



Review Paper on Performance Analysis of reactive routing Protocol in MANET

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Abstract— *The aim of this research is to evaluate various routing protocols. Our goal in this paper is to evaluate network load balancing proposed routing protocol and its ability to reduce energy consumption, reduce mobile node workload and guarantee timeliness, Performance comparison of DSR, AODV, AOMDV routing protocols with respect to average energy consumption and to analyze the effect of random based mobility model on the performance of reacting routing protocol AODV, DSR.*

Keywords— *Mobile adhoc network(MANET); DSR, AODV, AOMDV*

1. INTRODUCTION

Mobile nodes in MANET are connected by wireless links and each node acts as a host and router in the network. They are characterized by their reduced memory, storage, power and computing capabilities. Mobile nodes are classified into two groups: Small Mobile Hosts (SMH) with reduced power, memory, storage and computing capabilities and Large Mobile Hosts (LMH) with more storage, power, communication and computing facilities than the SMHs. We focus especially on routing protocol for real-time applications where a number of them, including defense applications. Researches focus either on load aware for improving energy efficiency. The main problem is to choose the efficient, reliable and correct routing protocol to route real-time flows with respect to their deadlines without overload intermediate mobile nodes. Based on dynamic source routing (DSR) we introduce the Energy and Delay-aware Dynamic Source Routing protocol (ED-DSR) for MANET. ED-DSR is a routing protocol which uses information from the physical layer and the MAC layer in choosing routes, focusing on the energy efficiency, load aware and deadline guarantee of intermediate nodes without disturbing the flows already in their queue. Our goal in this paper is to evaluate network load balancing proposed routing protocol and its ability to reduce energy consumption, reduce mobile node workload and guarantee timeliness.

MANETs stands for Mobile Ad hoc Networks. Mobile implies "mobility". Ad hoc is a Latin word and it means "for this only". Ad hoc Networks are infra structure-less decentralized and self organizing. These networks are more economical over other networks as no infra structure costs are being involved. Ad hoc networks can be quickly and inexpensively set up whenever needed as no access points or base stations are involved. Wireless multi-hop ad-hoc networks are formed by a group of mobile users or mobile devices spread over a certain geographical area. We call the users forming the network as nodes. Each node is equipped with a radio transmitter and receiver which allow it to communicate with the remaining nodes. Nodes in an ad-hoc network can generate data and forwards to any other node in the network. Ad-hoc networks are more robust than conventional wireless networks because of their non hierarchical distributed control and management mechanism.

MANET communication between mobile users is becoming more popular than ever before. This is due to recent technological advances in laptop computers and wireless data communication devices, such as wireless LANs and wireless modems. This has lead to lower prices and higher data rates, which are the two main reasons why mobile computing continues to enjoy rapid growth. Alteration in topology takes places very frequently during the lifetime of the network, as nodes may move around with in the network by creating or breaking links between nodes. Due to the mobility, Nodes may also enter or leave the network if a node moves out of range of all other nodes in the network. This occurs most frequently near the geographical edge of the network cluster of nodes. An ad-hoc network uses no centralized administration. Because of the limited transmitter range of the nodes. Multiple hops may be needed to reach other nodes. Every node is wishing to participate in ad-hoc network must be willing to forward packets for other nodes. Thus every node acts as a host and as a router.

According to dynamic topology of Ad hoc networks, routing and communication between the nodes in these networks have been challenging missions. To overcome this challenge, many protocols for routing in MANET have been presented to the Internet Engineering Task Force (IETF). There is a classification for these protocols as table-driven (proactive) and source initiated (reactive) routing protocols. In proactive routing protocols, routing tables are used to keep route information from each source to every destination in network before this route is needed. On the other hand, in reactive routing protocols, a source sends a route discovery through the network, only when the route is required. Dynamic Source Routing (DSR)

and Ad hoc On-Demand Distance Vector(AODV) are two types of reactive.The limited battery resources consumed by nodes in a MANET must be considered as a limited resource in using a routing protocol.

Mobile Adhoc network (MANET) represents a system of wireless mobile nodes that can freely and dynamically self organize into arbitrary and temporary network topologie. The nature of network's wireless topology may be unpredictable and change rapidly since the nodes are free to move rapidly. Because of this nature infra structure less network the Ad-hoc networks are suitable for emergency situation like natural disaster, military conflicts, emergency medical situation, industrial networking etc. To fulfill the above nature of adhoc network, each MANET node can serve as a router. The topology of the adhoc network depends on the transmission power of the nodes and the location of the mobile nodes which may change with time. Routing protocols for adhoc networks need to perform a set of basic functions in the form of route identification and route reconfiguration. Mobility model is one of the key parameter that researchers have to consider when they want to analyze the performance of the certain protocol in their simulation environment. The mobility models describe the movement pattern of mobile models, and how their location, velocity and acceleration changes over time. Wireless communication technologies have seen lot of developments over the years and now the wireless communication networks have been evolved into two basic network models. The one is with fixed backbone or infrastructure that consists of large number of mobile nodes and some fixed nodes having relatively much processing and other resource capabilities. The transmission between the two nodes namely, fixed node and the mobile node is occurred through wireless media. This type of wireless network model requires a permanent infrastructure. The other wireless network model is the one in which all the nodes are mobile hence called the mobile ad hoc networks (MANET). Mobile ad hoc network is collection of mobile nodes having self organizing capabilities that can form a temporary network on the shared wireless channel. Hence, the network formed is highly dynamic and without any central coordinating unit. Communication between the nodes of mobile ad hoc network can be either via single hop provided the recipient is with in the proximity of the source node or through the multiple hop transmission in the contrary case. Hence, MANETs are called multiple hop networks.

2. RELATED STUDY

Jihen Drira Rekik et.al.[1]— Choosing the shortest path for real-time flows is insufficient. Respecting the deadline can not be insured nor guaranteed neither with exhausted energy resource nor with overloaded intermediate mobile nodes. The main problem is to choose the reliable, efficient and correct routing protocol to route real-time flows with respect to their deadlines within MANET constraints. This paper introduces the Energy Delay aware based on Dynamic Source Routing, ED-DSR. ED-DSR efficiently utilizes the network resources such as the intermediate node energy and load in order to balance traffic load. It ensures both energy efficiency and timeliness by avoiding low-power and busy intermediate node.

G.Rajkumar,et.al.[2]- The main objective of the paper is to increase the throughput thereby reducing the routing overhead and jitter between nodes. To obtain this, it is proposed to go for reactive routing protocols. Routing protocols use table-driven Amit Kumar Sanghistrategy that is the routing tables are exchanged periodically between nodes which results in more energy consumption. To overcome these problems, we go for AODV and DSR. These routing protocols use on-demand strategy that is the routes are established from source node to destination only on demand which minimizes the jitter level.

Amit Kumar Sanghi et. al.[3]—Mobile ad hoc networks (Manets) are gaining a lot ofconcentration in research in recent times due to their importance in enabling mobile wireless nodes to communicate without any existing wired or predetermined infrastructures. One of the main feature of mobile ad hoc network lies in the vibrant topology. As the nodes move with in the wireless network, the links between nodes are often formed and broken down. The node flexibility effects not only the source and destination, as in a wireless adhoc network, but also the intermediate nodes. This repeat on account of the multichip nature of the ad hoc network. Because of this resulting routes can be volatile, making successful ad hoc routing highly flexible and dependable on these topologies changes occurring due to efficient reaction to it. Structure of the network changes fastly. This is mainly due to the mobility of nodes. The nodes in the network not act as hosts but also as routers that route data to or from other nodes in network..

Mehdi Barati et. al.[4]- Proposing energy efficient protocols for Mobile Ad hoc Network (MANET) and Wireless Network is an claiming task. Many different routing protocols based on different features have been proposed to the performances of many of these routing protocols have been evaluated focusing on metrics such as routing overhead,delay and packet delivery. However, studies have not done to investigate energy aspect of these protocols. Thus, this paper will discuss about the power consumption aspect of the MANET routing protocols. A performance comparison of Ad hoc On-Demand Distance Vector (AODV) and Dymanic source routing(DSR) routing protocols with respect to average energy consumption and routing energy consumption are explained thoroughly. Finally, an evaluation of these routing protocols based on energy consumption is presented.

Rashmi Rohankar et. al. [5]- With emerging trend in technology wireless networks allow user to travel from one location to another. Mobile Adhoc network (MANET) is one of the subareas of wireless network that dynamically form infrastructure less temporary network. MANET is a collection of communicating mobile nodes forming a temporary network without any centralized administration. Due to the property of mobile nodes in MANET, they require good routing protocol technique. This paper analyzes the effect of random based mobility models on the performance of Proactive Routing Protocol (DSDV-Destination Sequence Distance Vector) and Reactive Routing Protocol (AODV- on DSR- Dynamic Source Routing),Demand Distance Vector. Performance analysis is done with respect to throughput, Packet delivery ratio,end ro end delay for varying node densities.

3. CONCLUSION

This paper focus on power consumption aspect of MANET routing protocols .Different energy efficient routing protocols have become studied. On metrics such as average end delay,routing overhead and packet delivery ratio.Evaluation of routing protocols based on energy consumption is presented.

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