

MVNO Case Study

Core Mobile Network Consolidation and Enhancement with Integrated GMSC

Deployed infrastructure equals service portfolio diversity

While some MVNOs operate without any network infrastructure, others have deployed signalling and media solutions to support a range of call routing options and differentiated service possibilities. Such infrastructure can assist an MVNO diversify its service portfolio and enhance operating margins.

The Challenge

As an example, an MVNO in the Netherlands had deployed infrastructure to support routing of traffic over international VoIP networks. This infrastructure included dedicated signalling and media gateway solutions.

However, as this MVNO evolved its service portfolio, a number of challenges emerged with the architecture. The MVNO needed to support interconnection with its HLR to enable location information to be used in determining call routing decisions, as well as IN prepaid charging integration.

One possible answer to the routing challenge would have been to obtain a Gateway MSC (GMSC), which is an entity in mobile networks with the responsibility of obtaining the location of a subscriber, so that calls from other networks (e.g. PSTN and VoIP) can be delivered correctly. However, GMSC solutions are costly and often provide more functionality than was required in this case.

What's more, the equipment that had initially been deployed was declared end-of-life by the existing vendor. This presented the MVNO with an opportunity to rationalise its core network infrastructure and deploy new, more efficient solutions. Finally, the MVNO had plans to expand into different countries and intended to add more points of

presence (PoPs) to route traffic between its networks. The challenge was to achieve this rationalisation, functional enhancement and, at the same time, to minimise costs.

The Solution

The MVNO approached Squire Technologies with its requirements. After some consultation, the team from Squire Technologies suggested a major overhaul of the core infrastructure while at the same time consolidating the architecture into fewer functional entities.

The Squire Technologies' team proposed the deployment of its innovative NGS platform, which integrates SVI Signalling and Media Gateway functionality into a single entity. This would provide legacy SS7 connectivity to the PSTN network while presenting SIP for onward routing to VoIP networks, and vice versa. In particular, the NGS solution used SIP-I signalling to ensure that all information contained in the legacy ISUP connections was delivered for further processing. The NGS platform could be replicated in each country in which the MVNO opened operations.

In order to enable effective routing of the calls across all networks - for local delivery via the PSTN or breakout via

VoIP to other networks – a centralised Session Border Control (SBC) solution was recommended, which would also provide integration via the Radius protocol with the IN charging system and generate xDRs for online charging and metering. The SBC used information in the SIP-I data from the NGS platforms to manage all call processing and routing.

Additionally, Squire Technologies implemented a subset of GMSC functionality and activated this element in the SBC. This enabled the SBC to interrogate the HLR database with a “Send Routing Information” message (SRI query) via SCCP over IP. With the centralised SBC solution in place, each PoP could route all calls to a single session control platform that would intelligently process the traffic and determine the appropriate destination and activate charging procedures. Calls can be routed within the originating PoP, sent to another PoP in the same network, or transited to other peered networks.

Results

Once the upgrade had been completed, the MVNO was equipped with a flexible, scalable IP core for routing its traffic. Locally, in each PoP, it had secure media and signalling interconnection via TDM and SS7 to legacy carriers, which

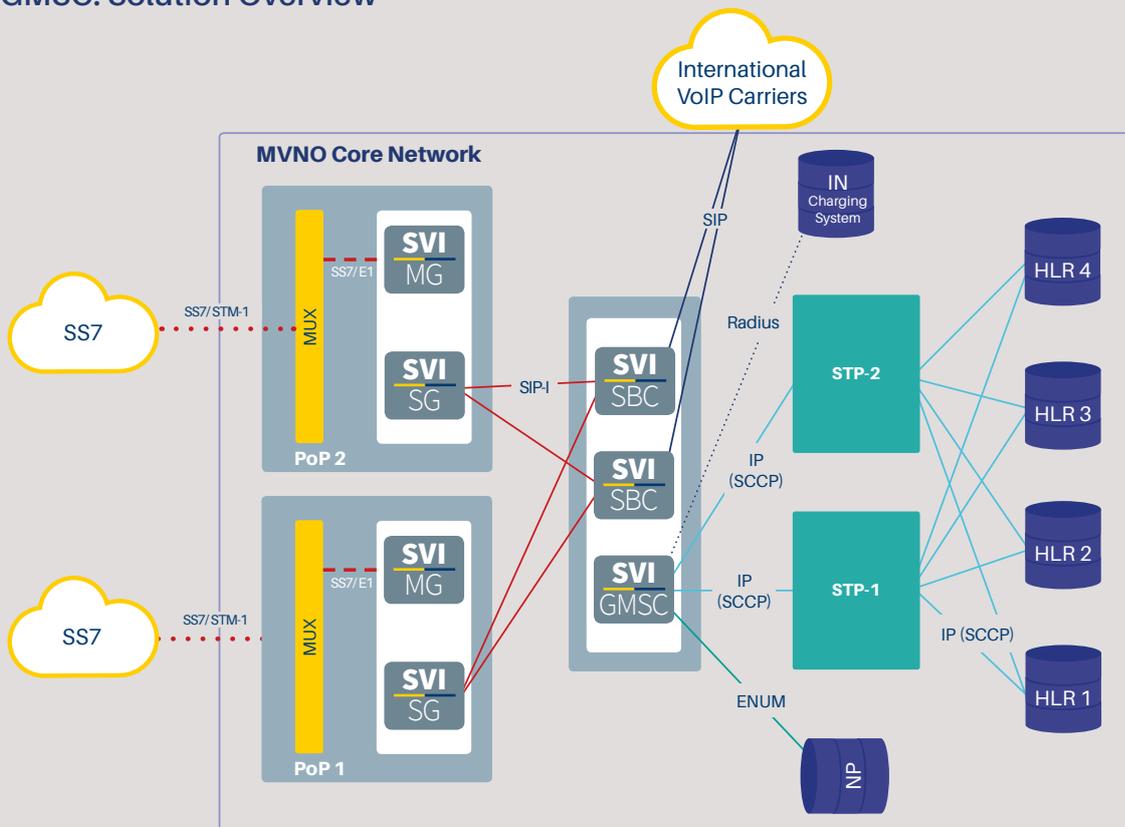
met national interconnection requirements and which could easily grow with increased traffic demand.

By deploying a centralised SBC with integrated GMSC and prepaid charging functionality, the MVNO was able to rationalise its previously complex network and ensure efficient use of network resources. In addition to an efficient means of routing traffic and a centralised IP core, a fully redundant solution was deployed with geographical distribution to support business continuity plans.

The solution provided a secure, robust foundation for future growth but with the flexibility of a consolidated, combined functional architecture. In addition to benefiting from an elegant technical solution to its routing challenge, the MVNO also gained significant CAPEX and OPEX savings.

The solution was more cost-effective than alternatives from traditional vendors and offered a smaller footprint, saving on real-estate costs as well as more efficient operation via the combined platform. In the end, thanks to the expertise of the Squire Technologies team, the MVNO was able to obtain a solution that met their current and future requirements in an innovative way that went beyond its original expectations.

SVI_GMSC: Solution Overview



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