CHARISMA

CHARISMA NEWS

#3 – August 2016

Editorial

Dear Reader,

This is the third issue of CHARISMA News, the newsletter of the Horizon 2020 5G-PPP Project CHARISMA: **C**onverged **H**eterogeneous **A**dvanced 5G Cloud-**R**AN Architecture for **I**ntelligent and **S**ecure **M**edia **A**ccess.

This third edition focuses on the CHARISMA initial iteration of demonstrators, and the dissemination activities that have taken place in the previous months.

I hope you will find the contents of this newsletter interesting. Your comments and suggestions are always appreciated.

Dr. Theodoros Rokkas (INCITES CONSULTING, trokkas@incites.eu), Editor

Project results & activities

CHARISMA Demonstrators

One of the key measurable objectives of CHARISMA includes the building of secure end-to-end pilot demonstrators to provide multi-tenant, multi-user, and virtualized open access infrastructures based on the CHARISMA low-latency and virtualized security developments. These demonstrators will serve two purposes: (i) to test and validate the various enabling technologies for the novel CHARISMA concepts; and (ii) to showcase the low-latency, open access, and virtualized security aspects of the project from the academic/research and industry perspectives.

Selection of three demonstrators showcasing CHARISMA's contributions to virtualized security, low latency, and open access, has required us to analyze and take into account the infrastructure and devices being developed by the CHARISMA partners within the framework of the project's implementation scheme.

The following demonstrator scenarios were chosen aiming to emphasize and highlight the specific added-value characteristics of the CHARISMA architectural concept, and provide a suitable snapshot showcase of the progress of the project after the first year of research:

- **Security demonstrator**
  The security demo showcases the detection and neutralization of a DoS attack originating from a user equipment (UE) and performed over a 5G network using the virtualised security functions (VSFs) that have been developed thus far.

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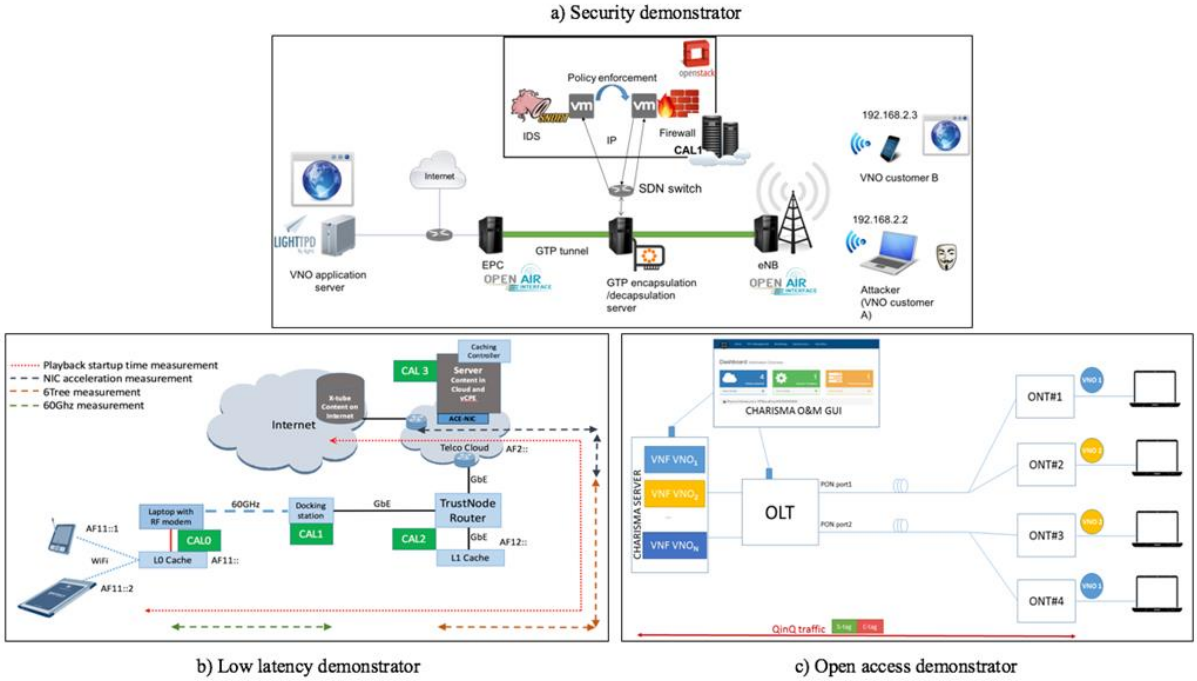

Figure 1: Overview of the three demonstrators

- **Low Latency demonstrator**
  This demo showcases the development of physical access technologies for low latency end-to-end transmission, and low latency access times for a video caching application. We demonstrate a hierarchical and integrated video caching use
  case, with additional low latency physical layer implementation based on 60-GHz wireless and TrustNode routing, located at various CHARISMA Converged Aggregation Levels (CALs) each with their respective local intelligence and data processing functionalities.
- **Open Access demonstrator** This is a showcase of multi-tenancy in open access networks using the CHARISMA control, management and orchestration (CMO) plane being developed within the project. The demo showcases an open access scenario with network (virtualised) slicing isolation, multi-tenancy functionalities and an active node at the Optical Line Termination (OLT) for distributed computing.

Individual experimental topologies have been deployed at three different partner sites in order to accommodate the various needs of the three scenarios. The security demonstrator is co-ordinated by NCSRD and deployed in the infrastructure of the NCSRD lab, Athens, Greece. The low latency demonstrator was co-ordinated by the laboratory of the University of Essex, UK, integrating hardware devices provided by Essex, InnoRoute, Ethernity and JCPC. The open access demonstrator was co-ordinated by i2CAT, Spain, using infrastructure provided by

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ApFutura and Altice Labs and the CMO plane developed by i2CAT.

Dissemination Activities

Website

The website of the project has been updated to make it even more user friendly and responsive to mobile devices.

Figure 2: new website of CHARISMA

EuCNC 2016 conference

CHARISMA was present at the EUCNC 2016 conference that took place from 27th to 30th of June at Athens, Greece. The aim of EuCNC was to showcase the status of research in advanced 5G networking and associated topics.

At the CHARISMA exhibition booth visitors had the opportunity to learn about CHARISMA objectives, discuss with the project experts, and see live the three demonstrators:

O Demo1: Showcase of multi-tenancy in open access networks;

O Demo2: Demonstration of an end-to-end security management automation mechanism for 5G networks;

Figure 3: Security demo at EuCNC 2016

O Demo3: Development of physical access technologies for low latency video caching application.

Dr. Michael Parker presented the paper: "CHARISMA: Converged Heterogeneous Advanced 5G Cloud-RAN Architecture for Intelligent and Secure Media Access" introducing CHARISMA architecture at the general programme (http://www.eucnc.eu/2016/www.eucnc.eu/indexa1ac.html?q=node/154) while Dr. Konstantinos Filis presented a short paper on "5G Use Cases and Requirements" at the Special Session: Designing and Developing a Cloud-enabled "Small Cell as a Service" concept, for Multi-Tenancy and Edge Services in the forthcoming 5G Framework organised by the SESAME project (http://www.eucnc.eu/2016/www.eucnc.eu/indexc0e0.html?q=node/125)

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Figure 4: Low latency demo at EuCNC 2016

Dr. Volker Jungnickel presented the physical layer part of the white paper on Architecture at the International Workshop on 5G Architecture (http://www.eucnc.eu/2016/www.eucnc.eu/indexe1e4.html?q=node/110) and Eleni Trouva presented the "CHARISMA Control, Management and Orchestration platform" at the Workshop on Network Function Virtualisation (NFV) and Programmable Software Networks (http://www.eucnc.eu/2016/www.eucnc.eu/indexda36.html?q=node/120).

1st CHARISMA summer school

CHARISMA organised the 1st CHARISMA summer school "Key Challenges for 5G Networks" that took place from 30th of June to 1st of July 2016 at the faculties of the Department of Informatics & Telecommunications of the National and Kapodistrian University of Athens. The school was also supported by the 5G-PPP SESAME project. More than one hundred students registered to participate in this one-and-a-half-day event, with the event gathering official representatives from ENISA, National Authorities, academia, as well as industry stakeholders, who presented challenges and new trends related to 5G networking. More information and the presentations can be found at the CHARISMA Summer School website

About CHARISMA

The CHARISMA project is funded by the European Commission (Horizon 2020 program) within the 5G Public-Private Partnership (5G PPP) initiative under the grant agreement No: 671704. The project is set to run for thirty months from 1st July 2015 to 31st December 2017. CHARISMA website

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