5G ESSENCE

Embedded Network Services for 5G Experiences

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Deliverable D6.3 (abstracted version)
Integrated Pilot and Evaluation Report for Use Case 2

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Abstract

This deliverable will assess the performance of the 5G ESSENCE platform for public safety communications. Use Case 2 is focused mainly on two different public safety services: MCPTT and Chat and localisation services. First, in this document the final architecture of the testbeds related to the demonstrations will be presented. Then the prototype integration plan (related tests and validations) for Use Case 2 will introduce a comprehensive framework in which the crucial links between the needed components of the project in order to show the potential of the demonstrations will be established.

Finally, after defining the demonstration and validation methodology, MCPTT and Chat and localisation services which are reflecting the features of monitoring and RAN slicing have been presented to the public in the annual B-APCO event. On the other hand, the validation report highlights the performance of the solutions proposed for the Use Case 2. More generally, the goal of this document is to explain step by step the prototype integration, demonstration and validation for the public safety mission critical services.

1.   Conclusions from the Evaluation and Validation

The demonstration evaluated the different UC scenarios considered for the validation of the MCS services of the 5G ESSENCE architecture. Several KPIs has been identified for the scenarios in the identified pilots' demonstrations.

The results are evaluated around several objectives for the PoC demonstration related to the Network Service deployment, slicing capabilities and Service Network adaptation based on the monitored information. The results are based on many evaluations that we can summarise as follow:

- From the Network Service deployments, the tests demonstrated the feasibility of deployed the VNFs and NSD in both environments (Main DC and Edge DC of the infrastructure) providing MCS services to the user.

- From the Slicing capabilities, the tests showed the adaptation of the created slice for the virtual service and adapted based on the security stage identified in the application.

- From the MON, the tests are from registering the metrics from the network services to the alerting about an unexpected behaviour in order to scale it or do another mitigation action.

Every component has been integrated and tested in different use cases with successful results. It is possible to consider that the system works properly.

Apart from the internal validation of integrated components in the 5G ESSENCE architecture between partners in the consortium, several showcases were presented as outcome of the WP6:

- B-APCO Event (Newcastle on 13th -15th of November 2019) attracted successful interest of the visitors to the event with the demo presented.

- During the last (GA) meeting in Egaleo, a demonstration was presented to partners of the consortium with successful results.

- A video will be presented with the major results of the validation of use cases to be showcased as project outcome.

As conclusion, the feedback through the integration tests and the events was successful.

2.   Concluding Remarks from the Final Demo at B-APCO's Event

It has been clear from the demonstration and from the general content of the event programme that there is very significant interest in the 5G technology and about "what 5G might deliver to the emergency services". The 5G ESSENCE project was the first EU-funded project showcased at the B-APCO venue and it was the first point mentioned by the B-APCO President during the inauguration ceremony. Moreover, the project partners have investigated the potential links between architecture and functionalities presented to support public safety use-cases and the ESN network (emergency services network) emerging in the UK[1]. It has been found that this dedicated mobile network infrastructure (largely based on existing deployments of the cellular nodes), which was one of the major topic discussed many times during the event, is at its current funding stage mainly relying upon the 4G compliant infrastructure (of the EE operator extended by dedicated eNBs at the rural areas deployed by the UK government). And although there are capabilities foreseen for portable network deployment (on a vehicle) in places without required infrastructure or where it has been damaged, at the moment 5G is not yet on the roadmap. Still a lot of interest has been expressed towards considering 5G Essence architecture of the two-tier virtualised network in future plans.

This particular B-APCO event is not the main one held annually by the Association and yet it still attracted over 300 visitors. From the feedback received by the project, network slicing is clearly of particular interest as it has the potential to provide dedicated services quickly and in a far more sophisticated way than previous functionalities, such as ACCOLC (Access Overload Control) and MTPAS (Mobile Telephony Privileged Access Scheme), which all have significant operational draw-backs and have been used with varying levels of success in previous cases.
There is no doubt that there is a general hunger in the end-user community for more information and evidence of technological initiatives being delivered on the back of 5G technology.

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[1] Emergency Service Network (ESN): overview
"https://www.gov.uk/government/publications/the emergency-services-mobile-communications-programme/emergency-services-network"

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