Modeling of a Software-Defined RAN control plane

Software-Defined Networking (SDN) is a key technology for providing flexibility and programmability in networks. However, in Radio Access Network (RAN) the idea of SDN is relatively new. The first Software-Define RAN (SD-RAN) platforms have been developed where the control of the network is centralized in a SD-RAN controller. However there are no tools to evaluate the real performance of such controllers.

In this master thesis the student will focus on the modeling of the SD-RAN control plane. Specifically, the student should develop a mathematical framework for the behavior of SD-RAN controllers which accounts for user behavior in the data plane and application/services requests in the application layer. The focus will be on the simulation of such a framework in order to be able to stress the controller and correctly evaluate its performance and limitations in a realistic scenario.

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