

# ANALYSIS IN MOBILE COMMUNICATION NETWORK USING DTN

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## ABSTRACT

Delay tolerant networks (DTNs) are a class of emerging networks that experience frequent and long-duration partitions. These networks have a variety of applications in situations such as crisis environments and deep-space communication. In this paper, we study the problem of *multicasting* in DTNs. Multicast supports the distribution of data to a group of users, a service needed for many potential DTN applications. While multicasting in the Internet and mobile ad hoc networks has been studied extensively, due to the unique characteristic of frequent partitioning in DTNs, multicasting in DTNs is a considerably different and challenging problem. It not only requires new definitions of multicast semantics but also brings new issues to the design of routing algorithms. In this paper, we propose new semantic models for DTN multicast and develop several multicast routing algorithms with different routing strategies. We present a framework to evaluate these algorithms in DTNs. To the best of our knowledge, this is the first study of multicasting in DTNs. Our objectives are to understand how routing performance is affected by the availability of knowledge about network topology and group membership and to guide the design of DTN routing protocols. Using *ns* simulations, we find that efficient multicast routing for DTNs can be constructed using only partial knowledge. In addition, accurate topology information is generally more important in routing than up-to-date membership information. We also find that routing algorithms that forward data along multiple paths achieve better delivery ratios, especially when available knowledge is limited.

**KEYWORDS:** Multicast, delay tolerant networks, semantic model