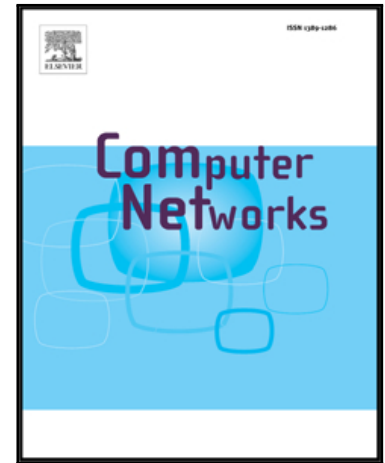


Accepted Manuscript

Failure Recovery in Wireless Content Distribution Networks with Device-to-Device Cooperation

Sanaa Sharafeddine, Karim Jahed, Omar Farhat, Zaher Dawy

PII: S1389-1286(17)30190-1
DOI: [10.1016/j.comnet.2017.04.052](https://doi.org/10.1016/j.comnet.2017.04.052)
Reference: COMPNW 6191



To appear in: *Computer Networks*

Received date: 31 July 2016
Revised date: 6 April 2017
Accepted date: 25 April 2017

Please cite this article as: Sanaa Sharafeddine, Karim Jahed, Omar Farhat, Zaher Dawy, Failure Recovery in Wireless Content Distribution Networks with Device-to-Device Cooperation, *Computer Networks* (2017), doi: [10.1016/j.comnet.2017.04.052](https://doi.org/10.1016/j.comnet.2017.04.052)

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.

Failure Recovery in Wireless Content Distribution Networks with Device-to-Device Cooperation

Sanaa Sharafeddine¹, Karim Jahed¹, Omar Farhat¹, and Zaher Dawy²

¹ Department of Computer Science and Mathematics, Lebanese American University, Beirut, Lebanon

² Department of Electrical and Computer Engineering, American University of Beirut, Beirut, Lebanon

Email: sanaa.sharafeddine@lau.edu.lb

Abstract

Device-to-device cooperation has emerged as a prominent solution to a wide range of challenges in large-scale wireless networks. However, the ad hoc nature of cooperative networks and their proneness to failure are a major obstacle towards their real world deployment and wide adoption. In this work, we focus on failure recovery and scalability in wireless content distribution networks with device-to-device cooperation, where a number of mobile devices in a given geographical area are interested in downloading a common content from an application service provider. We present low complexity effective algorithms based on clustering and tree construction methods in order to address three different types of dynamic node behavior, namely new devices joining the network, existing devices leaving the network, and existing devices moving locally within the network. Moreover, we propose a constrained version of the minimum spanning tree algorithm with bounds on the height of the tree and the maximum degree per node, in order to capture practical operational constraints for device-to-device cooperation in wireless networks. We present results for various network scenarios using simulations and experimental test bed to demonstrate the effectiveness of the proposed algorithms in terms of performance efficiency, computational complexity, and practical implementation feasibility.

Index Terms

Cooperative networks, mobile-to-mobile data sharing, traffic offloading, clustering algorithms

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات