Mobility Key Performance Indicator Comparison with Real-World Network Deployment Data for Mobile Networks

Master/Diploma Thesis
Studienarbeit/Diplomarbeit

Problem Statement

- The research community normally uses system-level simulators normally to study and analyse the mobile network performance
- Mobility key performance indicators (KPIs) are used to quantify the performance [1]
- These mobility KPIs are modeled elaborately and then aggregated, post-processed and analyzed, e.g., in KPI/UE/min in Nokia's system-level simulator *SONtool* [2]
- However, telecom vendors, e.g., **Nokia**, and operators, e.g., **Vodafone**, define these KPIs all-together differently in their practical deployments.

Tasks

- Understand through system-level simulations how the mobility KPIs are modeled, implemented, collected, and post-processed in *SONtool*.
- Understand how the (associated) mobility KPIs are modeled, aggregated, quantified, and analyzed in practical deployments through data logs (not a *trivial* task)
- Establish a mapping between the SONtool KPIs and practical KPIs to enable a one-on-one comparison.
- Study and compare the relevant KPIs in both the domains in terms of similarities and differences.

Expected Skills

- Solid understanding of wireless and mobile communication
- Experience with Microsoft Excel
- Preferably programming experience in MATLAB

Contact Person

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- Please include a recent transcript of records when contacting

Recommended References

- S. Bin Iqbal *et al*., "On the Mobility Analysis of UE-Side Beamforming for Multi-Panel User Equipment in 5G-Advanced," *in IEEE PIMRC*, 2023, pp. 1-7 [1]
- I. Viering, M. Dottling and A. Lobinger, "A Mathematical Perspective of Self-Optimizing Wireless Networks," *in IEEE ICC*, 2009, pp. 1-6 [2]

VODAFONE CHAIR