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Transmitted herewith for filing is the Patent Application of:

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FOR : **ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES**

Enclosed are:

☒ **_25_ pages of specification (including Abstract page)**
☒ **_1__ sheets of drawings**
☒ **_26_ total pages**
☒ **Executed Declaration/Power of Attorney**
☒ **Application Data Sheet. See 37 CFR 1.76.**
☒ **Applicant is entitled to Small Entity Status under 37 CFR 1.9 and 37 CFR 1.27**

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Multiple Dependent Claim			**0 x $ 195**	**$ 0**		**$**
Total Claims*	**25 - 20=**	**5**	**5 x $ 26**	**$ 130**		**$**
Independent Claims*	**6 - 3=**	**3**	**3 x $110**	**$ 330**		**$**
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Respectfully,

Date: May 30, 2011

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APPLICATION FOR PATENT

Inventors: Oded SHMUELI and Benny YEHEZKEL

Title: ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

RELATED APPLICATIONS

The present Application is a Continuation of U.S. Patent Application No. 10/347,388 filed January 21, 2003, which claims benefit of priority of U.S. Provisional Patent Application No. 60/398,077 filed July 25, 2002. The contents of the above Applications are incorporated herein by reference.

FIELD AND BACKGROUND OF THE INVENTION

The present invention relates to routing of data including multimedia between electronic devices, and more particularly but not exclusively to rerouting of incoming communications that may or may not include multimedia to devices other than the initial receiving device. Data may arrive from external sources via communication or generated by, or at, a device. Data may be a package or a stream. Such a stream may be unidirectional, bi-directional or multidirectional.

With the introduction of mobile communication devices, telecommunications technology has transformed society over the past decade. The ability to communicate almost anywhere, anytime, with few geographical limitations has resulted in a society, in both social and business contexts, which is almost always on-line. Mobile communication devices today typically have data processing ability which allows them to handle multi-media, and different types of devices are today able to communicate with each other, either directly via a permanent or temporary link or indirectly via a network. Thus data, including multimedia, can be directed or routed from one device to another device. The idea of multi-media routing stems from the myriad of opportunities which present themselves in routing signals from one device or kind of device to another. However, in general, the playing of multimedia data is limited, at least in the short term, to the device on which it is received, or to those in which the data originates. This limitation can be a considerable limitation on the

user's ability to enjoy the multimedia since different devices have very different capabilities regarding the playing of multimedia.

The media playing devices considered specifically in the present disclosure include both mobile devices (cell phones, PDA's, handheld devices, etc.) and non-mobile devices (land/fixed line phones, computer monitors, Hi-Fi sets, speakers, etc.). Some of the devices may be used for just one or two media types and others are more general in their applicability, which is to say it is possible to use the devices in different modes for playing several media types: voice, text, images, and video. Likewise, the devices are used in various locations: at the office, home, car, hotel room, plane, outdoors, etc.

Most current mobile devices in particular provide relatively poor multi-media capabilities including digital audio, image, and/or video capabilities (as well as other media capabilities) in comparison with other existing devices such as land/fixed line phones, computer monitors, TV screens and Hi-Fi sets. Compared to high quality media playing equipment, even 3rd generation mobile devices (3G) are of inferior quality.

A number of patent applications discuss rerouting of communications from one communication unit to another. An example is GB 2,370,451, which discloses a communication unit that detects the presence in its vicinity of a second communication unit and determines its identity. If the identity is found to be of a predetermined set (*e.g.* of communication units having the same owner) calls made to the second communication unit are diverted to the first unit. The arrangement is useful where a user has multiple communication units, for example a car telephone and a cellular handset, with differing telephone numbers as the user may be contacted using any of these.

WO0141317A3: call diversion system, discloses a system specifically for redirecting calls between satellite and terrestrial cellular systems. The disclosure addresses the issue of reformatting data messages for the transition.

Neither of the above systems takes into consideration the types of multimedia content of the incoming calls data or playing quality and usage comfort when deciding whether to redirect, and redirection is based on devices having a shared ownership or otherwise being part of a predetermined set. In the above-described systems the user typically has only limited control over rerouting. Nevertheless, it would be highly advantageous to provide the user with the ability to select a target device, based on the

type of multimedia content, and furthermore to choose a device for play or storage of the content independently of the initially targeted or originating device.

SUMMARY OF THE INVENTION

According to a first aspect of the present invention there is thus provided data rerouting apparatus for association with electronic equipment for rerouting data, comprising:

an announcer device for indicating to surrounding equipment that said associated equipment is available for rerouting, thereby to enable receipt of rerouted data therefrom, and

a scout device for scanning surroundings of said associated equipment to find out about compatible equipment in the vicinity, thereby to reroute data thereto.

The apparatus preferably further comprises a user interface associated with said scout device for allowing a user to select between available compatible equipment to reroute data thereto.

Preferably, said scout device is operable to determine media type requirements of said compatible equipment, the apparatus further comprising a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements.

Preferably, a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer.

The apparatus preferably further comprises a media cloner for making multiple copies of the data, in particular but not exclusively an incoming communication, thereby to enable said apparatus to redirect, for example, a single incoming communication to a plurality of locations.

Preferably, said announcer is an active device, operable to transmit at least status information to respective surroundings.

Preferably, said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

Preferably, said passive device further carries status information of said device.

Preferably, said announcer comprises a barcode and wherein said scout is a barcode reader.

The apparatus preferably further comprises an outgoing multimedia transmitter for directing rerouted media directly to a selected device.

The apparatus preferably further comprises control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

The apparatus preferably comprises control functionality operable to carry out said rerouting directly.

The apparatus preferably comprises control functionality operable to carry out said rerouting through locally available network infrastructure.

The apparatus preferably comprises a device database for storing compatibility data of different equipment types.

According to a second aspect of the present invention there is provided a method of rerouting data comprising:

Receiving or generating said data at a first device,

determining availability of other devices in the vicinity of said first device, and

rerouting said data to at least one target device selected from devices found to be available.

The method preferably comprises determining compatibility of said available devices in said vicinity with said communication.

The method preferably further comprises carrying out media type transformation from a media type of said data to a media type compatible with a selected device.

The method preferably further comprises carrying out selection between devices found to be available, via a user interface.

The method preferably further comprises carrying out a selection between devices found to be available, based on a predetermined user profile.

The method preferably further comprises selecting a plurality of devices to reroute said data thereto, and cloning said data for each selected device.

The method preferably further comprises determining availability of other devices in the vicinity of said target device, and

rerouting said data to at least one further target device selected from devices found to be available.

According to a third aspect of the present invention there is provided a data rerouting apparatus for association with electronic equipment for rerouting data to at least one selected target device, comprising:

a cloner for making multiple copies of incoming data, thereby to enable said apparatus to redirect single incoming data to a plurality of respective target devices, and

a transformer, associated with said cloner, for receiving at least one of said multiple copies of said incoming data, and transforming said data into a form that accords with a determined media type requirement of a respective target device.

BRIEF DESCRIPTION OF THE DRAWINGS

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, purely by way of example, to the accompanying drawings.

With specific reference now to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice. In the accompanying drawings:

Fig. 1 is a simplified diagram showing a plurality of electronic devices in the vicinity of one another, between which communications can be rerouted according to a preferred embodiment of the present invention, and

Fig. 2 is a simplified block diagram showing a preferred apparatus for attachment to an electronic device for allowing the device to support rerouting according to preferred embodiments of the present invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The capability of routing of multi-media content (possibly including media transformation and multiplication, i.e. cloning) from one device to another may dramatically upgrade media playing quality, and grant the user the liberty to play the

content on any device he wishes, preferably the most suitable device available, regardless of the origin of the content or the device to which the content may initially have been directed, or at which the content originates. Furthermore, by rerouting to a more capable device, a user's satisfaction level may be increased in comparison to having to remain with a device that say is limited by inferior data rate, processing power, memory capacity or input/output facilities. For example, a cellular communication device such as a mobile telephone is such a limited capability device which is typically the initial recipient of a communication. Such an initial recipient, or originator, is referred to hereinafter as the routing-source device. Furthermore, as will be explained below, the ability to route content from non-mobile, that is land or fixed devices to nearby mobile and other devices permits a range of possibilities for use which is currently not provided for.

For example, the ability to route an incoming phone call, typically comprising voice, from a mobile device to a land/fixed line phone may generally be expected to upgrade the quality of the call. The ability to route hand held calendar content from a mobile device having some digital ability to a computer monitor, may allow for better viewing of the information. Such rerouting may also enhance the user's ability to share the information with other people or with computer applications, for example applications that capture information displayed on the monitor and use it to trigger other events. Such applications can easily be run on a PC or laptop computer but are difficult to run on a mobile telephone for example.

An incoming call or other originating data may be rerouted more than once. In preferred embodiments, individual devices do not need to know whether they are an initial receiving device or a first or subsequent rerouting device, and may treat any arriving communication in the same way.

Furthermore, a preferred embodiment of the present invention provides an ability to route an incoming voice message from say a mobile device or voice mailbox to a facsimile machine or display monitor, combined with a transformation capability – in this case an ability to transform voice to text. Software packages that interpret voice and translate into text are well known and commercially available. Such packages, which presently require training on a specific voice in order to produce reasonable results, may broaden the usage of voice messages. However, even without training, the best packages can produce sufficiently good results to enable say the hard of hearing to make a reasonable interpretation of an incoming voice signal. Thus such

a rerouting-while-transforming capability may be highly desirable for people with special needs - impaired senses (hearing, vision) who may use such a capability to receive information in a form more usable to them. Likewise such a capability may be useful for receiving communications in difficult environments such as a noisy factory floor.

As a further example, an incoming phone call directed at a land/fixed line may be rerouted to a mobile device, thus, effectively using the mobile as a cordless phone. Such a technique may ease acceptance of a phone call in a hotel lobby, at a colleague's office, at a restaurant and in many other settings.

Routing an incoming call away from a mobile telephone may also be advantageous health-wise in decreasing the physical proximity of electromagnetic radiation (emitted by mobile devices) to the user.

It is pointed out that communication-enabled devices can receive an incoming communication for rerouting. However as long as rerouting is direct from device to device, the device to which the rerouting is made need not be generally enabled for external communication as typically managed by a service provider be it phone, cellular, internet and the like. Furthermore, routing is not limited to rerouting of incoming communications but also applies to routing of data from any kind of data source to any kind of data player. Data may arrive from external sources via communication or generated by, or at, a device. Data may be a package or a stream. Such a stream may be unidirectional, bi-directional or multidirectional. Thus video data being captured at a video camera may be directed using embodiments of the present invention to a convenient nearby video player or multimedia enabled PC. Thus, a generally non-communication enabled device will be unable to receive initial communications but can route data to other devices and can receive data as a rerouting target.

Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is applicable to other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for the purpose of description and should not be regarded as limiting.

Reference is now made to Fig. 1, which is a simplified schematic diagram showing a cellular telephone 10 in proximity to a fixed telephone 12 and a computer monitor 14. The three electronic devices need have no relationship to each other except that of proximity. An incoming call is received at cellular telephone 10. As will be explained below, the cellular telephone 10 detects the presence of the other devices 12 and 14 and allows the user to retain the call at the cellular telephone 10 or alternatively to transfer it to either of the other devices 12 and 14. If the user chooses the fixed telephone 12 then the call is rerouted in one of a number of ways explained below to the fixed telephone 12 where the call may be taken in the usual way. If the user chooses the computer monitor 14 then assuming the presence of speakers and a microphone the call may be taken again in the normal way. In addition, software may be provided, either at the cellular telephone 10 or at the computer 14 to convert the voice signal into text.

It is noted that in the case of a cellular telephone, the telephone communication is a bi-directional type of communication, and any rerouting should preferably support a return path for the communication.

In addition, using the above rerouting, a call can be set up to support a game session. The call can be set up using a cellular telephone, and then one or both users reroutes the call to a game console.

The above may be achieved by sending rerouting control data along with the rerouted communication, which control data includes a return address. The return address may be a final return address for single stage rerouting, or may be an intermediated return address in the case of multi-stage rerouting. In the latter case, the intermediate return address can be used in an intermediate rerouting device to find a further rerouting address.

Reference is now made to Fig. 2, which is a simplified block diagram showing in schematic form the elements of a modification to be applied to a communication device for use in call rerouting of the kind described in Fig. 1. It will be appreciated that the elements are not restricted to a cellular telephone but may be applicable to any electronic device and more particularly but not exclusively to communication-enabled devices. Depending on the device type, some functionality may be disabled. For example, a land/fixed line phone might not need an outgoing multi-channel multi-media transmitter component. A device not enabled for external communication may not be able to receive originating communications from an external communication

network but may be able to route data to other devices and be the target for data and communication rerouting.

The device comprises an incoming multi-media receiver 20 which is responsible for capturing media content and passing it to one of the other components in the device, depending on the circumstances, as will be explained below. One of these other components is outgoing multi-channel multi-media transmitter 22. Transmitter 22 is responsible for transmitting (directly) media streams to external devices which are specified to it. Transmitter 22 comprises a multi-channel port which is able to transmit several media types to several devices at the same time.

A media transformer 24 is responsible for transforming its input (incoming media) into a required media type, or types, and outputting the resulting media stream(s), or file(s). It too preferably has a multi-channel Output. The media types required as output are preferably specified externally. A preferred embodiment of a media transformer includes a voice to text transformer as discussed above. The voice to text transformer may be augmented by a text to fax transformer. Further transformations include image transformations such as color to black and white, resolution reductions, and image format transformations. Similar transformations may be provided for video, and to the extent applicable for sound formats.

Media cloner 26 is responsible for duplication of its input channel content, preferably received from the incoming multi-media receiver 20 (input media) into as many output channels as indicated to it externally. Each output stream, or file, is routed, as indicated to it externally, to either the media transformer 24 or the outgoing multi-media transmitter 22.

Controller 28 is responsible for managing all the other components and monitoring their activities. In particular, any media (packaged or streamed) transfer between components, input and output, is performed under the controller's supervision.

In operation, content is received at incoming multimedia receiver 20. As will be explained in detail below, one or more destinations for the data as well as media type transformations are selected. In the case of straightforward rerouting of the media to another device, the content is sent directly to outgoing multi-media transmitter 22 for simple media routing to a similar content type device. In other circumstances, transforming from one media to another may be required prior to rerouting. In such a case, content is directed to media transformer 24 prior to

rerouting, where transforming is carried out. The transformed content is then directed to the outgoing multi-media transmitter 22 as before. Content is directed to media cloner 26 in cases where it is intended to route the content to more than one device, or if for any reason it is intended to send multiple copies to the same device. From the media cloner the content may then be sent directly to the outgoing multi-media transmitter 22 for direct output, or one or more of the copies may be sent to the media transformer for transformation prior to output. Routing of the content and operation of the above-mentioned components is preferably controlled by controller 28.

In order to make decisions about selecting destinations and media types and in order to allow other devices to receive availability information, three more components are preferably provided, an announcer device 30, a scout device 32 and a device library 34.

The announcer device 30 is responsible for announcing to the environment the availability of a current device for accepting routed media. It may also indicate device type and use conditions, preferably including any usage charges, thus enabling surrounding devices to avoid say sending video data to a fax machine, or enabling security conscious users to avoid receiving non-trusted data at their device. When the device becomes busy (for example, a phone that is handling a call), it announces this to the environment, typically via transmissions. Similarly, it announces its becoming available. Announcements may be periodically repeated. As an alternative the announcer device 30 may signal only when available or only when unavailable. Another (optional) function of the announcer 30 is that of informing the environment, typically a user, that media content has been routed to it and is now usable (for example, to announce that a rerouted call is now available on this telephone). The latter kind of announcement, that is to say to persons rather than to electronic equipment, may typically comprise light flashes, rings, a loudspeaker sound or even a smell.

Typically, the announcer device 30 may be active (transmitting) or passive (reacting, or reflecting). A simple example of a passive announcer device is a sticker attached to a phone and supplying say device type and conditions of use information using a barcode. The sticker may be scanned and comprehended by the scout devices 32. In addition to a sticker, a passive announcer may be provided using an LCD screen displaying a barcode. The LCD or like screen is advantageous in that, since its display can change, the barcode can indicate current status information. An

alternative way of providing status information along with a barcode is by providing a color display alongside the barcode. The color display may be changed electronically or mechanically by the device to indicate different states, and can be read optically along with the barcode.

The scout device 32 is responsible for scanning the environment to find other devices therein and to determine their status, typically free or busy. The scout is also responsible for obtaining any specific use conditions from announcers 30 of the devices being detected. The scout may be activated periodically and/or upon demand.

Device library 34 contains information needed for communicating with various devices. Such information may typically include usage related information as well as technical information regarding expected media formats and transmission technology specifications, including protocols, used by the device type. It may also contains pre-defined user preferences if defined, including default user preferences.

The controller 28 is responsible for integrating knowledge accumulated by the scout, and for directing operation of the announcer 30. The controller uses either pre-defined user preferences from the device library 34 or it may obtain preferences over a network, or it may simply capture user preferences using menus or like user interaction. The controller preferably follows the appropriate receiving/transmitting protocol including hand shake, identification, authentication, encryption procedures and the like.

The apparatus described in respect of Fig. 2 may be physically packaged, for example as a card, a chip or an attached stand-alone unit. The apparatus may also be realized as software within another apparatus, host device - for example, on a personal computer (PC), cell phone, a personal digital assistant (PDA) or other standard electronic devices. In any case, the host apparatus preferably possesses its own transmission and receiving capabilities, or is connected, perhaps via a network, to another device that does have such capabilities.

For example, a host cellular telephone may use already installed IR for scouting and announcing or any of the previously described technologies. A PC may use an existing peripheral digital camera for scouting and local network devices for transmission.

In many situations, as briefly described in previous examples, certain apparatus activities may be initiated via user interaction, and preferred ways of enabling user interaction comprise displaying menus, or using voice menus, or

conceivably even using feel or smell menus. Certain actions are preferably taken automatically, that is to say without user interaction. Such automation may be based on profiles, terms, and conditions. Conditions may for example be associated with the device that performs the routing, as well as with a device to which media is routed. Profiles may be stored with the modification apparatus of Fig. 2 or obtained from remote sources.

Menus may be activated in the following modes:

a) Automatic pop-up menu upon event (incoming call, message etc.)

b) Manual (menu) activation ("always on".)

To protect against hostile or non-trusted parties, the modification preferably provides some level of firewall protection for both receiving and transmitting components. Such protection may comprise identification and/or authentication, and may comprise restrictions on routing or receiving information to devices whose owners are not trusted. In addition, to protect privacy, transmitted information may be encrypted.

Considering the outgoing multi-media transmitter 22 in greater detail, the transmitter may incorporate one or more of the following transmission technologies for transmitting media to a nearby device:

- Infra-red (IR)
- Microwave
- Radio (any suitable frequency)
- Sound waves
- Ultrasound
- Wire (and cable) transmission technologies
- Light (visible)
- Laser
- Chemical (mainly smell)
- Quantum techniques

and other technologies that will occur to the skilled person. The choice of technology may depend on general and specific circumstances, such as the type of data to be transmitted, the environment of the transmission, safety and like considerations, and compatibility with as many as possible other devices.

As described above, rerouting may be direct, that is device to device. Direct (local) routing between devices uses one or more of the technologies specified above but does not usually use any external service provider services, network, or infrastructure. Such routing may however use a local computer network, for example cable or radio-based, or simple end-to-end communication (for example, IR communication between two or more devices).

In addition, rerouting may be indirect. Indirect non-local routing relies on external service provider services, network and infrastructure. Indirect routing still requires the device initially receiving the communication to detect available receiving devices and determine their capability and availability and also requires potential rerouting recipients to announce their capabilities to the environment. The device initially receiving the communication then makes a decision, typically with the help of user interaction, to determine whether to reroute the message and if so to what device, just as before. However the rerouting information is then sent to the external provider who carries out the rerouting of the communication by switching at the exchange. Such a switching method can take advantage of higher data rates over land lines as opposed to wireless connections.

A third rerouting mode uses local network infrastructure to carry out the rerouting. The communication is routed through a local area network (LAN), or a wide area network (WAN) infrastructure with information to indicate to the network which device has been selected for rerouting. However the network has to interpret the information to decide how to route the information. Either kind of rerouting through the available network infrastructure may be useful, for example for rerouting of an incoming phone call from a cellular telephone to a colleague in another room within the same organization.

There are many ways to exploit the capability to route different content (media) types between different devices. Using only rerouting, one may route one form of content (for example audio) only to devices that handle audio (for example, routing an audio stream to nearby speakers). Using rerouting combined with a media type transformation capability, one may route content transformed specifically for a receiving device. Thus for example voice may be transformed into text and then routed to a fax machine. It may also be possible to transform color images to smell and reroute them to a device able to output smell. Finally, cloning allows the same content to be sent to several devices, and combinations of different transformations

for different devices may allow additional dimensions to incoming multi-media. Thus, for example an incoming signal comprising music and voice could be cloned. One of the clones could be transformed into text and transmitted to a monitor able to display text. The other clone could be transmitted to speakers to give high quality reproduction of the music. As a further variation, if the incoming music signal is initially directed at a mobile device, it could first of all be rerouted at the service provider level to a land device so as to support a better data rate and then cloned and redirected for text output as described above. Thus high quality audio play of the music can be combined with a display of the words of the song.

The list below describes typical device/media type combinations for rerouting capability. It is noted that not all the devices are typical external-communication-enabled devices. As mentioned above, non-external-communication enabled devices may not receive original incoming communications but they can route data to other devices and receive data as rerouting targets.

1. Audio and Voice

Audio, and voice type media may be routed from devices including cellular telephones and other cellular or mobile devices including voice enabled PDA's, two-way radios etc., land or fixed line telephones, voice mail boxes (voice messages), Hi-Fi sets, both mobile and non-mobile including radio receivers, MP3 players, Cassette, CD, DVD and VCR players, and the like, and TV sets.

Audio and voice-type media may typically be routed to land or fixed line telephones, cellular telephones and like cellular mobile devices, Hi-Fi sets (mobile and non mobile), car audio systems, TV sets, speakers, and LAN/WAN servers and like infrastructure.

2. Video

Video media may be routed from cellular telephones, especially 2.5G and 3G devices, and other similar hand held devices, DVD and VCR players – both mobile and non-mobile, video cameras and recorders, monitors (screens) including those of TV sets, computer monitors, etc. mobile game devices (for example: Game boy), unified messaging mail boxes, road signs and digital advertisement boards, and LAN/WAN servers and like infrastructure.

Video media may typically be routed to cellular telephones and especially 2.5G and 3G devices, other cellular hand held devices, monitors (screens) including those of TV sets, computer monitors, etc. DVD and VCR players – including both mobile and non-mobile devices, video cameras and recorders, mobile game devices (for example: Game boy), unified messaging mail boxes, road signs and digital advertisement boards, and LAN/WAN servers and like infrastructure etc.

3. Text

Text type data may be routed from cellular telephones where they may be in the form of SMS, email messages and the like, other hand-held devices, unified messaging mail boxes, electronic books, standard computers, and the like.

Such text type data may be routed to monitors (screens) – including TV sets, computer screens, etc. printers, facsimile machines, cellular telephones and other hand held devices, unified messaging mail boxes and LAN/WAN servers and like infrastructure, etc.

4. Images

Image data may typically be routed from digital cameras, facsimile machines, monitors (screens) including TV sets, computer screens, etc., digital vision-oriented equipment such as microscopes, telescopes, binoculars, etc.

Such image data may be routed to cellular telephones, especially 2.5G and 3G devices, other hand held devices, monitors (screens) - including TV sets, computer screens, etc. digital cameras, facsimile machines, printers, unified messaging mail boxes, and LAN/WAN servers and like infrastructure.

As stated earlier, combining the routing capability with the media transformation capability in principle enables routing of any media between any pair of devices appearing in the lists above. Furthermore, combined with cloning, media may be used in different ways at different devices. Such different ways may even be carried out concurrently, thus enabling the simultaneous routing of any media type to any number of devices.

The following is a series of procedure flows for different scenarios.

In the scenarios, appropriate combinations of Routing, Transforming and Cloning an incoming communication are selected to fit the circumstances.

Scenario 1

1. A person carrying a mobile phone enters his colleague's office
2. In the office there are a land/fixed line phone and a computer screen (monitor)
3. An incoming phone call arrives at the person's cell phone
4. The cell phone detects the said land/fixed line phone and monitor
5. A pop up menu appears on the cell phone display and after the person acknowledges, the phone call is routed to the land/fixed line phone
6. The land/fixed line phone flashes to indicate an incoming call
7. The person receives the call on the land/fixed line phone
8. The person wishes his colleague to be aware of what's being said on the other side of the line
9. He activates a menu on the cell phone display and chooses the "Clone to Monitor" option
10. The monitor shows the conversation text as it is carried out, enabling the colleague to monitor the conversation's content in text form

Scenario 2

This scenario is similar to scenario A. The difference is:

The phone call is automatically routed to the land/fixed line phone (based on the person's preferences and environment scanning and detection)

Scenario 3

1. A person, say Smith, carrying a cell phone is sitting in a hotel lobby
2. In the lobby there are four land/fixed line phones
3. A phone call arrives at the person's cell phone
4. Option A:
    a. The person points his phone at one of the land/fixed line phones
    b. The cell phone detects the said phone as busy
    c. The person points his phone at another land/fixed line phones
    d. The phone call is routed to that, available, land/fixed phone
    e. The chosen land/fixed phone rings, or flashes to indicate the rerouted call

5. Option B:

a. While ringing, the cell phone indicates on its display that a nearby phone is available

b. The person approves the routing of the call to that nearby phone

c. The nearby phone rings, or flashes to indicate the rerouted call

6. Option C:

a. The call is automatically routed to an available nearby phone

b. The person is notified of the routing on the cell phone display

c. In parallel, the nearby phone uses a loudspeaker to announce the call by calling out Smith's name

d. The nearby phone rings, or flashes to indicate the rerouted call

7. The person receives the call on the available/chosen land/fixed line phone

Scenario 4

1. A hearing impaired person carrying a cell phone enters his colleague's office

2. In the office there are a land/fixed line phone and a computer screen (monitor)

3. An incoming phone call arrives at the colleague's land (fixed) line phone

4. The colleague receives the call and at some point wishes his friend (the hearing impaired person) to participate in the conversation

5. The colleague then clones the voice conversation to both:

i) His monitor (the voice is then transformed to text and appears, as it is spoken, on the monitor)

ii) The hearing impaired person's cell phone

6. The hearing impaired person "hears" the conversation by reading the text appearing on the monitor

7. The hearing impaired person speaks to his cell phone microphone and can thereby participate in the conversation

It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention

which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable subcombination.

Unless otherwise defined, all technical and scientific terms used herein have the same meanings as are commonly understood by one of ordinary skill in the art to which this invention belongs. Although methods similar or equivalent to those described herein can be used in the practice or testing of the present invention, suitable methods are described herein.

All publications, patent applications, patents, and other references mentioned herein are incorporated by reference in their entirety. In case of conflict, the patent specification, including definitions, will prevail. In addition, the materials, methods, and examples are illustrative only and not intended to be limiting.

It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described hereinabove. Rather the scope of the present invention is defined by the appended claims and includes both combinations and subcombinations of the various features described hereinabove as well as variations and modifications thereof which would occur to persons skilled in the art upon reading the foregoing description.

WHAT IS CLAIMED IS:

1. Apparatus for routing audio-video data, comprising a streaming device which comprises (1) an announcer device being capable of indicating to surrounding equipment that said streaming device is available to receive rerouting audio-video data; and (2) a scout device being capable of scanning surroundings of said streaming device to identify surrounding equipment as being compatible and thereby determine availability of compatible equipment in said surroundings for said rerouting of said audio-video data from said streaming device to at least a selected one of said compatible equipment, said scout device being operable to determine media type requirements of said compatible equipment; wherein said rerouting comprises setting up a bidirectional communication link between said streaming device and said compatible equipment said bidirectional link carrying said streaming audio-video data over both directions of said bidirectional communication link.

2. Apparatus according to claim 1, wherein said mobile communication device is a smartphone or a tablet or a iPod touch and said streaming data is a –audio-video data directed to or from surrounding devices.

3. Apparatus according to claim 1, wherein said mobile communication device is a game console or Wii, Xbox, PlayStation, or game enabling device or iPod touch, and said streaming data is game data or video or audio and said streaming data being directed to surrounding devices, said surrounding devices comprising one member of the group consisting of TV, tablet computers, and smartphones, to be displayed and played from such devices as well as or instead of on said mobile communication device.

4. Apparatus according to claim 1, wherein said mobile communication device is a smartphone, mobile handset, a computer, a computer equipped with Skype, a tablet, said mobile communication device configured to receive or generate a call and to redirect said call to said surrounding equipment.

5. Apparatus according to claim 1, wherein said mobile communication device comprises a smartphone or tablet computer and said data is a barcode

promotion information, the mobile device directing the barcode data to a surrounding device or to a point of sale device, or wherein said barcode data is transformed by said surrounding device.

6. Apparatus according to claim 1, further comprising a user interface associated with said scout device for allowing a user to select between available compatible equipment to reroute data thereto.

7. Apparatus according to claim 1, wherein said scout device is operable to determine media type requirements of said compatible equipment, the apparatus further comprising a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements.

8. Apparatus according to claim 7, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer.

9. Apparatus according to claim 1, further comprising a media cloner for making multiple copies of streaming data, thereby to enable said apparatus to redirect said incoming or own generated data to a plurality of locations, said streaming data being one member of the group comprising incoming streaming data and own generated streaming data.

10. Apparatus according to claim 7, further comprising a media cloner, associated with said media transformer, for making multiple copies of said streaming data, thereby to enable said apparatus to redirect a single incoming communication, to a plurality of locations, at least one of said multiple copies being redirected via said media transformer, said streaming data being one member of the group comprising incoming streaming data and own generated streaming data.

11. Apparatus according to claim 1, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.

12. Apparatus according to claim 1, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

13. Apparatus according to claim 12, wherein said passive device further carries status information of said device.

14. Apparatus according to claim 12, wherein said announcer comprises barcode data and wherein said scout is a barcode reader.

15. Apparatus according to claim 1, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

16. Apparatus according to claim 1, further comprising control functionality operable to carry out said rerouting through locally available infrastructure.

17. Apparatus according to claim 1, wherein said audio/video data is one member of the group consisting of an incoming multimedia communication received from a communication network and an incoming multimedia communication received from a cellular communication network.

18. Apparatus according to claim 1, wherein said streaming data in said first link direction is directable via multiple channels to each of a plurality of surrounding devices of said surrounding equipment .

19. Apparatus according to claim 1, further comprising a device database for storing compatibility data of different equipment types.

20. Apparatus according to claim 1, further comprising:

a cloner for making multiple copies of said streaming data, thereby to enable said apparatus to redirect single incoming data to a plurality of respective target devices, and

a transformer, associated with said cloner, for receiving at least one of said multiple copies of said incoming data, and transforming said data into a form that accords with a determined media type requirement of a respective target device, said streaming data being one member of the group consisting of incoming data and own-generated data.

21. A method of routing streaming data comprising:

carrying out one member of the group consisting of receiving and generating streaming data at a mobile streaming device,

scouting a vicinity of said mobile streaming device with a scanning device, said scanning device being associated with said mobile streaming device,

through said scanning device determining availability of other devices in said vicinity, wherein the availability is determined based, at least partly, on media type requirements of said compatible equipment, and

rerouting said data from said mobile streaming device to at least one target device selected from devices in said scanned vicinity found to be available, said rerouting comprising setting up a bidirectional data link between said target device and said mobile streaming device, said bidirectional link being capable of carrying a multimedia streaming data in both directions of said bidirectional data link;

transforming media into forms respectively that accord with said determined media type requirements,

allowing a user to select one of said determined media type requirements for transforming at said media transformer; and

making multiple copies of incoming streaming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.

22. A method of routing streaming data comprising:

scouting a vicinity of a first mobile device with a scanning device, said scanning device being associated with said first mobile device,

through said scanning device determining compatibility and availability of other devices in the vicinity of said first mobile device for receiving of bidirectional streaming data directed from said mobile device via a bidirectional link set up between said mobile device and said target device, wherein the availability is determined based, at least partly, on media type requirements of said compatible equipment, and media type of said streaming data, the method further comprising streaming data in both directions over said bidirectional data link.

23. Apparatus for rerouting streaming data, comprising:

a streaming device comprising:

an announcer device configured for indicating to surrounding equipment that said apparatus is available to receive streaming data, thereby to enable receipt of rerouted streaming data from said surrounding equipment;

a scout device configured for scanning surroundings of said apparatus to identify surrounding devices which are compatible and determine availability of said identified compatible equipment in said surroundings, thereby to reroute streaming data from said streaming device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said selected one of said surrounding equipment and said streaming device, said bidirectional link being capable of carrying said streaming data in both directions of said bidirectional data link, and wherein said scout device is operable to determine media type requirements of said compatible equipment.

24. Apparatus for rerouting streaming data, comprising:

a streaming device comprising:

an announcer device configured for indicating to surrounding equipment that said streaming device is available to receive streaming data, thereby to enable receipt of rerouted data from said surrounding equipment, and

a scout device configured for scanning surroundings of said streaming device to identify surrounding equipment as being compatible and determine availability of said identified compatible equipment in said surroundings, thereby to reroute streaming data from said streaming device to a selected one of said surrounding equipment, said scout device further being configured to determine media type requirements of said compatible equipment wherein said rerouting

comprises setting up a bidirectional communication link between said streaming device and said selected surrounding equipment, said bidirectional link carrying streaming data over both directions of said bidirectional data link;

a media transformer, configured to transform media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements,

a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.

25. Apparatus for rerouting media data, comprising:

a media data transfer device comprising:

an announcer device configured for indicating to surrounding equipment that said media data transfer device is available to receive media data, thereby to enable receipt of rerouted data from said surrounding equipment, and

a scout device configured for scanning surroundings of said streaming device to identify surrounding equipment as being compatible and determine availability of said identified compatible equipment in said surroundings, thereby to reroute media data from said media data transfer device to a selected one of said surrounding equipment, said scout device further being configured to determine media type requirements of said compatible equipment;

a media transformer, configured to transform media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements,

a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.

ABSTRACT OF THE DISCLOSURE

Rerouting apparatus for rerouting data including multimedia data. The apparatus is for association with electronic equipment and allows for routing the data to a device regarded as the most convenient for playing the media. The apparatus comprises an announcer device for indicating to surrounding equipment that associated equipment is available for rerouting, thereby to enable receipt of rerouted communications therefrom, and a scout device for scanning surroundings of the associated equipment to find out about compatible equipment in the vicinity, thereby to reroute communications thereto. The apparatus may be attached to any device having data processing capability, to enable rerouting of data and communications therebetween.

Docket No.
51270

Declaration and Power of Attorney For Patent Application

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

the specification of which

☑ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____

and was amended on _____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of federal Regulations, Section 1.56. Including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

60/398,077	**July 25, 2002**
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. Section 112. I acknowledge the duty to disclose to the United States Patent and Trademark Office all the information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

10/347,388	**January 21, 2003**	**Pending**
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

IPR2024-01049
Apple EX1039 Page 28

51270

POWER OF ATTORNEY: As a named inventor, I hereby appoint the attorney(s) and/or agent(s) associated with the following Customer Number to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

67801

Send Correspondence to the address associated with Customer Number:

67801

Direct Telephone Calls to: *(name and telephone number)*

Martin D. MOYNIHAN Tel. No. (703) 598-7851
Fax No. (703) 415-4864

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Sole or first Inventor's signature	Oded Shmueli Date May 29, 2011
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Second inventor's signature	Date
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Citizenship	: Israeli
Post Office Address	: 74 Bialik Street, 52441 Ramat-Gan, Israel

IPR2024-01049
Apple EX1039 Page 29

Docket No.
51270

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English Language Declaration

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ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

the specification of which

☑ is attached hereto.

☐ was filed on _____ as United States Application No. or PCT International Application Number _____

and was amended on _____

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

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I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Not Claimed
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐
_____ (Number)	_____ (Country)	_____ (Day/Month/Year Filed)	☐

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60/398,077	**July 25, 2002**
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)
(Application Serial No.)	(Filing Date)

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10/347,388	**January 21, 2003**	**Pending**
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

IPR2024-01049
Apple EX1039 Page 31

POWER OF ATTORNEY: As a named inventor, I hereby appoint the attorney(s) and/or agent(s) associated with the following Customer Number to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

67801

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67801

Direct Telephone Calls to: *(name and telephone number)*

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Second inventor's signature	Date 30/5/2011
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Citizenship	: Israeli
Post Office Address	: 74 Bialik Street, 52441 Ramat-Gan, Israel

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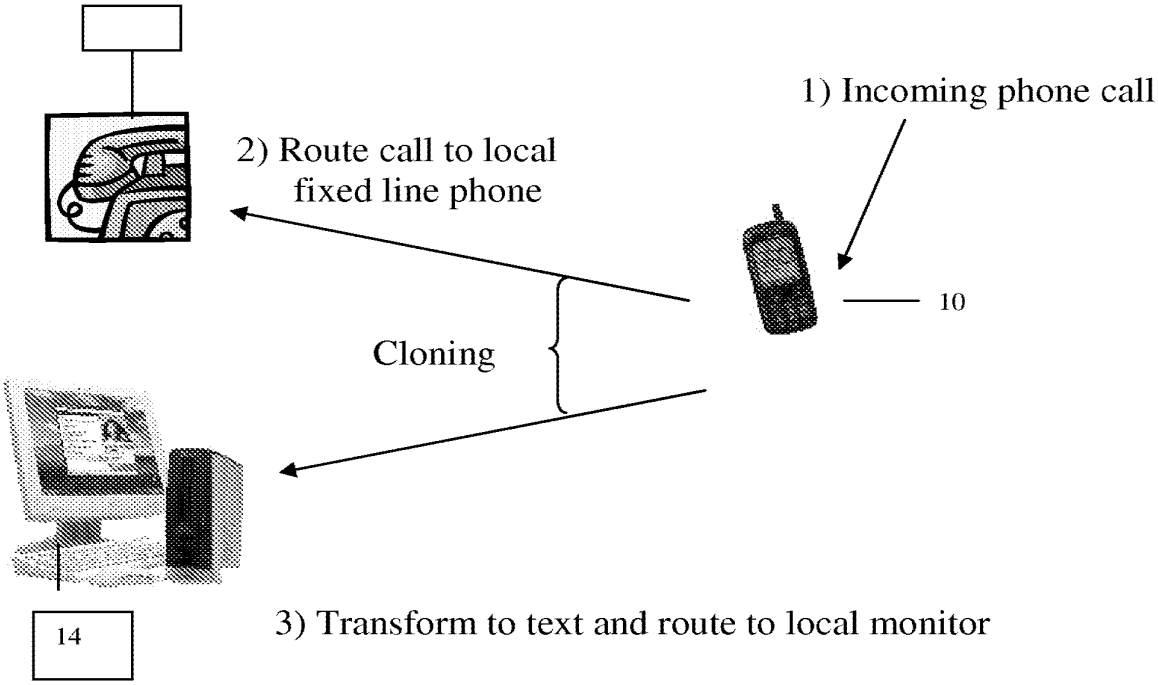

1) Incoming phone call
2) Route call to local fixed line phone
10
Cloning
14
3) Transform to text and route to local monitor

Fig. 1

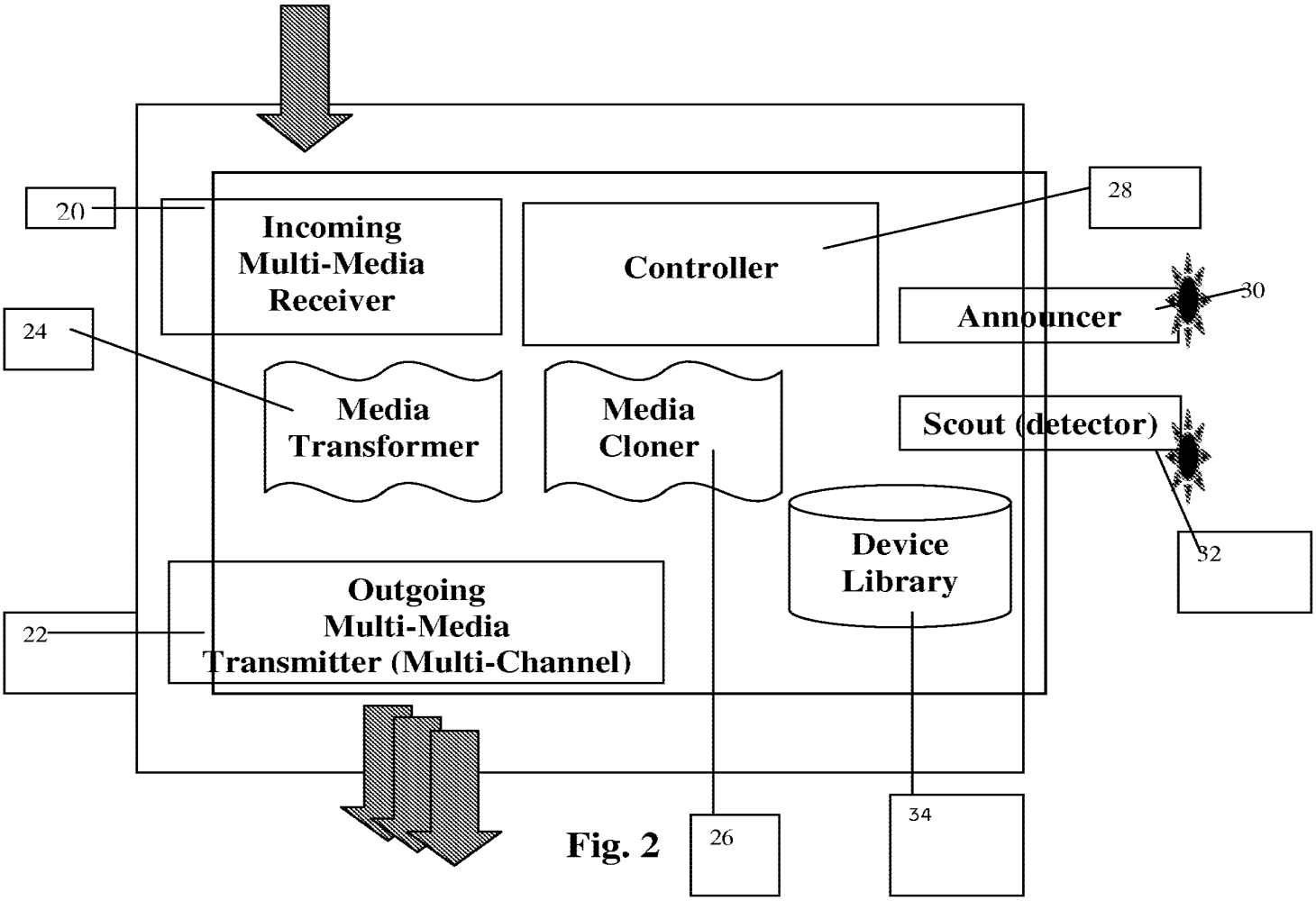

20
Incoming Multi-Media Receiver
Controller
28
30
Announcer
24
Media Transformer
Media Cloner
Scout (detector)
32
Device Library
Outgoing Multi-Media Transmitter (Multi-Channel)
22
26
34

Fig. 2

Application Data Sheet

Application Information

Application number::	Not Yet Assigned
Filing Date::	Herewith
Application Type::	Regular
Subject Matter::	Utility
Title::	Routing Of Data Including Multimedia Between Electronic Devices
Attorney Docket Number::	51270
Request for Early Publication?::	No
Request for Non-Publication?::	No
Suggested Drawing Figure::	
Total Drawing Sheets::	1
Small Entity?::	Yes
Petition included?::	No
Petition Type::	
Secrecy Order in Parent Appl.?::	No

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Apple EX1039 Page 34

Applicant Information

Applicant Authority Type::	Inventor
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Apple EX1039 Page 35

Correspondence Information

Correspondence Customer Number:: 67801

Representative Information

Representative Customer Number::	67801	

IPR2024-01049
Apple EX1039 Page 36

Domestic Priority Information

Application::	Continuity Type::	Parent Application::	Parent Filing Date::
This application	Continuation of	10/347,388	01/21/03
10/347,388	An application claiming the benefit under 35 USC 119(e) of	60/398,077	07/25/02

[This application has neither foreign priority claims, nor assignee data]

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Apple EX1039 Page 37

Electronic Patent Application Fee Transmittal

Application Number:	
Filing Date:	
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Filer:	Jason Rosenblum
Attorney Docket Number:	51270

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Utility filing Fee (Electronic filing)	4011	1	82	82
Utility Search Fee	2111	1	270	270
Utility Examination Fee	2311	1	110	110
Pages:				
Claims:				
Claims in excess of 20	2202	5	26	130
Independent claims in excess of 3	2201	3	110	330
Miscellaneous-Filing:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
		Total in USD ($)		**922**

Electronic Acknowledgement Receipt

EFS ID:	10190499
Application Number:	13118503
International Application Number:	
Confirmation Number:	9678
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
Filer:	Jason Rosenblum
Filer Authorized By:	
Attorney Docket Number:	51270
Receipt Date:	30-MAY-2011
Filing Date:	
Time Stamp:	09:32:49
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$922
RAM confirmation Number	6791
Deposit Account	501407
Authorized User	

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi	Pages (if appl.)

1	Transmittal of New Application	51270_Transmittal.pdf	34195 adbd739aa760b39ed66d2971f648a7b6359b4313	no	1
Warnings:					
Information:					
2	Specification	51270.pdf	123850 53065e1dfe0ef591822113bc51c8d3ca56d3a56d	no	25
Warnings:					
Information:					
3	Oath or Declaration filed	51270_Executed_Declaration_and_POA.pdf	121849 8212efba6b552837b1f11e8b58429ccba87c1b77	no	6
Warnings:					
Information:					
4	Drawings-only black and white line drawings	51270_Figures.pdf	41458 06e19c9792664accc2a1bf087cf09d3a27e13e56	no	1
Warnings:					
Information:					
5	Miscellaneous Incoming Letter	51270_ADS.pdf	17314 2befe44973a2e774e56dd8484cb91e954f151586	no	4
Warnings:					
Information:					
6	Fee Worksheet (PTO-875)	fee-info.pdf	38118 64a9abbb7b3cce02ffb729d9857180551bb71f2a	no	2
Warnings:					
Information:					
			Total Files Size (in bytes):	376784	

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New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

SCORE Placeholder Sheet for IFW Content

Application Number: 13118503 Document Date: 5/30/2011

The presence of this form in the IFW record indicates that the following document type was received in electronic format on the date identified above. This content is stored in the SCORE database.

- Drawings – Other than Black and White Line Drawings

Since this was an electronic submission, there is no physical artifact folder, no artifact folder is recorded in PALM, and no paper documents or physical media exist. The TIFF images in the IFW record were created from the original documents that are stored in SCORE.

To access the documents in the SCORE database, refer to instructions developed by SIRA.

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Form Revision Date: February 8, 2006

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APPLICATION NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY.DOCKET.NO	TOT CLAIMS	IND CLAIMS
13/118,503	05/30/2011	2614	922	51270	25	6

CONFIRMATION NO. 9678

67801
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
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FILING RECEIPT

OC000000048134371

Date Mailed: 06/13/2011

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Applicant(s)

Oded SHMUELI, Nofit, ISRAEL;
Benny Yehezkel, Ramat-Gan, ISRAEL;

Power of Attorney: The patent practitioners associated with Customer Number 67801

Domestic Priority data as claimed by applicant

This application is a CON of 10/347,388 01/21/2003 PAT 7,969,990
which claims benefit of 60/398,077 07/25/2002

Foreign Applications (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see http://www.uspto.gov for more information.)

If Required, Foreign Filing License Granted: 06/09/2011

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 13/118,503**

Projected Publication Date: 09/22/2011

Non-Publication Request: No

Early Publication Request: No
** **SMALL ENTITY** **

IPR2024-01049
Apple EX1039 Page 44

Title

ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

Preliminary Class

379

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Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at http://www.uspto.gov/web/offices/pac/doc/general/index.html.

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Title 35, United States Code, Section 184

Title 37, Code of Federal Regulations, 5.11 & 5.15

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IPR2024-01049
Apple EX1039 Page 45

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IPR2024-01049
Apple EX1039 Page 46

PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number: 13/118,503

APPLICATION AS FILED - PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY FEE($)
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	82		N/A	
SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	270		N/A	
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	110		N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	25 minus 20 =	* 5	x 26 =	130	OR		
INDEPENDENT CLAIMS (37 CFR 1.16(h))	6 minus 3 =	* 3	x 110 =	330			
APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $270 ($135 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	922		TOTAL	

APPLICATION AS AMENDED - PART II

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE($)	SMALL ENTITY ADDITIONAL FEE($)	OR	OTHER THAN SMALL ENTITY RATE($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE($)
AMENDMENT A	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

		(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE($)	ADDITIONAL FEE($)		RATE($)	ADDITIONAL FEE($)
AMENDMENT B	Total (37 CFR 1.16(i))	*	Minus	**	=	x =		OR	x =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x =		OR	x =	
	Application Size Fee (37 CFR 1.16(s))									
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
						TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest found in the appropriate box in column 1.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:		§		
		§		
	Oded SHMUELI et al	§	Confirmation No.:	9678
		§		
Serial No.:	13/118,503	§		
		§		
Filed:	May 30, 2011	§	Group Art Unit:	2423
		§		
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES	§		
		§	Attorney Docket:	**51270**
		§		
Examiner:	Not Yet Assigned	§		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Sir:

Prior to examination, please amend the above-identified application as follows:

Amendments to the Claims begin on **page 2**.

Remarks begin on **page 9**.

Please amend the above-identified application as follows:

In the Claims:

1 – 25. (Cancelled)

26. (New) Apparatus for routing audio-video data, comprising a streaming device, the apparatus comprising:

(a) an announcer device configured to indicate wirelessly to surrounding media handling devices that said streaming device is available for rerouting or rerouting; and

(b) a scout device configured to wirelessly scan surroundings of said streaming device to identify surrounding media handling device as being compatible to given media and determine availability of said compatible media handling devices to receive rerouted audio-video data from said streaming device, said scout device further being configured to determine media type requirements of said compatible media handling devices, said media type requirements comprising a screen resolution requirement and a bit rate requirement;

said apparatus being configured to set up a bidirectional wireless communication link between said streaming device and respective media handling devices, said bidirectional wireless link able to carry said rerouted data as streaming audio-video data over either direction of said bidirectional communication link.

27. (New) Apparatus according to claim 26, being a mobile device.

28. (New) Apparatus according to claim 26, wherein at least one of said media handling devices is a mobile device.

29. (New) Apparatus according to claim 27, being a stationary device.

30. (New) Apparatus according to claim 26, further comprising:

(c) a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements.

31. (New) Apparatus according to claim 30, further comprising:

(d) a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer.

32. (New) Apparatus according to claim 31, further comprising:

(e) a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed at said media transformer.

33. (New) Apparatus according to claim 26, wherein said streaming data is audio-video data directed to or from surrounding devices.

34. (New) Apparatus according to claim 26, comprising a game console or game enabling device, and said streaming data is game data or video or audio, said streaming data being directed to surrounding devices, said surrounding devices comprising one member of the group consisting of TV, PDAs, Hi Fi's and mobile telephones, to be displayed and played from such devices as well as or instead of on said apparatus.

35. (New) Apparatus according to claim 26, comprising a mobile device, a mobile handset, a computer, or a PDA, wherein said apparatus is configured to receive or generate a call and to redirect said call to a respective media handling device.

36. (New) Apparatus according to claim 26, comprising a mobile telephone or PDA and wherein said data further comprises a barcode information, the apparatus directing the barcode data to a surrounding device or to a point of sale device, or wherein said barcode data is transformed by said surrounding device.

37. (New) Apparatus according to claim 26, further comprising a user interface associated with said scout device for allowing a user to select between available compatible media handling devices to reroute data thereto.

38. (New) Apparatus according to claim 26, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.

39. (New) Apparatus according to claim 26, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

40. (New) Apparatus according to claim 39, wherein said passive device further carries status information of said device.

41. (New) Apparatus according to claim 39, wherein said announcer comprises barcode data and wherein said scout is a barcode reader.

42. (New) Apparatus according to claim 26, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

43. (New) Apparatus according to claim 26, further comprising control functionality operable to carry out said rerouting through locally available infrastructure.

44. (New) Apparatus according to claim 26, wherein said audio/video data is one member of the group consisting of an incoming multimedia communication received from a communication network and an incoming multimedia communication received from a cellular communication network.

45. (New) Apparatus according to claim 26, wherein said streaming data in said first link direction is directable via multiple channels to each of a plurality of surrounding devices.

46. (New) Apparatus according to claim 26, further comprising a device database for storing compatibility data of different equipment types.

47. (New) A method of routing streaming data comprising:

wirelessly scouting a vicinity of said streaming device with a scanning device,

through said scanning device determining availability of surrounding media handling devices in said vicinity, wherein the availability is determined based, at least partly, on media type requirements of said media handling devices, and

routing or rerouting streaming data between said streaming device and at least one target device selected from said media handling devices in said scanned vicinity found to be available, said routing or rerouting comprising setting up a bidirectional wireless data link between said target device and said streaming device, said bidirectional wireless link being capable of carrying a multimedia streaming data in either direction of said bidirectional data link;

transforming media into forms respectively that accord with said determined media type requirements,

allowing a user to select, via a user interface, or selecting based on a profile, one of said determined media type requirements for transforming; and

making multiple copies of incoming streaming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being transformed.

48. (New) A method of wirelessly routing streaming data comprising:

scouting a vicinity of a first mobile device with a scanning device, said scanning device being associated with said first mobile device,

through said scanning device determining compatibility and availability of media handling devices in the vicinity of said first mobile device for receiving of bidirectional streaming data directed from said mobile device via a bidirectional wireless link set up between said mobile device and respective media handling devices, wherein the availability is determined based, at least partly, on media type requirements of said respective media handling devices and media type of said streaming data, the method further comprising streaming data in either direction over said bidirectional wireless link.

49. (New) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said apparatus is available to receive streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices;

a scout device configured to scan surroundings of said apparatus to identify surrounding media handling devices and determine compatibility requirements availability of said identified media handling devices in said surroundings, thereby to route and reroute streaming data from said streaming device to a selected one of said media handling devices, the apparatus being configured to set up a bidirectional wireless communication link between respective ones of said media handling devices and said streaming device, said bidirectional link being capable of carrying said streaming data in either direction of said bidirectional link, and wherein said scout device is operable to determine media type requirements of said respective media handling devices.

50. (New) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said streaming device is available to receive streaming

data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured to scan surroundings of said streaming device to identify surrounding media handling devices as being compatible to handle given media, and determine availability of said identified compatible media handling devices, thereby to reroute streaming data between said streaming device and a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said compatible media handling devices, said apparatus configured to set up a bidirectional wireless communication link between said streaming device and a respective one of said media handling devices, said bidirectional link carrying streaming data over either direction as required of said bidirectional link;

a media transformer, configured to transform media into forms that accord with respective determined media type requirements, wherein there are a plurality of said types;

a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being transformed via said media transformer.

51. (New) Apparatus for rerouting media data, the apparatus being mobile and comprising:

a media data transfer device comprising:

an announcer device configured for indicating to surrounding media handling devices that said media data transfer device is available to receive media data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured for scanning surroundings to identify surrounding media handling devices as being compatible with given media and determine availability of said identified compatible media handling devices,

thereby to reroute media data from said media data transfer device to a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said media handling devices;

a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements;

a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least some of said multiple copies being transformed at said media transformer.

52. (New) The apparatus of claim 51, wherein said media type requirements comprise a screen size.

REMARKS

Claims 1 – 25 are pending.

Claims 1 – 25 are cancelled and new claims 26 – 52 are added.

A prompt first Office Action on the merits is respectfully requested

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum
Registration No. 56,437
Telephone: 718.246.8482

Date: August 9, 2011

Electronic Patent Application Fee Transmittal

Application Number:	13118503
Filing Date:	30-May-2011
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Filer:	Jason Harris Rosenblum
Attorney Docket Number:	51270

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Claims in excess of 20	2202	2	26	52
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
		Total in USD ($)		**52**

Electronic Acknowledgement Receipt

EFS ID:	10692868
Application Number:	13118503
International Application Number:	
Confirmation Number:	9678
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
Filer:	Jason Harris Rosenblum
Filer Authorized By:	
Attorney Docket Number:	51270
Receipt Date:	09-AUG-2011
Filing Date:	30-MAY-2011
Time Stamp:	09:48:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$52
RAM confirmation Number	7608
Deposit Account	501407
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		51270PreliminaryAmendment.pdf	46467 5604ebc0b6f43d640af2bb92bd5670df7f8859f7	yes	9

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Preliminary Amendment	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	9

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30020 715ab4daa7da0dd5f557d775f68503421937f461	no	2

Warnings:

Information:

Total Files Size (in bytes):	76487

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (07-06)
Approved for use through 1/31/2007. OMB 0651-0032
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PATENT APPLICATION FEE DETERMINATION RECORD

Substitute for Form PTO-875

Application or Docket Number	Filing Date	☐ To be Mailed
13/118,503	05/30/2011	

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	SMALL ENTITY ☒ RATE ($)	SMALL ENTITY ☒ FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A			N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =		OR	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =			X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $250 ($125 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT 08/09/2011

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	SMALL ENTITY RATE ($)	SMALL ENTITY ADDITIONAL FEE ($)	OR	OTHER THAN SMALL ENTITY RATE ($)	OTHER THAN SMALL ENTITY ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 27	Minus	** 25	= 2	X $26 =	52	OR	X $ =	
Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $110 =	0	OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE	52	OR	TOTAL ADD'L FEE	

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)		RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =		OR	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =		OR	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))									
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
					TOTAL ADD'L FEE		OR	TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

Legal Instrument Examiner:
/SHARAIN MORELAND/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

PTO/SB/08a (08-03)
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U.S.Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	13/118,503
Filing Date	May 30, 2011
First Named Inventor	SHMUELI Oded et al
Art Unit	2423
Examiner Name	
Attorney Docket Number	51270

Sheet 1 of 2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code [2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	2002/0058499	16-May-2002	Ortiz	
	2	2002/0133545	19-Sep-2002	Fano et al.	
	3	2002/0161862	31-Oct-2002	Horvitz	
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Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code [3] Number [4] Kind Code [5] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]
	18	GB 2370451	26-Jun-2002	Sydanmaa et al.		
	19	WO 01/41317	07-Jun-2001	Allaway et al.		
	20	WO 2004/012026	05-Feb-2004	Shmueli et al.		

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	13/118,503
Filing Date	May 30, 2011
First Named Inventor	SHMUELI Oded et al
Group Art Unit	2423
Examiner Name	
Attorney Docket Number	51270

Sheet 2 Of 2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
	21	Notice of Allowance Dated 18 February 2011 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	22	Official Action Dated 05 July 2007 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	23	Official Action Dated 05 July 2007 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	24	Official Action Dated 07 July 2010 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	25	Official Action Dated 09 June 2009 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	26	Official Action Dated 17 April 2008 From the US Patent and Trademark Office Re.: Application No. 11/146,130.	
	27	Official Action Dated 23 December 2009 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	28	Official Action Dated 27 October 2008 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	29	Official Action Dated 27 October 2008 From the US Patent Office Re.: Application No. 10/347,388.	
	30	Official Action Dated 28 December 2007 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	31	Official Action Dated 28 December 2007 From the US Patent Office Re.: Application No. 10/347,388.	
	32	Response Dated 06 December 2010 to Official Action of 07 July 2010 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	33	Response Dated 22 April 2010 to Official Action of 23 December 2009 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	34	Supplemental Notice of Allowability Dated 13 April 2011 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:			
	SHMUELI Oded et al		
		Confirmation No.:	9678
Serial No.:	13/118,503		
Filed:	May 30, 2011	Group Art Unit:	2423
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES		
		Attorney Docket:	51270
Examiner:			

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Sir:

Enclosed is a PTO Form 1449 which lists citations which may be material to the patentability and examination of the above identified application. Also enclosed are copies of the references cited, other than U.S. Patents and U.S. patent applications. These are submitted in compliance with the duty of disclosure defined in 37 CFR 1.56, 37 CFR 1.97 and 37 CFR 1.98. The Examiner is requested to make these citations of official record in this application.

The undersigned states:

A. NO CERTIFICATION OR FEE DUE

☒ This Information disclosure Statement is being filed within three months of filing a national application or entry of a national phase of an international application; or before the mailing date of a first Office action on the merits of the above-identified application. Accordingly, no fee or Certification is believed due. However, if a fee is due, authorization to deduct such fee from the Deposit Account 501407 of the undersigned is hereby provided.

B. CERTIFICATION

☐ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.

C. FEE

☐ Please charge the fee of $180 set forth in 37 CFR 1.17(p) to Deposit Account 501407.

This Information Disclosure Statement under 37 CFR 1.56 is not to be construed as a representation that a search has been made, that additional matter which is material to the examination of this application does not exist, or that any one or more of the citations listed constitutes prior art as defined by 35 U.S.C. 102.

It is respectfully requested that the Examiner consider the cited information, along with any other information, in reaching a determination concerning the patentability of the present claims, and sign the enclosed form PTO-1449 to evidence that the cited information has been fully considered by the Patent and Trademark Office during the examination of this application. Notwithstanding any statements by the Applicant, the Examiner is urged to form his/her own conclusion regarding the relevance of the cited information.

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum
Registration No. 56,437

Date: 12 August 2011

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H04Q 7/38

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H4L LDPD

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UK CL (Edition S) **H4L LDPD LRCMR LRCMX**
INT CL[7] **H04Q 7/32 7/38**
ONLINE: WPI, EDOC, JAPIO

(54) Abstract Title
Diverting calls between different telephones

(57) A communication unit detects the presence in its vicinity of a second communication and determines its identity. If the identity is found to be of a predetermined set (e.g. of communication units having the same owner) calls made to the second communication unit are diverted to the first unit. The arrangement is useful where a user has multiple communication units, for example a car telephone and a cellular handset, with differing telephone numbers as the user may be contacted using any of these.

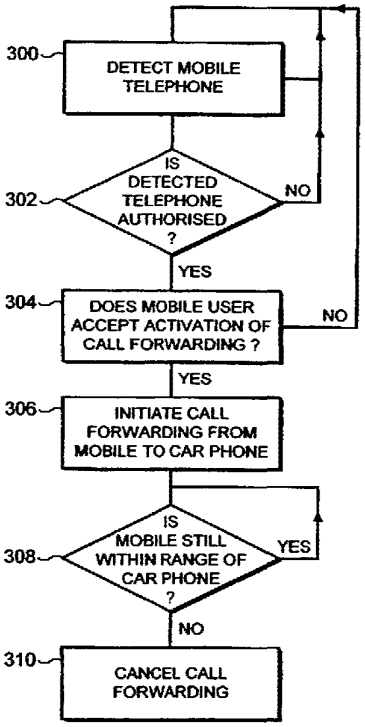


FIG. 3

GB 2 370 451 A

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

IPR2024-01049
Apple EX1039 Page 66

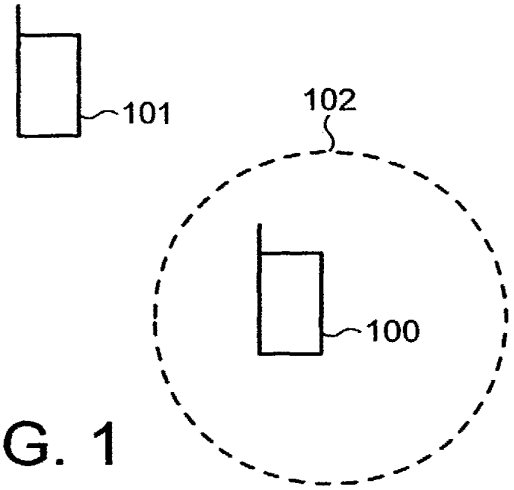

101
102
100

FIG. 1

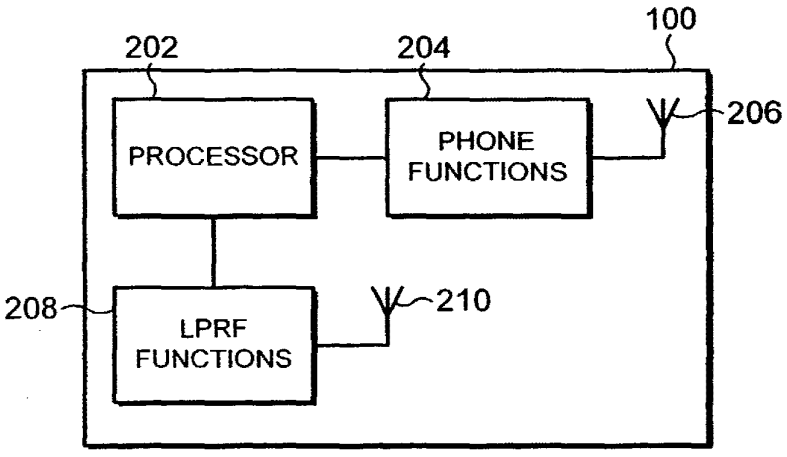

100
202
204
206
PROCESSOR
PHONE FUNCTIONS
208
210
LPRF FUNCTIONS

FIG. 2

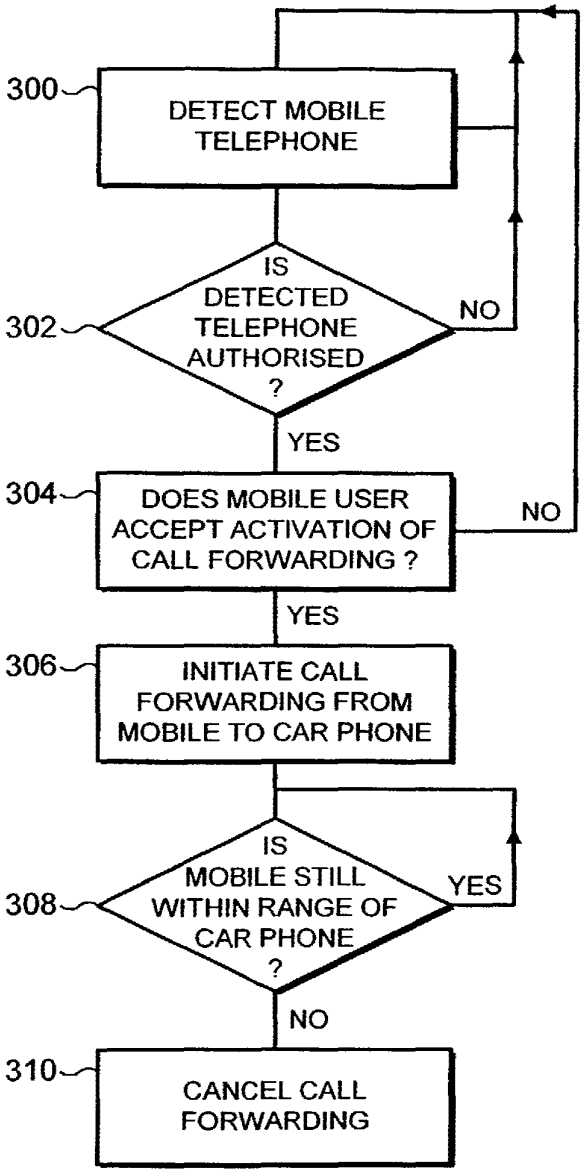

300
DETECT MOBILE TELEPHONE
302
IS DETECTED TELEPHONE AUTHORISED ?
NO
YES
304
DOES MOBILE USER ACCEPT ACTIVATION OF CALL FORWARDING ?
NO
YES
306
INITIATE CALL FORWARDING FROM MOBILE TO CAR PHONE
308
IS MOBILE STILL WITHIN RANGE OF CAR PHONE ?
YES
NO
310
CANCEL CALL FORWARDING

FIG. 3

PAT 00411 GB

MANAGING MULTIPLE RADIOTELPHONES

The present invention relates to radiotelephones and, more particularly, to the management of multiple radiotelephones.

In recent years, the penetration of handheld portable radiotelephones has grown enormously, and now, in many countries, the majority of people possess a portable radiotelephone. Of these people, an increasing number also posses more than one portable radiotelephone, for example a car phone and a handheld mobile radiotelephone. One problem with this is that a user ends up having multiple telephone numbers and people trying to contact the user do not know on which radiotelephone the user is may be contacted.

Accordingly, one aim of the present invention is to overcome the above-mentioned problems of the prior art.

According to a first aspect of the present invention, there is provided a communication device for communicating with a compatible communication device over a telecommunications network, wherein the communication devices have unique identities, the communication device comprising: a detector for detecting the presence of the compatible communication device; determination means for determining the identity of the detected compatible communication device; and a controller effective for redirecting incoming calls intended for the detected compatible communication device having the determined identity to the communication device.

According to a second aspect of the present invention, there is provided a method of redirecting calls to a communication device from a compatible communication device, wherein the communication device and the compatible communication device have unique identities and are capable of communicating over a telecommunications network, the method at the

communication device comprising: detecting the presence of the compatible communication device; determining the identity of the detected compatible communication device; and redirecting incoming calls intended for the compatible communication device having the determined identity to the communication device.

According to a third aspect of the present invention, there is provided a communications system having a first and a second communication device each having a unique identity and capable of being connected via a telecommunications network, wherein the first communication device comprises: a detector for detecting the presence of the second communication device; means for determining the identity of the second communication device; a controller effective for redirecting calls intended for the second communication device having the determined identity to the first communication device.

One advantage of the present invention is that a user is always contactable on whichever telephone they are currently using. This prevents people trying to contact the user from having to try multiple numbers in order to reach the user.

The present invention will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 shows a first embodiment of the present invention according to the present invention;

Figure 2 is a block diagram showing the telephone 100 of Figure 1 in greater detail; and

Figure 3 is a flow diagram outlining the main steps of one embodiment according to the present invention.

Figure 1 shows a mobile phone 100, preferably mounted in a fixed location such as a car. The mobile phone, hereinafter referred to as car phone 100, has a detector (not shown) which can detect the presence of a compatible mobile telephone 101 within a range 102.

For the purposes of this description the term car phone will be used to describe a mobile telephone mounted in a car, and the term mobile telephone will be used to describe a hand-held mobile telephone.

If the user has both a car phone and a mobile telephone this can cause severe confusion for people trying to contact the user. For example, whilst driving the car the user may be unable, due to safety reasons or legislation, to use his mobile telephone. Additionally, whilst out of the car the user will not be able to answer the car phone. Someone trying to contact the user on his mobile telephone number whilst he is driving will therefore be unable to be connected, unless he redials using the number of the car phone. Someone trying to call the user will therefore will require both the number of the car phone and the mobile telephone and may have to try calling both numbers in order to reach the user, depending on whether the user is in or out of the car.

Each of the telephones 100 and 101 contain a subscriber identification module (SIM) which provide each of the telephones with a unique subscriber number (i.e. a telephone number). In this way, each of the telephones 100 and 101 may operate independently. However, as described above, this does present the user with a number of problems.

When the mobile telephone 101 is detected within the range 102 of the car phone 100, the car phone 100 can be programmed to perform a number of predetermined tasks. Such tasks may include initiating network based call forwarding from the mobile telephone to the car phone, determining the identity of the detected phone, authorising the detecting phone etc...

For example, when a user having a mobile telephone enters a car having a car phone, the car phone detects the presence of the mobile telephone and causes all subsequent phone calls to the mobile telephone to be diverted to the car phone. In this way, calls to the mobile telephone may be safely answered using the car phone. Typically a car phone is specially designed to be safely operated whilst driving and may include features such a separate loudspeaker and microphone, a separate display and a separate control panel. When the user leaves the car, the car phone no longer detects the presence of the mobile telephone and cancels the call forwarding. This arrangement enables the user to be always contactable on a single subscriber number, that of his mobile telephone.

In an embodiment having a car phone, it is preferable that the range in which a compatible telephone can be detected is limited so as not to extend beyond the perimeter of the car. This is to prevent unintentional detection of compatible telephones whilst outside of the car.

Figure 2 is a block diagram showing the telephone 100 of Figure 1 in greater detail.

The mobile telephone 100 of Figure 1 has a central processor 202 which is connected to a control module 204 which controls the expected functions of a mobile telephone, such as the key pad, call management, display, etc. These functions will not be described in detail as they are well understood in the art, and do not directly form part of the present invention. An antenna 206 is used to transmit signals to and to receive signals from a cellular or other wireless telecommunications network. Also connected to the processor 202 is a module 208 which controls the function of a local wireless connection, via an antenna 210. The module 208 may use low power radio frequency (LPRF) technology, such as the commonly called Bluetooth standard, to communicate to similarly equipped devices. Alternatively, the module 208 may use any other appropriate communication medium, for example, an infra-red link, or

even a direct electrical connection which may be provided through a mobile phone holder.

In LPRF communications it is common for one device to act as a master to other slave devices. In the present embodiment it is preferred that the car phone acts as the master device, and the mobile phone acts as the slave device, although the invention will work equally well with the reverse arrangement. The car phone transmits a signal over the LPRF network requesting other compatible devices to respond over the LPRF network. Since the car phone transmits these requests frequently this increases the power requirements of the car phone. It is for this reason that it is preferable that the car phone is chosen to be the master device, since the car phone will generally be connected to a large capacity car battery.

When a compatible device, such as the mobile phone 101 is within range of the master LPRF signal transmitted by the car phone, the request signal is received by the slave LPRF module of the mobile phone 101. The slave LPRF module of mobile phone 101 transmits a signal to the master LPRF module of the car phone 100 indicating that the mobile phone 101 is within range of the car phone 100. The precise details regarding handshaking between the master and slave devices will not be discussed in detail here since they will be apparent to those skilled in the art. However, an outline of the steps undertaken by a master LPRF device according to one embodiment of the present invention are shown in Figure 3.

The master LPRF module of the car phone 100 attempts to detect, at a step 300, the presence of a compatible mobile telephone 101 within transmission range of its signal. If no compatible mobile telephone is detected, the master LPRF module of the car phone 100 periodically transmits a request that any compatible device acknowledges with an appropriate response signal. Once a compatible device has been detected an authorisation step 302 is performed. The authorisation step 302 ensures that only authorised mobile telephones be

used with the car phone. The authorisation step 302 determines the identity of the detected device, for example by determining the subscriber number of the device. Authorisation consists of comparing the identity of the detected device with a list of previously authorised identities. If the identity of the detected device is among the list of previously authorised identities, authorisation may be given, otherwise authorisation may be refused. Additionally, authorisation may require, for example, the entering of a security code by the user, either on the mobile phone or on the car phone in order to complete the authorisation step.

The car phone may also be configured to allow any compatible device to be used, regardless of identity.

The car phone 100 may, optionally at step 304, request confirmation from the user of the mobile telephone to initiate call forwarding from the mobile telephone 101 to the car phone 100. If the mobile phone user does not accept call forwarding, the master LPRF device of the car phone 100 returns to execute step 300.

The authorisation step may also add to the list of authorised mobile telephones any mobile telephones which are successfully used with the car phone. In other words, once a mobile telephone has been authorised for use with the car phone once, it will always be authorised until it is removed from the authorisation list.

If the user accepts activation of call forwarding, the car phone 100 initiates call forwarding of the mobile phone 101 to the car phone 100 at a step 306. In an alternative embodiment the car phone 100 may instruct the mobile telephone 101 to initiate call forwarding from the mobile telephone 101 to the car phone 100. The call forwarding may be performed on the network, by sending appropriate control signals to the network such that calls made to a given subscriber number are automatically re-routes to a forwarded number.

Alternatively, call forwarding may be established by a mobile telephone handset itself. In this case, when a call arrives at a mobile telephone, the mobile telephone makes a new call to the forwarded number, and connects the calls together.

Once call forwarding is initiated, the master LPRF device of the car phone 100 periodically checks to see whether the mobile telephone 101 is still within range of the car phone. As soon as the mobile telephone 101 is no longer within range, for example when the user leaves the car with his mobile phone, call forwarding is automatically cancelled by the car phone 100. In an alternative embodiment the mobile telephone 101 acts to cancels the call forwarding when out of range of car phone 100. Preferably call forwarding is also cancelled whenever the LPRF link is broken, for example when the mobile telephone is switched off or when the battery of the mobile telephone runs out. It may be preferable in these instances to request confirmation from the user, via the car phone 100, as to whether call forwarding should be cancelled. If no response is received from the user within a given time period call forwarding may be cancelled automatically.

In yet a further embodiment of the present invention, the call forwarding performed by either the car phone 100 or the mobile phone 101 is user customisable. For example, there are many telephone companies which now provide so called personal or non-geographic telephone numbers. This allows a user to choose an easy to remember telephone number. Such telephone numbers are not associated with any particular telephone, but are forwarded to a predetermined telephone number. The call forwarding capability of the car phone or the mobile phone enables call forwarding of the personal number to which ever device is currently in use. For example, when a user enters the car, the car phone causes the personal number to be forwarded to the car phone. When the user leaves the car, the car phone causes the personal number to be forwarded to the mobile telephone.

In yet a further embodiment of the present invention, the mobile phone acts as the master LPRF device, and the car phone acts as the slave LPRF device.

It is common when using call forwarding that the telephone which is being forwarded is charged for the forwarded portion of the call. The telecommunications network operator, however, can arrange for these charges not to be incurred. The network operator can also arrange that calls made by the car phone, whilst having calls forwarded to it from a mobile telephone, show the caller line identification (CLI) of the forwarded mobile telephone. Additionally, the network operator can also arrange that calls made in this manner are billed to the forwarded telephone. In this way, calls made from the car phone will appear to be made by the mobile telephone which is forwarded thereto.

Although the present invention is described above with reference to a car phone and a mobile telephone, it will be appreciated that the car phone could be replaced by any other fixed or semi-permanent telephone having an LPRF module. For example, the present invention could also be used in an office or home environment. Additional embodiments provide that, for example in an office environment, when a user is at his desk, calls to a mobile telephone are forwarded to a desktop phone connected to a private switched telecommunications network (PSTN). When the user is away from his desk, this is automatically detected by the desktop phone (or the mobile telephone) and calls to the desktop phone may be automatically forwarded to the mobile telephone.

Those skilled in the art will appreciate that other combinations are also possible within the scope of the present invention. For example, the presence of the car phone could be detected by a mobile telephone, and the mobile telephone could effect the call forwarding in response to the detection.

Reference above to mobile telephone or car phone is also intended to include reference to radiotelephones and portable radiotelephones.

CLAIMS

1. A communication device for communicating with a compatible communication device over a telecommunications network, wherein the communication devices have unique identities, the communication device comprising:

a detector for detecting the presence of the compatible communication device;

determination means for determining the identity of the detected compatible communication device; and

a controller effective for redirecting incoming calls intended for the detected compatible communication device having the determined identity to the communication device.

2. The communication device of claim 1, wherein the detector establishes communication with the detected communication device over a local connection.

3. The communication device of claim 2, wherein the means for determining the identity determines the identity over the local connection.

4. The communication device of claim 1, 2 or 3, wherein the controller sends control signals to the telecommunications network such that the network can redirect the incoming calls.

5. The communication device of claim 1, 2 or 3, wherein the controller sends control signals to the compatible communication device such that the compatible communication device can redirect the incoming calls.

6. The communication device of any preceding claim, wherein the detector detects the presence of the compatible communication device substantially within a predetermined range.

7. The communication device of any preceding claim, further comprising authorising means for authorising the use of the compatible communication device with the communication device, and only effecting call redirection if authorisation is given.

8. The communication device of claim 7, wherein the authorising means contains a list of the identities of authorised compatible communication device, and wherein authorisation is given only if the determined identity of the detected compatible communication device matches one of the identities in the list of identities.

9. The communication device of claim 8, wherein the determined identity of any detected compatible communication device is added to the list identities of authorised compatible communication devices.

10. The communication device of claim 7, 8 or 9, wherein the means for authorising further comprises a memory for storing a list of passwords associated with each identity in the list of identities, and wherein authorisation is given only when a matching password is entered on the communication device.

11. The communication device of any of claims 2 to 10, wherein the local connection is a low power radio frequency connection.

12. The communication device of any preceding claim, wherein the detector comprises a low power radio frequency transceiver capable of transmitting signals to and for receiving signals from compatible low power radio frequency transceivers.

13. The communication device of any of claims 2 to 10, wherein the local connection is a fixed wire connection.

14. The communication device of any of claims 2 to 10, wherein the local connection is an optical connection.

15. The communication device of any preceding claim, wherein the controller is effective to cancel call redirection when the detector no longer detects the presence of the compatible communication device.

16. The communication device of any preceding claim, wherein the communication device is a telephone.

17. The communication device of any preceding claim, wherein the compatible communication device is a radiotelephone.

18. A method of redirecting calls to a communication device from a compatible communication device, wherein the communication device and the compatible communication device have unique identities and are capable of communicating over a telecommunications network, the method at the communication device comprising:

detecting the presence of the compatible communication device;

determining the identity of the detected compatible communication device; and

redirecting incoming calls intended for the compatible communication device having the determined identity to the communication device.

19. The method of claim 18, wherein the step of detecting comprises detecting the compatible communication device over a local connection.

20. The method of claim 18, wherein the step of determining the identity comprises determining the identity over the local connection.

21. The method of claim 18, 19 or 20, wherein the step of redirecting comprises sending control signals to the telecommunications network such that the network can redirect the incoming calls.

22. The method of claim 18, 19 or 20, wherein the step of redirecting comprises sending control signals to the compatible communication device such that the compatible communication device can redirect the incoming calls.

23. The method of any of claims 18 to 22, wherein the step of detecting detects the presence of the compatible communication device substantially within a predetermined range.

24. The method of any of claims 18 to 23, further comprising authorising the use of the compatible communication device with the communication device, and only effecting call redirection if authorisation is given.

25. The method of claim 24, wherein the step of authorising comprises comparing the identity of the detected compatible communication device with a list of identities of authorised compatible communication devices stored in the communication device, and only giving authorisation if a match occurs.

26. The method of claim 25, further comprising adding to the list of identities the identity of any detected compatible communication device for which authorisation is given.

27. The method of claims 24, 25 or 26, wherein the step of authorising further comprises comparing a password entered on the communication device with a list of passwords stored in the communication device in association with the list of identities, and wherein authorisation is given only when the entered

password and the stored password for the detected compatible communication device match.

28. The method of any of claims 19 to 27, wherein the step of detecting is adapted to detect over a low power radio frequency connection.

29. The method of any of claims 19 to 27, wherein the step of detecting is adapted to detect over a fixed wire connection.

30. The method of any of claims 19 to 27, wherein the step of detecting is adapted to detect over an optical connection.

31. The method of any of claims 19 to 30, further comprising cancelling the redirection of calls when the presence of the compatible communication device is no longer detected.

32. The method of any of claims 19 to 31, wherein the communication device is a telephone.

33. The method of any of claims 19 to 32, wherein the compatible communications device is a radiotelephone.

34. A communications system having a first and a second communication device each having a unique identity and capable of being connected via a telecommunications network, wherein the first communication device comprises:

a detector for detecting the presence of the second communication device;

means for determining the identity of the second communication device;

a controller effective for redirecting calls intended for the second communication device having the determined identity to the first communication device.

35. The communications system of claim 34, wherein the detector establishes communication with the detected second communication device over a local connection.

36. The communications system of claim 35, wherein the means for determining the identity determines the identity over the local connection.

37. The communications system of claim 34, 35 or 36, wherein the controller sends control signals to the telecommunications network such that the network can redirect the incoming calls.

38. The communications system of claim 34, 35 or 36, wherein the controller sends control signals to the second communication device such that the second communication device can redirect the incoming calls.

39. The communications system of any of claims 34 to 38, wherein the detector detects the presence of the second communication device substantially within a predetermined range.

40. The communications system of any of claims 34 to 39, the first communication device further comprising authorising means for authorising the use of the second communication device with the first communication device, and only effecting call redirection if authorisation is given.

41. The communications system of claim 40, wherein the authorising means contains a list of the identities of authorised communication devices, and

wherein authorisation is given only if the determined identity of the detected communication device matches one of the identities in the list of identities.

42. The communications system of claim 41, wherein the determined identity of any detected communication device is added to the list identities of authorised communication devices.

43. The communications system of claim 40, 41 or 42, wherein the means for authorising further comprises a memory for storing a list of passwords associated with each identity in the list of identities, and wherein authorisation is given only when a matching password is entered on the first communication device.

44. The communications system of any of claims 34 to 44, wherein the local connection is a low power radio frequency connection.

45. The communications system of any of claims 34 to 44, wherein the detector comprises a low power radio frequency transceiver capable of transmitting signals to and for receiving signals from compatible low power radio frequency transceivers.

46. The communications system of any of claims 35 to 43, wherein the local connection is a fixed wire connection.

47. The communications system of any of claims 35 to 43, wherein the local connection is an optical connection.

48. The communications system of any of claims 35 to 47, wherein the first communication device is a telephone.

49. The communication system of any of claims 35 to 48, wherein the second communication device is a radiotelephone.

50. A communication device substantially as hereinbefore described with reference to the accompanying drawings.

51. A method of redirecting calls to a communication device from a compatile communication device substantially as hereinbefore described with reference to the accompanying drawings.

52. A communications system substantially as hereinbefore described with reference to the accompanying drawings.

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Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X, E	GB 2353441 A (SAGEM) See whole document	1, 18, 34 at least
X, E	GB 2352126 A (VTECH) ,, ,, ,,	,,
X	GB 2304258 A (NEC) ,, ,, ,,	;;
X, E	EP 0996272 A1 (SAGEM) ,, ,, ,,	,,

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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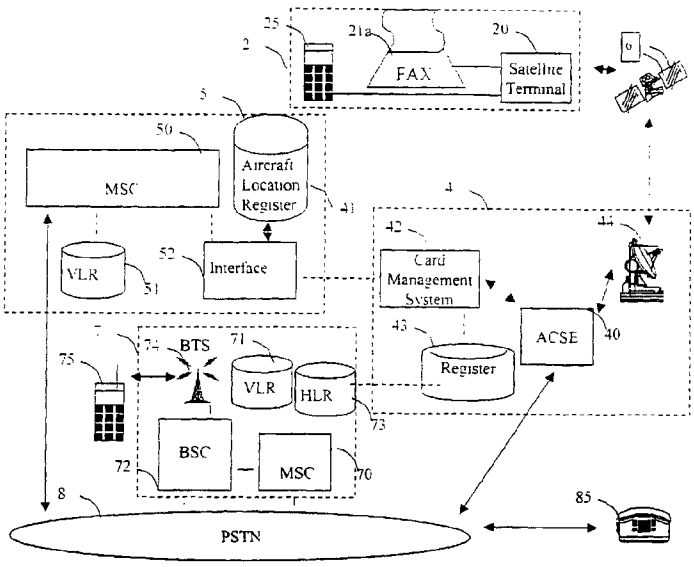
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[Continued on next page]

(54) Title: MOBILE TELEPHONY



(57) Abstract: An interface (52) is provided between a satellite telephone system (4) and a cellular telephone system (5) for allowing calls to a user's cellular telephone to be diverted to a satellite telephone handset (25) when the user is unable to use his cellular telephone, for example when on board an aircraft (2) fitted with a satellite telephone system (20). The user inserts a card (which may be the SIM of his mobile phone, or a card compatible with existing satellite telephone equipment) into a suitable reader in the satellite telephone (20), which causes the satellite ground station's card verification system (42) to connect to a host cellular network (50). The host cellular network has an interface unit (52) which emulates the operation of a normal base station, so that the host cellular system (50) acts as if the mobile user's terminal is roaming on the host network, but is currently "busy". The interface (52) also resets the user's existing call diversion instructions so that when the host cellular system (5) receives a busy tone from the base station emulator (52), it routes calls to the directory number of the terminal (20). Data messages originally formatted for transmission over the cellular telecommunications network for generation of a display on a display unit of a cellular telephone, can instead be transmitted over the satellite network for display on the information and entertainment system of the aircraft by replacing the address information in the original data message by address information appropriate to the selected display unit to generate an amended data message. A new data message is created, addressed to the server of the information display system and having the amended data message as payload. The onboard server has means for converting the amended data message into control instructions suitable to display the information content of the data message on the information display unit identified in the amended data message.

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MOBILE TELEPHONY

This invention relates to mobile telephony, and in particular to systems for use on board vehicles.

There has been considerable activity in recent years in proposals to allow the use of mobile telephones in environments where conventional cellular telephony base stations cannot provide coverage, in particular on board ships and aircraft. These vehicles frequently travel beyond the range of land-based cellular base stations, which typically have a range of the order of 1 to 10km.

There are also circumstances when temporary provision of cellular telephone facilities is required at a remote location where such facilities are not normally available, or are temporarily unavailable, for example when the fixed infrastructure has been damaged by a natural disaster.

There are a number of special difficulties to be addressed if a standard cellular telephone is to be used in an aircraft. Firstly, many cellular base stations have antennas arranged for maximum gain in the horizontal plane, so an airborne cellular telephone may not be able to obtain a signal from any base station, even when flying over land served by a cellular base station network. If the range of the base stations does extend to the normal flying height of aircraft, frequency re-use patterns, which allow several base stations to use the same radio frequencies without interference, are designed on the assumption that a mobile unit served by one base station is not able to exchange radio signals with other base stations using the same frequency. This assumption ceases to be valid if a mobile unit is several thousand metres above the ground, since it may be in line-of-sight of a large number of base stations simultaneously. Moreover, although reliable handover of a mobile unit can be achieved from moving vehicles travelling at speeds of up to 200km/h, a typical passenger aircraft travels at speeds approaching 1000 km/h. Airlines also impose restrictions on the use of powerful radio signals on board, as a precaution against possible interference with the aircraft's electronic systems.

For truly global coverage, satellite telephones are available. However, these are expensive and much heavier than a cellular telephone. Both cellular telephones and satellite telephones also suffer from the screening effect of being inside a metal

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hulled vehicle. As with cellular telephones, the unrestricted use of a portable satellite telephone within an aircraft may be prohibited.

A user without his own satellite telephone may use special facilities provided on board, such as the service provided to several airlines by the applicant company under the Registered Trade Mark "Skyphone". This uses onboard terminals connected, through a satellite link between the aircraft and a satellite ground station, to the telephone network. Another system, TFTS (terrestrial flight telephony system, marketed as "Jetphone"), operates in a similar manner, but uses a direct link between the aircraft and the ground station, without a satellite link. Similar systems are provided on board ships. However payment for these services is generally at the point of use (or prepaid), and may be in a foreign currency. Calls made to the user's cellular telephone will not be successful unless the calls can be diverted to the telephone number of the onboard user terminal (which will generally not be known to the caller), and any special facilities offered by the user's cellular network will in general be unavailable. A user with his own cellular telephone account which, through "roaming" agreements between network operators, can be used in many different countries, would therefore prefer to continue to use his cellular telephone subscription when travelling within or between these countries on board an aircraft or other vehicle.

Proposals have been made, for example EP0915577 (Rohde & Schwartz) for a facility which would allow cellular telephones to make outgoing calls by way of the aircraft's own onboard telephone system. This allows the aircraft's onboard systems to impose power control on the mobile units and ensure that their radio transmissions are kept within safe limits. However, the cellular telephone is not directly connected to the cellular network, so conventional cellular radio location update processes cannot be used to inform the user's home network of its current location and allow incoming calls to be routed to the telephone.

Proposals have also been made to allow a user to use his own cellular radio identity when using the satellite facility, instead of a special identity under the satellite system. This would allow billing to be made through the user's normal cellular radio account, and would also allow incoming calls made to his cellular telephone number to be received whilst travelling. To this end, systems have been developed which allow call diversions to be set up to allow calls made to the user's

cellular number to be transferred to a destination node of the tracking radio system. The destination node may be an onboard handset temporarily allocated the user's cellular identity, or it may be an onboard base station capable of wireless connection to the user's own cellular telephone. Systems of this general kind have been disclosed in International Patent Applications WO99/12227 (Nokia), WO94/28684 (Nordictel) and WO98/26521 (Ericsson); European Patent Applications 0920147 (Alcatel) and 0915577 (Rohde & Schwartz), and United Kingdom Patent Application 2310973 (Motorola). An onboard base station can be integrated with other onboard systems, allowing local control of the base station's transmitter, and those of the mobile units with which it is co-operating, so as to keep their power within permitted limits.

This is made possible by an invention disclosed in the International application filed on the same date as the present application, with applicant's reference A25823 and priority date 14th September 1999, which provides apparatus for enabling a termination point of a first telecommunications system to initiate call diversion instructions in the switching system of a second telecommunications system such that calls initially directed to a telephone apparatus usable with the second telecommunications system are diverted to the said termination point in the first telecommunications system, the apparatus comprising means in the first telecommunications system for identifying the telephone apparatus from which calls are to be diverted and the termination point to which calls are to be diverted, and an interface means between the first telecommunications system and the switching system of the second telecommunications system, the interface means comprising:

means to indicate to the switching system that the telephone apparatus is in a specified operating condition, irrespective of the true operating condition of the telephone apparatus,

and means to generate an instruction to the switching system to divert calls, intended for the telephone apparatus, to the said termination point of the first telecommunications system when the telephone apparatus is indicated as being in the said predetermined operating condition.

In the preferred arrangement the first and second telecommunications systems are a satellite telephone system and a cellular telephone system respectively, the

identification information being a user identity associated with the telephone apparatus, and the network address of the termination point.

Other aspects of the invention disclosed in the aforementioned International patent application provide the novel features of each of the individual telecommunications systems which co-operate to form the complete system, and methods of operation of these individual co-operating systems and of the complete process.

A second arrangement, disclosed in the applicant's International Patent Application having the same filing date as the present application and the applicant's case reference A25937, claiming the priority date 25th August 1999, has apparatus for providing telephone connection between one or more cellular radio telephones and a fixed cellular radio switching system, comprising a moveable cellular system on board a vehicle, a fixed cellular radio switching system, and a tracking radio link providing radio connection between the moveable cellular switching system and the fixed cellular switching system, the moveable cellular system comprising a moveable telephone switching system connected to one or more base transceiver stations for providing radio connection with the cellular radio telephones, and having means for initiating a control call over the tracking radio link to the fixed cellular radio switching system in response to the detection of the presence of a cellular radio telephone in the area of coverage of base transceiver stations, and the fixed cellular radio switching system having registration means responsive to such control calls to indicate to other switching systems that calls to a cellular radio telephone currently served by the moveable switching system should be initially directed to the fixed cellular radio switching system, the fixed cellular radio switching system also having call diversion means responsive to such control calls to allow incoming calls directed to the cellular radio telephone to be diverted to the moveable cellular switching system by way of the tracking radio link. In the embodiment described in that application, the movable system has means for generating an association between a destination node of the tracking radio link and an identity code of a cellular radio telephone, and means for storing the said associated identities in stores associated with the fixed and moveable cellular switching systems, thereby allowing both cellular radio switching systems to translate between the cellular radio identity and the node identity. The apparatus is arranged such that calls directed to a cellular

telephone currently co-operating with the moveable switching cellular system are diverted by the fixed cellular switching system to a node of the tracking radio system having the identity associated with the cellular radio identity, the node having means for connecting the call to the moveable cellular switching system and the moveable switching system having means for retrieving the cellular network identity associated with the node and routing the call to the cellular telephone having that identity.

In the cellular telephone systems described in the aforementioned International Patent applications the interface units are arranged to appear to the switching system as a typical radio base station control system, to which the mobile handset is currently working, although in fact no radio base stations are actually controlled by it. This interface unit may therefore be considered to be a "Virtual" Base Site Controller. The switching system itself requires no modification: it merely registers that the user is working to the "Virtual" Base Site Controller and stores the user details in its "Visitor Location Register" (VLR), in the same way as it would for a mobile unit working to any real base site controller to which it is connected. The interface unit also generates a call diversion instruction, which will appear to the switching system to have come from the mobile handset, by way of the "Virtual" Base Site Controller. This call diversion instruction is set up in the switching system such that if the "Virtual" Base Site Controller responds to a call request directed to the mobile unit with a "busy line" response (or some other specified condition), calls are to be diverted, through normal network interconnects, to a specified directory number, namely that of the satellite termination point to which the user is connected. The interface unit does not in fact monitor the real condition of the user terminal, (which is not operatively connected to the interface unit), but instead always returns the "line busy" signal to the switching system.

The interface unit includes a store to record any diversion settings existing for the telephone apparatus prior to the diversion to the second network being set up. This allows these settings to be retrieved when the user disconnects from the first telecommunications system, so that they can be reinstated in the switching system of the second telecommunications system, or transferred to another telecommunications system, when the telephone apparatus makes contact with a real radio base station, thereby initiating a handover procedure from the "Virtual" Base Site Controller to the real one.

Should a second call attempt to the user's cellular telephone be made whilst a call is in progress to the onboard system, the switching system may be arranged to divert it to another predetermined number, such as the user's "voicemail", or automatic answering service, address.

If the user termination is in an aircraft or other vehicle connected to a ground station (by satellite or otherwise), it may move from the area covered by one satellite (or ground station) to that of another. In that case, the network address of the termination changes. To accommodate this, the interface may be provided with means to store the address of termination points in the first system, means to record changes to the said addresses transmitted to it from the first system, and means to modify the diversion instruction in the switching system when such a change takes place. Alternatively, the termination point may be arranged simply to repeat the set-up process, causing the mobile unit to be re-registered with the interface unit, (which will not be apparent to the switching system, as it will perceive the same "virtual" base site controller), and to transmit a new call divert instruction to the revised address of the termination point.

The inventions disclosed in the aforementioned International patent applications allow the diversion of PSTN-compatible speech calls to the user's current location in the first telecommunications network. However, modern cellular telephone systems have other capabilities, in particular the data system known in the GSM standard as "Short Message Service" (SMS). In the cellular network data messages are carried over a separate data network and cannot be diverted to a different directory number, such as that of the user's current satellite terminal, or the satellite address currently associated with the user's terminal, in the same way as voice calls because the PSTN cannot handle them. Moreover, with regard to arrangements in which the call is routed to a standard satellite telephone terminal as provided in aircraft, such terminals are not equipped to receive such messages.

A first aspect of the present invention provides a method of converting data messages originally formatted for transmission over a first telecommunications network for generation of a display on a display unit of a first type, such that messages can be transmitted over another telecommunications network for display by a selected display unit of a second type forming part of a server-based information display system, wherein the address information in the original data message is

replaced by address information appropriate to the selected display unit to generate an amended data message, and a new data message is created, addressed to the server of the information display system and having the amended data message as payload, and wherein the server converts the amended data message into control instructions suitable to display the information content of the data message on the information display unit identified in the amended data message.

A second aspect provides apparatus for converting data messages originally formatted for transmission over a first telecommunications network for generation of a display on a display unit of a first type, such that messages can be transmitted over another telecommunications network for display by a selected display unit of a second type forming part of a server-based information display system, comprising

means for replacing the address information in the original data message by address information appropriate to the selected display unit to generate an amended data message, and

means for creating a new data message addressed to the server of the information display system and having the amended data message as payload.

A third aspect provides server apparatus forming part of a server-based information display system for receiving messages generated by the apparatus defined above, for display by a selected display unit, the server comprising means for converting a data message formatted for display on a display unit of a first type into control instructions suitable to display the information content of the data message on an information display unit of a second type controlled by the server, the information display unit being identified in the data message

In the described embodiment the data message is originally formatted for transmission over a cellular telephone network for display by a cellular telephone handset. The data message may be generated by the cellular switching system in response to a message being deposited in a call answering system.

In one arrangement, prior to transmission of the amended original data message to the server an alerting data message is created, indicative of the presence of the original data message, addressed to the server of the information display system, and carrying address information appropriate to the selected display unit, thereby causing the server to generate control instructions suitable to display an alerting message on the information display unit so identified, and wherein the

amended original data message is forwarded to the server in response to an instruction from a termination point associated with the destination display unit. This ensures that data messages are only transmitted when the user has accepted them, thus allowing the network operator to charge the user for the service.

The amended data message may also include password data, the server being arranged such that when it receives a data message it causes the display means to indicate the presence of a data message, and displays the data message only if it receives a predetermined input from a user terminal associated with the display means.

Embodiments of the invention will now be described with reference to the Figures, in which:

Figure 1 is a schematic diagram showing the functional relationships between the systems which co-operate to form one embodiment of the invention

Figure 2 is a more detailed schematic diagram of the network termination and associated card reading equipment, which for illustrative purposes will be assumed to be on board an aircraft

Figure 3 is a diagram showing part of an alternative arrangement of network termination, arranged for co-operation with a cellular telephone handset

Figure 4 is a schematic diagram showing the functional relationships between the components of the fixed part of the first telecommunications system which co-operate in the invention,

Figure 5 is a schematic diagram of the switching system, interface unit, and associated parts of the second telecommunications system;

Figure 6 is a flow chart showing the process by which a diversion is set up in the second network to a termination connected to the first network

Figure 7 is a flow chart showing the process by which a call coming in to the second network is connected to a telephone connected to the first network

Figure 8 is a flow chart showing the process by which the second network restores the original settings for a telephone when it disconnects from the first network.

Figure 9 illustrates the forwarding process implemented to a data message.

Figure 10 illustrates a conditional forwarding process for a data message.

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Figures 11 and 12 show the general arrangement of the various components which co-operate in a further embodiment of the invention: Figure 11 shows the moveable vehicle-borne parts and Figure 12 the fixed, ground based, parts.

Figures 13 and 14 show the method of operation of this embodiment

Figure 15 is a flow chart showing a call diversion process, for use when the system has to be temporarily shut down.

The following embodiments illustrate the invention using a standard switched cellular network, using the terminology of the "GSM" standard for illustrative purposes. However, the invention is applicable to other cellular networks, including packet networks, which are used to carry data over a distributed computer network such as the "Internet", carrying messages using formats such as the "Internet Protocol" (IP). Thus, unless the context clearly demands otherwise, any reference in this specification to switching includes the equivalent routing functions in a packet network of this kind.

Figure 1 shows the general arrangement of the various components which co-operate in this embodiment. Note that traffic links (which can carry speech, data, etc) are shown as full lines, signalling links used only for call set up are shown as broken lines.

The onboard part 2 (shown in more detail in Figure 2) comprises one or more handsets 25 (which, in the alternative arrangement of Figure 3, are the users' own cellular telephone handsets 31), connected to a termination point 20 of the satellite network. The termination point 20 is in communication with a ground station 4, shown in more detail in Figure 4. In this embodiment, the communication link is made through an earth-orbiting satellite 6.

The principal components of the ground station 4 relevant to this invention are an antenna 44 which communicates, by way of the satellite 6, with the onboard system 2, an Access Control and Signalling Equipment (ACSE) 40 which carries out call switching functions to allow calls to be placed through the public switched telephone network (PSTN) 8 to other telephones 85, and a Card Management System 42 which authorises the use of an individual terminal 25 according to user identities entered with respect to that terminal. There is also a register 43 of card identities, to provide a correspondence between the user identities used by the satellite terminal and the corresponding cellular telephone user identities (not necessary if the cellular

telephone identity is read directly by the terminal 20, as will be described with reference to Figure 3), and to provide billing information.

The card management system 42 interacts with an interface unit 52 of a "host" cellular telephone network 5, shown in more detail in Figure 5. This network 5 is connected to the public switched telephone network (PSTN) 8 and to other cellular networks 7 through a switching centre 50. Associated with the interface unit 52 there is an "aircraft location register" 41 which monitors the terminals currently served by each individual satellite, and modifies the functioning of the interface unit 52 when a terminal 20, for example on board an aircraft 2, moves from the coverage area of one satellite 6 (and its ground station 44) to another

The cellular network 7 illustrates in simplified form the system architecture of a "GSM"-standard cellular radio system, and the terminology used in this standard. The network 7 has a switching system (MSC) 70 to allow connection of one or more base transceiver sites (BTS) 74, through one or more base site control systems 72, to the PSTN 8 and thus to other telephones 85. A mobile telephone 75 may establish radio contact with one of the base stations 74 in order to make and receive telephone calls. The network 7 also includes a "Visitor Location Register" 71, which maintains details of those cellular telephones 75 currently co-operating with the network 7. Mobile telephones according to the "GSM" standard are capable of co-operating with different networks ("roaming" between networks). To allow this to take place, when a mobile telephone 75 changes from one network to another, the network to which it has moved retrieves data from a "Home Location Register" 73 permanently associated with the handset 75. The network 7 in which the Home Location Register 73 associated with a given handset is to be found is identifiable from the handset's identity code. The Home Location Register also records the identity of the network 7 with which the mobile handset 75 is currently operating.

The "host" network 5 operates like conventional cellular network, but is provided with an interface unit 52, which interacts with the mobile switching centre 50 as a base site controller would. This interface unit 52 may be in addition to one or more base site controllers (not shown). The interface unit does not interact with any base transceiver sites or mobile handsets, but obtains user details (in particular the identity of a mobile handset) from the card management system 42 to allow it to appear to the switching centre 50, and the HLR 73 in the user's home network, that

it is in radio communication with a mobile handset 25. It can then control the call forwarding instructions stored in the host network's VLR 51, to cause incoming calls directed to that handset to be diverted, through the switching system 40 of the satellite network 4, to the satellite terminal 20.

Figures 2, 3 and 4 illustrate a first embodiment of the invention, applied to a satellite telephone system such as that provided by the applicant company under the Registered Trade Mark "Skyphone". Figure 2 shows a first embodiment of the mobile part which has a standard card reader, whilst Figure 3 shows an alternative arrangement which allows a user to use his cellular telephone handset. Figure 4 shows the ground station.

The onboard system 20 shown in Figure 2 comprises a plurality of user terminals 21, 21a (only one shown in detail), connected by a multiplex and radio interface unit 28 to an antenna 29 which provides radio communication with a satellite 6. Each user terminal 21 has a card reading unit 23 into which an intending user can insert a card 24 or other data carrier providing user identification data. The data may give details of the user's credit card account, or a special account for the use of the onboard telephone service. The card reader 23 may be adapted to read the SIM (Subscriber Identity Module) of a GSM-standard cellular telephone. (It should be noted that one variant of the method according to the invention does not make use of the card reading apparatus 23,24,26, although it may nevertheless be present for use by other customers of the satellite system).

Further user terminals 21a may be set aside for non-voice applications, for example an onboard facsimile machine.

The user handset 25 provides the usual keypad, microphone and earphone to allow the user to make telephone calls. The user handset 25 and the card reader 23 are both connected to a processor 26 which converts data read from the card 24, and keystrokes input from the handset 25, into data signals for transmission over the radio link 29. It also provides identification data indicative of which of the terminals 21 it is. A further processor 27 performs analogue/digital conversion of speech signals from the handset 25.

The digitised signals from each terminal 21 are multiplexed and modulated onto a radio carrier in a interface unit 28, and transmitted from the antenna 29.

The antenna 29 also receives signals which are demodulated and demultiplexed in the unit 28. Data signals are processed in the processor 26, whilst digitised speech is converted to analogue speech in the analogue/digital converter 27 and fed to the handset 25.

The interface unit 28 also includes a connection to the data bus 22 of the aircraft 2 giving access to aircraft parameters such as undercarriage deployment, "weight-on-wheels", time to destination, altitude, etc. When a predetermined condition indicative of the impending end of a flight is met, the interface unit 28 transmits a signal to the ground station to cause a deregistration signal to be transmitted to the card management system 42.

Because the onboard telephone system was originally designed for making outgoing calls, the handsets 25 provided in existing terminals 21 are not equipped with a suitable call alerting device. The handsets 25 could be modified to provide a buzzer or light to alert the user to an incoming call. Alternatively, to avoid distracting other passengers on the aircraft, the telephone terminal 21 may be connected to an at-seat entertainment system 200, to provide an alert either through the earpieces 202 or on the screen 201.

Instead of the terminals 25, an alternative arrangement may be used as shown in Figure 3. In this arrangement each onboard terminal 25 is replaced by an onboard interface device 311 to which a user's own mobile radio telephone 31 can be connected electrically, thereby allowing the mobile telephone to be used without using its radio antenna. It is a modification of the system described in the applicant company's International Patent Application WO97/36442, published on 2nd October 1997, to which the reader is referred for further details. In this modified version a GSM (Global System for Mobile communication) mobile telephone 31 comprises r.f. transceiver circuitry 32 coupled to an antenna 33, base band signal processing and control circuitry 34, a rechargeable battery pack 35, a switch 36 and a socket 37. The processing and control circuitry 34 has a data output terminal 34a coupled to both the r.f. transceiver circuitry 32 and a first contact 37a of the socket 37. A data input terminal 34b of the processing and control circuitry 34 is coupled to the r.f. circuitry 32 and a second contact 37b of the socket 37. A third contact 37c of the socket 37 is coupled to a control input of the processing and control circuitry 34. Fourth and fifth contacts 37d, 37e of the socket 37, which are respectively for 0V

and +V power supply lines, power the telephone 31, and may also be arranged to recharge its batteries 35. The +V terminal of the battery pack 35 is also connected to the processing and control circuitry 34 and to an input terminal of the switch 36. The output terminal of the switch 36 is coupled to a +V input terminal of the r.f. circuitry 32. A control terminal of the switch 36 is coupled to an output of the processing and control circuitry 34.

The interface unit 311 comprises a control circuit 312, a user input unit 313, including a keypad and a display, a V.24 33.6 kbit/s modem 314, a power supply unit 315 and a plug 316. The plug 316 has five contacts 316a-316e which correspond to contacts 37a-7e of the socket 37 of the mobile telephone 31. The first contact 316a of the plug 316 is coupled to a data input terminal of the control circuit 312 and the second contact 316b of the plug 316 is coupled to a data output terminal of the control circuit 312. A bi-directional serial link 318 is provided between the control circuit 312 and the modem 314 for modem control and data signals. The third contact 316c and fifth contact 316e of the plug 316 are coupled to the +V output of the power supply unit 315. The fourth contact 316d of the plug 316 is coupled to the interface unit's 0V supply wiring. The user input unit 313 is coupled to the control circuit 312 for the input of user commands and the output of display control signals from the control unit 312 to the user input unit 313. The +V output of the power supply unit 315 is also coupled to +V input terminals 312a, 313a, 314a of the control circuit 312, the user input unit 313 and the modem 314. The modem 314 is coupled to a telephone line 317 and the power supply unit 315 is arranged to receive power from an electricity supply 319.

When the user wishes to connect to the interface unit 311, he connects the plug 316 of the interface unit 311 to the socket 37 on his telephone 31 by a cable (not shown). The voltage on the third contact 37c of the socket 37 is detected by the processing and control circuitry 34 which thereby determines that the telephone 31 has been connected to the interface unit 311. The connection of the battery 35 to the power supply 315 by way of the connections 37d/316d and 37e/316e also allows the battery to be recharged.

Once the processing and control circuitry 34 has determined that the telephone 31 has been connected to the interface unit 311, it sends a control signal to the switch 36, causing it to open, isolating the r.f. circuitry 32 from the battery

pack 35 and the power supply 315 in the interface unit 311. The processing and control circuitry 34 also responds to the voltage on the third contact 37c of the socket 37 by selecting alternative control programs or constant data to allow for delays in the signal path from the telephone 31 to the controller 30 which are caused by the use of the satellite link 6 and the modems 314, 32.

In this arrangement, instead of the need for a separate card reader 23, the telephone 31 identifies itself to the telephone network 40/42 by generating its terminal identity code (IMSI in the case of a GSM telephone). The registration signal is not transmitted from the antenna 3 because the r.f. circuitry 32 is disabled. Instead, it is output to the interface unit 311 via the first contacts 37a, 316a of the socket 37 and plug 316

The operation of this onboard system will now be described with reference to Figure 6. When the card reader 23 or interface unit 311 detects the presence of a card 24 or handset 31 respectively, (step 601) it generates a prompt to indicate to the user that he may wish to have calls diverted to the onboard system. If the user requires this service, he enters a code on the keypad of the handset 25, 31 which causes a divert request to be generated (step 602). The details from the card 23 (or SIM of the handset 31) are then passed to the processor 26 which also provides the identity of the terminal 21 (step 603) and transmits the data to the interface unit 28.

Alternatively, these steps (602, 603) may be activated by the user without a card, by dialling an access code (divert request 602) followed by further keystrokes to identify the account to be used (terminal identity step 603). These keystrokes may include the user's MSISDN (which, as his own directory number would be known to him). To prevent misuse of the system by unauthorised personnel, a security code (Personal Identification Number: "PIN") may be added. This code may have been issued previously to the user, or the user may request such a code by making a call using the satellite system to his home network's customer service department and providing personal details to the operator to prove his identity.

The user may select for the identity of a terminal 21a other than his own at seat terminal 21 to be selected as the destination for incoming calls. For example, if his MSISDN code (or one of them) relates to a facsimile machine having cellular capability, he may request that incoming calls to that number be directed to an onboard facsimile machine 21a.

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The data received by the interface unit 28 is then transmitted to the ground station 4 (step 604). The further steps (605-615) in the process are carried out by the co-operating networks 4, 5 and will be described later.

If the user decides that he no longer wishes to have his calls diverted to the terminal 21, he may cancel the diversion instruction by entering a special code on the keypad of the handset 25, 31. Disconnect codes may also be generated in the interface unit 28 for all the termination points 21, either by the cabin crew or automatically in response to a signal detected on the aircraft's data bus 22 which is indicative of the imminent end of the journey, such as undercarriage deployment, weight on wheels, low altitude, or time remaining to destination as determined by the aircraft's flight management system. The disconnect instruction is transmitted (step 801, Figure 8) by way of the switching system 40 in the ground station 4, to the interface unit 52 whose operation (steps 802 to 805) will be described later.

The Ground Station 4 shown in Figure 4 has a radio antenna system 44 for communicating with the terminal 20, through a satellite link 6 or otherwise. Signals are handled by an Access Control Signalling Equipment (ACSE) 40 which carries out switching functions to route calls to or from the public switched telephone network (PSTN) 8.

A card management system 42 comprises a data acquisition unit 47 which reads data transmitted from the card reader 24, and/or keyed in by the user, to identify the type of user, confirm the user's account details and arrange billing for any calls made, through a billing system 45 which raises invoices, or interacts with the systems of a credit card operator or bank.

In the existing onboard systems a user cannot receive calls, unless the caller knows the unique "AES" number of the handset 21, 21a. This is unlikely, as the number depends on the identity of the aircraft, the seat, and the serving satellite or base station.

The equipment just described is augmented in the present embodiment by an interface 46 with the host network 5, and through that to the Home Location Register 73 of each network 7 (Figure1) whose subscribers are to be given access to the service, which stores a concordance between the card identities and the card-holder's cellular radio telephone number (MSISDN: mobile systems integrated services data network number), on request from the data acquisition unit 47, which is

arranged to recognise the card identities which require such translation. In a preferred embodiment the concordance is supplied to a register 43 in the ground station by the operator of user's home network 7, when the network operator provides the user with the card. The operator of the home network 7 also records the concordance in its own Home Location Register 73. This arrangement allows the existing card readers 23 to be used on board the aircraft, without modification. If the users' mobile subscriber identities are supplied from the onboard system, either by reading the identity (reader 311) or by the user keying it in, the store 43 can be used for verification, or omitted. Billing information is also returned to the user's home network 7.

The operation of the ground station 4 will now be described with reference to Figure 6. The data acquisition unit 47 receives the card details from the reader 23 (see steps 601 to 604 already discussed) and if it identifies as those details as corresponding to a cellular user (step 605), it retrieves the cellular user identity from the store 43 containing this concordance, or from the HLR 73 of the user's home network, (step 606). (This step can be omitted if the user's mobile network identity is provided by the onboard apparatus 20).

The data transmission unit 46 then generates a signal for transmission of the cellular user identity, together with the identity of the terminal 21, to the cellular network 5 acting as host to the interface (step 607). This host network 5 will, in general, not be the same as the user's home network 7. The further steps (608 to 615) in this process will be described later, with reference to Figure 5.

If a cancellation signal is received from the aircraft in respect of a given terminal 21, (step 801, previously discussed) the data transmission unit 46 transmits a "cancellation" signal to the host network 5. As already discussed, the cancellation signal may be generated either for an individual handset 21, by its user dialling a special code, or for all handsets as the result signals received by the radio interface unit 28 over the aircraft's data bus 22 indicative of the imminent end of the flight.

An embodiment of the host network 5 of the invention is shown in Figure 5. Its operation will be discussed with reference to Figures 6, 7 and 8 In this network 5 an interface unit 52 is provided, which is arranged to appear to the switching system 50 as if it is a normal base station of the cellular radio system.

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In order to do this, the interface unit 52 is provided with a data acquisition unit 54 which receives from the card management system 42 of the ground station 4 the identity of the cellular telephone it is to represent, and the AES identity of the onboard terminal 20 (step 608, Figure 6). Mobile telephones have three identification codes: the equipment identity (IMEI, which will not be discussed further here), the directory number (MSISDN) and the actual SIM identity (IMSI). In practice, for security reasons, the IMSI is not made generally known, and a user is normally identified by his MSISDN unless the SIM itself is used. If the SIM is used in the card reader 23, or the user's telephone is used in the arrangement of Figure 3, (in which case no concordance is required) the IMSI can be read directly from the data received by the data acquisition unit 54. However, if the user keys in his own identification data (step 603), or a concordance is provided by the card reader 23, the data acquisition unit will receive the MSISDN, and not the IMSI. (There may also be a PIN or other security code, which is checked by the data acquisition unit 54).

In the GSM standard it is possible to obtain an IMSI if the MSISDN is known by interrogating the appropriate Home Location Register 73. To do this, the interface unit 52 transmits a "request for routing information" signal, using the MSISDN (step 609). The standard HLR 73 responds to such a request with a signal which includes the IMSI corresponding to the MSISDN in the request (step 610).

(The "request for routing information" signal was provided under the GSM standard as a means of obtaining routing information for data messages intended for a destination for which only the MSISDN number is known. However, it may be used for other purposes, such as that described above).

The telephone identity (IMSI), whether obtained directly from the card reader 23 or handset 31, or indirectly as just described, is passed to a network registration unit 55 which exchanges signals with the mobile switching centre 50 in the same way that a real cellular telephone would do. The mobile switching centre therefore informs the user's Home Location Register 73 that the mobile telephone is now registered with the network 5 (step 611). The Home Location Register 73 records that the mobile handset is now registered with host MSC 50 (step 612).

It should be noted that, although registered with the host MSC 50, the user's mobile handset is not operatively connected to the host MSC 50 - in fact the mobile handset may be switched off to allow the card 24 to be used, or it may be connected

to a user terminal 311. The user may be in an aircraft, anywhere in the world within the coverage area of the satellite network.

The user's details, including any diversion instructions, are sent by the Home Location Register 73 to the network's VLR 51 (step 613). A store 57 records a copy of the details of these diversion instructions (step 614).

Conventionally, any incoming calls for a mobile user are sent in the first instance to the user's home network 7, and the HLR 73 provides information to identify the MSC 50 where the mobile handset can currently be found. Consequently, in the present arrangement, any incoming calls intended for the mobile user will now be directed to the network 5, as the mobile user is currently registered there.

The data acquisition unit 54 in the interface 52 now passes the directory number of the termination point 21 to a call diversion instruction unit 56, which generates a "divert on busy" instruction to the VLR 51 (step 615). This is a standard divert arrangement, and operates such that should the mobile unit appear to be engaged on another call when a call attempt is made to it, the call attempt is diverted to a specified directory number, in this case the termination point 21 or 21a, identified by its AES code. This diversion instruction replaces any previous instruction held in the VLR 51. Further settings may be made in the call diversion instruction unit 56, such as the identification of a termination point 21 to which a data message is to be sent when a call is diverted to another termination point 21a.

Of course, there is in fact no mobile telephone connected to the interface unit 52, and therefore it is unable to connect incoming calls to the mobile telephone in the conventional way, or to identify the current true operating condition (switched off, busy, ready for calls, etc) of the mobile handset. Instead, the system responds to a call attempt as will now be described with reference to Figure 7.

When a call attempt is made (step 701), the home MSC 70 to which the call is initially routed obtains from the HLR 73 the current location of the mobile telephone (step 702), and on receiving the identity of the host MSC 50 (step 703), directs the call there (step 703). The host MSC 50 in turn transmits the call attempt to the currently serving base station, which is in fact the interface unit 52 (step 704). If the disconnect procedure (to be described later with reference to Figure 8) has been carried out, the call will not be connected to the onboard system (step 705), and instead a signal is transmitted back to the home MSC 70. Otherwise, call

attempts received by the interface unit 52 are handled by a call request handling unit 58, which automatically returns a "busy" signal to any such request (step 706). The MSC 50, on receiving the "busy" signal, retrieves the diversion information from the VLR 51 (step 708) allowing it to route the call through the PSTN 8 to the user terminal 21, 21a (step 710).

In the event that the destination terminal 21a is not the terminal 21 that originated the instruction, the call request handling unit 58 of the ground-based interface unit 52 may be arranged such that whenever a message addressed to the user's MSISDN is diverted to the terminal 21a, the call request handling unit 58 also generates a data message (step 711) for transmission to the instructing terminal 21 by way of the MSC 50, PSTN 8, and satellite system 4, 6 (step 712) either during the call or after it ends. Such a message can be used for example to alert the user of the terminal 21 that a facsimile message addressed to him has been sent to the terminal 21a. As with the call alerting process described above, the message may be displayed using the in flight entertainment system 200.

If a second call attempt is made, the ACSE 40 may identify that the divert instruction will not work as it is currently handling a diverted call to that number. The default condition in such cases is to arrange for the second call to be diverted to the user's voicemail address (not shown) in his home network 7. The user may also be sent a data message to inform him of the new voicemail message. This message would normally be sent to the mobile unit, which appears to the MSC 50 to be co-operating with the interface unit 52, so the MSC 50 transmits the data message to the interface unit 52 (step 711). In order to inform the user of the new voice mail message, the interface unit 52 now regenerates the data message for forwarding to the user terminal 21 via the MSC 50, PSTN 8, and satellite system 4, 6 (step 712) either during the call or after it ends. However, data messages are not suitable for switching via the MSC 50 and PSTN 8, nor for handling by the on-board terminal 21 as it is only equipped for voice. Because the IMSI is recorded in the HLR 73 as being registered with the "Virtual" BSC, or interface unit, 52, any other data messages intended for the user will also be routed to the interface unit 52, and require forwarding to the user. The way this is achieved, according to the invention, will be discussed later, with reference to Figures 9 and 10. As with the call alerting process

described above, the message may be displayed using the in flight entertainment system 200.

Generally, the detection of the same IMSI from two sources causes an HLR to disconnect both callers as a fraud prevention measure. Since this system causes the generation of an IMSI from the interface unit 52, instead of directly from the mobile telephone to which that IMSI relates, the user's mobile telephone should be switched off, or connected to an onboard interface device 311 which disconnects the radio circuits, to prevent the network detecting the IMSI in two places, which would disrupt the call routing processes in the HLR 73 and elsewhere.. If the user is on board an aircraft, he should not be using his mobile handset in the conventional manner, and so there should be no problem. However, if the user, having left the aircraft, switches on his telephone 75 before the network 5 has reported a loss of the mobile unit from its own network, the mobile unit may be perceived by the HLR 73 as being registered with two networks at once. To avoid this possibility, a disconnection procedure is followed as described with reference to Figure 8.

As already discussed, to stop calls being diverted to the user termination point 21, and restore the original call diversion settings, a disconnection signal may be transmitted from the onboard system 28 to the host network's interface unit 52 (step 801). The disconnection signal may be activated by a special code entered by the user, or it may be generated automatically by data collected from the aircraft's data bus 22 indicative of the imminent end of the flight. Note that this disconnection signal merely controls the interface 52 – it has no effect on calls in progress, which is routed from the host MSC 50 by way of the PSTN 8.

The disconnect instruction is received by the interface unit 52 (step 802) and causes the call diversion instruction unit 56 to retrieve the call diversion data stored in the store 57 (step 803) and generate a call diversion instruction restoring the original settings to the VLR 51 (step 804). This ensures no further calls are routed to the onboard terminal 21.

The interface unit 52 next causes the network registration unit 55 in the interface unit 5 to instruct the MSC 50 that the user is no longer connected to the network 5 (step 805). This allows the mobile unit to register with another network 7 in the normal way. Call attempts to the user number will continue to be routed by the Home HLR 73 to the MSC 50 with which the mobile unit was most recently

registered, (i.e. the host MSC 50) but as that MSC cannot now find the mobile unit, any such incoming call will return a "not found" signal to the home MSC 70 which will divert the call according to any diversion instructions set up, or fail the call. Alternatively, the host MSC 50 may handle the diversion itself if the mobile unit is "not found", using the original diversion instructions now in the VLR 51, having been retrieved from the store 57 (step 804 above).

Having left the aircraft, the user may switch on his mobile telephone 75, which will register with the local network (e.g.7) and will retrieve the original divert information from the HLR 73 (note that in general the HLR 73 will not be in the same network), and will cause all data relating to the user to be deleted from the VLR 51 in the "host" network 5.

An alternative embodiment, in which voice calls are handled by a user's cellular handset but data calls and call alerts are still handled by the onboard in-flight entertainment system, is depicted in Figures 11 and 12.

The system can be categorised into two main components: namely the onboard part 101 (Figure 11) and the fixed part 102 (Figure 12), which communicate with each other through a satellite connection 6. The onboard part (Figure 11) comprises a moveable cellular system 111,112,114,116 and the onboard part 113 of the tracking radio system. The fixed part 102 (Figure 12) is itself in two parts, namely a satellite ground station 4, which is similar to that shown in Figure 1, and the fixed "host" cellular network 104, which is a public land mobile network (PLMN) 104, in turn interconnected with other PLMNs 70 and conventional wired networks (PSTN) 8 to allow calls to be made between users of different networks.

As shown in Figure 11, the system provides a cellular radio subscriber with the ability to use his own handset 110 aboard an aircraft, located anywhere within an agreed satellite coverage area. The coverage on board the aircraft can be provided by any suitable means, using known radio repeater distribution systems 111 to provide radio coverage wherever required.

The distribution system 111 is fed by a base transceiver site 112, served by a base site controller 114 and a mobile switching centre 116, which may have its own visitor location register 117, for onward transmission to the satellite ground station 4 via a satellite tracking system 113. The satellite tracking system may be a

conventional satellite telephone system as commonly used for ship-to-shore communications, and for the airborne systems previously referred to, providing a satellite link 6 from the aircraft or ship's satellite tracking system 113 to the satellite ground station 4. The satellite ground station 4 is in turn connected to the mobile switching centre (MSC) 141 of a conventional cellular telephone system, referred to hereinafter as the "host" system 104 and shown in Figure 12.

The satellite link 4 – 6 - 113 is therefore between the onboard MSC 116 and an MSC 141 (the "host" MSC) of the land-fixed "host" network 104. The user record in the home location register (HLR) 73 of the user's home network identifies the mobile unit 110 as currently served by the land-based network 104, and routes the call to the host MSC 141, which will in turn recognise from its entry in the land based VLR 144 that this mobile unit is currently being served by the onboard MSC 116. The way this is arranged will be described later.

This arrangement allows integration of the onboard MSC 116 with the onboard switching capability associated with the conventional satellite telephone system and the aircraft's internal communications system 115. In particular it provides a simple means of providing passengers and crew with a "Wireless PBX" facility, as users on board the aircraft can communicate with each other through the BSC 114 without using the satellite link 4 - 6 - 113. When a call is made by a cellular telephone 110, the onboard MSC 116 first consults its VLR 117 to establish whether the called party is currently served by the same MSC 116. If this is the case, it connects the call without the use of any inter-MSC links. Thus calls made between two users both on board the aircraft 101 may be made without the use of the satellite link 4 – 6 – 113. The satellite connection provides several voice channels and a signalling channel (supervisory control – management channel), and can be made by any connection of appropriate capacity.

The host network 104 may support one or more further base site controllers 142 controlling conventional base transceiver sites 74. The host Mobile Switching Centre 141 also has an associated "Visitor Location Register" 144 which, in conventional manner, records details of the cellular telephones currently co-operating with the Mobile Switching Centre 141, so that details can be exchanged with the Home Location Register 73 of the user's home network for billing purposes, and to allow incoming calls to be routed correctly. These details include the identity of the

link 4, 142 to which the user is connected, allowing different call charges to be applied for use in different cells, and in particular to distinguish between calls made through the onboard base transceiver site 112 and calls made through conventional base site controllers 142.

In the cellular mobile network 104, standard GSM functionality is used. Users aboard the aircraft will be able to use this service provided they are subscribers to the host network 104, or any other network 70 which has a "roaming" agreement with the host network 104, provided the subscriber has the roaming capability authorised by his service provider.

In this embodiment of the invention, the "host" network 104 operates like a conventional cellular network, but is provided with an interface unit 148 for interworking with the satellite ground station 4. This interface 148 allows the switching centre 141 to obtain user details (in particular the identity of a mobile handset) from the satellite system 4 to allow it to appear to the network 104, and thus to the HLR 73 in the user's home network, that the mobile handset is in radio communication with a base station under the control of the mobile switching centre 141 when in fact it is in communication with the onboard MSC 116. The mobile switching centre can then arrange for call forwarding instructions to be stored in the VLR 144, to cause incoming calls directed to that handset to be diverted, through the switching system 40 of the satellite network 4, to the onboard MSC 116.

The operation of the system is as follows. When a mobile unit 110 first makes contact with the onboard cellular system 101 it transmits its identity code (IMSI) to the onboard MSC 116 in the usual way. The onboard MSC 116 can obtain verification data from the user's HLR 73 (identified by the IMSI code) to verify the authenticity of the user, and permit outgoing calls. However, because the onboard MSC 116 is only contactable through the satellite system, incoming calls to the mobile unit 110 cannot be reliably routed to the onboard MSC 116 over a conventional link. In order to avoid a requirement for special facilities in each network 70 it is convenient to make the mobile unit 110 appear to be working to a conventional mobile switching centre 141.

When the onboard MSC 116 detects a call attempt or registration attempt from a mobile unit 110, it collects from the mobile unit its identity code (IMSI) and passes it to a processor 118. If the processor 118 has not previously done so, it

generates a temporary onboard identity for association with the mobile identity code (IMSI), and stores it in a memory 119. For aircraft fitted with at-seat satellite telephone equipment, each handset has an identity code (generally related to the number of the passenger seat to which the handset is fitted) to allow outgoing calls to be billed to the correct user and to allow the system to be used to communicate between passengers. Spare numbers in this system (referred to herein as "pseudo seat numbers" - PSN) may be used as the temporary onboard identities allocated to mobile handsets working to the onboard MSC 116. If the mobile handset 110 has previously contacted the onboard MSC 116, and not subsequently de-registered, the processor 118 now retrieves the PSN corresponding to the IMSI from the memory 119.

As with the arrangement of Figure 1, the present embodiment allows the host network to translate the called party's IMSI to an AES code (including seat number), which in this case is a pseudo-seat number (PSN) allocated randomly from the numbers left spare after codes have been allocated for at-seat terminals. The translation takes place in the host network, without the need for the caller to know the AES code. The temporary onboard identity code PSN associated with the called party's IMSI is returned to the onboard MSC 116 which sets up a call over the satellite system to the host MSC 141 of the host network 104. The satellite system requires certain authentication data on call set up, namely the AES code and a subscriber identity code which normally identifies an individual subscriber to the satellite system or, if the user does not have an account with the satellite system, credit card details or other details to allow payment to be made. In the present case the onboard MSC 116 provides the cellular telephone's code (IMSI) as the subscriber identity code. For security reasons, this code may be encrypted. If an outgoing call attempt is being made, a call attempt is then made to the number dialled; otherwise a special code, referred to herein as the non-call code ("NCC") is used.

If the caller has not previously been registered, but a special non-call registration code is used, the ACSE 40 of the ground station 4 recognises it as being an authorised free call to the host MSC 141 and routes it accordingly. Calls using this code are permitted even if the IMSI has not previously been registered with it.

The host network 104 will, in general, not be the same as the user's home network 70. In the host network 104 an interface unit 148 provides certain additional functionality to co-operate with the satellite ground station 4.

When a call is received by the satellite ground station 4 using the non-call code (NCC) the ACSE 40 retrieves the data and passes it to an interface unit 148, which retrieves the identity (IMSI) of the cellular telephone, and the PSN associated with it. The IMSI (de-encrypted if necessary), is passed to a network registration unit 145 which exchanges signals with the host mobile switching centre 141 in the same way that a real cellular telephone would do if registering through one of its base stations 74. The mobile switching centre therefore informs the user's Home Location Register 73 that the mobile telephone is now registered with the network 104. The Home Location Register 73 records that the mobile handset is now registered with host MSC 141.

It should be noted that, although registered with the host MSC 141, the user's mobile handset is not operatively connected to the host MSC 141. The user, and the handset, may be on a suitably equipped vehicle anywhere in the world within the coverage area of the satellite network 6.

The user's details, including any diversion instructions, are next sent by the Home Location Register 73 to the network's VLR 144. A store 147 records a copy of the details of these diversion instructions for subsequent retrieval when the mobile unit deregisters.

Conventionally, any incoming calls for a mobile user are sent in the first instance to the user's home network 70, and the HLR 73 provides information to identify the MSC where the mobile handset is expected to be found, which is the host MSC 141. Consequently, in the present arrangement, any incoming calls intended for the mobile user will now be directed to the network 104, as the mobile user is currently registered there.

The interface unit 148 passes the AES code to a call diversion instruction unit 146, which generates a "divert on busy" instruction to the VLR 144. This is a standard divert arrangement, and operates such that should the mobile unit appear to be already engaged on a call when a new call attempt is made to it, the new call attempt is diverted to a specified directory number, in this case the AES code

allocated to the mobile unit. This diversion instruction replaces any previous instruction held in the VLR 144.

Finally, the registration process is closed by returning an authorisation code from the host MSC 141 to the subscriber management system 42 of the satellite system 4, to allow the IMSI to be recognised as a valid user identification for subsequent outgoing calls.

The aircraft may have an at seat information system 200 with provision for connection of the handset 110, similar to the hands-free sets commonly provided in cars. This allows audio signals to be transferred to the at-seat system's headset 202, preventing disturbance to other passengers. The at-seat system may also have means for collecting ringing tone from the handset 110, and generating a visual alert on the display screen 201 or an audible one on the headset 202.

The operation of the system will now be described with reference to Figure 13. When a mobile unit 10 first makes contact with the onboard cellular system 101 it transmits its identity code (IMSI) to the onboard MSC 116 in the usual way. The onboard MSC 116 can obtain verification data from the user's HLR 73 (identified by the IMSI code) to verify the authenticity of the user, and permit outgoing calls. However, because the onboard MSC 116 is only contactable through the satellite system, incoming calls to the mobile unit 110 cannot be reliably routed to the onboard MSC 116 over a conventional link. In order to avoid a requirement for special facilities in each network 70 it is convenient to make the mobile unit 110 appear to be working to a conventional mobile switching centre 141.

When the onboard MSC 116 detects a call attempt or registration attempt from a mobile unit 110, (step 1601) it collects from the mobile unit its identity code (IMSI) and passes it to a processor 118. If the processor 118 has not previously done so, it generates a temporary onboard identity for association with the mobile identity code (IMSI), and stores it in a memory 119 (step 1602). For aircraft fitted with at-seat satellite telephone equipment, each handset has an identity code (generally related to the number of the passenger seat to which the handset is fitted) to allow outgoing calls to be billed to the correct user and to allow the system to be used to communicate between passengers. Spare numbers in this system (referred to herein as "pseudo seat numbers" - PSN) may be used as the temporary onboard identities allocated to mobile handsets working to the onboard MSC 116. If the mobile handset

110 has previously contacted the onboard MSC 116, and not subsequently de-registered, the processor 118 retrieves the PSN corresponding to the IMSI from the memory 119 (step 1603).

In existing onboard systems a user cannot receive calls unless the caller knows the unique "AES" number of the at-seat terminal 201, which is made up of the seat code and an identity code of the aircraft (which together make up a unique "AES" code). It is unlikely, even for a normal satellite handset, that a caller would know the AES code, as the number depends on the identity of the aircraft, the seat, and the serving satellite or base station. (It should be noted that the passenger list of an aircraft is not normally released to the general public until the flight has ended, for security reasons). The present embodiment allows the host network to translate the called party's IMSI to an AES code, which includes a pseudo-seat number (PSN), which is allocated randomly from the numbers left spare after codes have been allocated for at-seat terminals. The translation takes place in the host network, without the need for the caller to know the AES code.

The temporary onboard identity code PSN associated with the called party's IMSI is returned to the onboard MSC 116 which sets up a call over the satellite system to the host MSC 141 of the host network 104 (step 1604). For a normal satellite call, the satellite system requires certain authentication data on call set up, namely the AES code and a subscriber identity code which normally identifies an individual subscriber to the satellite system or, if the user does not have an account with the satellite system, credit card details or other details to allow payment to be made. In the present case the onboard MSC 116 provides the cellular telephone's code (IMSI) as the subscriber identity code. For security reasons, this code may be encrypted. If an outgoing call attempt is being made, a call attempt is then made to the number dialled; otherwise a special code, referred to herein as the non-call code ("NCC") is used.

The satellite ground station 4 shown in Figure 4 has a radio antenna system 44 for communicating with the onboard system 101, through a satellite link 6 or otherwise. Signals are handled by an Access Control Signalling Equipment (ACSE) 40 which carries out switching functions to route calls to or from the public switched telephone network (PSTN) 8.

A subscriber management system 42 in the satellite ground station comprises a data acquisition unit 47 which reads identification data transmitted from the aircraft (step 1605) to identify the subscriber, confirm his account details and arrange billing for any calls made, through a billing system 45 which raises invoices, or interacts with the systems of a credit card operator, bank, or other telephone operator. In the present case the card management system recognises the IMSI transmitted as the subscriber identity. Provided the IMSI has previously been registered with the subscriber management system 42 (as will shortly be described: step 1616) the call is authorised using the satellite system's authorisation checking and billing system as for any call from an onboard satellite terminal, and connected to the PSTN 8 (step 1606), billing details being passed to the home network through the host MSC 141.

If the caller has not previously been registered, but a special non-call registration code is used, the ACSE 40 recognises it as being an authorised free call to the host MSC 141 and processes it accordingly (step 1607) by retrieving the data and forwarding it to the interface unit 52 in the host network 5 . Calls using this code are permitted by the subscriber management system 42 even if the IMSI has not previously been registered with it.

The host network 5, 104 will, in general, not be the same as the user's home network 70. In the host network an interface unit 148 provides certain additional functionality to co-operate with the satellite ground station 4.

When a call is received from the satellite ground station 4 using the non-call code (NCC) the ACSE 40 transmits the data to the interface unit 148 (step 1608). The interface unit 148 then retrieves the identity (IMSI) of the cellular telephone, and the AES identity of the onboard terminal 201 (step 1608, Figure 13). The IMSI (de-encrypted if necessary), is passed to a network registration unit 145 which exchanges signals with the host mobile switching centre 141 in the same way that a real cellular telephone would do if registering through one of its base stations 74. The mobile switching centre therefore informs the user's Home Location Register 73 that the mobile telephone is now registered with the network 104 (step 1611). The Home Location Register 73 records that the mobile handset is now registered with host MSC 141 (step 1612).

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It should be noted that, although registered with the host MSC 141, the user's mobile handset is not operatively connected to the host MSC 141. The user, and the handset, may be on a suitably equipped vehicle anywhere in the world within the coverage area of the satellite network 6.

The user's details, including any diversion instructions, are next sent by the Home Location Register 73 to the host network's VLR 144 (step 1613). A store 147 records a copy of the details of these diversion instructions (step 1614).

Conventionally, any incoming calls for a mobile user are sent in the first instance to the user's home network 70, and the HLR 73 provides information to identify the MSC where the mobile handset is expected to be found, which is the host MSC 141. Consequently, in the present arrangement, any incoming calls intended for the mobile user will now be directed to the network 104, as the mobile user is currently registered there.

The interface unit 148 passes the AES code to a call diversion instruction unit 46, which generates a "divert on busy" instruction to the VLR 144 (step 1615). This is a standard divert arrangement, and operates such that should the mobile unit appear to be already engaged on a call when a new call attempt is made to it, the new call attempt is diverted to a specified directory number, in this case the AES code allocated to the mobile unit. This diversion instruction replaces any previous instruction held in the VLR 144.

Finally, the registration process is closed by returning an authorisation code from the host MSC 141 to the subscriber management system 42 (step 1616) to allow the IMSI to be recognised as a valid user identification for subsequent outgoing calls.

Of course, although the mobile telephone 10 is recorded in the home location register 73 and in the host's visitor location register 144 as being connected to the host MSC 141, it is not really there and therefore the host MSC 141 is unable to connect incoming calls to the mobile telephone in the conventional way, or to identify the current true operating condition (switched off, busy, ready for calls, etc) of the mobile handset 110. Instead, the system responds to a call attempt as will now be described with reference to Figure 14.

When a call attempt is made (step 1701), the MSC in the home network 70 to which the call is initially routed obtains from the HLR 73 the current location of the

mobile telephone (step 1702), and on receiving the identity of the host MSC 141, directs the call there (step 1703). The host MSC 141 in turn attempts to transmit the call attempt to the currently serving base station, which is in fact the interface unit 148 (step 1704). If the disconnect procedure already described with reference to Figure 8) has been carried out, the call will not be connected (step 1705) and a signal is transmitted back to the home MSC 70. Otherwise, the interface unit 148 automatically returns a "busy" signal to any such request (step 1706). Note that the interface unit 148 has no information regarding the true operating state of the mobile unit 110. It is merely arranged to emulate the target mobile unit's response to a call attempt when the target mobile unit is in the "busy" condition.

The host MSC 141, on receiving the "busy" signal, checks whether any incoming call currently in progress to that mobile handset has already been diverted (step 1707). (This is a standard procedure, done to ensure that call diversions are not attempted if they will not actually succeed). If there is no such diverted call in progress, the host MSC 141 retrieves the diversion information (the AES) from the VLR 144 (step 1708) allowing it to route the call through the PSTN 8 and the satellite system 3 to the onboard system 101 (step 1710).

The onboard system 101 routes incoming calls to a node of the onboard system according to the AES code. If the node is connected to a real at-seat terminal, the call is simply routed to that terminal. However, in this case, the code corresponds to a pseudo seat number, which the onboard satellite system switch 113 recognises as meaning that the call is to be routed to a node connected to the onboard MSC 116. The onboard MSC 116 uses the processor 118 to retrieve from the memory 119 the cellular identity (IMSI) corresponding to the PSN, (step 1711) and then connects the call to the mobile handset 110 having that identity in the conventional manner (step 1712). Thus the interaction between the onboard MSC 116 and the handset 110 is entirely conventional: ordinary handsets can be used and no initial authorisation is required other than the standard procedures used to ensure that international "roaming" is permitted.

If a second call attempt is made to a handset already in use, the ACSE 50 will identify that the divert instruction will not work as it is already handling a diverted call to that number. The default condition in such cases is to arrange for the second call to be diverted to the users' voicemail address (not shown) in his home

network 70. The user may also be sent a message to inform him of the new voicemail message. This message would normally be sent to the mobile unit, which appears to the host MSC 141 to be co-operating with the interface unit 148, so the host MSC 141 transmits the data message to the interface unit 148 (step 1711). In order to inform the user of the new voice mail message, the interface unit 148 now regenerates the data message for forwarding to the onboard MSC 116 via the satellite system 3 (step 1712) for alerting the user terminal 110 either during the call or after it ends.

As the onboard system 101 is itself mobile, being on board an aircraft, call routing to that termination may require revision from time to time. For example, the "Inmarsat" satellite system comprises several geostationary satellites, which each provide cover for part of the earth's surface. These areas of coverage overlap to a large extent, but nevertheless on a long flight the aircraft may pass out of the area covered by one satellite into that served by another. This causes a small but significant change in the network address AES of any terminal on board the aircraft. The aircraft location register 41 monitors the identity of all aircraft currently being handled by the satellite ground station 4. When an aircraft moves into range of a different satellite 6, the call diversion unit 146 responds by transmitting a new call diversion instruction to the VLR 144, so that any further incoming call attempts are diverted to the new network address (AES) of the node corresponding to the terminal 110. Note that the diversion store 147 is not updated.

Note also that this does not affect calls already in progress. There is usually sufficient overlap in satellite coverage areas that handover from one satellite or base station to another can be arranged to take place when no call is in progress

During the flight the user may decide that he no longer wishes to have his calls diverted to the terminal 110, and switches it off. The onboard MSC 116 will therefore fail to locate the mobile handset 110 at the next registration update. As previously discussed, it is also desirable to disable the onboard system 101 when the aircraft is on approach to landing, to avoid interference with aircraft systems at this critical point in the flight (or distractions to passengers in the event of an emergency), and also to avoid interference with base stations on the ground. Disconnect codes may therefore be generated in the onboard MSC 116 for all the handsets 110, either by the cabin crew or automatically in response to a signal

detected on the aircraft's data bus 22 which is indicative of the imminent end of the journey, such as time remaining to destination (as determined by the aircraft's flight management system), low altitude, deployment of undercarriage, or weight on wheels.

On receiving a de-registration signal (steps 801,802 Figure 8), the host network 104 retrieves the original divert information from the store 147 (step 803) and stores that in the VLR 144 (step 804), thereby restoring the user's own selected divert instructions automatically.

Once he has left the aircraft, the user may switch on his mobile telephone 110, which will register with the local network (e.g. network 70), informing the home location register 73 of the location update (note that in general the HLR 73 will not be in the same network as the local network 70). The HLR 73 retrieves the user's VLR settings from the previous host network 102. Because the original VLR data has been restored (step 804), the temporary divert data used whilst the user was connected to the onboard system is not fed back to the HLR. All data relating to the user can then be deleted from the VLR 44 in the "host" network 102.

In use, both parties to a call, and most of the cellular network, operate normally. The cellular telephone 110 co-operates with the base station 112 on the aircraft as it would with any other base station 74. The home location register 73 identifies the cellular telephone 110 as currently served by the host MSC 141, and routes incoming calls accordingly. This invention therefore allows connection to be made to conventional handsets 110 using standard cellular telephony equipment. The operation of the host MSC 141 and the onboard MSC 116 are both largely conventional except for the number translation functions carried out by the interface units 118, 148. Using roaming capabilities, just one host MSC 141 can provide connection to a large number of airborne MSCs 116, anywhere in the range of the satellite system 4, 6.

To allow the use of the at seat display system 201 for data messages, not suitable for transmission over the PSTN and satellite system in their original form the interface unit 52 (Figure 5), 148 (Figure 12) is provided with a data handling processor 53,149 for receiving data messages received over a packet data system 9 by way of the MSC 50,141 and intended for users currently associated with the interface unit 52,148. These messages include SMS messages sent from other

callers, and SMS messages generated by the MSC 50,141 itself to alert the user that a message has been sent to the voice mail system. The format of such a message is shown in Figure 9, and the process of sending and receiving it is shown in Figure 10.

The original message 900 basically consists of a data payload 901 and an address 902, which is the IMSI of the destination mobile telephone (figure 9a).

When the interface unit 53,148 receives such a data message (step 990) it retrieves from the data acquisition unit 54,149 the data network address of the at-seat entertainment terminal 201 corresponding to the user's cellular identity which was originally provided to the data acquisition unit 54,149 when the user carried out the registration procedure (step 991). The interface unit 53,148 next generates a data call to that address (step 992), in a form suitable for transmission by the MSC 50,141 (step 993) over the packet data network 9 to the aircraft, with an address header corresponding to the data network address of the user's at-seat terminal 201,201. This data call may be a short message to indicate that a message is awaiting delivery, and displaying on the screen 201 an invitation to the user to dial a special code on his handset 25,110 to accept the message (step 994), and any charge associated with it. This acceptance is transmitted back, by way of the MSC 50, 141 to the interface unit 53,148 (step 995). (These steps 992 – 995 may be omitted if it is not required for users to acknowledge acceptance before receiving a data message).

The interface unit 53,148 then replaces the address header (the IMSI) 902 in the original data message with a code 912 identifying the terminal 201 and encapsulates the message in a form suitable for transmission over the packet data network 9 to the aircraft (step (996), with an address header 910 to send it to the data network interface 28, 204 serving the onboard entertainment system 200. It can thus be transmitted to the interface 28, 204 over the packet data network 9 (step 997), effectively as a packet with an address header 910 and a payload made up of the at-seat terminal number 912 and true payload 901 (Figure 9b).

On receipt of the data message, the on board data interface 28, 204 extracts the data message payload 901, 912, (Figure 9c) (step998) and identifies the individual at-seat terminal 201 identified by the address 912. It can then cause display of the data message payload 901 on the screen 201 of the appropriate terminal (step 999).

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If password protection is required, for example to ensure that the user is present when the message is displayed, the payload 901, 912 can also include a password code 913, which causes the interface 28, 204 to withhold the remainder of the payload until a predetermined sequence of keystrokes has been entered by the user in the terminal 201.

In the embodiment of Figures 11 and 12 it is arranged that the MSC 141 has similar features to those described for the MSC 50 and described with reference to Figure 9 and 10. the invitation (step 992) is sent as a voice message to the user terminal 110, and prompts the user to identify his at-seat terminal (in practice the user will be asked for his seat number), either by key presses (using DTMF coding) or by voice (step 995). The acceptance step is therefore performed over the voice network, rather than the data network. The MSC uses this information to generate an AES code identifying the user terminal, to be applied to the data message 910 (Figure 9). The host MSC may store this code for use with subsequent data messages, allowing the host MSC 141 to process further data messages without requesting this information from the user again. The request for the user's seat number may instead be made when he first registers his telephone 110 with the onboard MSC 116.

As the termination is itself mobile, being on board an aircraft, call routing to that termination may require revision from time to time. For example, the "Inmarsat" satellite system comprises several geostationary satellites, which each provide cover for part of the earth's surface. These areas of coverage overlap to a large extent, but nevertheless on a long flight the aircraft may pass out of the area covered by one satellite into that served by another. This causes a small but significant change in the network address of any satellite terminal on board the aircraft. The aircraft location register 41 monitors the identity of all aircraft currently being handled by each ground station 4. When it an aircraft location is updated, it sends an instruction to the interface unit 5, 148. The call diversion instruction unit 56, 146 responds by transmitting a new call diversion instruction to the VLR 51,144 so that any further incoming call attempts are diverted to the new network address of the terminal. Note that the diversion store 57,147 is not updated. Note also that this does not affect calls already in progress: there is usually sufficient overlap in coverage areas that handover from one satellite or base station to another can be arranged to take place when no call is in progress.

Figure 15 shows a process for intercepting calls when the onboard system 2, 101 is switched off at times when its operation could interfere with conventional land-based cellular systems or with electronic control systems of the vehicle, to enforce "quiet" periods on board, or to allow transfer of the satellite link from one satellite to another. The control to switch the system off may be performed manually or under the control of a sensor detecting interference from nearby radio base stations 74, or an operational condition of the vehicle, such as deployment of the aircraft undercarriage, low altitude, or "weight on wheels", communicated to the onboard system by means of the control data bus 22. When such a disconnection occurs (step 1501), a signal is generated in the onboard system 2, 101 (step 1502) for transmission over the satellite link 6 to the ground station 4 (step 1503). This signal causes the satellite ground station to invoke a call failure mode for any call directed to the onboard system 2, 101 of the specified vehicle (step 1504).

Any call now diverted by the MSC 70, 141 to a number corresponding to a node on board the vehicle (step 1505) will then receive a "call failed" indication from the ground station (step 1506), without any signalling required over the satellite link 6, 206, 406, 506. Such failed calls will be re-routed according to the user's own diversion instructions, stored by the host MSC 50, 141, 241, 470, 541 for use when the user's handset is busy (step 1507). Generally, such instructions will be to divert the call to a voicemail system in the user's home network. In addition, the host MSC 50, 141, 241, 470, 541 will record the existence, and possibly the origin (Calling line identity – CLI) of any such call attempts (step 1508).

When the onboard system 2, 101 is re-activated (step 1511) a further signal is transmitted by the onboard system (step 1512) for transmission over the satellite link 6 to the ground station 4 (step 1513). This signal causes the satellite ground station to revoke the call failure mode for calls directed to the onboard system 2, 101 of the specified vehicle (step 1514). When a user 25, 110 reconnects to the onboard system 2, 101 (step 1515) the onboard system transmits a signal to the host MSC 70, 141 (step 1516) which causes the host MSC to retrieve the call attempt record previously stored for that user (step 1518). If one or more such call attempts have been made, the MSC returns a message to the user 25, 110 (step 1519), prompting the user to retrieve his messages from the voicemail system should he so wish.

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CLAIMS

1. A method of converting data messages originally formatted for transmission over a first telecommunications network for generation of a display on a display unit of a first type, the conversion being such that messages can be transmitted over another telecommunications network for display by a selected display unit of a second type forming part of a server-based information display system, wherein the address information in the original data message is replaced by address information appropriate to the selected display unit to generate an amended data message, and a new data message is created, addressed to the server of the information display system and having the amended data message as payload, and wherein the server converts the amended data message into control instructions suitable to display the information content of the data message on the information display unit identified in the amended data message.

2. A method according to claim 1, wherein the data message is originally formatted for transmission over a cellular telephone network for display by a cellular telephone handset.

3. A method according to claim 1, wherein the data message is generated by the cellular switching system in response to a message being deposited in a call answering system.

4. A method according to any preceding claim, wherein prior to transmission of the amended original data message to the server an alerting data message is created, indicative of the presence of the original data message, addressed to the server of the information display system, and carrying address information appropriate to the selected display unit, thereby causing the server to generate control instructions suitable to display an alerting message on the information display unit so identified, and wherein the amended original data message is forwarded to the server in response to an instruction from a termination point associated with the destination display unit.

5. A method according to any preceding claim, wherein the amended data message includes password data, and wherein when the server receives a data message it causes the display means to indicate the presence of a data message, and displays the data message only if it receives a predetermined input from a user terminal associated with the display means.

6. Apparatus for converting data messages originally formatted for transmission over a first telecommunications network for generation of a display on a display unit of a first type, such that messages can be transmitted over another telecommunications network for display by a selected display unit of a second type forming part of a server-based information display system, the apparatus comprising

means for replacing the address information in the original data message by address information appropriate to the selected display unit to generate an amended data message,

means for creating a new data message addressed to the server of the information display system and having the amended data message as payload.

7. Apparatus according to claim 6, comprising

means for creating an alerting data message indicative of the presence of the original data message, addressed to the server of the information display system, the alerting message carrying address information appropriate to the selected display unit to cause the server to generate control instructions suitable to display an alerting message on the information display unit so identified, and

means for forwarding the amended original data message to the selected server in response to an instruction from a termination point associated with the destination display unit.

8. Apparatus according to claim 6 or 7 further comprising means to generate password data.

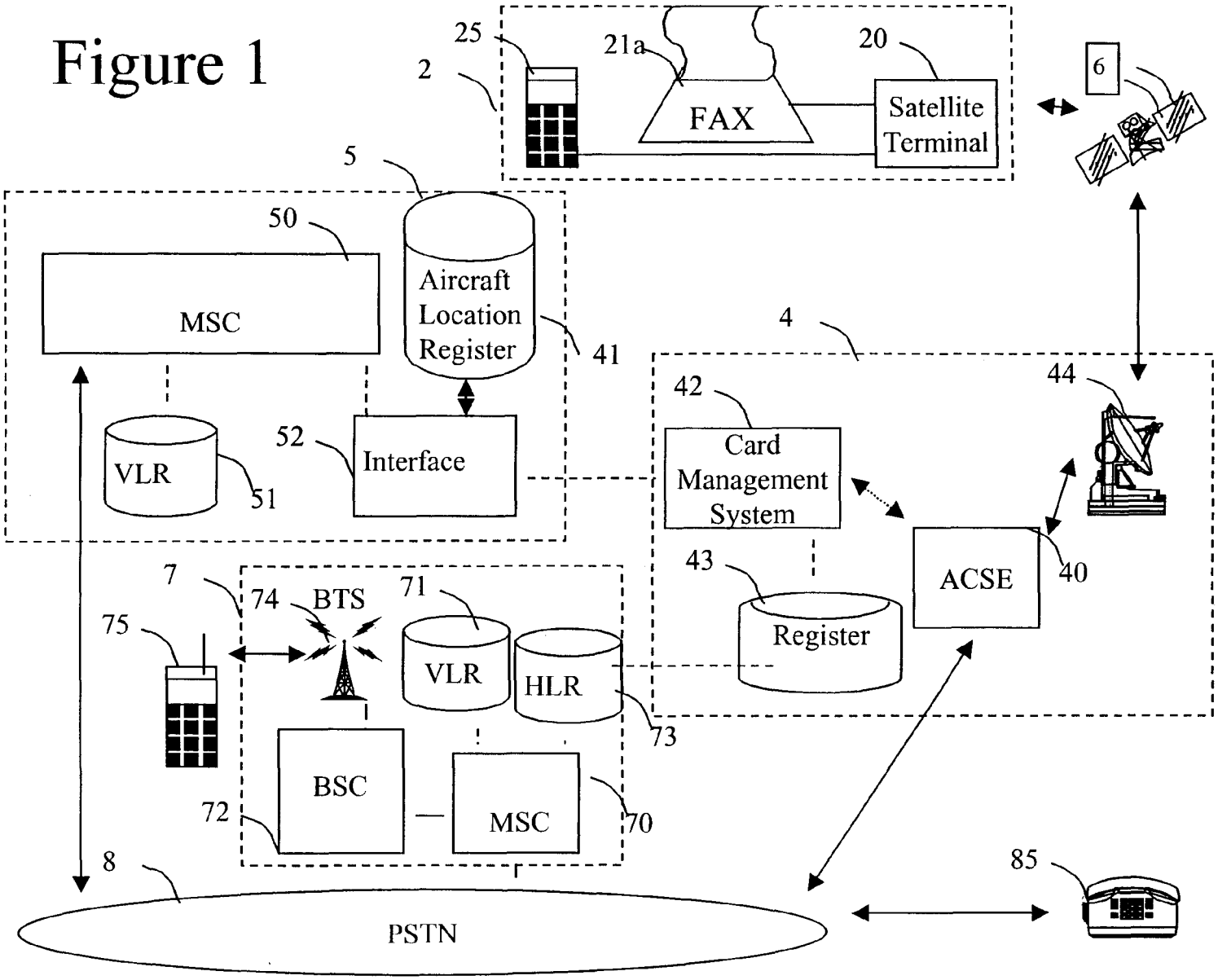
9. Server apparatus forming part of a server-based information display system for receiving messages generated by the apparatus of claim 6, 7 or 8, for display by a selected display unit, the server comprising means for converting a data message

formatted for display on a display unit of a first type into control instructions suitable to display the information content of the data message on an information display unit of a second type controlled by the server, the information display unit being identified in the data message

10. Apparatus according to claim 9, comprising means to cause the display means to indicate the presence of a data message, and means responsive to a predetermined input from a user terminal associated with the display means to display the data message, the predetermined input being a password associated with the data in the data message.

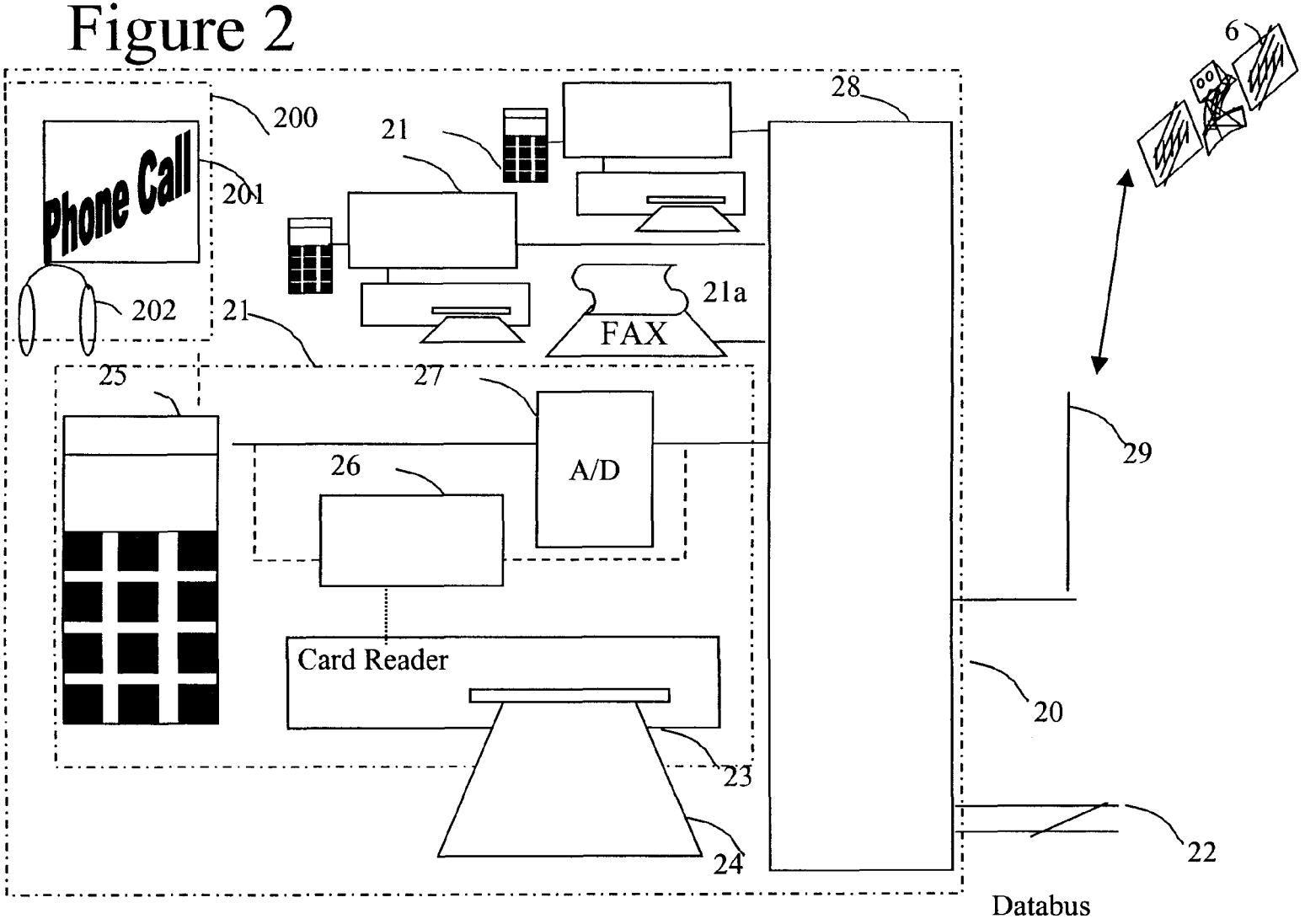
11. Apparatus according to any of claims 6 to 10, wherein the data message is originally formatted for transmission over a cellular telephone network for display by a cellular telephone handset.

Figure 1



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Figure 2



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Figure 3

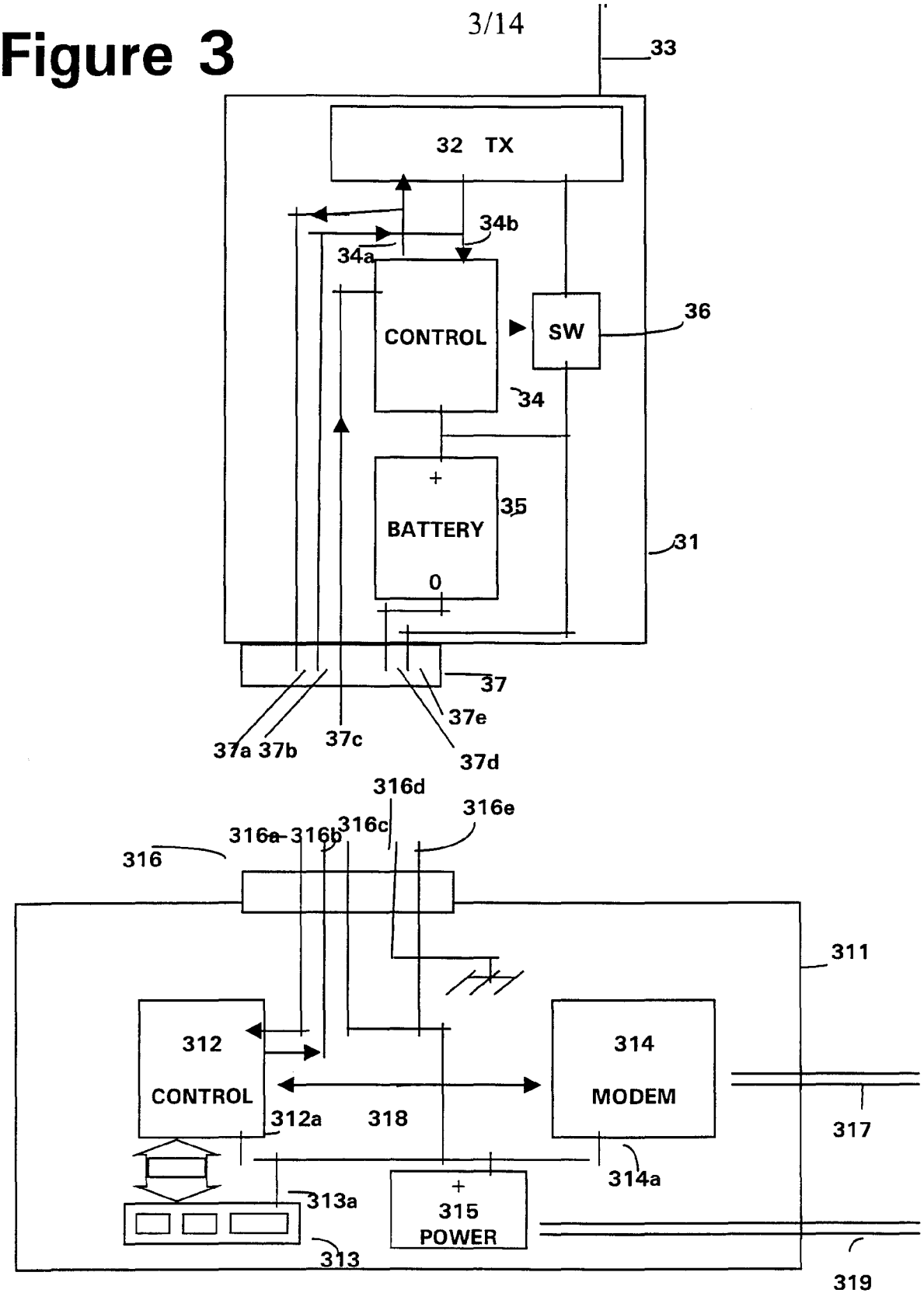

33
32 TX
34b
34a
CONTROL
SW
36
34
+
BATTERY
35
0
31
37
37a 37b
37c
37e
37d
316d
316e
316c
316a 316b
316
311
312
CONTROL
312a
318
314
MODEM
317
314a
313a
+
315
POWER
313
319

Figure 4

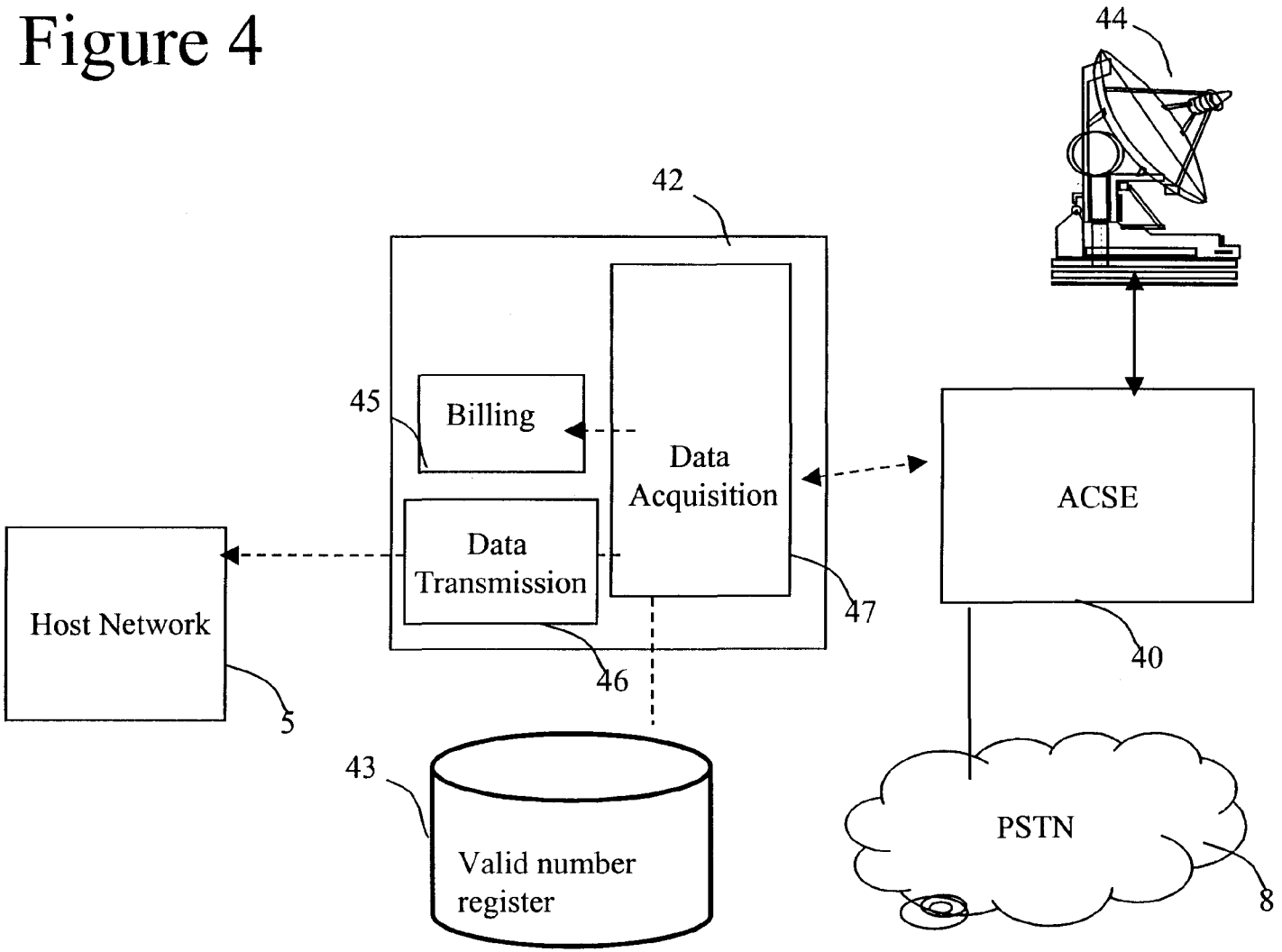
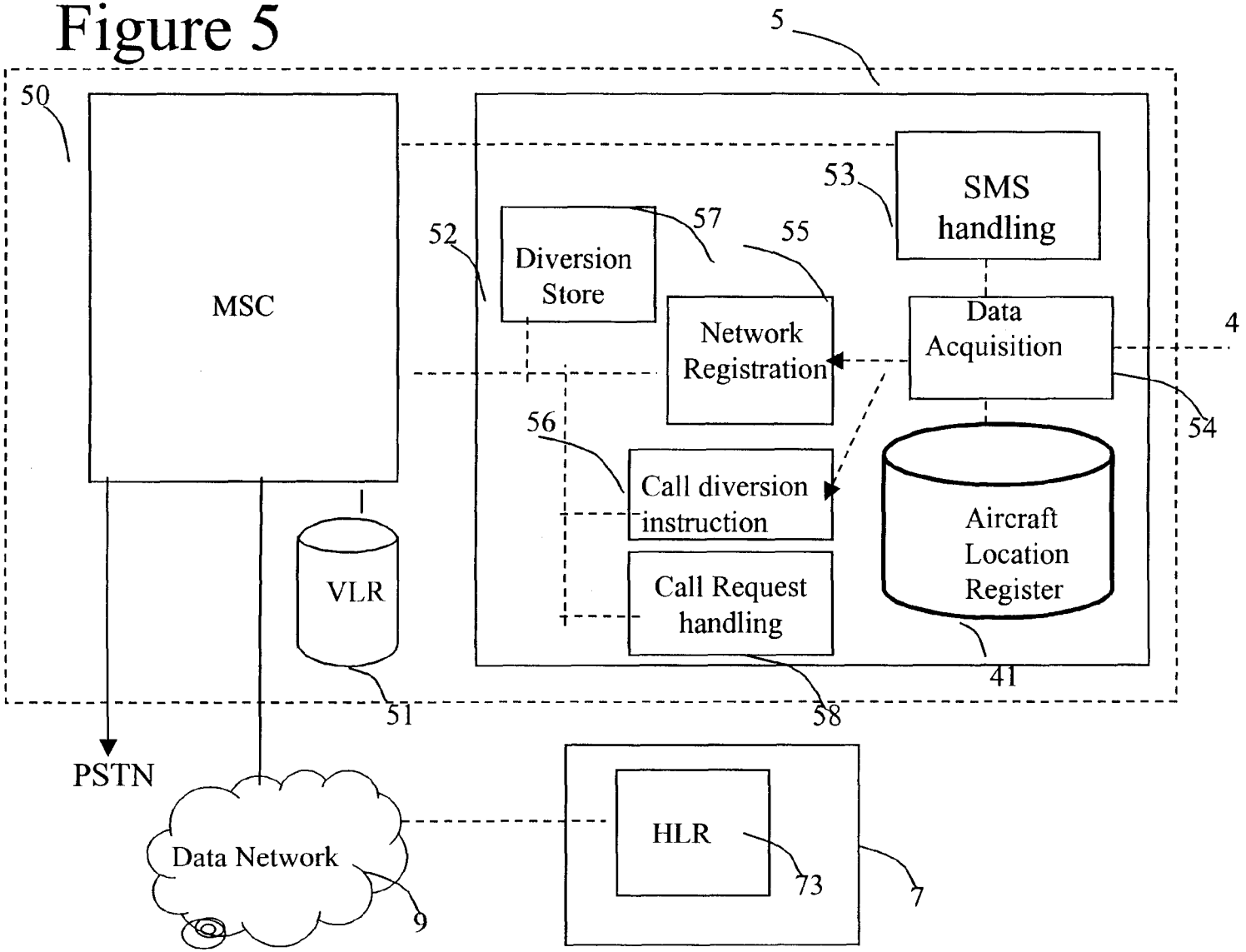

44
42
45
Billing
Data
Acquisition
ACSE
Data
Transmission
Host Network
47
46
40
5
43
Valid number
register
PSTN
8

Figure 5


5
50
MSC
53
SMS handling
52
Diversion Store
57
55
Network Registration
Data Acquisition
4
54
56
Call diversion instruction
Aircraft Location Register
Call Request handling
41
VLR
51
58
PSTN
Data Network
9
HLR
73
7

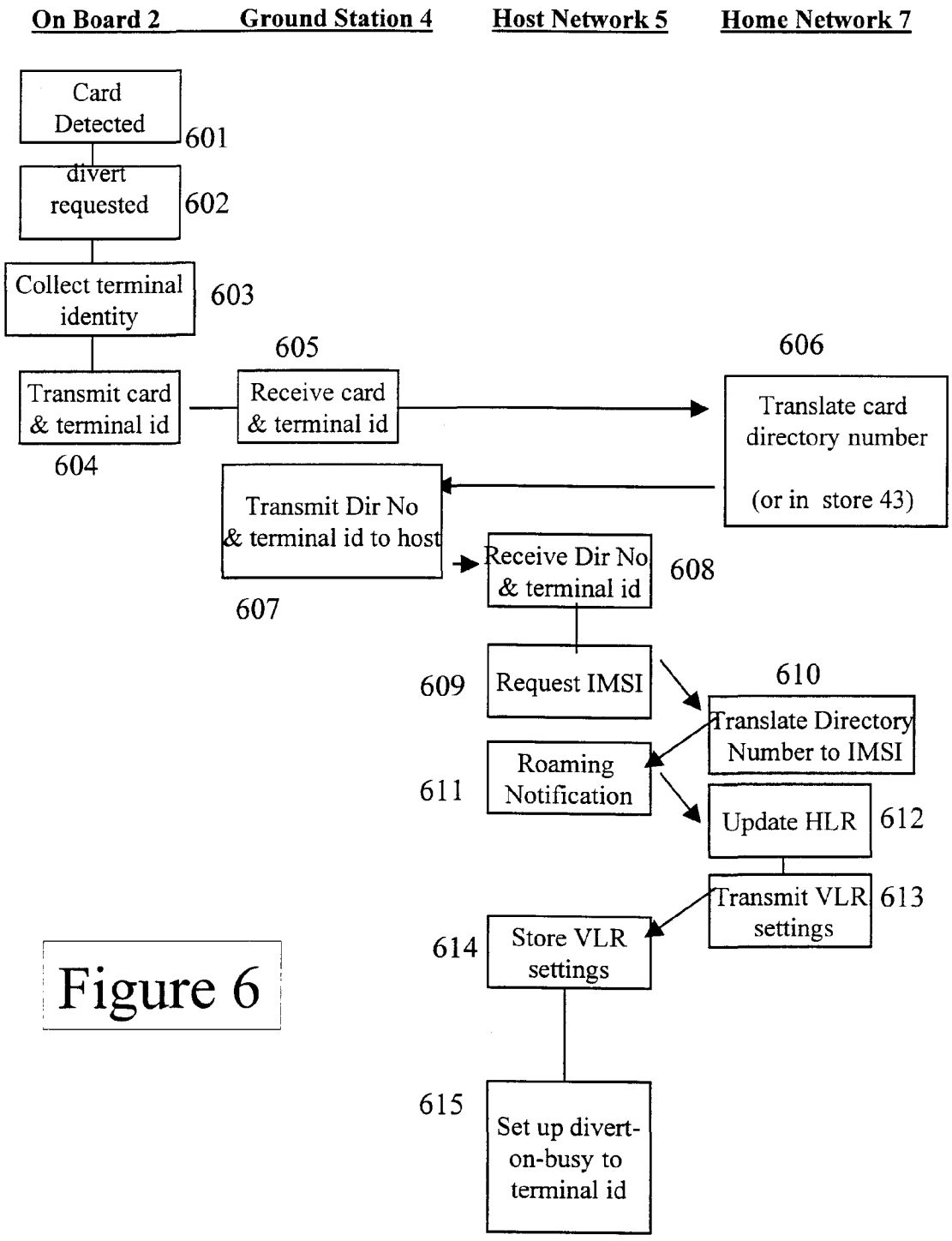

On Board 2
Ground Station 4
Host Network 5
Home Network 7
Card Detected
601
divert requested
602
Collect terminal identity
603
Transmit card & terminal id
604
605
Receive card & terminal id
606
Translate card directory number
(or in store 43)
Transmit Dir No & terminal id to host
607
Receive Dir No & terminal id
608
609
Request IMSI
610
Translate Directory Number to IMSI
611
Roaming Notification
Update HLR
612
Transmit VLR settings
613
614
Store VLR settings
615
Set up divert-on-busy to terminal id

Figure 6

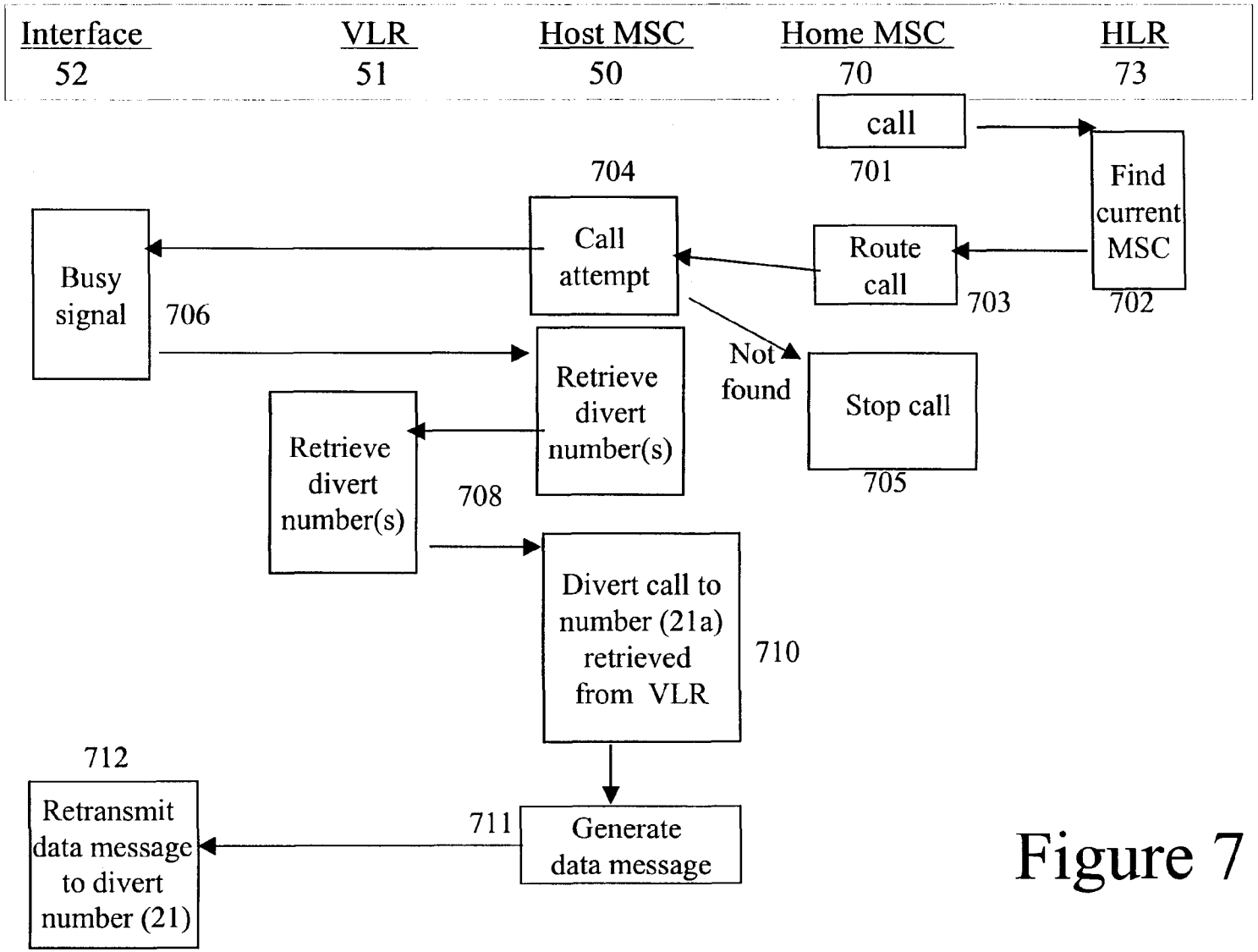


Figure 7

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Figure 8

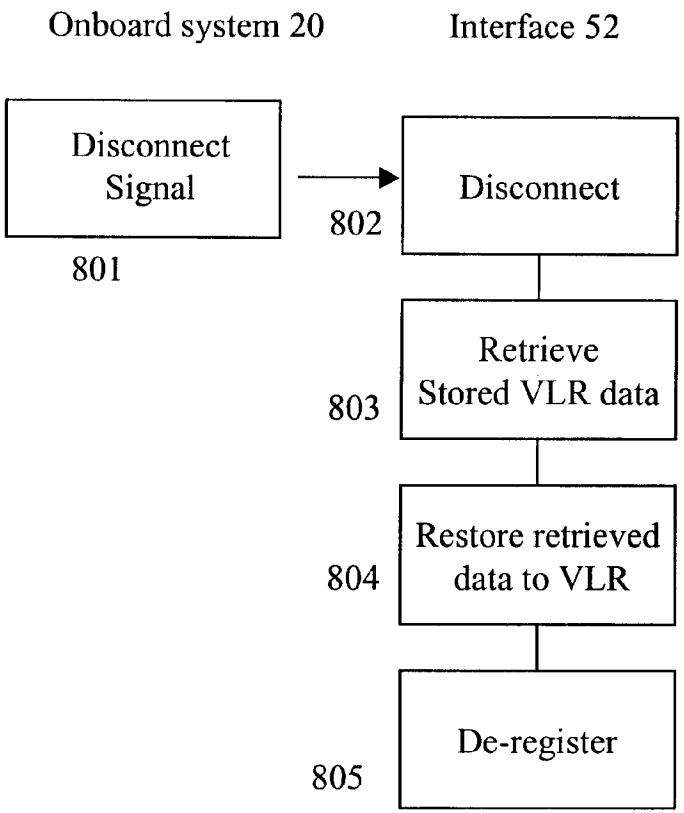
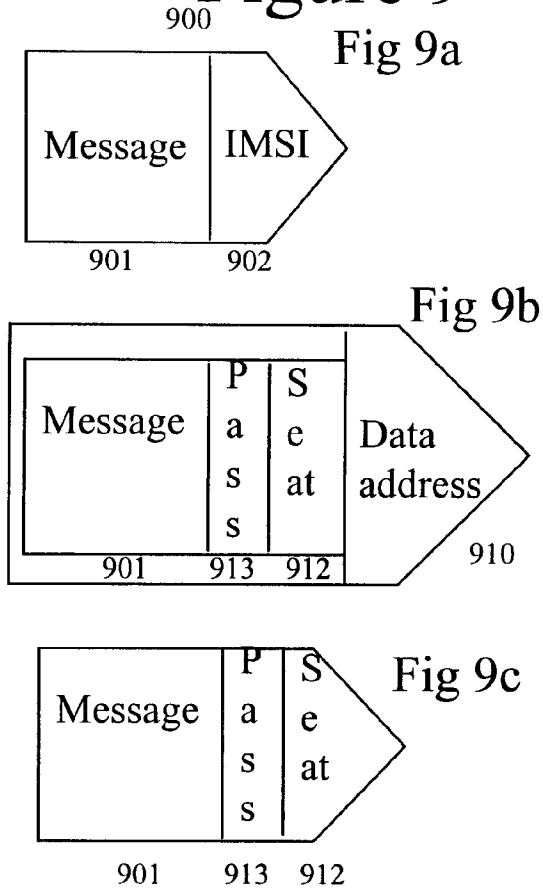


Figure 9



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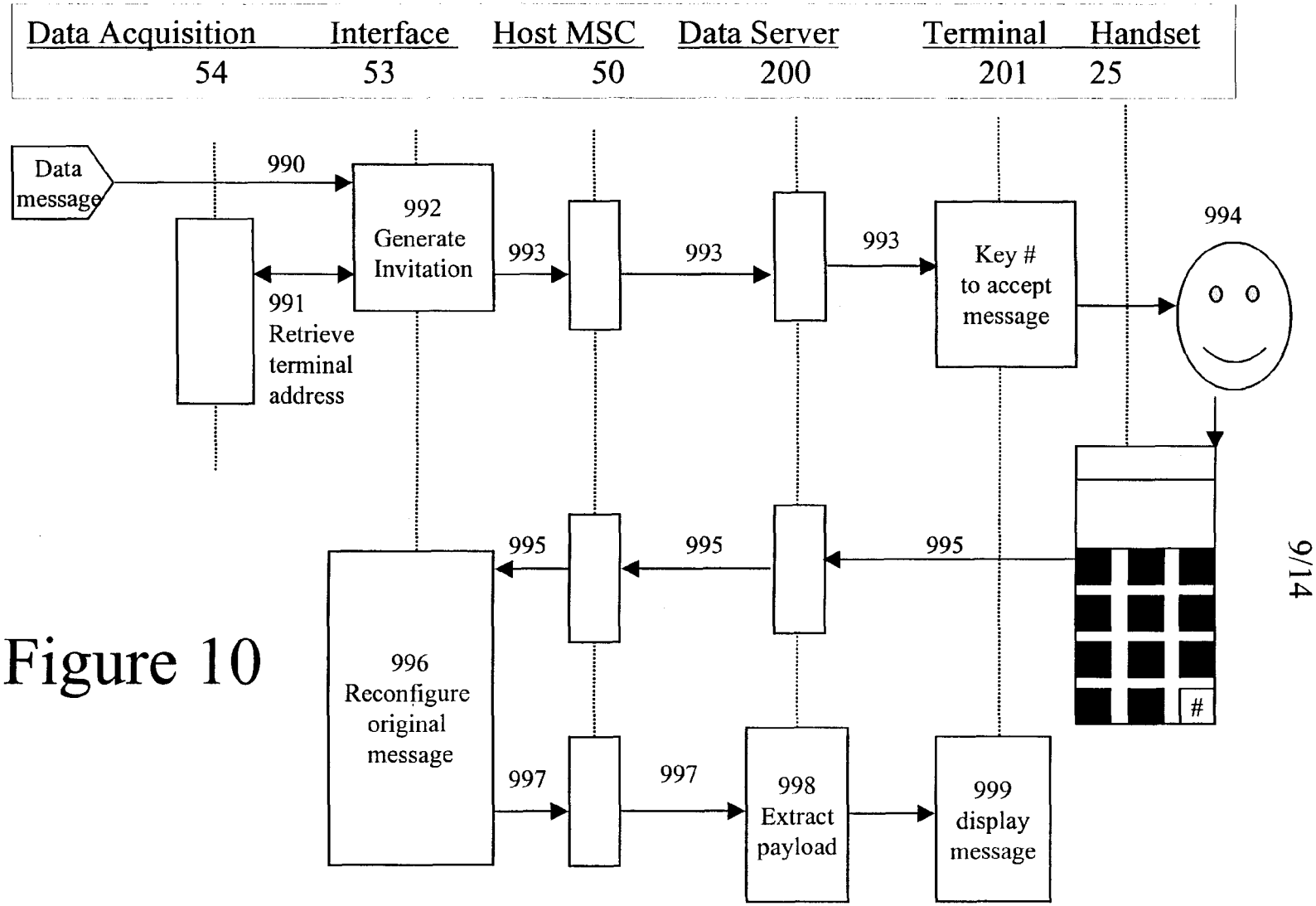

Data Acquisition
54
Interface
53
Host MSC
50
Data Server
200
Terminal
201
Handset
25
Data message
990
992 Generate Invitation
991 Retrieve terminal address
993
993
993
Key # to accept message
994
995
995
995
996 Reconfigure original message
997
997
998 Extract payload
999 display message
#

Figure 10

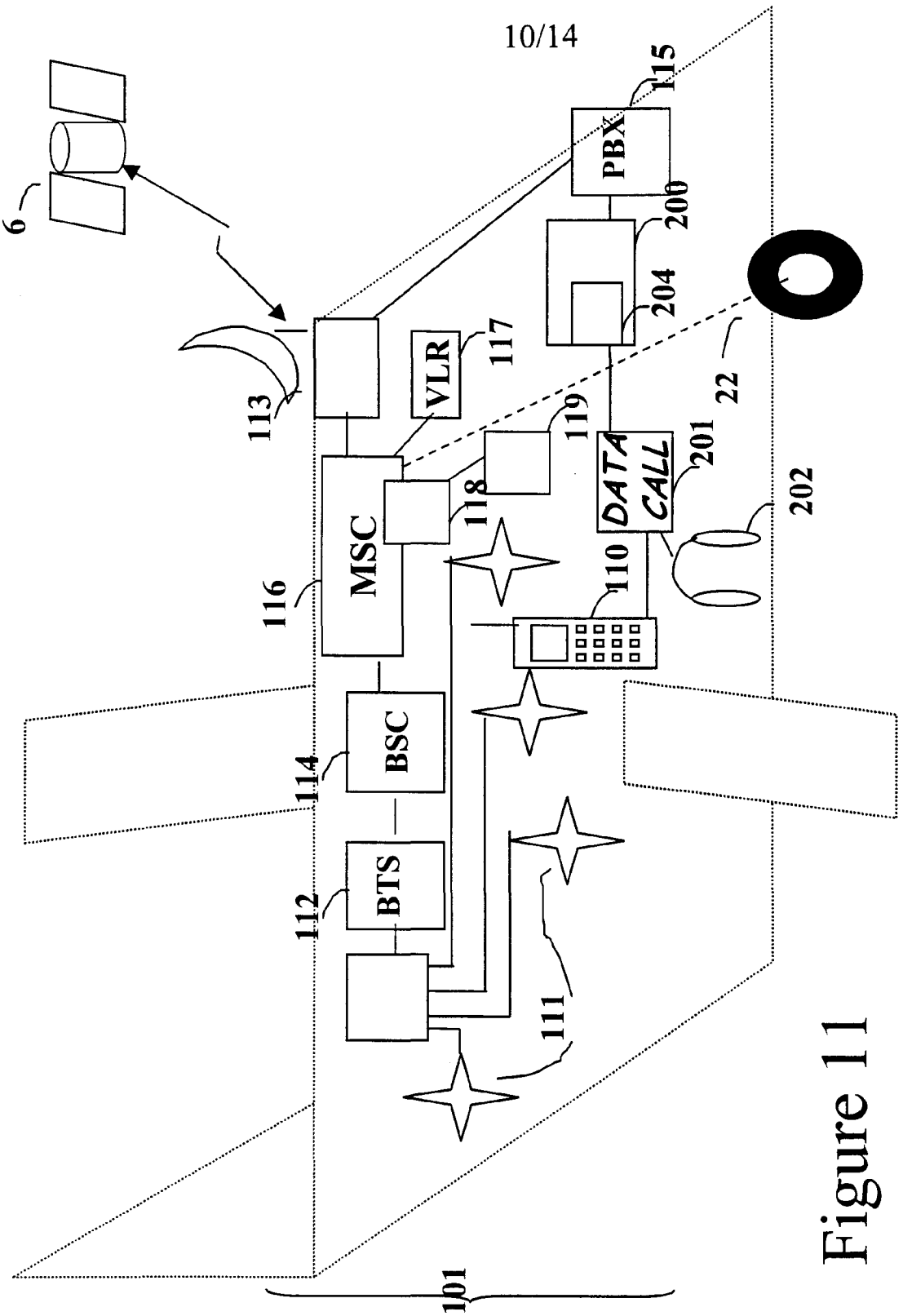
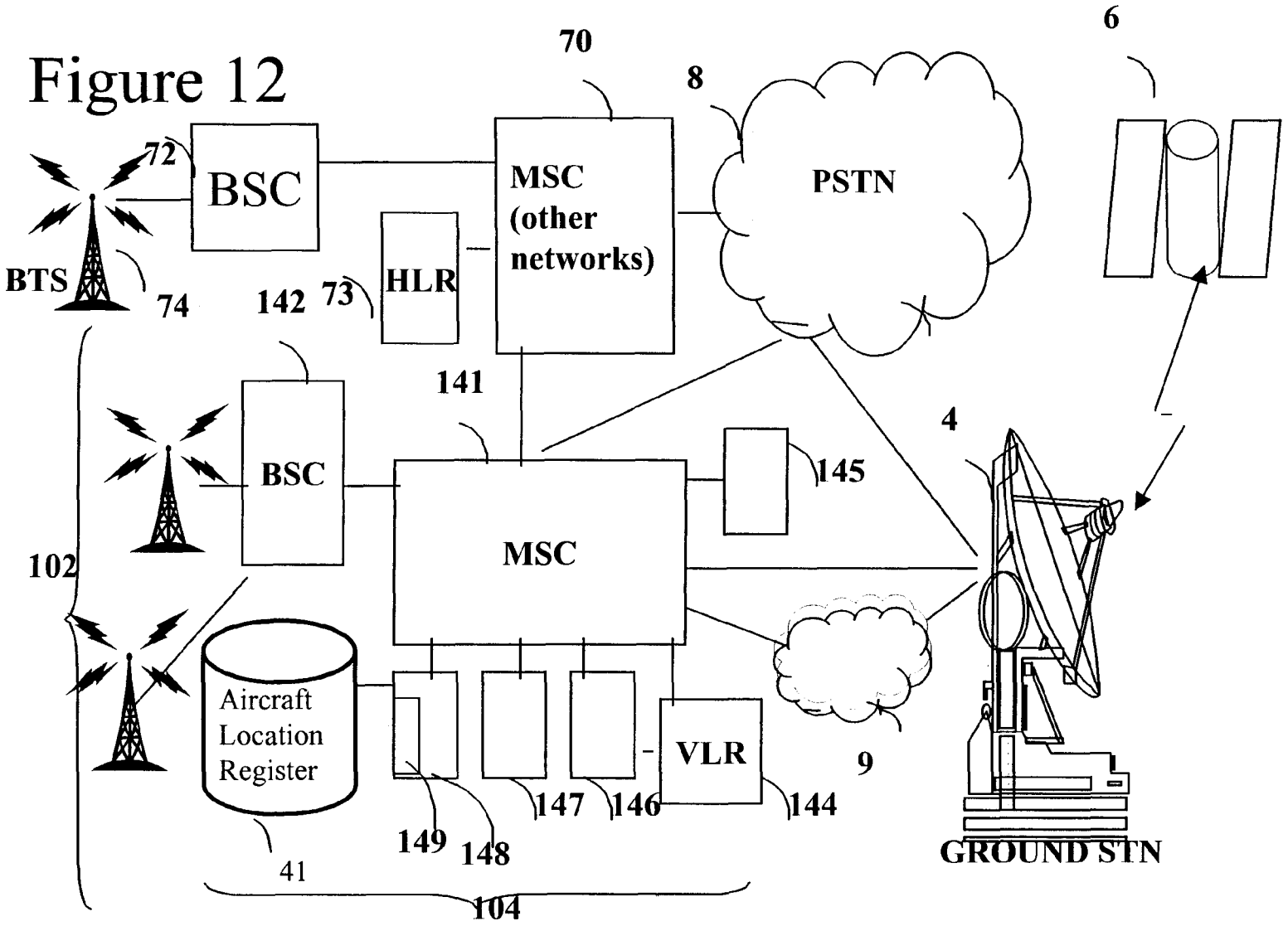

6
113
VLR
117
119
118
MSC
116
110
DATA CALL
201
202
22
PBX
115
200
204
BSC
114
BTS
112
111
101

Figure 11

Figure 12



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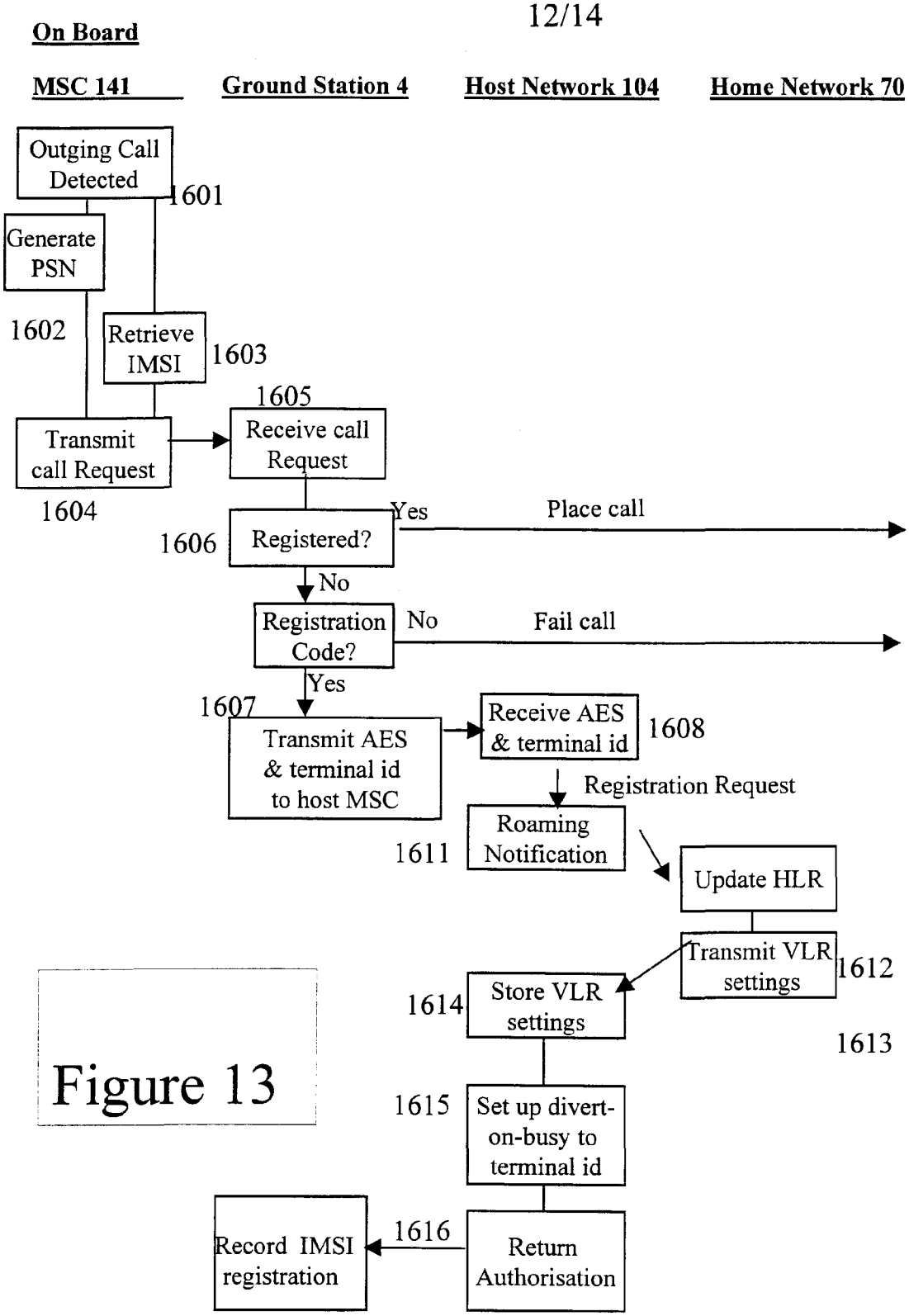

On Board
MSC 141
Ground Station 4
Host Network 104
Home Network 70
Outging Call Detected
1601
Generate PSN
1602
Retrieve IMSI
1603
1605
Transmit call Request
1604
Receive call Request
1606
Registered?
Yes
Place call
No
Registration Code?
No
Fail call
Yes
1607
Transmit AES & terminal id to host MSC
Receive AES & terminal id
1608
Registration Request
Roaming Notification
1611
Update HLR
Transmit VLR settings
1612
1614
Store VLR settings
1613
1615
Set up divert-on-busy to terminal id
Record IMSI registration
1616
Return Authorisation

Figure 13

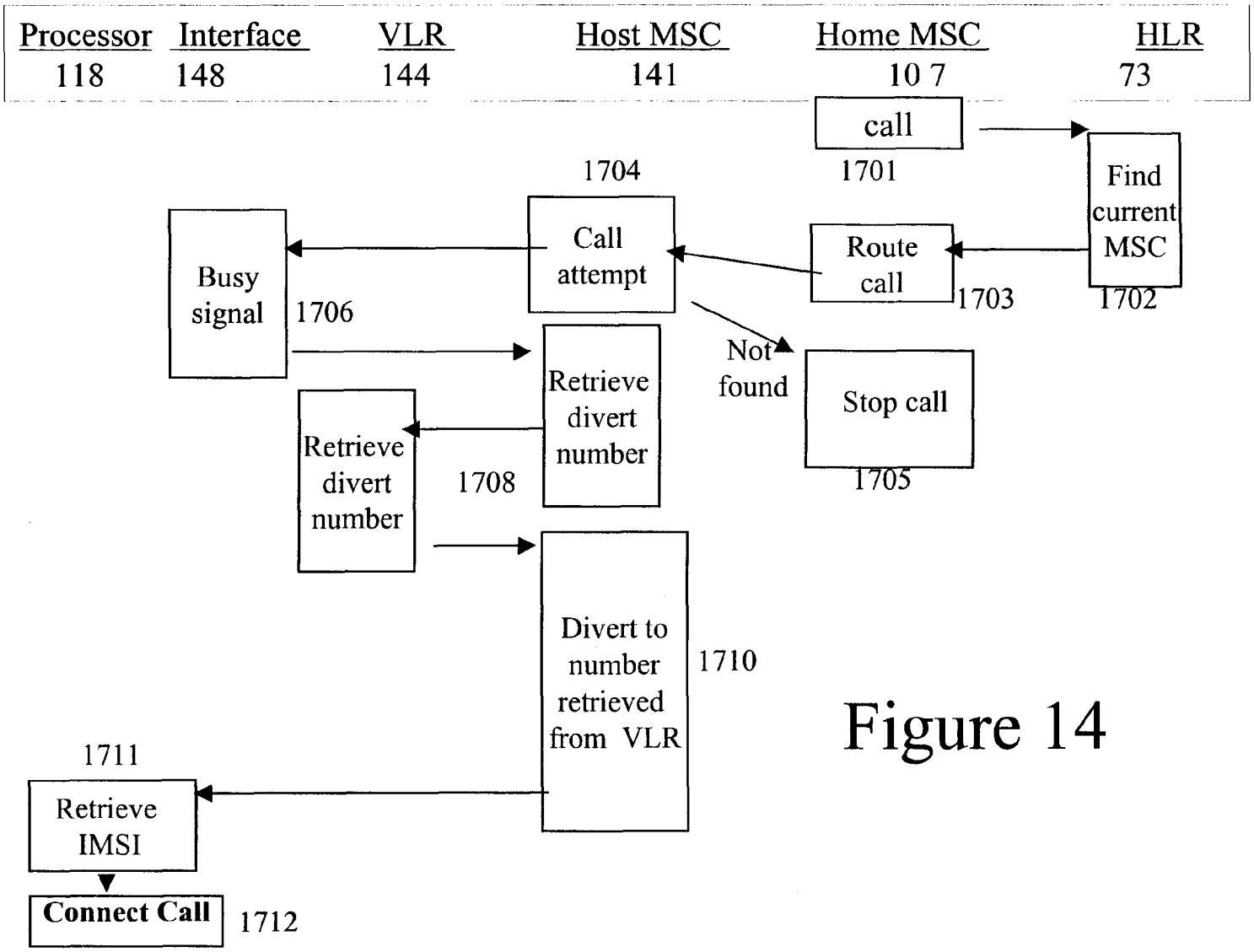
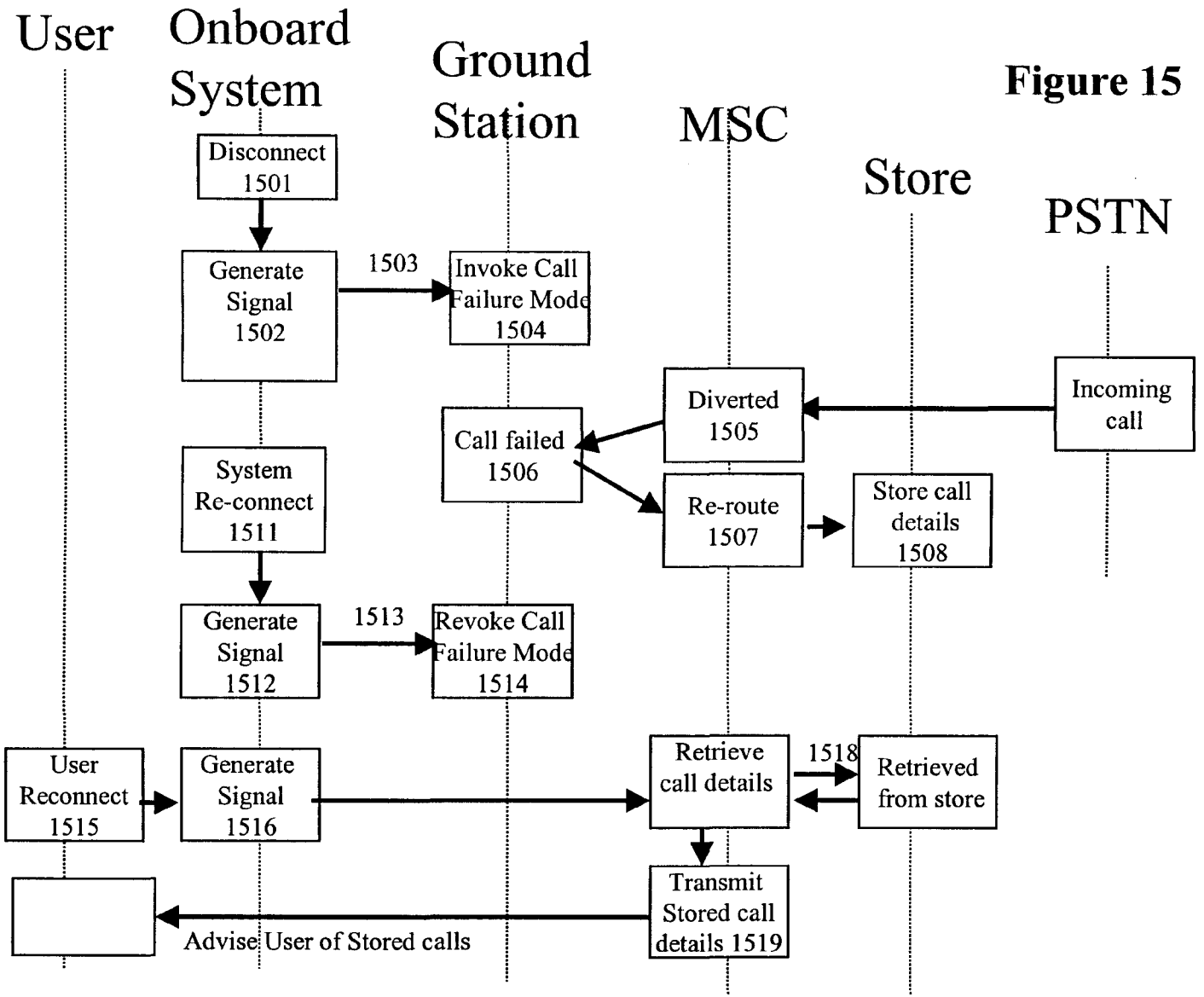

Processor
118
Interface
148
VLR
144
Host MSC
141
Home MSC
10 7
HLR
73
call
1701
1704
Find current MSC
1702
Call attempt
Route call
1703
Busy signal
1706
Not found
Stop call
1705
Retrieve divert number
Retrieve divert number
1708
Divert to number retrieved from VLR
1710
1711
Retrieve IMSI
Connect Call
1712

Figure 14

Figure 15


User
Onboard System
Ground Station
MSC
Store
PSTN
Disconnect 1501
Generate Signal 1502
1503
Invoke Call Failure Mode 1504
Diverted 1505
Incoming call
Call failed 1506
System Re-connect 1511
Re-route 1507
Store call details 1508
Generate Signal 1512
1513
Revoke Call Failure Mode 1514
User Reconnect 1515
Generate Signal 1516
Retrieve call details
1518
Retrieved from store
Transmit Stored call details 1519
Advise User of Stored calls

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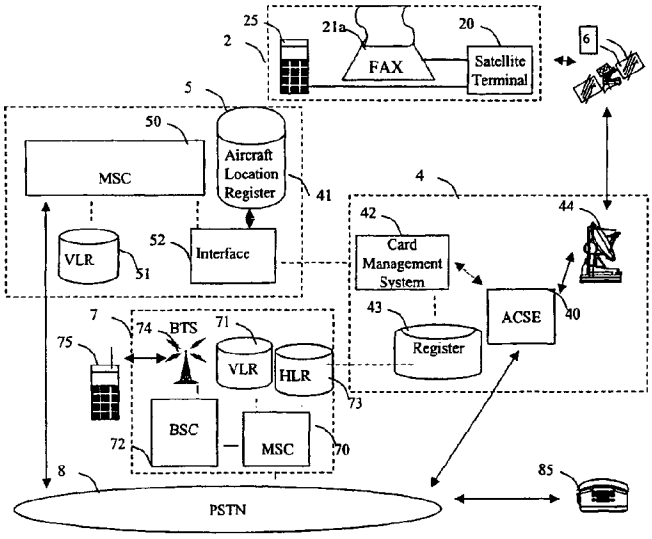
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[Continued on next page]

(54) Title: CALL DIVERSION SYSTEM



(57) Abstract: An interface (52) is provided between a satellite telephone system (4) and a cellular telephone system (5) for allowing calls to a user's cellular telephone to be diverted to a satellite telephone handset (25) when the user is unable to use his cellular telephone, for example when on board an aircraft (2) fitted with a satellite telephone system (20). The user inserts a card (which may be the SIM of his mobile phone, or a card compatible with existing satellite telephone equipment) into a suitable reader in the satellite telephone (20), which causes the satellite ground station's card verification system (42) to connect to a host cellular network (50). The host cellular network has an interface unit (52) which emulates the operation of a normal base station, so that the host cellular system (50) acts as if the mobile user's terminal is roaming on the host network, but is currently "busy". The interface (52) also resets the user's existing call diversion instructions so that when the host cellular system (5) receives a busy tone from the base station emulator (52), it routes calls to the directory number of the terminal (20). Data messages originally formatted for transmission over the cellular telecommunications network for generation of a display on a display unit of a cellular telephone, can instead be transmitted over the satellite network for display on the information and entertainment system of the aircraft by replacing the address information in the original data message by address information appropriate to the selected display unit to generate an amended data message. A new data message is created, addressed to the server of the information display system and having the amended data message as payload. The onboard server has means for converting the amended data message into control instructions suitable to display the information content of the data message on the information display unit identified in the amended data message.

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Minimum documentation searched (classification system followed by classification symbols)
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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)
WPI Data, PAJ, INSPEC

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A	WO 97 37500 A (BRITISH TELECOMM ;TITMUSS RICHARD JOHN (GB); WINTER CHRISTOPHER SI) 9 October 1997 (1997-10-09) abstract page 2, line 7-17 page 3, line 16-28 page 12, line 12 -page 13, line 7 page 15, line 14 -page 16, line 26 page 27, line 3 -page 28, line 4 claims --- -/--	1-3,5,6, 8-11

[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
5 October 2000	12/10/2000

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	Dejonghe, O

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INTERNATIONAL SEARCH REPORT

International Application No
PCT/GB 00/03091

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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Information on patent family members

International Application No
PCT/GB 00/03091

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(54) Title: ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

(57) Abstract: Rerouting apparatus for rerouting data including multimedia data. The apparatus is for association with electronic equipment and allows for routing the data to a device regarded as the most convenient for playing the media. The apparatus comprises an announcer device for indicating to surrounding equipment that associated equipment is available for rerouting, thereby to enable receipt of rerouted communications therefrom, and a scout device for scanning surroundings of the associated equipment to find out about compatible equipment in the vicinity, thereby to reroute communications thereto. The apparatus may be attached to any device having data processing capability, to enable rerouting of data and communications therebetween.

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ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

Field and Background of the Invention

The present invention relates to routing of data including multimedia between electronic devices, and more particularly but not exclusively to rerouting of incoming communications that may or may not include multimedia to devices other than the initial receiving device. Data may arrive from external sources via communication or generated by, or at, a device. Data may be a package or a stream. Such a stream may be unidirectional, bi-directional or multidirectional.

With the introduction of mobile communication devices, telecommunications technology has transformed society over the past decade. The ability to communicate almost anywhere, anytime, with few geographical limitations has resulted in a society, in both social and business contexts, which is almost always on-line. Mobile communication devices today typically have data processing ability which allows them to handle multi-media, and different types of devices are today able to communicate with each other, either directly via a permanent or temporary link or indirectly via a network. Thus data, including multimedia, can be directed or routed from one device to another device. The idea of multi-media routing stems from the myriad of opportunities which present themselves in routing signals from one device or kind of device to another. However, in general, the playing of multimedia data is limited , at least in the short term, to the device on which it is received, or to those in which the data originates. This limitation can be a considerable limitation on the user's ability to enjoy the multimedia since different devices have very different capabilities regarding the playing of multimedia.

The media playing devices considered specifically in the present disclosure include both mobile devices (cell phones, PDA's, handheld devices, etc.) and non-mobile devices (land/fixed line phones, computer monitors, Hi-Fi sets, speakers, etc.). Some of the devices may be used for just one or two media types and others are more general in their applicability, which is to say it is possible to use the devices in different modes for playing several media types: voice, text, images, and video. Likewise, the devices are used in various locations: at the office, home, car, hotel room, plane, outdoors, etc.

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Most current mobile devices in particular provide relatively poor multi-media capabilities including digital audio, image, and/or video capabilities (as well as other media capabilities) in comparison with other existing devices such as land/fixed line phones, computer monitors, TV screens and Hi-Fi sets. Compared to high quality media playing equipment, even 3rd generation mobile devices (3G) are of inferior quality.

A number of patent applications discuss rerouting of communications from one communication unit to another. An example is GB 2,370,451, which discloses a communication unit that detects the presence in its vicinity of a second communication unit and determines its identity. If the identity is found to be of a predetermined set (*e.g.* of communication units having the same owner) calls made to the second communication unit are diverted to the first unit. The arrangement is useful where a user has multiple communication units, for example a car telephone and a cellular handset, with differing telephone numbers as the user may be contacted using any of these.

WO0141317A3: call diversion system, discloses a system specifically for redirecting calls between satellite and terrestrial cellular systems. The disclosure addresses the issue of reformatting data messages for the transition.

Neither of the above systems takes into consideration the types of multimedia content of the incoming calls data or playing quality and usage comfort when deciding whether to redirect, and redirection is based on devices having a shared ownership or otherwise being part of a predetermined set. In the above-described systems the user typically has only limited control over rerouting. Nevertheless, it would be highly advantageous to provide the user with the ability to select a target device, based on the type of multimedia content, and furthermore to choose a device for play or storage of the content independently of the initially targeted or originating device.

Summary of the Invention

According to a first aspect of the present invention there is thus provided data rerouting apparatus for association with electronic equipment for rerouting data, comprising:

an announcer device for indicating to surrounding equipment that said associated equipment is available for rerouting, thereby to enable receipt of rerouted data therefrom, and

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a scout device for scanning surroundings of said associated equipment to find out about compatible equipment in the vicinity, thereby to reroute data thereto.

The apparatus preferably further comprises a user interface associated with said scout device for allowing a user to select between available compatible equipment to reroute data thereto.

Preferably, said scout device is operable to determine media type requirements of said compatible equipment, the apparatus further comprising a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements.

Preferably, a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer.

The apparatus preferably further comprises a media cloner for making multiple copies of the data, in particular but not exclusively an incoming communication, thereby to enable said apparatus to redirect, for example, a single incoming communication to a plurality of locations.

Preferably, said announcer is an active device, operable to transmit at least status information to respective surroundings.

Preferably, said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

Preferably, said passive device further carries status information of said device.

Preferably, said announcer comprises a barcode and wherein said scout is a barcode reader.

The apparatus preferably further comprises an outgoing multimedia transmitter for directing rerouted media directly to a selected device.

The apparatus preferably further comprises control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

The apparatus preferably comprises control functionality operable to carry out said rerouting directly.

The apparatus preferably comprises control functionality operable to carry out said rerouting through locally available network infrastructure.

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The apparatus preferably comprises a device database for storing compatibility data of different equipment types.

According to a second aspect of the present invention there is provided a method of rerouting data comprising:

Receiving or generating said data at a first device,

determining availability of other devices in the vicinity of said first device, and

rerouting said data to at least one target device selected from devices found to be available.

The method preferably comprises determining compatibility of said available devices in said vicinity with said communication.

The method preferably further comprises carrying out media type transformation from a media type of said data to a media type compatible with a selected device.

The method preferably further comprises carrying out selection between devices found to be available, via a user interface.

The method preferably further comprises carrying out a selection between devices found to be available, based on a predetermined user profile.

The method preferably further comprises selecting a plurality of devices to reroute said data thereto, and cloning said data for each selected device.

The method preferably further comprises determining availability of other devices in the vicinity of said target device, and

rerouting said data to at least one further target device selected from devices found to be available.

According to a third aspect of the present invention there is provided a data rerouting apparatus for association with electronic equipment for rerouting data to at least one selected target device, comprising:

a cloner for making multiple copies of incoming data, thereby to enable said apparatus to redirect single incoming data to a plurality of respective target devices, and

a transformer, associated with said cloner, for receiving at least one of said multiple copies of said incoming data, and transforming said data into a form that accords with a determined media type requirement of a respective target device.

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Brief Description of the Drawings

For a better understanding of the invention and to show how the same may be carried into effect, reference will now be made, purely by way of example, to the accompanying drawings.

With specific reference now to the drawings in detail, it is stressed that the particulars shown are by way of example and for purposes of illustrative discussion of the preferred embodiments of the present invention only, and are presented in the cause of providing what is believed to be the most useful and readily understood description of the principles and conceptual aspects of the invention. In this regard, no attempt is made to show structural details of the invention in more detail than is necessary for a fundamental understanding of the invention, the description taken with the drawings making apparent to those skilled in the art how the several forms of the invention may be embodied in practice. In the accompanying drawings:

Fig. 1 is a simplified diagram showing a plurality of electronic devices in the vicinity of one another, between which communications can be rerouted according to a preferred embodiment of the present invention, and

Fig. 2 is a simplified block diagram showing a preferred apparatus for attachment to an electronic device for allowing the device to support rerouting according to preferred embodiments of the present invention.

Description of the Preferred Embodiments

The capability of routing of multi-media content (possibly including media transformation and multiplication, i.e. cloning) from one device to another may dramatically upgrade media playing quality, and grant the user the liberty to play the content on any device he wishes, preferably the most suitable device available, regardless of the origin of the content or the device to which the content may initially have been directed, or at which the content originates. Furthermore, by rerouting to a more capable device, a user's satisfaction level may be increased in comparison to having to remain with a device that say is limited by inferior data rate, processing power, memory capacity or input/output facilities. For example, a cellular communication device such as a mobile telephone is such a limited capability device which is typically the initial recipient of a communication. Such an initial recipient, or originator, is referred to hereinafter as the routing-source device. Furthermore, as will be explained below, the ability to route content from non-mobile, that is land or

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fixed devices to nearby mobile and other devices permits a range of possibilities for use which is currently not provided for.

For example, the ability to route an incoming phone call, typically comprising voice, from a mobile device to a land/fixed line phone may generally be expected to upgrade the quality of the call. The ability to route hand held calendar content from a mobile device having some digital ability to a computer monitor, may allow for better viewing of the information. Such rerouting may also enhance the user's ability to share the information with other people or with computer applications, for example applications that capture information displayed on the monitor and use it to trigger other events. Such applications can easily be run on a PC or laptop computer but are difficult to run on a mobile telephone for example.

An incoming call or other originating data may be rerouted more than once. In preferred embodiments, individual devices do not need to know whether they are an initial receiving device or a first or subsequent rerouting device, and may treat any arriving communication in the same way.

Furthermore, a preferred embodiment of the present invention provides an ability to route an incoming voice message from say a mobile device or voice mailbox to a facsimile machine or display monitor, combined with a transformation capability – in this case an ability to transform voice to text. Software packages that interpret voice and translate into text are well known and commercially available. Such packages, which presently require training on a specific voice in order to produce reasonable results, may broaden the usage of voice messages. However, even without training, the best packages can produce sufficiently good results to enable say the hard of hearing to make a reasonable interpretation of an incoming voice signal. Thus such a rerouting-while-transforming capability may be highly desirable for people with special needs - impaired senses (hearing, vision) who may use such a capability to receive information in a form more usable to them. Likewise such a capability may be useful for receiving communications in difficult environments such as a noisy factory floor.

As a further example, an incoming phone call directed at a land/fixed line may be rerouted to a mobile device, thus, effectively using the mobile as a cordless phone. Such a technique may ease acceptance of a phone call in a hotel lobby, at a colleague's office, at a restaurant and in many other settings.

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Routing an incoming call away from a mobile telephone may also be advantageous health-wise in decreasing the physical proximity of electromagnetic radiation (emitted by mobile devices) to the user.

It is pointed out that communication-enabled devices can receive an incoming communication for rerouting. However as long as rerouting is direct from device to device, the device to which the rerouting is made need not be generally enabled for external communication as typically managed by a service provider be it phone, cellular, internet and the like. Furthermore, routing is not limited to rerouting of incoming communications but also applies to routing of data from any kind of data source to any kind of data player. Data may arrive from external sources via communication or generated by, or at, a device. Data may be a package or a stream. Such a stream may be unidirectional, bi-directional or multidirectional. Thus video data being captured at a video camera may be directed using embodiments of the present invention to a convenient nearby video player or multimedia enabled PC. Thus, a generally non-communication enabled device will be unable to receive initial communications but can route data to other devices and can receive data as a rerouting target.

Before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and the arrangement of the components set forth in the following description or illustrated in the drawings. The invention is applicable to other embodiments or of being practiced or carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein is for the purpose of description and should not be regarded as limiting.

Reference is now made to Fig. 1, which is a simplified schematic diagram showing a cellular telephone 10 in proximity to a fixed telephone 12 and a computer monitor 14. The three electronic devices need have no relationship to each other except that of proximity. An incoming call is received at cellular telephone 10. As will be explained below, the cellular telephone 10 detects the presence of the other devices 12 and 14 and allows the user to retain the call at the cellular telephone 10 or alternatively to transfer it to either of the other devices 12 and 14. If the user chooses the fixed telephone 12 then the call is rerouted in one of a number of ways explained below to the fixed telephone 12 where the call may be taken in the usual way. If the user chooses the computer monitor 14 then assuming the presence of speakers and a

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microphone the call may be taken again in the normal way. In addition, software may be provided, either at the cellular telephone 10 or at the computer 14 to convert the voice signal into text.

It is noted that in the case of a cellular telephone, the telephone communication is a bi-directional type of communication, and any rerouting should preferably support a return path for the communication.

In addition, using the above rerouting, a call can be set up to support a game session. The call can be set up using a cellular telephone, and then one or both users reroutes the call to a game console.

The above may be achieved by sending rerouting control data along with the rerouted communication, which control data includes a return address. The return address may be a final return address for single stage rerouting, or may be an intermediated return address in the case of multi-stage rerouting. In the latter case, the intermediate return address can be used in an intermediate rerouting device to find a further rerouting address.

Reference is now made to Fig. 2, which is a simplified block diagram showing in schematic form the elements of a modification to be applied to a communication device for use in call rerouting of the kind described in Fig. 1. It will be appreciated that the elements are not restricted to a cellular telephone but may be applicable to any electronic device and more particularly but not exclusively to communication-enabled devices. Depending on the device type, some functionality may be disabled. For example, a land/fixed line phone might not need an outgoing multi-channel multi-media transmitter component. A device not enabled for external communication may not be able to receive originating communications from an external communication network but may be able to route data to other devices and be the target for data and communication rerouting.

The device comprises an incoming multi-media receiver 20 which is responsible for capturing media content and passing it to one of the other components in the device, depending on the circumstances, as will be explained below. One of these other components is outgoing multi-channel multi-media transmitter 22. Transmitter 22 is responsible for transmitting (directly) media streams to external devices which are specified to it. Transmitter 22 comprises a multi-channel port which is able to transmit several media types to several devices at the same time.

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A media transformer 24 is responsible for transforming its input (incoming media) into a required media type, or types, and outputting the resulting media stream(s), or file(s). It too preferably has a multi-channel Output. The media types required as output are preferably specified externally. A preferred embodiment of a media transformer includes a voice to text transformer as discussed above. The voice to text transformer may be augmented by a text to fax transformer. Further transformations include image transformations such as color to black and white, resolution reductions, and image format transformations. Similar transformations may be provided for video, and to the extent applicable for sound formats.

Media cloner 26 is responsible for duplication of its input channel content, preferably received from the incoming multi-media receiver 20 (input media) into as many output channels as indicated to it externally. Each output stream, or file, is routed, as indicated to it externally, to either the media transformer 24 or the outgoing multi-media transmitter 26.

Controller 28 is responsible for managing all the other components and monitoring their activities. In particular, any media (packaged or streamed) transfer between components, input and output, is performed under the controller's supervision.

In operation, content is received at incoming multimedia receiver 20. As will be explained in detail below, one or more destinations for the data as well as media type transformations are selected. In the case of straightforward rerouting of the media to another device, the content is sent directly to outgoing multi-media transmitter 22 for simple media routing to a similar content type device. In other circumstances, transforming from one media to another may be required prior to rerouting. In such a case, content is directed to media transformer 24 prior to rerouting, where transforming is carried out. The transformed content is then directed to the outgoing multi-media transmitter 22 as before. Content is directed to media cloner 26 in cases where it is intended to route the content to more than one device, or if for any reason it is intended to send multiple copies to the same device. From the media cloner the content may then be sent directly to the outgoing multi-media transmitter 22 for direct output, or one or more of the copies may be sent to the media transformer for transformation prior to output. Routing of the content and operation of the above-mentioned components is preferably controlled by controller 28.

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In order to make decisions about selecting destinations and media types and in order to allow other devices to receive availability information, three more components are preferably provided, an announcer device 30, a scout device 32 and a device library 34.

The announcer device 30 is responsible for announcing to the environment the availability of a current device for accepting routed media. It may also indicate device type and use conditions, preferably including any usage charges, thus enabling surrounding devices to avoid say sending video data to a fax machine, or enabling security conscious users to avoid receiving non-trusted data at their device. When the device becomes busy (for example, a phone that is handling a call), it announces this to the environment, typically via transmissions. Similarly, it announces its becoming available. Announcements may be periodically repeated. As an alternative the announcer device 30 may signal only when available or only when unavailable. Another (optional) function of the announcer 30 is that of informing the environment, typically a user, that media content has been routed to it and is now usable (for example, to announce that a rerouted call is now available on this telephone). The latter kind of announcement, that is to say to persons rather than to electronic equipment, may typically comprise light flashes, rings, a loudspeaker sound or even a smell.

Typically, the announcer device 30 may be active (transmitting) or passive (reacting, or reflecting). A simple example of a passive announcer device is a sticker attached to a phone and supplying say device type and conditions of use information using a barcode. The sticker may be scanned and comprehended by the scout devices 32. In addition to a sticker, a passive announcer may be provided using an LCD screen displaying a barcode. The LCD or like screen is advantageous in that, since its display can change, the barcode can indicate current status information. An alternative way of providing status information along with a barcode is by providing a color display alongside the barcode. The color display may be changed electronically or mechanically by the device to indicate different states, and can be read optically along with the barcode.

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The scout device 32 is responsible for scanning the environment to find other devices therein and to determine their status, typically free or busy. The scout is also responsible for obtaining any specific use conditions from announcers 30 of the devices being detected. The scout may be activated periodically and/or upon demand.

Device library 34 contains information needed for communicating with various devices. Such information may typically include usage related information as well as technical information regarding expected media formats and transmission technology specifications, including protocols, used by the device type. It may also contains pre-defined user preferences if defined, including default user preferences.

The controller 28 is responsible for integrating knowledge accumulated by the scout, and for directing operation of the announcer 30. The controller uses either pre-defined user preferences from the device library 34 or it may obtain preferences over a network, or it may simply capture user preferences using menus or like user interaction. The controller preferably follows the appropriate receiving/transmitting protocol including hand shake, identification, authentication, encryption procedures and the like.

The apparatus described in respect of Fig. 2 may be physically packaged, for example as a card, a chip or an attached stand-alone unit. The apparatus may also be realized as software within another apparatus, host device - for example, on a personal computer (PC), cell phone, a personal digital assistant (PDA) or other standard electronic devices. In any case, the host apparatus preferably possesses its own transmission and receiving capabilities, or is connected, perhaps via a network, to another device that does have such capabilities.

For example, a host cellular telephone may use already installed IR for scouting and announcing or any of the previously described technologies. A PC may use an existing peripheral digital camera for scouting and local network devices for transmission.

In many situations, as briefly described in previous examples, certain apparatus activities may be initiated via user interaction, and preferred ways of enabling user interaction comprise displaying menus, or using voice menus, or conceivably even using feel or smell menus. Certain actions are preferably taken automatically, that is to say without user interaction. Such automation may be based on profiles, terms, and conditions. Conditions may for example be associated with the device that performs the routing, as well as with a device to which media is routed.

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Profiles may be stored with the modification apparatus of Fig. 2 or obtained from remote sources.

Menus may be activated in the following modes:

a) Automatic pop-up menu upon event (incoming call, message etc.)

b) Manual (menu) activation ("always on".)

To protect against hostile or non-trusted parties, the modification preferably provides some level of firewall protection for both receiving and transmitting components. Such protection may comprise identification and/or authentication, and may comprise restrictions on routing or receiving information to devices whose owners are not trusted. In addition, to protect privacy, transmitted information may be encrypted.

Considering the outgoing multi-media transmitter 22 in greater detail, the transmitter may incorporate one or more of the following transmission technologies for transmitting media to a nearby device:

- Infra-red (IR)
- Microwave
- Radio (any suitable frequency)
- Sound waves
- Ultrasound
- Wire (and cable) transmission technologies
- Light (visible)
- Laser
- Chemical (mainly smell)
- Quantum techniques

and other technologies that will occur to the skilled person. The choice of technology may depend on general and specific circumstances, such as the type of data to be transmitted, the environment of the transmission, safety and like considerations, and compatibility with as many as possible other devices.

As described above, rerouting may be direct, that is device to device. Direct (local) routing between devices uses one or more of the technologies specified above but does not usually use any external service provider services, network, or infrastructure. Such routing may however use a local computer network, for example

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cable or radio-based, or simple end-to-end communication (for example, IR communication between two or more devices).

In addition, rerouting may be indirect. Indirect non-local routing relies on external service provider services, network and infrastructure. Indirect routing still requires the device initially receiving the communication to detect available receiving devices and determine their capability and availability and also requires potential rerouting recipients to announce their capabilities to the environment. The device initially receiving the communication then makes a decision, typically with the help of user interaction, to determine whether to reroute the message and if so to what device, just as before. However the rerouting information is then sent to the external provider who carries out the rerouting of the communication by switching at the exchange. Such a switching method can take advantage of higher data rates over land lines as opposed to wireless connections.

A third rerouting mode uses local network infrastructure to carry out the rerouting. The communication is routed through a local area network (LAN), or a wide area network (WAN) infrastructure with information to indicate to the network which device has been selected for rerouting. However the network has to interpret the information to decide how to route the information. Either kind of rerouting through the available network infrastructure may be useful, for example for rerouting of an incoming phone call from a cellular telephone to a colleague in another room within the same organization.

There are many ways to exploit the capability to route different content (media) types between different devices. Using only rerouting, one may route one form of content (for example audio) only to devices that handle audio (for example, routing an audio stream to nearby speakers). Using rerouting combined with a media type transformation capability, one may route content transformed specifically for a receiving device. Thus for example voice may be transformed into text and then routed to a fax machine. It may also be possible to transform color images to smell and reroute them to a device able to output smell. Finally, cloning allows the same content to be sent to several devices, and combinations of different transformations for different devices may allow additional dimensions to incoming multi-media. Thus, for example an incoming signal comprising music and voice could be cloned. One of the clones could be transformed into text and transmitted to a monitor able to display text. The other clone could be transmitted to speakers to give high quality

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reproduction of the music. As a further variation, if the incoming music signal is initially directed at a mobile device, it could first of all be rerouted at the service provider level to a land device so as to support a better data rate and then cloned and redirected for text output as described above. Thus high quality audio play of the music can be combined with a display of the words of the song.

The list below describes typical device/media type combinations for rerouting capability. It is noted that not all the devices are typical external-communication-enabled devices. As mentioned above, non-external-communication enabled devices may not receive original incoming communications but they can route data to other devices and receive data as rerouting targets.

1. Audio and Voice

Audio, and voice type media may be routed from devices including cellular telephones and other cellular or mobile devices including voice enabled PDA's, two-way radios etc., land or fixed line telephones, voice mail boxes (voice messages), Hi-Fi sets, both mobile and non-mobile including radio receivers, MP3 players, Cassette, CD, DVD and VCR players, and the like, and TV sets.

Audio and voice-type media may typically be routed to land or fixed line telephones, cellular telephones and like cellular mobile devices, Hi-Fi sets (mobile and non mobile), car audio systems, TV sets, speakers, and LAN/WAN servers and like infrastructure.

2. Video

Video media may be routed from cellular telephones, especially 2.5G and 3G devices, and other similar hand held devices, DVD and VCR players – both mobile and non-mobile, video cameras and recorders, monitors (screens) including those of TV sets, computer monitors, etc. mobile game devices (for example: Game boy), unified messaging mail boxes, road signs and digital advertisement boards, and LAN/WAN servers and like infrastructure.

Video media may typically be routed to cellular telephones and especially 2.5G and 3G devices, other cellular hand held devices, monitors (screens) including those of TV sets, computer monitors, etc. DVD and VCR players – including both mobile and non-mobile devices, video cameras and recorders, mobile game devices

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(for example: Game boy), unified messaging mail boxes, road signs and digital advertisement boards, and LAN/WAN servers and like infrastructure etc.

3. Text

Text type data may be routed from cellular telephones where they may be in the form of SMS, email messages and the like, other hand-held devices, unified messaging mail boxes, electronic books, standard computers, and the like.

Such text type data may be routed to monitors (screens) – including TV sets, computer screens, etc. printers, facsimile machines, cellular telephones and other hand held devices, unified messaging mail boxes and LAN/WAN servers and like infrastructure, etc.

4. Images

Image data may typically be routed from digital cameras, facsimile machines, monitors (screens) including TV sets, computer screens, etc., digital vision-oriented equipment such as microscopes, telescopes, binoculars, etc.

Such image data may be routed to cellular telephones, especially 2.5G and 3G devices, other hand held devices, monitors (screens) - including TV sets, computer screens, etc. digital cameras, facsimile machines, printers, unified messaging mail boxes, and LAN/WAN servers and like infrastructure.

As stated earlier, combining the routing capability with the media transformation capability in principle enables routing of any media between any pair of devices appearing in the lists above. Furthermore, combined with cloning, media may be used in different ways at different devices. Such different ways may even be carried out concurrently, thus enabling the simultaneous routing of any media type to any number of devices.

The following is a series of procedure flows for different scenarios.

In the scenarios, appropriate combinations of Routing, Transforming and Cloning an incoming communication are selected to fit the circumstances.

Scenario 1

1. A person carrying a mobile phone enters his colleague's office

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2. In the office there are a land/fixed line phone and a computer screen (monitor)

3. An incoming phone call arrives at the person's cell phone

4. The cell phone detects the said land/fixed line phone and monitor

5. A pop up menu appears on the cell phone display and after the person acknowledges, the phone call is routed to the land/fixed line phone

6. The land/fixed line phone flashes to indicate an incoming call

7. The person receives the call on the land/fixed line phone

8. The person wishes his colleague to be aware of what's being said on the other side of the line

9. He activates a menu on the cell phone display and chooses the "Clone to Monitor" option

10. The monitor shows the conversation text as it is carried out, enabling the colleague to monitor the conversation's content in text form

Scenario 2

This scenario is similar to scenario A. The difference is:

5. The phone call is automatically routed to the land/fixed line phone (based on the person's preferences and environment scanning and detection)

Scenario 3

1. A person, say Smith, carrying a cell phone is sitting in a hotel lobby

2. In the lobby there are four land/fixed line phones

3. A phone call arrives at the person's cell phone

4. Option A:

a. The person points his phone at one of the land/fixed line phones

b. The cell phone detects the said phone as busy

c. The person points his phone at another land/fixed line phones

d. The phone call is routed to that, available, land/fixed phone

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e. The chosen land/fixed phone rings, or flashes to indicate the rerouted call

5. Option B:

a. While ringing, the cell phone indicates on its display that a nearby phone is available

b. The person approves the routing of the call to that nearby phone

c. The nearby phone rings, or flashes to indicate the rerouted call

6. Option C:

a. The call is automatically routed to an available nearby phone

b. The person is notified of the routing on the cell phone display

c. In parallel, the nearby phone uses a loudspeaker to announce the call by calling out Smith's name

d. The nearby phone rings, or flashes to indicate the rerouted call

7. The person receives the call on the available/chosen land/fixed line phone

Scenario 4

1. A hearing impaired person carrying a cell phone enters his colleague's office

2. In the office there are a land/fixed line phone and a computer screen (monitor)

3. An incoming phone call arrives at the colleague's land (fixed) line phone

4. The colleague receives the call and at some point wishes his friend (the hearing impaired person) to participate in the conversation

5. The colleague then clones the voice conversation to both:

i) His monitor (the voice is then transformed to text and appears, as it is spoken, on the monitor)

ii) The hearing impaired person's cell phone

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6. The hearing impaired person "hears" the conversation by reading the text appearing on the monitor

7. The hearing impaired person speaks to his cell phone microphone and can thereby participate in the conversation

It is appreciated that certain features of the invention, which are, for clarity, described in the context of separate embodiments, may also be provided in combination in a single embodiment. Conversely, various features of the invention which are, for brevity, described in the context of a single embodiment, may also be provided separately or in any suitable subcombination.

Unless otherwise defined, all technical and scientific terms used herein have the same meanings as are commonly understood by one of ordinary skill in the art to which this invention belongs. Although methods similar or equivalent to those described herein can be used in the practice or testing of the present invention, suitable methods are described herein.

All publications, patent applications, patents, and other references mentioned herein are incorporated by reference in their entirety. In case of conflict, the patent specification, including definitions, will prevail. In addition, the materials, methods, and examples are illustrative only and not intended to be limiting.

It will be appreciated by persons skilled in the art that the present invention is not limited to what has been particularly shown and described hereinabove. Rather the scope of the present invention is defined by the appended claims and includes both combinations and subcombinations of the various features described hereinabove as well as variations and modifications thereof which would occur to persons skilled in the art upon reading the foregoing description.

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Claims

1. Data rerouting apparatus for association with electronic equipment for rerouting data, comprising:

an announcer device for indicating to surrounding equipment that said associated equipment is available for rerouting, thereby to enable receipt of rerouted data therefrom, and

a scout device for scanning surroundings of said associated equipment to find out about compatible equipment in the vicinity, thereby to reroute data thereto.

2. Apparatus according to claim 1, further comprising a user interface associated with said scout device for allowing a user to select between available compatible equipment to reroute data thereto.

3. Apparatus according to claim 1, wherein said scout device is operable to determine media type requirements of said compatible equipment, the apparatus further comprising a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements.

4. Apparatus according to claim 3, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer.

5. Apparatus according to claim 1, further comprising a media cloner for making multiple copies of incoming data, thereby to enable said apparatus to redirect single incoming data to a plurality of locations.

6. Apparatus according to claim 3, further comprising a media cloner, associated with said media transformer, for making multiple copies of incoming data, thereby to enable said apparatus to redirect a single incoming communication, to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.

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7. Apparatus according to claim 1, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.

8. Apparatus according to claim 1, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

9. Apparatus according to claim 8, wherein said passive device further carries status information of said device.

10. Apparatus according to claim 8, wherein said announcer comprises a barcode and wherein said scout is a barcode reader.

11. Apparatus according to claim 1, further comprising an outgoing multimedia transmitter for locally directing rerouted media to a selected device.

12. Apparatus according to claim 1, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

13. Apparatus according to claim 1, further comprising control functionality operable to carry out said rerouting through locally available network infrastructure.

14. Apparatus according to claim 1, wherein said data is an incoming multimedia communication received from a cellular communication network.

15. Apparatus according to claim 1, wherein said data is an incoming multimedia communication received from a communication network.
Apparatus according to claim 1, wherein said data originates at the device embedding the apparatus.

16. Apparatus according to claim 1, wherein said data is unidirectional.

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17. Apparatus according to claim 1, wherein said data is multidirectional.

18. Apparatus according to claim 1, further comprising a device database for storing compatibility data of different equipment types.

19. Data rerouting apparatus for association with electronic equipment for rerouting data to at least one selected target device, comprising:

a cloner for making multiple copies of incoming data, thereby to enable said apparatus to redirect single incoming data to a plurality of respective target devices, and

a transformer, associated with said cloner, for receiving at least one of said multiple copies of said incoming data, and transforming said data into a form that accords with a determined media type requirement of a respective target device.

20. A method of rerouting data comprising:

receiving said data at a first device,

determining availability of other devices in the vicinity of said first device, and

rerouting said data to at least one target device selected from devices found to be available.

21. The method of claim 20, further comprising determining compatibility of said available devices in said vicinity with said data.

22. The method of claim 21 further comprising carrying out media type transformation from a media type of said communication to at least one media type compatible with a selected device.

23. The method of claim 20 comprising carrying out selection between devices found to be available, via a user interface.

24. The method of claim 20 comprising carrying out selection between devices found to be available, based on a predetermined user profile.

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25. The method of claim 24 wherein said profile is obtained from one of a group comprising device memory, the local environment, a local network, user provided settings, and server provided settings.

26. The method of claim 20 comprising selecting a plurality of devices to reroute said communication thereto, and cloning said communication for each selected device.

27. The method of claim 20, further comprising determining availability of other devices in the vicinity of said target device, and

rerouting said communication to at least one further target device selected from devices found to be available.

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1/1

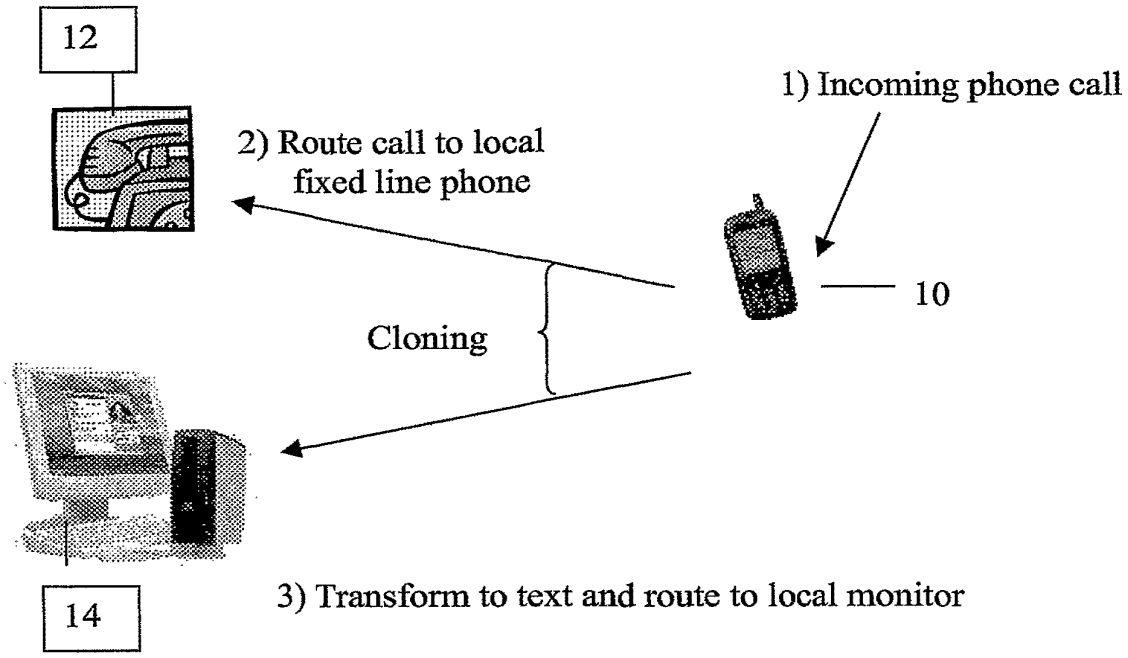

12
1) Incoming phone call
2) Route call to local fixed line phone
10
Cloning
14
3) Transform to text and route to local monitor

Fig. 1

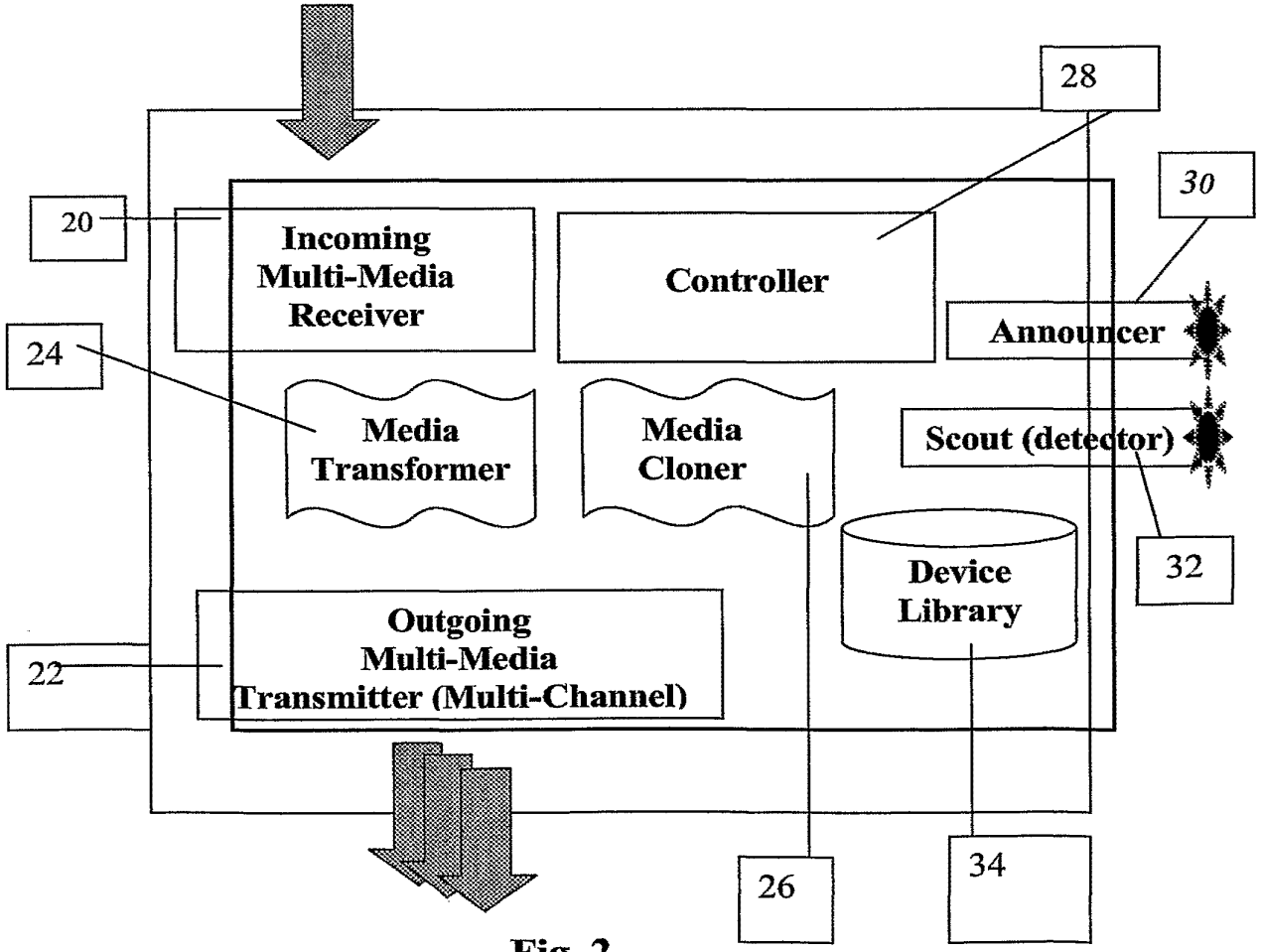

28
30
20
Incoming Multi-Media Receiver
Controller
Announcer
24
Media Transformer
Media Cloner
Scout (detector)
Device Library
32
Outgoing Multi-Media Transmitter (Multi-Channel)
22
26
34

Fig. 2

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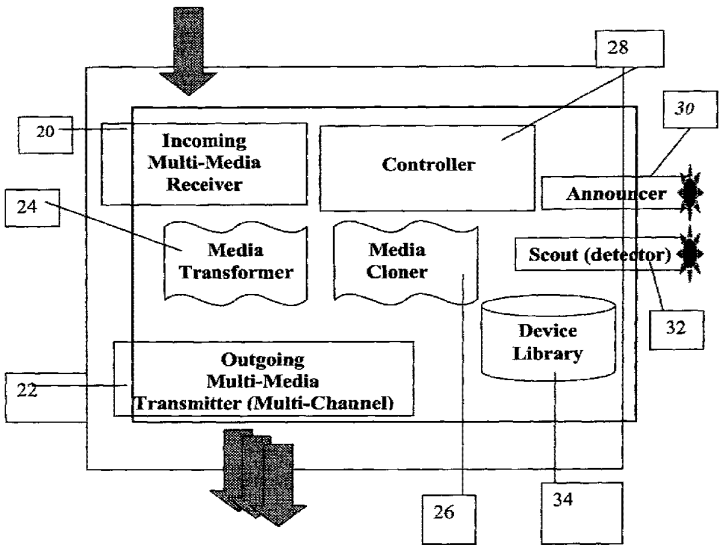
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(54) Title: ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES



(57) Abstract: Rerouting apparatus (Fig.2) for rerouting data including multimedia data. The apparatus is for association with electronic equipment and allows for routing the data to a device regarded as the most convenient for playing the media. The apparatus comprises an announcer device (30) for indicating to surrounding equipment that associated equipment is available for rerouting, thereby to enable receipt of rerouted communications therefrom, and a scout device (32) for scanning surroundings of the associated equipment to find out about compatible equipment in the vicinity, thereby to reroute communications thereto. The apparatus may be attached to any device having data processing capability, to enable rerouting of data and communications therebetween.

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A. CLASSIFICATION OF SUBJECT MATTER

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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)
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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 practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y,P	GB 2,370,451 A (SYDANMAA, et al) 26 June 2002 (26.06.2002), see entire document.	1-27
Y	WO 0141317 (USHER MARTIN PHILIP) 07 June 2001 (07.06.2001), see entire document.	1-27
Y	US 6,134,433 A (JOONG et al) 17 October 2000 (17.10.2000), see entire document.	1-27
Y	US 6,144,671 A (PERINPANATHAN et al) 07 November 2000 (07.11.2000), see entire document.	1-27
Y	US 6,333,919 B2 (GAFFNEY) 25 December 2001 (25.12.2001), see entire document.	1-27

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"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
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Date of mailing of the international search report
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Name and mailing address of the ISA/US
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Electronic Acknowledgement Receipt

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Application Number:	13118503
International Application Number:	
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Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
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Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Information Disclosure Statement (IDS) Form (SB08)	_form1449.pdf	100028 11b113929321958174ca33654e241e2c18c77b5e	no	2

Warnings:	
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2	Transmittal Letter	_USPTOltr.pdf	52798 99cbed230e29b494b60041538492ae54915a7b05	no	2
Warnings:					
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3	Foreign Reference	18-30681.pdf	827174 2d74667a4394f52cd382d7774766780dca998892	no	21
Warnings:					
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4	Foreign Reference	19-30682.pdf	2425587 a0a1a16f71c3a9d69d7a5a712376f089b919a7ba	no	59
Warnings:					
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5	Foreign Reference	20-30680.pdf	1522488 97d1491af07db621173d7820562f0d3b2cc839ff	no	26
Warnings:					
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6	Non Patent Literature	21-131662.pdf	403270 ad9afddf062c5486ec1d1e4828617b7a83b85f84	no	8
Warnings:					
Information:					
7	Non Patent Literature	22-58822.pdf	489009 c0cb84686246902e74d836166be55ae507db4d5e	no	19
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8	Non Patent Literature	23-93462.pdf	488554 b20c7a8f4a89575c289224c27c58e222a562e2e3	no	19
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9	Non Patent Literature	24-118622.pdf	1029087 76f8bb77059794a1a046691e3167007dd749521	no	37
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10	Non Patent Literature	25-97874.pdf	824490 990507c6b323bc86459039c648fd9ebb66c1e8bf	no	30

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11	Non Patent Literature	26-93943.pdf	349515 e76c5b31b99e8fcbe08f6c6789a369ab465b7c48	no	12
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Information:					
12	Non Patent Literature	27-108038.pdf	856800 beb90b6b7a1dc6aa7cc43b9bca43c521c217a003	no	32
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Information:					
13	Non Patent Literature	28-90439.pdf	675709 9e3a2e7c62883dcb0fc61e5934e62214eadc124c	no	25
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14	Non Patent Literature	29-83187.pdf	675729 afa370e48923573f8c73bbc6ea9f7e626ad2e1eb	no	25
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15	Non Patent Literature	30-90438.pdf	529119 751dc7fb9446f541eb76ca376b10d97d09f6d08b	no	19
Warnings:					
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16	Non Patent Literature	31-83188.pdf	529119 9a9cf2b099fc35527d325fb8e734f5c8d50b66ae	no	19
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17	Non Patent Literature	32-127053.pdf	108971 3ea6affd63c46c4cc66d7ecf8362c79bed75766b	no	15
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Information:					
18	Non Patent Literature	33-114864.pdf	156382 50af05f0a0c2e815548398431d81ceadce27bf0f	no	12
Warnings:					
Information:					
19	Non Patent Literature	34-133632.pdf	168620 90a0e9584e8822582abfbf0[illegible]f3d3	no	4

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New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
13/118,503	05/30/2011	Oded SHMUELI	51270

CONFIRMATION NO. 9678

67801
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

PUBLICATION NOTICE

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NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently http://www.uspto.gov/patft/.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/118,503	05/30/2011	Oded SHMUELI	51270	9678

67801 7590 04/25/2013

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
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ARLINGTON, VA 22215

EXAMINER	
KAO, JUTAI	

ART UNIT	PAPER NUMBER
2473	

MAIL DATE	DELIVERY MODE
04/25/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/118,503	Applicant(s) SHMUELI ET AL.	
	Examiner JUTAI KAO	Art Unit 2473	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *9 August 2011*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *26-52* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☒ Claim(s) *47 and 50-52* is/are allowed.

7)☒ Claim(s) *26-31,33-46,48 and 49* is/are rejected.

8)☒ Claim(s) *32* is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☒ The specification is objected to by the Examiner.

11)☒ The drawing(s) filed on *30 May 2011* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Interim copies:

a)☐ All b)☐ Some c)☐ None of the: Interim copies of the priority documents have been received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

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DETAILED ACTION

Priority

1. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of 35 U.S.C. 112(a) or the first paragraph of 35 U.S.C. 112 (pre-AIA). See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 10/347,388, fails to provide adequate support or enablement in the manner provided by 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph for one or more claims of this application.

Regarding claim 26, application 10/347,388 does not disclose the claimed limitation of "media type requirements comprising a screen resolution requirement and a bit rate requirement".

Regarding claim 52, application 10/347,388 does not disclose the claimed limitation of "wherein the media type requirements comprises a screen size".

Specification

2. The disclosure is objected to because of the following informalities: specification does not include the claimed subject matters of claims 26 and 52.

Regarding claim 26, the specification does not disclose the claimed limitation of “media type requirements comprising a screen resolution requirement and a bit rate requirement".

Regarding claim 52, the specification does not disclose the claimed limitation of "wherein the media type requirements comprises a screen size".

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of 35 U.S.C. 112(b):

(B) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 45 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

5. Claim 45 recites the limitation "said first link direction" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 26-31, 33-44, 46 and 48-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ortiz (US 2002/0058499) in views of Fano (US 2002/0133545) and Christopoulos (US 6,961754).

Ortiz discloses the following features

Regarding claim 26, apparatus for routing audio-video data (see Fig. 4 and 6, which show that the wireless device providing and routes data to the data rendering device; wherein data refers to “texts, voice, graphics and/or video" recited in paragraph [0046]), comprising a streaming device (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices” recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data), the apparatus comprising: a scout device configured to determine availability of said compatible media handling devices to receive rerouted audio-video data from said streaming device (see block 112 in Fig. 12 “Is DRD available?”, where the DRD can be considered the server or the surrounding equipments as shown in Fano’s invention, and that Ortiz shows the step of checking the availability of the device); said apparatus being configured to set up a bidirectional wireless communication link between said streaming device and respective media handling devices, said bidirectional wireless link able to carry said rerouted data as streaming audio-video data over either direction of said bidirectional communication link (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony,

video monitors, conferencing and other multi-media enabled devices" recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data; see Fig. 3, wherein the links to the remote devices are wireless links).

Regarding claim 27, the apparatus being a mobile device (see WD in Fig. 4).

Regarding claim 28, wherein at least one of said media handling device is an mobile device (see "DRDs can be adapted for facilitating direct wireless communication with a WD utilizing IR and/or RF communication signaling" recited in paragraph [0016], and therefore can be mobile as the DRDs do not require the use of landlines for communicating with the WD).

Regarding claim 29, the apparatus being a stationary device (see WD 6 in Fig. 1, which is stationary when not being moved).

Regarding claim 33, wherein said streaming data is audio-video data directed to or from surrounding devices (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see "DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices" recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data).

Regarding claim 34, a game console or game enabling device, and said streaming data is game data or video or audio, said streaming data being directed to

surrounding devices, said surrounding devices comprising one member of the group consisting of TV, PDAs, Hi Fi's and mobile telephones, to be displayed and played from such devices as well as or instead of on said apparatus (see "entertainment devices (games, TV, audio)" recited in paragraph [0051]).

Regarding claim 35, a mobile device, a mobile handset, a computer, or a PDA (see "(WD) include mobile phones, PDAs…" recited in paragraph [0046]), wherein said apparatus is configured to receive or generate a call and to redirect said call to a respective media handling device (see "DRD methods can be included in…telephony…" recited in paragraph [0017]).

Regarding claim 36, a mobile telephone or PDA (see "(WD) include mobile phones, PDAs…" recited in paragraph [0046]).

Regarding claim 37, a user interface associated with said scout device (see "Graphical User Interfaces...on a wireless device's screen" recited in paragraph [0009]) for allowing a user to select between available compatible media handling devices to reroute data thereto (see step 62 in Fig. 6 for selecting the DRD).

Regarding claim 43, apparatus further comprising control functionality operable to carry out said rerouting through locally available network infrastructure (see "DRDs can receive data directly from WDS and/or through networks (e.g., wireless, Internet, intranet, etc." recited in paragraph [0046]).

Regarding claim 44, wherein said audio/video data is one member of the group consisting of an incoming multimedia received from a communication network and a

multimedia communication received from a cellular communication network (see “voice and video services over cellular networks” recited in paragraph [0006]).

Regarding claim 46, the apparatus further comprising a device database for storing compatibility data of different equipment type (see “The WD can be programmed/provided with unique control functions and/or signals applicable to a particular DRD” recited in paragraph [0050]).

Regarding claim 48, a method of wirelessly routing streaming data (see Fig. 4 and 6, which show that the wireless device providing and routes data to the data rendering device; wherein data refers to “texts, voice, graphics and/or video" recited in paragraph [0046], wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices” recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data) comprising: through said scanning device , determine compatibility and availability of media handling devices in the vicinity of said first mobile device (see block 112 in Fig. 12 “Is DRD available?”, where the DRD can be considered the server or the surrounding equipments as shown in Fano’s invention, and that Ortiz shows the step of checking the availability of the device) for receiving of bidirectional streaming data directed from said mobile device via a bidirectional wireless link set up between said mobile device and respective media handling devices; the method further

comprising streaming data in either direction over said bidirectional wireless link (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices” recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data; see Fig. 3, wherein the links to the remote devices are wireless links).

Regarding claim 49, apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising: a streaming device (see Fig. 4 and 6, which show that the wireless device providing and routes data to the data rendering device; wherein data refers to “texts, voice, graphics and/or video" recited in paragraph [0046], wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices” recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data) comprising: a scout device to route or reroute streaming data from said streaming device to a selected one of said media handling device (see block 112 in Fig. 12 “Is DRD available?”, where the DRD can be considered the server or the

surrounding equipments as shown in Fano's invention, and that Ortiz shows the step of checking the availability of the device; and see step 62 in Fig. 6 for selecting the DRD), the apparatus being configured to set up a bidirectional wireless communication link between respective ones of said media handling devices and said streaming device, said bidirectional link being capable of carrying said streaming data in either direction of said bidirectional link (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see "DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices" recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data; see Fig. 3, wherein the links to the remote devices are wireless links).

Ortiz does not disclose the following features: regarding claim 26, an announcer device configured to indicate wirelessly to surrounding media handling devices that said streaming device is available for rerouting or rerouting; said scout device further being configured to determine media type requirements of said compatible media handling devices, said media type requirements comprising a screen resolution requirement and a bit rate requirement; regarding claim 30, a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements; regarding claim 31, a user interface for allowing a user to select one of said plurality of media type requirements for

transforming said media transformer; regarding claim 36, wherein said data further comprises a barcode information, the apparatus directing the barcode data to a surrounding device or to a point of sale device, or wherein said barcode data is transformed by said surrounding device; regarding claim 38, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings; regarding claim 39, wherein said announcer comprises a passive device, carrying at least identification information for reading by an active scout device; regarding claim 40, wherein said passive device further carries status information of said device; regarding claim 41, wherein said announcer comprises barcode data and wherein said scout is a barcode reader; regarding claim 42, control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data; regarding claim 48, scouting a vicinity of a first mobile device with a scanning device; wherein the availability is determined based, at least partly, on media type requirements of said respective media handling devices and media type of said streaming data

Fano discloses the following features.

Regarding claim 26, an announcer device (see communication device 74 and locating device 64 in Fig. 1) configured to indicate wirelessly to surrounding media handling devices (see local server 80 in Fig. 1, which provides the media for rerouting and remote devices 52, 58, etc., which handle and output the rerouted data) that said streaming device is available for rerouting or rerouting (see “Communication device 74

transmits a request signal 75 for information" recited in paragraph [0082]; and see paragraph [0100] and Fig. 4, which shows that the requested data may be further routed to remote devices); and a scout device (see sensing device 82 in Fig. 1) configured to wirelessly scan surroundings of said streaming device to identify surrounding media handling device and determine availability (see "Sensing device 82 is any device capable of sensing a signal or element in the surrounding...and generate a sensing signal response 95..." recited in paragraph [0090], and see "mobile devices gain the ability to sense and interact with the objects around them" recited in paragraph [0035]).

Regarding claim 36, wherein said data further comprises a barcode information (see "barcode" recited in paragraph [0030]), the apparatus directing the barcode data to a surrounding device or to a point of sale device, or wherein said barcode data is transformed by said surrounding device (see "Mobile devices may incorporate a variety of sensing abilities, including…barcodes…One can point a Mobile Valet device to a myriad of objects with ID tags and receive supporting services" recited I paragraph [0030]; and see Fig. 1 and 3, wherein the Mobile Valet directs the data to surrounding devices to receive the supporting services).

Regarding claim 38, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings (see "Communication device 74 transmits a request signal 75 for information" recited in paragraph [0082], that is, a status of waiting for requested information).

Regarding claim 39, wherein said announcer comprises a passive device, carrying at least identification information for reading by an active scout device (see sensing device 82 in Fig. 1 that may read the barcode 84 in Fig. 1).

Regarding claim 40, wherein said passive device further carries status information of said device (see “bar code tag…used to request…product reviews.." recited in paragraph [0039], wherein product review is considered a status of the product).

Regarding claim 41, wherein said announcer comprises barcode data (see barcode 84 in Fig. 1) and wherein said scout is a barcode reader (see “sensing capabilities, including…barcodes” recited in paragraph [0030]).

Regarding claim 42, control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data (see “The user continues using his mobile device as an input device to provide input to the remote service provider…The local service provider transmits instructions to another mobile device carried by a staff member of the local service provider…” recited in paragraph [0061], that is the server being the communication service provider which performs the rerouting of data to the mobile device of the staff member).

Regarding claim 48, scouting a vicinity of a first mobile device with a scanning device (see “Sensing device 82 is any device capable of sensing a signal or element in the surrounding...and generate a sensing signal response 95..." recited in paragraph

[0090], and see "mobile devices gain the ability to sense and interact with the objects around them" recited in paragraph [0035]).

Regarding claim 49, an announcer device (see communication device 74 and locating device 64 in Fig. 1) configured to indicate to surrounding media handling devices (see local server 80 in Fig. 1, which provides the media for rerouting and remote devices 52, 58, etc., which handle and output the rerouted data) that said apparatus is available to receive streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices (see “Communication device 74 transmits a request signal 75 for information” recited in paragraph [0082]; and see paragraph [0100] and Fig. 4, which shows that the requested data may be further routed to remote devices)

a scout device (see sensing device 82 in Fig. 1) configured to wirelessly scan surroundings of said apparatus to determine compatibility requirements availability of said identified media handling devices in said surroundings (see “Sensing device 82 is any device capable of sensing a signal or element in the surrounding...and generate a sensing signal response 95..." recited in paragraph [0090], and see "mobile devices gain the ability to sense and interact with the objects around them" recited in paragraph [0035]).

Christopoulos discloses the following features.

Regarding claim 26, said scout device further being configured to determine media type requirements of said compatible media handling devices, said media type requirements comprising a screen resolution requirement and a bit rate requirement

(see “Transcoder/Scalability Service (TSS)…adapt…the terminal capabilities associated with the terminal device (e.g., screen size, screen resolution…) and the network capabilities associated with the communication channel over which the terminal device and the media server communicate (e.g., available bandwidth or bit error rate)” recited in column 7, lines 14-34; wherein the bandwidth is considered a transmission bit rate limit; and the TSS is part of a media provider, wherein the WD of Ortiz acts as a media provider that provides media to the detected compatible media handling device (DRD as referred to in Ortiz) and therefore would be obvious to implement the TSS on the WD of Ortiz).

Regarding claim 30, a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements (see “Transcoder/Scalability Service (TSS)…adapt…the terminal capabilities associated with the terminal device (e.g., screen size, screen resolution…) and the network capabilities associated with the communication channel over which the terminal device and the media server communicate (e.g., available bandwidth or bit error rate)” recited in column 7, lines 14-34; wherein the TSS scales the transmitted media based on the media type requirements).

Regarding claim 31, a user interface for allowing a user to select one of said plurality of media type requirements for transforming said media transformer (see “TSS…automatically adapt...as a function of the user preferences" recited in column 7, lines 14-34; wherein user preferences must be entered via a user interface).

Regarding claim 48, wherein the availability is determined based, at least partly, on media type requirements of said respective media handling devices and media type of said streaming data (see “Transcoder/Scalability Service (TSS)…adapt…the terminal capabilities associated with the terminal device (e.g., screen size, screen resolution…) and the network capabilities associated with the communication channel over which the terminal device and the media server communicate (e.g., available bandwidth or bit error rate)” recited in column 7, lines 14-34; wherein the terminal capability determines whether the terminal can handle the media, and thus determines availability of the terminal).

Regarding claim 49, wherein said scout device is operable to determine media type requirements of said respective media handling devices (see “Transcoder/Scalability Service (TSS)…adapt…the terminal capabilities associated with the terminal device (e.g., screen size, screen resolution…) and the network capabilities associated with the communication channel over which the terminal device and the media server communicate (e.g., available bandwidth or bit error rate)” recited in column 7, lines 14-34; wherein the bandwidth is considered a transmission bit rate limit; and the TSS is part of a media provider, wherein the WD of Ortiz acts as a media provider that provides media to the detected compatible media handling device (DRD as referred to in Ortiz) and therefore would be obvious to implement the TSS on the WD of Ortiz).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Ortiz using features, as taught by Fano and

Christopoulos, in order to allow the wireless device to sense and interact with the objects around them (see paragraph [0034] of Fano) in order to provide media suitable for the data rendering device (see column 7, lines 14-34 of Christopoulos).

9. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ortiz, Fano and Christopoulos as applied to claim 26 above, and further in view of Proctor (US 2009/0055707).

Ortiz, Fano and Christopoulos disclose the claimed limitations as shown above.

Ortiz, Fano and Christopoulos do not disclose the following features: regarding claim 45, wherein said streaming data in said first link direction is directable via multiple channels to each of a plurality of surrounding devices of said surrounding equipment.

Proctor discloses a wireless system including the following features.

Regarding claim 45, wherein said streaming data in said first link direction is directable via multiple channels to each of a plurality of surrounding devices of said surrounding equipment (rejection of claim 1 above shows the directing of the streaming data to the surrounding equipment; Proctor shows the directing via multiple channels in paragraph [0004], which states "to facilitate data transfer for computing application or for video conferencing applications. In one such proposal, a high rate data signal may be communicated to a receiver over a plurality of parallel traffic channels").

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Ortiz, Fano and Christopoulos using features, as

taught by Proctor, in order to "provide high data rate exchanges over a wireless communication system (see Proctor, paragraph [0004]).

Allowable Subject Matter

10. Claims 47 and 50-52 are allowed.

11. Claim 32 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

12. The following is a statement of reasons for the indication of allowable subject matter: no reasonable combinations of prior art references were found to teach all of the claimed limitations presented in claims 32, 47 and 50-52.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Gottlieb (US 5,854,834) disclose the claimed media cloning functionality, but does not tie or suggest the media cloning to the media transformation functionality as required by the claims.

Sahai (US 6,594,699) disclose the claimed media transformation functionality, but does not tie or suggest the media transformation to the media cloning functionality as required by the claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ju-Tai Kao/
Acting Examiner of Art Unit 2473

Notice of References Cited	Application/Control No. 13/118,503	Applicant(s)/Patent Under Reexamination SHMUELI ET AL.	
	Examiner JUTAI KAO	Art Unit 2473	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-6,594,699	07-2003	Sahai et al.	709/228
*	B	US-5,854,834	12-1998	Gottlieb et al.	379/114.04
*	C	US-2002/0133545	09-2002	Fano et al.	709/203
*	D	US-2002/0058499	05-2002	Ortiz, Luis M.	455/412
*	E	US-2009/0055707	02-2009	Proctor, JR., James A.	714/758
*	F	US-6,961,754	11-2005	Christopoulos et al.	709/204
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	Art Unit
	JUTAI KAO	2473

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/19/2013								
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Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/19/2013								
	37	✓								
	38	✓								
	39	✓								
	40	✓								
	41	✓								
	42	✓								
	43	✓								
	44	✓								
	45	✓								
	46	✓								
	47	=								
	48	✓								
	49	✓								
	50	=								
	51	=								
	52	=								

PTO/SB/08a (08-03)
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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	13/118,503
Filing Date	May 30, 2011
First Named Inventor	SHMUELI Oded et al
Art Unit	2423
Examiner Name	
Attorney Docket Number	51270

Sheet	1	of	2

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Document Number Number-Kind Code[2] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
/J.K./	1	2002/0058499	16-May-2002	Ortiz	
	2	2002/0133545	19-Sep-2002	Fano et al.	
	3	2002/0161862	31-Oct-2002	Horvitz	
	4	2003/0073412	17-Apr-2003	Meade II	
	5	2003/0172121	11-Sep-2003	Evans et al.	
	6	2004/0017788	29-Jan-2004	Shmueli et al.	
	7	2004/0080779	29-Apr-2004	Kawamoto	
	8	2006/0013254	19-Jan-2006	Shmueli et al.	
	9	2007/0285504	13-Dec-2007	Hesse	
	10	2008/0043693	21-Feb-2008	Mousseau et al.	
	11	2009/0055707	26-Feb-2009	Proctor Jr.	
	12	5,854,834	29-Dec-1998	Gottlieb et al.	
	13	5,913,038	15-Jun-1999	Griffiths	
	14	6,134,433	17-Oct-2000	Joong et al.	
	15	6,144,671	07-Nov-2000	Perinpanathan et al.	
	16	6,333,919	25-Dec-2001	Gaffney	
	17	6,594,699	15-Jul-2003	Sahai et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. [1]	Foreign Patent Documents Country Code[3] Number[4] Kind Code[5] (if known)	Publication Date DD-MMM-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T [6]
/J.K./	18	GB 2370451	26-Jun-2002	Sydanmaa et al.		
	19	WO 01/41317	07-Jun-2001	Allaway et al.		
	20	WO 2004/012026	05-Feb-2004	Shmueli et al.		

Examiner Signature	/Jutai Kao/	Date Considered	04/19/2013

* EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of copy of this form with next communication to applicant.

[1] Applicant's unique citation designation number (optional).

[2] See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. 3 Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[3] Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3).

[4] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document.

[5] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible.

[6] Applicant is to place a check mark here if English language translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. this collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450

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INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Complete if Known	
Application Number	13/118,503
Filing Date	May 30, 2011
First Named Inventor	SIMUELI Oded et al
Group Art Unit	2423
Examiner Name	
Attorney Docket Number	51270

Sheet 2 Of 2

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS

Examiner Initials	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T[2]
/J.K./	21	Notice of Allowance Dated 18 February 2011 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	22	Official Action Dated 05 July 2007 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	23	Official Action Dated 05 July 2007 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	24	Official Action Dated 07 July 2010 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	25	Official Action Dated 09 June 2009 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	26	Official Action Dated 17 April 2008 From the US Patent and Trademark Office Re.: Application No. 11/146,130.	
	27	Official Action Dated 23 December 2009 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	28	Official Action Dated 27 October 2008 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	29	Official Action Dated 27 October 2008 From the US Patent Office Re.: Application No. 10/347,388.	
	30	Official Action Dated 28 December 2007 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	31	Official Action Dated 28 December 2007 From the US Patent Office Re.: Application No. 10/347,388.	
	32	Response Dated 06 December 2010 to Official Action of 07 July 2010 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	33	Response Dated 22 April 2010 to Official Action of 23 December 2009 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	
	34	Supplemental Notice of Allowability Dated 13 April 2011 From the US Patent and Trademark Office Re.: Application No. 10/347,388.	

Examiner Signature	/Jutai Kao/	Date Considered	04/19/2013

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EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S100	169	S99 and S98	US-PGPUB; USPAT	OR	ON	2013/04/17 10:18
S99	4383738	(@rlad<"20020725" or @ad<"20020725")	US-PGPUB; USPAT	OR	ON	2013/04/17 10:18
S98	739	(stream$4 or redirect$4 or rerout$4) same screen near2 resolution	US-PGPUB; USPAT	OR	ON	2013/04/17 10:18
S102	3	S101 and S99	US-PGPUB; USPAT	OR	ON	2013/04/17 10:19
S101	31	(redirect$4 or rerout$4) same screen near2 resolution	US-PGPUB; USPAT	OR	ON	2013/04/17 10:19
S104	28	S103 and S99	US-PGPUB; USPAT	OR	ON	2013/04/17 10:20
S103	147	(stream$4 or redirect$4 or rerout$4) same screen near2 resolution same ((bit adj rate) or bandwidth)	US-PGPUB; USPAT	OR	ON	2013/04/17 10:20
S105	2	determin$4 near8 bit near2 rate near8 screen near2 resolution	US-PGPUB; USPAT	OR	ON	2013/04/17 10:34
S107	0	S106 and S99	US-PGPUB; USPAT	OR	ON	2013/04/17 10:35
S106	5	(supported or requir$5) near8 bit near2 rate near8 screen near2 resolution	US-PGPUB; USPAT	OR	ON	2013/04/17 10:35
S108	6	S104 and wireless	US-PGPUB; USPAT	OR	ON	2013/04/17 10:42

EAST Search History (Interference)

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Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	Art Unit
	JUTAI KAO	2473

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search, see attached search history	04/19/2013	JK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:			
	Oded SHMUELI et al	Confirmation No.:	9678
Serial No.:	13/118,503		
Filed:	May 30, 2011	Group Art Unit:	2473
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES	Attorney Docket:	**51270**
Examiner:	Jutai KAO		

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Response

Sir:

This is in response to the United States Patent and Trademark Office Action mailed April 25, 2013, which response is being made on or before July 25, 2013, and for which no extension of time fees are due.

Applicant submits this response for entry into the record, in which:

Amendments to the Specification begin on **page 2**.
Amendments to the Claims begin on **page 3**.
Remarks begin on **page 11**.

Please amend the above-identified application as follows:

In the Specification

Please amend the paragraph beginning at page 3 line 16 as follows:

Preferably, said scout device is operable to determine media type requirements of said compatible equipment, the apparatus further comprising a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements. The media type requirements may include screen capability and data rate.

In the Claims:

1 – 25. (Cancelled)

26. (Currently Amended) Apparatus for routing audio-video data, comprising a streaming device, the apparatus comprising:

(a) an announcer device configured to indicate wirelessly to surrounding media handling devices that said streaming device is available for ~~rerouting~~ routing or rerouting; and

(b) a scout device configured to wirelessly scan surroundings of said streaming device to identify surrounding media handling device as being compatible to given media and determine availability of said compatible media handling devices to receive rerouted audio-video data from said streaming device, said scout device further being configured to determine media type requirements of said compatible media handling devices, said media type requirements comprising ~~a~~ screen ~~resolution requirement~~capability and a ~~bit~~ data rate requirement;

said apparatus being configured to set up a bidirectional wireless communication link between said streaming device and respective media handling devices, said bidirectional wireless link able to carry said rerouted data as streaming audio-video data over either direction of said bidirectional communication link;

(c) a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements;

(d) a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer; and

(e) a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed at said media transformer.

27. (Previously Presented) Apparatus according to claim 26, being a mobile device.

28. (Previously Presented) Apparatus according to claim 26, wherein at least one of said media handling devices is a mobile device.

29. (Previously Presented) Apparatus according to claim 27, being a stationary device.

30 - 32. (Cancelled)

33. (Previously Presented) Apparatus according to claim 26, wherein said streaming data is audio-video data directed to or from surrounding devices.

34. (Previously Presented) Apparatus according to claim 26, comprising a game console or game enabling device, and said streaming data is game data or video or audio, said streaming data being directed to surrounding devices, said surrounding devices comprising one member of the group consisting of TV, PDAs, Hi Fi's and mobile telephones, to be displayed and played from such devices as well as or instead of on said apparatus.

35. (Previously Presented) Apparatus according to claim 26, comprising a mobile device, a mobile handset, a computer, or a PDA, wherein said apparatus is configured to receive or generate a call and to redirect said call to a respective media handling device.

36. (Previously Presented) Apparatus according to claim 26, comprising a mobile telephone or PDA and wherein said data further comprises a barcode information, the apparatus directing the barcode data to a surrounding device or to a point of sale device, or wherein said barcode data is transformed by said surrounding device.

37. (Previously Presented) Apparatus according to claim 26, further comprising a user interface associated with said scout device for allowing a user to

select between available compatible media handling devices to reroute data thereto.

38. (Previously Presented) Apparatus according to claim 26, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.

39. (Previously Presented) Apparatus according to claim 26, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

40. (Previously Presented) Apparatus according to claim 39, wherein said passive device further carries status information of said device.

41. (Previously Presented) Apparatus according to claim 39, wherein said announcer comprises barcode data and wherein said scout is a barcode reader.

42. (Previously Presented) Apparatus according to claim 26, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

43. (Previously Presented) Apparatus according to claim 26, further comprising control functionality operable to carry out said rerouting through locally available infrastructure.

44. (Previously Presented) Apparatus according to claim 26, wherein said audio/video data is one member of the group consisting of an incoming multimedia communication received from a communication network and an incoming multimedia communication received from a cellular communication network.

45. (Currently Amended) Apparatus according to claim 26, wherein said streaming data in ~~said~~ a first link direction is directable via multiple channels to each of a plurality of surrounding devices.

46. (Previously Presented) Apparatus according to claim 26, further comprising a device database for storing compatibility data of different equipment types.

47. (Previously Presented) A method of routing streaming data comprising:

wirelessly scouting a vicinity of said streaming device with a scanning device,

through said scanning device determining availability of surrounding media handling devices in said vicinity, wherein the availability is determined based, at least partly, on media type requirements of said media handling devices, and

routing or rerouting streaming data between said streaming device and at least one target device selected from said media handling devices in said scanned vicinity found to be available, said routing or rerouting comprising setting up a bidirectional wireless data link between said target device and said streaming device, said bidirectional wireless link being capable of carrying a multimedia streaming data in either direction of said bidirectional data link;

transforming media into forms respectively that accord with said determined media type requirements,

allowing a user to select, via a user interface, or selecting based on a profile, one of said determined media type requirements for transforming; and

making multiple copies of incoming streaming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being transformed.

48. (Currently Amended) A method of wirelessly routing streaming data comprising:

scouting a vicinity of a first mobile device with a scanning device, said scanning device being associated with said first mobile device,

through said scanning device determining compatibility and availability of media handling devices in the vicinity of said first mobile device for receiving of bidirectional streaming data directed from said mobile device via a bidirectional wireless link set up between said mobile device and respective media handling devices, wherein the availability is determined based, at least partly, on media type requirements of said respective media handling devices and media type of said streaming data, the method further comprising streaming data in either direction over said bidirectional wireless link; and

making multiple copies of said media data, thereby to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed in accordance with a respective determined compatibility.

49. (Currently Amended) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said apparatus is available to receive streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices;

a scout device configured to scan surroundings of said apparatus to identify surrounding media handling devices and determine compatibility requirements availability of said identified media handling devices in said surroundings, thereby to route and reroute streaming data from said streaming device to a selected one of said media handling devices, the apparatus being configured to set up a bidirectional wireless communication link between respective ones of said media handling devices and said streaming device, said bidirectional link being capable of carrying said streaming data in either direction of said bidirectional link, and wherein said scout device is operable to determine media type requirements of said respective media handling devices; and

a media cloner, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations.

50. (Previously Presented) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said streaming device is available to receive streaming data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured to scan surroundings of said streaming device to identify surrounding media handling devices as being compatible to handle given media, and determine availability of said identified compatible media handling devices, thereby to reroute streaming data between said streaming device and a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said compatible media handling devices, said apparatus configured to set up a bidirectional wireless communication link between said streaming device and a respective one of said media handling devices, said bidirectional link carrying streaming data over either direction as required of said bidirectional link;

a media transformer, configured to transform media into forms that accord with respective determined media type requirements, wherein there are a plurality of said types;

a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being transformed via said media transformer.

51. (Currently Amended) Apparatus for routing and rerouting media data, the apparatus being mobile and comprising:

a media data transfer device comprising:

an announcer device configured for indicating to surrounding media handling devices that said media data transfer device is available to receive

media data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured for scanning surroundings to identify surrounding media handling devices as being compatible with given media and determine availability of said identified compatible media handling devices, thereby to reroute media data from said media data transfer device to a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said media handling devices;

a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements;

a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least some of said multiple copies being transformed at said media transformer.

52. (Currently Amended) The apparatus of claim 51, wherein said media type requirements comprise a screen ~~size~~capability.

53. (New) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said streaming device is available to receive streaming data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured to scan surroundings of said streaming device to identify surrounding media handling devices as being compatible to handle given media, and determine availability of said identified compatible media handling devices, thereby to reroute streaming data between said streaming device and a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said compatible media

handling devices, said apparatus configured to set up a wireless communication link between said streaming device and a respective one of said media handling devices;

a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations.

REMARKS

Claims 26 - 51 are pending.

Claims 32, 47 and 50 – 52 were found to contain allowable subject matter.

Claims 26 – 31, 33-46, 48 and 49 are rejected.

Claims 26, 45, 48, 49, 51 and 52 are amended.

Claims 30 – 32 are cancelled herewith without prejudice.

Claiming of Priority and Amendments to the Specification

Examiner objects that the specification fails to provide support for the claimed features of "media type requirements comprising a screen resolution requirement and a bit rate requirement" (claim 26) and "media type requirements comprise a screen size" (claim 52).

Applicant believes that such features are supported by the description.

Page 2 lines 10 – 16 teaches: "Most current mobile devices in particular provide relatively poor multi-media capabilities including digital audio, image, and/or video capabilities (as well as other media capabilities) in comparison with other existing devices such as land/fixed line phones, computer monitors, TV screens and Hi-Fi sets. Compared to high quality media playing equipment, even 3rd generation mobile devices (3G) are of inferior quality."

Page 6 line 5 teaches a device that is limited by inferior data rate.

Page 9 lines 10 – 18 teaches: "A media transformer 24 is responsible for transforming its input (incoming media) into a required media type, or types, and outputting the resulting media stream(s), or file(s). It too preferably has a multi-channel Output. The media types required as output are preferably specified externally. A preferred embodiment of a media transformer includes a voice to text

transformer as discussed above. The voice to text transformer may be augmented by a text to fax transformer. Further transformations include image transformations such as color to black and white, resolution reductions, and image format transformations. Similar transformations may be provided for video, and to the extent applicable for sound formats."

Page 14 lines 5 – 8 teaches: "As a further variation, if the incoming music signal is initially directed at a mobile device, it could first of all be rerouted at the service provider level to a land device so as to support a better data rate and then cloned and redirected for text output as described above."

Page 15 lines 25 – 28 teaches "As stated earlier, combining the routing capability with the media transformation capability in principle enables routing of any media between any pair of devices appearing in the lists above. Furthermore, combined with cloning, media may be used in different ways at different devices."

In regards to this last passage, the devices stated beforehand include 3G telephone devices and monitors. As the screen resolutions of telephony devices and computer monitors are very different, the described "routing between any pair of devices in the lists above" intrinsically includes a transformation between screens of different resolutions.

Nevertheless, in order to facilitate further prosecution of the application, the passages in claims 26 and 52 are amended to recite "data rate" and "screen capability" in place of "bit rate" and "screen resolution". The exact phrases used are hereby inserted into the description.

35 U.S.C. § 112 Rejections

Claim 45 is amended to deal with the rejection to the lack of antecedent basis.

Allowable Subject Matter

Examiner is thanked for his finding of allowable subject matter. Claim 26 is amended to incorporate the subject matter of objected claim 32 and all intervening claims. Rejected claims 48 and 49 are amended to incorporate the allowable subject matter, and a new claim 53 is added, which also incorporates the allowable subject matter, namely *a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations.*

A minor amendment is made to claim 51 to make it consistent with claim 49.

The remaining claims are believed to be allowable as based on allowable main claims.

Conclusion

All the matters raised by the Examiner are dealt with, and it is respectfully submitted that claims 26 –29 and 33 - 53 are now in order for allowance.

A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum
Registration No. 56,437
Telephone: 718.246.8482

Date: July 23, 2013

Enclosure:

- Additional Claims Transmittal Fee

Electronic Patent Application Fee Transmittal

Application Number:	13118503
Filing Date:	30-May-2011
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Filer:	Jason Harris Rosenblum
Attorney Docket Number:	51270

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Independent Claims in Excess of 3	2201	1	210	210
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**210**

Electronic Acknowledgement Receipt

EFS ID:	16385542
Application Number:	13118503
International Application Number:	
Confirmation Number:	9678
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
Filer:	Jason Harris Rosenblum
Filer Authorized By:	
Attorney Docket Number:	51270
Receipt Date:	23-JUL-2013
Filing Date:	30-MAY-2011
Time Stamp:	09:34:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$210
RAM confirmation Number	8838
Deposit Account	501407
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		51270ResponsetoOAof25thApril2013.pdf	84235 83a915393d9cf69667b6f713282a466947e649d9	yes	14

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Transmittal Letter	1	1
Amendment/Req. Reconsideration-After Non-Final Reject	2	2
Specification	3	3
Claims	4	11
Applicant Arguments/Remarks Made in an Amendment	12	14

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30093 a07b2d46357a434e96566469acd09737300e8d5c	no	2

Warnings:

Information:

Total Files Size (in bytes):	114328

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:		§		
		§		
	Oded SHMUELI et al	§	Confirmation No.:	9678
		§		
Serial No.:	13/118,503	§		
		§		
Filed:	May 30, 2011	§	Group Art Unit:	2473
		§		
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES	§		
		§	Attorney Docket:	**51270**
		§		
Examiner:	Jutai KAO	§		

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

AMENDMENT TRANSMITTAL

Sir:

(1) Applicant is a:
_X_ small entity
___ other than small entity

(2) The fee for claims 37 C.F.R. §1.16(b)-(d) has been calculated as shown below:

For	Claims after Amendment	Highest Claims Previously Paid
Total Claims	20	27
Indep. Claims	7	6

Small Entity	
Rate	**Fee**
0 x $ 40.00	$ 0.00
1 x $210.00	$ 210.00
TOTAL:	**$ 210.00**

(3) A response to the Office Action dated April 25, 2013 _X_ is filed herewith
____ has been filed

(4) Please charge the additional claim fee and any other amount required to Deposit Account No. **50-1407**.

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum
Registration No. 56,437
Telephone: 718.246.8482

Date: July 23, 2013

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/118,503	Filing Date 05/30/2011	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **07/23/2013**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 25	Minus	** 27	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 7	Minus	***6	= 1	X $210 =	210
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	**210**

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/MAMYE WAGSTAFF/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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UNITED STATES DEPARTMENT OF COMMERCE
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www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/118,503	05/30/2011	Oded SHMUELI	51270	9678

67801 7590 11/04/2013

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER	
KAO, JUTAI	

ART UNIT	PAPER NUMBER
2473	

MAIL DATE	DELIVERY MODE
11/04/2013	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 13/118,503	Applicant(s) SHMUELI ET AL.	
	Examiner JUTAI KAO	Art Unit 2473	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *07/23/2013*.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *26-29 and 33-53* is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6)☐ Claim(s) _____ is/are allowed.

7)☒ Claim(s) *26-29 and 33-53* is/are rejected.

8)☐ Claim(s) _____ is/are objected to.

9)☐ Claim(s) _____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a)☐ All b)☐ Some * c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

4) ☐ Other: _____.

IPR2024-01049
Apple EX1039 Page 224

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

Amendments filed on 07/23/2013 change the scopes of the previously presented claims. New grounds of rejections are applied to the amended claims and the action is made FINAL as necessitated by the claim amendments.

Response to Arguments

2. Applicant's arguments with respect to claims 26-53 have been considered but are moot because the arguments do not apply to any of the references being used in the current rejection.

Double Patenting

3. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory double

patenting rejection is appropriate where the claims at issue are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the reference application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement. A terminal disclaimer must be signed in compliance with 37 CFR 1.321(b).

The USPTO internet Web site contains terminal disclaimer forms which may be used. Please visit http://www.uspto.gov/forms/. The filing date of the application will determine what form should be used. A web-based eTerminal Disclaimer may be filled out completely online using web-screens. An eTerminal Disclaimer that meets all requirements is auto-processed and approved immediately upon submission. For more information about eTerminal Disclaimers, refer to http://www.uspto.gov/patents/process/file/efs/guidance/eTD-info-I.jsp.

4. Claims 26-27 and 38-53 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,969,990 in view of Christopoulos (US 6,961,754).

Current Application	US 7,969,990
26. (Currently Amended) **Apparatus for routing audio-video data, comprising a streaming device, the apparatus comprising: (a) an announcer device configured to indicate wirelessly to surrounding media handling devices that said streaming device is available for rerouting routing or rerouting; and (b) a scout device configured to wirelessly scan surroundings of said streaming device to identify surrounding media handling device as being compatible to given media and determine availability of said compatible media handling devices to receive rerouted audio-video data from said streaming device, said scout device further being configured to**	1. **Apparatus for rerouting communication data, comprising: a mobile communication device comprising: an announcer device associated with said mobile communication device, and configured for indicating to surrounding equipment that said mobile communication device is available to receive rerouting**, thereby to enable receipt of rerouted data from said surrounding equipment, and **a scout device associated with said mobile communication device, configured for scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in**

determine media type requirements of said compatible media handling devices, said media type requirements comprising screen capability and a data rate requirement**; said apparatus being configured to set up a bidirectional wireless communication link between said streaming device and respective media handling devices, said bidirectional wireless link able to carry said rerouted data as streaming audio-video data over either direction of said bidirectional communication link; (c) a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements; (d) a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer;**	**the vicinity, thereby to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment**, said bidirectional link having a first link direction from said mobile communication device to said selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying **streaming data** over both directions of said first link direction and said second link direction, and wherein said scout device is operable to **determine media type requirements of said compatible equipment**; **a media transformer, associated with said scout device, for**

and (e) a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed at said media transformer.	**transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.**
27. (Previously Presented) **Apparatus according to claim 26, being a mobile device.**	1. Apparatus for rerouting communication data, comprising**: a mobile communication device** comprising: an announcer device associated with said

	mobile communication device, and configured for indicating to surrounding equipment that said mobile communication device is available to receive rerouting, thereby to enable receipt of rerouted data from said surrounding equipment, and a scout device associated with said mobile communication device, configured for scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in the vicinity, thereby to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said mobile communication device to said selected surrounding equipment and

	a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link direction, and wherein said scout device is operable to determine media type requirements of said compatible equipment; a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to

	redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.
38. (Previously Presented) Apparatus according to claim 26, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.	**3. Apparatus according to claim 1, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.**
39. (Previously Presented) Apparatus according to claim 26, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.	**4. Apparatus according to claim 1, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.**
40. (Previously Presented) Apparatus according to claim 39, wherein said passive device further carries status information of said device.	**5. Apparatus according to claim 4, wherein said passive device further carries status information of said device.**

41. (Previously Presented) Apparatus according to claim 39, wherein said announcer comprises barcode data and wherein said scout is a barcode reader.	**6. Apparatus according to claim 4, wherein said announcer comprises a barcode and wherein said scout is a barcode reader.**
42. (Previously Presented) Apparatus according to claim 26, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.	8. Apparatus according to claim 1, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.
43. (Previously Presented) Apparatus according to claim 26, further comprising control functionality operable to carry out said rerouting through locally available infrastructure.	**9. Apparatus according to claim 1, further comprising control functionality operable to carry out said rerouting through locally available network infrastructure.**
44. (Previously Presented) Apparatus according to claim 26, wherein said audio/video data is one member of the group consisting of an incoming multimedia communication received	**10. Apparatus according to claim 1, wherein said data is an incoming multimedia communication received from a cellular communication network.**

from a communication network and an incoming multimedia communication received from a cellular communication network.	
45. (Currently Amended) Apparatus according to claim 26, wherein said streaming data in a first link direction is directable via multiple channels to each of a plurality of surrounding devices.	**12. Apparatus according to claim 1, wherein said streaming data in said first link direction is directable via multiple channels to each of a plurality of surrounding devices of said surrounding equipment.**
46. (Previously Presented) Apparatus according to claim 26, further comprising a device database for storing compatibility data of different equipment types.	**14. Apparatus according to claim 1, further comprising a device database for storing compatibility data of different equipment types.**
47. (Previously Presented) **A method of routing streaming data comprising: wirelessly scouting a vicinity of said streaming device with a scanning device, through said scanning device determining availability of surrounding media handling devices in said vicinity,**	16. **A method of rerouting communication data comprising: receiving said data at a first mobile device, scouting a vicinity of said first mobile device with a scanning device, said scanning device being associated with said first mobile device, through**

wherein the availability is determined based, at least partly, on media type requirements of said media handling devices, and routing or rerouting streaming data between said streaming device and at least one target device selected from said media handling devices in said scanned vicinity found to be available, said routing or rerouting comprising setting up a bidirectional wireless data link between said target device and said streaming device, said bidirectional wireless link being capable of carrying a multimedia streaming data in either direction of said bidirectional data link;	**said scanning device determining availability of other devices in the vicinity of said first mobile device, wherein the availability is determined based, at least partly, on media type requirements of said compatible equipment, and rerouting said data from said mobile device to at least one target device selected from devices in said scanned vicinity found to be available, said rerouting comprising setting up a bidirectional data link between said target device and said mobile device, said bidirectional data link having a first direction from said mobile device to said target device and a second direction from said target device to said mobile device, said bidirectional link being capable of carrying a multimedia datastream in both of said first direction and said second direction between said first**
transforming media into forms respectively that accord with said determined media type requirements, allowing a user to select, via a user interface, or selecting based on a profile, one of said determined media	

type requirements for transforming; and making multiple copies of incoming streaming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being transformed.	**mobile device and said selected target device transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and making multiple copies of incoming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.**
48. (Currently Amended) A method of wirelessly routing streaming data comprising: scouting a vicinity of a first mobile device with a scanning device, said scanning device being associated with said first mobile device, through said scanning device determining	16. **A method of rerouting communication data comprising: receiving said data at a first mobile device, scouting a vicinity of said first mobile device with a scanning device, said scanning device being associated with said first mobile device, through**

compatibility and availability of media handling devices in the vicinity of said first mobile device for receiving of bidirectional streaming data directed from said mobile device via a bidirectional wireless link set up between said mobile device and respective media handling devices, wherein the availability is determined based, at least partly, on media type requirements of said respective media handling devices and media type of said streaming data, the method further comprising streaming data in either direction over said bidirectional wireless link; and making multiple copies of said media data, thereby to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed in accordance with a respective determined compatibility.	**said scanning device determining availability of other devices in the vicinity of said first mobile device, wherein the availability is determined based, at least partly, on media type requirements of said compatible equipment, and rerouting said data from said mobile device to at least one target device selected from devices in said scanned vicinity found to be available, said rerouting comprising setting up a bidirectional data link between said target device and said mobile device, said bidirectional data link having a first direction from said mobile device to said target device and a second direction from said target device to said mobile device, said bidirectional link being capable of carrying a multimedia datastream in both of said first direction and said second direction between said first**

	mobile device and said selected target device transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and making multiple copies of incoming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.
49. (Currently Amended) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising: a streaming device comprising: an announcer device configured to indicate to surrounding media handling devices that said apparatus is available to receive	1. **Apparatus for rerouting communication data, comprising: a mobile communication device comprising: an announcer device associated with said mobile communication device, and configured for indicating to surrounding**

streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices; a scout device configured to scan surroundings of said apparatus to identify surrounding media handling devices and determine compatibility requirements availability of said identified media handling devices in said surroundings, thereby to route and reroute streaming data from said streaming device to a selected one of said media handling devices, the apparatus being configured to set up a bidirectional wireless communication link between respective ones of said media handling devices and said streaming device, said bidirectional link being capable of carrying said streaming data in either direction of said bidirectional link, and wherein said scout device is operable to determine media type requirements of said respective	**equipment that said mobile communication device is available to receive rerouting**, thereby to enable receipt of rerouted data from said surrounding equipment, and **a scout device associated with said mobile communication device, configured for scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in the vicinity, thereby to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said mobile communication device to said**

media handling devices; and a media cloner, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations.	**selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link direction, and wherein said scout device is operable to determine media type requirements of said compatible equipment; a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and a media cloner, associated with said media**

	transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.
50. (Previously Presented) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising: a streaming device comprising: an announcer device configured to indicate to surrounding media handling devices that said streaming device is available to receive streaming data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and a scout device configured to scan surroundings of said streaming device to identify surrounding media handling	1. **Apparatus for rerouting communication data, comprising: a mobile communication device comprising: an announcer device associated with said mobile communication device, and configured for indicating to surrounding equipment that said mobile communication device is available to receive rerouting**, thereby to enable receipt of rerouted data from said surrounding equipment, and **a scout device associated with said mobile communication device, configured for**

devices as being compatible to handle given media, and determine availability of said identified compatible media handling devices, thereby to reroute streaming data between said streaming device and a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said compatible media handling devices, said apparatus configured to set up a bidirectional wireless communication link between said streaming device and a respective one of said media handling devices, said bidirectional link carrying streaming data over either direction as required of said bidirectional link; a media transformer, configured to transform media into forms that accord with respective determined media type requirements, wherein there are a	**scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in the vicinity, thereby to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said mobile communication device to said selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link**

plurality of said types; a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being transformed via said media transformer.	**direction, and wherein said scout device is operable to determine media type requirements of said compatible equipment; a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media**

	transformer.
51. (Currently Amended) Apparatus for routing and rerouting media data, the apparatus being mobile and comprising: a media data transfer device comprising: an announcer device configured for indicating to surrounding media handling devices that said media data transfer device is available to receive media data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and a scout device configured for scanning surroundings to identify surrounding media handling devices as being compatible with given media and determine availability of said identified compatible media handling devices, thereby to reroute media data from said media data transfer device to a selected one of said surrounding media handling devices, said scout device	1. **Apparatus for rerouting communication data, comprising: a mobile communication device comprising: an announcer device associated with said mobile communication device, and configured for indicating to surrounding equipment that said mobile communication device is available to receive rerouting**, thereby to enable receipt of rerouted data from said surrounding equipment, and **a scout device associated with said mobile communication device, configured for scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in the vicinity, thereby to reroute data from said mobile communication device to a selected one of said**

further being configured to determine media type requirements of said media handling devices; a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements; a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer, and a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least some of said multiple copies being transformed at said media transformer.	**surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said mobile communication device to said selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link direction, and wherein said scout device is operable to determine media type requirements of said compatible equipment; a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media**

	type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.
53. (New) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising: a streaming device comprising: an announcer device configured to indicate to surrounding media handling	1. **Apparatus for rerouting communication data, comprising: a mobile communication device comprising: an announcer device associated with said mobile communication device, and configured**

devices that said streaming device is available to receive streaming data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and a scout device configured to scan surroundings of said streaming device to identify surrounding media handling devices as being compatible to handle given media, and determine availability of said identified compatible media handling devices, thereby to reroute streaming data between said streaming device and a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said compatible media handling devices, said apparatus configured to set up a wireless communication link between said streaming device and a respective one	**for indicating to surrounding equipment that said mobile communication device is available to receive rerouting**, thereby to enable receipt of rerouted data from said surrounding equipment, and **a scout device associated with said mobile communication device, configured for scanning surroundings of said associated mobile communication device to identify and determine availability of compatible equipment in the vicinity, thereby to reroute data from said mobile communication device to a selected one of said surrounding equipment, wherein said rerouting comprises setting up a bidirectional communication link between said mobile communication device and said selected surrounding equipment, said bidirectional link having a first link direction from said**

of said media handling devices; a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations.	**mobile communication device to said selected surrounding equipment and a second link direction from said selected surrounding equipment to said mobile communication device, said bidirectional link carrying streaming data over both directions of said first link direction and said second link direction, and wherein said scout device is operable to determine media type requirements of said compatible equipment; a media transformer, associated with said scout device, for transforming media into a form that accords with said determined media type requirements, wherein a plurality of types correspond to said media type requirements, and further comprising a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer and a media cloner,**

	associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being redirected via said media transformer.

As shown above, claim 1 of US 7,969,990 disclose all claimed feature of the current claims 26 and 52 except for the claimed limitation of “said media type requirements comprising screen capability and a data rate requirement.

However, Christopoulos discloses said media type requirements comprising a screen resolution requirement and a bit rate requirement (see “Transcoder/Scalability Service (TSS)…adapt…the terminal capabilities associated with the terminal device (e.g., screen size, screen resolution…) and the network capabilities associated with the communication channel over which the terminal device and the media server communicate (e.g., available bandwidth or bit error rate)” recited in column 7, lines 14-34; wherein the bandwidth is considered a transmission bit rate requirement).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of US 7,969,990 using features, as taught by Christopoulos, in order to adapt the provided media to the terminal capabilities.

5. Claims 28-29 and 33-37 are rejected on the ground of nonstatutory double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,969,990 in view of Christopoulos and Ortiz (US 2002/0058499).

US 7,969,990 and Christopoulos discloses the claimed limitations as shown above.

Regarding claim 28, Ortiz discloses wherein at least one of said media handling device is an mobile device (see “DRDs can be adapted for facilitating direct wireless communication with a WD utilizing IR and/or RF communication signaling” recited in paragraph [0016], and therefore can be mobile as the DRDs do not require the use of landlines for communicating with the WD).

Regarding claim 29, Ortiz discloses the apparatus being a stationary device (see WD 6 in Fig. 1, which is stationary when not being moved).

Regarding claim 33, Ortiz discloses wherein said streaming data is audio-video data directed to or from surrounding devices (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony, video monitors, conferencing and other

multi-media enabled devices" recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data).

Regarding claim 34, Ortiz discloses a game console or game enabling device, and said streaming data is game data or video or audio, said streaming data being directed to surrounding devices, said surrounding devices comprising one member of the group consisting of TV, PDAs, Hi Fi's and mobile telephones, to be displayed and played from such devices as well as or instead of on said apparatus (see "entertainment devices (games, TV, audio)" recited in paragraph [0051]).

Regarding claim 35, Ortiz discloses a mobile device, a mobile handset, a computer, or a PDA (see "(WD) include mobile phones, PDAs…" recited in paragraph [0046]), wherein said apparatus is configured to receive or generate a call and to redirect said call to a respective media handling device (see "DRD methods can be included in…telephony…" recited in paragraph [0017]).

Regarding claim 36, Ortiz discloses a mobile telephone or PDA (see "(WD) include mobile phones, PDAs…" recited in paragraph [0046]).

Regarding claim 37, Ortiz discloses a user interface associated with said scout device (see "Graphical User Interfaces...on a wireless device's screen" recited in paragraph [0009]) for allowing a user to select between available compatible media handling devices to reroute data thereto (see step 62 in Fig. 6 for selecting the DRD).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the system of US 7,969,990 and Christopoulos using features, as taught by Ortiz, in order to provide media to different types of devices in the vicinity.

Claim Rejections - 35 USC § 112

6. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claim 53 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

8. Claim 53 recites the limitation "said transformer" in lines 16 and 17. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

9. The following is a quotation of pre-AIA 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. This application currently names joint inventors. In considering patentability of the claims under pre-AIA 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of pre-AIA 35 U.S.C. 103(c) and potential pre-AIA 35 U.S.C. 102(e), (f) or (g) prior art under pre-AIA 35 U.S.C. 103(a).

11. Claims 53 is rejected under pre-AIA 35 U.S.C. 103(a) as being unpatentable over Ortiz (US 2002/0058499) in views of Fano (US 2002/0133545) Christopoulos (US 6,961754) and Gottlieb (US 5,854,834).

Ortiz discloses the following features

Regarding claim 53, apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising: a streaming device (see Fig. 4 and 6, which show that the wireless device providing and routes data to the data rendering device; wherein data refers to “texts, voice, graphics and/or video" recited in paragraph [0046], wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see “DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices” recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data) comprising: a scout device to route or reroute streaming data from said streaming device to a selected one of said media handling device (see block 112 in Fig. 12 “Is DRD available?”, where the DRD can be considered the server or the

surrounding equipments as shown in Fano's invention, and that Ortiz shows the step of checking the availability of the device; and see step 62 in Fig. 6 for selecting the DRD), the apparatus being configured to set up a bidirectional wireless communication link between respective ones of said media handling devices and said streaming device, said bidirectional link being capable of carrying said streaming data in either direction of said bidirectional link (wherein the WD provides the streaming; the data carried can be streaming media data, as shown in paragraph [0046], which recites that "data generally refers to text, voice, graphics, and/or video" and see "real-time services...such as video-based services" recited in paragraph [0006]; also see "DRD methods can be included in…telephony, video monitors, conferencing and other multi-media enabled devices" recited in paragraph [0017]; each of these applications uses bidirectional streaming of audio and/or video data; see Fig. 3, wherein the links to the remote devices are wireless links).

Ortiz does not disclose the following features: regarding claim 53, an announcer device configured to indicate to surrounding media handling that said apparatus is available to receive streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices; wherein said scout device is operable to determine media type requirements of said respective media handling devices; a user interface for allowing a user to select one of said plurality of media type requirements for transforming said media transformer

Fano discloses the following features.

Regarding claim 53, an announcer device (see communication device 74 and locating device 64 in Fig. 1) configured to indicate to surrounding media handling devices (see local server 80 in Fig. 1, which provides the media for rerouting and remote devices 52, 58, etc., which handle and output the rerouted data) that said apparatus is available to receive streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices (see "Communication device 74 transmits a request signal 75 for information" recited in paragraph [0082]; and see paragraph [0100] and Fig. 4, which shows that the requested data may be further routed to remote devices)

a scout device (see sensing device 82 in Fig. 1) configured to wirelessly scan surroundings of said apparatus to determine compatibility requirements availability of said identified media handling devices in said surroundings (see "Sensing device 82 is any device capable of sensing a signal or element in the surrounding...and generate a sensing signal response 95..." recited in paragraph [0090], and see "mobile devices gain the ability to sense and interact with the objects around them" recited in paragraph [0035]).

Christopoulos discloses the following features.

Regarding claim 53, wherein said scout device is operable to determine media type requirements of said respective media handling devices (see "Transcoder/Scalability Service (TSS)…adapt…the terminal capabilities associated with the terminal device (e.g., screen size, screen resolution…) and the network capabilities associated with the communication channel over which the terminal device and the

media server communicate (e.g., available bandwidth or bit error rate)" recited in column 7, lines 14-34; wherein the bandwidth is considered a transmission bit rate limit; and the TSS is part of a media provider, wherein the WD of Ortiz acts as a media provider that provides media to the detected compatible media handling device (DRD as referred to in Ortiz) and therefore would be obvious to implement the TSS on the WD of Ortiz); a user interface for allowing a user to select one of said plurality of media type requirements for transforming said media transformer (see "TSS…automatically adapt...as a function of the user preferences" recited in column 7, lines 14-34; wherein user preferences must be entered via a user interface).

Gottlieb discloses the following features.

Regarding claim 53, a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations (see "This module will also detect any data with multiple destinations as clone as necessary" recited in column 45-46).

It would have been obvious to one of the ordinary skill in the art at the time of the invention to modify the system of Ortiz using features, as taught by Fano, Christopoulos and Gottlieb, in order to allow the wireless device to sense and interact with the objects around them (see paragraph [0034] of Fano); in order to provide media suitable for the data rendering device (see column 7, lines 14-34 of Christopoulos) and in order to direct data to multiple destinations (see column 45-46 of Gottlieb).

Conclusion

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ju-Tai Kao/
Acting Examiner of Art Unit 2473

Notice of References Cited	Application/Control No. 13/118,503	Applicant(s)/Patent Under Reexamination SHMUELI ET AL.	
	Examiner JUTAI KAO	Art Unit 2473	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
*	A	US-5,854,834	12-1998	Gottlieb et al.	379/114.04
	B	US-			
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/19/2013	10/31/2013							
	1	-	-							
	2	-	-							
	3	-	-							
	4	-	-							
	5	-	-							
	6	-	-							
	7	-	-							
	8	-	-							
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	10	-	-							
	11	-	-							
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	23	-	-							
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	25	-	-							
	26	✓	✓							
	27	✓	✓							
	28	✓	✓							
	29	✓	✓							
	30	✓	-							
	31	✓	-							
	32	O	-							
	33	✓	✓							
	34	✓	✓							
	35	✓	✓							
	36	✓	✓							

IPR2024-01049
Apple EX1039 Page 260

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/19/2013	10/31/2013							
	37	✓	✓							
	38	✓	✓							
	39	✓	✓							
	40	✓	✓							
	41	✓	✓							
	42	✓	✓							
	43	✓	✓							
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	46	✓	✓							
	47	=	✓							
	48	✓	✓							
	49	✓	✓							
	50	=	✓							
	51	=	✓							
	52	=	✓							
	53		✓							

IPR2024-01049
Apple EX1039 Page 261

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:		§		
		§		
	Oded SHMUELI et al	§	Confirmation No.:	9678
		§		
Serial No.:	13/118,503	§		
		§		
Filed:	May 30, 2011	§	Group Art Unit:	2473
		§		
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES	§		
		§	Attorney Docket:	**51270**
		§		
Examiner:	Jutai KAO	§		

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY UNDER 37 CFT 1.116 – EXPEDITED PROCEDURE –
TECHNOLOGY CENTER 2473

Sir:

This is in response to the United States Patent and Trademark Final Office Action mailed November 4, 2013, which response is being made on or before February 4, 2014, and for which no extension of time fees are due.

Applicant submits this response for entry into the record, in which:

Amendments to the Claims begin on **page 2.**

Remarks begin on **page 9.**

Please amend the above-identified application as follows:

In the Claims:

1 – 25. (Cancelled)

26. (Previously Presented) Apparatus for routing audio-video data, comprising a streaming device, the apparatus comprising:

(a) an announcer device configured to indicate wirelessly to surrounding media handling devices that said streaming device is available for routing or rerouting; and

(b) a scout device configured to wirelessly scan surroundings of said streaming device to identify surrounding media handling device as being compatible to given media and determine availability of said compatible media handling devices to receive rerouted audio-video data from said streaming device, said scout device further being configured to determine media type requirements of said compatible media handling devices, said media type requirements comprising screen capability and a data rate requirement;

said apparatus being configured to set up a bidirectional wireless communication link between said streaming device and respective media handling devices, said bidirectional wireless link able to carry said rerouted data as streaming audio-video data over either direction of said bidirectional communication link;

(c) a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements;

(d) a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer; and

(e) a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed at said media transformer.

27. (Previously Presented) Apparatus according to claim 26, being a mobile device.

28. (Previously Presented) Apparatus according to claim 26, wherein at least one of said media handling devices is a mobile device.

29. (Previously Presented) Apparatus according to claim 27, being a stationary device.

30 - 32. (Cancelled)

33. (Previously Presented) Apparatus according to claim 26, wherein said streaming data is audio-video data directed to or from surrounding devices.

34. (Previously Presented) Apparatus according to claim 26, comprising a game console or game enabling device, and said streaming data is game data or video or audio, said streaming data being directed to surrounding devices, said surrounding devices comprising one member of the group consisting of TV, PDAs, Hi Fi's and mobile telephones, to be displayed and played from such devices as well as or instead of on said apparatus.

35. (Previously Presented) Apparatus according to claim 26, comprising a mobile device, a mobile handset, a computer, or a PDA, wherein said apparatus is configured to receive or generate a call and to redirect said call to a respective media handling device.

36. (Previously Presented) Apparatus according to claim 26, comprising a mobile telephone or PDA and wherein said data further comprises a barcode information, the apparatus directing the barcode data to a surrounding device or to a point of sale device, or wherein said barcode data is transformed by said surrounding device.

37. (Previously Presented) Apparatus according to claim 26, further comprising a user interface associated with said scout device for allowing a user to select between available compatible media handling devices to reroute data thereto.

38. (Previously Presented) Apparatus according to claim 26, wherein said announcer is an active device, operable to transmit at least status information to respective surroundings.

39. (Previously Presented) Apparatus according to claim 26, wherein said announcer comprises a passive device, carrying at least device identification information for reading by an active scout device.

40. (Previously Presented) Apparatus according to claim 39, wherein said passive device further carries status information of said device.

41. (Previously Presented) Apparatus according to claim 39, wherein said announcer comprises barcode data and wherein said scout is a barcode reader.

42. (Previously Presented) Apparatus according to claim 26, further comprising control functionality operable to inform a communication service provider of a desired rerouting, thereby to enable said communication service provider to reroute said data.

43. (Previously Presented) Apparatus according to claim 26, further comprising control functionality operable to carry out said rerouting through locally available infrastructure.

44. (Previously Presented) Apparatus according to claim 26, wherein said audio/video data is one member of the group consisting of an incoming multimedia communication received from a communication network and an

incoming multimedia communication received from a cellular communication network.

45. (Previously Presented) Apparatus according to claim 26, wherein said streaming data in a first link direction is directable via multiple channels to each of a plurality of surrounding devices.

46. (Previously Presented) Apparatus according to claim 26, further comprising a device database for storing compatibility data of different equipment types.

47. (Previously Presented) A method of routing streaming data comprising:

wirelessly scouting a vicinity of said streaming device with a scanning device,

through said scanning device determining availability of surrounding media handling devices in said vicinity, wherein the availability is determined based, at least partly, on media type requirements of said media handling devices, and

routing or rerouting streaming data between said streaming device and at least one target device selected from said media handling devices in said scanned vicinity found to be available, said routing or rerouting comprising setting up a bidirectional wireless data link between said target device and said streaming device, said bidirectional wireless link being capable of carrying a multimedia streaming data in either direction of said bidirectional data link;

transforming media into forms respectively that accord with said determined media type requirements,

allowing a user to select, via a user interface, or selecting based on a profile, one of said determined media type requirements for transforming; and

making multiple copies of incoming streaming data to redirect a single incoming communication to a plurality of locations, at least some of said multiple copies being transformed.

48. (Previously Presented) A method of wirelessly routing streaming data comprising:

scouting a vicinity of a first mobile device with a scanning device, said scanning device being associated with said first mobile device,

through said scanning device determining compatibility and availability of media handling devices in the vicinity of said first mobile device for receiving of bidirectional streaming data directed from said mobile device via a bidirectional wireless link set up between said mobile device and respective media handling devices, wherein the availability is determined based, at least partly, on media type requirements of said respective media handling devices and media type of said streaming data, the method further comprising streaming data in either direction over said bidirectional wireless link; and

making multiple copies of said media data, thereby to redirect said media data to a plurality of locations, at least one of said multiple copies being transformed in accordance with a respective determined compatibility.

49. (Previously Presented) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said apparatus is available to receive streaming data, thereby to enable receipt of routed and rerouted streaming data from said surrounding media handling devices;

a scout device configured to scan surroundings of said apparatus to identify surrounding media handling devices and determine compatibility requirements availability of said identified media handling devices in said surroundings, thereby to route and reroute streaming data from said streaming device to a selected one of said media handling devices, the apparatus being configured to set up a bidirectional wireless communication link between respective ones of said media handling devices and said streaming device, said bidirectional link being capable of carrying said streaming data in either direction of said bidirectional link, and wherein

said scout device is operable to determine media type requirements of said respective media handling devices; and

a media cloner, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations.

50. (Previously Presented) Apparatus for routing and rerouting streaming data, the apparatus being mobile and comprising:

a streaming device comprising:

an announcer device configured to indicate to surrounding media handling devices that said streaming device is available to receive streaming data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured to scan surroundings of said streaming device to identify surrounding media handling devices as being compatible to handle given media, and determine availability of said identified compatible media handling devices, thereby to reroute streaming data between said streaming device and a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said compatible media handling devices, said apparatus configured to set up a bidirectional wireless communication link between said streaming device and a respective one of said media handling devices, said bidirectional link carrying streaming data over either direction as required of said bidirectional link;

a media transformer, configured to transform media into forms that accord with respective determined media type requirements, wherein there are a plurality of said types;

a user interface for allowing a user to select one of said media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of a single incoming data stream, thereby to enable said apparatus to redirect said single incoming data stream to a plurality of locations, at least some of said multiple copies being transformed via said media transformer.

51. (Previously Presented) Apparatus for routing and rerouting media data, the apparatus being mobile and comprising:

a media data transfer device comprising:

an announcer device configured for indicating to surrounding media handling devices that said media data transfer device is available to receive media data, thereby to enable receipt of rerouted data from said surrounding media handling devices, and

a scout device configured for scanning surroundings to identify surrounding media handling devices as being compatible with given media and determine availability of said identified compatible media handling devices, thereby to reroute media data from said media data transfer device to a selected one of said surrounding media handling devices, said scout device further being configured to determine media type requirements of said media handling devices;

a media transformer, configured to transform media into a form that accords with respective determined media type requirements, there being a plurality of said media type requirements;

a user interface for allowing a user to select one of said plurality of media type requirements for transforming at said media transformer, and

a media cloner, associated with said media transformer, for making multiple copies of said media data, thereby to enable said apparatus to redirect said media data to a plurality of locations, at least some of said multiple copies being transformed at said media transformer.

52. (Previously Presented) The apparatus of claim 51, wherein said media type requirements comprise a screen capability.

53. (Cancelled)

REMARKS

Claims 26 – 29 and 33- 53 are pending.

Claims 26 – 29 and 33 - 53 are rejected.

Claim 53 is cancelled without prejudice.

Non-Statutory Double Patenting

The Examiner has rejected claims 26 – 27 and 38 - 53 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent No. 7,969,990.

Without acquiescing to the Examiner's basis for the rejections, Applicants provide herewith a terminal disclaimer, which disclaims any excess term relative to U.S. Patent No. 7,969,990. It is respectfully submitted that "filing of a terminal disclaimer simply serves the statutory function of removing the rejection of double patenting, and raises neither a presumption nor estoppel on the merits of the rejection." Quad Environmental Technologies Corp. v. Union Sanitary District, 946 F.2d 870 (Fed. Cir. 1991).

35 U.S.C. § 112 and 103 Rejections

Claim 53 is hereby cancelled without prejudice.

Conclusion

All the matters raised by the Examiner are dealt with, and it is respectfully submitted that claims 26 –29 and 33 - 52 are now in order for allowance.

A prompt notice of allowance is respectfully and earnestly solicited.

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum
Registration No. 56,437
Telephone: 718.246.8482

Date: December 26, 2013

Enclosure:

- Terminal Disclaimer (Re: US Patent No. 7,969,990)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of.:		§	
		§	
	Oded SHMUELI et al	§	
		§	Confirmation No.: 9678
Serial No.:	13/118,503	§	
		§	
Filed:	May 30, 2011	§	Group Art Unit: 2473
		§	
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES	§	
		§	
		§	Attorney Docket: **51270**
		§	
Examiner:	Jutai KAO	§	

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TERMINAL DISCLAIMER

Sir:

The Applicants, Oded SHMUELI of Nofit, Israel, and Benny YEHEZKEL of Ramat-Gan, Israel, hereby disclaim, except as provided below, the terminal part of the statutory term of any patent granted on the instant application which would extend beyond the expiration date of the full statutory term prior patent No. 7,969,990 as the term of said prior patent is defined in 35 U.S.C. 154 and 173, and as the term of said prior patent is presently shortened by any terminal disclaimer. The owner hereby agrees that any patent so granted on the instant application shall be enforceable only for and during such period that it and the prior patent are commonly owned. This agreement runs with any patent granted on the instant application and is binding upon the grantee, its successors or assigns.

In making the above disclaimer, the owner does not disclaim the terminal part of any patent granted on the instant application that would extend to the expiration date of the full statutory term as defined in 35 U.S.C. 154 and 173 of the

prior patent, "as the term of said prior patent is presently shortened by any terminal disclaimer," in the event that said prior patent later:

expires for failure to pay a maintenance fee;

is held unenforceable;

is found invalid by a court of competent jurisdiction;

is statutorily disclaimed in whole or terminally disclaimed under 37 CFR 1.321; has all claims canceled by a reexamination certificate;

is reissued; or

is in any manner terminated prior to the expiration of its full statutory term as presently shortened by any terminal disclaimer.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Authorization to charge the above Terminal Disclaimer fee of $160, and any other fees to Deposit Account 50-1407.

The undersigned is the attorney or agent of record.

Respectfully submitted,

/Jason H. Rosenblum/

Jason H. Rosenblum
Registration No. 56,437
Telephone: 718.246.8482

Dated: December 26, 2013

Electronic Patent Application Fee Transmittal

Application Number:	13118503
Filing Date:	30-May-2011
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Filer:	Jason Harris Rosenblum/Robert Shein
Attorney Docket Number:	51270

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
Statutory or Terminal Disclaimer	1814	1	160	160
		Total in USD ($)		**160**

Electronic Acknowledgement Receipt

EFS ID:	17757062
Application Number:	13118503
International Application Number:	
Confirmation Number:	9678
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
Filer:	Jason Harris Rosenblum/Robert Shein
Filer Authorized By:	Jason Harris Rosenblum
Attorney Docket Number:	51270
Receipt Date:	26-DEC-2013
Filing Date:	30-MAY-2011
Time Stamp:	11:14:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$160
RAM confirmation Number	4219
Deposit Account	501407
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		51270ResponsetoFinalOAof4Nov2013.pdf	6357909 121596637d225bc840e57a0054102e70f776baf1	yes	12

	Multipart Description/PDF files in .zip description		
	Document Description	**Start**	**End**
	Response After Final Action	1	1
	Claims	2	8
	Applicant Arguments/Remarks Made in an Amendment	9	10
	Terminal Disclaimer Filed	11	12

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30150 dd90c1745ce76532d6a8e923d2d83a157cc88aa0	no	2

Warnings:

Information:

Total Files Size (in bytes):	6388059

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111

If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Electronic Acknowledgement Receipt

EFS ID:	17757062
Application Number:	13118503
International Application Number:	
Confirmation Number:	9678
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
Filer:	Jason Harris Rosenblum/Robert Shein
Filer Authorized By:	Jason Harris Rosenblum
Attorney Docket Number:	51270
Receipt Date:	26-DEC-2013
Filing Date:	30-MAY-2011
Time Stamp:	11:14:32
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$160
RAM confirmation Number	4219
Deposit Account	501407
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		51270ResponsetoFinalOAof4Nov2013.pdf	6357909 121596637d225bc840e57a0054102e70f776baf1	yes	12

Multipart Description/PDF files in .zip description		
Document Description	**Start**	**End**
Response After Final Action	1	1
Claims	2	8
Applicant Arguments/Remarks Made in an Amendment	9	10
Terminal Disclaimer Filed	11	12

Warnings:

Information:

2	Fee Worksheet (SB06)	fee-info.pdf	30150 dd90c1745ce76532d6a8e923d2d83a157cc88aa0	no	2

Warnings:

Information:

Total Files Size (in bytes):	6388059

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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National Stage of an International Application under 35 U.S.C. 371

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875	Application or Docket Number 13/118,503	Filing Date 05/30/2011	☐ To be Mailed

ENTITY: ☐ LARGE ☒ SMALL ☐ MICRO

APPLICATION AS FILED – PART I

FOR	(Column 1) NUMBER FILED	(Column 2) NUMBER EXTRA	RATE ($)	FEE ($)
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A	
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A	N/A	
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A	
TOTAL CLAIMS (37 CFR 1.16(i))	minus 20 =	*	X $ =	
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*	X $ =	
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).			
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))				
* If the difference in column 1 is less than zero, enter "0" in column 2.			TOTAL	

APPLICATION AS AMENDED – PART II

AMENDMENT **12/26/2013**

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	* 24	Minus	** 27	= 0	X $40 =	0
Independent (37 CFR 1.16(h))	* 6	Minus	***6	= 0	X $210 =	0
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	0

AMENDMENT

	(Column 1) CLAIMS REMAINING AFTER AMENDMENT		(Column 2) HIGHEST NUMBER PREVIOUSLY PAID FOR	(Column 3) PRESENT EXTRA	RATE ($)	ADDITIONAL FEE ($)
Total (37 CFR 1.16(i))	*	Minus	**	=	X $ =	
Independent (37 CFR 1.16(h))	*	Minus	***	=	X $ =	
☐ Application Size Fee (37 CFR 1.16(s))						
☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
					TOTAL ADD'L FEE	

* If the entry in column 1 is less than the entry in column 2, write "0" in column 3.
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".
*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3".
The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.

LIE
/SHERRY DAVIS/

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**
If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

67801 7590 01/14/2014

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

EXAMINER
KAO, JUTAI

ART UNIT	PAPER NUMBER
2473	

DATE MAILED: 01/14/2014

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/118,503	05/30/2011	Oded SHMUELI	51270	9678

TITLE OF INVENTION: ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	04/14/2014

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

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PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 01/14/2014
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/118,503	05/30/2011	Oded SHMUELI	51270	9678

TITLE OF INVENTION: ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	04/14/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
KAO, JUTAI	2473	725-114000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ❑ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ❑ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. The following fee(s) are submitted:
- ❑ Issue Fee
- ❑ Publication Fee (No small entity discount permitted)
- ❑ Advance Order - # of Copies _____

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ❑ A check is enclosed.
- ❑ Payment by credit card. Form PTO-2038 is attached.
- ❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ❑ Applicant certifying micro entity status. See 37 CFR 1.29
  NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ❑ Applicant asserting small entity status. See 37 CFR 1.27
  NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ❑ Applicant changing to regular undiscounted fee status.
  NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____

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UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
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13/118,503	05/30/2011	Oded SHMUELI	51270	9678

67801 7590 01/14/2014

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ARLINGTON, VA 22215

EXAMINER	
KAO, JUTAI	

ART UNIT	PAPER NUMBER
2473	

DATE MAILED: 01/14/2014

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 269 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 269 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

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Apple EX1039 Page 283

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 13/118,503	Applicant(s) SHMUELI ET AL.	
	Examiner JUTAI KAO	Art Unit 2473	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to *after final amendments filed on 12/26/2013*.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on_____.
2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.
3. ☒ The allowed claim(s) is/are *26-29 and 33-52*. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov .
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   Certified copies:

   a) ☐ All b) ☐ Some *c) ☐ None of the:
   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

   Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____ .
5. ☐ Examiner's Amendment/Comment
6. ☒ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

/JUTAI KAO/
Acting Examiner of Art Unit 2473

DETAILED ACTION

1. The present application is being examined under the pre-AIA first to invent provisions.

Response to Amendment

Amendments filed on 12/26/2013 overcome the previously presented double patenting rejection by filing a Terminal Disclaimer. The previously rejected claim 53 is also cancelled.

Terminal Disclaimer

2. The terminal disclaimer filed on 12/26/2013 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of US 7,969,990 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Allowable Subject Matter

3. Claims 26-29 and 33-52 are allowed.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JUTAI KAO whose telephone number is (571)272-9719. The examiner can normally be reached on Monday ~Friday 7:30 AM ~5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kwang Yao can be reached on (571)272-3182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JUTAI KAO/
Acting Examiner of Art Unit 2473

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

BIB DATA SHEET

CONFIRMATION NO. 9678

SERIAL NUMBER	FILING or 371(c) DATE RULE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
13/118,503	05/30/2011	725	2473	51270

APPLICANTS

INVENTORS

Oded SHMUELI, Nofit, ISRAEL;
Benny Yehezkel, Ramat-Gan, ISRAEL;

**** CONTINUING DATA ***************************

This application is a CON of 10/347,388 01/21/2003 PAT 7969990
which claims benefit of 60/398,077 07/25/2002

**** FOREIGN APPLICATIONS ***************************

**** IF REQUIRED, FOREIGN FILING LICENSE GRANTED **** ** SMALL ENTITY **
06/09/2011

Foreign Priority claimed ☐ Yes ☑ No 35 USC 119(a-d) conditions met ☐ Yes ☑ No Verified and Acknowledged /JUTAI KAO/ Examiner's Signature	☐ Met after Allowance JK Initials	STATE OR COUNTRY	SHEETS DRAWINGS	TOTAL CLAIMS	INDEPENDENT CLAIMS
		ISRAEL	1	25	6

ADDRESS

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215
UNITED STATES

TITLE

ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

FILING FEE RECEIVED		
1184	FEES: Authority has been given in Paper No._____ to charge/credit DEPOSIT ACCOUNT No._____ for following:	☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit

IPR2024-01049
Apple EX1039 Page 288

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/19/2013	10/31/2013	01/10/2014						
	1	-	-	-						
	2	-	-	-						
	3	-	-	-						
	4	-	-	-						
	5	-	-	-						
	6	-	-	-						
	7	-	-	-						
	8	-	-	-						
	9	-	-	-						
	10	-	-	-						
	11	-	-	-						
	12	-	-	-						
	13	-	-	-						
	14	-	-	-						
	15	-	-	-						
	16	-	-	-						
	17	-	-	-						
	18	-	-	-						
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	22	-	-	-						
	23	-	-	-						
	24	-	-	-						
	25	-	-	-						
1	26	✓	✓	=						
2	27	✓	✓	=						
3	28	✓	✓	=						
4	29	✓	✓	=						
	30	✓	-	-						
	31	✓	-	-						
	32	O	-	-						
5	33	✓	✓	=						
6	34	✓	✓	=						
7	35	✓	✓	=						
8	36	✓	✓	=						

Index of Claims	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

CLAIM		DATE								
Final	Original	04/19/2013	10/31/2013	01/10/2014						
9	37	✓	✓	=						
10	38	✓	✓	=						
11	39	✓	✓	=						
12	40	✓	✓	=						
13	41	✓	✓	=						
14	42	✓	✓	=						
15	43	✓	✓	=						
16	44	✓	✓	=						
17	45	✓	✓	=						
18	46	✓	✓	=						
19	47	=	✓	=						
20	48	✓	✓	=						
21	49	✓	✓	=						
22	50	=	✓	=						
23	51	=	✓	=						
24	52	=	✓	=						
	53		✓	-						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	2	(10/347388).APP.	US-PGPUB; USPAT; USOCR	OR	OFF	2014/01/10 14:46
L10	4395482	(@rlad<"20020725" or @ad<"20020725")	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L11	183	(stream$4 or redirect$4 or rerout$4) same screen near2 resolution same ((bit adj rate) or bandwidth)	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L12	29	L11 and L10	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L13	6	L12 and wireless	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L14	29	L11 and L10	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L15	4395482	(@rlad<"20020725" or @ad<"20020725")	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L16	167	(ad adj hoc) same (video near2 conferenc$4)	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L17	19	L16 and L15	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L18	4395482	(@rlad<"20020725" or @ad<"20020725")	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L19	268	streaming near7 multiple near3 channel	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L20	40	L19 same (plurality or multiple) near3 (device or station or nodes or equipment)	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L22	4395482	(@rlad<"20020725" or @ad<"20020725")	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L23	1078	(scan$4 or detect$4 or determin$4) near8 (compatib$6 or availab$6) near7 (nearby or vincinity or close)	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03
L24	164	L23 and (media near3 (type or format))	US-PGPUB; USPAT	OR	ON	2014/01/10 15:03

EAST Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L2	7128	370/271,312,390,396.ccls.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/01/10 14:47
L3	0	((media near8 compatible) same screen same data near2 rate).clm.	US-PGPUB; USPAT; UPAD	OR	OFF	2014/01/10 14:48
L4	181	(screen same data near2 rate).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/10 14:49
L5	1	(screen same data near2 rate same	US-PGPUB;	OR	ON	2014/01/10

		compatib$6).clm.	USPAT; UPAD			14:49
L6	53	(media near8 transform$4 same clon$4).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/10 14:49
L7	1	2 and 6	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/10 14:49
L8	206	(bidirection$4 near6 stream$4).clm.	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/10 14:50
L9	3	8 and 2	US-PGPUB; USPAT; UPAD	OR	ON	2014/01/10 14:50

1/ 10/ 2014 3:04:19 PM
C:\ Users\ jkao\ Documents\ EAST\ Workspaces\ 13118503.wsp

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

CPC		
Symbol	**Type**	**Version**

CPC Combination Sets				
Symbol	**Type**	**Set**	**Ranking**	**Version**

/JUTAI KAO/ Acting Examiner.Art Unit 2473 (Assistant Examiner)	01/10/2014 (Date)	**Total Claims Allowed:** 24	
/JUTAI KAO/ Acting Examiner.Art Unit 2473 (Primary Examiner)	01/10/2014 (Date)	O.G. Print Claim(s) 26	O.G. Print Figure 2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

US ORIGINAL CLASSIFICATION	
CLASS	**SUBCLASS**
370	396

CROSS REFERENCE(S)

CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)				
370	271	312	390		

INTERNATIONAL CLASSIFICATION					
CLAIMED					**NON-CLAIMED**
H	0	4	L	12 / 16 (2006.01.01)	
H	0	4	L	12 / 28 (2006.01.01)	
H	0	4	H	20 / 71 (2008.01.01)	

/JUTAI KAO/ Acting Examiner.Art Unit 2473 (Assistant Examiner)	01/10/2014 (Date)	**Total Claims Allowed:** 24	
/JUTAI KAO/ Acting Examiner.Art Unit 2473 (Primary Examiner)	01/10/2014 (Date)	O.G. Print Claim(s) 26	O.G. Print Figure 2

Issue Classification	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	**Art Unit**
	JUTAI KAO	2473

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	26	17	45												
2	27	18	46												
3	28	19	47												
4	29	20	48												
5	33	21	49												
6	34	22	50												
7	35	23	51												
8	36	24	52												
9	37														
10	38														
11	39														
12	40														
13	41														
14	42														
15	43														
16	44														

/JUTAI KAO/ Acting Examiner.Art Unit 2473 (Assistant Examiner)	01/10/2014 (Date)	**Total Claims Allowed:** 24	
/JUTAI KAO/ Acting Examiner.Art Unit 2473 (Primary Examiner)	01/10/2014 (Date)	O.G. Print Claim(s) 26	O.G. Print Figure 2

Search Notes	Application/Control No.	Applicant(s)/Patent Under Reexamination
	13118503	SHMUELI ET AL.
	Examiner	Art Unit
	JUTAI KAO	2473

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
EAST search, see attached search history	04/19/2013	JK
updated EAST search	01/10/2014	JK

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
370	271,312,390,396	01/10/2014	JK

IPR2024-01049
Apple EX1039 Page 296

OK TO ENTER: /J.K./

01/10/2014

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:			
	Oded SHMUELI et al	Confirmation No.:	9678
Serial No.:	13/118,503		
Filed:	May 30, 2011	Group Art Unit:	2473
For:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES	Attorney Docket:	**51270**
Examiner:	Jutai KAO		

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

REPLY UNDER 37 CFT 1.116 – EXPEDITED PROCEDURE – TECHNOLOGY CENTER 2473

Sir:

This is in response to the United States Patent and Trademark Final Office Action mailed November 4, 2013, which response is being made on or before February 4, 2014, and for which no extension of time fees are due.

Applicant submits this response for entry into the record, in which:

Amendments to the Claims begin on **page 2.**

Remarks begin on **page 9.**

Please amend the above-identified application as follows:

Application Number	Application/Control No.	Applicant(s)/Patent under Reexamination	
	13/118,503	SHMUELI ET AL.	

Document Code - DISQ	Internal Document – DO NOT MAIL

TERMINAL DISCLAIMER	☒ APPROVED	☐ DISAPPROVED
Date Filed : 12-26-2013	This patent is subject to a Terminal Disclaimer	

Approved/Disapproved by:

Dorethea Lawrence

U.S. Patent and Trademark Office

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: Mail **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

67801 7590 01/14/2014
MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission
I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/118,503	05/30/2011	Oded SHMUELI	51270	9678

TITLE OF INVENTION: ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	SMALL	$480	$0	$0	$480	04/14/2014

EXAMINER	ART UNIT	CLASS-SUBCLASS
KAO, JUTAI	2473	725-114000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).
- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.
1 .....
2 .....
3 .....

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:
- ☒ Issue Fee
- ☐ Publication Fee (No small entity discount permitted)
- ☐ Advance Order - # of Copies .....

4b. Payment of Fee(s): **(Please first reapply any previously paid issue fee shown above)**
- ☐ A check is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number **50-1407** (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)
- ☐ Applicant certifying micro entity status. See 37 CFR 1.29 — NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.
- ☐ Applicant asserting small entity status. See 37 CFR 1.27 — NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.
- ☐ Applicant changing to regular undiscounted fee status. — NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature **/Jason H. Rosenblum/** Date **March 9, 2014**
Typed or printed name **Jason H. Rosenblum** Registration No. **56,437**

PTOL-85 Part B (10-13) Approved for use through 10/31/2013. OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

IPR2024-01049
Apple EX1039 Page 299

Electronic Patent Application Fee Transmittal

Application Number:	13118503
Filing Date:	30-May-2011
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Filer:	Jason Harris Rosenblum/Robert Shein
Attorney Docket Number:	51270

Filed as Small Entity

Utility under 35 USC 111(a) Filing Fees

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	2501	1	480	480
Extension-of-Time:				

IPR2024-01049
Apple EX1039 Page 300

Description	Fee Code	Quantity	Amount	Sub-Total in USD($)
Miscellaneous:				
			Total in USD ($)	**480**

Electronic Acknowledgement Receipt

EFS ID:	18411775
Application Number:	13118503
International Application Number:	
Confirmation Number:	9678
Title of Invention:	ROUTING OF DATA INCLUDING MULTIMEDIA BETWEEN ELECTRONIC DEVICES
First Named Inventor/Applicant Name:	Oded SHMUELI
Customer Number:	67801
Filer:	Jason Harris Rosenblum/Robert Shein
Filer Authorized By:	Jason Harris Rosenblum
Attorney Docket Number:	51270
Receipt Date:	09-MAR-2014
Filing Date:	30-MAY-2011
Time Stamp:	10:25:45
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	Deposit Account
Payment was successfully received in RAM	$480
RAM confirmation Number	9195
Deposit Account	501407
Authorized User	

The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:

Charge any Additional Fees required under 37 C.F.R. Section 1.16 (National application filing, search, and examination fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.17 (Patent application and reexamination processing fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.19 (Document supply fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.20 (Post Issuance fees)

Charge any Additional Fees required under 37 C.F.R. Section 1.21 (Miscellaneous fees and charges)

File Listing:

Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	51270IssueFeeTransmittalSheet.pdf	589934 fbb2e8811c0175c8f1fc4c8f5631299c7681b586	no	1
Warnings:					
Information:					
2	Fee Worksheet (SB06)	fee-info.pdf	30162 0732f9fdce6d4280dcca070ca147e1ffca97cb8b	no	2
Warnings:					
Information:					
		Total Files Size (in bytes):	620096		

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

New Applications Under 35 U.S.C. 111
If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.

National Stage of an International Application under 35 U.S.C. 371
If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

New International Application Filed with the USPTO as a Receiving Office
If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
13/118,503	04/29/2014	8711866	51270	9678

67801 7590 04/09/2014

MARTIN D. MOYNIHAN d/b/a PRTSI, INC.
P.O. BOX 16446
ARLINGTON, VA 22215

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 269 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site http://pair.uspto.gov for additional applicants):

Oded SHMUELI, Nofit, ISRAEL;
Benny Yehezkel, Ramat-Gan, ISRAEL;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

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UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY.DOCKET NO./TITLE	REQUEST ID
13/118,503	05/30/2011	Oded SHMUELI	51270	149764

Acknowledgement of Loss of Entitlement to Entity Status Discount

The entity status change request below filed through Private PAIR on 10/12/2021 has been accepted.

CERTIFICATIONS:

Change of Entity Status:

X Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be notification of loss of entitlement to small or micro entity status, as applicable.

This portion must be completed by the signatory or signatories making the entity status change in accordance with 37 CFR 1.4(d)(4).

Signature:	/Martin D. Moynihan/
Name:	Martin D. Moynihan
Registration Number:	40338