

Accepted Manuscript

Private Mobility-cast for Opportunistic Networks

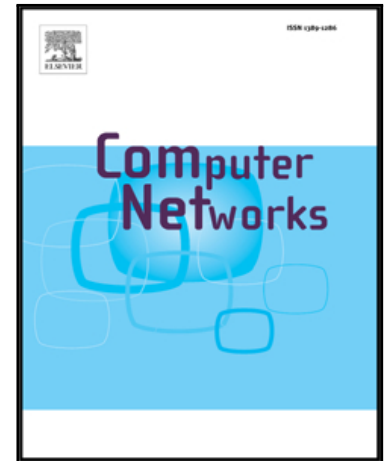
Gianpiero Costantino, Rajib Maiti, Fabio Martinelli, Paolo Santi

PII: S1389-1286(17)30151-2
DOI: [10.1016/j.comnet.2017.04.010](https://doi.org/10.1016/j.comnet.2017.04.010)
Reference: COMPNW 6149

To appear in: *Computer Networks*

Received date: 4 May 2016
Revised date: 11 October 2016
Accepted date: 7 April 2017

Please cite this article as: Gianpiero Costantino, Rajib Maiti, Fabio Martinelli, Paolo Santi, Private Mobility-cast for Opportunistic Networks, *Computer Networks* (2017), doi: [10.1016/j.comnet.2017.04.010](https://doi.org/10.1016/j.comnet.2017.04.010)



This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Private Mobility-cast for Opportunistic Networks

Gianpiero Costantino, Rajib Maiti, Fabio Martinelli, Paolo Santi¹

*IIT-CNR, Pisa, Italy
name.surname@iit.cnr.it*

Abstract

In this paper, we introduce the notion of mobility-cast in opportunistic networks, according to which a message sent by a user S is delivered to users with a mobility pattern similar to that of S – collectively named *place-friends*. Motivation for delivering a message to place-friends stems from the fact that current social acquaintances are likely to be place-friends. Most importantly, it has been recently found that a large fraction of *new* social contacts come from place-friends. After introducing mobility-cast, we present a privacy-preserving mobile-cast protocol based on secure two-party computation. The effectiveness of the protocol in delivering messages to place-friends is demonstrated by means of analysis and extensive simulations based on a realistic mobility model. In the last part of the paper, we present two alternative implementations of mobility-cast on the Android platform, and test their computational performance on a number of different smartphones. Overall, the results presented in this paper show that privacy-preserving mobility-cast can be effectively implemented with current mobile phone technology.

Keywords: Opportunistic Routing, Mobility-Cast, Human Mobility, Privacy, Secure-Two party Computation.

¹P. Santi is with IIT-CNR, Pisa, Italy, and Senseable City Lab, Massachusetts Institute of Technology, Cambridge, MA, US

Download English Version:

<https://daneshyari.com/en/article/4954666>

Download Persian Version:

<https://daneshyari.com/article/4954666>

[Daneshyari.com](https://daneshyari.com)