# JSC INGENIUM

# Case study: «Advanced Platform Migration Solutions»

## Case study

### Introduction

In 2014, JSC deployed its **Ingenium CORE R3** Network Infrastructure for an MVNO, based and operating in Spain -we can give no further details due to contractual confidentiality - who was interested in upgrading from being a Light to a Full MVNO. The MVNO provides its services from the same Infrastructure as its Host Operator and has a base of over 200,000 subscribers.

During deployment of the new network infrastructure, the previous customers of the MVNO, which operates on its Host Operator's network infrastructure, coexisted with the new clients that were added straight onto the new platform.

### The challenge

The condition required by the MVNO was to perform the migration of all subscribers operating on the Host's old infrastructure to the new JSC Ingenium Core Infrastructure, **without having to change their SIM cards and without affecting the service at any time**.

For security reasons, the authentication keys of the subscribers resident on the Host's original platform were not accessible and therefore could not be exported to JSC Ingenium's MVNE. During the migration period, the new infrastructure also had to be able to charge the services for subscribers resident on the original

platform, and as far as possible monitoring their services so that the interfaces used in the self-care and customer service portals were uniform.

In addition, MVNO had in its roadmap the need to quickly develop the new 4G service in collaboration with the host operator

## Solution

JSC Ingenium rolled out its HLR Proxy solution, a completely innovative solution designed to enable the MVNO in order to:

a) Continue using the old SIM cards while keeping the same IMSI. To solve the authentication problem, the solution is able to use the original host's AuC infrastructure to validate subscribers.

  o No need to change the SIM card

  o No need for OTA updates.

  o No service affectance.

b) Provide a service to all its subscribers regardless of the platform where their keys are located.

## Technical description of the operation

1.  *Registration of previous subscribers.* JSC Ingenium's HLR Proxy solution is based on reusing the MNO's AUC -Authentication Center-.
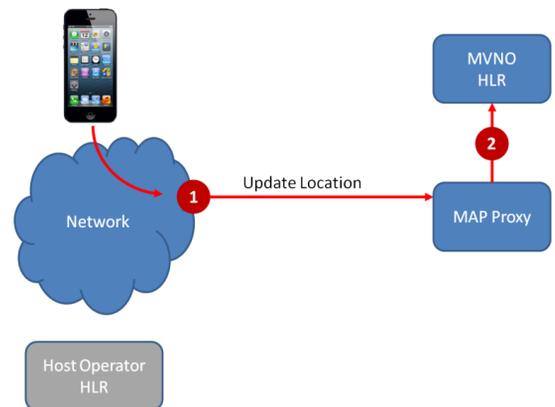
    - The MNO's network is configured to route the entire range of the old subscribers' IMSIs towards the MVNO's network.

    - When an old MVNO subscriber attempts to register (MAP SAI), the MVNO's HLR Proxy identifies the IMSI as an old subscriber, and forwards it to the MNO HLR

for it to send the subscriber keys and, from that point on, to be able to provide the service following the standard process.
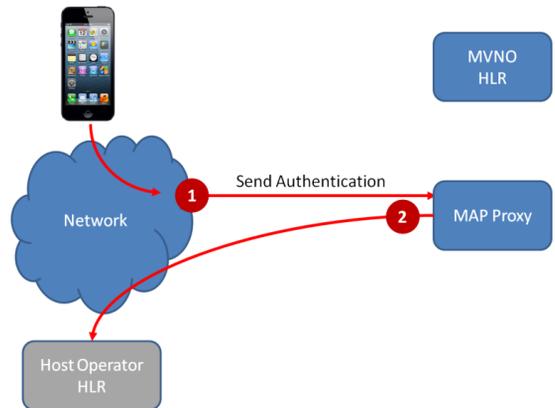


- The rest of the signalling -update location- is sent directly to the MVNO's HLR.



2.  *Registration of a new subscriber*

    - The MNO's network is configured to route the entire range of the new subscribers' IMSIs towards the MVNO's network.

- When a new MVNO subscriber attempts to register (MAP SAI), the MVNO's HLR Proxy identifies the IMSI as a new subscriber, and forwards it to the MVNO HLR for it to send the subscriber keys, and from that point on, to be able to provide the service following the standard process.
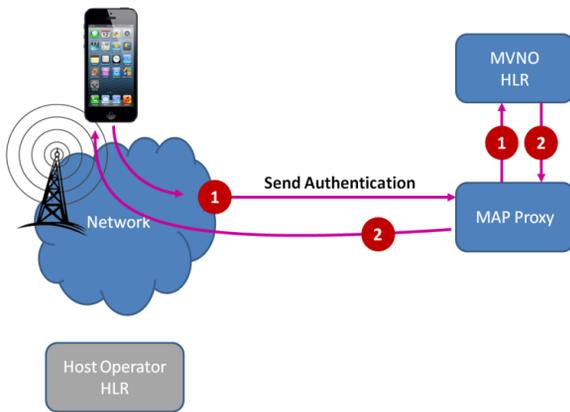


## Advantages

*In terms of business:*

- **Significant cost savings**: There is no need to change the SIM card of all the previous subscribers.
- **Quality of service**: the migration takes place in a totally transparent manner for the subscriber without no affectance on the services provided.
  The MVNO can provide value-added services for all subscribers on the newplatform, regardless of whether the SIM is replaced.
- A scenario of progressive implementation is possible, in which the two platforms coexist and subscribers migrate from the original platform to the new one according

to the business planning (in different phases, for example)

*In technical terms:*

- The migration is completed with no need to change the subscriber's SIM card, or for OTA updates.
- The migration takes place with all the granularity required, and the technical feasibility can be tested with migrations from just one SIM to groups of thousands of SIM or even the entire customer base.
- The solution supports real-time translation of UMTS authentication vectors into LTE vectors.

At the request of the client, and in coordination with the client and its network operator (which remained the same), the JSC team carried out the entire migration in one night.

## Additional Features

-OFCS: The platform includes an off-line pricing system able to re-price information from the CDRs of the Host operator, enabling their integration in the pricing processes selected by the MVNO.

- Soft-Migration: the platform includes a migration process for subscribers that is independent from any portability processes, whereby any subscriber can migrate from one platform to another, and even allowing a change of host **without the involvement of the host operator**.