

Stage : Evaluation of slicing techniques on a 5G experimental platform

Internship advisors :

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Internship description:

The 5G objective is not limited to providing classical telephony services or high speed access to the Internet, but aims mainly at providing a large set of differentiated services, having various requirements in terms of performance and security, for many different industrial domains as health, transport, industry 4.0, etc. In order to efficiently provide such services, 5G network infrastructure leverages on the network slicing concept that takes advantage of the network softwarization approach, as the SDN (Software Defined network) paradigm, and network virtualization.

Performances of applications deployed on 5G networks are closely related to the provided quality of service of the network slicing mechanisms on the network infrastructure. As the design and development of efficient algorithms is aimed at allowing the best quality of services, their evaluation is an essential challenge. Researches led at LAAS notably concern the design of new techniques for optimizing the allocation of wireless resources (avoiding interferences at small and large scales, and increasing the spectral efficiency).

The objective of this internship is then to evaluate on a physical experimental platform the benefits in terms of performance, genericity, isolation, ... of the slicing approach at the physical layer.

Software radio techniques (SDR) are part of the interesting techniques for the experimental assessment of wireless networks, and in particular the open-source software OpenAirInterface platform.

The internship will then deal with setting-up the missing devices on our current 5G experimental platform, and then evaluating the slicing mechanisms proposed in our scientific community.

Required skills: the expected applicant is a master student with skills in computer science and telecommunications, devices configuration, and programming.

Keywords: 5G, slicing, OpenAirInterface, USRP