Master Thesis – Improved User-Friendliness in a 5G traffic simulator

Background
In order to ensure high quality of the 5G systems, verification is used in different phases of development. This ranges from verification using static code analysis tools to verification in a full network context. In order to handle the complexity of a full network, a combination of RAN products and simulators is orchestrated. In such a system, the verification scenarios involve thousands of simulated mobiles that are moving between various points over a map performing various traffic actions (streaming data, downloading files, etc.) that trigger actions in the radio access products towards and from the simulated core network.

Designing such simulators is often equally challenging as designing the end products. One key ingredient that impacts the ability for such a setup to test the complex RAN products is generating relevant test patterns. The test patterns consist of selecting a geography, placing radio units on it, defining a number of simulated mobiles phones and associating for each a certain behavior (doing walks between various points and, while moving and thus experiencing different radio conditions, perform phone calls and stream data of various types).

The topic of this master thesis is to understand the testing needs, perform an analysis of the gaps between the existing tools, code development to address at least one important gap and identification of further improvements that will contribute to increase the test coverage.

Thesis Description
The following steps are envisioned as part of the thesis work:

- Investigate how users use the 5G traffic simulator and understand the gap between the traffic modelling GUI and the input required by the simulator.
- Develop code that allows the traffic modelling tool to generate valid input for the traffic simulator.
- Identify and describe at least one improvement that will increase the test coverage.

The thesis will be concluded with a result presentation for Ericsson.

Qualifications
This project aims at Master of Science degree students in electrical engineering, computer science or similar.

Extent
1 student, 30hp

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Preferred Starting Date
Spring 2021

Keywords
Mobile Telecommunication, User-friendliness

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