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**EFFICIENT FILE SEARCH IN DELAY TOLERANT NETWORKS WITH SOCIAL CONTENT AND CONTACT AWARENESS**

**ABSTRACT**

Distributed file searching in delay tolerant networks formed by mobile devices can potentially support various useful applications. In such networks, nodes often present certain social network properties of their holders in terms of contents (i.e., interests) and contacts. However, current methods in DTNs only consider either content or contact for file searching or dissemination, which limits the file sharing efficiency. In this paper, we first analyze real traces to confirm the importance and necessity of considering both content and contact in file search. We then propose Cont 2 , a social-aware file search method that exploits both node contents and contact patterns. First, considering people with common interests tend to share files and gather together, Cont 2 virtually groups common-interest nodes into a community to direct file search. Second, considering human mobility follows a certain pattern, Cont 2 exploits nodes' contact frequencies with a community to expedite file searching. To further improve the searching efficiency, Cont 2 also integrates sub-communities and parallel forwarding as optional components for file searching. Trace-driven experiments on the GENI testbed and NS-2 simulator show that Cont 2 can effectively improve the search efficiency compared to current methods.