5G and next generation mobile Performance compliance testing assurance

5GPERFECTA

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The main objective of this project is to develop a 5G performance compliance testing assurance solution that calculates KPI (Key Performance Indicators) in order to analyze the quality of the services and the underlying 5G network.

Main focus

The main focus is to develop the technology to assure the 5G service quality. For this purpose, a serie of innovation activities is proposed to establish a reference architecture for supervising 5G networks by means of monitoring devices that allow measuring 5G performance indicators in order to evaluate the real performance of 5G networks. The project will develop automated processes, tools and mechanisms ensuring 5G service quality, based on data processing and analytics approaches. The technological innovation fields of 5G PERFECTA project are related to develop a framework for new generation mobile services on beyond 4G mobile platforms, including some 5G performance compliance testing assurance. The proposal is extremely well timed, since the 5G market is expected to boost just at the end of the project, in 2020.

The following figure shows the proposed monitoring architecture for 5G-PERFECTA, structured in three main layers:

Resource Data Collection and distribution: the performance information of the 5G network is collected coming from the available resources, such as 5G network elements, testing units, etc.

Resource Performance Management: this component is in charge of generating the 5G performance data from the resources information according to the KPI (Key Performance Indicators) defined in this project.

Service Quality Management: this component realizes a QoS (Quality of Service) analysis of the 5G behaviour, e.g. in terms of KQI (Key Quality Indicators) calculated from the KPIs to represent the quality of 5G from network performance.

Approach

5G PERFECTA will provide a platform for collaboration between the European actors to be able to take a share of this revenue. The joint efforts will enable European harmonization of 5G measurements tech-
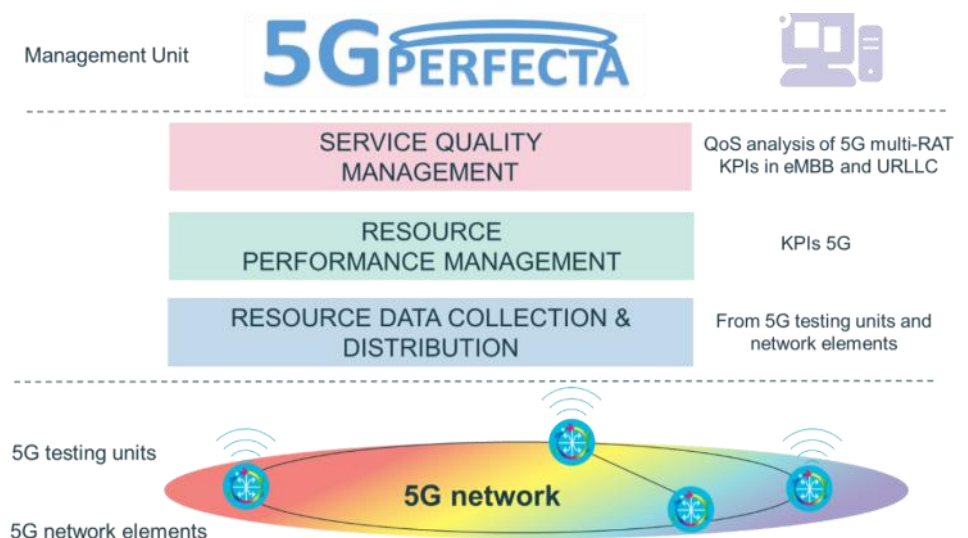
High-level Architecture of 5G-PERFECTA

nologies, which today are not defined yet. The monitoring platform will provide real measurements of several new feasible services over the new generation networks, including beyond 4G and the 5G network, tested on a real infrastructure. There are currently almost no real services measurements of 5G performance, and as a result of this project, these kind of new service KPIs will be available for the first time. These reports will allow to determine the suitability of new mobile infrastructure, including 5G to support next generation applications in mobility, such as remote driving, medical care, logistics, retail, smart-cities, etc.

This new high-performance network need to be effectively tested to assure that 5G technology is actually offered with high the required high quality levels. We propose to develop a 5G performance compliance testing assurance solution that calculates KPI to show the real behaviour of 5G network and services, such as Network and Cell registered, power, geographical location, speed tests, etc. This solution evaluates the new network capabilities and measures the network quality (latency, bandwidth, etc.) to improve customer experience and to validate the launching of new services on 5G, such as video 360, augmented reality, remote driving, IoT solutions, etc.

Main results

The project will provide capabilities that improve efficiency in content delivery by means of user-oriented quality assurance capabilities, which will be able to attend a significant part or the 5G revenues expected for the following years. The outcomes of this project will allow network and service providers to deploy the right 5G infrastructure to run the most advanced video technology business cases before final 5G standardization is complete.

Besides, multimedia delivery over the new generation networks will be the most critical application use case. We need to monitor in real time how the video is perceived by end users under different mobile client devices and using different mobile network configurations and scenarios. So, we will allocate a lot of resources in monitoring and testing how the latency is perceived by end clients, or how the video quality under different scenarios is evolving in terms of subjective video quality of experience, being able to monitor not only bitrates, but also subjective users experiences under the new mobility scenarios using the beyond 4G mobile networks.

Impact

The 5G Performance compliance testing assurance solution will help the Digital Providers (Operators,

Service Providers, Applications Providers, etc.) to evaluate how next generation services are performed on the 5G networks for different purposes: measure of 5G network performance, validate the services on 5G networks, monitor the QoS and QoE, launching of new applications, 5G dimensioning and capacity planning, 5G roaming QoS, etc. In addition, there is a very strong focus on end users in 5G PERFECTA, since they are the real benefiters of the correct behaviour of the 5G network. For this purpose, we will consider the end users perspective in the analysis of the performance of services on 5G networks.

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Public Authorities

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 intergovernmental EUREKA network. Celtic-Plus is open to any type of company covering the Celtic-Plus research areas, large industry as well as small companies

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