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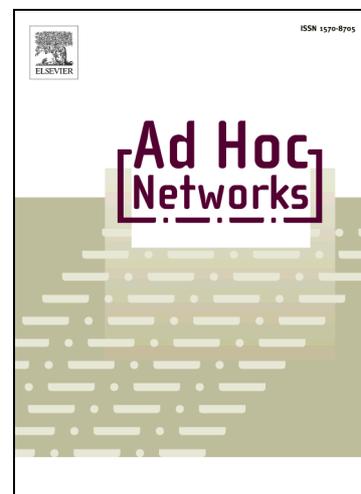
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Impact of Human Behavior on Social Opportunistic Forwarding

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Abstract

The current Internet design is not capable of supporting communications in environments characterized by very long delays and frequent network partitions. To allow devices to communicate in such environments, delay-tolerant networking solutions have been proposed by exploiting opportunistic message forwarding, with limited expectations of end-to-end connectivity and node resources. Such solutions envision non-traditional communication scenarios, such as disaster areas and development regions. Several forwarding algorithms have been investigated, aiming to offer the best trade-off between cost (number of message replicas) and rate of successful delivered message. Among such proposals, there has been an effort to employ social similarity, inferred from users' mobility patterns, to improve opportunistic forwarding solutions. However, such proposals present two major drawbacks: first, they focus on distribution of intercontact times over the complete network structure, ignoring the impact that human behavior has on the dynamics of the network; and second, most of the proposed solutions look at challenging networking environments where networks have low density, ignoring the potential use of delay-tolerant networking to support low cost communications in networks with higher density, such as urban scenarios. This paper presents a study of the impact that human behavior has on opportunistic forwarding. Our goal is twofold: i) to show that performance in low and high density networks can be improved by taking the dynamics of the net-

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