

Mobile Network Capacity

Prerequisites:	- basic knowledge of mobile networking
Level:	This topic is appropriate for Bachelor and Master Students
Language:	German or English

INTRODUCTION

5G is coming! But will its capacity be sufficient to serve all envisioned applications and services? Are problems or overloading of the system expected? This the main research question of this work, which is suited as a Bachelor thesis or as a mini project for Master students. Its answer will help us better understand the real requirements of the smart city of tomorrow and to focus better research activities.

PROJECT DESCRIPTION

The goal of this project is to compile a broad list of envisioned Internet-based mobile applications, such as smart connected cities, autonomous driving, entertainment, internet of things, etc. In a next step, the requirements of these applications need to be extracted, mostly in terms of bandwidth and delay. Next, various scenarios need to be constructed with assumptions of how many devices are expected to be present and functional per square kilometre. Scenarios need to reflect large metropolises as well as rural areas from various parts of the world.

On the other hand, an analysis of current 4G and expected 5G deployments needs to be conducted in terms of maximum number of served customers, bandwidth and delay. Furthermore, real-world studies and experiences should be compared with the data-sheet numbers.

As a final step, the scenarios developed need to be compared to the maximum expected capacities of the networks and a discussion to be conducted. In this discussion, it is important to take into account also expected business challenges, such as return on investment for the network operators.

CONTACT

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