Technische Universität München, Department of Informatics

Chair for Network Architectures and Services
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Thesis B.Sc.

Thesis M.Sc.

Measurement and Analysis of Traffic of Mobile Apps

Motivation

Whenever the monthly traffic volume runs out, a user will experience that some apps will work pretty well, while their related websites may have become unusable. Apps are somewhat different. Their operation is less standardized, they might request access to data that is likely not needed, and so forth. So, their operation and the resulting traffic on mobile devices seems to be less under control than even the one of a web browser. The amount of traffic is also much more relevant as volume-limited tariffs are common in mobile networks. As a consequence, the amount of traffic intended by a user may strongly differ from the unintended traffic that is actually consumed. Unintended traffic may include advertisements, updates, checks for update, usage statistics, data leaks, ... The same is true for the amount of traffic and the transfered information. The destinations of the traffic may also be of interest. How many servers on the Internet are contacted? Do we know the reasons? Similarly, will the traces show hints for potential attacks? As example, an unnecessary amount of traffic from the device to the network may hint to an attack. What amount of data is leaked?

Your Task

- Overview over related work
- Determine a set of apps to study (Android and/or iOS) and a set of metrics (e.g. number of contacted servers)
- Perform a set of experiments in our lab sniffing the WiFi traffic
- Compare app vs website with similar functionality
- Compare entropy of displayed information with actual traffic size
- Determine encrypted and unencrypted parts of the traffic
- Determine a number of traffic metrics and assess their meaning
- Classify traffic into different types of traffic
- Discuss impact of WiFi vs Cellular network on your work

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