



Mobile Network Operator Case Study

Building a More Efficient Roaming Infrastructure while Controlling Cost

Supporting a complex array of interconnection points

Roaming is a key part of the range of services that a Mobile Network Operator (MNO) needs to support. It's essential to enable visitors to a network to be able to enjoy the same services and capabilities that they do in their home network. This means that operators need to be able to support a complex array of interconnection points in order to ensure that roaming customers can maintain service consumption.

The Challenge

While roaming exchanges can help MNOs achieve this, sometimes they are not the only answer. One MNO in the Pacific region had built a range of roaming interconnection points but they proved to be both costly and insufficient to meet its needs. In particular, it needed to be able to interconnect with a range of international networks to facilitate traffic exchange for its roaming customers.

The MNO needed a solution that would act as a transit gateway enabling it to support multiple interconnection points and establish roaming relationships with a greater number of carriers. It needed to be able to interwork with both ETSI and ANSI versions of SS7. As an island operator, the MNO was effectively running a private SS7 network and needed the additional capability to support virtual point codes in order to facilitate traffic exchange between its and external networks.

It would have been possible to solve the specific interworking and routing issues but typically the functionality to achieve this is part of a much larger and hence more costly solution. The MNO was concerned about cost escalation and ensuring investment efficiency. There was a risk that the MNO would obtain a solution that was over-specified for its

needs, wasting valuable resources and being locked in to an expensive platform

The Solution

Instead, the MNO project team conducted a thorough review of vendors and, through online research, found Squire Technologies. The team of experts at Squire Technologies was able to analyse and understand the problem and provide a solution, based on its proven SVI SG (Signalling Gateway) product that enabled the MNO to solve its challenge.

In this case, the team was able to identify and integrate four key functional elements into a single solution:

- SS7 interconnection with multiple networks
- Virtual point code support to maintain network privacy
- SS7 over IP interworking
- SS7 ETSI to ANSI conversion

All of these requirements could be enabled with the SVI SG, which provides secure, robust SS7 interconnectivity between different networks. By activating STP (Signal Transfer Point) functionality, the SVI SG was able to act

as a secure point of interconnection between multiple different networks. The STP function means that the MNO can use virtual point codes to preserve its network while interconnecting with other carriers and public SS7 nodes. The STP transmits messages to the appropriate destination with reference to secure routing tables that can be extended when required to include additional networks.

The SVI SG also supports backhaul of SS7 signalling using IETF SIGTRAN, enabling interconnection between IP-based SS7 networks as well as TDM. This ensures that the MNO can interconnect with any NGN or legacy provider, with the result that it maintains the broadest set of options for interconnectivity.

Finally, interworking between ETSI and ANSI SS7 variants was offered, which means that the MNO can deliver traffic to carriers that support different versions of SS7 signalling.

Results

Squire Technologies delivered to the MNO its innovative SVI SG SS7 Signalling Gateway product, which has a range of optional enhanced features more normally provided in complex and costly SS7 network STP solutions.

The deployment, which met a number of challenging requirements, highlights the versatility of Squire Technologies' solutions and the SVI SG is now a core component of the MNOs roaming capabilities.

Scaling to 256 SS7 signalling links in a single chassis and up to 512 signalling links in a full dual redundant/ high availability system, the Squire SVI SG is a reliable, robust solution that enables operators to route SS7 messages efficiently and securely. It supports backhaul of TDM SS7 messages using IETF SIGTRAN standards, ensuring full compatibility between IP and legacy networks. The integrated STP function enables efficient message routing and supports virtual point codes for private SS7 networks.

With the solution in place, the MNO can ensure that it delivers a full suite of roaming services to its customers and achieves optimal routing efficiency. By combining multiple core functional elements into a single solution, Squire Technologies offered a solution that saved the MNO considerable cost and provided rapid ROI. The flexibility of the SVI SG and the expertise of the Squire Technologies team enabled the MNO to solve its challenges, while providing a future-proof solution to meet future growth and emerging requirements.

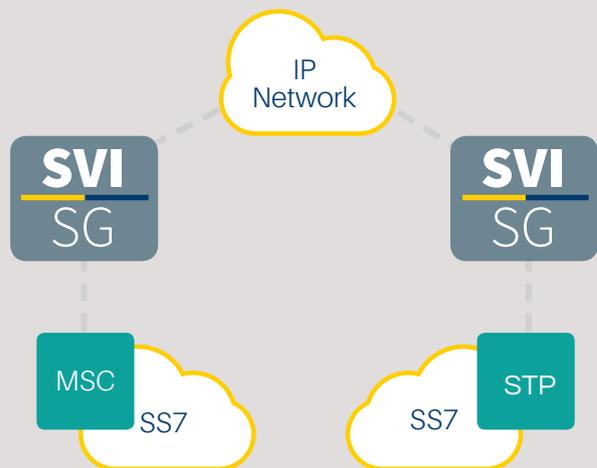
SVI_SG: Product Overview

Features

- Comprehensive web GUI/CLI interface
- SS7 backhaul support over SIGTRAN
- TDM SS7 interconnect into VoIP architecture
- Up to 512 Signalling Links
- Lower cost per E1/T1
- SS7 Protocol Tracing
- SIGTRAN M2UA, M2PA, M3UA and SUA support
- Dual Redundant Architecture
- Network Management over SNMP
- Fully featured OA&M interface
- Remote configuration and control
- High speed links
- Low Speed links

Typical SS7 to IP Deployment

The SVI-SG SS7 signalling gateway can be deployed to replace expensive dedicated longhaul SS7 links by backhauling the SS7 signalling over IP.



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