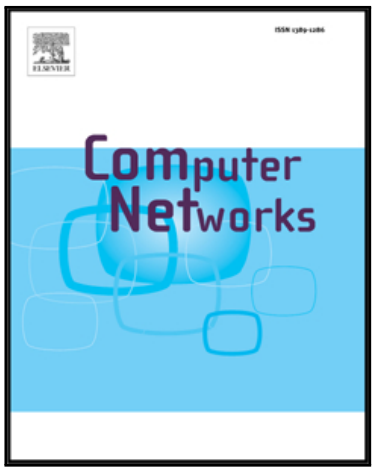

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A Distributed Time-limited multicast algorithm for VANETs using incremental power strategy

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Abstract

Efficient information dissemination is the pinnacle of Vehicular Ad-hoc Networks (VANETs). In case of delay-sensitive information such as safety-related messages, it is imperative to minimize the transmission delay and increase the message reliability in VANETs. In a previous work, we proposed a Time-Limited Reliable Broadcast Incremental Power (TRBIP) algorithm, which is a centralized heuristic to reduce transmission interferences for safety message dissemination in VANETs. By reducing the total transmission energy and the number of hops, TRBIP is able to reduce the transmission interference and thus-forth maximizes the reliability. Furthermore, in TRBIP, VANETs' features such as vehicle mobility and frequent network fragmentation are also taken into account through store-carry-and-forward and the periodic multicast tree reconstruction strategies. However, multicast tree management is hard to maintain in urban environments due to the high density of nodes in VANETs (large trees), and is affected by the city streets organizations (intersections, roundabout,...etc.). To address the afore-mentioned issues, in this paper we propose a Distributed version of Time-Limited Reliable Broadcast Incremental Power (DTRBIP) based

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