

WHITE PAPER

Real time rating



The use of real time rating platforms expanded prepaid to postpaid users as bill shock became an issue in the telecom industry.

Introduction

Real time rating is often associated with prepaid service. However, the use of real time rating platforms expanded to post-paid users as well, as bill shock became an issue in the telecom industry. The next wave of real time rating developments will follow as the mobile industry is making the transition from traditional circuit switched voice to VoIP services. This white paper describes the past developments and the expected trends in real time rating.

Prepaid service

Mobile operators with a prepaid service offer have a real time billing platform to keep track of user spending. A user has a prepaid balance and if the user has used up his balance, the service will be suspended. The service will resume after the user has topped-up.

Prepaid mobile service is popular among consumers whose credit status cannot be established, or just for convenience for parents who do not want to be bill shocked by their kids overspending. In developing countries, where the banking infrastructure is less developed, prepaid service is more common than post-paid service.

Bill shock

The telecom operators were slow to react to a growing problem of excessive phone bills. Excessive mobile data charges of €1 to €10/Mb, often resulted in phone bills of thousands of Euros without warning. This eventually resulted in action on European level. The EU bill shock prevention law that came in to effect in 2010, protects EU consumers by mandating that mobile operators warn a user when data roaming charges exceed €40 (excl. VAT), and cut off data roaming service when charges reach a €50 (excl. VAT) limit. Only with explicit

consent of the user will an operator allow the users to use more than the allowed €50 limit.

The EU regulation does not apply to data usage when in the home network. Consequently, national data bill shock exists today in the Netherlands. Though out of bundle data charges of €1-€10/MB are less common, and 0,15€/MB rates are now more or less the norm, at this rate 1GB out of bundle data use will still equate to a “less shocking” €150 out of bundle charge. Some countries have national bill shock prevention laws. For example, Italy's Communications Authority (AgCom) has adopted the same EU bill shock law since 2011 to also protect users in Italy against mobile data bill shocks.

Consequences of the EU bill shock law

As a consequence of the 2010 EU data roaming bill shock prevention law, all EU mobile operators have implemented real time rating for data roaming. Before the EU bill shock prevention law, real-time rating was only used for prepaid services. Because the EU bill shock prevention law only applies to data roaming, most mobile operators have implemented real-time rating for data roaming only. Thus for other roaming services like, voice and SMS, no real-time rating is applied for post-paid users.

How does real time rating work?

The basic concept has three components. First, there is an online charging system (OCS) that holds the credits. The credits can be either a prepaid balance or a spending limit that is set by the user or operator. The OCS has an integrated rating and account balance management function, that is needed to rate the event or session based on

context and the user's rate plan. For example a call made by a prepaid user when roaming, may have a different rate than when the user is in its home network.

The second component is the network node that generates CCRs (Credit Control Request) for an event (e.g. SMS) or session (e.g. voice call or data session). A CCR is answered by the OCS with a CCA (Credit Control Answer).

Mobile operators will have many network nodes interacting with the OCS. There will also be legacy services in the network running old protocols and different service providers may be connected with their own OCS. For this reason a third component, a Signalling Controller, is implemented to broker the requests between the network nodes and the different OCS platforms.

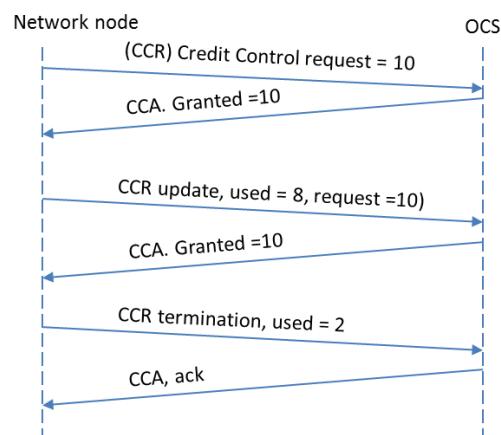


Figure 1: The network node requests a grant from the OCS. A grant is updated after a set time expired or a percentage of the grant is consumed. When a session or call is terminated the remaining grant is returned to the server.

Trends

Users increasingly expect to be instantly informed about their spending. This trend is also visible in other sectors; e.g. smart electricity meters inform users in real time about their electricity consumption. Increasingly post-paid users want to have a real-time overview of their spending. This drives the trend for implementing real-time

rating for all customers, pre- and post-paid users alike. These users want to be informed instantly about their spending and not a few hours after they have exceeded their mobile data bundle limit. Especially with high 4G data rates a user can easily overspend his data bundle in one hour without being aware of it.

IMS

Mobile operators have real-time rating in place for data, SMS, MMS and circuit switched voice services. As the market develops, real-time rating platforms will need to evolve to handle new services. This includes handling the transformation of basic voice services over circuit switched networks, to voice services over IMS (IP Multimedia Subsystem). IMS based VoLTE (Voice over LTE) offers a powerful platform for various value added services. High quality voice, premium 0900-services, video, picture messaging, etc. are just a few of the services that operators hope to offer over their IMS platform. All the service will require real time rating for both pre- and post-paid users. Depending on the type premium service that is offered over the IMS platform, the service can generate excessive charges that may have to be real time supervised.

Real time rating in VoLTE is not straight forward, as the same data pipe is used for both browsing and VoLTE. If a user is charged per minute for a VoLTE video call, then you also do not want to charge the user for the data volume as well. Depending on the operator's charging strategy, there should be provisions in the network to zero rate the data volume related to the VoLTE events and sessions.

Advanced OCS platforms can provide an operator greater flexibility to offer innovative pricing based on user location, time of day and even the type of device that is used. Though there is this greater

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flexibility, operators have every interest to maintain the status quo, paying for the duration of voice calls, that users are accustomed to. This also applies to not charging users for incoming calls (non-roaming), which means that the charging system need to be aware of the context of the initiated call. Currently real time rating of VoLTE has second priority, as operators are still pre-occupied on addressing the technical aspects of launching the VoLTE service.

Prodapt Consulting

Prodapt Consulting has a broad scope of experts covering the whole billing landscape. Real time rating is one piece of the equation. Understanding how the network elements generate charging events is as important as understanding how these event must match the off-line billing records for the revenue assurance processes.

Prodapt Consulting is not only your partner to evolve your real time rating systems, but also your partner to help you evolve the IT landscape beyond.

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