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A Review: The Various Distortions Techniques in MANET caused due to Link Failure

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ABSTRACT: MANET is a mobile ad hoc network where a short-lived network is formed among the MANET nodes. MANET nodes communicate and interchange messages with other nodes either in an infrastructure or infrastructure-less network. Due to lack of fixed infrastructure, MANET is prone to varied attacks. The mobile Ad hoc networks are infrastructure less type of network in which it's having auto configure and mobile propriety. When they are communicating with each other then they can move. Due the mobility in nature of mobile nodes the problem of link failure will cause. Due to this problem the efficiency of MANET will be reduced. When the route is established between the mobile nodes and intermediate mobile nodes when change its path. The route will be broken and packet loss may cause. Here, we are proposing the new technique in which will overcome this problem and will enhance the performance of AODV protocol.

Keywords: MANET, AODV, link Failure, beacon frames.

1. INTRODUCTION

Now days, the ad hoc networking is used for the commercial uses. There are the many applications of the ad hoc networks, ad-hoc network are using in the military and it is also using for the other security operations. A wireless ad hoc network is the collection of mobile nodes, without any requirement of centralized access point. Every node in the network, act as a router and packet forwarder. The secure routing is the biggest issue in the ad hoc routing applications. In ad hoc networks it is very difficult to design the security due to its unique characteristics. The characteristics of ad hoc network are lack of central authority, topology changes due to node mobility, shared radio channel and limited availability of resources. The wireless network uses the different kinds of communication protocols. [1] Wireless networks use a carrier sense protocol for the synchronization. These protocols are used to enable the group of wireless computers to share the same frequency and space. MANETs are a kind of wireless ad-hoc networks that usually has a routable networking environment on top of a Link Layer ad hoc network. Even it very useful in the today's world but it has some limitations because of its some security issues and performance. The routing protocols are broadly classified as proactive and reactive routing protocols. The reactive routing protocols are the protocols which establish link between source and destination when required .On the other hand the proactive routing are protocols which establish link between source and destination on the basis of predefined routing tables which are stored on the mobile nodes. The simulation result shows that the reactive protocols are more efficient than reactive protocols for mobile ad hoc networks. In our work, we are using AODV reactive type of routing protocols.

2. LITRATURE REVIEW

Ling Liu, Lei Zhu, Long Lin, Qihui Wu (2012) proposed a new routing protocol named QAODV (QoS-AODV). The protocol defines a new route metric with the hop count and load rate so as to select the best route

according to it. Simulation results show that, compared with AODV, the performance of QAODV is better on both network throughput and end-to-end delay with small increase of control overhead.[4]

Dhirendra Kumar Sharma, Chiranjeev Kumar, Sandeep Jain, Neeraj Tyagi (2012), is using the packet scheduling technique for AODV. Packet scheduling is starts by Intermediate node than according to data transfer rate it manages its buffer memory. Traffic can be avoided by packet scheduling, it shows which packet to serve next it also avoids the packet drop. When route breaks, data packets are store by the intermediate node and process of route repairing starts. This paper gives the brief detail of AODV and DSR protocols. [5]

Mrs. Sunita Nandgave (2012) In this paper, author discuss about the link failure problem in MANET. In this author uses AODV and signal strength to avoid the congestion control. In MANET nodes are mobile and communicate with each other. The mobile nodes formed a multi-hop network in a decentralized manner.[2] In MANET, congestion occurs when the amount of data sent to the network exceeds the available capacity. Congestion is detected at transport layer. Routing in MANET is challenging due to its mobility feature. The main reasons of link failures are mobility, interference and congestion. The weak link in MANET is the reason for route failure. When a route is likely to fail due to weak signal strength of a node, it will find alternate path. AODV has better congestion avoidance mechanisms. This paper addresses four signal strength based congestion control mechanisms AODV, Reliable AODV, MAODV, CLS_AODV.

Yudhvir Singh, Yogesh Chaba, Monika Jain, Prabha Rani (2010) This research paper perform the evaluation of On Demand multicasting routing protocols in Mobile ad hoc network. Nodes are free to move, independent of each other which makes routing much difficult. The routing protocols in MANET should be more dynamic so that they quickly respond to topological changes. On-Demand Multicast Routing Protocol is a protocol for routing multicast and unicast traffic throughout ad hoc wireless mesh networks. ODMRP creates routes on

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demand so they suffer from a route acquisition delay, although it helps reduce network traffic in general [3]. In this paper simulation based experiments are performed to analyze the performance of On Demand Multicast Routing Protocol by evaluating Packet Delivery Ratio, End to End delay and average throughput.

Mrs. Sunita Nandgave-Usturge,(2012): in this paper, author discuss about the routing in mobile ad hoc networks. The main reason of link failure in mobile ad hoc networks is mobility, interference and congestion. Mobility means each node is free to move within its transmission range. In MANET congestion occurs when the amount of data sent to the network exceeds the available capacity. Such situation leads to increased buffer space usage in intermediate nodes, leading to data losses. Congestion is detected at transport layer. [7] TCP is a window based reliable transport layer protocol that achieves reliability through sequence number and acknowledgement. Congestion is main reason for performance degradation of TCP. Packet loss reasons are node mobility and link layer congestion. Cross layer approach is used to improve TCP performance. Cross layer approach is used to solve route failures.

S. Albert Rabara, A. Rex Macedo Arokiaraj (2011) [6]. This paper also briefs and focuses the research directions towards the IPv6 based MANET which is the most essential for growing mobile population. The special characters of MANET bring the technology with great opportunities and challenges. Therefore recently MANET is becoming more interesting research topic and there are few research projects employed by academic and companies all over the world. Observing the advantages in the integration of MANET with IPv6 significant features, we surveyed on the areas in addressing and secured routing in IPv6 MANET.

3. LINK FAILURE PROBLEM

Link failure problem is a common problem in MANET which is caused due the mobile nature of MANET nodes. Here in diagram link problem is shown where in first part of diagram A can communicate with B and B can communicate with C so there is a link between $A \rightarrow B \rightarrow C$. but in second part of diagram node B moved towards C so B is out of range for C so there is a link failure occurred between A and C.

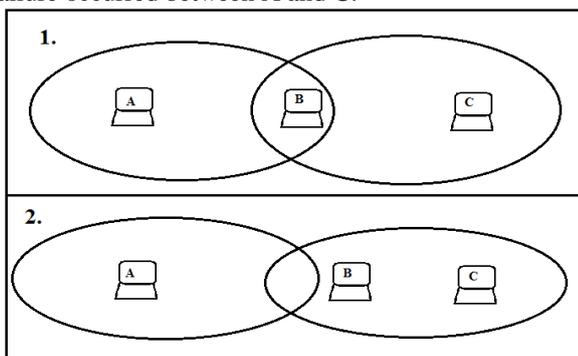


Fig 1: Link failure problem

4. PREVIOUS TECHNIQUES

Wireless Ad hoc network is a dynamic network with large number of nodes. In this network AODV is used. The source node sends the RREQ packets to its neighboring node and this node send packets to next node. The nodes send the packets to that node, which is in the vicinity of that node. Hence a link is established in between the nodes. The communication takes place in the network from its source node to the destination node. So the packet transfer is occur, due to this flooding is occur in the network [8]. Ad hoc network is always open for all nodes over the network. Main problem is packet loss due to the link failure. In the wireless network, the nodes are moveable; hence range of the nodes may vary. When nodes move from its position, then nodes may be out of range from its neighboring node. When a node is out of range packet loss occurs. Hence the source node leaves that path and chooses the new path. Same solution is presented in this proposed work. The complete solution is defined in terms of two stages. First stage nodes of high Vicinity are found, which are used to send the data safely. Another stage is the development of approach that will leave the node of low vicinity dynamically and get the reliable data transmission over the network.

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