Chapter 13
A Survey of Probabilistic Broadcast Schemes in Mobile Ad Hoc Networks

Muneer Bani Yassein
Jordan University of Science and Technology, Jordan

Mohammed Shatnawi
Jordan University of Science and Technology, Jordan

Nesreen I-Qasem
Jordan University of Science and Technology, Jordan

ABSTRACT

Mobile ad hoc networks (MANETs) is a collection of wireless mobile devices that dynamically communicates with each other as a self-configuration without the need of centralized administration or fixed infrastructure. In this paper, we interested to introduce the different broadcast methods based on the probabilistic scheme which is simple implement code with speed broadcast and to reduce a storm broadcast problem effects and to alleviate redundancy through rebroadcast by using different routing protocols such as (AODV, DSR, LAR, PAR) that we interested in MANETs.

INTRODUCTION

MANETs occupies the large importance of different applications such as emergency operations, military, disaster recovery and other applications (Bani Yassein & Khaoua, 2007); which supports infrastructure-less network, mobility, dynamically topology feature, and also rapid communication with high performance (Bani...
Broadcast is the main operation in MANETs which keeps a track of connectivity and stability and also helps management procedures used to support updating of control information and exchanging of control information by using schemes of routing protocol such as proactive (table-driven), reactive (on-demand) and hybrid in MANETs (Ade, & Tijare, 2010; Manickam, Baskar, Girija, & Manimegalai, 2011; Gill, Anju, & Diwaker, 2012); because it's important operation we interest to search broadcast methods based on probabilistic scheme help us to reduce a storm broadcast problem which causes many of problems such as contention, collision, duplicate messages (Bani Yassein, Ould-Khaoua, & Papanastasiou, 2005; Bani Yassein, Khalaf, & Al-Dubai, 2010) causes waste of resources and more of the traffic load. Each method based on probabilistic scheme has advantages and disadvantages.

The rest of the survey is organized as follows. Section 2 gives a review about probabilistic broadcast schemes, in section 3 given Comparison between Probabilistic Broadcast Schemes, in section 4 given a conclusion.

PROBABILISTIC BROADCAST SCHEMES

This algorithm proposed a novel density depends on a flooding scheme that a source sends a packet to all nodes in MANETs; it mainly based on the area density (dense, low), if the average of neighbors for the node x is larger than the threshold as a standard value, x takes “β type” and gets a high probability that rebroadcast without delay; if the average of neighbors for x is smaller than the threshold, x takes “α type” and gets a small probability that waits a time duration before rebroadcast; this approach interested in broadcast with less routing overhead and collision but the bandwidth may be lost if the intensity is limited in two levels (dense, low).

This approach proposed new route discovery algorithm named Efficient and Dynamic Probabilistic Broadcasting (EDPB) concerns to solve the Broadcast Storm problem AODV, it is implementing simulation on Global Mobile Simulator GPS; this algorithm depends on the knowledge and probabilistic that dynamically adjusted based on both local neighbors and changing the neighbors of node; initially the node x is hearing a message then getting number of neighbors (n) for x to compare with average node (n bar) typically in general network, the result either it implies the probability is higher (n < n bar) in low density or it implies the probability is lower (n > n bar) in high density; it supports main performance evaluation metrics such as reducing end-to-end delay, but it can’t cover type of zones such as the density of medium zone Reference.

This algorithm depends on getting the information that is collecting by broadcasting “Hello” packet every second for only one hop to calculate the number of the nodes N
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