

# Advancing the Potential of Routing Protocol in Mobile Ad Hoc Network

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**Abstract:-** An ad hoc network consists of nodes with a radio without wire which has multi hop network surroundings [3]. Their messages can be sent anywhere with the help of intermediate nodes only in limits. Broadcasting in mobile ad hoc networks (MANET) is process to send message one to other nodes of the network [1]. It has far-reaching application in mobile ad hoc networks (MANET). It provides significant control and route administration for all types protocols let it be unicast or multicast protocols. It has become an important and all above to find a strong routing protocol in networking research. MANET has important part like as D.S.R., A.O.D.V. for routing information and location routing are used to established routes [5]. There are many problems in broadcasting of MANETS due to reasons like; Variable and unpredictable characteristics, Fluctuation of Strength, Channel Contention problem and Packet Collision problem [4]. The study had been done to cop up these problems on neighbor coverage based protocol to reduce routing overhead in MANETS. The connectivity factor was also discussed to arrange neighbor coverage system to provide to density adaptation [7].

AODV protocol can be played an important role in optimizing mechanism. This paper presented and completed on new type of rebroadcasting with many performance metrics it is done while using NS-2 Simulator [9].

**Keywords:-** Ad hoc network, Mobility, Routing protocol, broadcasting techniques, NCPR.

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## 1. Introduction

It can be said that MANET is full of mobile nodes. Mobile nodes execute the message and organize the network. The mobile nodes function for routing. Nodes are being straggled to have impact on following as like communication, Shadow, multipath fading and so on. The structure of network protocols for MANET will be hugely coordination compound. A strong algorithms is needed which can fire the connectivity of network organization and routing. The strongness is based on route distribution. The smallest way depends on networks only on it, it is not based, and it has many other reasons like as extended power, wireless links, fading interference and some other charges. These effects can be improved with the help of change routing ways.

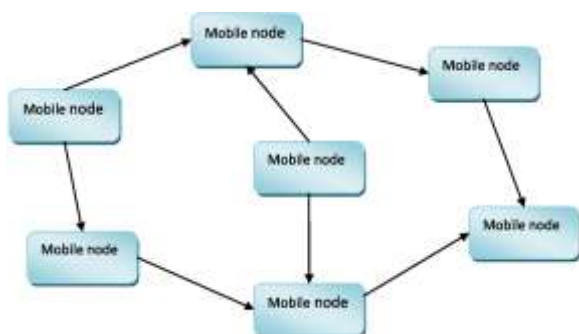


Figure 1 Overview of Mobile Ad-hoc Network[10].

## 2. Routing Protocols in MANET

It has also some basic problems to design of route protocols but it has power to cover the problem with the help of route

table for it a smart and bracing policy is needed because the basic problems are same like as, size density of traffic and also needs to have separate levels of QOS and other kinds of application and user [12].

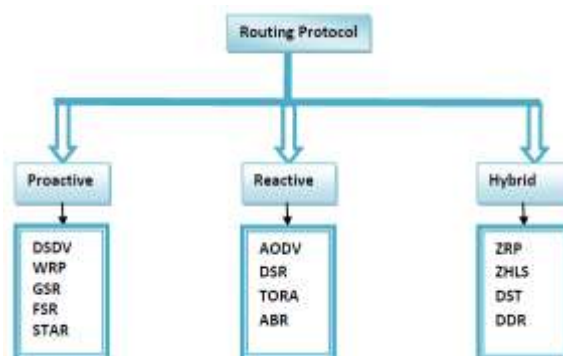


Fig.2. Classification of Routing Protocols [11]

However, MANET approach presents several problems [17]:

- First problem is to stop the moving of nodes because link state algorithms depend on distance and also on periodic broadcast to make it up to mark [22]. With the help of conventional network it has some nodes which keeps route continuous and control it. It control and consume the network. So due to above problems it has become hard to maintain the route in MANET.
- Second Problem is to increase bandwidth over head [13].
- Third problem is exhausts batteries [24].
- Forth problem is over loading and the propagation of routing [26].

- Fifth is superfluous routes piled up [25].
- Sixth is change in topology means it has no power to change itself. MANETs use multiple hop rather than single-hop routing to deliver packets to their destination [19].

To solve above problems multiple hops are used means MANET has multiple hops which connect with many supports. The major problem with MANET is designing of dynamic routing problem, which should have good performance and less or few overheads. Because broadcast routing problem has redundant retransmission and due to this it many reduces packets delivery ratio and increases end delay and finally the broad cast storm problem occurs.[21].

The main objective of the research is to improve performance of the routing protocol in mobile ad hoc networks by using NCPR. For this I have studied on two protocols that are Ad hoc on demand distance vector and Neighbor coverage based probabilistic rebroadcast protocol.[23].

### 3. Implementation

The figure 3, shows the basic flow chart of the implementation procedure, as in figure first we get the UDP packet we transfer these packet to the network then we create the TCP connection over them.

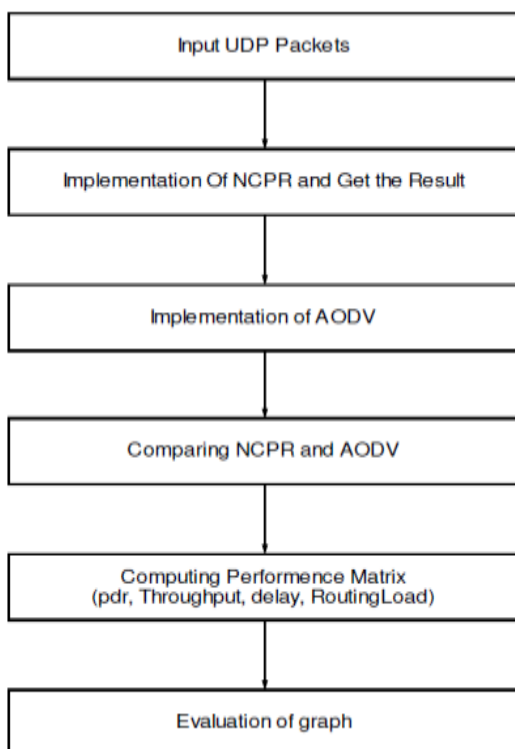


Fig.3 Flowchart of the Implementation Procedure

This connection setup step implement the NCPR protocol in NS-2 simulator [27] by which we get the result in two form that is NAM window form and graph form, now we

implement the AODV protocol and get the result. Now we compare NCPR and AODV and we get that the packet transmission process in AODV [28] done by just sending RREQ message broadcasting again and again. But in comparison to NCPR the node first finds the neighbor node and the neighbor list of the packet. Then it rebroadcast the RREQ message to the nodes which are not getting the message. After that we compute four performance metrics and by these we compare that NCPR is better than AODV.

### 4. Results

By the comparison of fig 4 and 7 it is cleared that the:-

- Routing load of the NCPR protocol is low which is good for the mobile ad hoc network.
- Throughput of NCPR is also low in comparison to AODV.
- Packet delivery ratio is higher than AODV.

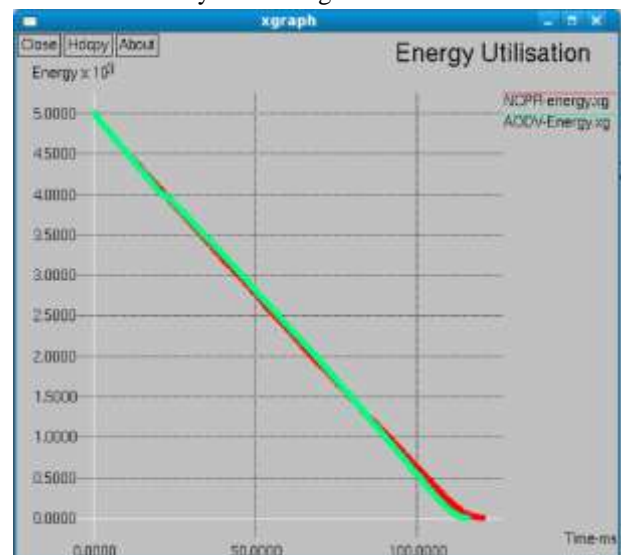


Fig.4. Graph of Energy Utilization

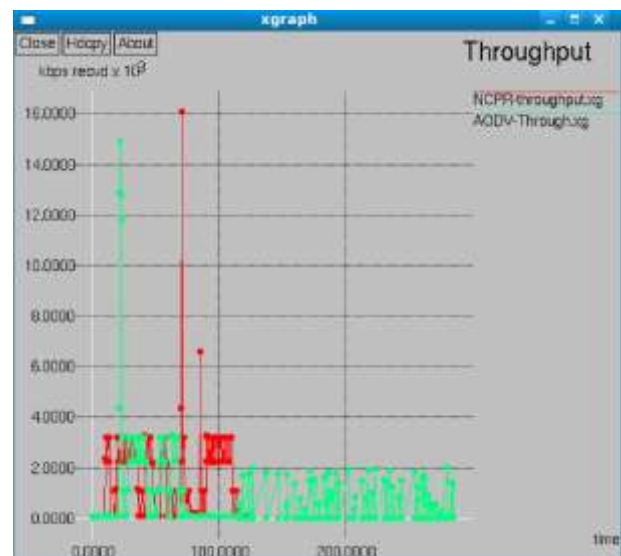


Fig.5. Graph of Throughput

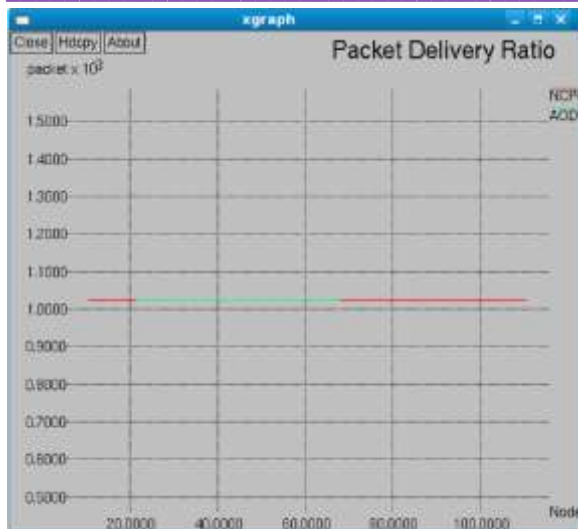


Fig.6. Graph of Packet Delivery Ratio

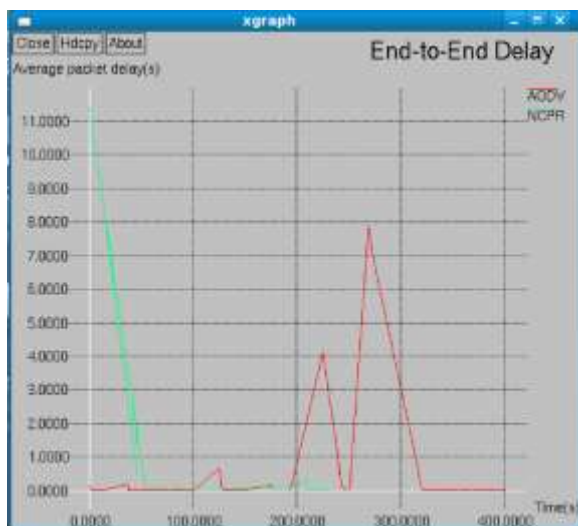


Fig.7. Graph of End to End Delay

## 5. Conclusion

This paper has amalgamated various works related performance and routing strategies of MANETs. The various researchers [29,30] have given many proposals for broadcasting techniques of routing protocols and their comparative study. The neighbor coverage was compared and all types of protocol were analyzed. The conclusion is that it depends on message how to send and how to manage and yes the calculation which is most important and knowledge of coverage is most. And it is also shown that NCPR protocol networking is more better if we compared with AODV because if NCPR make the energy utilization properly and mitigates the network collision, so it is best.

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