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A Survey on latest mobile ad-hoc network Routing Protocol

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Abstract: ***Mobile network is the special type of wireless network. In this network no special type of static topology present due to node mobility. It leads to following things link breakage, path failure and path discovery .Which reduces the throughput and the packet delivery ratio. To overcome such problem in the MANET we propose a solution which would decrease the link breakage and many such problems present in the MANET with the help of NCPR Protocol. The NCPR protocol discovers the uncovered node. But in NCPR protocol there is a problem of getting the same RREQ packet to the node again and again. To improve the performance of this protocol we builds a cluster of stable node in NCPR protocol to reduced the routing overhead and increase the efficiency of delivery ratio and throughput. It will also reduce the delay in the network.***

Keywords: MANET, NCPR, RREQ, Cluster, PDR.

I. INTRODUCTION

As the routing is a fundamental challenge due to freely moving nodes and dynamic environment it is a one challenge to design routing protocol which will full fill the broadcasting challenges. As there is a link breakage because of unstable network it leads to the frequency breakage in network and frequent path failure it leads to overhead of routing protocols. The traditional on-demand routing use flooding to discover a route they broadcast REQUEST packet to the network and which leads to storm flooding. To reduce the storm flooding and packet collision in dense network some technique has been used in past few years. Willliam and camp[5] divides broadcasting protocol into four parts classes simple flooding, probability based method, area based method and neighbor knowledge method. But the NCPR protocol has better performance over all the broadcasting technique ,but to enhance the performance of broadcasting if clustering algorithms is used then it will improve the scalability, bandwidth ,robustness and performance of network.

II. LITERATURE SURVEY

Broadcast is a successful mechanism but suitable for quite big and especially useful in dynamic networks. There are some limitations on demand routing protocol that it produces traffic by blindly flooding in the process of route discovery. In this survey, the different authors proposed different protocols with good performance but suffered from specific limitations.

Perkins [13] discussed about routing protocol for MANET. He mentioned the table driven and on demand approach according to the Table-driven routing protocol. ASDU and OLSR maintain the record and update the routing information about the node. This node consists of information moving from each node to every other node in the network.

Johnson [14] mentioned about the conventional On Demand routing protocol. In this scheme, (RREQ) Route Request packets that broadcast immediate neighbor to the node which requires finding route toward the destination. This method where the node blindly rebroadcast RREQ packet until a route is not established is due to the continuous rebroadcast to the packet and leads to collisions in the network.

Kim [8] proposed about a probabilistic broadcasting method which is depending upon coverage area and neighbor confirmation. In this scheme, both combination of probabilistic approach with area based method is used. By dynamically adjusting the same value of the rebroadcast probability using its additional coverage in its neighborhood, this coverage consists of the distance from the sender.

Abdulai [15] discussed the routing protocol dynamic probabilistic route discovery (DPR); this scheme depends on the neighbor coverage. The node is determining the forwarding probability and can depend upon the number of its neighbors and those set of neighbors. That is covered by the previous node and there is no need to consider the neighbor receiving the duplicate RREQ packet.

Ni [7] discussed about the broadcasting protocol and simple packet flooding but found that the rebroadcast a packet is not required. So, the rate of incoming packets increases, which further results in increase of collision rate and also of channel contentions. In this approach, by combining the advantage of distance based and area based method, helps in reducing the rebroadcasting rate. So, it reduces the end to end delay and packets reaches to the destination and low redundancy is achieved, but here the need is to set the rebroadcast delay and make the neighbor knowledge much quicker.

III. PROBLEM STATEMENT

There are so many challenges to design the mobility and the protocol stack for MANET. It has been generated due to the dynamic topology and mobility of nodes. In this purpose work we try to enhance the following things 1) Throughput increase 2) End to End delay 3) Packet delivery ratio 4) Overheads in routing. In our proposed system we enhance NCPR broadcasting to reduce the RREQ packet sending again and again. As there are problem in previous algorithm we implement a new algorithm of clustering with the NCPR to reduced overhead of the network. The combine technique of the broadcasting and clustering can improve the performance of above problems.

IV. PROPOSED SYSTEM

In this proposed system we are simply combining the tow technique, due to which the performance of the protocol will increase and the packet delivery ratio will increase in the network and will give the good performance which will create the stable network.

A. *Enhance Clustering algorithm*

In MANET node are keep moving and communicating with every node present in the network. The clump of the movable node divided into the region of nodes which is known as cluster as every node act as the head of the cluster which can be used for routing. In this method we divide the cluster into the three parts which will effectively works with the clustering technique with NCPR. In cluster creation method we check the node is alive or dead for communication if is an active node then we add it to the cluster .Where one node becomes the cluster head. Information of our cluster is maintained by every node to itself. It is important to keep the watch on every necessary information of each clump. In this algorithm while updating, the node inform its own status by confirming cluster and neighbor node. Every node maintains the neighbor table for routing.

B. *Classification of the nodes in the Cluster algorithm*

In the proposed system the nodes are divided in the three patterns or we can say the types and the types are divided on the working of the nodes.

1) Simple Nodes or we can say the general nodes which will do the simple operation or the regular working in the network.
2) Head Node the head node will control the remaining nodes in the network and keep the control of the other nodes in the network for the improvement of the network.

3) Gate way Node this node will act on the boundary of the two different network to communicate with the other network head node or to find the node in the different network for the communication

In this way

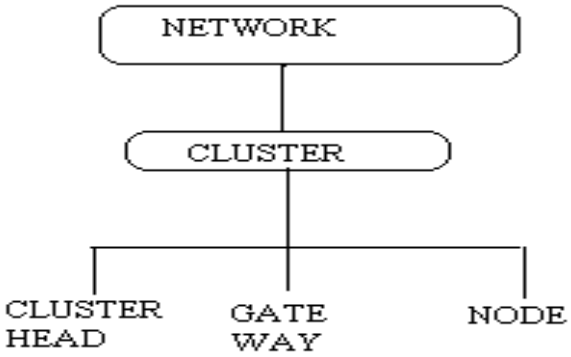

Fig.1. Different Nodes of cluster

C. *Enhanced Algorithm for cluster head selection*

This algorithm uses cluster architecture for performing routing functions. Following steps will be performed when RREQ request is received by node

Step1.Make a cluster in the Network with NCPR broadcasting protocol.

Step 2.Consider each node in cluster for calculation

Step 3. Now decide the cluster head(CH) having the low mobility and the maximum number of neighbor.

Step 4.CH (Cluster Head)must have node information and its neighbor for forwarding packet to another neighbor CH(Cluster Head)

Step 5.RREQ request is send by source node to all cluster head which are resides in cluster.

Step 6.Whenever RREQ request is received, cluster head forward RREQ request to every cluster head in a network

Step 7. Now destination node will be checked in the network

If it is alive go-to step 8

If it is not alive go-to step 9

Step 8.RREQ request is broadcasted

Step 9.RREQ request is discarded.

Step 10. Stop

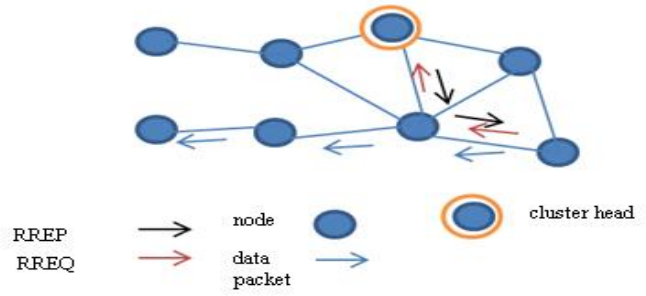

Fig.2 Routing Method

D. *Route detection in error case*

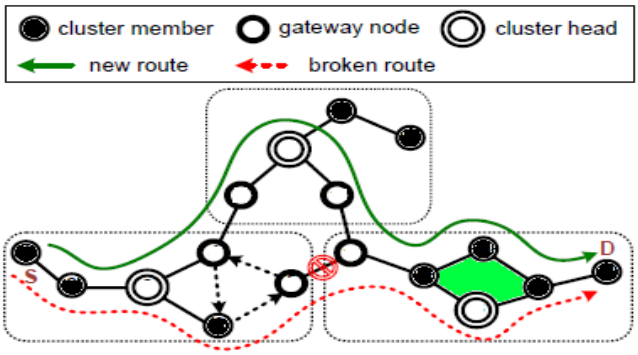

Fig. 4. Route detection in error case

- Proposed gateway routing in route failure
- Every cluster node maintains the routing table and at new node detection enter the new node. And the Cluster Head also route.
- When the route is get from the cluster head it send packet
- If it receives RREQ then
- HOP count increases by one.

  Else
- It select the another gateway of other cluster and forward the packet to all cluster connected to the gate way

  If the RREQ gets the destination in the next cluster the link is set and packet is transferred

  Else another cluster is searched by the cluster from the cluster head.

V. CONCLUSION

The The proposed system of clustering with NCPR increase the performance of the Ad-Hoc network and reduces the overhead of the routing and the active nodes works more efficiently and effectively.

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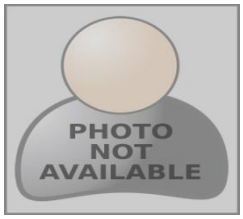

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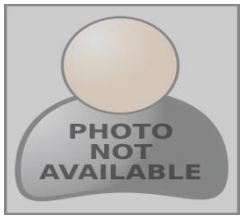

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