

5GMEDE

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Project Websites

www.celticplus.eu/project-5gmede

<https://5gmede-project.eu>

5G Mobile Edge Computing With Enriched Radio Network Information Services

5GMEDE will develop and demonstrate a complete multi-access edge computing (MEC) solution, including a MEC framework, Base Station services and applications to run on top, offering innovative features such as constraint based mobile edge selection or using data analytics to enrich and refine real-time radio network information to improve mobility and enable operators and applications providers to come up with new and improved service capabilities. Performance and eventual gains on energy efficiency of the MEC approach will be evaluated.

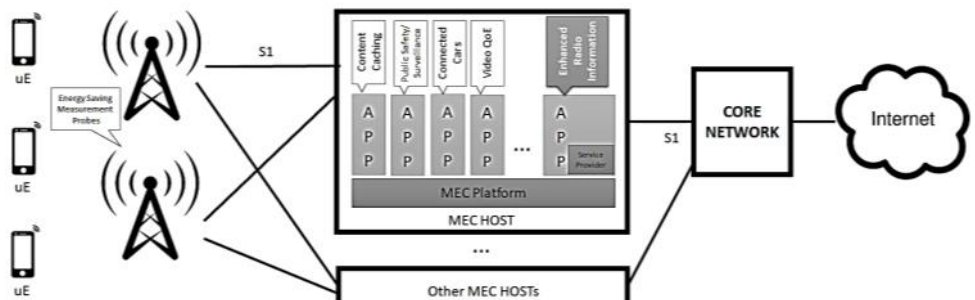
Main focus

MEC is a relatively new paradigm, considered as an enabling technology for 5G. It enables computation and storage capacity at the edge network and therefore its potential to reduce latency in access networks is real. In 5GMEDE, MEC will provide proximity, ultra-low latency, high bandwidth, real-time access to radio network information, location awareness for innovation and value creation. These benefits can be leveraged by applications to create a new value chain, and new revenue streams through agreements with application or content providers. Authorized third-party partners of operators, including application and content providers, can benefit from the radio access network (RAN) edge by promptly deploying innovative services and applications towards mobile subscribers, enterprises and other vertical segments. The project is intended

to develop and evaluate the performance and energy efficiency of a MEC framework that will cover system level and host level capabilities as well as enriched real-time radio network information from the base station.

Approach

5GMEDE will first consolidate MEC user and system specific requirements to design a baseline 5GMEDE architecture that will support a framework to run MEC applications within a mobile network operator (MNO). This framework will cover the central management of the MEC host and applications, and contain the functions to run MEC applications, providing an overall view of the MEC system, services and topology. 5GMEDE will then focus on the deployment of application packages and the preparation of the virtualization infrastructure manager(s) to handle them. Applications constraints and SLAs between the MNO and the application developers will be taken in consideration as well as the application lifecycle management that will cover application instantiation and termination on the MEC nodes. 5GMEDE will also gather real-time radio network information and enrich it through data analytics (e.g. for SDN). In terms of demonstration scenarios, 5GMEDE will, at least, present a MEC caching system where video caches enabled in the edge network will be virtualized and managed by a MEC central manager. The goal is to demonstrate the benefits of service flexibility,



The 5GMEDE high-level architecture

scalability and low service latency. Furthermore, radio network benchmark probes and energy probes will be developed and used to measure network KPIs, estimate end-user QoE based on MOS, and analyse the energy consumption at various base station components, benchmarking different MEC approaches with the non-MEC approach. Throughout the project, dissemination activities will take place to raise public awareness and an exploitation plan devised to link the project goals with the long-term business goals.

Main results

5GMEDE will demonstrate how MEC can minimize latency, reduce backhaul traffic, reduce download times and improve media quality. Along with the demonstration of MEC capabilities and benefits, the outcome of the project will be a complete MEC solution which includes MEC framework, base station services and MEC applications. The base station services include measuring the energy consumption on multiple Base Station components, from the radio, to the controller or combiner. This will enable detailed energy consumption measurements and evaluating the impact of MEC in base station operation. A test bed will be setup during the project to experiment and develop prototypes.

Along with the product develop-

ment, effort will be made on standards activities. Since the consortium is very active in ETSI MEC Industry Specification Group (ISG) standardization activities, consortium will try to contribute project results.

Impact

5GMEDE will enable operators and third-party service providers to come up with new services which as a result not only increase user satisfaction but also generate new revenue streams and save CAPEX and OPEX for the telecommunications ecosystem.

About Celtic-Plus

Celtic-Plus is an industry-driven European research initiative to define, perform and finance through public and private funding common research projects in the area of telecommunications, new media, future Internet, and applications & services focusing on a new „Smart Connected World“ paradigm. Celtic-Plus is a EUREKA ICT cluster and belongs to the inter-governmental EUREKA network. Celtic-Plus is open to any type of company covering the Celtic-Plus research areas, large industry as well as small companies

or universities and research organisations. Even companies outside the EUREKA countries may get some possibilities to join a Celtic-Plus project under certain conditions.

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