Keynote proposal
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Task Offloading in 5G Multi-access Edge Computing for Vehicular Networks

Vehicles and transportation systems are essential parts of society, being driving factors for the development of vehicular networks and associated services. The vehicular-to-everything (V2X) concept comprises several communication modes such as: vehicle-to-vehicle (V2V), vehicle-to-pedestrian (V2P), vehicle-to-road infrastructure (V2R/V2I), and vehicle-to-network (V2N) (as defined in 3GPP documents). An extension of V2X is Internet of Vehicles (IoV), seen as a global network which includes V2X.

The fifth generation 5G technology is a strong candidate to support the V2X/IoV communications and services. 5G offers highly flexible and programmable end-to-end communication, networking, and computing infrastructures achieving high performance (throughput, latency, reliability, capacity, and mobility). 5G network slicing can serve different classes of applications. Dedicated 5G slices can be constructed for V2X use cases, to meet their special requirements (e.g., low latency, high reliability, security, high throughput, mobility). However, the high dynamicity of the environment, complexity of V2X services, and low response time needed, ask for edge-oriented computing infrastructures.

Multi-Access Edge Computing (MEC) is one solution to provide edge-oriented capabilities as a suitable support for V2X /IoV in 5G environment. The limited resources in edge region of a network and vehicular mobility ask for task offloading. Therefore, the computing offloading technology, especially in MEC context, has received high attention in the V2X/IoV architecture. Several models have been elaborated, trying to optimize the latency, energy, resource allocation in single or multi-criteria solutions.

This keynote presentation provides an overview on the task offloading problem challenges and solutions in edge computing context for V2X/IoV communications and in particular for 5G-Multi-access Edge Computing (MEC) systems.