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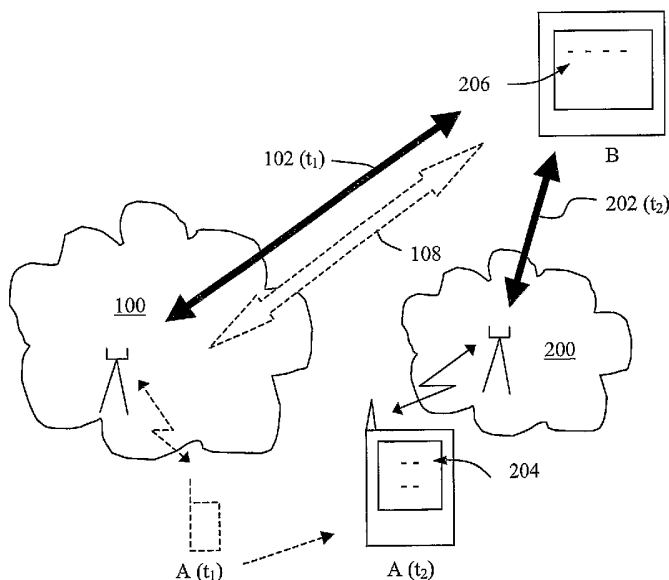
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(54) Title: A METHOD AND ARRANGEMENT FOR PROVIDING INFORMATION ON MULTIMEDIA OPTIONS



(57) Abstract: A method and arrangement for providing updated information on the availability of multimedia options to terminal users. A first terminal (A) is initially engaged in a voice call with a second terminal (B) by using a first access (100) admitting simultaneous multimedia communication. At least one available multimedia option (104, 106) is indicated based on capabilities of the first and second terminals. A change of connection is then detected from the first access to a second access (200) not admitting simultaneous multimedia communication. In response thereto, a multimedia disabling notification is sent to the second terminal, and said at least one multimedia option is indicated as being no longer available (204, 206). Preferably, the multimedia disabling notification is sent as an SMS message.

A METHOD AND ARRANGEMENT FOR PROVIDING INFORMATION ON
MULTIMEDIA OPTIONS.

TECHNICAL FIELD

5 The present invention relates generally to a method and apparatus for providing information on the availability of multimedia options during a communication session. In particular, the invention provides accurate indication of options to convey multimedia content such as
10 video, images, text, etc, from one terminal to another.

BACKGROUND OF THE INVENTION AND PRIOR ART

 Until recently, wireless mobile terminals have been used basically for making voice calls. Standardised and
15 well-established communication technologies and protocols are then utilised to communicate voice between fixed and/or mobile terminals using circuit-switched communication channels. However, a multitude of new multimedia telephony services are now rapidly being developed, enabled by the
20 introduction of new technologies allowing for notably higher transmission rates and increased network capacity. For example, GPRS (General Packet Radio Service) and WCDMA (Wideband Code Division Multiple Access) technologies are currently emerging for enabling wireless telephony services
25 requiring a wide range of transmission rates and different protocols and media formats.

 Further, new sophisticated mobile terminals are also emerging on the market, equipped with functionality to handle the new services, including high resolution colour
30 displays and various codecs (coders/ decoders) e.g. for handling visual information.

The trend today in the field of telecommunication is a move towards packet-switched networks and technologies using the packet-based Internet Protocol (IP), providing more capacity and flexibility as compared to the traditional circuit-switched networks. Recently, a network architecture called "IP Multimedia Subsystem" (IMS) has therefore been developed by the 3rd Generation Partnership Project (3GPP) as an open standard, to give operators of access networks the ability to offer multimedia services in the packet domain. IMS is a platform for enabling services based on IP transport, more or less independent of the access technology used, which is basically not restricted to any limited set of specific services.

Multimedia services typically involve the transmission of different types of content such as text, documents, images, video and audio files or "clips" in various formats and combinations. The term "multimedia" will be used in this description to represent telephony services requiring the transfer of any choice of content, in addition to ordinary voice. Multimedia communication sessions typically involve combinational services with voice and other media at the same time.

It has been proposed that a multimedia session should be divided into a circuit-switched (CS) part for the voice transport, and a packet-switched (PS) part for the transport of other data in combinational services. In this way, the high performance associated with circuit-switching is obtained for voice, whereas not equally delay-sensitive multimedia content can be adequately transferred by packet-switching. New access networks typically allow for simultaneous CS and PS communication, such as WCDMA networks

and GSM networks having DTM (Double Transfer Mode) capability.

During a session between two terminals, certain session parameters defining the rules of communication must be used by both terminals in order to send and receive any desired information. Such session parameters may be related to available codecs, applications and multiplexing schemes. Two communicating terminals may have different capabilities with respect to the above, and each terminal has initially no knowledge of the capabilities of the other. Hence, in order to establish a multimedia session, session parameters that both terminals can handle must therefore first be selected and determined by exchanging capabilities.

A specification for session setup has been defined called "SIP" (Session Initiation Protocol, according to the standard IETF RFC 3261 et al). SIP is an application-layer control (signalling) protocol for creating, modifying and terminating sessions over a packet-switched logic. In SIP, a method called "INVITE" is defined to initiate a session during a setup procedure when the terminals basically exchange their capabilities.

Another method called "OPTIONS" is also specified in the SIP protocol allowing one terminal to query another terminal as to its capabilities regarding codecs and supported applications, without the user actually "calling" the other party. According to this method, the terminal sends a capability query called "SIP OPTIONS", preferably includes its own capabilities, to the other terminal which then responds by sending over its capabilities. A "SIP OPTIONS update" message can also be sent if they are changed. In this way, both terminals will become aware of each other's capabilities. The OPTIONS method can also be

used during an ongoing voice call for enriching the call with multimedia, provided that both access networks allow for packet-switched communication in addition to the currently ongoing circuit-switched communication.

5 By having knowledge of the other terminal's capabilities, each terminal can determine which multimedia service and/or application options that are available to their users, hereafter called "multimedia options" for short, based on their mutual capabilities. A highly
10 desirable feature is that terminal users should be able to see on the terminal screen which multimedia options are currently available. Thus, after exchanging capabilities each terminal may indicate the available multimedia options to their users on the terminal screen. Most commonly,
15 associated icons are then displayed but any other indication means may be used as well, such as other symbols, codes, texts, menu lists, etc. In this way, a user can easily select which type of service and media to use in a multimedia session with the other party.

20 For example, a multimedia option may be indicated as being available by the mere presence of an associated symbol, icon, text or list entry on the terminal screen, or by highlighting a displayed option by means of a specific colour, light intensity, size, etc. An unavailable option
25 may be indicated by having a different colour, e.g. grey, light intensity or size, or by being crossed-over, or simply by being deleted from the screen. Thus, it is clearly understood that the availability and non-availability of multimedia options can be indicated in many different ways,
30 and the present invention is not limited in this respect. In this description, the term "option indication" will represent any possible manner of indication.

When two terminals are engaged in a simple CS voice call, one of them (or both) may currently experience access constraints, such that a PS connection is not admitted in addition to the ongoing CS call depending on limitations in the access network. For example, a standard GSM network cannot handle PS connections and CS connections at the same time, although it may admit a PS connection separately. Some networks, including older GSM networks, may lack PS capability altogether admitting CS connections only.

Further, one and the same network may comprise certain geographic coverage areas admitting multimedia communication, e.g. specific non-constrained cells, and also other coverage areas not admitting multimedia communication, e.g. constrained cells.

Modern terminals typically have the dual capability of executing a PS session simultaneously with a CS call in order to provide combinational services. Furthermore, there are known mechanisms for a terminal to change its radio access during an ongoing call, e.g. by moving from one coverage area into another one. For example, some terminals are capable of both GSM access and WCDMA access by having dual radio parts.

Two terminals A and B may initially be prevented from establishing a multimedia session, due to access constraints for at least one terminal A having dual access capability. Terminal A may later, during the ongoing call, obtain a new access allowing for an added PS part, e.g. by changing from a standard GSM access to a WCDMA access or to a GSM/DTM access. When moving in the opposite direction, the terminals will experience disablement of previously available multimedia options. Thus, when a communicating mobile terminal move between different types of access

networks, the prerequisites for multimedia communication may consequently change. This is a fact even if the other terminal is connected to an access network allowing for multimedia communication with simultaneous CS and PS

5 connections.

The International Patent Application PCT/SE2004/001671, filed November 15, 2004, discloses a solution for enabling multimedia communication during an ongoing circuit-switched call. First, a mobile terminal uses
10 an access having constraints by not admitting simultaneous PS and CS communication. A change of connection is detected to another access admitting simultaneous PS and CS communication, and the terminals exchange capabilities in response to the connection change. Then, possible multimedia
15 options may be indicated to the users, e.g. on the terminal screens.

If the feature of displaying available multimedia options on terminal screens is used in at least one of two communicating terminals, it is a problem that the displayed
20 options may become irrelevant as soon as any change of access occurs for either of the terminals, due to constraints in the new access. Thus, it is desirable to increase the accuracy of this feature.

25 SUMMARY OF THE INVENTION

It is an object of the present invention to provide a solution for displaying available multimedia options on terminal screens with great accuracy during a multimedia communication session involving at least one mobile
30 terminal. It is another object of the present invention to update the displayed options in response to a change of access for the mobile terminal.

These objects and others are obtained by a method and apparatus for providing updated information on the availability of multimedia options to terminal users. A first terminal having a display screen is initially engaged in a voice call with a second terminal by using a first access admitting simultaneous multimedia communication. At least one available multimedia option is first indicated on the screen based on capabilities of the first and second terminals. When a change of connection is detected from the first access to a second access not admitting simultaneous multimedia communication, e.g. by the first terminal moving into a different coverage area, a multimedia disabling notification is sent over the second access to the second terminal in response to detecting the connection change. It is then indicated on the screen that said at least one multimedia option is no longer available.

The first access may involve connection with a first access network allowing packet-switched and circuit-switched communication simultaneously, and the second access may involve connection to a second access network not allowing packet-switched and circuit-switched communication simultaneously. The at least one multimedia option may involve the communication of content including at least one of: a video clip, an audio clip, a text, an image and a game.

The multimedia disabling notification is preferably sent as an SMS message, but may also be sent as a USSD (Unstructured Supplementary Service Data) message, or by means of user-to-user signalling. If SMS is used, the SMS message may comprise a standard SIP OPTIONS update message, or a specific binary code that the second terminal can recognise.

A multimedia option may be indicated as available by displaying an associated symbol, icon, text or menu entry on the terminal screen, or by highlighting a displayed option by means of a specific colour, light intensity or size. Further, when the at least one multimedia option becomes unavailable, it may be indicated accordingly by having a different colour, light intensity or size, or by being crossed-over, or by being deleted from the screen.

If a change of connection is later detected from the second access to a third access admitting simultaneous multimedia communication, e.g. by the first terminal moving into another coverage area, a multimedia enabling notification is sent over the third access to the second terminal. It is then indicated on the screen that said at least one multimedia option has become available again. The multimedia enabling notification may likewise be sent as an SMS message, or USSD message, or by means of user-to-user signalling.

The present invention further encompasses a mobile terminal adapted to provide updated information on the availability of multimedia options to a terminal user. The invented mobile terminal comprises means for being initially engaged in a voice call with another terminal by using a first access admitting simultaneous multimedia communication, and means for indicating at least one available multimedia option based on capabilities of said terminals. The mobile terminal further comprises means for detecting a change of connection from the first access to a second access not admitting simultaneous multimedia communication, means for sending a multimedia disabling notification over the second access to the other terminal in response to detecting said change of connection, and means

for indicating that said at least one multimedia option is no longer available.

As in the above-defined method, the first access may involve connection with a first access network allowing
5 packet-switched and circuit-switched communication simultaneously, and the second access may involve connection to a second access network not allowing packet-switched and circuit-switched communication simultaneously. Further, said at least one multimedia option may involve the communication
10 of content including at least one of: a video clip, an audio clip, a text, an image and a game.

The invented mobile terminal may be further adapted to send the multimedia disabling notification as an SMS message, or USSD message, or by means of user-to-user
15 signalling. The mobile terminal may be further adapted to include a standard SIP OPTIONS update message in the SMS message, or a binary code in the SMS message that the other terminal can recognise.

The mobile terminal may be further adapted to
20 indicate a multimedia option as available by displaying an associated symbol, icon, text or menu entry on the terminal screen, or by highlighting a displayed option by means of a specific colour, light intensity or size. The mobile terminal may be further adapted to indicate that the at
25 least one multimedia option has become unavailable by means of a different colour, light intensity or size, or by being crossed-over, or by deleting it from the screen.

The mobile terminal may be further adapted to detect a change of connection from the second access to a
30 third access admitting simultaneous multimedia communication, send a multimedia enabling notification over the third access to the other terminal, and indicate on the

screen that said at least one multimedia option is available again. The mobile terminal may be further adapted to send the multimedia enabling notification as an SMS message, or USSD message, or by means of user-to-user signalling.

5 Further features and benefits of the present invention will be apparent from the detailed description below.

BRIEF DESCRIPTION OF THE DRAWINGS

10 The present invention will now be described in more detail by means of preferred embodiments and with reference to the accompanying drawings, in which:

- Fig. 1 is a schematic view of a basic communication scenario where the present solution may be used.
- 15 - Fig. 2 is a schematic view of a communication scenario where a mobile terminal A moves from one access network to another.
- Fig. 3 is a signalling diagram illustrating a procedure for providing information on the availability of
- 20 multimedia options on terminal screens, in accordance with the present invention.
- Fig. 4 is a schematic block diagram of a mobile terminal changing its access from one network to another.
- Fig. 5 is a flow chart illustrating a basic procedure for
- 25 providing information on the availability of multimedia options, according to the invention.

DESCRIPTION OF PREFERRED EMBODIMENTS

Fig. 1 illustrates schematically a basic

30 . communication scenario between a mobile terminal A and another terminal B, where the present solution may be used. Terminal B may be a mobile terminal, a wireless PC, or any

other communication unit, and both terminals are capable of multimedia communication involving combinational services. Terminal A is currently in radio connection with a mobile access network 100, and each terminal A, B is equipped with a viewing screen S_A and S_B , respectively, for displaying multimedia options, e.g. in the form of icons or the equivalent, as well as any received visual content. Of course, further communication networks (not shown) may be involved in the communication between A and B, and it is assumed that these terminals and networks are capable of using conventional communication techniques and protocols which are not necessary to described here.

In Fig. 1, terminals A and B are engaged in a voice call 102, and the used networks, i.e. network 100 and others, allow for multimedia communication and combinational services. It is assumed that the terminals have previously exchanged their capabilities which are thus mutually known, e.g. as described above. Accordingly, the multimedia options available within the capabilities of both terminals are indicated on the screens S_A and S_B , as schematically illustrated at 104 and 106, respectively. This indication of options may be done in any manner, as discussed above. Hence, the users are free to activate any desirable application corresponding to an indicated available option, e.g. by clicking the associated indication on the screen, in order to execute a multimedia session 108 involving the transfer of multimedia content.

An exemplary procedure in accordance with the present invention for providing information on the availability of multimedia options on the screens S_A and S_B of terminals A and B, respectively, will now be described with further reference to the communication scenario in Fig.

2, which is a continuation of the scenario in Fig. 1. The reference numbers used in Fig. 1 will be used again for the same details in Fig. 2. Thus, the starting point for this procedure is an ongoing call 102 when available multimedia
5 options 104, 106 are indicated on the screens of A and B.

During a first time period t_1 of the call 102, terminal A is connected to a base station of a first access network 100 allowing for multimedia communication with terminal B, as indicated with arrow 108. In this context, it
10 does not matter whether the terminals actually utilise any such option by executing a session 108 or not.

At some point during the call, terminal A moves away from the first network 100 and towards a second access network 200 not allowing for multimedia communication in
15 this situation. For example, network 200 may not allow for combinational services with simultaneous PS and CS communication, or may lack PS capability altogether admitting CS communication only. Network 100 may use WCDMA technology or GSM/DTM technology, whereas the new network
20 200 may use traditional GSM technology. A similar situation could also occur within the same network if terminal A moves out of a non-restricted coverage area and into a restricted coverage area, e.g. between different cells in the same network, and the present solution is applicable also in this
25 case. Thus, networks 100 and 200 generally represent areas of different accesses with respect to multimedia.

In the present case, terminal A is equipped with dual radio parts and can therefore change its access from network 100 to the new network 200, even if they use
30 different radio technologies. In order to do that, conventional intersystem handover procedures may be used, which are not necessary to describe here further to

understand the present solution. Thus, terminal A now becomes connected to access network 200, and the circuit-switched voice connection between terminals A and B is still continued over network 200 during a second time period t_2 ,
5 as indicated by arrow 202(t_2).

However, since terminal A now experiences access constraints in network 200, it has become impossible to enrich the ongoing voice call by introducing multimedia in combinational services. Normally, this change of access is
10 conducted without being noticed by any of the terminal users. Therefore, the user of terminal A, as well as the user of terminal B, will not be aware of this sudden loss of multimedia options, unless they are notified in some way.

According to the present solution, terminal A is
15 adapted to automatically send a "multimedia disabling notification" to terminal B in response to detecting a change of access not allowing for multimedia, in this case access to the new access network 200. As terminal B receives the multimedia disabling notification, it becomes aware that
20 the previously available multimedia options are no longer available.

Moreover, both terminals can now change their indication of options 104 and 106 by indicating the options as unavailable instead, which is illustrated in the figure
25 at 204 and 206, respectively, in response to the access change of terminal A. As mentioned above, the indication whether multimedia options are available or not can be made in any suitable manner, and the present invention is not limited in this respect. In this way, each user of terminal
30 A and B will immediately be aware of the new communication restrictions by viewing his/her terminal screen.

According to a preferred embodiment, the multimedia disabling notification is a standard SMS (Short Messaging Service) message that the receiving terminal B can recognise. According to one alternative, the above-described

5 "SIP OPTIONS update" message may be included in the SMS, substituting a regular SIP OPTIONS update message over IP, since this has become impossible to convey over the new access. However, the SMS may basically be any binary code that B can recognise, not necessarily being intelligible to

10 humans, but may also be a specific alphanumeric combination. According to other alternatives, the multimedia disabling notification may be sent as a USSD (Unstructured Supplementary Service Data) message, or by means of "user-to-user signalling" directly between the terminals embedded

15 in the established voice channel or in a suitable control channel, e.g. according to the standard 3GPP TS 23.087.

With reference to a signalling diagram illustrated in Fig. 3, an exemplary signalling procedure will now be described for executing the inventive method basically

20 according to the scenario of Fig. 2. The diagram thus includes the mobile terminals A and B, the first access network 100 having no access constraints, and the second network 200 having access constraints. The access network used by terminal B is not shown, but it is assumed that

25 terminal B does not experience any such access constraints in this context. It should be noted that the mobile terminals A and B could be any communication units capable of simultaneous PS and CS communication.

In a first step 300, terminal A gains access with

30 the first network 100, e.g. when powered on. A next step 302 illustrates that a circuit-switched voice call between terminals A and B is established. It does not matter which

one of A and B is the calling party and called party, respectively.

In a step 304, the terminals A and B exchange their capabilities according to any standard procedure, e.g. using a SIP OPTIONS message, in order to determine any available multimedia options during this call. Next, these are indicated on the screen of terminal A in a step 306 and on the screen of terminal B in a step 308. It should be noted that any number of multimedia options may be displayed depending on the terminal capabilities, and the present invention is not limited in this respect. The terminal users are now free to activate any application offered by the indicated available options, e.g. by clicking a selected option indication on the screen, to enrich the ongoing voice call by introducing multimedia in a parallel session 108, as indicated in an optional step 310.

At some point later during the call, terminal A performs an intersystem handover to the second access network 200, in a next step 312. Since network 200 imposes access constraints to terminal A by not allowing for combinational services with multimedia communication, the indicated available options are no longer relevant. Therefore, in accordance with the present solution, terminal A sends the above-described multimedia disabling notification in a step 314 that terminal B will recognise, preferably as a specific SMS message, or USSD message, or by means of user-to-user signalling.

As both terminals are now aware of the disablement of multimedia, the options are indicated as being unavailable on the screen of terminal A in a step 316 and on the screen of terminal B in a step 318. As mentioned above, this can also be done in different ways, for example by

changing colour (e.g. to grey), light intensity or size, or by being crossed-over, or simply by being deleted from the screen. In any case, the terminal users can now easily see that the options are no longer available, and the
5 availability indication will always be up-to-date. At the same time, the voice call may continue over network 200 in a final step 320, without being affected by the above-described activities.

A possible procedure of detecting the above-
10 described change of access by terminal A will now be described in more detail with reference to Fig. 4, which is a schematic block diagram of the logic structure of terminal A. In terminal A, specific logics are implemented for handling the radio functions and service functions, as
15 represented by logic units 400 and 402, respectively. In this case, radio logic 400 is capable of handling radio access with both networks 100, 200. Each logic 400, 402 comprises a protocol stack according to the prevailing standards, not described here further. Of course, there are
20 other logic systems (not shown) implemented as well in the terminal for other functions, which are not relevant to describe here.

Above the service logic 402, a series of applications a1, a2, a3... are installed in order to enable
25 various services, as controlled by the service logic 402. For example, one application a1 may be used for playing a video file in a specific format using a corresponding codec, whereas another application a2 may be used for displaying a picture in a specific format, as received from the other
30 terminal B, using another suitable codec, etc. Each application a1, a2, a3... may be associated with an option indication 406 on the terminal screen, and the indication of

available options implies that the corresponding applications can be activated by the user.

When terminal A makes an intersystem handover from network 100 to network 200, the radio logic 400 notifies the service logic 402 by means of an internal message 408. The service logic 402 then orders the radio logic 400, by means of an internal message 408, to send the above-described multimedia disabling notification towards terminal B. Then, the multimedia disabling notification 412 is issued accordingly from the radio logic 400 over the new network 200, corresponding to step 314 above.

Referring to a flow chart in Fig. 5, a basic procedure of providing information on multimedia options according to the present solution will now be described. This procedure is executed in a mobile terminal, such as terminal A shown in Fig's 1, 2 and 4. In a first step 500, the mobile terminal gains a first access, e.g. with network 100 above, and starts a voice call with another terminal using said first access. The first access allows for multimedia communication, e.g. by means of simultaneous PS and CS communications.

In a next step 502, the mobile terminal exchange capabilities with the other terminal in order to determine any available multimedia options during the call. Next, the available options are indicated on the screen of the mobile terminal in a step 504, which also can be indicated on the screen of the other terminal as well. Thereby, the terminal users can select any of the available options and execute a multimedia session, as indicated by an optional step 506.

At some point later during the call, a change from the first access to a second access is detected in a next step 508, e.g. by making an intersystem handover as

described above. Thereafter in step 506, it is determined whether the new access allows for multimedia communication by admitting packet-switched communication simultaneously with the ongoing voice call. If so, the voice call and multimedia session can continue without further action, according to step 512. However, if the second access does not admit a multimedia session, the mobile terminal automatically sends a multimedia disabling notification to the other terminal, as indicated in a step 514.

Next, the options are indicated as unavailable on the screen of the mobile terminal in a step 516, which also can be indicated on the screen of the other terminal as well. Thereby, the availability of multimedia options will be automatically updated on the screens. Alternatively, the detected change of access in step 508 may be a new access obtained within the same first network, e.g. by making handover from one non-constrained cell to another constrained one not admitting multimedia communication.

If the mobile terminal later gains a new access allowing for multimedia communication, e.g. by returning into coverage of the first network 100 in Fig. 2, the multimedia options can be indicated as available again. Thus, if terminal A generally gains a third access allowing for multimedia communication during the still ongoing voice call, terminal A may send to terminal B a new "multimedia enabling notification" over the new access that terminal B will recognise. This message may likewise be sent preferably as a specific SMS message, or USSD message, or by means of user-to-user signalling. Also, the options can then be indicated as available again on the screens of the mobile terminals. In this case, no terminal capabilities need to be exchanged again, but the same options as before can be

indicated, assuming that the terminals have not changed in this respect. Alternatively, the terminal capabilities can be exchanged once again, e.g. according to the mechanism disclosed in PCT/SE2004/001671, which however lies outside
5 the scope of the present invention.

It should be noted that the existing SMS mechanism in particular is quite suitable for conveying the above-described multimedia disabling and enabling notifications between terminals, regardless of whether the current access
10 allows for multimedia or not. Thus, the SMS functionality should be regarded as an available means for communicating the notifications over any of the first, second and third accesses in the described embodiments.

The present invention will thus provide the
15 terminal users with updated information on the availability of multimedia options, even if one of the terminals change access during an ongoing voice call. Thereby, the feature of displaying such options on the terminal screen will be enhanced by increased reliability.

20 While the invention has been described with reference to specific exemplary embodiments, the description is in general only intended to illustrate the inventive concept and should not be taken as limiting the scope of the invention, which is defined by the appended claims.

25

CLAIMS

1. A method of providing updated information on the availability of multimedia options to terminal users, wherein a first terminal having a display screen is initially engaged in a voice call with a second terminal by using a first access admitting simultaneous multimedia communication, and wherein at least one available multimedia option is indicated on the screen based on capabilities of the first and second terminals, **characterised by** the following steps:
- detecting a change of connection from the first access to a second access not admitting simultaneous multimedia communication,
 - sending a multimedia disabling notification over the second access to the second terminal in response to said detecting step, and
 - indicating on the screen that said at least one multimedia option is no longer available.
2. A method according to claim 1, wherein the first access involves connection with a first access network allowing packet-switched and circuit-switched communication simultaneously, and the second access involves connection to a second access network not allowing packet-switched and circuit-switched communication simultaneously.
3. A method according to claim 1 or 2, wherein said at least one multimedia option involves the communication of content including at least one of: a video clip, an audio clip, a text, an image and a game.

4. A method according to any of claims 1-3, **characterised in** that the multimedia disabling notification is sent as an SMS message, or a USSD message, or by means of user-to-user signalling.
- 5
5. A method according to claim 4, **characterised in** that the SMS message comprises a standard SIP OPTIONS update message.
- 10 6. A method according to claim 4, **characterised in** that the SMS message comprises a binary code that the second terminal can recognise.
7. A method according to any of claims 1-6, wherein a
- 15 multimedia option is indicated as available by displaying an associated symbol, icon, text or menu entry on the terminal screen, or by highlighting a displayed option by means of a specific colour, light intensity or size.
- 20 8. A method according to claim 7, **characterised in** that in said indicating step, said at least one multimedia option is indicated as unavailable by having a different colour, light intensity or size, or by being crossed-over, or by being deleted from the screen.
- 25
9. A method according to any of claims 1-8, **characterised in** that, if a change of connection is detected from the second access to a third access admitting simultaneous multimedia communication, a multimedia enabling
- 30 notification is sent over the third access to the second terminal, wherein it is indicated on the screen that said at least one multimedia option is available again.

10. A method according to claim 9, **characterised in** that the multimedia enabling notification is sent as an SMS message, or USSD message, or by means of user-to-user signalling.
11. A mobile terminal adapted to provide updated information on the availability of multimedia options to a terminal user, comprising means for being initially engaged in a voice call with another terminal by using a first access admitting simultaneous multimedia communication, and means for indicating at least one available multimedia option based on capabilities of said terminals, **characterised by:**
- means for detecting a change of connection from the first access to a second access not admitting simultaneous multimedia communication,
 - means for sending a multimedia disabling notification over the second access to the other terminal in response to detecting said change of connection, and
 - means for indicating that said at least one multimedia option is no longer available.
12. A mobile terminal according to claim 11, wherein the first access involves connection with a first access network allowing packet-switched and circuit-switched communication simultaneously, and the second access involves connection to a second access network not allowing packet-switched and circuit-switched communication simultaneously.

13.A mobile terminal according to claim 11 or 12, wherein
said at least one multimedia option involves the
communication of content including at least one of: a
video clip, an audio clip, a text, an image and a game.

5

14.A mobile terminal according to any of claims 11-13,
characterised in that the mobile terminal is further
adapted to send the multimedia disabling notification as
an SMS message, or USSD message, or by means of user-to-
user signalling.

10

15.A mobile terminal according to claim 14, **characterised in**
that the mobile terminal is further adapted to include a
standard SIP OPTIONS update message in the SMS message.

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16.A mobile terminal according to claim 14, **characterised in**
that the mobile terminal is further adapted to include a
binary code in the SMS message that the other terminal
can recognise.

20

17.A mobile terminal according to any of claims 11-16,
wherein the mobile terminal is further adapted to
indicate a multimedia option as available by displaying
an associated symbol, icon, text or menu entry on the
terminal screen, or by highlighting a displayed option by
means of a specific colour, light intensity or size.

25

18.A mobile terminal according to claim 17, **characterised in**
that the mobile terminal is further adapted to indicate
that said at least one multimedia option has become
unavailable by means of a different colour, light

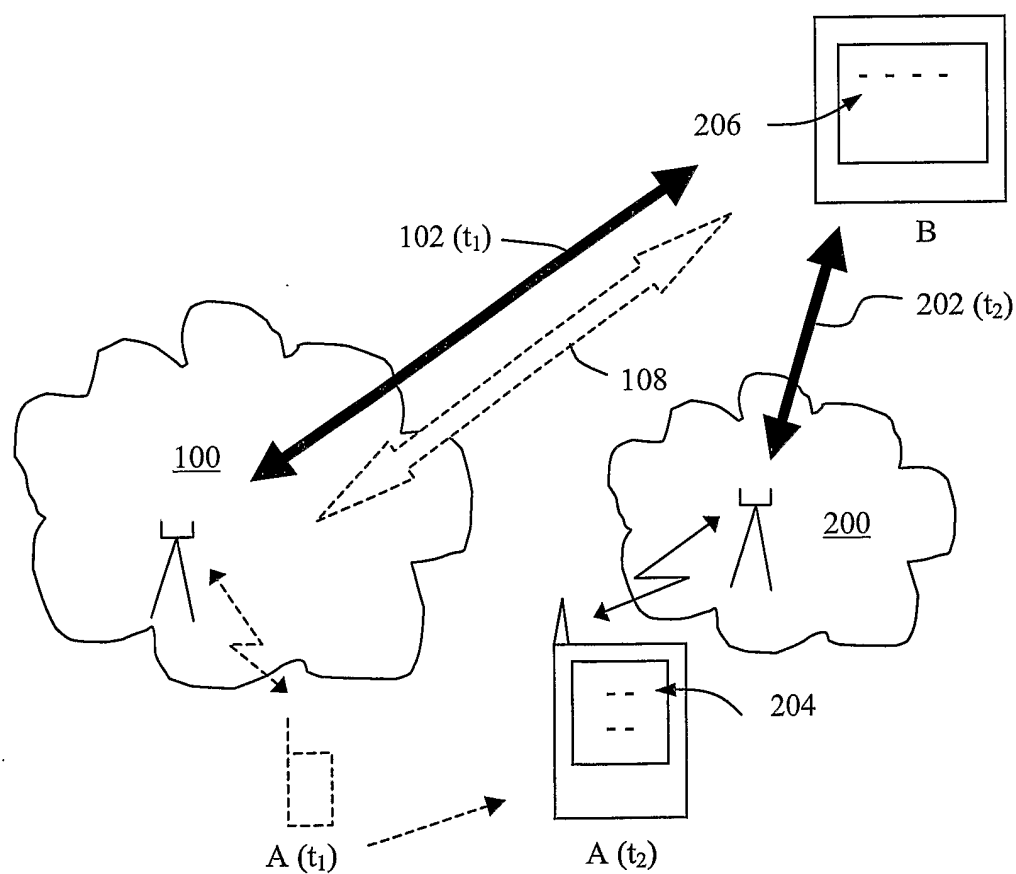
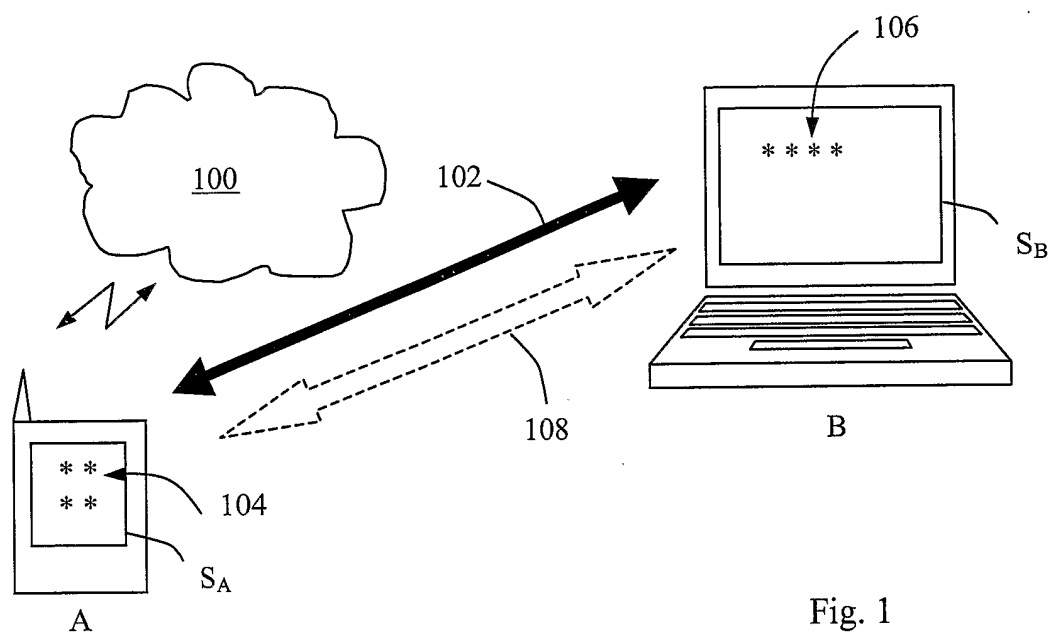
30

intensity or size, or by being crossed-over, or by deleting it from the screen.

19. A mobile terminal according to any of claims 11-18,
5 **characterised in** that the mobile terminal is further adapted to detect a change of connection from the second access to a third access admitting simultaneous multimedia communication, send a multimedia enabling notification over the third access to the other terminal,
10 and indicate on the screen that said at least one multimedia option is available again.

20. A mobile terminal according to claim 19, **characterised in**
that the mobile terminal is further adapted to send the
15 multimedia enabling notification as an SMS message, or USSD message, or by means of user-to-user signalling.

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2/3

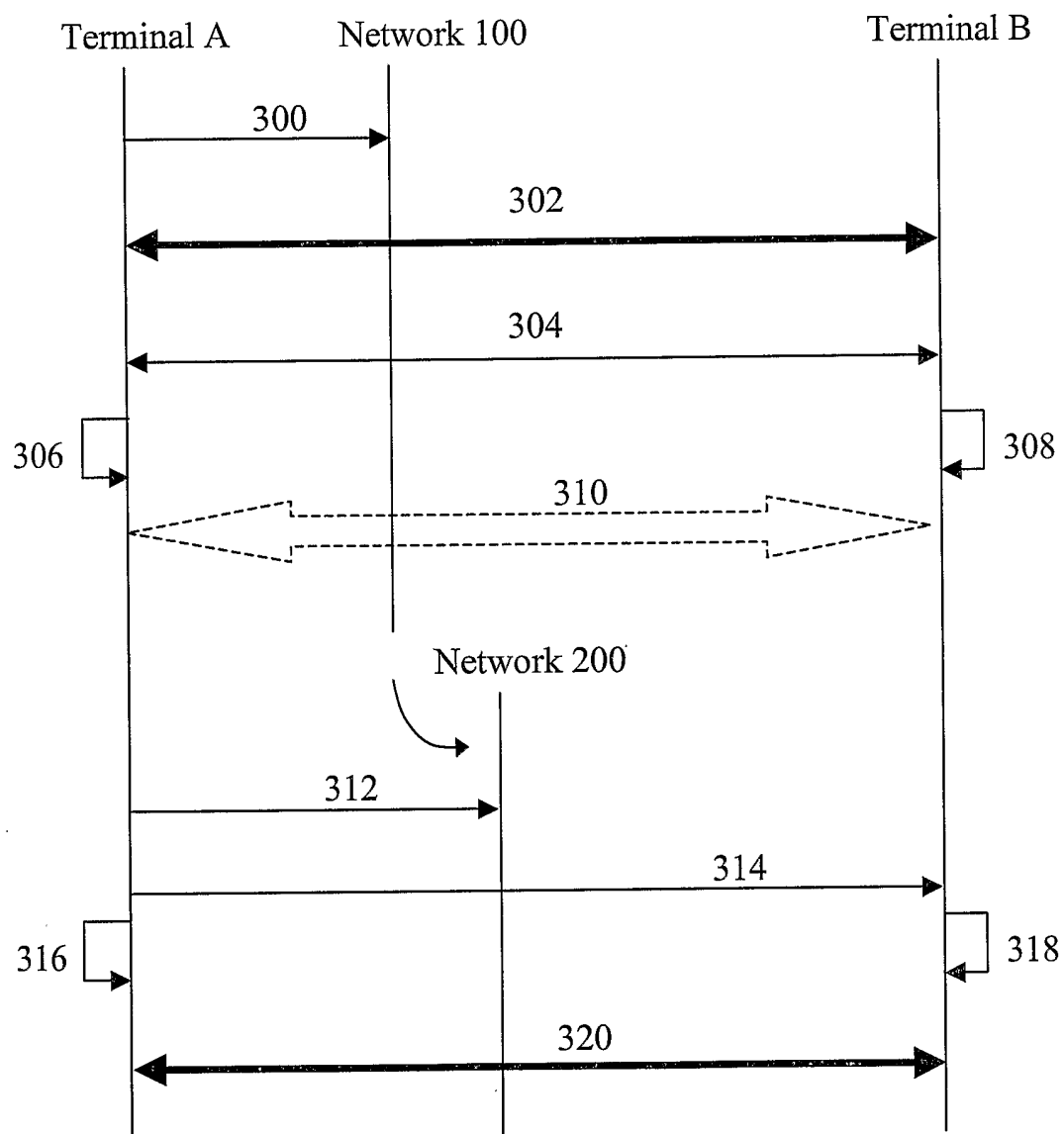


Fig. 3

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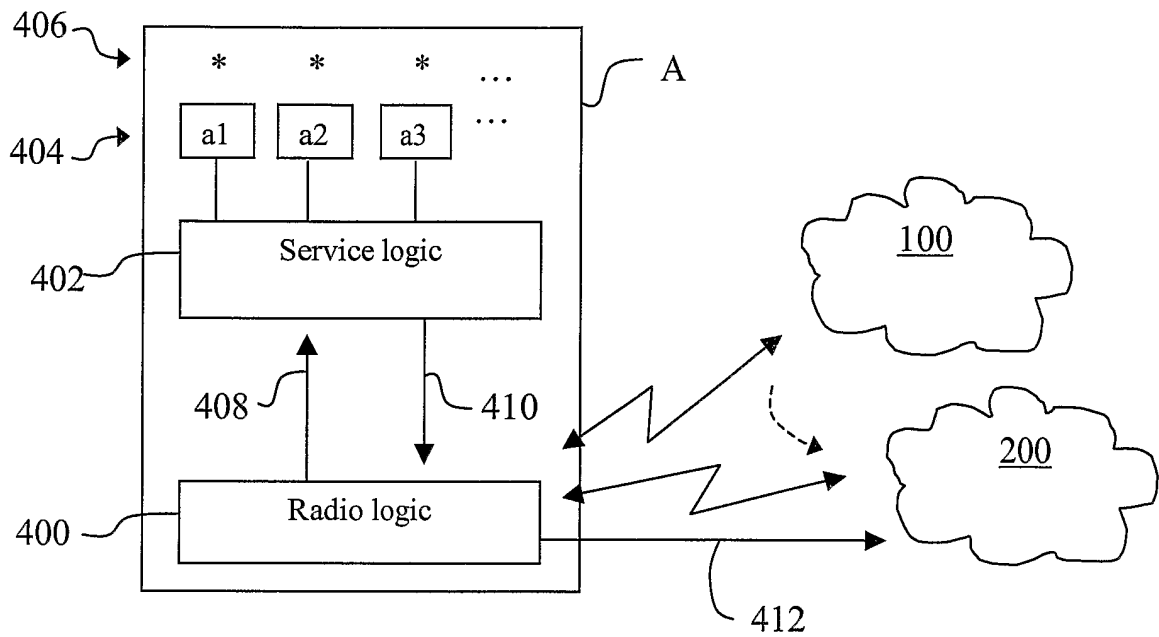


Fig. 4

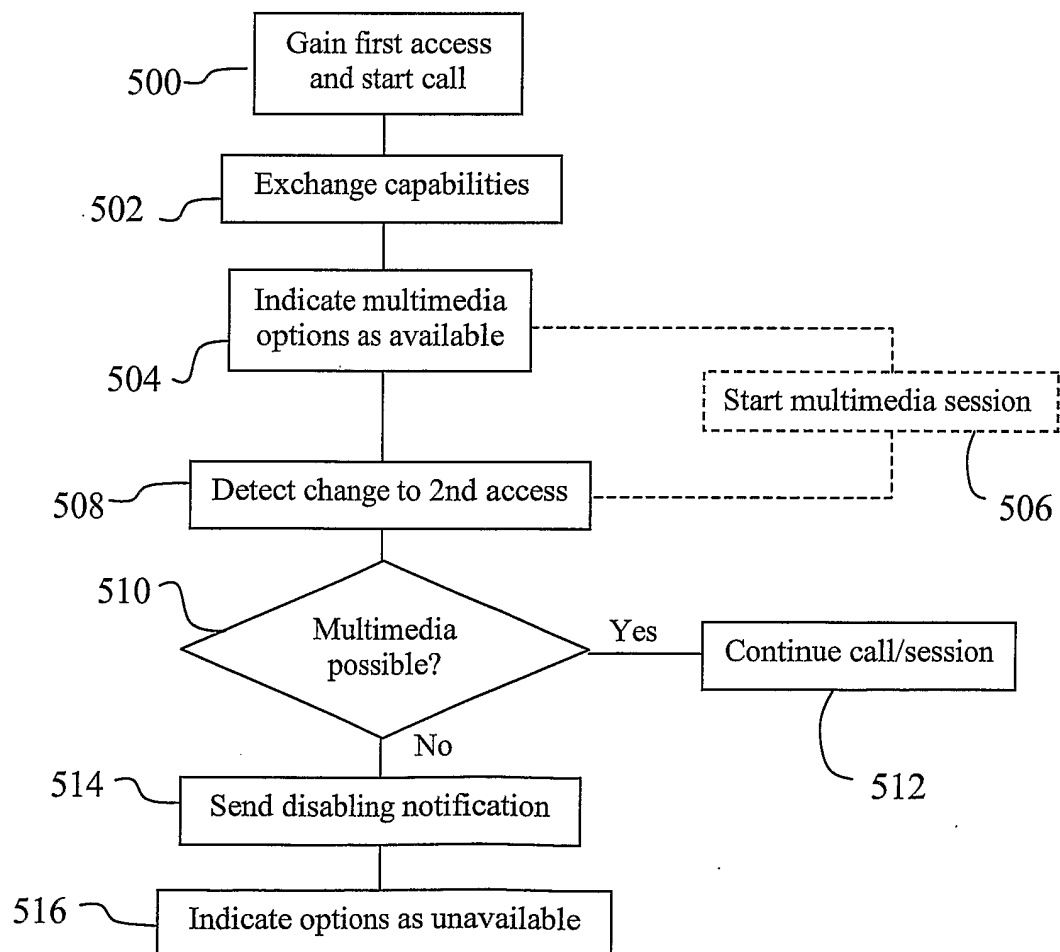


Fig. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/SE 2004/001951

A. CLASSIFICATION OF SUBJECT MATTER

IPC7: H04Q 7/22

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: H04Q

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

SE,DK,FI,NO classes as above

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

EPO-INTERNAL, WPI DATA, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 20040184439 A1 (PATRICK BLANC ET AL), 23 Sept 2004 (23.09.2004), abstract, [0003]-[0033] ---	1-20
A	WO 0176165 A1 (MOTOROLA INC), 11 October 2001 (11.10.2001), abstract -- -----	1-20

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

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
"E" earlier application or patent but published on or after the international filing date	"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
"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)	"&" document member of the same patent family
"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	

Date of the actual completion of the international search 22 August 2005	Date of mailing of the international search report 25-08-2005
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Name and mailing address of the ISA/ Swedish Patent Office Box 5055, S-102 42 STOCKHOLM Facsimile No. +46 8 666 02 86	Authorized officer Catharina Karlsson/MN Telephone No. +46 8 782 25 00
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INTERNATIONAL SEARCH REPORT

Information on patent family members

08/07/2005

International application No.

PCT/SE 2004/001951

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