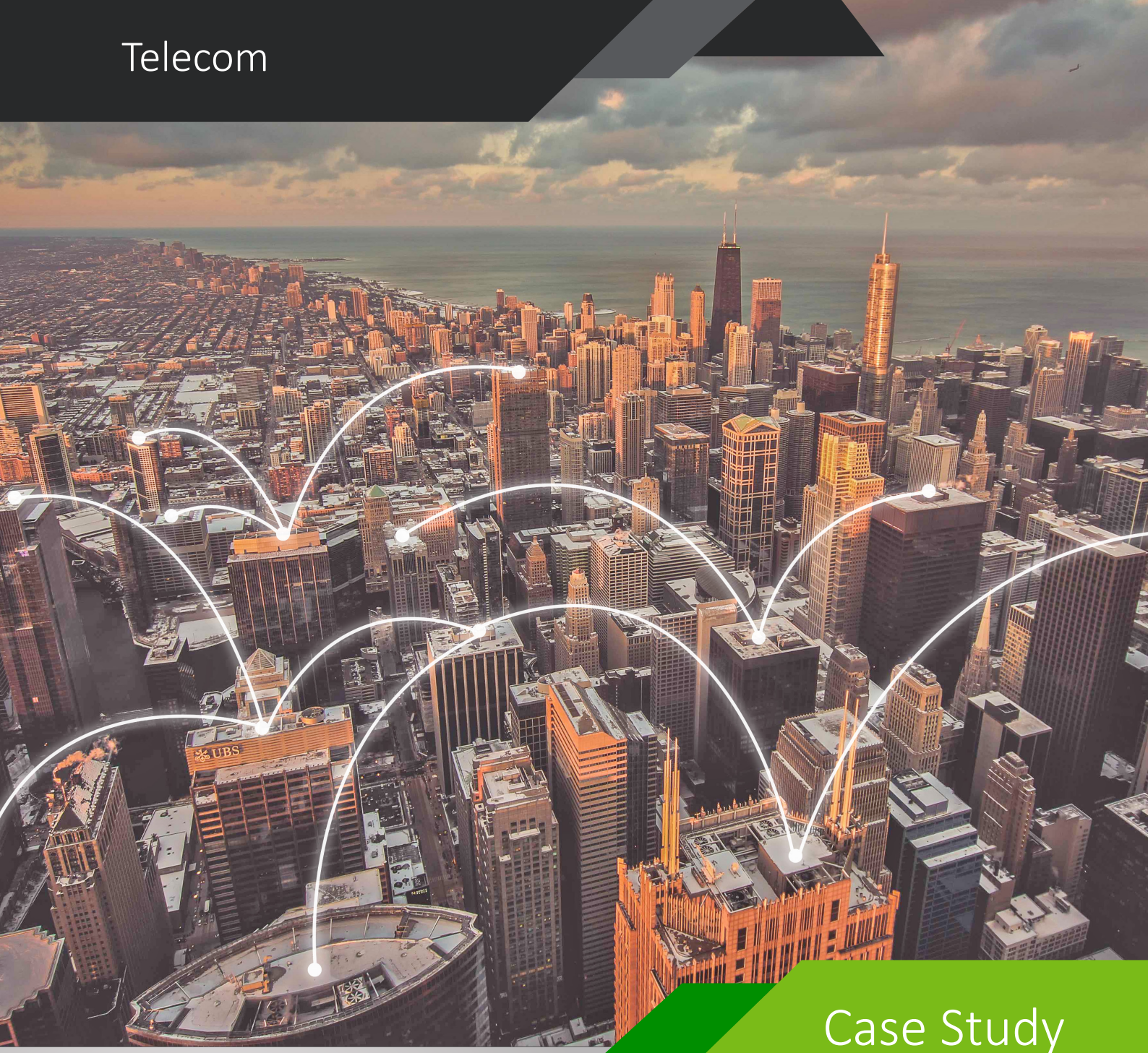
Telecom



Case Study

gslab

Paving the way for 5G using CUPS architecture for a global mobile network operator

MNO achieves scalability while reducing dependency on hardware vendors by implementing open source vEPC

Executive Summary

A lot is changing in telecom industry. Mobile Network Operators (MNOs), Mobile Virtual Network Operators (MVNOs), startups, networking slicing companies and edge computing companies are all innovating at a never-before-seen pace. Leveraging GS Lab's expertise, one of the largest MNOs successfully implemented an open source evolved packet core that achieved scale without intensive capital investment.

Background

If we look at the traditional telecom core, hardware and software are tightly coupled. This monolithic architecture is often controlled by the infrastructure vendor. There is very little flexibility for MNOs and MVNOs to scale up or add more units. Expansion for such vendors comes at huge costs.

Software Defined Networks (SDNs) have therefore started becoming a norm. Our customer is a leading MNO and wanted to use an SDN which would reduce their dependency on the infrastructure vendor.

With the advent of 5G, the requirements of the telecom core have also changed. Our customer decided to implement an open source vEPC to leverage the benefits offered by this evolution.

Challenge

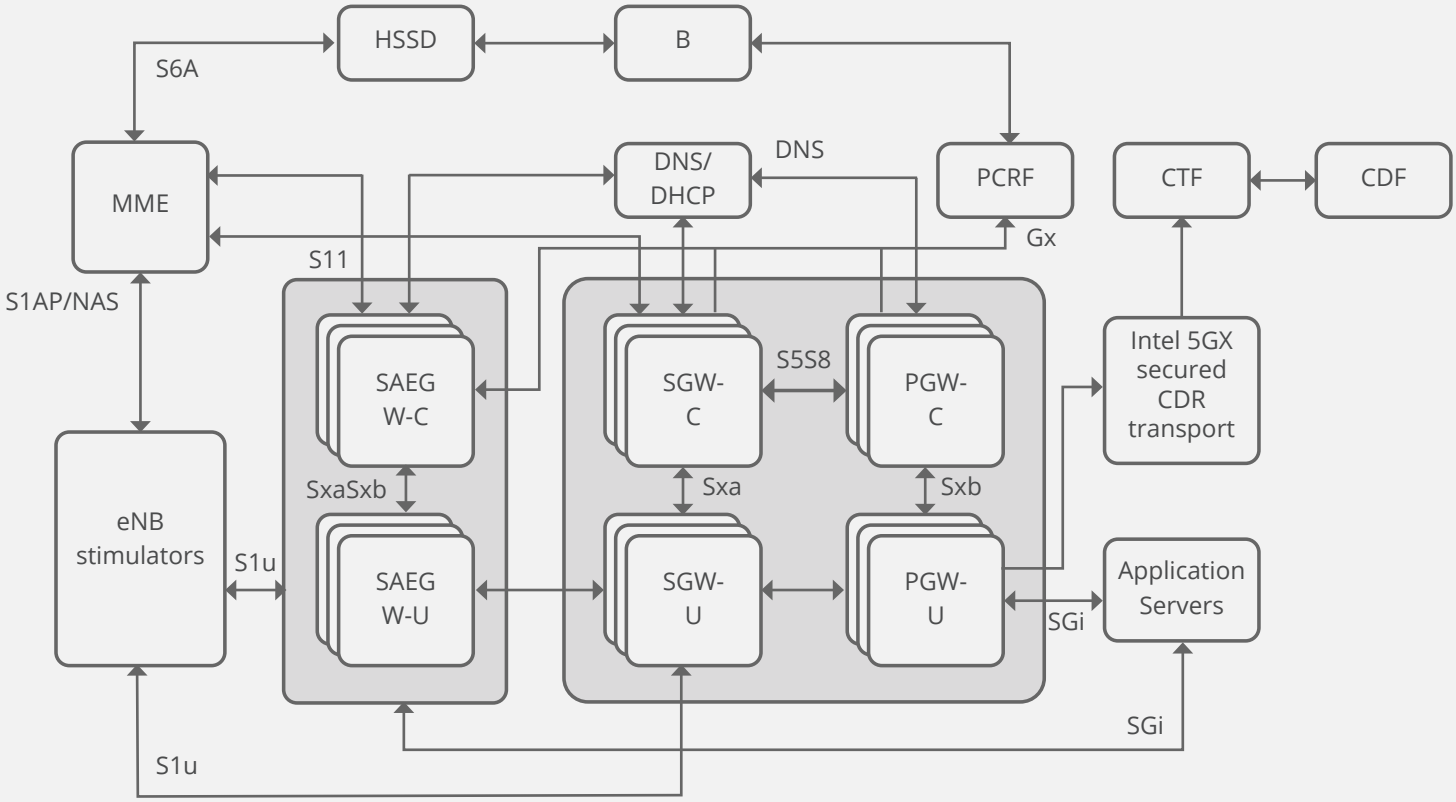
Anything 'first-of-its-kind' comes with a set of challenges:

1. Control and Unit Plane Separation (CUPS) architecture is essential to 5G networks. It allows operators to separate the evolved packet core (EPC) into a control plane that can sit in a centralized location and the user plane that can be placed closer to the application it is supporting. Our customer wanted EPC to be designed with CUPS architecture to allow easy scaling up of operations.
2. They also wanted to implement 3GPP Release 15 compliant LTE EPC. 3GPPP standards are constantly evolving. Release 15 is a first major milestone for 5G. GS Lab needed to understand all the intricacies of this standard.
3. Earlier EPC solutions were very tightly coupled with hardware. Our customer wanted to have an SDN which did not depend on the hardware. This virtual Evolved Packet Core (vEPC) would remove dependency on single vendor and allow scalability.

Solution

Great Software Laboratory had been contributing to ONF's OMEC project and has developed several components. We therefore not only had engineering expertise, but also had clear understanding of the required standards and protocols.

Our solution helped the customer become one of the first MNOs to create the world's first open sourced 3GPP Release 15 compliant LTE EPC CUPS implementation. In many instances, 3GPP specifications were not clear on the behavior of some components like SGW, PGW and SAEGW (combined SGW and PGW). Our expertise in creating EPCs helped us raise multiple change requests with 3GPP specifications team.



Solution architecture

Impact

Reduced costs

Improved scalability

Our core expertise in EPC components and micro-services helped our customer launch a 3GPP compliant '*5G ready*' open source vEPC. This vEPC solution in CUPS Architecture allowed our customer to:

- Reduce lock-in dependencies with EPC vendors.
- Achieve scale without incurring massive costs.
- Decouple hardware and use bare-metal infrastructure.
- Reduce latency on application services.
- Support increased data traffic by enabling addition of user plane nodes without changing the number of SGW-Cs and PGW-Cs in the network.
- Locate and scale the CP & UP resources of the EPC nodes independently.
- Evolve CP and UP functions independently.

Great Software Laboratory (GS Lab) has been the technology partner of choice to 100+ organizations across North America, Europe and Asia-Pacific for over 17 years. Leveraging our expertise in 130+ tools & technologies, we have created 300+ 'first-of-its-kind' solutions to real-world problems. Our 'Beyond code' philosophy ensures that we not only push boundaries of existing technologies but also try out newer problem solving approaches to keep our customers one step ahead of their competitors. Our global team of 1200+ employees is adept at creating 'real value' at each stage of the customer growth journey, right from proof-of-concepts to completely scaled up products. For more information about our solutions & offerings, please visit www.gslab.com