Technische Universität München
Chair for Network Architectures and Services
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BA / MA / DA thesis
SEP / Guided research
Student assistant job

MEASRDROID

WHAT DO 10,000 ANDROID CLIENTS KNOW ABOUT THE INTERNET?

Motivation

In recent years, cellular devices pushed into the domain of global computer networks. Most of today's mobiles are capable of browsing the Internet, and beyond that, new types of devices like tablet PCs provide mobile Internet access as well. Unfortunately, for outsiders there is only few information available about the structure and topology of mobile networks, especially with focus on the data exchange to wired computer networks.

To overcome these limitations, a measurement framework based on Google's Android operating system has been designed and developed in previous projects. This framework can be considered productive, and was gathering data for several months. The resulting data set is rich and provides among others data about device hardware, radio cells, network configuration including wifi, transfer statistics and active measurements, location data obtained by GPS and other techniques as well as a comprehensive set of environment parameters like earth's geomagnetic field, acceleration/gravitiy, lighting and gyroscope data. This data sets were repeatedly measured in short periods of time (about every 15 minutes).

There is a broad variety of questions which can be answered out of this data to learn more about mobile networks. Finding and answering such questions will be your task!

Your Tasks

Definition of analysis questions
First, you have to make yourself familiar with the data set. With this knowledge, we will discuss analysis techniques, and evaluate questions which can be answered based on the available data. Note: this task provides much space to bring in your personal interests!

Automated data analysis
After the identification of a set of analysis questions we want to answer, you will have to implement databases or tools to process the data periodically, in order to provide the results to a visualization framework. You may choose your preferred programming language for this task.

Result visualization in web frontend
All results have to be visualized by an easy-to-use web frontend, using modern browser technologies like JavaScript or jQuery. This application should be representative and have a cool look – you have the chance to give it a personal note.

Requirements

- Explorative nature
- Programming skills (scripting, web technologies)
- Evaluation skills (databases, plotting diagrams)

Keywords

Mobile networks, measurements, data analysis, web technologies

Further information:
http://www.net.in.tum.de/en/theses

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