



Illinois Center for Wireless Systems

ICWS Seminar Series



Updating Content Over Mobile Social Networks: Models, Algorithms, Open Problems

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Abstract: The proliferation of mobile phones and other portable devices with increased storage and local wireless communication capability creates a new networking environment for peer-to-peer applications. In such mobile opportunistic networks, users can take advantage of local contacts to exchange content (e.g., using Bluetooth or WiFi), potentially improving the coverage and capacity offered by an infrastructure to delay tolerant applications. However, to live up to this promise, such approach needs to cope with the rate at which online content is updated and accessed today.

We study the peer-to-peer dissemination of dynamic content (e.g., news, blogs, mutable documents) over the mobile networks created by users encounters. To this effect, models and measurement results are presented aiming at assessing the scalability, the effect of the social topology of contacts between users, as well as the injection algorithm used for such content dissemination. We prove that these applications remain scalable under general topological conditions, that large networks approach a deterministic regime entirely characterized, and that the optimal injection strategy follows a convex optimization problem. This survey is also an occasion to discuss of some related open problems.

(Joint work with S. Ioannidis, N. Ristanovic, J.-Y. Le Boudec, L.Massoulie)

Bio: A. Chaintreau joined the Thomson Paris Research Lab soon after graduating in 2006 from Ecole Normale Supérieure de Paris, working at INRIA under the supervision of François Baccelli. During his PhD he worked in collaboration with Alcatel Bell, as well as the IBM Watson T. J. Research Center in New York. He spent the last year visiting Intel Research Cambridge to work on opportunistic mobile networking and wireless networks.