

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
8 May 2003 (08.05.2003)

PCT

(10) International Publication Number  
WO 03/039127 A1

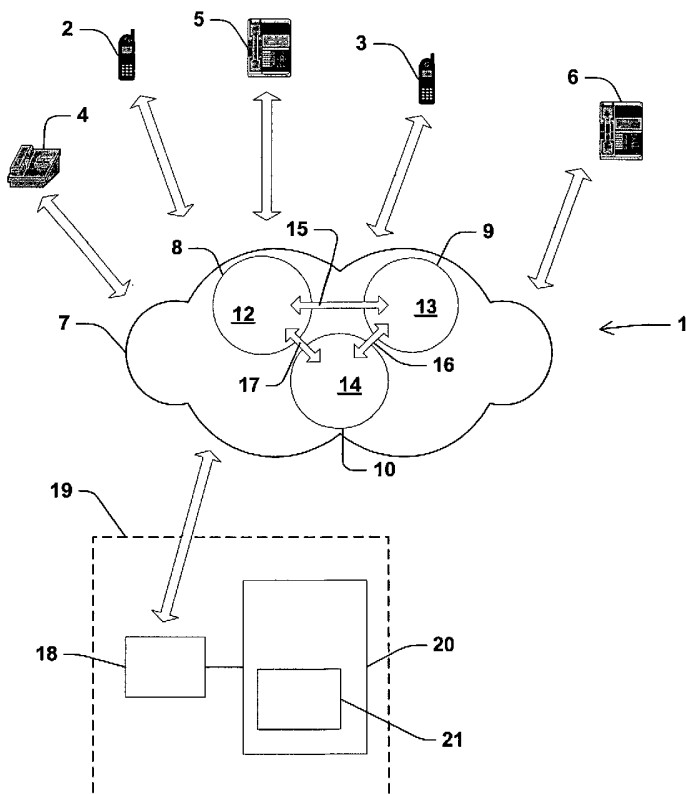
- (51) International Patent Classification<sup>7</sup>: H04M 15/08
- (21) International Application Number: PCT/AU02/01461
- (22) International Filing Date: 29 October 2002 (29.10.2002)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
PR 8546 29 October 2001 (29.10.2001) AU
- (71) Applicant (for all designated States except US): REVERSE LP. PTY LTD [AU/AU]; 9-11 Harris Street, Pyrmont, NSW 2009 (AU).
- (72) Inventor; and
- (75) Inventor/Applicant (for US only): ROHDE, Anthony, John [AU/AU]; 26 Woodfield Road, Pullenvale, QLD 4069 (AU).
- (74) Agent: BALDWIN SHELSTON WATERS; 60 Margaret Street, Sydney, NSW 2000 (AU).
- (81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.
- (84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Declaration under Rule 4.17:**

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: A METHOD FOR A SERVICE PROVIDER TO CHARGE A CALLED PARTY FOR A TELEPHONE CALL



(57) Abstract: System (1) allows voice communication between a plurality of subscriber devices in the form of cellular telephones (2, 3) and fixed line or landline telephones (4, 5, 6). The system includes a combined telecommunications infrastructure (7) having a plurality of telecommunication networks (8, 9, 10). The networks are provided by respective telecommunication carriers (12, 13, 14) and allow cross-carrier communication, as schematically indicated by arrows (15, 16, 17). Each telephone is linked with one of the networks to allow selective voice communication with the other of the telephones. Moreover, the networks include accounts for the respective telephones that are linked to that network, where those accounts that are held in electronic form and have charges applied to them by the respective carrier in response to the selective communication. A reverse charges interface (18) of a service provider (19) is responsive to calls from the telephones to a first predetermined number for allowing a reverse charge call to be placed with another of the telephones. The reverse charge call is placed following the number of the telephones calling a second predetermined number. A billing system (20) is responsive to the reverse charge call being placed to determine a call cost that is to be levied to the carrier of the network to which the other device is lined.



WO 03/039127 A1



**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

- 1 -

TITLE: A METHOD FOR A SERVICE PROVIDER TO CHARGE A CALLED  
PARTY FOR A TELEPHONE CALL  
FIELD OF THE INVENTION

5 The present invention relates to a method for a service provider to charge a  
called party for a telephone call.

The invention has been developed primarily for allowing a reverse charge call  
to be initiated to a cellular telephone and will be described hereinafter with reference  
to that application. However, it will be appreciated that the invention is not limited to  
that particular field of use and is also applicable to a reverse charge call that is initiated  
10 to a landline.

DISCUSSION OF THE PRIOR ART

Reverse charge telephone calls are made, or are available to be made, in a  
number of circumstances. For example, parents, and particularly affluent parents, may  
request their children to telephone them whenever the need arises and to make the  
15 charge a reverse call in order that the more affluent adult should bear the cost of the  
telephone communication between parent and child. Similarly, young children may be  
provided with cellular telephones by their parents with only a small value pre-paid card  
provided in the mobile telephone to prevent the young child needlessly spending  
money on frivolous telephone calls but to ensure that the mobile telephone is available  
20 for personal safety reasons. In such circumstances, the parents may request the child  
to telephone them reverse charge whenever they need so that in this way the volume of  
phone calls incurred by the young child can be maintained within reasonable bounds.  
Other circumstances include travelling school children on a school tour, or the like,  
who are requested by their parents to keep in touch by making reverse charge  
25 telephone calls. There are business circumstances which arise where a business wishes  
a customer to make a reverse charge call in order that the customer not be burdened  
with the cost of the call. Such circumstances are many and varied and still exist  
notwithstanding that the general cost of individual telephone calls has been declining  
over time.

30 With the deregulation of telephone services in many jurisdictions, companies  
other than the previously monopolistic telephone carrier are able to provide telephone  
services to the general public. Many of these companies are carriage service providers  
(as this term is defined in the Australian Telecommunications Act 1997). Different

- 2 -

terms may be used in different jurisdictions for such service providers. An example of the services of such providers includes a publicly available service in Australia using the telephone prefix 1800. Particularly, a member of the public is able to call 1800 REVERSE (that is, 1800 738 377), nominate a telephone number to which they wish  
5 to be connected, and after gaining approval by the intended called party, be connected to the called party at the expense of the called party.

The previously monopolistic public telephone carrier also operates a “190 premium call” service bureau to which subscribers, generally providing an information service, can be provided with a 190 prefix telephone number. Members of the general  
10 public can telephone 1900 123 456, or similar, and receive a service, for example information about news, weather, stock market reports, sexually titillating information, and the like. Telephone calls to 190 prefix numbers are charged by the telephone carrier to the caller at a much higher rate, and part of this charge is passed on to the service bureau who provides the information, or similar, which the caller receives.  
15 Because of the proliferation of 190 prefix numbers dealing with sexual titillation, it is increasingly common for cellular telephones and PABX telephone systems to bar calling to numbers having a 190 prefix.

Historically carriers have not permitted reverse charge calls to be made to cellular telephones. This may be due to several reasons, one of which is that cellular  
20 telephones are more liable to be lost or stolen. If reverse charge calls to cellular telephones were permitted, there would be a danger that a thief – in possession of a stolen telephone – could be called by a collaborator and the cost of the call would be borne by the person from whom the telephone was stolen. Other reasons include the proliferation of mobile telephone service providers which means that separate billing  
25 and collection agreements need to be negotiated between each such provider and each, say, reverse charge call service provider.

As a consequence of such policy decisions, the reverse charge services, such as the 1800 service mentioned above, have been restricted to nominated called parties which are connected to the network via a fixed telephone line and where the cost of the  
30 accepted reverse charge call to the called party appears on the corresponding fixed line telephone account. A portion of this charge is ultimately paid to the provider of the 1800 reverse charge telephone service.

- 3 -

Hitherto, if a person calling the 1800 prefix reverse charge telephone number requested to be connected to a cellular telephone number, then the 1800 prefix service provider or carriage service provider was unable to make the connection. Clearly, this is inconvenient to the caller, the carriage service provider and also to the party that the caller wishes to contact.

Another difficulty with placing reverse charge calls to cellular telephones is that many cellular telephones are operated with pre-paid calling cards. In this arrangement money is paid to the cellular telephone operator in return for a card which is inserted in the cellular telephone. A corresponding credit is created in the computerised records of the cellular telephone operator. As calls are made from the cellular telephone, the credit is progressively reduced in accordance with the tariff for the calls. Thus, the identity and address of the cellular telephone user are unknown to the cellular telephone operator. Although it is conceptually possible to extinguish such credits in return for permitting a reverse charge call, this requires a substantial system change, primarily at the level of accounting software modification. In addition, an agreement between each pre-paid card operator and the reverse call operator is required.

The terms "cellular telephone" and "cell phone", as used in this specification, are ascribed their common meaning and designate a portable communications device that typically wirelessly interacts with a communications network for allowing at least voice transmission and sometimes data transmission. In some countries such a device is referred to as a "mobile telephone" or a "hand phone" or an abbreviation of these terms.

Any discussion of the prior art throughout the specification should in no way be considered as an admission that such prior art is widely known or forms part of common general knowledge in the field.

#### BRIEF DESCRIPTION OF THE INVENTION

It is an object of the present invention, at least in the preferred embodiments, to overcome or substantially ameliorate one or more of the disadvantages of the prior art.

According to a first aspect of the invention there is provided a method for a service provider to charge a called party for a telephone call, said method comprising said service provider carrying out the steps of:

- 4 -

receiving an incoming call made to a first predetermined telephone number by a calling party requesting that another party be charged for the call;

placing the calling party on hold;

calling the another party to ask if they will accept the charges and take the call  
5 from a calling party;

after receiving a positive indication in relation to charges from the another party, requesting the another party to dial a second predetermined telephone number being a premium service number operated by a carrier;

receiving the incoming call via the second predetermined telephone number  
10 from the another party; and

connecting the calling party on hold with the another party, whereby the another party is invoiced directly by the carrier and the service provider receives funds from the carrier.

According to a second aspect of the invention there is provided a telephone  
15 network system for permitting a service provider to charge a called party for a telephone call, said system comprising:

a reverse charge telephone service to the public operated by said service provider to permit incoming calls from the public to a first predetermined telephone number associated with said service provider to be charged to a called party nominated  
20 by a calling party dialling said first predetermined number,

a public telephone system operated by a public telephone carrier and providing a service bureau to which said service provider can subscribe to receive calls from the public made to a second predetermined telephone number and funds from said service bureau having a magnitude related to the character of said received calls and being  
25 derived from charges rendered to said public callers by said public telephone carrier; and

telephone switching means operable by said service provider to inter-connect an incoming call made by a said calling party to said first predetermined number with an incoming call made by said nominated called party to said second predetermined  
30 number following said nominated called party having been advised by said service provider of the identity of said calling party wishing to make the reverse charge call.

Preferably, the first predetermined number is a toll free number and the second predetermined number is a premium rate number. More preferably, a call to the

- 5 -

premium rate number incurs a time-based charge. Even more preferably, a call to the premium rate number incurs a flat charge. In some embodiments, a call to the premium rate number incurs both a time-based charge and a flat charge.

Preferably also, the premium rate number includes a prefix of 190 or 12.

5 However, in other embodiments, other prefixes are used.

In a preferred form, the call to the premium rate number is to a cellular telephone. Preferably also, the call to the first predetermined number is from a cellular telephone. In other embodiments, however, one or both of the cellular telephones are substituted by a fixed line telephone.

10 Preferably, the funds received by the service provider from the carrier are determined in response to one or more of: the duration of a call; the location of the calling party and the another party; the type of telephone being used by the calling party and the another party; and the time of day that the call is initiated. In other  
15 embodiments, the funds received by the service provider from the carrier are determined in response to total charge of the call levied to the another party.

According to a third aspect of the invention there is provided a telephone network system for allowing voice communication between a plurality of subscriber devices, the system including:

20 a plurality of telecommunication networks provided by respective telecommunication carriers which allow cross-carrier communication, each device being linked with one of the networks to allow selective voice communication with the other of the devices, wherein the networks include accounts for the respective devices that are linked to that network, where those accounts have charges applied to them by the carrier in response to the selective communication;

25 a reverse charges interface of a service provider that is responsive to calls from the devices to a first predetermined number for allowing a reverse charge call to be placed with another of the devices, the reverse charge call being placed following the another of the devices calling a second predetermined number; and

30 a billing system that is responsive to the reverse charge call being placed to determine a call cost that is to be levied to the carrier of the network to which the another device is linked.

- 6 -

According to a fourth aspect of the invention there is provided a method for allowing voice communication between a plurality of subscriber devices, the method including:

allowing cross-carrier communication between a plurality of  
5 telecommunication networks that are provided by respective telecommunication carriers;

linking each device with one of the networks to allow selective voice communication with the other of the devices, wherein the networks include accounts for the respective devices that are linked to that network, where those accounts have  
10 charges applied to them by the carrier in response to the selective communication;

providing a reverse charges interface of a service provider that is responsive to calls from the devices to a first predetermined number for allowing a reverse charge call to be placed with another of the devices, the reverse charge call being placed following the another of the devices calling a second predetermined number; and

15 using a billing system that is responsive to the reverse charge call being placed to determine a call cost that is to be levied to the carrier of the network to which the another device is linked.

Preferably, the billing system communicates the call cost to the carrier linked to the another device. More preferably, the carrier linked to the another device is  
20 responsive to the communication of the call cost to apply a charge to the account of the relevant device. In some embodiments the charge equals the call cost. However, in other embodiments the charge is greater than the call cost.

Preferably also, the billing system batches a plurality of call costs prior to communicating with the carrier linked to the other device.

25 In a preferred form, the call cost is determined in response to one or more of: the time of placement of the reverse charge call; the duration of the reverse charge call; the type of one or more of the devices taking part in the reverse charge call; the location of one or more of the devices taking part in the reverse charge call; and the network to which one or both of the devices are linked. For example, where both  
30 devices are cellular telephones the call cost is time dependent to cover for the cost of the airtime. As the airtime cost varies between networks and time of day the preferred approach is to calculate and apply an average time cost to each call.



- 7 -

Preferably, the billing system provides to the carrier linked to the another device information indicative of one or more of: the device; an identifier of the device; the telephone number associated with the device; the time of placement of the reverse charge call; the quantum of the call cost; the currency of the call cost; and the duration  
5 of the reverse charges call.

Unless the context clearly requires otherwise, throughout the description and the claims, the words 'comprise', 'comprising', and the like are to be construed in an inclusive sense as opposed to an exclusive or exhaustive sense; that is to say, in the sense of "including, but not limited to".

## 10 BRIEF DESCRIPTION OF THE DRAWINGS

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

Figure 1 is a flow diagram showing the operation of the preferred embodiment;

Figure 2 is a schematic illustration of a telephone network system according to  
15 the invention; and

Figure 3 is a schematic representation of the interface of Figure 2.

## DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

In the following description the term "A party" refers to the calling party who wishes to make the reverse charge call and the term "B party" refers to the party with  
20 whom A party wishes to speak and the party to whom A party wishes the charge of the call to be borne.

As seen in Figure 1, the A party calls the carriage service provider using a predetermined toll free number. In jurisdictions such as Australia and the US such numbers include six digits with a 1800 prefix. These numbers are referred to as "1800  
25 numbers" and can be represented as 1800 XXXXXX, where "X" is a numeral of the decimal system. It is also possible for "X" to be represented as an alphabetical character in accordance with the pre-existing standard for assigning those characters to a telephone keypad.

As the 1800 number is toll free it is the service provider and not the A party  
30 that bears the cost of the call. If the A party is calling from a cellular telephone there will be a charge arising to that party for the cost of the airtime. In other embodiments alternative toll free or low toll cost numbers are used to ensure that the A party is provided with minimal cost disincentive from contacting the service provider.

- 8 -

The 1800 call is routed to a central call centre and an operator requests from A party the telephone number of the B party to which the A party wishes to speak. In this embodiment the operator is in the form of a computer having interactive voice recognition software which requests the A party to speak their name into the telephone, whereupon the spoken name of the A party is recorded for future use. The carriage service provider then puts the A party on hold and calls the B party, which in this embodiment, is a cell phone. The operator announces to the B party that there is a call from the A party (utilising the recording of the A party's name) and then asks the B party whether the charge for the call will be accepted. If the B party refuses to accept the reverse charge call, the carriage service provider advises the A party, which normally has the consequence that the A party hangs up.

If the B party agrees to accept the charges the operator requests the B party to call a predetermined number – that is a premium rate number – after hanging up on the call made to the B party by the service provider. In this embodiment the predetermined number is a seven-digit number having a 190 prefix. This number, and like numbers, are referred to as 190 numbers and have ten digits in total. In other embodiments, however, alternative premium rate numbers are used, including 12 numbers. These alternative numbers include up to ten digits in total and a 12 prefix.

Preferably, the premium rate number is easy for a human to remember. In this embodiment examples of such numbers include 1900 900 900 or 190 123 456.

As indicated in Figure 1, if the B party does not hang up, the B party is again requested to hang up and dial the 190 number. If the B party does not hang up, the call is eventually timed out.

The B party can normally be expected to hang up and the process continues as indicated in Figure 1. Firstly, the computer operated by the carriage service provider waits for the B party to dial the predetermined 190 number. When this is done the B party calls the operator, is recognised, and then the operator connects the A and B parties. Even in embodiments where a human operator is utilised, this connection is normally affected automatically by a computer. That is, when the B party calls, the number of the telephone is determined from the calling line identification data, and this is used to automatically affect the connection between the parties.

If the B party does not ring up after a predetermined time, and the B party previously indicated that it would accept the reverse charge call, the operator again

- 9 -

calls the B party to enquire as to whether the B party's telephone blocks calls to 190 style numbers, as some do. If the answer to this question is "yes" then the operator advises the A party that the call cannot be connected and marks the telephone number of the B party into a database so as to indicate that this number is unable to use the 190  
5 service. If the B party is able to make calls to 190 numbers but has not done so, the operator again requests the B party to hang up and call the 190 number.

Since the carriage service provider is entitled to calling line identification (CLI), it is able to recognise the B party when it calls via the 190 number by the telephone number of the calling B party. In this way the correct A and B parties can be  
10 identified where there is a plurality of each such party.

In the unlikely event that the 190 service bureau does not present the B party telephone number (CLI) to the carriage service provider, then the carriage service provider can obtain the first six digits of the CLI from a 1900 service bureau (not shown) using DTMF (dial tone multiple frequency) tones. The CLI prefix thus  
15 obtained is then used to determine which A party to connect to which B party.

In the event that there are many B parties which should be simultaneously (or sequentially within a short period of time) called that have the same six digit CLI prefix, it is possible for the carriage service provider to delay all but the first of the B party calls by keeping all the A parties on hold until the first call is connected. Then  
20 the second B party is called, and so on. This will avoid ambiguity arising as to which A party is to be connected to which B party when the B parties call the 190 service.

An alternative to delaying the A parties is for the carriage service provider to use several different 190 numbers. Thus each B party with the same six-digit CLI prefix would be told to call a different 190 number. Hence the 190 number called by  
25 the B party (identified by DTMF) enables any ambiguity as to a number of A parties on hold, to be satisfactorily resolved.

It will be apparent to those skilled in the art that the underlying reason for developing the present invention is the historical inability to effectively reverse charge call cellular telephones. However, the invention having been conceived is not  
30 restricted to B party cellular telephones and can be used in respect of B party fixed line services, if desired. This may be of considerable application in those jurisdictions where there are multiple fixed line carriers and/or the fixed line carrier does not permit

- 10 -

the carriage service provider activity to be recorded on the invoices produced by the telephone carrier.

The foregoing describes only one embodiment of the present invention and modifications, obvious to those skilled in the art, can be made thereto without departing from the scope of the present invention. For example, the various steps in the process can be carried out either manually by an operator, or under computer control with interactive voice recognition, or by a mixture of these two known techniques. Also the operator may not specifically enquire as to whether the B party will accept charges, it being understood that by dialling the 190 number the B party is implicitly agreeing to meet such charges.

Furthermore, although the above described embodiment relates to reverse charge calls being made to cellular telephones the present invention is not limited to this specific application. Other embodiments are applicable, for example, to reverse charge calls being made to fixed line phones. This can be applicable where the carriage service provider providing the "reverse service" and the carriage service provider providing the fixed line service do not have a billing and collection agreement. In still further embodiments, the carriage service provider offers instead of or in addition to the reverse charge services, any other service that is delivered via a telephone. That is, some embodiments are used to allow a service provider to connect a "freecall service" – that involving a subscriber calling, say, a 1800 number – into a "premium pay" service, where the subscriber is requested to call a premium rate number such as a 190 number. This enables a non-paying customer to be connected with a paying customer.

An example of such a process is a "romantic chat" service where, say, girls telephone a free call 1800 number and are connected with, say, boys who, being chivalrous, have telephoned the premium pay 190 number (and thus undertake to pay for their telephone conversation with the girls). A similar example is a "classified advertising" telephone service where advertisements are broadcast (by radio, a diffusion service, "music on hold" etc.) a potential buyer telephones the relevant 1800 number to be put in contact with the "advertiser" who is requested to then dial the 190 premium service. In both examples the service provider derives revenue from the amount paid for the 190 service.

- 11 -

One embodiment is used for a taxi service, where a potential customer uses a cellular telephone to call a 1800 number – or other toll free number – that links that customer to a call centre. The customer interacts with the operator – be that human or computer – to affect the required booking, which includes the customer providing a contact telephone number. Once the booking has been made, the customer is provided with a premium rate number to call that will, once dialled, automatically link the customer to the cellular telephone of the driver of the allocated taxi. The customer bears the premium rate of the call. This allows the customer to gain additional benefit in knowing where the taxi is, while the taxi driver gains the benefit of being able to be contacted without having to disclose his or her cellular telephone number.

Broadly, a network system 1 for supporting the preferred embodiments is illustrated in Figure 2. System 1 allows voice communication between a plurality of subscriber devices in the form of cellular telephones 2 and 3 and fixed line or landline telephones 4, 5 and 6. The devices shown are indicative only, and the system is designed to accommodate many hundreds of thousands of such devices, be they cellular based, landline based, or analogue or digital. The system includes a combined telecommunications infrastructure 7 having a plurality of telecommunication networks 8, 9 and 10. The networks are provided by respective telecommunication carriers 12, 13 and 14 and allow cross-carrier communication, as schematically indicated by arrows 15, 16 and 17. Each telephone is linked with one of the networks to allow selective voice communication with the other of the telephones. Moreover, the networks include accounts (not shown) for the respective telephones that are linked to that network, where those accounts that are held in electronic form and have charges applied to them by the respective carrier in response to the selective communication. A reverse charges interface 18 of a service provider 19 is responsive to calls from the telephones to a first predetermined number for allowing a reverse charge call to be placed with another of the telephones. The reverse charge call is placed following the another of the telephones calling a second predetermined number. A billing system 20 is responsive to the reverse charge call being placed to determine a call cost that is to be levied to the carrier of the network to which the another device is linked.

System 20 includes a data warehouse 21 that stores selected data about the reverse charge calls periodically communicates with carriers 12, 13 and 14 via interface 18 to allow those carriers to apply appropriate charges to the accounts of the

- 12 -

telephones that have been used to accept reverse charge calls via provider 19. In other embodiments, the communication is not via the interface but, rather, directly with the networks 8, 9 and 10.

While three carriers are shown, it will be appreciated that other numbers are  
5 accommodated in other embodiments.

Due to the multi-carrier nature of infrastructure 7, the carriers have arrangements with each other to allow a telephone linked to one network to contact a telephone of the same or any other network. These arrangements also typically include cross-carrier fees that are dealt with by the carriers and are not directly passed onto the  
10 client. By way of example, if telephone 2 is linked to network 8, and is used to call telephone 6 that is linked to network 9, the typical financial transactions would include carrier 13 billing carrier 12 for use of the network at a pre-agreed rate and carrier 12 billing the account for telephone 2 at a pre-agreed rate. There rates include one or both  
15 of a fixed connection fee and a time based fee, particularly for call made to cell phones.

An example of the operation of system 1 follows. In this example, telephone 2 is linked to network 8 and telephone 5, which is linked to network 9, is desired to be used to place a reverse charge call with telephone 2. The party using telephone 5 is referred to as the A Party, while the party using telephone 2 is referred to as the B Party.  
20 Additionally, provider 19 makes use of network 10.

Initially, the A party calls a predetermined 1800 number or other toll free number to contact provider 19. As telephone 5 is connected to a network that differs from the network to which provider 19 is connected, the A Party is referred to as "a non-Bill and collect party" which is typically abbreviated to "a non-B&C party".

25 This call connects telephone 5 to interface 18 via network 9 and then network 10. As described above with reference to Figure 1, the A Party provides the necessary details, including the B Party number, to provider 19 via interface 18. Provider 19 then places the A party on hold and conducts validation checks of the B Party number and whether or not this is a black listing number. If these checks are clear provider 19  
30 contacts the B Party. In this example, the call to the B Party is via interface 18, network 10 and network 8. If the call is answered by the B Party, that party is greeted and asked if the charges for the call are to be accepted. If that acceptance is forthcoming, the B Party is asked to call a premium rate number and then the call is terminated.

- 13 -

In this embodiment, when implemented in Australia, use is made of a premium rate number that is a 12 number. The main advantages of this are that:

1. The six-digit format is relatively easily remembered by the B Party.
2. It is unlikely that telephone 5 will be barred from calling such numbers.
- 5 3. It offers provider 19 the ability to levy a variable fee.

In other embodiments use is made of other premium rate numbers such as 190 numbers. However, the ten-digit format is not so easily remembered and is typically barred heavily. However, this number is not carrier specific and this cuts down on cross carrier fees.

10 Returning to the example, once the B Party calls the premium rate number, telephone 2 is connected, via network 8 and then network 10 to interface 18. Once that connection occurs interface 18 determines the telephone number of telephone 2 to automatically connect the B Party to the A Party. This call is timed and otherwise monitored by system 20 to generate one or more records of the relevant event. In  
15 response to this information, system 20 determines a call charge that applies in respect of the call. This call charge is then communicated to carrier 12 for inclusion within the next invoice that that carrier sends to the B Party. In some embodiments the amount levied to the B Party by carrier 12 is greater than the call charge due to a surcharge or other premium added by carrier 12.

20 It will be appreciated that the call activities in the above example generate traffic across the networks and, as such, result in cross-carrier fees being levied between carriers. In some circumstances these fees are passed on by the carrier who is billed, while in other circumstances they are not. This is wholly dependent upon the approach adopted by the individual carriers.

25 In another embodiment of the invention provider 19 offers additional services to further the attractiveness of system 1 to potential customers. In one embodiment this includes SMS functionality. Based upon the same assumptions as the above example, if the B Party accepts the charges but does not call the premium rate number within a predefined time period, provider 19 generates an SMS text message to the B Party that  
30 contains instructions as to how to access the reverse charges call. As the A Party is, at that stage, still on hold, the predefined time is typically less than about 30 seconds and more usually about 45 seconds. In other embodiments other predefined times are used.

- 14 -

In this embodiment the initial call to the B Party is performed by a human operator acting on behalf of provider 19. However, in other embodiments the initial contact is by way of an SMS message that contains details of the premium number.

In another embodiment the additional functionality is a message service for those  
5 B Parties using a cellular telephone. Particularly, if the operator's attempt to contact the B Party results in either a no answer or a busy signal a message from the A Party is recorded. Preferably, this message is a voice message, although in other embodiments it is text message.

Interface 18, after a predetermined delay, contacts the B Party to ascertain  
10 whether or not that party wishes to retrieve the message. If so, the call is converted into a reverse charge call, in that the B Party pays for the receipt of the message.

An alternative and more automated embodiment includes interface 18 sending, after a delay, a computer generated voice message that informs the B Party that a message is able to be retrieve by calling a predetermined premium rate number. Should  
15 the B Party call that number the premium rates will apply. The messages are only kept for a short period, generally about three days after the B Party has been contacted.

In another embodiment, interface 18 contacts the B Party with an SMS text message informing that party that a message is available and can be collected by calling the premium call number. If the B Party calls that number a connection will be  
20 established with interface 18, and the party automatically played the message. The premium rate charges will be passed onto carrier 12. As a further enhancement, the A Party is asked to speak their name, and this is converted to text and included within the text message to provide the B Party with an indication of the identity of the A Party.

In a further embodiment, interface 18 converts the message from the A Party into  
25 an SMS text message – either by direct conversion or by voice to text conversion. The SMS message is packaged as a reverse charge SMS and sent to the B Party. That is, in response to sending the message system 20 generates a call cost – typically a flat fee – that is then passed onto carrier 8. This form of reverse charge SMS requires, in most jurisdictions, the B Party's consent. Accordingly, records are maintained in warehouse  
30 21 as to the telephone numbers of the B Party's that are prepared to accept such messages.

Reference is now made to Figure 3 where there is illustrated an expanded view of the interface 18. The main components of that interface are three parallel servers 31,



- 15 -

32 and 33 that are each Compaq Proliant® servers. In other embodiments different numbers and types of servers are used. Each server is located at a different site and is intended to generally service the area in which it is located. However, if one of the servers is not in service, the incoming calls are automatically directed to another of the  
5 servers. Moreover, in other embodiments the servers are co-located.

Each server includes a plurality of incoming ISDN lines 34 that are available to connect incoming and outgoing calls. Typically, each server includes 30 incoming and 30 outgoing lines. It will be appreciated by those skilled in the art that other numbers of lines are able to be used in other embodiments and that the major determinant for the  
10 number of lines is the maximum call load that the server is designed to accommodate.

Lines 34 are selectively connected with networks 8, 9 and 10 to allow:

1. Respective A Parties to place a call with provider 19.
2. For provider 19 to call the respective B Parties.
3. For the B Parties to call the premium rate number.

15 That is, all the calls involved in the operation of the preferred embodiments are routed through one or more of servers 31, 32 and 33 to allow centralised control and monitoring.

The telephone events that are accommodated by each server are each the basis of a data record that is captured, time stamped and stored in warehouse 21. There records  
20 include identifier information for the A Party, identifier information for the B Party, the operator who is assisting the parties to establish a call, the type of call and other information.

All the records are stored within warehouse 21 and periodically processed to determine the tariffs to be levied to the respective B Parties and the carriers to whom  
25 those tariffs are to be passed onto. That is, the B Parties are not directly charged by provider 19. Rather, the provider passes the costs onto the relevant carriers. Typically this processing occurs daily, but other periods are also used in other embodiments.

The processed data is used to allow the operator to provide the carriers with an overall invoice as well as a detailed breakdown of all the events giving rise to the  
30 invoice. This is all conducted electronically and allows the carriers to automatically pass on the costs, together with any additional charges levied by the carriers themselves.

Data is also periodically uploaded from warehouse 21 to servers 31, 32 and 33 to ensure that “blacklisted” numbers are not able to use interface 18. It may be that a party

- 16 -

has previously misused the interface or has, say, refused to pay for charges incurred through use of the interface. Preferably, this uploading occurs at least daily.

As there are a plurality of servers, the B Party may well connect, when calling the premium rate number, to a different server than that to which the A Party is  
5 connected. Given the location specific nature of the servers and the interaction with cellular telephones, this is an issue commonly encountered. The servers are, however, interconnected such that "hunting" between them is allowed. That is, the call placed by the B Party on the premium rate number automatically hunts for the server that the A Party called and which has the A Party on hold. Once the appropriate server is found,  
10 the A Party is taken off hold and connected with the B Party.

In those embodiments where use is made of SMS functionality, servers 31, 32 and 33 are used to affect the sending of such messages. In one embodiment, the servers, as required, prepare initiating electronic data via the internet (and in  
intermediate firewall) to an external automated SMS generator (not shown). The  
15 generator is responsive to the data to construct and send the required SMS text. In another embodiment, the servers interact more directly with the carriers to generate and send the SMS text.

Although the invention has been described with reference to specific examples it  
will be appreciated by those skilled in the art that it may be embodied in many other  
20 forms.

- 17 -

CLAIMS:

1. A method for a service provider to charge a called party for a telephone call, said method comprising said service provider carrying out the steps of:
  - receiving an incoming call made to a first predetermined telephone number by
  - 5 a calling party requesting that another party be charged for the call;
  - placing the calling party on hold;
  - calling the another party to ask if they will accept the charges and take the call from a calling party;
  - after receiving a positive indication in relation to charges from the another
  - 10 party, requesting the another party to dial a second predetermined telephone number being a premium service number operated by a carrier;
  - receiving the incoming call via the second predetermined telephone number from the another party; and
  - connecting the calling party on hold with the another party, whereby the
  - 15 another party is invoiced directly by the carrier and the service provider receives funds from the carrier.
2. A telephone network system for permitting a service provider to charge a called party for a telephone call, said system comprising:
  - a reverse charge telephone service to the public operated by said service
  - 20 provider to permit incoming calls from the public to a first predetermined telephone number associated with said service provider to be charged to a called party nominated by a calling party dialling said first predetermined number,
  - a public telephone system operated by a public telephone carrier and providing a service bureau to which said service provider can subscribe to receive calls from the
  - 25 public made to a second predetermined telephone number and funds from said service bureau having a magnitude related to the character of said received calls and being derived from charges rendered to said public callers by said public telephone carrier;
  - and
  - telephone switching means operable by said service provider to inter-connect
  - 30 an incoming call made by a said calling party to said first predetermined number with an incoming call made by said nominated called party to said second predetermined number following said nominated called party having been advised by said service provider of the identity of said calling party wishing to make the reverse charge call.

- 18 -

3. A system according to claim 2 wherein the first predetermined number is a toll free number and the second predetermined number is a premium rate number.
4. A system according to claim 3 wherein a call to the premium rate number incurs a time-based charge.
- 5 5. A system according to claim 3 wherein a call to the premium rate number incurs a flat charge.
6. A system according to claim 3 wherein a call to the premium rate number incurs both a time-based charge and a flat charge.
7. A system according to claim 3 wherein the premium rate number includes a  
10 prefix of 190 or 12.
8. A system according to claim 2 wherein the call to the premium rate number is from a cellular telephone.
9. A system according to claim 2 wherein the funds received by the service provider from the carrier are determined in response to one or more of:  
15 the duration of a call;  
the location of the calling party and the another party;  
the type of telephone being used by the calling party and the another party; and  
the time of day that the call is initiated.
10. A system according to claim 9 wherein the funds received by the service  
20 provider from the carrier are determined in response to the total charge of the call levied to the another party.
11. A telephone network system for allowing voice communication between a plurality of subscriber devices, the system including:  
a plurality of telecommunication networks provided by respective  
25 telecommunication carriers which allow cross-carrier communication, each device being linked with one of the networks to allow selective voice communication with the other of the devices, wherein the networks include accounts for the respective devices that are linked to that network, where those accounts have charges applied to them by the carrier in response to the selective communication;  
30 a reverse charges interface of a service provider that is responsive to calls from the devices to a first predetermined number for allowing a reverse charge call to be placed with another of the devices, the reverse charge call being placed following the another of the devices calling a second predetermined number; and

- 19 -

a billing system that is responsive to the reverse charge call being placed to determine a call cost that is to be levied to the carrier of the network to which the another device is linked.

12. A system according to claim 11 that wherein the billing system communicates  
5 the call cost to the carrier linked to the another device.

13. A system according to claim 12 wherein the carrier linked to the another device is responsive to the communication of the call cost to apply a charge to the account of the relevant device.

14. A system according to claim 13 wherein the charge is equal to or greater than  
10 the call cost.

15. A system according to claim 12 wherein the billing system batches a plurality of call costs prior to communicating with the carrier linked to the other device.

16. A system according to claim 11 wherein the call cost is determined in response to one or more of: the time of placement of the reverse charge call; the duration of the  
15 reverse charge call; the type of one or more of the devices taking part in the reverse charge call; the location of one or more of the devices taking part in the reverse charge call; and the network to which one or both of the devices are linked.

17. A system according to claim 11 wherein the billing system provides to the carrier linked to the another device information indicative of one or more of: the  
20 device; an identifier of the device; the telephone number associated with the device; the time of placement of the reverse charge call; the quantum of the call cost; the currency of the call cost; and the duration of the reverse charges call.

18. A method for allowing voice communication between a plurality of subscriber devices, the method including:

25 allowing cross-carrier communication between a plurality of telecommunication networks that are provided by respective telecommunication carriers;

linking each device with one of the networks to allow selective voice communication with the other of the devices, wherein the networks include accounts  
30 for the respective devices that are linked to that network, where those accounts have charges applied to them by the carrier in response to the selective communication;

providing a reverse charges interface of a service provider that is responsive to calls from the devices to a first predetermined number for allowing a reverse charge

- 20 -

call to be placed with another of the devices, the reverse charge call being placed following the another of the devices calling a second predetermined number; and using a billing system that is responsive to the reverse charge call being placed to determine a call cost that is to be levied to the carrier of the network to which the  
5 another device is linked.

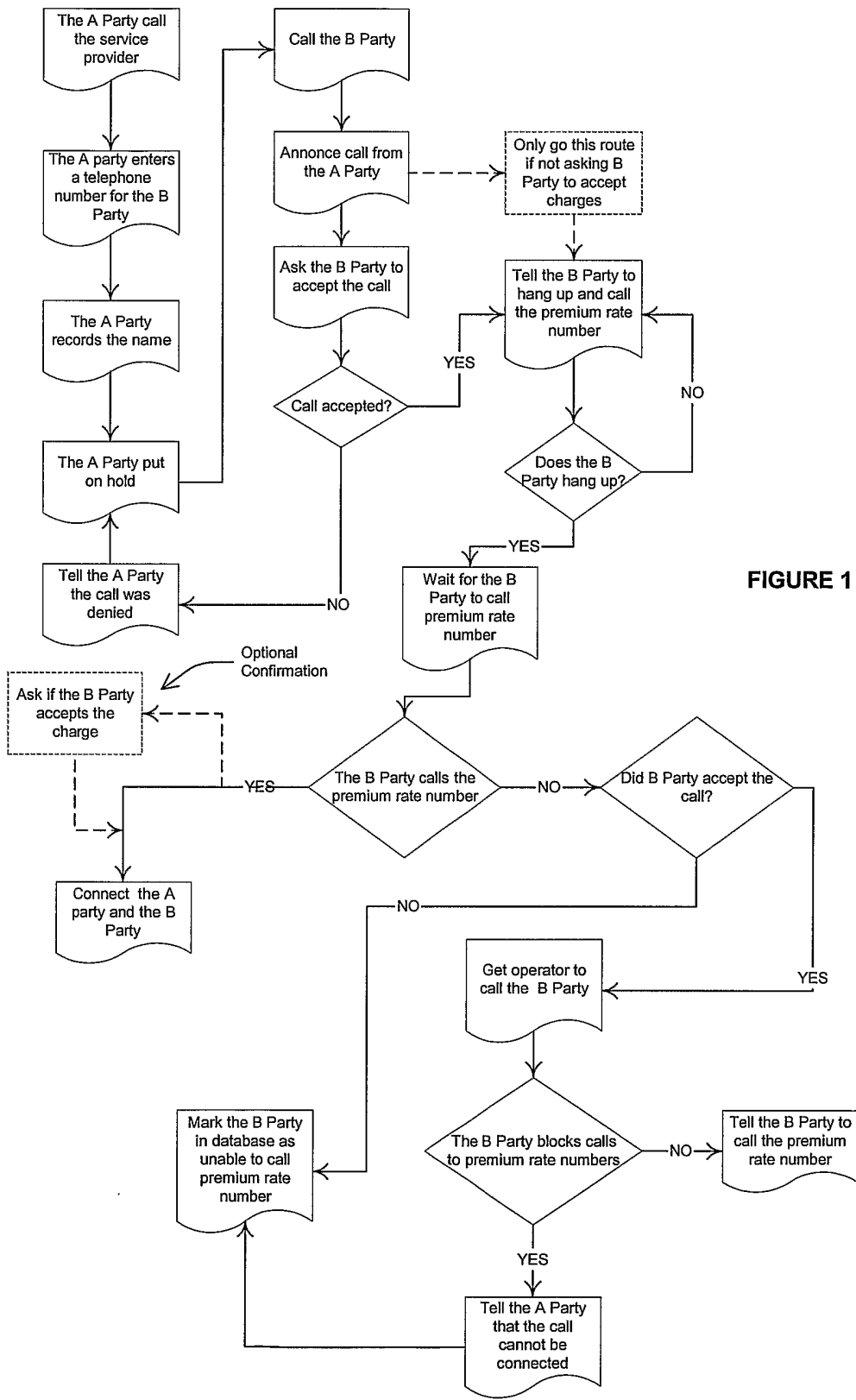


FIGURE 1

FIGURE 2

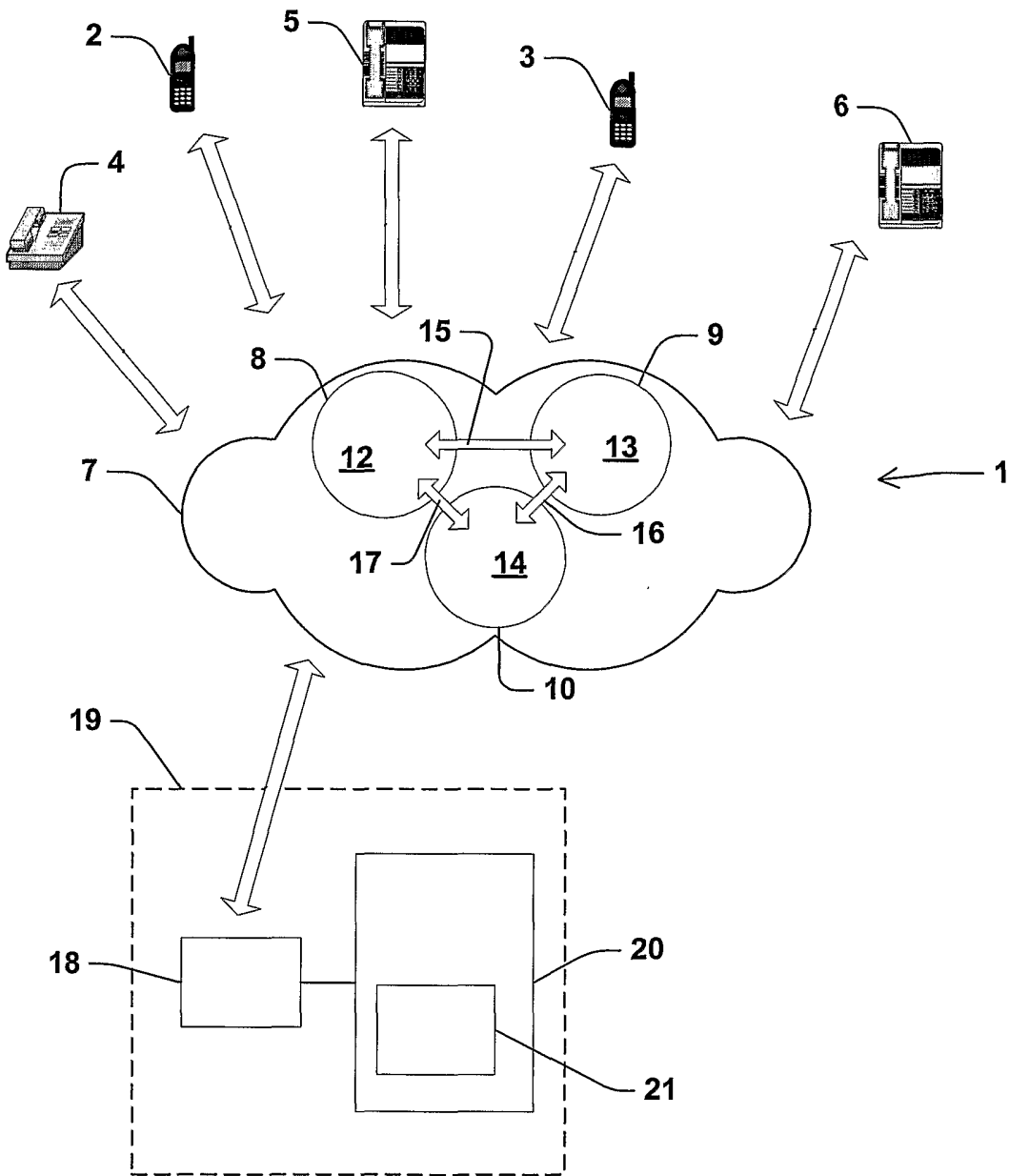
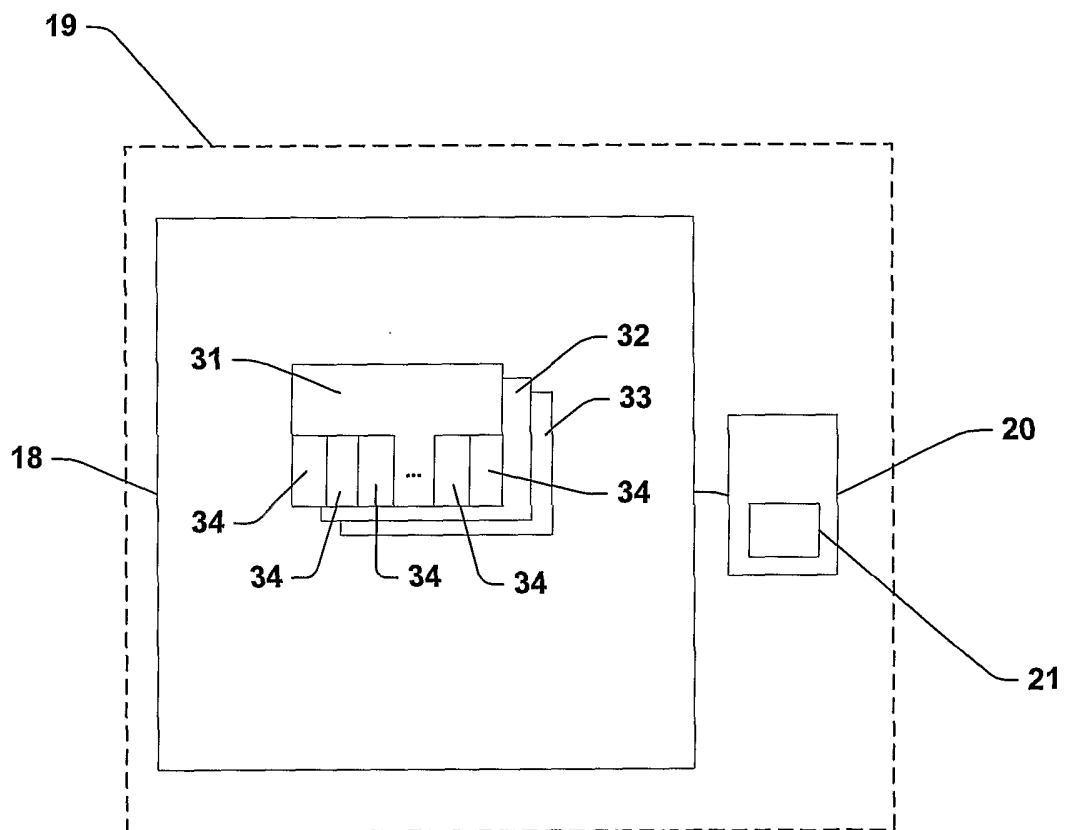




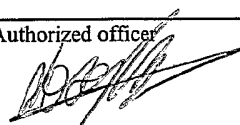
FIGURE 3



## INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU02/01461

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
Int. Cl. <sup>7</sup> : H04M 15/08		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)		
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) WPAT: collect call, reverse charge, phone, connect, hold and similar terms.		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	Patent Abstracts of Japan JP 09-098231 A (FUJITSU LTD) 8 April 1997 Abstract	1 - 18
X	US 5483581 A (HIRD ET AL) 9 January 1996 Whole Document	1 - 18
X	WO 95/06998 A1 (KUGEL, SILVER) 9 March 1995 Page 2, line 2 - page 4, line 29	1 - 18
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent but published on or after the international filing date	"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	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 8 November 2002	Date of mailing of the international search report 15 NOV 2002	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustrialia.gov.au Facsimile No. (02) 6285 3929	Authorized officer  For: <b>SERINEL SAMUEL</b> Telephone No : (02) 6283 2382	

## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/AU02/01461

C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5319701 A (HIRD ET AL) 7 June 1994 Whole Document	1 - 18
X	US 5093858 A (HIRD ET AL) 3 March 1992 Whole Document	1 - 18
X	US 4933966 A (HIRD ET AL) 12 June 1990 Whole Document	1 - 18
P,X	WO 02/15552 A2 (EVERCOM SYSTEMS, INC.) 21 February 2002 Whole Document	1 - 18

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU02/01461

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report		Patent Family Member			
JP	9098231	JP	256066/95		
US	5483581	CA	2007839	EP	380189
		US	4933966	US	5093858
				US	5319701
WO	9506998	AU	65482/94	BR	9405573
WO	200215552	AU	200185446		
END OF ANNEX					