SYSTEM AND METHOD FOR BILLING AUGMENTATION

[0001] This application claims the benefit of U.S. Provisional Application No. 60/552,449, filed March 12, 2004, and U.S. Application No. 10/837,695 filed May 4, 2004, which are herein incorporated by reference in their entirety.

BACKGROUND

Field of the Invention

[0002] The present invention relates generally to a system and method for augmenting a billing service. More specifically, the present invention relates to providing billing services to account for deficiencies in an existing billing system so that new services may be introduced and properly accounted for without the need for modification/overhaul of the existing system.

Background of the Invention

[0003] Large billing systems, such as those operated or managed by a telecommunications service provider, are traditionally known for being difficult to change or enhance. This difficulty can be compounded by, for example, an acquisition of one service provider along with its outdated billing system, by another service provider. Until the acquired entity can be integrated into the parent entity's system, the old billing system must be used and maintained. In addition, some service providers may switch to new software and, as a result, be unwilling to modify older software that is slated to be phased out. During the phase out period, the old software may be inadequate for handling new service offerings. In some circumstances, it simply is often the case that a complex billing system requires long lead times for implementation of new billing modules.

[0004] In any of these situations, as well as many others that may be encountered, it would not be uncommon for an upgrade in a telecommunications billing system to take ten to twelve months, or more. As a result, service offerings may often be gated or constrained only to that which a service provider's billing system can support. The rationale behind this is that until the billing system is capable of properly accounting for usage

of a new offering, the service provider simply will decline to offer that service. This creates an unfortunate situation whereby a new and/or desirous service is ready for introduction, but has to be withheld until the billing department can provide proper billing support.

[0005] Such a delay in roll out of new services can severely hamper a service provider from being able to respond quickly to market conditions. Other areas that may be similarly impacted are the ability to implement new customer acquisition and retention programs, deployment of products and services with higher revenue potential, and the ability to offer more flexible pricing models, just to name a few examples.

[0006] It would be desirable to provide a billing augmentation service that could alleviate one or more problems associated with the above-described and other similar billing system deficiencies.

BRIEF SUMMARY OF THE INVENTION

[0007] The present invention provides a billing augmentation method wherein a message sent by a customer is received over an electronic network. This message is analyzed to determine if the message falls into a first service charge category or a second service charge category, the second service charge category having a billing charge greater than that of the first service charge category. The message is then processed and an initial billing event is generated to bill the customer an amount in accordance with the first service charge category. When the message falls into the second service charge category, there is generated a subsequent billing event to bill the customer an amount in accordance with the first service charge category to cause a charge to the customer to be augmented such that an overall charge to the customer is substantially the same as the billing charge of the second service charge category.

[0008] In one aspect of the invention, the first service charge category is applied to basic messages for which a service provider has an existing associated billing event and the second service charge category is applied to premium messages for which the service provider does not have an existing associated billing event.

[0009] In another aspect of the invention the analysis of the message is performed by an outside vendor to determine whether the subsequent billing event needs to be generated. Such a vendor is preferably an intercarrier vendor (ICV) via which the message is likely routed.

[0010] In still another aspect of the invention, the initial billing event is generated by the service provider and the outside vendor (e.g., the ICV), generates the subsequent billing event.

[0011] In one possible embodiment, the initial billing event and the subsequent billing event cause the overall charge to be incrementally increased by a same amount. In another possible embodiment, the initial billing event and the subsequent billing event cause the overall charge to be increased by different amounts.

[0012] In a preferred embodiment of the invention the subsequent billing event is triggered by a billing augmentation message (BAM) that is generated by the ICV and sent to a wireless carrier that serves a customer from whom the message is received.

[0013] These and other features of the present invention and their attendant advantages will be more fully understood upon reading the following detailed description in conjunction with associated drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Figure 1 is a diagram showing an exemplary prior art billing system.

[0015] Figure 2 is a diagram showing a billing system with augmentation according to an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0016] The present invention is described herein in the context of augmenting and improving a wireless telecommunications service provider's billing system. However, it will be apparent to those of skill in the art that the present invention may apply to any billing system and is not intended to be limited only to those used for telecommunications services. Further, as used herein, the term "message" is intended to apply to any communication or event within a service provider's system that triggers a need for billing a

customer for the event and is not intended to be limited solely to messages in the literal sense.

[0017] Figure 1 depicts a typical delivery path of a short message service (SMS) message from one mobile subscriber (MS) to another. To begin with, MS_a, who is a customer of wireless carrier WC_a, initiates an SMS message to MS_b, who is a customer of wireless carrier WC_b. Because MS_a and MS_b are customers of different wireless carriers, it may be necessary for an intermediary, such as an inter-carrier vendor (ICV) to become involved to ensure proper routing of the message. Such inter-carrier facilitation is described in co-pending U.S. Application No. 10/426,662, entitled "An Intermediary Network System and Method for Facilitating Message Exchange Between Wireless Networks," which is incorporated herein by reference in its entirety. The functionality is preferably embodied in the ICV as an information exchange module (IX) that is capable of analyzing an incoming SMS message and that is further capable of applying an appropriate billing command or instruction in accordance with a billing augmentation engine (BAE), which has heretofore been unknown in the prior art. The IX preferably analyzes the SMS message and performs any necessary steps, such as, for example, translation, in order to allow the SMS message to be sent to MS_b. In the example of Figure 1, the BAE is bypassed and the message is sent to short message service center $SMSC_a$ within WC_a, which passes the message, via the ICV (and IX), to $SMSC_b$ and mobile switching center MSC_b servicing MS_b at the time.

[0018] As long as the billing system of WC_a is equipped to handle the SMS message, the system will properly initiate a billing event, such as BE_1, in order to account for the charge to be assessed to MS_a, when the message passes through WC_a's mobile switching center MSC_a and $SMSC_a$ and on to the ICV. In the system of Figure 1, WC_a is only equipped to bill for basic SMS messages. If we imagine that typical basic messages are billed at $0.10, for example, then every time a basic SMS message is sent, billing event BE_1 is triggered so that the customer may be charged accordingly.

[0019] Now, if we imagine that WC_a subsequently desires to introduce more complicated messages or any other new service or product that has a cost structure different from the basic $0.10 charge, then the billing system may not be equipped to handle the new product or service. Until the billing system is appropriately modified, WC_a may be left with the decision to use its existing system, thus charging only $0.10 for a service that could easily garner a much higher charge, or it may decide to withhold the new offering entirely until its billing system can account for and charge the higher price. The billing augmentation engine (BAE) of the ICV is intended to allow WC_a to market the more complicated messages or other new service without adjusting its billing system at all or to provide a "billing bridge" while the appropriate billing capability is incorporated into the existing billing system.

[0020] As seen in Figure 2, the use of the ICV's BAE is explained. As before, MS_a sends an SMS message that is processed by Mobile switching center MSC_a and $SMSC_a$ of WC_a. The SMS message is then sent on to the ICV's IX for further processing so that the SMS message may be directed accordingly. If the SMS message is determined by the ICV to be a basic $0.10 message, then the message is sent on for delivery as is shown in Figure 1.

[0021] If, however, the ICV determines that the SMS message is a premium, or more complicated, message (e.g., subscription services, alert or notification offering, etc.), costing more than the basic $0.10 fee, then the premium SMS message is sent to, for example, a message gateway GW_b within a content provider, such as CP_b for appropriate processing. Because the ICV has detected that the SMS message is a premium message and it knows that WC_a is not equipped to handle billing for such a message, the BAE sends a series of billing augmentation messages (BAMs) BAM_1, BAM_2, BAM_3, and BAM_4. Each of the BAMs triggers an additional augmented billing event equal to BE_1 within WC_a's billing system.

[0022] In the example depicted in Figure 2, the premium SMS message has been determined by the ICV to be worthy of a $0.50 charge, so four additional BE_1's, each representing the $0.10 fee for a basic SMS message,

are needed so that WC_a's outdated billing system can charge MS_a the correct fee. The ICV's BEA is preferably configured to trigger any number of BE_1's within WC_a's billing system to account for a fee in some multiple of BE_1.

[0023] In the situation described in Figure 2, WC_a has a single standard billing event and the augmented events are simply tallied until the proper fee is charged. It may also be possible that WC_a's billing system is actually set up with a plurality of billing events, but that none of its standard billing events properly account for a new service. In such a situation, WC_a will generate whatever standard billing event it chooses and the ICV, knowing what standard event is charged by WC_a, will trigger a plurality of augmented billing events to make up for the difference in fees. For example WC_a may also have a BE_2 that bills the customer $0.20 for a particular message. In such a situation, WC_a still would be incapable of generating a $0.50 fee, but ICV can either trigger three BE_1's to WC_a to augment the billing or it could also trigger a single BE_1 along with an additional BE_2 to account for the proper generation of fees to MS_a.

[0024] It may also be appreciated that WC_a may not have the technology in place to analyze the message and determine if a billing event needs to be created at all. In this situation, the message would be passed from WC_a to the ICV for complete processing without any billing event being generated by WC_a. The ICV would then analyze the message to determine the proper billing augmentation and then trigger one or more augmented billing events to WC_a to account for the fee in its entirety.

[0025] Because of the rigid nature typical billing systems, the BEA can only work within the framework of WC_a's billing event structure. This creates a drawback in that a message may be deemed to have a proper charge that is not an exact multiple of one of WC_a's billing events. In such a case, the WC and the ICV would have to decide whether to round up or down to the nearest billing event fee. This may be advantageous, however, because a wireless carrier may decide to introduce a new service at a reduced rate, which could be set at a multiple of one of its existing billing events, and by the time their billing system catches up, they may end the promotional period.

[0026] Regardless of how such a billing decision is reached, one of skill in the art can see how much more quickly a service provider can introduce new products and services without being constrained by a lagging billing system modification. In addition, although the present invention has been described in relation to instances where a premium service garners a higher fee than a basic service, the billing augmentation is not limited to such a situation.

[0027] The present invention could be applied to any situation whereby a new service would result in a multiple of an existing billing event or events such that the ICV could relay BAMs to properly bill for the new service. The present invention may also be implemented within the wireless carrier itself thus eliminating the need to include an outside vendor as long as the evaluation and billing augmentation capabilities are present within the service provider's existing system to allow for such implementation.

[0028] Returning to Figure 2, the billing event augmentation described may represent a "bucket" pricing plan whereby all messages are billed to the customer at $0.10. Because a premium message should be charged as $0.50, for example, the wireless carrier may desire that the customer's bill reflect a single $0.50 charge as opposed to a series of five $0.10 charges. In order to accomplish this, the wireless carrier may collapse the multiple billing events into a single charge that is reflected on the customer's bill, thus potentially reducing confusion. Collapsing may be accomplished by, for example, configuring the billing system to consider multiple triggered charges received within an extremely short time period (e.g., seconds) to be a single charge event.

[0029] The dynamically configurable billing augmentation rules employed by the ICV's BEA described above may include a range of parameters that determine when and how many BAMs should be generated. These may include one or more of the following, for example:

Message Source Address - The source address (e.g., a mobile subscriber's telephone number) of a message and may be specified individually or by range.

Source Network Element – The network element (e.g., SMSC, etc.) from which a message is received. This may be specified individually or by range.

Source – The identified source (e.g., wireless carrier) of a message.

Message Pricing – Source (e.g., wireless carrier) specific message pricing guidance.

Message Destination Address – The destination address of a message. Conventional telephone numbers or short codes (an illustrative example of which may be found in co-pending U.S. Application No. 60/445, 453, which is incorporated by reference herein in its entirety). These may be specified individually or by range.

Destination – The identified recipient (e.g., wireless carrier, content provider, etc.) of a message.

[0030] The list of parameters presented above is illustrative only and is not considered to be exhaustive. One of ordinary skill in the art will understand that numerous other parameters, such as, timing parameters/scheduling windows, message encoding indicators, etc. may also be employed.

[0031] It may also be possible that the generation of BAMs in real-time (i.e., as the message is processed) could bog down the wireless carrier's system. Accordingly, the BAMs may be scheduled so that they are deferred or delayed to a more desirable time frame. For example, it may be desirable for the BAMs to be sent during off-peak times so as to minimize load on the wireless carrier's system. Additionally, the rate at which BAMs are generated may be throttled or gated so as not to overwhelm the message receipt and processing capabilities of the BAM recipient.

[0032] The foregoing disclosure of the preferred embodiments of the present invention has been presented for purposes of illustration and description. It is not intended to be exhaustive or to limit the invention to the precise forms disclosed. Many variations and modifications of the embodiments described herein will be apparent to one of ordinary skill in the art in light of the above disclosure. The scope of the invention is to be defined only by the claims appended hereto, and by their equivalents.

[0033] Further, in describing representative embodiments of the present invention, the specification may have presented the method and/or process of the present invention as a particular sequence of steps. However, to the extent that the method or process does not rely on the particular order of steps set forth herein, the method or process should not be limited to the particular sequence of steps described. As one of ordinary skill in the art would appreciate, other sequences of steps may be possible. Therefore, the particular order of the steps set forth in the specification should not be construed as limitations on the claims. In addition, the claims directed to the method and/or process of the present invention should not be limited to the performance of their steps in the order written, and one skilled in the art can readily appreciate that the sequences may be varied and still remain within the spirit and scope of the present invention.

WHAT IS CLAIMED IS:

1. A billing augmentation method, comprising:

receiving, over an electronic network, a message sent by a customer;

analyzing the message to determine if the message falls into a first service charge category or a second service charge category, the second service charge category having a billing charge greater than that of the first service charge category;

processing the message and generating an initial billing event to bill the customer an amount in accordance with the first service charge category; and

when the message falls into the second service charge category, generating a subsequent billing event to bill the customer an amount in accordance with the first service charge category to cause a charge to the customer to be augmented such that an overall charge to the customer is substantially the same as the billing charge of the second service charge category.

2. The billing augmentation method of claim 1, wherein the first service charge category is applied to basic messages for which a service provider has an existing associated billing event and the second service charge category is applied to premium messages for which the service provider does not have an existing associated billing event.

3. The billing augmentation method of claim 1, wherein the analyzing is performed by an outside vendor to determine whether the subsequent billing event needs to be generated.

4. The billing augmentation method of claim 3, wherein the initial billing event is generated by the service provider and the outside vendor generates the subsequent billing event.

5. The billing augmentation method of claim 4, wherein the initial billing event and the subsequent billing event cause the overall charge to be increased by a same amount.

6. The billing augmentation method of claim 4, wherein the initial billing event and the subsequent billing event cause the overall charge to be increased by different amounts.

7. The billing augmentation method of claim 1, wherein the subsequent billing event is triggered by a billing augmentation message (BAM).

8. A billing augmentation system, comprising:

a first entity for receiving a message from a customer;

a second entity for receiving and analyzing the message from the first entity;

the first entity generating an initial billing event based upon receipt of the message; and

the second entity triggering one or more subsequent billing events to augment a charge to the customer.

9. The system of claim 8, wherein the second entity triggers the one or more subsequent billing events by sending one or more billing augmentation messages to the first entity.

10. The system of claim 8, wherein the first entity is a wireless service provider.

11. The system of claim 10, wherein the second entity is an inter-carrier vendor.

12. The system of claim 11, wherein the inter-carrier vendor processes the message from a customer and sends the message from the customer on to a second wireless service provider for delivery.

13. The system of claim 9, wherein the one or more billing augmentation messages are sent at a time substantially corresponding to a time at which the message from the customer is received.

14. The system of claim 9, wherein the one or more billing augmentation messages are delayed from being sent at a time substantially corresponding to a time at which the message from the customer is received.

15. The system of claim 9, wherein the one or more billing augmentation messages are gated.

16. A billing augmentation method, comprising:

a wireless carrier receiving a message from a customer;

the wireless carrier triggering an initial billing event based on the message;

the wireless carrier sending the message to an inter-carrier vendor for further processing;

the inter-carrier vendor analyzing the message to determine its type based on the content thereof; and

the inter-carrier vendor, in determining the message type, sending a billing augmentation message to the wireless carrier to trigger a subsequent billing event such that an overall charge to the customer will be commensurate with a predetermined charge for that type of message.