

## EasyVPaBX

# Complete Hosted Telephony Solution for Enterprises and SMEs

Network Norway Case Study

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## Network Norway's Challenge

Network Norway is the holder of the third GSM license in Norway. Competition in the Norwegian mobile market was mandated by the regulator in the 1990s and has been extremely successful. The market is now saturated, with greater than 100% mobile penetration. As a new entrant to the market, Network Norway faced considerable challenges in building market share against established players. They needed to differentiate themselves from competitive offers and build market share, but not at the expense of creating a price war. How could this be achieved in a highly competitive market?

A decision was taken to focus on segments that offered greatest potential for both high revenue (ARPU, or Average Revenue Per User) and high margin (AMPU, or Average Margin Per User), in particular the business and SME market.

Network Norway wanted to provide a solution that was tailored to the needs of this market. Typical customers were profiled in order to capture an understanding of the likely customer base. For example, one prospect had the following problems: they had a multi-site operation, including International facilities, with high mobility between each site and field locations. This meant that mobile use was high, but the mobile phones were incompatible with the different PBX solutions deployed in the regional sites. The switchboard operators were unable to track mobility and the existing systems did not offer an easy upgrade path to IP communications. The prospect wanted a future proof solution that delivered the same functionality to each user, irrespective of whether connecting via a mobile, fixed or IP handset and that offered a seamless common communications infrastructure across the whole enterprise. It was also important to be able to track the mobility and status of users as they performed their activities. These requirements are not untypical of the SME market.

Network Norway took these requirements and translated them into a specification for a communications platform from which to offer services orientated to this segment. They needed a future-proof platform from which they could launch hosted telephony services that could replicate and replace PBX functionality found in the enterprise. The platform should be able to connect to any desired network (mobile, fixed, IP). It should offer both a basic service package and the ability to customise services to extend innovation into the future. It needed to be compatible with Network Norway's existing GSM network, and, in particular, to be able to interface to the CAMEL overlay that was used to manage legacy services. Finally, the platform had to be ready to conform to a future NGN architecture such as IMS, and it had to be based on open standards. Network Norway had decided to avoid proprietary systems for their network evolution.

## The Solution

Network Norway created an RFI / RFP process that defined their requirements in more detail. After an extensive review of proposals, Gintel AS was selected as the vendor for the complete solution, Network Norway's flagship "Mobile Office" product.

Gintel offers a hosted PBX application, Easy Virtual PaBX, which meets all of Network Norway's needs. It provides full PBX functionality and, because it is a software application hosted by the operator, it allows any connected device to register and experience the same feature set as a traditional fixed PBX station device. Easy Virtual PaBX provides full switchboard capabilities, offering a console that can be used to manage user mobility and status, with self-provisioning options to ensure that the system is updated at all times as to user preferences.

Easy Virtual PaBX provides complete transparency, allowing any user on any network to connect to the platform. It conforms to the basic IMS service architecture, as it leverages application servers for the execution environment, allowing Network Norway to easily incorporate it into a future network architecture. Most importantly, it comes complete with a powerful service composition tool, Easy Virtual Composer. This provides almost unlimited service creation possibilities via a simple GUI, allowing Network Norway to tailor make individual services to meet the needs of specific customers. This provides the additional differentiation that they need to carve out a niche in their market and build a platform for growth.

However, although at a functional level Network Norway had found the perfect solution, there were still some system requirements that needed to be resolved. Although IP connections will emerge as their network evolves, it is currently largely TDM based; the Virtual PaBX platform is based on SIP and needs to connect IP sessions. This created a need for a media gateway to interface to legacy TDM traffic. Gintel looked at a number of solutions, but selected the Dialogic IMG 1010 to meet this need. The IMG offered several advantages, providing a full range of codecs and strong internal routing capabilities. The most compelling feature in this case was the integrated SS7 support, allowing Network Norway to terminate ISUP traffic directly on the unit without having to deploy separate signalling gateways to perform this task. The IMG offers bi-directional ISUP to SIP translation, allowing the Gintel Easy Virtual PaBX to manage all traffic via SIP.

A further problem was the legacy CAMEL signalling overlay in the existing GSM network. The Virtual PaBX needed to connect to these in order to leverage existing triggers and preserve current investments. Typically, Gintel has achieved this with a PARLAY gateway or other OSA interface, but this was not available in Network Norway's configuration. There are off-the-shelf CAMEL / SIP gateways, but none offered the correct level of granularity required. Gintel decided to create its own adaptation layer between the different signalling protocols and selected the Dialogic MSP 1010 as the appropriate gateway. As support for only a few CAMEL operations and triggers was required, this was a more cost-effective solution to other commercial offerings. Essentially, Gintel used the MSP to create a device known as an IM-SSF (IMS Service Switching Function), as defined by 3GPP

(ETS 23.002.800) for conversion of SIP to CAMEL signalling and vice versa. Support of CAMEL is essential as the system grows, as it avoids the need to terminate all traffic at the platform, which would have serious repercussions for the overall costs.

Finally, the platform had to be able to offer IVR capabilities, albeit only for a subset of the traffic. What Gintel needed was a highly scalable platform that could be controlled directly by the Easy Virtual PaBX application, but which did not require detailed or complex integration. Gintel used a next-generation IP media server to provide full IVR capabilities and provide integration to the emerging IMS architecture. The IP media server can be installed on COTS hardware readily available to Network Norway. It also presents an open, standards-based interface via SIP and VoiceXML that enables rapid but powerful integration to the application. The software architecture means that more capacity can be added easily when required.

The combination of the three network elements solved all of the integration challenges posed by Network Norway. Gintel was able to select components that met specific needs and to determine the level of integration effort required for each, making decisions to create an optimised solution. Each component can be grown in the Network Norway installation, but each can also be deployed in any other network in future opportunities.

Finally, long-term evolution requirements towards the IMS architecture are served by the deployment of a general-purpose SIP application server and the IMS-SSF. The IMG provides an integrated solution to the functions of the IMS-MGCF and IMS-MGWF (IMS Media Gateway Control Function and IMS Media Gateway Function, ETS 23.002.82).

## Results

Network Norway completed their RFI / RFQ process in May 2007 and selected the Gintel proposal for the new Mobile Office Service. By using proven off-the-shelf components and a non-proprietary architecture, Network Norway was able to place the first test call across the network within 6 weeks of placing an order. A full commercial launch was made in October 2007, less than 6 months after completion of the tendering process. Within that time, Network Norway was also able to customise additional services to build on the existing capabilities of the Easy Virtual PaBX and to ensure considerable differentiation for their customers.

It was essential for Network Norway that a solid business case could be created for the new service launch. The components selected for the Mobile Office solution had to be cost-effective from the outset in order to meet Network Norway's demanding conditions. Gintel was able to meet these requirements with its software and the complete suite of network gateways required for the installation, based on the growth projections provided. The network gateways scale from an entry-level configuration to a full carrier-grade deployment, providing a robust platform for future growth from Day 1.

## Network Configuration

