

CHIANTI: Robust Mobile Communication in Challenging Environments

Jörg Ott and Dirk Kutscher
Helsinki University of Technology
jo@netlab.tkk.fi

The Internet protocols were designed to provide end-to-end connectivity across heterogeneous networks, yet primarily assuming a "fixed" and rather static network environment. Mobile wireless communication has fundamentally invalidated many aspects of these assumptions, for (heterogeneous) wireless access networks and even more so for mobile ad-hoc networks formed between mobile users. This results in challenged networking environments, facing unpredictable and frequently changing connectivity (capacity, error conditions, delays) and node constraints (energy, computing and storage resources), among others. These challenges lead to application failures due to disconnections, IP address changes, and/or performance serious impediments. The CHIANTI project addresses these aspects for the near-term by defining a system and protocol architecture with application-independent and (optional) application-specific components to improve the user-perceived application performance and robustness for a wide range of nomadic and mobile scenarios. The CHIANTI approach is incrementally deployable and supports different players and business models.