CENGN BUILDS A MOBILE HOME NETWORK TESTBED USING EXPETO'S VEPC

In this project, CENGN deployed Expeto's virtual evolved packet core (vEPC) platform on its cloud infrastructure to build a Proof-of-Concept (PoC) testbed for the CENGN mobile home network. With the addition of Expeto's vEPC solution, the CENGN Cloud Infrastructure will include a functioning mobile core network to be used by small and medium enterprises (SMEs) looking to validate their mobile products and solutions.

MOBILE NETWORK PROJECT OVERVIEW

WHAT'S NEW ABOUT THIS PROJECT?

In our first PoC project with Expeto, CENGN validated the company's technology by running their vEPC in CENGN's bare metal server. In this second project, Expeto demonstrated that their vEPC solution can be launched on top of an OpenStack platform such as the CENGN Cloud Infrastructure. As part of the project, an end-to-end mobile network was built using a programmable radio access network (RAN).

THE IMPORTANCE OF vEPC IN ICT

A virtual core network will allow for secure private LTE networks to be quickly deployed for both urban and remote businesses seeking greater data ownership. The vEPC can help different business sectors to expand their network coverage to remote areas where traditional cellular coverage is not available. This will specifically benefit industries that most need extended cellular coverage like oil, mining, and agriculture.

"CENGN HAS BEEN EXTREMELY HELPFUL IN PROVIDING A PLATFORM FROM WHICH EXPETO COULD SHOWCASE THEIR SOLUTION ON A GLOBAL SCALE. EXPETO IS NOW DEPLOYING SECURE, SMART AND INTIMATELY SCALABLE LTE NETWORKS FOR ENTERPRISES AROUND THE WORLD,"

–RYLEY MACKENZIE, CEO, EXPETO (VICTORIA AND SAN FRANCISCO).

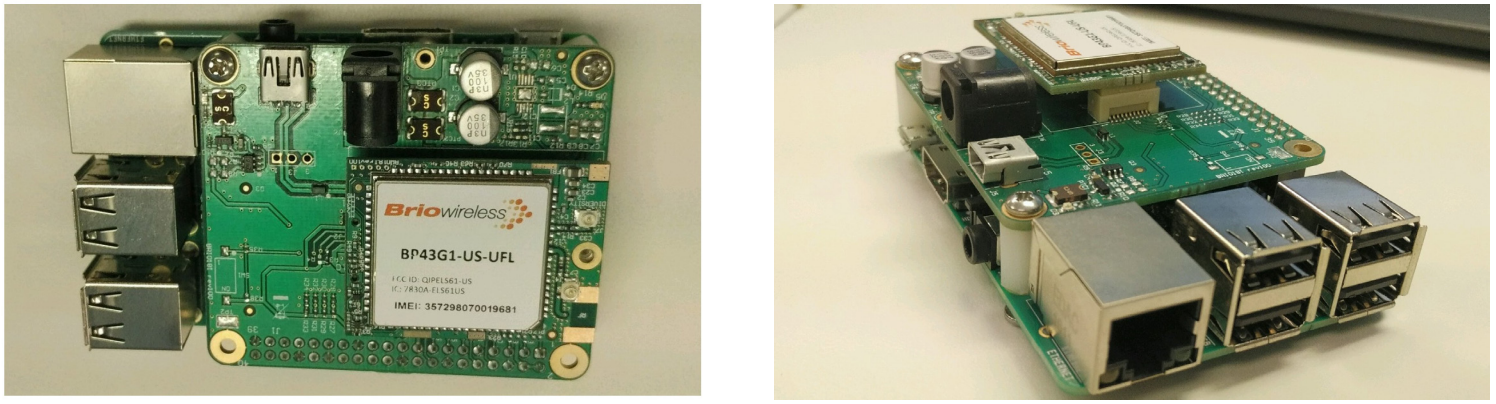

Figure 1. User Equipment (Raspberry Pi with BitPipe Hat Adapter and BitPipe cellular modem on top).

CENGN MEMBERS

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BUILDING CENGN'S MOBILE HOME NETWORK

Three main stages were completed with Expeto to create CENGN's mobile home network.

Stage 1: Implementation of Expeto's vEPC platform as a service (PaaS) solution into the CENGN Cloud Infrastructure.

Stage 2: Construction of a RAN to connect with the vEPC. The RAN was built using the OpenAirInterface (OAI) eNodeB software stack with a Lime Software Defined Radio (SDR) as the radio transceiver. Each piece of user equipment (UE) was built using a Raspberry Pi, BitPipe HAT and BitPipe cellular modem from Briowireless.

Stage 3: End-to-end connectivity of the home network was validated by connecting both of the UEs with each other using the vEPC and the eNodeB.

HOW THE SOLUTION WORKS

The vEPC was implemented into the CENGN Cloud Infrastructure using a Docker container to launch all core network components of the vEPC (i.e., MME, HSS, SGW, PGW). Additionally, a C&C server was installed in AWS and used as a command and control platform for installation and management of the vEPC.

CENGN built its cellular RAN comprised of a programmable hardware eNodeB (the Lime SDR with OAI eNodeB software stack), and the UE. A fabric container was used to connect the eNodeB with the vEPC via OpenVPN, enabling the communication between the core network and the RAN over a secured network.

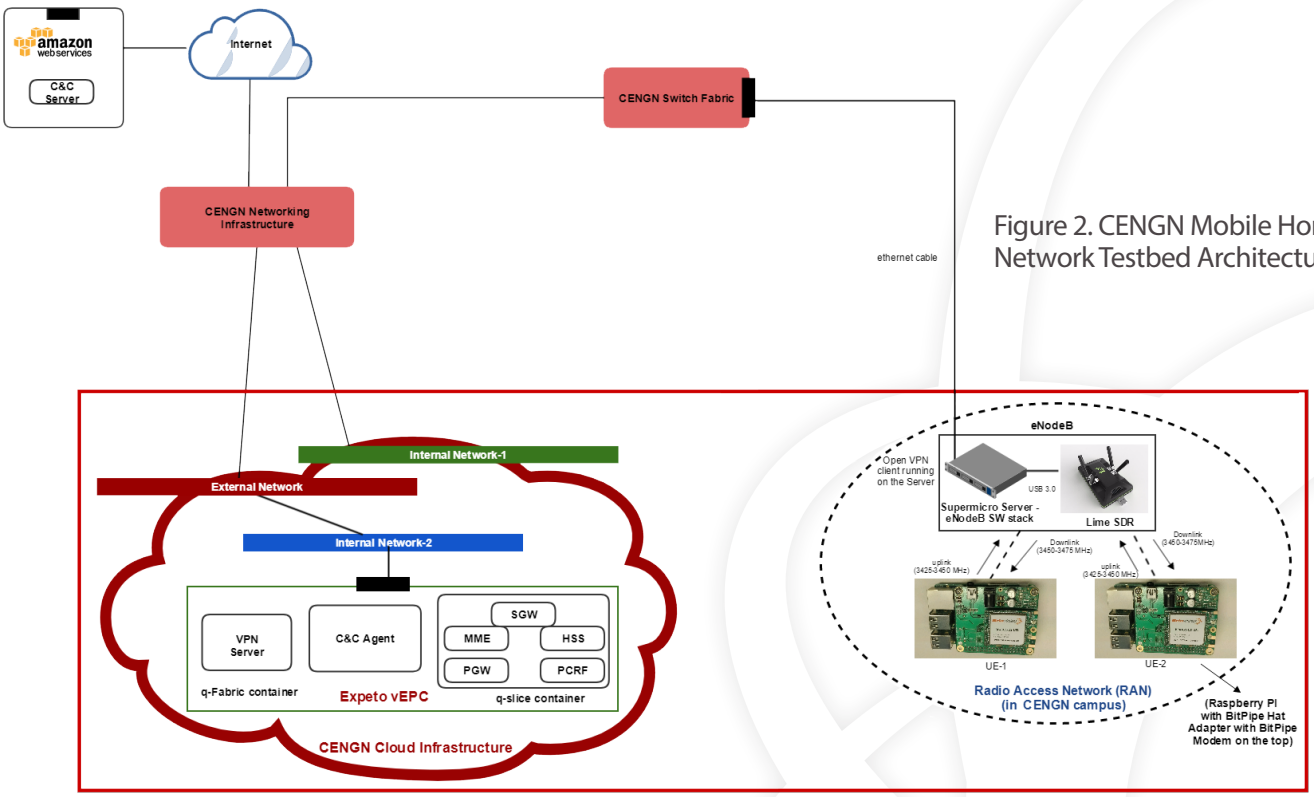

Figure 2. CENGN Mobile Home Network Testbed Architecture

CENGN MOBILE HOME NETWORK

CENGN is now using Expeto's vEPC as an EPC solution for the CENGN mobile home network. With this new addition to the CENGN Cloud Infrastructure, CENGN plans to expand its services portfolio by providing mobile access to Canadian SMEs working in the IoT sector who require cellular connectivity for validating their products and solutions.

CENGN
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