Large-Scale Synthetic Social Mobile Networks with SWIM

Abstract:

This paper presents small world in motion (SWIM), a new mobility model for ad hoc networking. SWIM is relatively simple, is easily tuned by setting just a few parameters, and generates traces that look real-synthetic traces have the same statistical properties of real traces in terms of intercontact times, contact duration, and frequency among node couples. Furthermore, it generates social behavior among nodes and models networks with complex social communities as the ones observed in the real traces. SWIM shows experimentally and theoretically the presence of the power-law and exponential decay dichotomy of intercontact times, and, most importantly, our experiments show that predicts very accurately the performance of forwarding protocols for PSNs like Epidemic, Delegation, Spray&Wait, and more complex, social-based ones like BUBBLE. Moreover, we propose a methodology to assess protocols on model with a large number of nodes. To the best of our knowledge, this is the first such study. Scaling of mobility models is a fundamental issue, yet never considered in the literature. Thanks to SWIM, here we present the first analysis of the scaling capabilities of Epidemic Forwarding, Delegation Forwarding, Spray&Wait, and BUBBLE.

Ph: 9585554590, 9585554599
Email: support@salemsmartreach.com
URL: www.salemsmartreach.com