

METHOD AND SYSTEM TO IMPLEMENT TELEPHONY BILLING TO INCENTIVISE SHARED PHONE USAGE

TECHNICAL FIELD

- 5 The present invention relates generally to telephony communications and services; and more specifically, to a method of implementing billing to incentivise shared mobile phone usage.

BACKGROUND ART

- 10 In many parts of the developing world, the high upfront cost of a mobile phone prohibits them from buying a mobile phone and subscription; however these people have a need to use mobile telephone to keep in touch with friends and family. More and more families in the emerging markets are also purchasing mobile phones for pooled or shared usage with a family unit, or amongst a group of friends. Typically these people pay the owner of the phone in cash for use of
15 the device and to cover the physical cost of the call or transaction.

- There are a number of methods that enable a user to log into a separate phone billing account from a device, so that the owner of the phone is not charged for the actual phone call or related transaction. For example, U.S. Patent 6226366 by Bala, et al. Subscriber-Initiated Automated Third Party Billing Feature. By implementing these types of systems the owner of the phone can
20 be free from the concern that the charge of the call or transaction will be deducted from their normal account and the subscribers can have a phone account and number without the need to have to purchase a handset. However this may not be enough incentive to enable the owner to share the phone since the owner of the phone will not make any profit from the transaction.

- If the owner also expects a fee to share the phone they will have to negotiate this additional fee
25 upfront, or they may share on a promise of a future payment because of their feeling of obligation to help the other user. The phone owner may also be concerned that their phone may be stolen during the sharing process, or that the sharer may try and defraud the phone owner by billing the cost of the call or other transactions to the phone owners billing account. There is

therefore a reticence to share phones. Simple low cost access to mobile phones has huge economic and social impacts; industry is therefore keen to find methods to encourage and support shared phone usage. By sharing the revenue the telephony service provider makes to the phone owner as described in this invention, to compensate them for allowing the subscriber to make a call on their handset, the telephony service provider incentivises subscribers to share phones.

The following USPTO patent documents reflect such prior background art:

5602907, Method and system for accounting communication charges, Emi Hata et al, Assignee Fujitsu Limited, Issued Feb 11, 1997

10 5722067, Security cellular telecommunications system, Douglas V. Fournies et al, Assignee Freedom Wireless, Inc., Issued Feb 24, 1998

5822411, Telecommunications charging, Richard P. Swale et al, Assignee British Telecommunications public limited company, Issued Oct 13, 1998

15 5826185, Cellular phone system wherein the air time use is predetermined, Andrew Wise et al, Assignee Banana Cellular, Inc., Issued Oct 20, 1998

5854975, Prepaid security cellular telecommunications system, Douglas V. Fournies et al, Freedom Wireless, Inc., Issued Dec 29, 1998

5937044, System and method for alternate billing arrangement during a telephone call, Hack H. Kim, Assignee MCI Communications Corporation, Issued Aug 10, 1999

20 5943405, Credit calling service system, Toshihiro Morikawa et al, Assignee Fujitsu Limited, Issued Aug 24, 1999

5995822, Method for handling parallel transactions on telephone pre-paid accounts, Ola Smith et al, Assignee Telefonaktiebolaget LM Ericsson, Issued Nov 30, 1999

25 6029062, Prepay telecommunications system with unregistered roaming call processing, Daniel A. Hanson, Assignee National Telemanagement Corporation, Issued Feb 22, 2000

6035025, System and method for a prepaid bundled telecommunications account, Daniel A. Hanson, Assignee National Telemanagement Corporation, Issued Mar 7, 2000

6049710, Wireless prepaid telephone system with dispensable instruments, B. G. Nilsson, Issued, April 11, 2000

- 5 6058300, Prepay telecommunications system, Daniel A. Hanson, Assignee National Telemanagement Corporation, Issued May 2, 2000

6185414, Wireless telecommunication system with prepaid architecture, Richard Brunner et al, Assignee Telefonaktiebolaget LM Ericsson, Issued Feb 6, 2001

- 10 6208851, Prepay telecommunications system, Daniel A. Hanson, Assignee National Telemanagement Corporation, Issued Mar 27, 2001

6226366, Subscriber-initiated automated third party billing feature, Srinivas Bala et al, Assignee AT&T Corp, Issued May 1, 2001

6236851, Prepaid security cellular telecommunications system, Douglas V. Fournies et al, Freedom Wireless, Inc., Issued May 22, 2001

- 15 6298250, Wireless prepaid telephone system with extended capability, Byard G. Nilsson, Issued Oct 2, 2001

6301472, Portable telephone system, Jiro Nakasu et al, Assignee Mitsubishi Denki Kabushiki Kaisha, Issued Oct 9, 2001

- 20 6337903, Call setup for prepaid services, Juha-Pekka Manner et al, Assignee Nokia Networks Oy, Issued Jan 8, 2002

6373931, Method for allowing a called party to allocate call payment responsibility, Umesh J. Amin et al, Assignee AT&T Wireless Services, Inc., Issued Apr 16, 2002

6381316, Enhanced communication platform and related communication method using the platform, Simon James Joyce et al, Assignee Unpaid Systems, Ltd., Issued Apr 30, 2002

6381317, Subscriber-initiated automated third party billing feature, Srinivas Bala et al, Assignee AT&T Corp., Issued Apr 30, 2002

6400967, Mobile keyless telephone instruments and wireless telecommunications system ..., Byard G. Nilsson, Issued Jun 4, 2002

- 5 6405029, Wireless prepaid telephone system with dispensable instruments, Byard G. Nilsson, Issued Jun 11, 2002

6418326, Method for using applications in a mobile station, a mobile station, and a system for effecting payments, Petri Heinonen et al, Assignee Nokia Mobile Phones Limited, Issued Jul 9, 2002

- 10 6463139, Combination pre-paid and calling card, Davitt et al, Assignee AT&T Corp., Issued Oct 8, 2002

6751475, Shared-revenue billing system for transmission of wireless data from a vehicle, David William Holmes et al, Assignee AT&T Wireless Services, Inc., Issued Jun 15, 2004

- 15 6950506, Method and system for paying prepaid communications credit, John Ruckart et al, Assignee BellSouth Intellectual Property Corporation, Issued Sep 27, 2005

7155412, Billing for use of a telephony device, Michael W. Brown et al, Assignee International Business Machines Corporation, Issued Dec 26, 2006

DISCLOSURE OF INVENTION

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The method and system for implementing billing to incentivise shared mobile phone usage disclosed herein is an innovative concept which incentivises the owner of a phone to share their phone with other users, in return for a credit applied to their own mobile phone account from the network or service operator. This credit could either be a one-off fixed amount, or could be a percentage of the cost of the call or other transaction the shared user makes.

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In order to process the credit, the billing system would need to have details of the phone owner and their device and a confirmation that the phone owner is sharing his phone. The subscriber who is using the phone would then also enter a code to enable a virtual phone account for use during the call or other mobile transaction before logging of the virtual phone system and

5 returning the phone. In this example both the owner of the phone, and the subscriber trying to make a phone call using a virtual phone account are with the same telephony service provider.

An alternative embodiment would be where the shared phone user accesses a virtual prepaid phone account from an alternative communications supplier using a free phone access number and the alternative communications supplier would like to give credit to the phone owner for

10 sharing his phone and allowing its subscriber to make a call or other transaction. In both these embodiments the feature of the call credit is built into the rate plan that the subscriber who is using the shared phone has signed up to, it is not a feature that is used on a per request basis.

The system will know if the user is sharing a phone and will apply the credit appropriately. Of course an alternative form of the invention could be where this credit is done on a request only

15 basis, again this would be a feature that the telephony service provider would promote as a paid service to subscribers that do not have this feature built into their service plans. In this example there is no need for the subscriber to have a virtual phone account, they could have a normal account but instead the owner of the phone has made a one off request to the telephony service provider to have a credit applied to their account for sharing their phone with another subscriber.

20 The above examples illustrate the method and system whereby the telephony service provider provides a monetary credit to the phone owner from a share of the revenue the service provider makes for the call. If the phone owner and the subscriber using the phone are both with the same network provider this can be set up using the existing billing system or systems that the provider already has. If however the phone owner and subscriber using the phone have accounts with

25 different service providers, the application of the monetary credit may not be allowed unless the two service providers have made a prior agreement to allow such a transaction and have the necessary methods and systems in place to process such a transaction. As an alternative form of compensation, the telephony service provider could to the owner of the phone a physical gift, reward points, or restricted/non-restricted free minutes of phone usage instead, or alongside the

30 credit applied to the account. In order to further incentivise shared phone usage, the rate of revenue share from the telephony operator could also change depending on how often the phone

owner shares the phone, and/or how many different people they shares the phone with over a predefined period of time.

It should be noted that the phone owner could use various methods to notify the system that they are sharing the phone. Of course to minimise fraud there should be an acknowledgement from the sharer of the phone that the owner is indeed sharing the phone. Further the method can include a predefined time limit during which the shared credit would be applied to ensure that the phone is indeed just being shared for short term usage and not being given to someone as a method to earn money fraudulently. The telephony operator would probably also want to ensure that the person sharing the device is either on a post-paid contract with up to date payments, or is a pre-paid subscriber who has recently, or regularly, topped up their credit, this is to discourage phone owners from using these cash back plans instead of their normal calling plan on their own phone. If the telephony operator wants to further restrict usage they could only allow phones located within a certain physical location, or sets of locations or regions to be able to use the service.

At the end of the phone call or other transaction, and after the credit has been applied to the phone owner's account it would be beneficial for the telephony service provider to send a confirmation of the credit applied to the phone owners account by some method, for example by SMS text message.

An illustrative embodiment of this method can include a new type of mobile phone account which the inventor has called "Share-paid", as opposed to Pre-paid or Post-paid. Post-paid is a normal contractual obligation a user has with a mobile telephony provider, whereby the subscriber agrees a contractual commitment in terms of duration and rates, and the subscriber is billed in arrears each month. Pre-paid mobile telephony allows users to pay in advance for the cost of mobile services. Pre-paid is often used in preference to Post-paid in emerging markets because it negates the need to sign up to a contractual obligation and allows users to budget their phone usage spend. Share-Paid would be a Pre-paid account with the feature that the subscriber would be only be able to make phone calls and mobile transactions using someone else's phone and by standard the phone sharer would always receive a credit, either a one-off fixed amount or a percentage of the cost of the call or transaction, i.e. a revenue share from the telecommunications service provider or operator.

The above examples illustrate the use of a shared phone to make a phone call to a third party, but the same method and system can be employed for other services offered by the telephony service provider such as receiving a phone call, accessing voicemail, accessing a list of missed calls, sending or receiving an SMS, email or MMS, internet browsing or making a financial transaction over the phone for example making a purchase of good or services from the operator or a third party, or transferring money to a third party. It should also be noted that the method and system can be applied to different types of telephony service providers such as fixed line, mobile, cable or VOIP.

Although the method disclosed, by and large employs a series of general purpose network equipment, databases, and systems such as billing systems to achieve its ends, the bona fide distinctiveness of the invention resides in the setup and management of the billing accounts for the phone owner that shares their phone and the subscriber that uses the service.

BRIEF DESCRIPTION OF DRAWINGS

The foregoing summary of the invention, as well as the following detailed description of the preferred embodiment, is better understood when read in conjunction with the accompanying drawings, which are included by way of example, and not by way of limitation with regard to the claimed invention:

Fig 1. Is an exemplary architecture of a wireless telecommunications network for processing calls and a system server in accordance with the present invention; and

Fig 2. Is a flowchart depicting the operation of the share-paid feature according to one embodiment of the present invention.

BEST MODE FOR CARRYING OUT THE INVENTION

Fig 1. Depicts an exemplary wireless telecommunications network which can be used for processing calls. The operation of the telecommunication system in general will be described followed by a description of implementing the share-paid feature in the network.

In Fig 1. User A 1 owns Mobile Device 2 and inside the mobile device is a personal SIM (Subscriber Identity Module) Card supplied by the network operator. The SIM card uniquely identifies the subscriber and their mobile phone number and allows the Mobile Device 2 to be registered and authenticated on the network. The Mobile Device 2 itself is identified by an IMEI (International Mobile Equipment Identity), which can be obtained by the network upon request. Telephony calls, and other services used by the device, are billed to the account holder of the SIM Card.

The Home Location Register (HLR) 5 is a database which stores data about the subscribers, including the Authentication Key (Ki) for each SIM. The Mobile Services Switching Center (MSC) 6 is the network element which performs the telephony switching functions of the network. The MSC is responsible for network interfacing and common channel signalling. The Visitor Location Register (VLR) 7 is a database which stores temporary information about roaming subscribers. Base Station Controller (BSC) 4 is the network element which provides all the control functions and physical links between the MSC and the radio interface. The BSC provides functions such as handover, cell configuration data, and control of radio frequency power levels.

The Intelligent Network (IN) 8 allows operators to offer enhanced services ontop of the basic voice services. The Service Control Point (SCP) is one of the elements of the IN which contains service logic which implements a desired behaviour. The Prepaid Billing system 9 contains information on subscribers account balances, their tariff plans and contains a rating engine which calculates the cost of individual calls or transactions depending on the nature of the event, and the rate plan associated with the subscriber.

In order to implement the share-paid service, the network operator would install the System Server 10. Any subscribers registered with the share-paid servicer would be registered on the subscriber database. When a phone call or other transaction is made by one of these subscribers, the rating engine flow is changed so that once the call or other transaction is completed, either a portion of the cost of the call is credited back to the owner's account, or the call is re-rated a second time to provide the credit to the phone owner. Depending on the exact configuration required by the operator, information on other subscriber who own a phone, and their ability to be eligible for a credit depending on the criteria set by the operator, may be held either on the Prepaid Billing Server 9 or the System Server 10.

If the owner of the owner of the phone is located on an alternative network, the two different network operators would define a suitable interface using the VLR, whereby the sharing of the phone would be authenticated and a credit passed from one operator to the other as part of the normal interconnect settlements.

5 Fig 2 shows a flowchart of how the system would work in the preferred embodiment. A notification 12 would be received by the system from the phone owner that they wish to share their phone. The system would authenticate 13 that the phone owner is allowed to use the shared phone feature. The subscriber wishing to use the phone would make a request to use their share paid account 14 and if authenticated the call would be allowed to proceed 16. Once the call or
10 transaction is finished 17 the Prepaid Billing System would rate and charge the call to User A or User B 18 depending on how the account billing has been set up. For example if User B has a virtual account, and the operator has implemented a system to stop the billing to User A, then the cost of the call would be applied to User B's account. The call would then either be re-rated, or as part of the rating engine logic a separate fixed amount or share of the cost of the call would be
15 credited back to User A's account 19 from the operator. Note the credit does not come from the user of the handset, the credit is made from the network operator to incentivise the phone sharing.

While the foregoing describes what are considered to be the preferred embodiments of the invention, it is understood that various modifications may be made therein and that the invention
20 may be implemented in various forms and alternate embodiments, and indeed that it may be applied in numerous applications, only some of which have been described. The claims are intended to cover all such modifications and variations which fall within the true scope of the invention.

25 INDUSTRIAL APPLICABILITY

In the preferred embodiment of the invention, mobile operators may implement the system to enable then incentivise the shared usage of phone handsets. The mobile operators benefit economically since users will be more willing to share handsets and therefore users who do not own a phone will have more opportunity to make more outgoing calls, increasing the amount of

airtime they spend and increasingly will be able to use mobile remittances. The mobile operator will also benefit from increased loyalty.

The implementation of the system will also have three primary social benefits: 1) Enabling people on low incomes to communicate more easily; reducing the costs of travelling and money spent on messengers by giving them a phone number; 2) Reducing the costs spent by friends and family trying to contact them or trying to sending remittances using mobile banking and 3) Creating employment and new revenue streams for Village Payphone Operators and also from friends and family willing to share phones.

In alternative embodiments the system may be used to pay for shared usage of other items such as a phone charger or, for example, may be used by mobile operators to incentivise the use of shared phoned for people who already have a handset, and a mobile phone number, but require virtual access to their account and use of their phone number from another handset.

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CLAIMS

The invention claimed is:

1. A method and system of implementing telephony user account billing comprising associating
5 two or more user accounts involved in a shared transaction involving a phone such as sharing a
phone to another user to allow them to make a phone call or other user initiated method of
communication where the telephony operator give a credit to the owner of the phone according
to a predefined revenue share, or fixed rate, to facilitate the transaction whereby the rate is built
into the subscriber that wishes to make the call's billing account, comprising the steps of: both
10 users wishing to share have accounts already established; owner of handset shares it with another
subscriber; subscriber makes a phone call user the phone owners account; subscriber returns the
handset; cost of call is decremented from subscriber's account as normal; billing system gives
credit from the telephony operator to the owner of the handset by increasing his account balance
by an agreed portion of the cost of the call, or by a fixed amount.
- 15 2. The method and system of claim 1 wherein the subscribers accesses a virtual calling system
provided by the same telephony operator using their own account so that there is no charge to the
phone owner, but the phone owner still receives a credit from the telephony operator.
3. The method and system of claim 1 and 2 wherein the predefined revenue share, or fixed rate,
is not build into the subscriber's rate plan and the owner of the phone requests a one off credit,
20 either revenue share, or fixed amount from the telephony operator for sharing his handset.
4. The method and system of claim 1 and 2 wherein the owner of the phone and the subscriber
have accounts with two different telephony operators.
5. The method and system of claim 1 and 2 wherein the telephony operator provides the owner
of the handset restricted or non-restricted free minutes of usage, a physical gift, or reward points.
- 25 6. The method and system of claim 1 and 2 wherein the telephony operator changes the revenue-
share or fixed amount payable depending on how often the phone owner shares the phone, or
how many people they share the phone with over a predefined period of time.

7. The method and system of claim 1 and 2 wherein the operator restricts access to the service depending upon the payment and/or recharge history of the phone owner or the location of the phone handset.

5 8. The method and system of claim 1 and 2 wherein the subscriber using the shared phone receives a phone call instead of making a phone call.

9. The method and system of claim 1 and 2 wherein the subscriber using the shared phone accesses their voicemail account.

10. The method and system of claim 1 and 2 wherein the subscriber using the shared phone send an SMS message.

10 11. The method and system of claim 1 and 2 wherein the subscriber using the shared phone send an MMS message.

12. The method and system of claim 1 and 2 wherein the subscriber using the shared phone accesses a web page or browses the internet.

15 13. The method and system of claim 1 and 2 wherein the subscriber using the shared phone makes a financial transaction using the phone either purchasing goods or services, or transferring money to a third party.

14. A computer readable-medium for storing a plurality of programming instructions for a billing server to enable claim 1 or claim 2, and said programming instructions for rendering a network interface in said server operable for communication with at least one switching centre.