MAIN OBJECTIVES

The project vision is to develop cost effective “plug and play” satcom solutions for 5G to enable telecom operators and service providers to accelerate 5G deployment in all geographies and at the same time create new and growing market opportunities for satcom industry stakeholders.

The six principal project objectives are to:

1. Leverage relevant ongoing 5G and satellite research activities to assess and define solutions integrating satellite into the 5G network architecture;
2. Develop the commercial value propositions for satellite-based network solutions for 5G;
3. Define and develop key technical enablers for the identified research challenges;
4. Demonstrate key technical enablers in a lab test environment;
5. Contribute to the standardisation at ETSI and 3GPP of the features enabling the integration of satcom solutions in 5G.

USE CASES (or APPLICATIONS)

SaT5G will focus its efforts on the following key use cases:

- Edge delivery and offload of multimedia content and MEC VNF software, through multicast and caching to optimise the operation and dimensioning of the 5G network infrastructure;
- 5G fixed backhaul, to provide 5G service especially in areas where it is difficult or not possible to deploy terrestrial communications;
- 5G to premises, to provide 5G service into home/office premises in underserved areas via hybrid terrestrial-satellite broadband connections;
- 5G moving platform backhaul, to support 5G service on board moving platforms, such as aircraft, vessels, trains, etc.

TECHNICAL AND RESEARCH CHALLENGES

The technical challenges that need to be addressed for the realisation of cost effective “plug and play” satcom solutions for 5G are:

- Virtualisation of satcom network functions to ensure compatibility with the 5G SDN/NFV architecture;
- Developing the enablers for a converged 5G-satcom virtual and physical resource orchestration and service management;
- Developing link aggregation scheme for small cell connectivity mitigating QoS and latency imbalance between satellite and cellular access;
- Leveraging 5G features/technologies in satcom;
- Optimising/harmonising key management and authentication methods between cellular and satellite access technologies;
- Optimal integration of the multicast benefits in 5G services for both content delivery and VNF distribution.

EXPECTED IMPACT

SaT5G will demonstrate the key role and integration of satellites in the 5G ecosystem by delivering:

1. Integrated satellite-terrestrial solutions meeting 5G KPIs for unserved and underserved regions;
2. Virtualised satellite network architecture for seamless interoperability with 5G;
3. 5G testbeds integrating satcoms for the development of future 5G end-to-end platforms;
4. Global standards to ease the market acceptance of satcom solutions by 5G stakeholders;
5. “Plug and play” satcom solutions established and certified to foster the 5G eMBB roll out.

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