

Lab Project in DN.Lab

Subject: Implementation of traffic monitoring in a container-based 5G mobile network simulation.

Short description:

Based on the open source projects UERANSIM and Open5GS, a containerized 5G network is simulated that is controlled with Kubernetes. To monitor the network traffic, virtual TAPs (traffic access point) shall be implemented to monitor control data and user data.

Reading:

U. Trick: 5G – Eine Einführung in die Mobilfunknetze der 5. Generation, DeGryter 2020

C. Cox: An Introduction to 5G: The New Radio, 5G Network and Beyond, Wiley 2020

Various references on the web; UERANSIM, Open5GS and kokotap on github.

3 Options for students:

- **Bachelor thesis (BaTIN, BaETNT).**
 - Prototype implementation of a solution based on Docker, Kubernetes and kokotap.
- **Research Project (MaCSN), Research Project (MaTIN).**
 - Research, evaluation of alternative implementation solutions.
 - Selection and prototype implementation of the most suitable solution.
- **Master thesis (MaCSN, MaTIN)**
 - Research, evaluation of alternative implementation solutions
 - Selection and implementation of the most suitable solution
 - Evaluation of the solution, performance tests, monitoring of 5G network slicing traffic

Starting: from October 2022 or later

Interested students please contact Andreas Grebe

Date: 19.9.2022