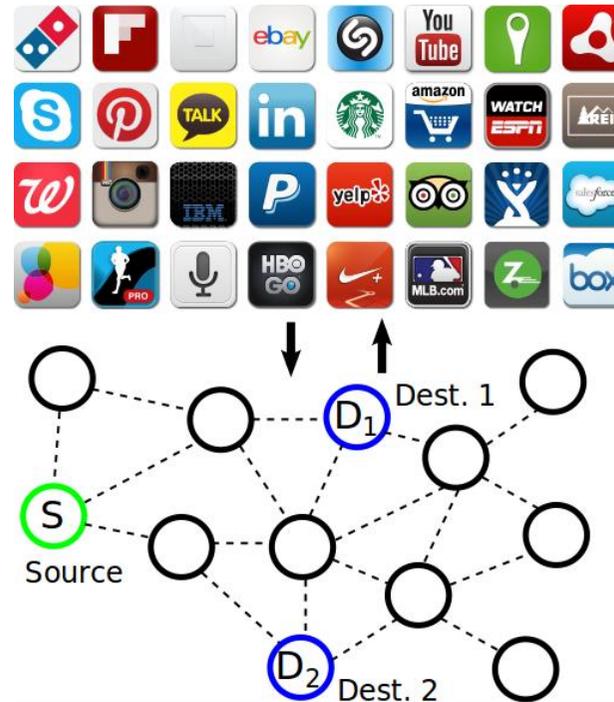


Bachelor/Master Thesis User's Preferences Deduction in Underlay Wireless Networks Using Self-Explicated Approach

Advances in electronics and signal processing have triggered the telecommunications industry to flood the market with high technological mobile devices, e.g., smart phones and tablets. These devices are capable of running many emerging real time services such as live video streaming, interactive gaming and video conferencing. System developers always aim for the best of the system performance, i.e., the highest data rates, lowest latency and minimum battery consumption, to be offered to the users. However, delivering services with these high requirements may not be possible or at least challenging. On the other hand, these high requirements may not be actually demanded by most of the users. For instance, a user who plays mobile gaming needing a low latency connection while a user with a video streaming service needs high data rates. Moreover, there are users who have their battery consumption of the highest priority regardless of the type of service they can get. Therefore, different users



have different preferences based on their behavior, location, age, occupation, etc. If these preferences correctly deduced from the users and analyzed, they can be exploited in optimizing the future wireless networks efficiently.

This work focuses on depicting the actual user preferences in terms of the underlay parameters such as data rate, latency and battery consumption. These parameters are purely technical and users do not usually have a general sense on judging the implications of these technical parameters on the services they usually use. Accordingly, a pre-step of simplification or translation need first to be done. Then, a questionnaire based on the self-explicated method (SEM) has to be created. Standard software for creating efficient SEM designs and for putting the questionnaire online is available. In a second step about 120 subjects have to answer the questionnaire (the supervisors can provide help to get access to an adequate sample) and finally the candidate has to analyze the data and derive meaningful implications for the design of wireless networks.

The thesis is jointly supervised by Prof. Anja Klein (FB18) and Prof. Dr. Oliver Hinz (FB01).

Reference:

[1] M. Bytom, "Analyzing users' preferences in mobile wireless networks using the self-explicated approach", Master Thesis, Technische Universität Darmstadt, Sep 2016.