from the client side,

Figure 3 is a flow diagram showing an exemplary client and server communication session from the server side,

Figure 4 illustrates a mobile communication device running the client application startup screen,

Figure 5 illustrates a mobile communication device running the client application phone book list screen,

Figure 6 illustrates a mobile communication device running the client application conference setup screen,

Figure 7 illustrates a mobile communication device running the client application in a conference call,

Table 1 list an exemplary code set for messages sent from client to server when scheduling an ad-hoc conference, and

Table 2 list an exemplary code set for messages sent from server to client when scheduling an ad-hoc conference.

Best mode of carrying out the invention

In the following, the present invention will be discussed by describing preferred embodiments, and by referring to the accompanying drawings. However, people skilled in the art will realize other applications and modifications within the scope of the invention as defined in the enclosed independent claims.

The present invention introduces a novel system and novel methods for scheduling conferences calls and managing conference equipment from a mobile communication device, such as mobile phones and PDA's. This is utilised by communicating with a server, e.g. a Conference Management server, and instructing said server to perform certain actions, such as to set up conference calls between conference endpoints, manage and monitor conference endpoint and network devices, from a client application on a mobile communication device. Having a management server to manage and monitor calls also allows calls between protocols if network gateways is available for use. In addition, an administrator can monitor the status of calls, and the server can store call logs, statistics, etc. for each mobile communication device respectively.

Figure 1 is a block diagram showing a typical configuration of a system according to the present invention.

The system comprises at least a mobile communication device 1 and a server 2. The mobile communication device 1 can be a mobile phone, a portable radio communication terminal such as a PDA (Personal Digital Assistant) or the like. The mobile communication device 1 has a client application installed, wherein said client application is able to connect to and communicate with a server 2 via a wireless communication network 5.

The mobile communication device 1 comprises a processing device, a memory for storing processing instructions, including the client application mentioned above, and other data. The mobile communication device 1 further comprises a wireless communication adapter for enabling wireless communication with the network 5. The client application is a computer program which comprises instructions which, when executed by the processing device in the mobile communication device, causes the mobile communication device to perform a method in accordance with the invention, as described by example in the following detailed description, in particular with reference to fig. 2. The practical implementing of such instructions involves routine abilities of the skilled person, based on the present specification. Such instructions may be tangibly embodied in the memory of the mobile communication device, or alternatively, they may be tangibly embodied in another memory, such as semiconductor memory, or on a separate storage device such as an optical or magnetic medium. Likewise, the instructions may be tangibly embodied on a propagating signal, e.g. a signal propagated during uploading, downloading, messaging or other kinds of transfer between elements of a computer network such as the Internet or through a wireless communication network.

The server 2 provides a service interface with the mobile communication device, and is further operably connected to several (four illustrated by example) video conferencing endpoints 3 on a second communication network 6.

The server 2 can be a management system controlling a range of telecommunication units and other equipment, as described above, or it could also be a single telecommunication unit, such as a video conferencing end-point or the like.

The server 2 comprises a processing device and a memory for storing processing instructions and other data. The server

2 further comprises a wireless communication adapter for enabling wireless communication with the network 5. The server 2 runs a computer program which comprises instructions which, when executed by the processing device in the server 2, causes the server 2 to perform a method in accordance with the invention, as described by example in the following detailed description, in particular with reference to fig. 3. The practical implementing of such instructions involves routine abilities of the skilled person, based on the present specification. Such instructions may be tangibly embodied in the memory of the server, or alternatively, they may be tangibly embodied in another memory, such as semiconductor memory, or on a separate storage device such as an optical or magnetic medium. Likewise, the instructions may be tangibly embodied on a propagating signal, e.g. a signal propagated during uploading, downloading, messaging or other kinds of transfer between elements of a computer network such as the Internet or through a wireless communication network.

The client application on the mobile communication device 1 reflects the functionality supported by the server 2. The communication protocol between the client and the server can be any standard communication protocol such as http, Bluetooth, IP, SIP etc.

Communication network 5 may further employ a plurality of access technologies including, but not limited to, 2nd (2G), 2.5 (2.5G), 3rd (3G) generation radio access for cellular systems, WLAN, Wireless Router (WR) mesh, and the like. Access technologies such as 2G, 2.5G, 3G, and future access networks may enable wide area coverage for mobile communication devices, such as mobile communication device 1, with various degrees of mobility. For example, communication network 5 may enable a radio connection through a radio network access such as Global System for Mobile communication (GSM), General Packet Radio Services (GPRS), Enhanced Data GSM Environment (EDGE), Code Division

Multiple Access (CDMA), and the like. In essence, communication network 5 may include virtually any wireless communication mechanism by which information may travel between mobile communication device 1 and server 2.

Said second network 6 may be the Internet, a wired or a wireless telecommunication network, a local area network (LAN), a wireless wide area network (WWAN), a wireless local area network (WLAN), or a circuit-switched telephone network (e.g. Integrated Services Digital Network, ISDN). Mobile Operator Gateways may provide a routing server utilized by the mobile operator to connect the mobile operator's private network to the public Internet, thereby enabling the mobile communication device 1 to access nodes, servers and/or resources on the Internet.

In a non limiting exemplary embodiment of the invention, the server 2 in figure 1 is a server running a VCMP (Video Conferencing Management Program). As mentioned above video conferencing systems are often provided with a management system, or more specifically a VCMP. VCMP's are used for scheduling the use of network resources, video conferencing systems, etc. The VCMP must be connected to a database containing updated information regarding all accessible resources like MCU's, gateways, routers, video conferencing end-points et.c.

Further, a VCMP e.g. provide system and resource overview, allowing the user to create, edit, and delete reservations, reserve resources for dial-in participants and specify bandwidth and network settings. The VCMP may also support automatic call routing and automatic selection of point-to-point connection, including one or more MCU's. Further, the VCMP may control any video conferencing end-point 3 connected to the VCMP. The VCMP normally operates with an intuitive web interface requiring no additional installation on the user terminal other than a conventional web browser.

As mentioned above the server 2 is typically connected to one or more databases. As shown in figure 1, in one embodiment of present invention the server 2 is connected to a user database 4 containing records of video conferencing endpoints connected to the VCMP running on the server 2 and information related to said end-points, such as the, Entry_ID, Entry name (name displayed in phonebook service, e.g. name of the end-point user or name describing endpoint location), end-point IP-address, alias, ISDN-number, GSM-number, geographical location, organization affiliation, etc. The server 2 uses at least parts of said database records to generate a phone book service for its connected end-points and their users. Said phone book service is also typically used when scheduling video conference calls through a web based user interface connected to the server 2 or when making a call from an endpoint.

According to one exemplary embodiment of the invention, the client application on the mobile communication device 1 can search for systems to use or people to contact from the resources (phone book) controlled by the server 2. E.g. setting up a multi point conference from the mobile communication device is performed by accessing the phone book service provided by the server 2, choosing participants and/or systems to attend the conference, generating and sending conference setup data to the server, and let the server 2 decide how the conference is being set up. The mobile communication device may be called up like the other participants, or the mobile communication device may be left out of the conference entirely.

According to another exemplary embodiment of the present invention, the client application could connect to a single video conferencing endpoint (or another network device such as a gateway, gatekeeper, MCU, etc.) through the VCMP running on the server 2, or connect directly to the equipment, and control the settings on or operations

supported by the telecom system, making the mobile communication device act as a remote control.

According to another embodiment of the present invention, the server 2 is configured to store the identity of the mobile communication devices 1 running the client application. The identity of the mobile communication device 1 is typically the phone number of the device 1, but can also be another number uniquely identifying said device. The identity of the mobile communication devices is stored in a database interoperable connected to the server 2. By creating a database record connected to one specific mobile communication device 1 on the server 2 database, personal setting and operations can be stored for later access. The information stored with the device identity can e.g. be last numbers dialed, preferred equipment list, etc.

E.g. consider a user, Bob, having frequent ad-hoc video conferences with his team members in Washington and New York from a meeting room video conferencing system in Baltimore. Since the meeting room video conferencing system is a public system, it is typically used by several other users in between the team meetings. Since Bob's previous calls most likely are deleted from the "last calls" list or if he is using a different endpoint, he must redial the conference attendees. Further, if the endpoint he is calling from is not supporting multi-point calls, he must dial through a MCU or schedule the conference in a VCMP using a computer. Using his always present mobile phone 1, Bob starts his client software and connects to the server 2. The client software sends its unique identifier to the server 2. The server 2 compares the identifier to its database records, and retrieves the matched record if a match is found. Now the user may choose between different personal operations. Since Bob frequently has video conferences with Washington and New York, he has created a listing called "Design meeting" in a "speed dial" menu. The conference setup data for such operations has been created

on beforehand and stored in the database, either via the client application or via a web interface. So, when Bob selects the "Design meeting" listing from the speed dial menu and presses "connect call", the client sends a "request conference" message to the server, said message at least comprising an alphanumerical code identifying the stored setup data. Based on the stored setup data, the server decides how the conference is being set up, e.g. if a MCU is needed, if ISDN or 3G gateways is needed, etc.

If a match is not found, the server 2 defines the mobile communication device as an unknown user. The server 2 may treat the unknown user in many ways. The server 2 may allow the unknown user to access the system, or the server 2 may return a "not handled by server" to the mobile communication device and terminate the communication. The server 2 may request a password to allow the unknown (or known) user to be granted access. If the unknown mobile communication device 1 is granted access, the server may store the identity of the new mobile communication device 1 in the database, and start storing information (e.g. call history) and allow said mobile communication device to create personal settings and operations. Further, the server may be configured to request the client application for a access password even if the mobile communication device is identified by the server.

When utilizing the client server configuration according to the present invention, all calls will be managed by the company hosting the server 2. Private calls can be made using the normal mobile communication device communication protocol like GSM or within an option in the client program. Hence, it becomes easy to distinguish between work related and private calls and the respective billing will automatically be sent to the right address.

The client application according to the present invention may be used with already existing video conferencing

managing programs by installing a proxy application on the server. The proxy application is able to receive and parse instructions from the client application and act and respond accordingly. The VCMP will typically have access to most telecommunication units and network resources within a corporation and an up to date phone book. The VCMP can choose to make all these resources available to a mobile communication device client or only a subset of said recourses, depending on the organizations policy and access rights for the uniquely identified user. The client application according to the present invention may either be implemented locally on the mobile communication device 1 (Java application), or externally on a WAP server or on a Video Portal (3G application). A Video Portal is a network device providing access to live or on-demand content from 3G-enabled devices.

When a client connects to the server 2, it may be done by using HTTP either locally on the mobile phone (i.e. case of the Java application), or externally by server side scripting (i.e. PHP scripts in WAP and 3G). An HTTP POST request is formed by the client. The POST request contains a connection code that serves as the interface towards the server (see exemplary connection codes and syntax in table 1). Each connection code is interpreted by the server and a response is sent accordingly. The response contains a status code and a body element with the requested data (see exemplary connection codes and syntax in table 2). The client parses the body element in the HTTP response, and creates a user friendly graphical user interface based on said elements.

When a client is ready to start a conference, it sends an HTTP request with a connection code equivalent to "setup conference" to the server. The server extracts the necessary information from the request (i.e. ids of participants, phone number of client, etc.) and contacts the MCU, which in turn initializes the conference. As

mentioned above, the MCU sets up a video or audio call to each participant.

Table 1 and 2 shows a set of connection codes for setting up a conference call by retrieving attendee information from the servers updated phone book service. This is just an example set, and should not be considered limiting for the present invention.

In the following example it is described in detail one way to set up a multipoint conference from a mobile communication device according to a non limiting exemplary embodiment of the present invention.

Figure 2 is a flow diagram showing an exemplary client and server communication session from the client side.

The illustrated process is a method in a mobile communication device for managing conference equipment.

As can be seen in step 201 in the flow diagram in figure 2, the user starts by launching the application on his/her mobile phone. The graphical user interface (GUI) of the client may look something like the GUI shown in figure 4. When the client application has launched, the user may be presented with a menu or the like with several options. As shown in figure 4, according to one non limiting exemplary embodiment, the startup screen has three menu listings; connect, setup and exit. The start up screen may of course have other menu listings.

In step 202, a connection with the video conferencing management server is established via the wireless network.

In the illustrated example, the connection establishing is initiated by the user choosing the "connect" listing in the startup menu, which results in that the client sends a "request connection" message **01** to the server 2 via network

5. If the connection for some reason fails, the communication is terminated and the client will display a "connection failed" message to the user. If the message reached the server 2, the server 2 returns a **101** message to the client to verify that the connection is ok (203; 302).

Consistent with an aspect of the invention, the step of establishing a connection comprises sending a control message to the server, the message including an identification number that uniquely identifies the mobile communication device.

The connection establishing may further comprise the steps of extracting the identification number from the control message and comparing the identification number with an entry in a user database in said server, and if the identification number does not exist, storing the identification number in a new record in said database, storing personalized conference data relating to said identification number in respective database record, and submitting said the personalized data to said mobile communication device on demand.

Consistent with an aspect of the invention, the personalized data comprises a list of previously established conference calls. Consistent with another aspect, the personalized data comprises a list of preconfigured conferences, e.g. favourites or speed-dials. Consistent with still another aspect of the invention, the personalized data comprises a customized list of video conferencing endpoints connected to the server.

When connection is established, control messages may be sent to the server via the wireless network.

For security and personalized access, a login may be required. Therefore, the client asks the user to type in his/her password and press "ok". The client then sends a

message containing the phone number for the mobile communication device 1 running the client together with the password (303). E.g. the message may look something like; **|02|phone_number|passwd|**. The server returns **102** to verify that the login succeeded, or **002** if login is refused. If login fails 3 times (LF>3) the connection is terminated.

The method further comprises steps of requesting information from the server, and receiving the information from the server.

Consistent with an aspect of the invention, this information comprises the stored personalized data mentioned above.

Consistent with another aspect of the invention, the information comprises one or more listings of video conferencing endpoints that are connected to the server.

This is further explained by example in the following:

When the user is logged in, he/she may have access to a variety of options, wherein one or more of the options may include personalized settings or operations, e.g. last calls, speed dial listings, personal or preferred endpoints, etc. At least one of the options is "set up a conference". The user presses (204) the "set up a conference" button to indicate that he or she wants to set up a conference. The client 1 then sends a request message to the server 2 including at least a command telling the server 2 that a client wishes to receive a list of available phone books and the phone number of the mobile communication device 1 running the client (305); e.g. **|05|phone_number|**. Upon reception of such a request message, the server returns an acknowledgment together with a list of available phonebooks (step 205; 306); e.g. **|105|num_phone_lists|phone_list_name1|phone_list1_id|phone_list_name2|phone_list2_id|….|**. This list of phonebooks is

cached in a memory in the mobile communication device 1 for quick access, and will not be requested again unless the client application is restarted. Phone_list1 mentioned above may e.g. be a company's U.S office endpoints, phone_list2 may e.g be a company's UK office endpoints, etc.

In step 206 the user selects one of the phone books from the list, as shown in fig 4. The client then sends a message to the Server 2, said message includes a command telling the server that the message is a request for a phonebook, an identifier identifying the requested phonebook and the number of the mobile communication device running the client (307); e.g. **|03|phone_list_id|phone_number|**. The server returns a message with an acknowledgment and the content of the selected phonebook (308); e.g. **|103|num_entries|name_1|id_1|name_2|id_2|……|**. The phone book is stored (step 207) in a memory in the mobile communication device 1 and will not be requested again until the application is restarted. If the user selects the same phone book at a later stage, the client loads the phone book from its memory.

When the user has received the desired phonebook, he/she selects the participant he/she wishes to include in the conference call from the phonebook (step 208). When the user has selected a participant the client enters the Conference setup screen (fig 5). Again the user is presented with several options. The user can add more participants or proceed to connect the call (step 209). If the user wishes to add more participants the client loads the stored phonebook list from memory and steps 207-209 are repeated. If the selected phonebook in step 206 exist in memory, there is no need to acquire it from the server 2. In order to reduce the number of steps, a checkbox system may be introduced in each phonebook, so that multiple participants can be chosen before proceeding.

The method of fig. 2 further comprises the step of instructing the server to execute predefined actions. Consistent with an aspect of the invention, the predefined actions may comprise scheduling or scheduling or establishing video conference calls. Consistent with another aspect, the predefined actions comprise managing endpoints or network devices, e.g. MCUs, gatekeepers and gateways, directly. The predefined actions may alternatively comprise monitoring or diagnosing one or more endpoints, network devices and conferences, or any combination of such elements.

Consistent with an aspect of the invention, the step of instructing the server comprises allowing a user to select one or more video conferencing endpoints from said one or more listings, and creating a control message identifying the selected one or more video conferencing endpoints.

The above and other aspects of the invention are further explained by example in the following:

When all the participants have been selected, the user can press "Set up Conference" (step 210) to create a conference call between the selected participants, or press "Set up Conference and call me up" (step 211) to create a conference call between the selected participants and the mobile communication device 1. Selecting one of the two options above triggers the client to send a message to the server 2, wherein the message at least includes a command telling the server 2 that the message is a request for a call setup, a parameter indicating if the mobile communication device is to be included in the call or not, the number of the mobile communication device if to be included, the number of other participants, and the identification numbers of the other participants (309); e.g. **|04|numPhoneNumbers|numId|tlp1|type1|tlp2|type2|….|id1|id2|id3|….|**. Type1, type2, etc. indicates if the respective

phone should be called up on 3G or audio only. 3 indicates 3G, 1 indicates audio. If the user wants to be dialed up on 3G with two participants (id1 and id2), the message could be: **04|1|2|phone_number|3|id1|id2|**. If the user doesn't want to be called up the message is; **04|0|2|id1|id2|**. After the message has been sent the application shuts down. The server 2 fetches the necessary information related to the identified participants (id1, id2) from its database, e.g. IP-number and/or ISDN number, and sets up the conference (310-311). The mobile communication device 1 that was used to select participants for the conference will be called up like the rest of the participants if "setup conference and call me up" was selected (Fig 5).

According to another non limiting exemplary embodiment of the present invention, the user uses stored personalized information to set up a conference call. When the client sends a "request connection" message **01** to the server 2 via network 5, said request message will include a identification number, typically the phone number of the mobile communication device. As, described above, the server matches this identification number to a device database. If a match is found, the server 2 may store certain information related to said identified device 1. This is hereafter illustrated with a "last conferences" example, where the server 2 is configured to store the last 10 conferences made from a client application on a mobile phone. The last conference set up by a client residing on a mobile communication device 1, with identification number **A123**, was a conference between participants with id numbers; **id2**, **id54** and **id612**. The id numbers are numbers in the servers 1 phone book database, uniquely identifying each endpoint in the database (se Entry_id above). When the conference call was requested by the client, the server stored the conference setup data in a "last calls"-list and gave it an identification code. The stored data may look something like; **|LC01|LC_Entry_name_01|id2,id54,id612|0|**. LC01 is the identification code of the conference call,

LC_Entry_name is the name to be displayed in the client application, id is the unique id number of the participants, and the last digit shows if the mobile communication device was included in the conference call or not. The entry name can be manually entered by the user, or as a default the server may compiles a name comprises the Entry_names, or parts thereof, of the participants.

When the user is logged in (se step 201-203 above), the client application presents the user with several options, and at least a "last calls" option. If the user chooses the "last calls" option, the client sends a message to the server 2 including at least a command telling the server 2 that a client wishes to receive a list of the 10 last calls registered for said client, and the phone number of the mobile communication device 1 running the client; e.g. |06|phone number|. Upon reception of such a request message, the server returns an acknowledgment together with a list of available conference calls from the "last calls"-list related to said device; e.g. **|106|num_conferences|LC_Entry_name01|LC01| LC_Entry_name02|LC02|….|**. The server only needs to send the names of the available calls, and their respective identification codes. The client parses the information from the server and creates a "last calls" screen to the user, listing all the available last calls stored in the server database. If the user selects one of the listed calls, e.g. LC_Entry_name_02, the client sends a message to the server 2, wherein the message at least includes a command telling the server 2 that the message is a request for a call setup from the "last calls" database record and the id number of the selected conference call; **|07|LC02|**. The client does not need to send more information, because all the information needed to establish the call may be collected from the servers 2 device database and further information from the servers 2 user database (phone book service), after parsing the message.

In a particular aspect of the method performed by the mobile communication device, the information requested and received from the server may comprise a list of entry names from at least one phone book or stored personalized information provided by said server. The method may then comprise the further step of allowing a user to select a selected entry name among the entry names included in the phone book or stored personalized information. This may be achieved by generating in the mobile communication device a use interface which present the user with the list of entry names and which also inputs from the user one or more appropriate selections. Also, the method may further comprise the step of sending a control message which is based on the entry name selected by the user. The control message may also be based on the at least parts of the information requested and received from the server.

The mobile communication device may be configured to perform the above additional steps.

Figure 3 is a flow diagram showing an exemplary client and server communication session from the server side.

The process illustrated in fig. 3 is a method in a video conferencing management server for managing conference equipment from a mobile communication device.

The method comprises the initial step of establishing a connection with the mobile communication device via the wireless network. According with an aspect of the invention, the establishing is initiated by receiving 301 a connection request from the client, e.g. as explained above with reference to fig. 2.

According to an aspect of the invention, the connection establishing step comprises receiving a control message which includes an identification number uniquely identifying the mobile communication device.

The establishing step may further comprise extracting the identification number from the control message and comparing the identification number with an entry in a user database in the server, and if the identification number does not exist, storing the identification number in a new record in the database, storing personalized conference data relating to the identification number in respective database record, and submitting the stored personalized data to the mobile communication device on demand.

Consistent with an aspect of the invention, the personalized data comprises a list of previously established conference calls. Consistent with another aspect, the personalized data comprises a list of preconfigured conferences, e.g. favourites or speed-dials. Consistent with still another aspect of the invention, the personalized data comprises a customized list of video conferencing endpoints connected to the server.

When connection is established, control messages may be received from the mobile communication device (the client) via the wireless network.

A login procedure corresponding to the above description of the client method shown in fig. 2 may be performed, initiated by a request received 303 from the client.

If login is successful, a confirmation is sent 304.

The method further comprises receiving a request for information from the mobile communication device via the wireless network, and submitting this information to the mobile communication device.

Consistent with an aspect of the invention, this information comprises the stored personalized data mentioned above.

Consistent with another aspect of the invention, the information comprises one or more listings of video conferencing endpoints that are connected to the server.

The method shown in fig. 3 further comprises the step of executing predefined actions, instructed by the mobile communication device. Such predefined actions are specified above with reference to fig. 2.

Certain elements illustrated in figure 3 have already been referred to above in connection with the explanation of fig. 2.

The present invention provides a novel method and system for establishing conference calls. A client on a mobile communication device communicating with a conference management server provides the user with a extremely mobile and user friendly solution to ad-hoc multisite video conference scheduling, even between different protocols. Further, the possibility to store and have access to personalized conference information, makes it possible to use any endpoint as if it was your own personal endpoint, with call history, favorites, etc. and even preferred settings and actions. Since the communication between the client and the server is on a wireless network, e.g. cellular network, the user is independent of computers and internet connections.

Patent claims

1. A system for managing conference equipment, said system comprising a mobile communication device adapted for communication over a wireless network, and a video conferencing management server configured to schedule video conference calls between two or more video conferencing endpoints connected to a communication network, characterized in that

said mobile communication device is configured to

establish a connection with said video conferencing management server via said wireless network,

request information from said server,

receive said information from said server, and

instruct said server to execute one or more predefined actions.

2. A system according to claim 1, characterized in that said predefined actions comprise scheduling or establishing video conference calls.

3. A system according to claim 1, characterized in that said predefined actions comprise managing endpoints or network devices directly.

4. A system according to claim 1, characterized in that said predefined actions comprise monitoring or diagnosing an element

selected from the group: endpoints, network devices and conferences.

5. A system according to claim 1, c h a r a c t e r i z e d i n that said information comprises one or more listings of video conferencing endpoints connected to said server.

6. A system according to claim 5, c h a r a c t e r i z e d i n the step of instructing said server further comprises the steps of

allowing a user to select one or more video conferencing endpoints from said one or more listings, and

creating a control message identifying said selected one or more video conferencing endpoints.

7. A system according to one of the preceding claims, c h a r a c t e r i z e d i n that said mobile communication device is uniquely identified by a identification number, and that the mobile communication device is further configured to send said number to said server when establishing said connection.

8. A system according to claim 7, c h a r a c t e r i z e d i n that said server is configured to

receiving a connection request control message from said mobile communication device,

extracting said identification number from said control message,

comparing said identification number with entries in a user database, and if said identification number does not exist;

storing said identification number in a new record in said database,

storing personalized conference data relating to said identification number in respective database record, and

submitting said stored personalized data to said mobile communication device on demand.

9. A system according to claim 8, c h a r a c t e r i z e d i n that said information comprises said stored personalized data.

10. A system according to claim 8 or 9, c h a r a c t e r i z e d i n that said personalized data comprises a list of previously established conference calls.

11. A system according to one of the claims 8-10, c h a r a c t e r i z e d i n that said personalized data comprises a list of preconfigured conferences, e.g. favourites or speed-dials.

12. A system according to one of the claims 8-11, c h a r a c t e r i z e d i n that said personalized data comprises a customized list of video conferencing endpoints connected to said server.

13. A system according to one of the preceding claims, c h a r a c t e r i z e d i n that the step of instructing said server further comprises the steps of

allowing a user to select one of said personalized conference data, and

creating a control message identifying said selected personal conference data.

14. A system according to one of the claims 1-13, characterized in that said information comprises a list of entry names from at least one phone book or stored personalized information provided by said server, and that said mobile communication device is further configured to allow a user to select a selected entry name among said entry names, and to send a control message based on said selected entry name.

15. A method in a mobile communication device adapted for communication over a wireless network for managing conference equipment, characterized in

establishing a connection with a video conferencing management server via said wireless network;

requesting information from said server;

receiving said information from said server; and

instructing said server to execute one or more predefined actions.

16. A method according to claim 15, characterized in that said predefined actions comprise scheduling or establishing video conference calls.

17. A method according to claim 15, characterized in that said predefined

actions comprise managing endpoints or network devices directly.

18. A method according to claim 15, characterized in that said predefined actions comprise monitoring or diagnosing an element selected from: endpoints, network devices and conferences.

19. A method according to claim 15, characterized in that said information comprises one or more listings of video conferencing endpoints that are connected to said server.

20. A method according to claim 15, characterized in the step of instructing said server comprises the steps of

allowing a user to select one or more video conferencing endpoints from said one or more listings; and

creating a control message identifying said selected one or more video conferencing endpoints.

21. A method according to one of the claims 15-20, characterized in that the step of establishing a connection comprises

sending a control message to said server wherein said message comprises an identification number uniquely identifying said mobile communication device.

22. A method according to claim 21, characterized in that the step of establishing a connection further comprises the steps of

extracting said identification number from said control message,

comparing said identification number with an entry in a user database in said server, and if said identification number does not exist;

storing said identification number in a new record in said database,

storing personalized conference data relating to said identification number in respective database record, and

submitting said stored personalized data to said mobile communication device on demand.

23. A method according to claim 22, characterized in that said information comprises said stored personalized data.

24. A method according to one of the claims 22 or 23, characterized in that said personalized data comprises a list of previously established conference calls.

25. A method according to one of the claims 22-24, characterized in that said personalized data comprises a list of preconfigured conferences, e.g. favourites or speed-dials.

26. A method according to one of the claims 22-25, characterized in that said personalized data comprises a customized list of video conferencing endpoints connected to said server.

27. A method according to one of the claims 22-26, characterized in the step of instructing said server further comprises the steps of

allowing a user to select one of said personalized conference data, and

creating a control message identifying said selected personal conference data.

28. A method according to one of the claims 15-27, characterized in that
said information comprises a list of entry names from at least one phone book or stored personalized information provided by said server, and
that the method further comprises
allowing a user to select a selected entry name among said entry names, and
sending a control message based on said selected entry name.

29. A method in a video conferencing management server for managing conference equipment from a mobile communication device adapted for communication over a wireless network, characterized in

establishing a connection with said mobile communication device via said wireless network,

receiving a request for information from said mobile communication device via said wireless network,

submitting said information to said mobile communication device,

executing one or more predefined actions instructed by said mobile communication device.

30. A method according to claim 29, characterized in that said predefined actions comprise scheduling or establishing video conference calls.

31. A method according to claim 29, characterized in that said predefined actions comprise managing endpoints or network devices directly.

32. A method according to claim 29, characterized in that said predefined actions comprise monitoring or diagnosing an element selected from: endpoints, network devices and conferences.

33. A method according to claim 29, characterized in that said information comprises one or more listings of video conferencing endpoints that are connected to said server.

34. A method according to claim 29, characterized in that the step of executing predefined actions instructed by said mobile communication device comprises instructing said server by

allowing a user to select one or more video conferencing endpoints from said one or more listings; and

creating a control message identifying said selected one or more video conferencing endpoints.

35. A method according to one of the claims 29-34, characterized in that the step of establishing a connection comprises

receiving a control message wherein said message comprises an identification number uniquely identifying said mobile communication device.

36. A method according to claim 35, characterized in that the step of establishing a connection further comprises the steps of

extracting said identification number from said control message,

comparing said identification number with an entry in a user database in said server, and if said identification number does not exist;

storing said identification number in a new record in said database,

storing personalized conference data relating to said identification number in respective database record, and

submitting said stored personalized data to said mobile communication device on demand.

37. A method according to claim 36, characterized in that said information comprises said stored personalized data.

38. A method according to one of the claims 36 or 37, characterized in that said personalized data comprises a list of previously established conference calls.

39. A method according to one of the claims 36-38, characterized in that said personalized data comprises a list of preconfigured conferences, e.g. favourites or speed-dials.

40. A method according to one of the claims 36-39, characterized in that said personalized data comprises a customized list of video conferencing endpoints connected to said server.

41. A method according to one of the claims 36-40, characterized in that the step of

executing predefined actions instructed by said mobile communication device comprises instructing said server by

allowing a user to select one of said personalized conference data, and

creating a control message identifying said selected personal conference data.

42. A computer program, tangibly embodied in a memory, on a storage device or on a propagating signal, the computer program comprising instructions which, when executed by a processing device in a mobile communication device, causes the mobile communication device to perform a method in accordance with one of the claims 14-26.

43. A computer program, tangibly embodied in a memory, on a storage device or on a propagating signal, the computer program comprising instructions which, when executed by a processing device in a video conferencing management server, causes the video conferencing management server to perform a method in accordance with one of the claims 27-39.

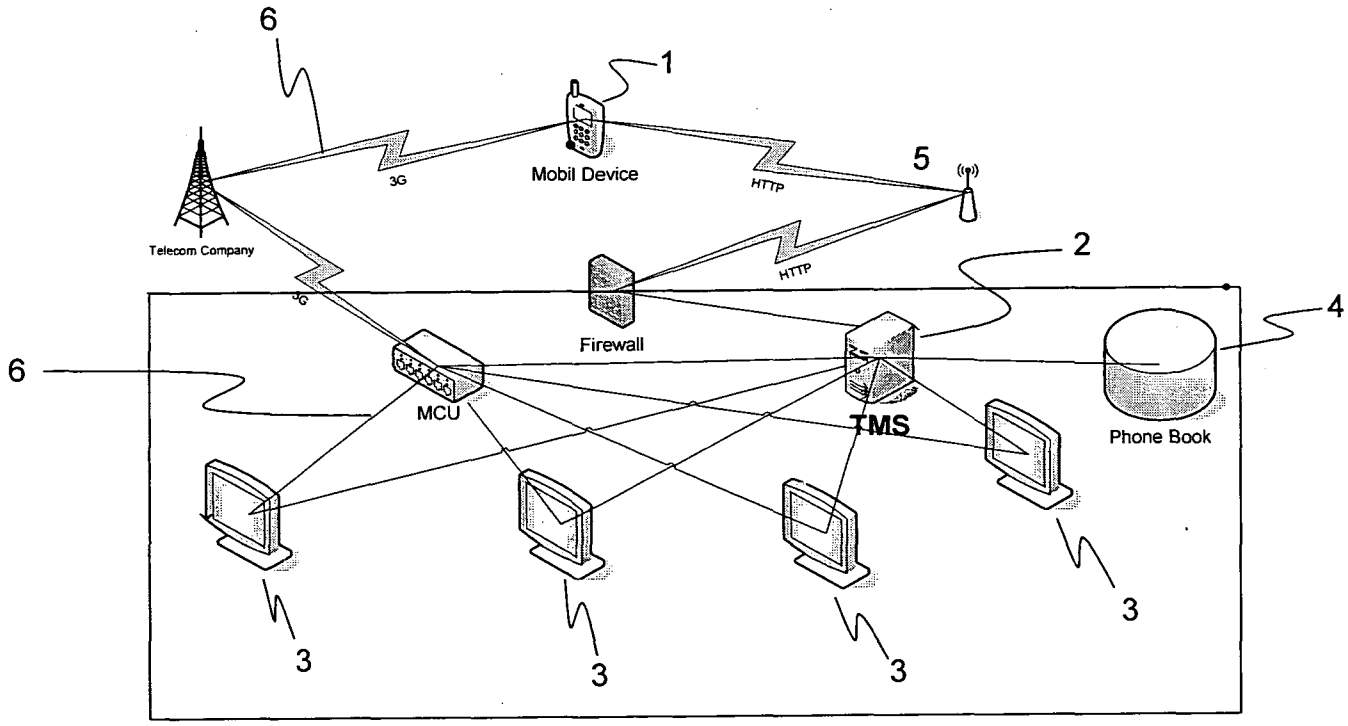


Fig. 1

Request code	Parameters	Explanation
01		Request connect
02	tlph, password	Request login
03	phonebookID, tlph	Request contactslist of selected phonebook
04	numCalls, numID, tlph1, type1, tlph2, type2,..., id1, id2...	Request conference
05	tlph	Request phonebooks

Table 1: Messages from client to server

Response code	Parameters	Explanation
000		Connection failed
001		Not handled by server
002		Login refused
003		Get contactlist refused
004		Setup conference refused
005		Get phonebooks refused
101		Connection OK
102		Login OK
103	num,name1,id1,name2,id 2,...	Get contactlist OK
104		Setup conference OK
105	num,name1,id1,name2,id 2,...	Get phonebooks OK.

Table 2: Messages from server to client

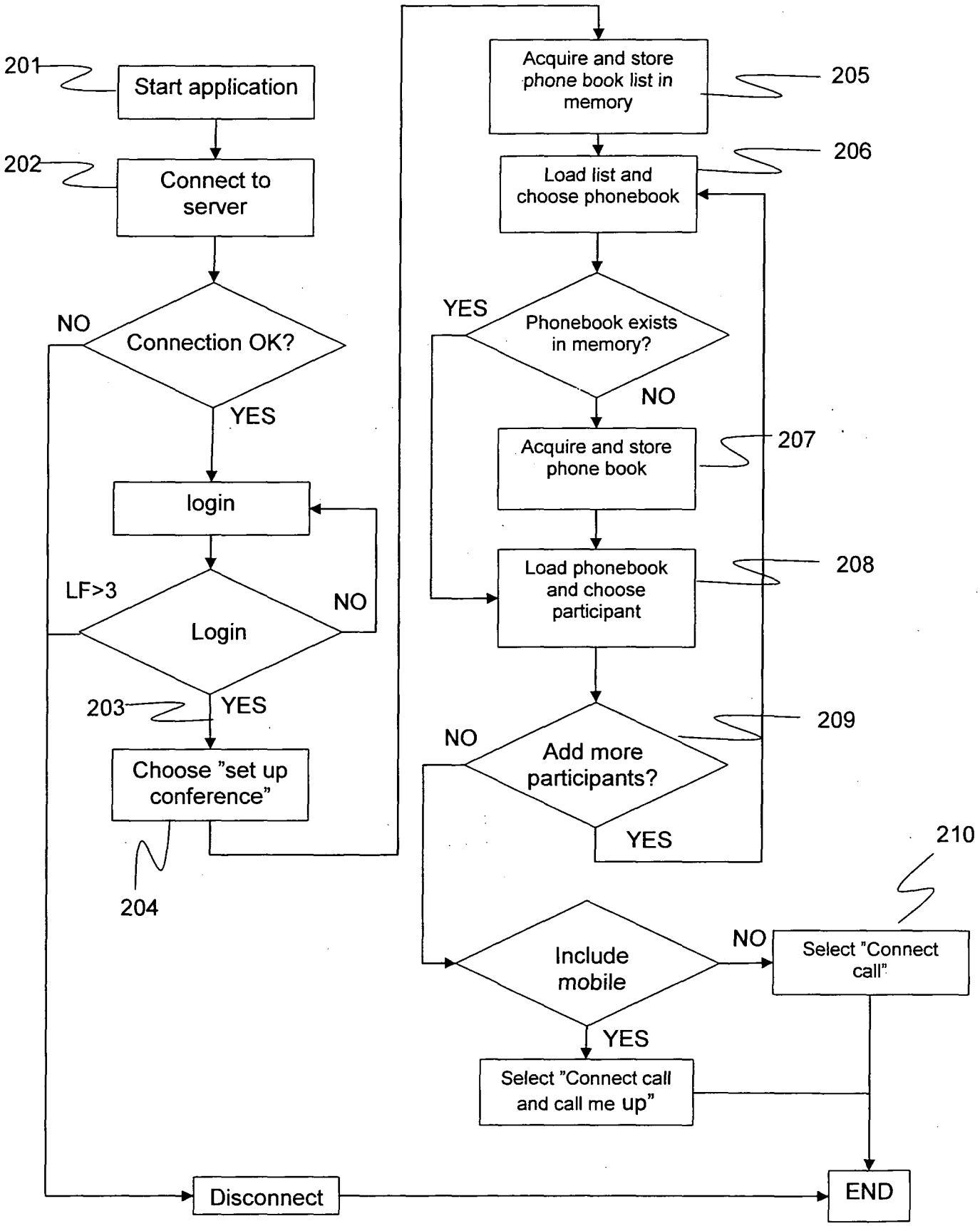

201
Start application
202
Connect to server
NO
Connection OK?
YES
login
LF>3
Login
NO
203
YES
Choose "set up conference"
204
Acquire and store phone book list in memory
205
Load list and choose phonebook
206
YES
Phonebook exists in memory?
NO
Acquire and store phone book
207
Load phonebook and choose participant
208
NO
Add more participants?
209
YES
210
Include mobile
NO
Select "Connect call"
YES
Select "Connect call and call me up"
Disconnect
END

Fig. 2

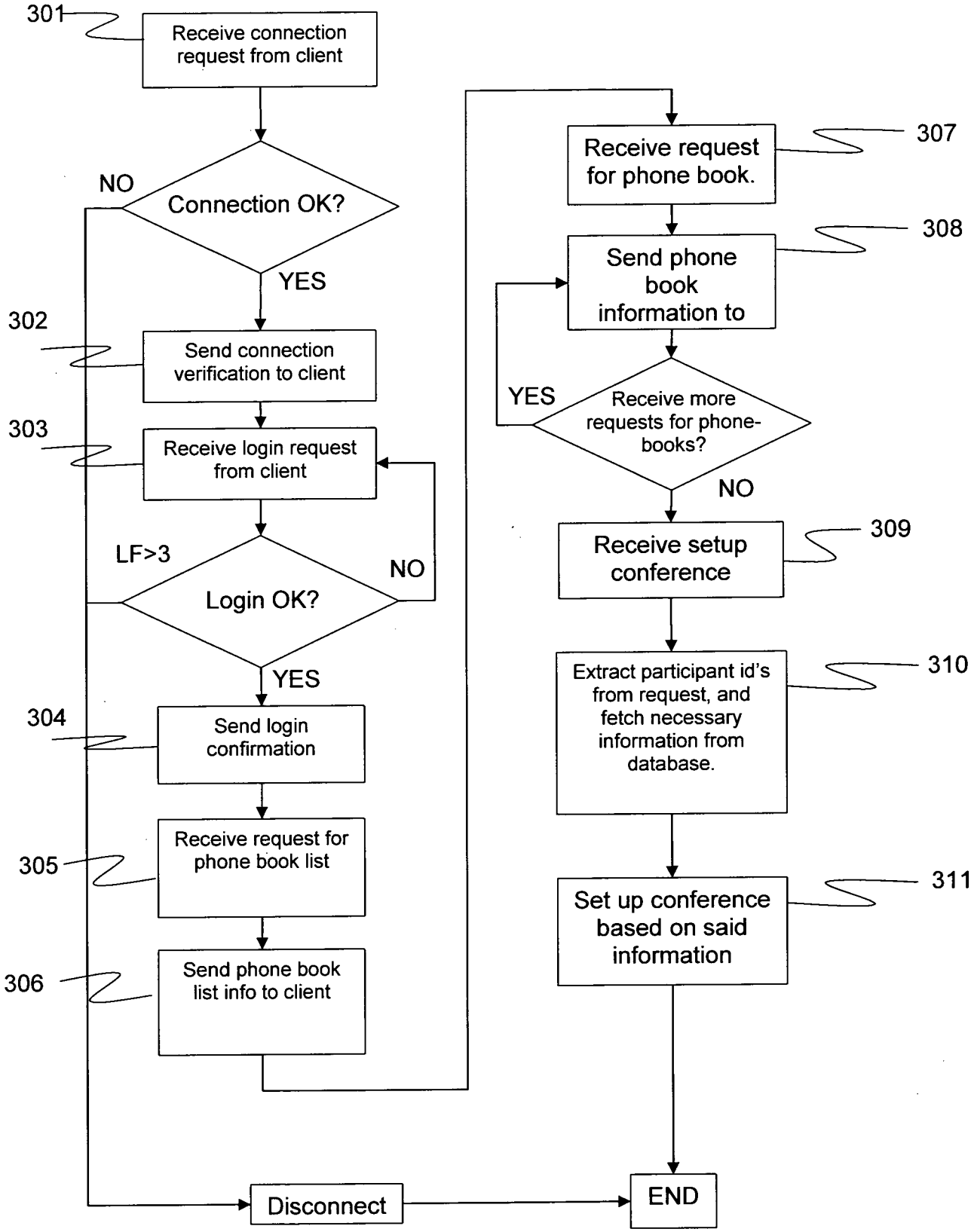

301
Receive connection request from client
NO
Connection OK?
YES
302
Send connection verification to client
303
Receive login request from client
LF>3
NO
Login OK?
YES
304
Send login confirmation
305
Receive request for phone book list
306
Send phone book list info to client
Disconnect
307
Receive request for phone book.
308
Send phone book information to
YES
Receive more requests for phone-books?
NO
309
Receive setup conference
310
Extract participant id's from request, and fetch necessary information from database.
311
Set up conference based on said information
END

Fig. 3

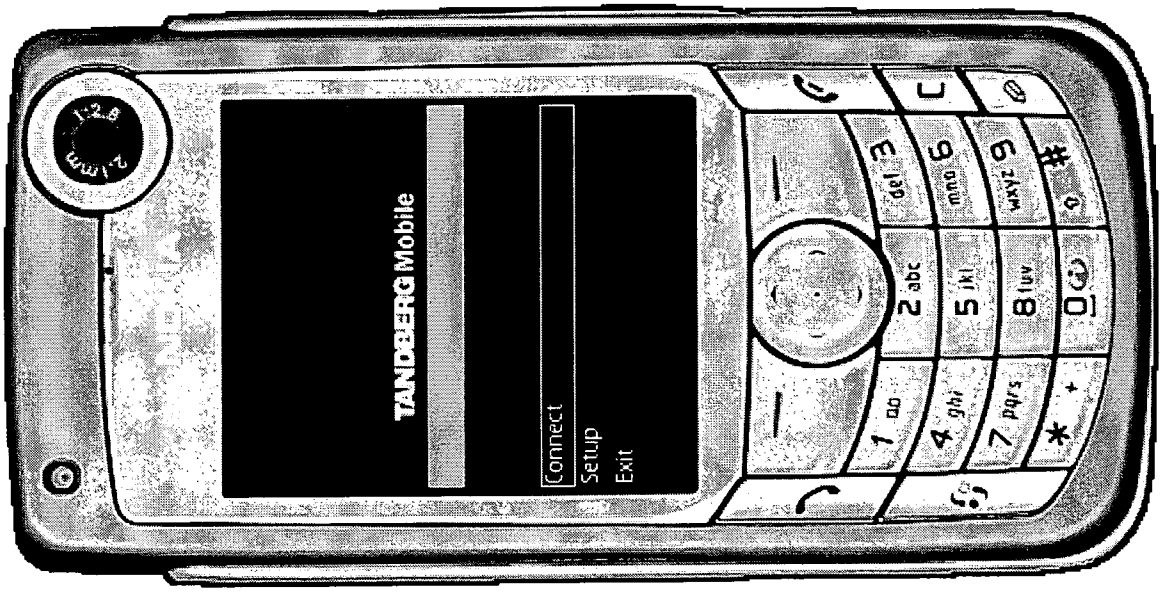


Fig. 4



Fig. 5

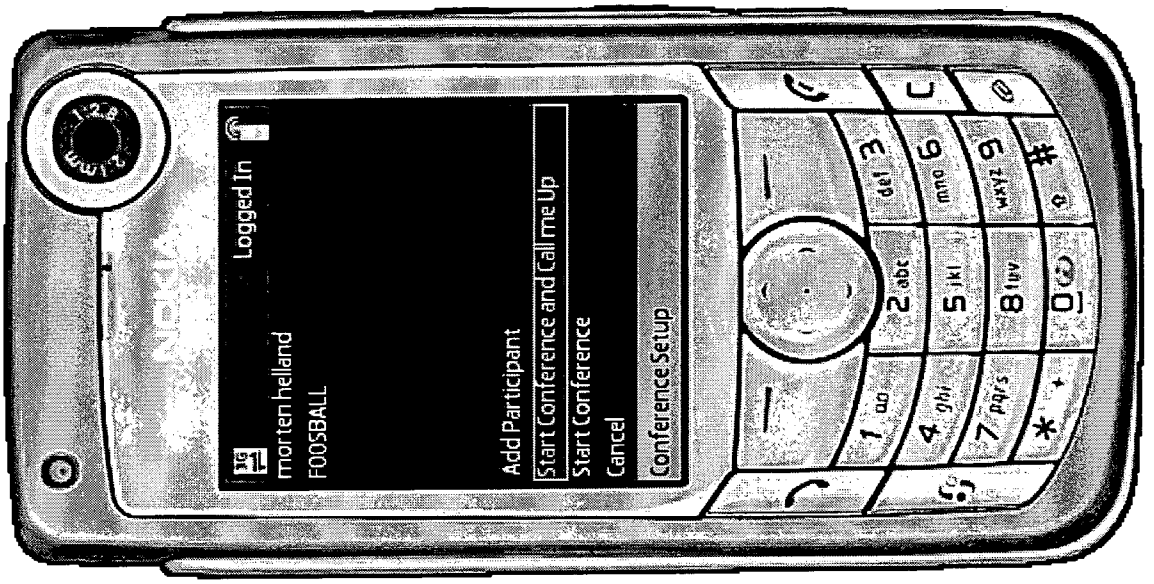


Fig. 6

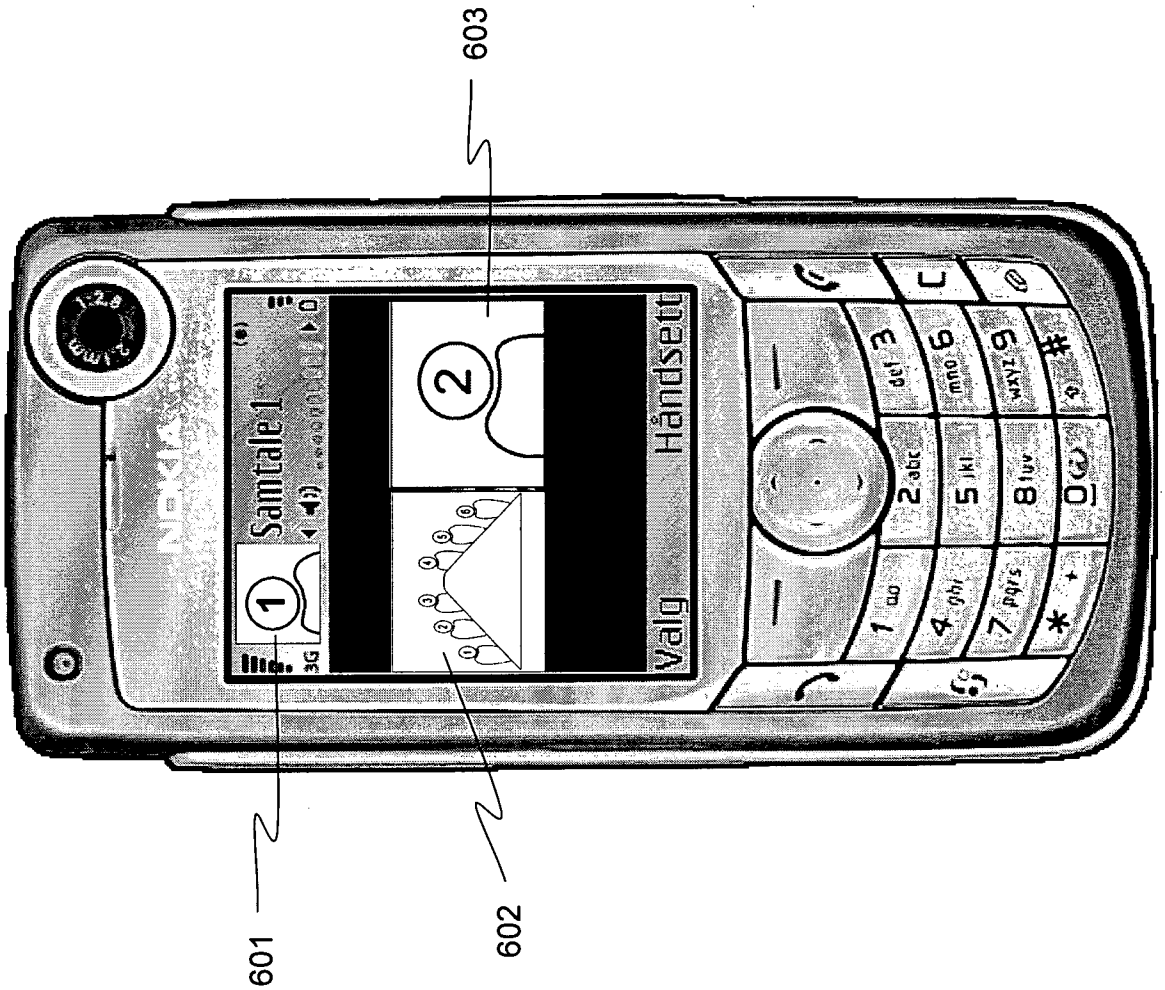


Fig. 7

INTERNATIONAL SEARCH REPORT

International application No
PCT/NO2008/000112

A. CLASSIFICATION OF SUBJECT MATTER
INV. H04L29/06 H04M3/56 H04N7/15

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)
H04L H04M H04N

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

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 2006/023961 A (QUALCOMM INC [US]; KIES JONATHAN K [US]) 2 March 2006 (2006-03-02) paragraphs [0026] - [0030], [0033] figures 1-9	1-43
A	EP 1 744 527 A (CIT ALCATEL [FR]) 17 January 2007 (2007-01-17) paragraphs [0019], [0043], [0044], [0066], [0089], [0090] figures 1,3-5	1-43
A	EP 1 571 808 A (CURITEL COMM INC [KR]) 7 September 2005 (2005-09-07) abstract	11,25,39

☐ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 August 2008	14/08/2008

Name and mailing address of the ISA/	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Fax: (+31-70) 340-3016	Van der Zaal, Robert

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No
PCT/NO2008/000112

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2006023961 A	02-03-2006	AR 050380 A1	18-10-2006
		BR PI0514566 A	17-06-2008
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		CN 101040524 A	19-09-2007
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EP 1571808 A	07-09-2005	CN 1665251 A	07-09-2005
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