

Tomography of Whatsapp In- frastructure

Motivation

WhatsApp is being used daily by hundreds of Millions of people all over the world. While WhatsApp originally offered only a messaging service, it now also allows to make voice and video calls and to send voice messages. The QoE (Quality of Experience) of all these services is typically astonishingly good. However, very little is known about how this high quality is achieved. The WhatsApp application can be treated as a “black box”. We aim to find out how WhatsApp works by observing the communication (data exchange) between the two endpoints, and by investigating the behavior of WhatsApp under changing conditions. In this project we want to insert an active observer between the two endpoints that not only allows to (i) observe the communication behavior of WhatsApp, i.e. how many parallel connections at what data rates etc. (ii) but also allows us to modify the data rate, end-to-end delay and loss rate in order to see how the QoE is affected. Additionally, we want to understand to which infrastructure the WhatsApp application connects to. For these experiments, the experimental infrastructure from the testbeds of our chair will be used, and a specific test setup will be created.



Your Task

- Familiarize yourself with our testbed infrastructure
- Set up a testing environment for a WhatsApp client and record traffic data under varying conditions
- Analyze the recorded traffic and understand the WhatsApp infrastructure and the impact of environmental network conditions

References

Vivisecting WhatsApp in Cellular Networks: Servers, Flows, and Quality of Experience, Fiadino et al., 2015

Requirements

Skills required: Good knowledge of networking, Linux environments and Internet infrastructure.

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