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## **3G and the Video Telephony Opportunity**

3G mobile technologies enable real-time video in higher performance and quality than previous technologies (2G and 2.5G). Video Telephony (VT) calls between 3G handsets are part of the standard mobile multimedia options. As the network coverage and the number of 3G handsets will be limited in the first period of 3G launching, PC users can enjoy the VT experience by using the PC-to-Mobile and Mobile-to-PC VT communication option, increasing the mobile operators' revenues from the start.

Using the Ericsson Video Gateway System (ViG) and the pre-integrated MINDBill solution for Video Telephony, operators are able to easily extend the VT customer base beyond mobile 3G users, and offer these services to the desktop and PDA users. Various business models, pricing options and legacy integration capabilities are part of the combined solution.

## **The Ericsson Video Gateway System**

Ericsson's Video Gateway System lets operators create an interest in 3G services from day one, since users can send live video to any PC from any handset supporting 3G.324M protocol, and vice versa. The PC user needs a broadband connection, and he or she must be registered with the Video Gateway and have NetMeeting, XP Messenger or a similar tool installed in the PC.

Ericsson's Video Gateway System handles the conversion between circuit and packet-switched connections, and provides a complete solution for PC-to-Mobile and Mobile-to-PC scenarios, with full end-to-end support for video connections (telephony and content streaming) between 3G phones, the Internet and private networks.

## **MINDBill<sup>®</sup> solution for video telephony with Ericsson Video Gateway System (ViG)**

### **Solution Overview**

MINDBill offers a comprehensive subscriber and service management system for prepaid and post-paid subscribers using Video Telephony services, pre-integrated with Ericsson ViG, supporting PC-to-Mobile, Mobile-to-PC and PC-to-PC call scenarios.

The solution is composed from the following building blocks:

- A flexible RADIUS server, providing full AAA and active mediation, specially adapted for the Ericsson ViG environment.
- A comprehensive subscriber profiles and services management, for prepaid and post-paid.
- Real-time provisioning for the ViG, of subscriber profiles and status.
- Rating, balance management and replenishment capabilities.
- A complete voucher management module.

- Straightforward integration with the legacy environment.

The solution enables operators to allow prepaid and post-paid users to enjoy Video Telephony and video conferencing services with mobile users, from their PC (or PDA) anywhere and anytime.

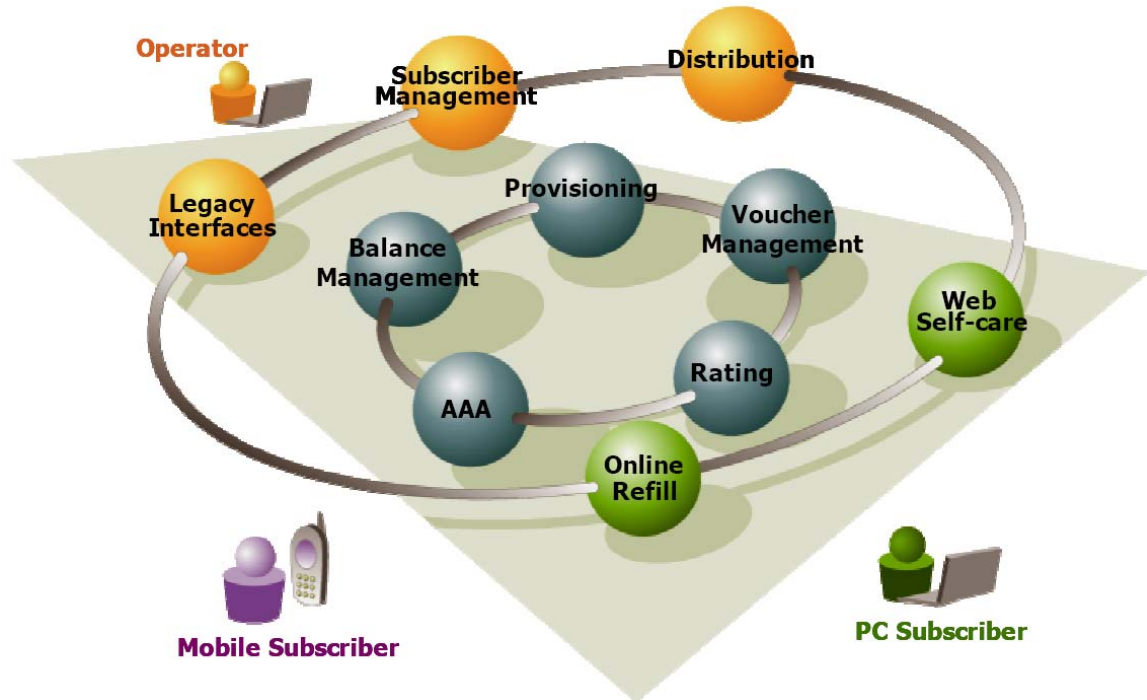


Figure 1: MINDBill Solution for Video Telephony

### Video telephony calls options

Video Telephony calls between mobile 3G handsets supporting the 3G.324 are conveyed on the circuit-switched network as part of the 3G standard. With the Ericsson ViG and MINDBill, additional types of video calls can be established and charged.

### PC-to-Mobile

In this case the PC user is activating the PC client, NetMeeting embedded or proprietary, and authorized by the MINDBill system. In most cases the caller is charged for the call. The caller can be either a prepaid or a post-paid user.

### PC-to-PC

This option is valid between two PC users registered in the system, but it can be disabled if required from a business point of view. In most cases, only the calling party needs to be authorized and charged, or the service is even given free of charge.

## **Mobile-to-PC**

The mobile user, simply dialling the number of a registered VT PC user, originates this type of video call. In most cases, only the mobile user is charged, and it can be done by the mobile circuit-switched infrastructure. In case that the called party is to be charged, the session should be authorized, controlled and charged by the MINDBill system.

## **Extensive support of various target markets**

Mobile operators are looking to increase their revenues from the 3G infrastructure, by offering the PC-to-Mobile and Mobile-to-PC services to different segments, requiring different pricing and management options. The MINDBill solution's agility helps providers to support all the required business models on a single platform. When required, the solution can be easily integrated with the existing OSS/BSS infrastructure.

## **Post-paid VT subscribers – mobile, enterprise and third-party**

The existing subscriber base of the mobile operator is a natural target market for the VT PC-based services. These users can register to the VT service using the mobile account identifiers (such as the MSISDN), and are charged for the VT calls originating from their home together with their mobile services. The operator has a single view of these subscribers.

Trusted PC users, especially enterprises, may prefer the post-paid model, enabling employees to communicate from their PC at work with their travelling colleagues. Employees can be billed directly, or the employer can get the bill and pay for all users.

Another natural postpaid market includes subscribers of third-party partnering service providers. For example, a mobile operator can sign a partnership with a broadband ISP, so that the ISP's customers can use the VT services. These subscribers are either billed directly by the mobile operator, or most likely, billed by their own ISP, while the mobile operator charges the ISP in a wholesale model. In this model, both providers share the revenues from the VT service.

## **Prepaid VT subscribers – transient and tech-savvy PC users**

Prepaid support is a must for VT service providers. It enables transient subscribers and the prepaid mobile subscribers to enjoy Video Telephony services, without any risk of revenue leakage.

With MINDBill's true real-time operation and close interaction with the Ericsson' ViG, the subscriber is authorized to access the service only if he/she has enough funds. The session is cut-off immediately as the balance bottoms-up.

Furthermore, with MINDBill, mobile operators can offer their prepaid subscribers the VT services from their home PC, as MINDBill solution integrates with the operator's legacy prepaid system (IN/SCP based or other), allowing a shared balance for the regular mobile services as well as for the Video Telephony.

## **Pricing models**

Numerous pricing models can be associated with VT services. Vouchers may allow limited continuous usage or a limited validity period with unrestricted usage. For example, a voucher can be valid for 24 hours, a week, a month or a year. The validity limit can take effect from the purchasing time of first usage. Other limits can be by total duration, for example, 50 hours of Video Telephony sessions.

More complex models are also possible, both for prepaid and post-paid customers, utilizing MINDBill's Rating Engine.

## **Rating engine**

The MINDBill Rating Engine is one of the critical modules incorporated within the solution. The rating engine supports both regular rating and reverse rating. Regular rating computes a price for each session based on various usage parameters, such as the duration and the called number. Reverse rating converts a monetary amount into duration, enabling real-time re-authorization or cut-off, which are crucial for prepaid.

The MINDBill system updates the subscriber balance in real-time according to the RADIUS Accounting and Re-authorize messages, and does not authorize any service if there are not enough funds to fulfil it.

## **Authentication, Authorization and Accounting (AAA)**

MINDBill RTS (Real-Time Server) includes a flexible RADIUS sever supporting full AAA functionality for the Ericsson ViG, tailored to support Ericsson RADIUS MLCP multi-layer protocol. The full set of Authentication, Authorization and Accounting (AAA) messages is supported. Users are authenticated only if they have been registered in the system. Users are authorized only if they have the permission and enough funds to use the service. For prepaid users, the authorization message includes the cut-off or re-authorizing timeout for the video session, calculated according to the current balance and the specific rating plan. When the video session terminates, the accounting message immediately updates the user's balance.

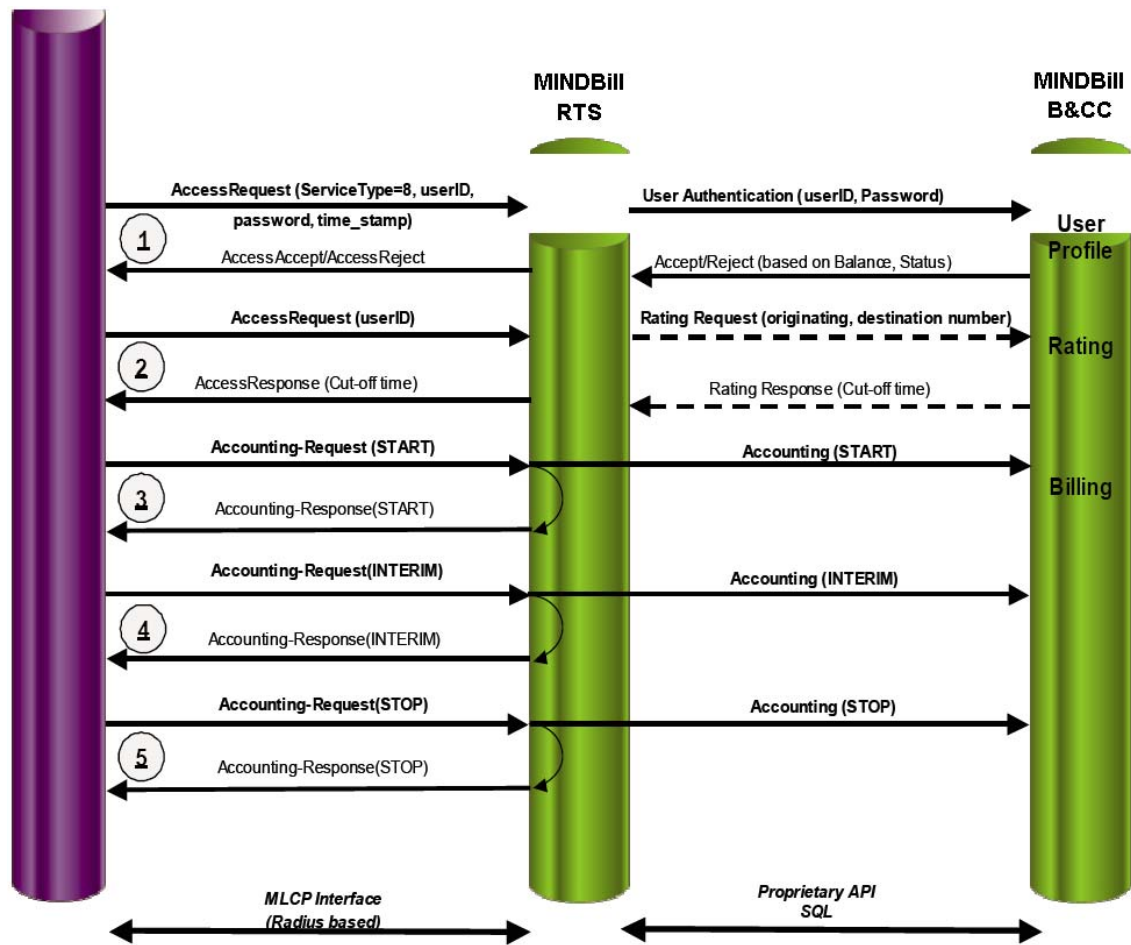


Figure 2: MINDBill AAA Call Flow with Ericsson ViG

### Low balance notification

MINDBill allows notification on low balance for prepaid PC subscribers. The solution offers two options for low balance notification: First, when the subscriber's balance or the time left for the current session reaches a threshold, a trigger is raised, and as a result an e-mail, SMS or other message can be sent to the subscriber. Second, a running (pop-up) window can show the remaining time and/or balance in real time.



**Figure 3: MINDBill Pop-up Notification Message**

When the threshold is reached, a window displaying a notification message similar to the above will be shown, and will allow the user to recharge the account on-line, using the Web self care. A payment Web page will be opened, in parallel to the ongoing video session, and the user can recharge the account. If the recharging (payment) process was successful, the new remaining time/balance will be automatically updated.

### **Subscriber and service management**

The MINDBill solution includes an internal database that holds the subscriber and service profiles. The database can be updated directly or provisioned from external sources (such as the operator's CRM system) upon every change. The subscriber and service profiles include all the information needed to authenticate the subscribers, authorize their services, and charge them for the usage.

The system can be managed via an intuitive GUI that enables the operator and the CSRs (Customer Service Representatives) to handle their everyday tasks easily.

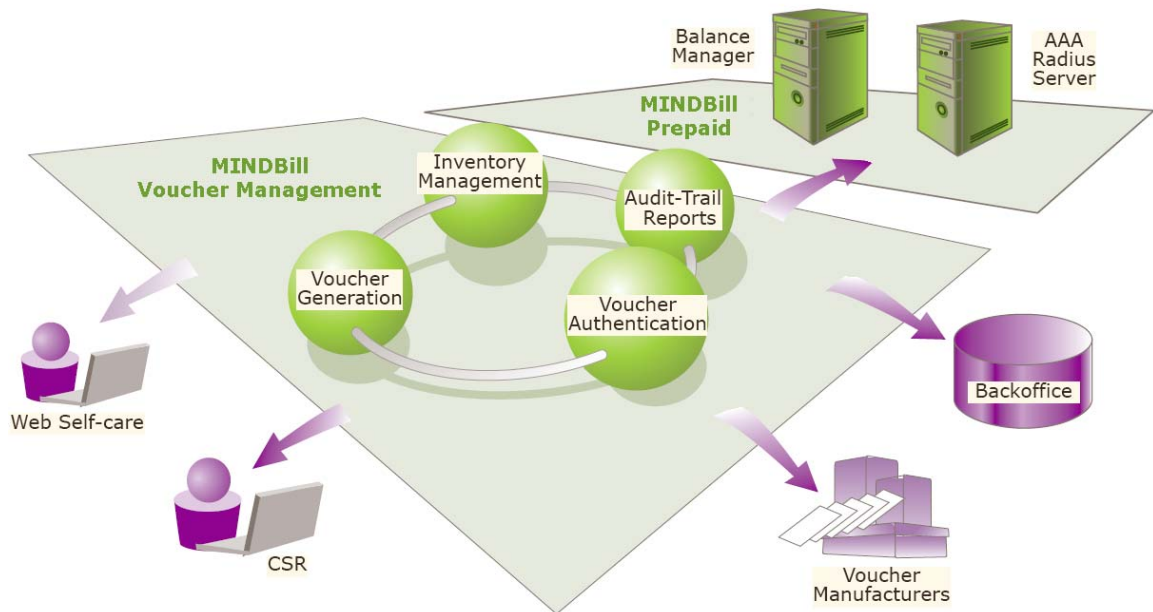
### **Web-based Account Management**

A Web-enabled customer self-care system is integrated with the solution, where subscribers can handle their own accounts via the Web, register to services, view and update their profiles, view their up-to-date account status and handle their payments online. CSRs can manage all their everyday tasks via the customer-care Web module. These Web applications can be easily customized and integrated with the existing provider's portal and self-care applications.

### **Voucher management**

The MINDBill voucher management module enables automatic creation of lots (batches) of vouchers, with different pricing models and access restrictions associated with each. Different types of vouchers can be issued, and used as disposable one-time prepaid cards, rechargeable cards or just as refills for existing

accounts. Vouchers can be activated or used by simply accessing the operator's Web portal and typing in the vouchers' details, PIN code and password. Vouchers usually have an expiry date and usage restrictions.



**Figure 4: MINDBill Voucher Management**

## Provisioning

The pre-integrated solution includes a comprehensive online provisioning interface from the MINDBill subscriber and services management platform toward the ViG's SSSDR (Subscribers and Services Data Repository). The MINDBill Provisioning Server interfaces with the ViG's SSSDR using the Ericsson XML-based protocol, in order to provision the subscriber profile, services and status. The profile attributes include username, password (PIN), phone number of the VT service, subscriber type – either post-paid or prepaid, and add-on services. It means that as soon as the subscriber registers to the service in the MINDBill system, the VT service becomes available at the network level.

## Full Integration with the Legacy Mobile Billing Systems

For mobile operators offering an add-on Video Telephony service, the MINDBill solution for VT services can be deployed side-by-side with the legacy BSS systems, such as CRM and billing. The MINDBill manages all VT sessions' AAA and rating in real-time, interfacing with both the prepaid and post-paid legacy systems, in order to share the balance and update the usage information. The MINDBill solution is equipped with open APIs that enable easy integration with the existing BSS/OSS systems.

In a hybrid deployment model, the external and transient PC users are fully managed by the MINDBill system, while the existing mobile subscribers are managed by the legacy systems, as MINDBill manages and controls the VT sessions for all

users. In any case, a single subscriber view is maintained among all systems involved.

## Summary

3G networks are being rapidly deployed these days worldwide. Video Telephony service, without any doubt, is bringing a new experience to mobile users, enabling them to discover mobile video for either business or leisure usage. The new experience allows subscribers to have Video Telephony calls with other 3G users, but more importantly, with the broader population of PC users.

Mobile operators seeking to increase ROI from new 3G networks can take advantage of MIND's solutions to deploy Video Telephony. MINDBill is perfectly suited to maximize revenue from all market segments, providing flexible pricing models, and supporting various payment methods for both prepaid and post-paid subscribers.

MINDBill, pre-integrated with Ericsson ViG, is a cost-effective, off-the-shelf product that allows rapid, risk-free deployment of Video Telephony and other 3G technologies. The MIND platform provides the capacity for immediate revenue-generation from Video Telephony, while having a lower total cost of ownership and quicker return of investment.