

Case study

FullMóvil 1st Full MVNO in LATAM



JSC INGENIUM

www.jscingenium.com



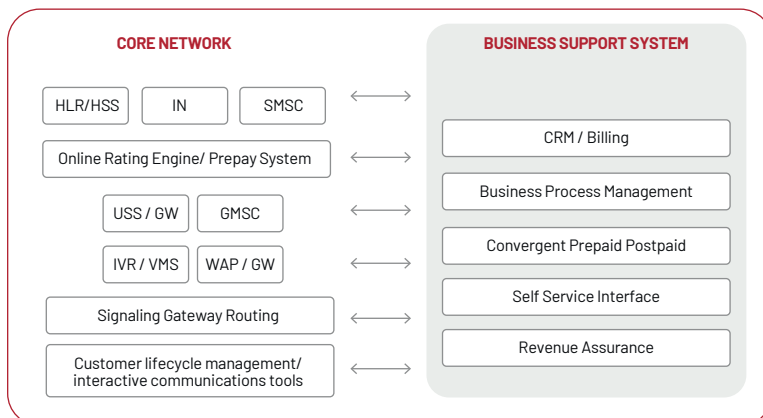
FullMóvil offers telephony services as the first Full MVNO in Latam

Challenge

FullMóvil, part of Grupo Virtualis, company with 100% Costa Rican capital, was launched in September 2011, using the recent liberalization of the telecommunications market, as an **MVNO-Mobile Virtual Network Operator**, in so doing they have come to an agreement with ICE Instituto Costarricense de Electricidad, (which only hire 2G and 3G base stations), so far, the sole network operator in the country. fullmóvil offers mobile telephony services (voice, SMS and

Internet) under prepaid model, to the segment aged 15 to 35 years. It has 500 outlets and over 10,000 charging points.

In order to offer the mobile phone service, and that it can be managed entirely by and for fullmóvil, it became necessary to **implement an integrated BSS and Core Network, as well as the respective interfaces with third parties** (entities recharge carriers SMS and voice call center, ...).



Solución

Virtualis chose JSC Ingenium to implement their BSS solution and core network enabling it to offer mobile services such as full-MVNO with their own HLR, managing their own SIMs and managing all the information of its subscribers.

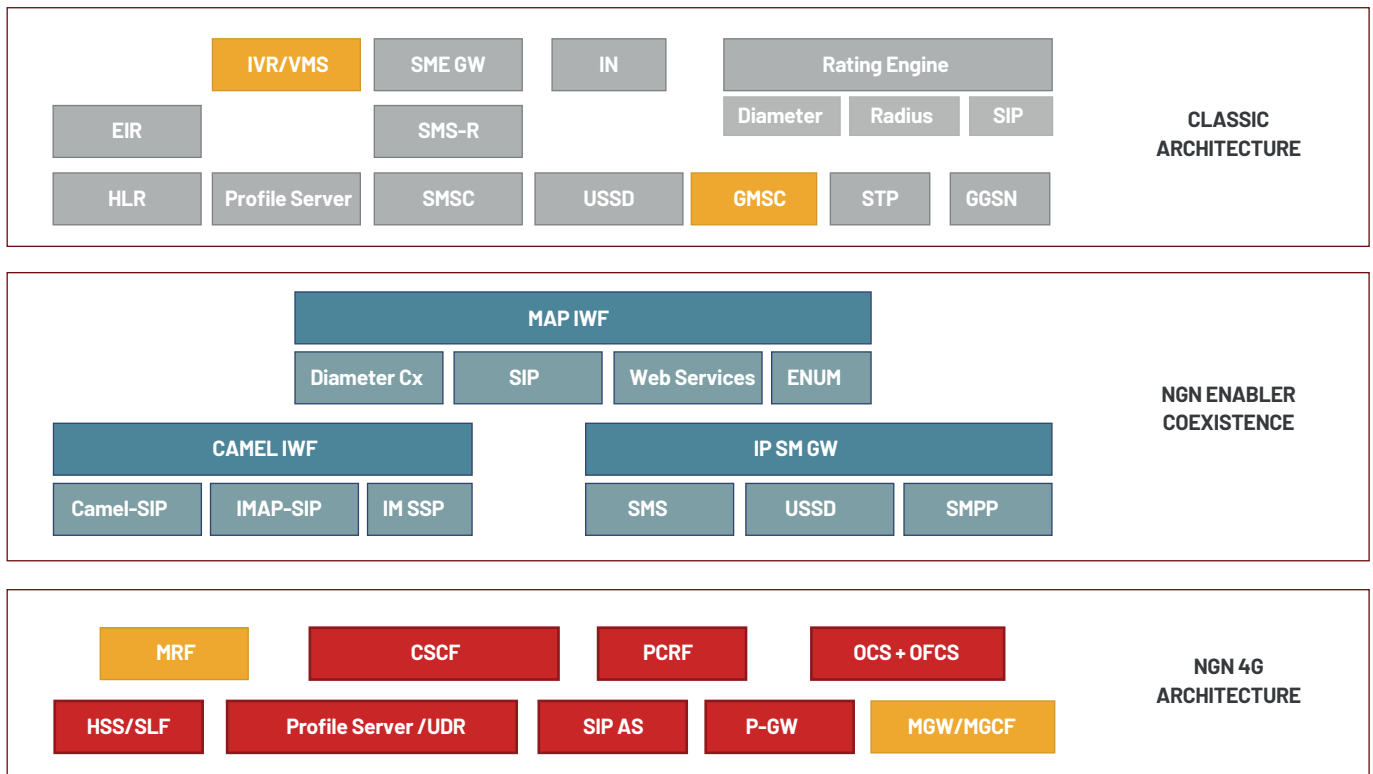
JSC Ingenium technology deploys its BSS and Core Network, Core Ingenium R3- to provide a complete solution both technically and in terms of business.



Core R3 core network provides a highly flexible, capable of adapting to the scenario posed by the operator interface and providing a wide host range of services to fullmóvil. R3 Core engine includes a real-time rating engine - Ingenium ORE- able to tariff prepaid subscribers and postpaid as well as implement trade policies defined by the business areas. Thus, these areas may define a novel and attractive commercial offer for the end user with a greatly reduced time to market. R3 Core is designed to support voice and video over IP using

the SIP protocol, which allows external interconnection between different platforms (such as customer service centers and platforms for value-added services) with very low cost and great versatility.

The **BSS solution** JSC Ingenium brings business acumen and separates the complexity of network management. Thus, the fullmóvil management team can focus on business aspects (clothing campaigns, rates, plans, ...) without risk of impact on the network platform but using its full power.



 Partner integrated Solutions

CORE NETWORK System

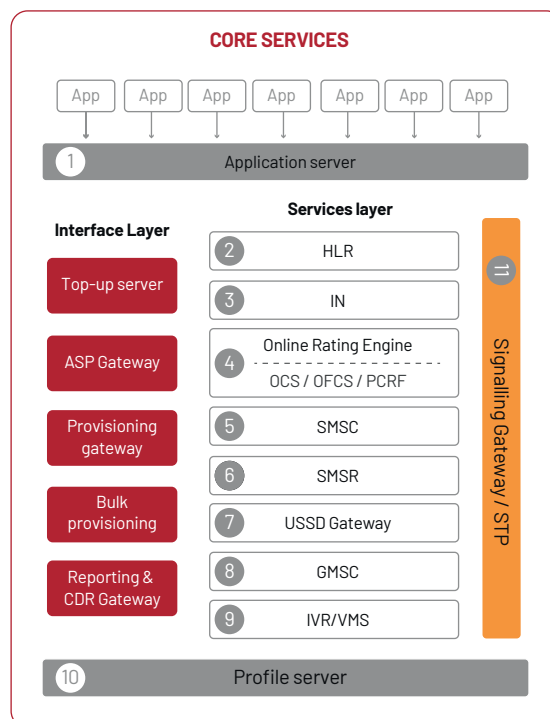
Ingenium CORE R3, is built on the basis of Ingenium Application Engine that supports the functionality of all network elements deployed, HLR, IN, Online Rating Engine, Convergent Billing System, SMSC and USSD GW, ...

The main advantages are:

- its high level of efficiency,

- its ability to integrate multiple services on one platform,
- high availability for Carrier Grade infrastructure development.

Core Network solution developed by JSC Ingenium is structured into the following components:



CORE Featured R3:

ORE -Online Rating Engine-: The prepaid system is fully developed by JSC Ingenium. Among its most important functions are: authorization and validation (ensuring that you cannot provide any service without having previously confirmed that the client can afford it), consumer control, pricing and Forced.

Among its main features, it provides:

- **Extensibility**: the price plans in the charging system, the bundling of offers in a "Rating Pack"

- **Independence:** isolating the technical concepts of business.
 - **Safety:** Ensuring that you cannot provide any service without having previously confirmed that the client can afford.
 - **Extended functionality:** allowing control services may define "stoppers".
 - **Hierarchy:** Define, based on Global Pricing Plan, different pricing plans, many smaller, creating offers much more compelling and engaging for the client.
 - **Standards supported** by Online Rating Engine
 - DIAMETER Gy, Gx
 - RADIUS
- on the same platform for deployment in multiple network scenarios
 - Ability to act as **PCEF**, Charging Enforcement Function Policy - acting under the orders of ORE-Engine Rating Online.
 - Allows application of criteria for handling calls from different information from network nodes and services.
 - It is a powerful extensibility mechanism to deploy advanced services.
 - Routing applications oriented to the customer.

Availability of VoIP technology.
fullmóvil CORE incorporates in its own capacity to manage IP voice from Media Server

IN -Intelligent Network-
Multi-Protocol, Multi Vendor

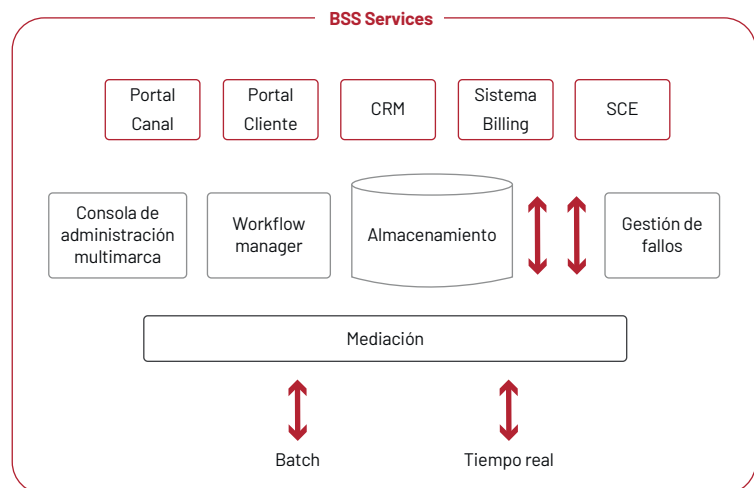


BSS System

Provides an integrated system for managing client, interactive communication tools to real-time management of the characteristics of users in the network, and interaction with the channel.

The main components are:

- CRM
- Customization portals for brands: They allow the client to launch a new brand and manage it completely independent.
- Self-management (self-management).
- Point of Sale
- Distribution logistics
- Billing system to process CDRs / EDRs
- Service Creation System (SCE) for user interaction, integrated with CRM systems and promotions.
- Workflow Manager
- Alarm Manager
- Multi Management Console
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The functional areas covered are:

- Definition of products
- Inventory Management
- Functions to interact with end customers
- Mediation
- Creating invoices (bill finishing)
- Number Portability Management
- Interfaces with sales
- Interfaces with vendors
- logistics
- Interfaces with companies
- "Scoring"
- Tracker
- Mediation layer for external applications
- Fraud Management
- Core Network Provisioning

Technology

Dialogic

A) Signaling Interface Unit HDP SS7 cards that provide the physical interfaces for interconnection with all operators.

B. Low Layer Protocol Stacks which handles all routing mechanisms, redundancy, network management,....

C. IMG Media GW-1010 - . Post: - Flexibility to incorporate low-cost links with organizations such as CRM, companies that want to

interconnect,... - Greater flexibility in the provision of operator that can arise include additional interfaces with external entities via SIP, such as CRM, companies that want to offer telephony services with a direct interface, etc. ..

D. VX Vision 1000. Provides flexibility in the development mainly of voice, audio and video, plus the ability to offer these applications in conventional TDM SIP technology, ..

Advantages

The main advantages of the solution CORE NETWORK / BSS deployed by JSC Ingenium are:

1. A high level of independence:

a. in business management for the technical management, allowing management fullmóvil high, low, services, rates, etc. ..., without relying on the technical team.

b. on Host Operator (ICE Instituto Costarricense de Electricidad-) resulting in a better quality of service for the end user without having to rely on the Host.

2. Great flexibility:

a. in management: to develop their own rate plans, prepare promotional campaigns, bonds, etc. ..

b. to develop new services and / or integrated with third parties.

3. Cost effectiveness:

a. solutions constructed from a very low entry level and a huge scalability.

b. general purpose hardware used in mission-critical.

4. Protection: Red Nucleus and the host operating over management errors.

In addition it will allow:

5. Having the most complete and advanced range of services on the market.

6. Development tailored to the needs of fullmóvil.

7. Incorporate IP services



Result

In mid-December 2011, three months after its commercial launch fullmóvil **reached the figure of 70,000 active lines**, a success in a country like Costa Rica where the liberalization of telecommunications has been recently liberated and where mobile phone penetration is barely 90% of

total lines, making it a clear opportunity for growth in the coming years. Although it is too early to draw conclusions, the inclusion of fullmóvil **as ARPU registered a positive trend with an increase of 25%** which demonstrates the acceptance of service and increased use.

FULLMÓVIL

Fullmóvil is the brand with which Virtualis, Costa Rican consortium participated among others by the chains of distribution and Grupo Monge White House offers services such as Mobile Virtual Network Operator. With an investment of \$ 20 million, fullmóvil becomes the second country on the Virtual Radio Network ICE.

www.fullmovil.cr

JSC Ingenium

JSC is the division of Ingenium Group Telecom specializes in the development and implementation of elements for Mobile Networks. JSC Ingenium provides all the elements "core" required for Mobile Virtual Network Operators, and together with its partners also all elements of management and "billing", thus providing complete solutions. Many of these elements have been developed by JSC Ingenium on a common communications platform.

www.jscingenium.com

Dialogic

Dialogic Corporation is a leading provider of pen systems to both the Enterprise Platforms and Service Provider Markets. Dialogic's Platforms enable converged communications, Allowing service providers, content, and Applications using multimedia processing and signaling technologies.

Headquartered in Montreal, Canada, Dialogic and its subsidiaries over twenty offices worldwide have, local providing presence, knowledge, and support to serve customers around the globe STIs. Dialogic's research and Development Centers are located in Parsippany, New Jersey, Buffalo, New York, London, England, Dublin, Ireland; and Stuttgart, Germany as well as Montreal

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