

an interface device configured to bi-directionally communicate with a mobile device (preferably wirelessly), that includes a satellite antenna on the communications device and a voice/data modem configured to bi-directionally communicate with a satellite network via the antenna. The communications system may or may not also include a softswitch device that interfaces both satellite systems and accesses mobile networks via either the internet or via the mobile network.

According to a first aspect of the present invention, there is provided a method of switching an active ongoing electronic communication at a mobile device from a first communications channel over a first network to a second communications channel over a second network, where said first network is one of a mobile cellular communications network or a satellite communications network and said second network is the other of said mobile cellular communications network or a satellite communications network, using a switch device located remotely from said mobile device, said switch device communicating with a second SIM card, said second SIM card located remote from said mobile device but being associated with said mobile device, and said switch device is configured to communicate with a mobile cellular communications network and a satellite communications network, said method comprising the steps of: said switch device receiving a notice communication from said mobile device having a first SIM card, said notice communication operating to indicate that a switch is desired to said second network; said switch device initiating or establishing a second communications channel directed to said mobile device, where said second communication channel is configured to establish communications at said mobile device via said second network; switching said ongoing electronic communication on said first communications channel on said first network to said second communications channel on said second network.

According to a second aspect of the present invention, there is provided a method of transferring or switching an ongoing electronic communication at a mobile device from a first communications channel over a first network to a second communications channel over a second network, where said first network is one of a mobile cellular communications network or a satellite communications network and said second network is the other of said mobile cellular communications network or a satellite communications network, and said mobile device comprises a mobile component having a first SIM card and configured to operatively communicate over said mobile cellular communications network and a satellite component configured to operatively communicate over said satellite communications network, said method comprising the steps of: determining at said mobile device the

cellular signal strength of said mobile cellular communications network, and based on said cellular signal strength, determining to transfer from said first network to said second network; said mobile device sending a first notice communication to a remotely located switch device where said switch device communicates with a second SIM card located remote from said mobile device but said second SIM card being associated with said mobile device, said notice communication being sent over said second network or said first network, said notice communication acting as a request to transfer; said mobile device receiving a second notice communication that a second communications channel for said ongoing communications is available on said second network; said mobile device transferring said ongoing communications from said first communications channel on said first network, to said second communications channel on said second network.

According a third aspect of the present invention, there is provided a method of selecting, at a mobile device having a first SIM card, a network over which to receive an incoming electronic communication, where said selection includes either a first network or a second network, where said first network is one of a mobile cellular communications network or a satellite communications network and said second network is the other of said mobile cellular communications network or a satellite communications network, the method comprising the steps of: receiving at said mobile device a first notice communication over said satellite communications network of a pending incoming electronic communication, said first notice communication received from a remotely located switch device in communication with a second SIM card that is located remote from said mobile device, said second SIM card being associated with said mobile device and having at least one identifier, where said switch device is configured to communicate with a mobile cellular communications network and a satellite communications network; receiving a second notice communication at said mobile device over said mobile cellular communications network of a pending incoming electronic communication over said mobile cellular communications network, said second notice communication received from said remotely located switch device; said mobile device determining if cellular signal strength is above or below a predetermined threshold limit; if said cellular signal strength is above said threshold limit, said mobile device answering said incoming electronic communication over said mobile cellular communications network; if said signal strength is below said threshold limit, said mobile device answering said incoming electronic communication over said satellite communications network.

According to a fourth aspect of the present invention, there is provided a system for switching electronic communications between a first network and a second network, where said first network comprises one of a mobile cellular communications network or a satellite communications network and said second network comprises the other of said mobile cellular communications network or a satellite communications network; said system comprising a switch device and a series of mobile devices each capable of communication over said first and said second network; each of said mobile devices having a pair of SIM cards associated therewith; for each mobile device, one of said pair of SIM cards assigned to and located with said mobile device, the other of said pair of SIM cards being associated with said switch device and located remote from said mobile device; said switch device further being located remotely from said mobile devices; said switch device comprising a processor and a database, said switch device capable of establishing a first communication channel over said first network and a second communication channel over said second network to allow a communication to a select one of said series of mobile devices to be present simultaneously on said first communication channel and said second communications channel.

DESCRIPTION OF THE DRAWINGS

Figure A depicts the system used to transfer calls between networks.

Figure B shows the flow of an outbound call from a mobile device in one embodiment of the system.

Figure C depicts the flow of an inbound call to the mobile device in one embodiment of the system.

Figure D is a block diagram of depicting some of the components of one embodiment of a VHSG.

Figure E is a block diagram depicting some of the components of one embodiment of a reinforcer.

Figure F depicts the flow for an inbound call in an alternative embodiment.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Traditional cellular or mobile networks include mobile devices (cell enabled devices) such as smart phones, that communicate wirelessly to cellular towers 20, which then route received calls to another communications device, such through a gateway to the public switched telephone

network, or another mobile network. As used herein, a mobile communications network is a radio enabled cellular network where the mobile device 40 directly communicates through a cell 20 which interfaces with the public switched telephone network, another cell network, or the internet). A satellite communications network includes satellite communications devices, such as a satellite phone, that communicates directly to a satellite 10, which then redirects the call to a satellite gateway 11 for routing the satellite call via the public switched telephone network to another communications device. A systems diagram of an integrated wireless phone communications network is illustrated in Figure A. The integrated wireless phone communications network bridges the gap between cellular phone coverage via a network of cellular towers and satellite phone coverage via a network of satellites. The communications network further includes a conventional satellite network (depicted by the satellite 10 and satellite gateway 11) which communicates through satellite gateways 11 to a core network (including packet data routing systems) which

Claims

1. A method of switching an active ongoing ~~first~~-electronic communication at a mobile device from a first communications channel over a first network to a second communications channel over a second network, where said first network is one of a mobile cellular communications network or a satellite communications network and said second network is the other of said mobile cellular communications network or a satellite communications network, using a switch device located remotely from said mobile device, said switch device communicating with a second SIM card, said second SIM card located remote from said mobile device but being associated with said mobile device, and said switch device is configured to communicate with a mobile cellular communications network and a satellite communications network; said method comprising the steps of:

(1) said switch device receiving a notice communication from said mobile device having a first SIM card, said notice communication operating to indicate that a switch is desired to said second network;

(2) said switch device initiating or establishing a second electronic communications channel directed to said mobile device, where said second electronic communication channel is configured to establish communications ~~to~~ at said mobile device via said second network;

(3) ~~said switch device~~ switching said ongoing electronic communication ~~from on~~ said first communications channel on said first network to said second electronic communications channel ~~established on~~ said second network.

2. A method of transferring or switching an ongoing ~~first~~-electronic communication at a mobile device from a first communications channel over a first network to a second communications channel over a second network, where said first network is one of a mobile cellular communications network or a satellite communications network and said second network is the other of said mobile cellular communications network or a satellite communications network, and said mobile device comprises a mobile component having a first SIM card and configured to operatively communicate over said mobile cellular communications network and a satellite component configured to operatively communicate over said satellite communications network; said method comprising the steps of:

(1) determining at said mobile device the cellular signal strength of said mobile cellular communications network, and based on said cellular signal strength, determining to transfer from said first network to said second network;

(2) said mobile device sending a first notice communication to a remotely located switch device where said switch device communicates with a second SIM card located remote from said mobile device but said second SIM card being associated with said mobile device, said notice communication being sent over said second network or said first network, said notice communication acting as a request to transfer;

(3) ~~said mobile device receiving, from said switch device, a second notice communication that a second communications channel for said ongoing communications is active on~~ is available on said second network;

(4) said mobile device transferring said ongoing communications from said ~~mobile or satellite component associated with~~ first communications channel on said first network, to said second communications channel on ~~the other of said mobile or satellite component associated with~~ said second network.

3. A method of selecting, at a mobile device having a first SIM card, a network over which to receive an incoming electronic communication, where said selection includes either a first network or a second network, where said first network is one of a mobile cellular communications network or a satellite communications network and said second network is the other of said mobile cellular communications network or a satellite communications network, the method comprising the steps of:

(1) receiving at said mobile device a first notice communication over said satellite communications ~~system-network~~ of a pending incoming electronic communication, said first notice communication received from a remotely located switch device in communication with a second SIM card that is located remote from said mobile device, said second SIM card being associated with said mobile device and having at least one identifier, where said switch device is configured to communicate with a mobile cellular communications network and a satellite communications network;

(2) receiving a second notice communication at said mobile device over said mobile cellular communications network of a pending incoming electronic communication

over said mobile cellular communications network, said second notice communication received from a said remotely located switch device;

(3) said mobile device determining if cellular signal strength is above or below a predetermined threshold limit;

(4) if said cellular signal strength is above said threshold limit, said mobile device answering said incoming electronic communication over said mobile cellular communications network;

(5) if said signal strength is below said threshold limit, said mobile device answering said incoming electronic communication over said satellite communications network.

4. The method of claim 1 or 2 or 3 further including the step of termination of said electronic communication over said first network ~~by said switch device~~.

~~5. The method of claim 1 or 2 or 3, where said mobile device further comprises a first SIM card and a second SIM card, where said switch device is in communication with said second SIM card, where said first and second SIM cards are associated with said mobile device.~~

65. The method of claim 1 or 2 or 3 where said mobile device comprises a mobile smart phone.

76. The method of claim 1 or 2 or 3 where said switch device comprises a computer processor and an associated memory device.

87. The method of claim 65 where said mobile device further includes a radio transceiver configured to operatively communicate with said mobile smart phone and a satellite transceiver configured to operatively communicate with said satellite communications network.

98. The method of claim 65 where said switch device further comprises a softswitch, said softswitch further comprising a computer processor and associated memory devices.

409. The method of claim 1 or 2 or 3 wherein said mobile device comprises a radio transceiver configured to communicate with a mobile cellular communication network and a satellite transceiver configured to directly communicate with a satellite communications network.

4410. The method of claim 1 or 2 or 3 wherein said mobile device further has an application program and a reinforcer, said reinforcer wirelessly communicating with said application program, said reinforcer comprising a satellite transceiver configured to receive and send data from said satellite communications network ~~transeeiver~~ and said reinforcer further comprising a transceiver configured to receive data from and send data to said application program.

4211. The method of claim 4410 wherein said mobile device further has a user interface, said user interface operatively communicating with said application program.

4312. The method of claim 4211 where said application program is configured to transfer data received from said user interface to said reinforcer.

4413. The method of claim 4312 where said user interface comprises a microphone and speaker.

4514. The method of claim 4312 where said user interface comprises a keyboard.

4615. The method of claim 4514 where said keyboard is a virtual keyboard displayed on a smart phone.

4716. The method of claim 4211 where said application program is adapted to transfer data routed to said radio transceiver, to said reinforcer.

1817. The method of claim 110 where said reinforcer further comprises a SIP server.

1918. A system for switching electronic communications between a first network and a second network, ~~where said system comprising a first network,~~ said first network comprises ~~comprising~~ one of a mobile cellular communications network or a satellite communications network and said second network comprises is the other of said mobile cellular communications network or a satellite communications network; said system comprising a switch device and a series of mobile devices each capable of communication over said first and said second network; each of said mobile devices having a pair of SIM cards associated therewith; for each mobile device, one of said pair of SIM cards assigned to and located with said mobile device, the other of said pair of SIM cards being associated with a said switch device and located remote from said mobile device; said switch device further being located remotely from said mobile devices; said switch device comprising a processor and a database, said switch device capable of ~~communicating~~ establishing a first communication channel over said first network and a second communication channel over said second networks to allow a communication simultaneously to a select one of said series of mobile devices to be present simultaneously on said first communication channel and said second communications channel.

2019. The system of claim 1918 wherein one of said pair of SIM cards comprises a subscriber identity module card or a RUIM card.

2120. The system of claim 2019 wherein at least one of said series of mobile devices further comprises a satellite transceiver, a smart phone and a short range wireless transceiver, said mobile device configured to communicate between said smart phone and said satellite transceiver over said short range wireless transceiver.

2221. The system of claim 1918 wherein for each of said series of mobile devices, said pair of associated SIM cards are associated with said respective mobile device in said database.

2322. The system of claim 2221 wherein said processor further comprises a session initiation protocol server.

~~24. The system of claim 19 wherein said switch device, when simultaneously communicating over said first and said second networks to a select one of said series of mobile devices, is communicating through a conference call associated with one of said pair of SIM cards associated with said select one of said mobile devices that is located remote from said mobile device, one portion of said conference call being over said first network, another portion of said conference call being over said second network.~~

2523. The system of claim 4918 wherein said mobile device further comprises a smart phone and a satellite transceiver.

2624. The system of claim 4918 wherein said switch device communicates with said mobile cellular communications network via Femto cell, Pico cell, Micro cell, or gnac (generic network access controller).

2725. The system of claim 4918 further comprising a SIM bank, said SIM bank storing a series of SIM cards, each stored SIM card being that one of said pair of SIM cards associated with each mobile device that is located remotely from said associate mobile device.

2826. The system of claim 2418 wherein said mobile device further comprises a satellite transceiver having an associate user satellite number, and communications to said mobile device over said satellite communications network are directed to said user satellite number.

27. The method of claims 1, 2, or 3 wherein said step of switching said ongoing communications from said first network to said second network includes the step of bridging or conferencing said ongoing communications over said first communications channel on said first network with said second communication channel over said second network.