gslab | GAVS

CASE STUDY

Rapid Development and Deployment of Converged Core with 4G-5G Interworking

Customer Overview

The customer is a large, well-known communications organization in Eurasia offering R&D and engineering services for mobile and broadband communication systems used by commercial network operators.

The Context

Although the customer's primary focus had been on services for commercial network operators in the mobile and broadband communications space, they wanted to transition to MVNO services. To enable this, the customer required their own solution for telecom converged core with 4G and 5G interworking. They also needed a feature rich and stable SGW which could be integrated with their existing MME and PGW; and the inclusion of additional features to make it production ready.

Type of Service Provided

- Product Engineering, Customization of Open Source SPGW
- Functional Testing
- Deployment in Customer Environment

Technologies Used

- C/C++
- 4G CUPS Architecture, 3GPP Specifications

The Solution

After detailed analysis of the pros and cons of commercial and open source cores, GS Lab | GAVS zeroed in on ONFs open source gateways as the base, since they are high performing and support most of the 3GPP call flows. Being a research partner to ONF'S OMEC project, GS Lab | GAVS was responsible for the development, testing, and deployment of these gateways. Having a thorough understanding of SPGW code and 3GPP specifications, the team was able to correctly understand customer requirements and complete the customizations, integration, and testing very quickly. New features such as GUI, CLI, KPI-IMS integration, alarms, and logging were added to make the gateway production ready. The newly developed SGW was successfully integrated with the customer's MME and PGW. The team quickly learned Spirent - the tool used for functional testing – and tested the solution end-to-end.

Challenges

- Need for rich telecom expertise for converged core development
- High cost of off-the-shelf, commercial cores
- High turnaround time for customizations of commercial cores
- Absence of certain features in open source cores
- Required robust stability of open source cores

Solution Highlights

- Decided on ONFs open source gateways developed by GS Lab | GAVS, as base
- Developed converged core with interworking 4G-5G
- Developed feature rich and stable SGW
- Developed additional features like GUI, CLI, KPI-IMS integration, alarms, logging
- Integrated with existing MME and PGW
- Performed comprehensive functional testing with Spirent

Solution Impact

- Empowerment of customer to become MVNO
- Enablement of customer to have their own converged core with interworking 4G-5G
- Highly cost effective solution due to the use of open source gateways as base
- Quick turnaround time for customizations due to indepth knowledge of SPGW code and capabilities

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