TU Clausthal

Diplomanden- und Doktorandenseminar
des Instituts für Informatik

A Tool for Computing Stable Topologies in Mobile Ad-Hoc Networks

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Mobile ad-hoc networks are flexible, spontaneously forming and purpose driven networks that do not rely on an existing infrastructure. They allow for the communication of heterogenous mobile devices under various circumstances. To leverage their full potential however, it is essential to address issues like, for example, security, privacy, usability and routing in general.

This work builds upon a game-theoretic approach to model stable topologies in opportunistic networks, which can be directly applied to mobile ad-hoc networks, thus allowing users to impose constraints on the routing process.

In this work we investigate the technical feasibility of two different game-theoretic solution concepts, namely Nash and strong Nash equilibria, for characterizing stable topologies in the context of a simple scenario of multiple users boarding a train and sharing their internet connection. Ultimately, a prototypical implementation is provided, consisting of naive algorithms for both concepts and a more sophisticated algorithm to compute stable topologies.

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