Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Institute of Computer Science
Chair of Communication Networks
Prof. Dr.-Ing. P. Tran-Gia

Monitoring and Analysis of Quality of Experience in Mobile Broadband Networks

This work was partly funded in the framework of the EU ICT project MONROE (H2020-2014-ICT-644399, through open call project Mobi-QoE).

MOTIVATION

Mobile network traffic explosion

- In 2016, the average smartphone usage grew 38 %
- Global mobile data traffic reached 7.2 exabytes per month at the end of 2016
- Mobile video traffic accounted for 60 % of total mobile data traffic in 2016

Requirements for the network providers are significantly changing
How to manage customers' traffic in order to maintain high user satisfaction?

QoE MEASUREMENTS

- Quality of Experience (QoE) as a measure for evaluating user satisfaction
- Input criterion for optimizations

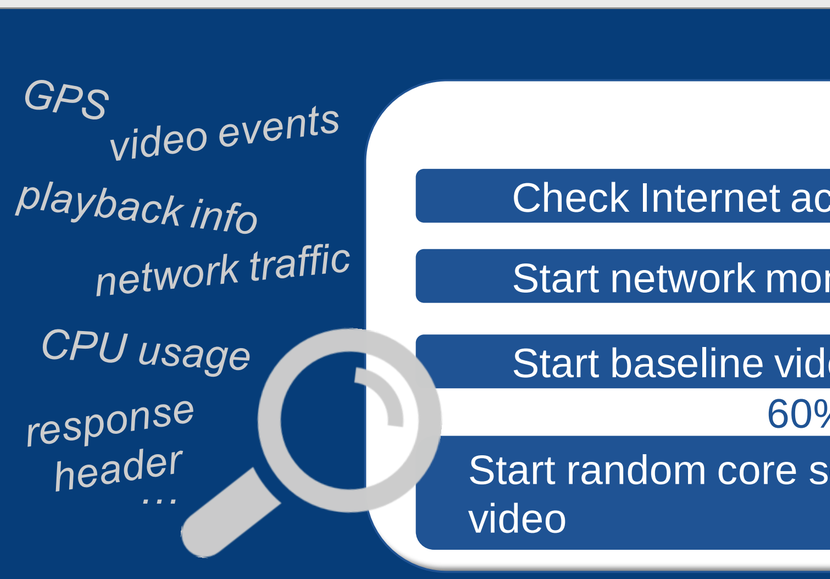
Quality of Experience Measurement Tool

- Run YouTube videos on headless Firefox
- Monitor QoE-related performance indicators on application, network, and metadata layer

First measurements on MONROE platform

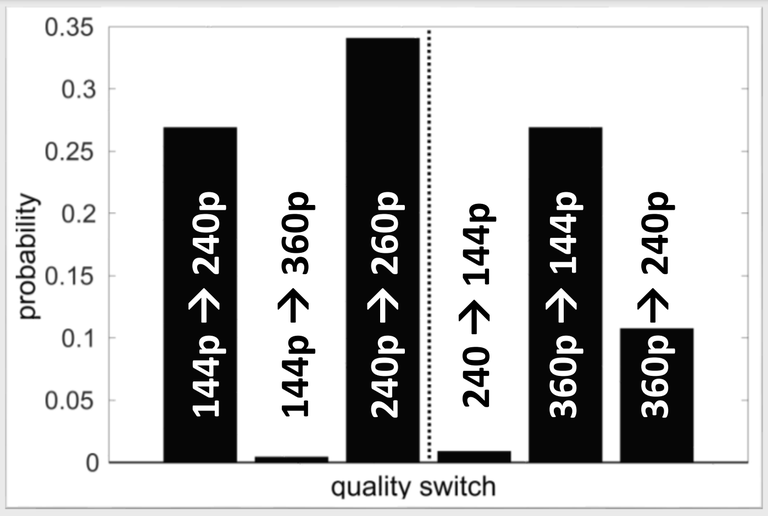
MOBILE NETWORK TESTBED

- Fixed and mobile LTE nodes distributed over Norway, Sweden, Spain and Italy
- Platform to run experiments in Docker containers in mobile networks



Parameters are chosen in such a way that they have a high correlation to QoE

RESULTS: VIDEO PERFORMANCE



→ Study on the adaptive behavior of video streaming in mobile communications

OUTLOOK

- Extension of the measurement tool to monitor QoE factors of other applications like Facebook, Spotify, or usual web browsing
- Investigation of the impact of location, used network operator, and mobility on QoE factors
- Comparison to subjective user experiences received from field trials

http://comnet.informatik.uni-wuerzburg.de

AIT AUSTRIAN INSTITUTE OF TECHNOLOGY

Julius-Maximilians-
UNIVERSITÄT
WÜRZBURG

Lehrstuhl für
Kommunikationsnetze
Universität Würzburg
Am Hubland
D-97074 Würzburg
Tel.: +49 (0) 931 888 6631