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Dynamic Probabilistic Flooding in DSR Routing Algorithm for Wireless Network

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Abstract: Broadcasting in Mobile Ad Hoc Networks (MANETs) is one of the most important operations that are used to disseminate data throughout the entire network. Simple flooding is the conventional operation that performs broadcasting in MANETs. Although flooding is a simple operation that achieves a high delivery of data, it has many disadvantages summarized by the redundant broadcasts, contention and collision, which are referred to as the broadcast storm problem. Probabilistic protocols stand to provide a good solution to the problems associated with simple flooding. This paper, presents Dynamic Probabilistic Flooding (DPF) for expand Dynamic Source Routing (DSR). The dynamic probabilistic routing protocol controls the flooding by dynamically determining the rebroadcast probability of a node based on the local knowledge of the neighbors, thus reducing a rebroadcast messages, and therefore, increasing the overall routing reliability by decreasing the routing overhead. All experiments are conducted using Network simulator 2 (NS-2). The simulations results show that the proposed protocol outperformed original DSR in terms of reducing average End-To-End delay, increased PDR and reducing routing overhead.