Deployment of a data plane simulator for real time operation with SD-RAN controllers

Current SD-RAN platforms are only evaluated for small network dimensions due to expensive wireless hardware. However, in order to test the real scalability of the existing solutions a large number of devices needs to be deployed. To this end, an emulation mode for the control and data plane is seen as a potential solution.

In this work, the student shall deploy a data plane user based simulator that is able to connect to an SD-RAN controller in real time through a control plane channel and report user specific statistics. The controller should be able to send signaling information back to the simulator and the effect on the user performance should be measured.

The main goal of this work is to investigate the real time deployment of an SD-RAN architecture and identify potential bottlenecks regarding the control plane signaling and its effects on the users in the data plane.

Prerequisites

- Mandatory programming skills in Python, C++ is a plus.
- Mandatory knowledge about socket programming.
- Knowledge about mobile networks 4G/5G.
- Knowledge about event based simulators is a plus.
- Experience with google protobufs is a plus.

Advisors

Arled Papa