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REVIEW PAPER OF ENERGY ENHANCEMENT AODV ROUTING PROTOCOL IN (MANET)

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ABSTRACT
MANET is a collection of wireless mobile nodes that are able to communicate with each other without using infrastructure or any centralized administration. The Mobile nodes act as a host node as well as router node. A MANET is self-configuring, infrastructures network of mobile device connected without wires. In MANET every device is free to move in any direction means the source node can be send packet or data any destination easily in any network. In MANET each node cooperate and dynamically establish and maintain routing in network. Routing is very complex in these network due to moving nodes in any direction. Efficient routing protocol makes MANET reliable. Energy efficiency is a major problem of mobile Ad-hoc network as mobile nodes will be powered by batteries with limited capacity, insufficient source of energy and are difficult to replace or recharge. In MANET, Energy efficiency is an important challenge which leads to proposal of an Energy Efficient Enhanced AODV Routing Protocol that reduces delay, overhead, increases packet delivery ratio and consumes lesser energy compared to AODV. In this paper, a review of different protocols based on Energy Efficient Routing is done.

KEYWORDS: MANET, AODV,Routing Protocol, Energy Efficient routing

INTRODUCTION
A Mobile Ad hoc network is an autonomous collection of devices(laptop, smart phone,sensor,etc.)that communicate each other over wireless links and cooperate in distributed manner. A MANET is collection of mobile routers or nodes communicating over a radio links MANET is a temporary network without infrastructure. The wireless routers or nodes moves randomly and organize themselves arbitrarily. The nodes directly communicate via wireless links within each other's. Ad-hoc networks are self-configuring and self-organizing, so to maintain communication between nodes in the network, each node behaves as a transmitter, a host and a router. It is an independent system of mobile hosts connected by wireless links. MANET is used in many application such as military, commercial sector, disaster area, local area etc. Routing is important aspect of MANET. The goal of routing protocol in ad hoc network is to establish optimal path between source and destination with minimum overhead and minimum bandwidth consumption. so that data packets are delivered in a particular time manner. There are three types of routing protocol is used in MANET such as Reactive routing protocol, Proactive routing protocol and Hybrid routing protocol. Reactive routing protocols also called as on demand routing protocol. These protocol enable dynamic, self-starting, multi hop routing between mobile nodes wishing to establish and maintain an Ad-hoc network. This protocol does not require nodes to maintain routes to destination that are not in active communication and obtain routes quickly for new destination by route discovery procedure. Reactive protocols are being more efficient at signaling and power consumption, suffers longer delay while route discovery. Proactive and reactive protocols have been improving to be more scalable, secure and to support higher quality of service. Some of the reactive protocols are: Cluster Based Routing Protocols (CBRP), Ad-hoc On Demand Distance Vector (AODV), Dynamic Source Routing (DSR), and Temporary Ordered Routing Algorithm (TORA). Proactive routing protocol also called as table driven routing protocol. The proactive routing protocols maintained the Routing Table at each node and with this table, nodes transmits the packets to the other nodes in the network. This protocol was motivated for the use of data exchange along changing and arbitrary paths of interconnection which may not close to any base station. The hybrid routing protocol is zone routing protocol(ZRP). AODV is based on distance vector routing algorithm. It is a reactive routing protocol. it requests

the routes when needed. This algorithm was motivated by the limited BW that is available in media used for wireless communications. It borrows most of the advantageous concepts from DSR and DSDV algorithms. Features of AODV routing protocol are loop free routing and notification to be sent to affected nodes or link breakage. AODV is capable of both unicast and multicast routing. There are four type of massages used in AODV.

RREQ:- It is used to initiate the route finding process. If route is not available for destination RREQ is flooded throughout the network.

RREP :-It is used to finalize the routes only. If there is a valid route to the destination, it unicasts a reply message back to source.

RERR :-In an active route RERR message are used to notify the network of link breakage. When 2 end points do not have valid active route then only AODV protocol is used.

Hello Message :- By using Local broadcasts I .e. hello message node can get to know its neighborhood. Although AODV is reactive protocol, hello message are used to inform neighbors that the link is still alive. Hello message are broad casted with TTL=1 and can be never forwarded. When hello message are received it refreshes lifetime of the information.

AODV works in two phase: 1) Route discovery 2) Route Maintenance.

RELATED WORK

In this section, we study various Energy Efficient Routing Protocol which are proposed in the literature. Various Protocols have been proposed for MANET. All of the MANET routing methods have advantages, disadvantages and scope for further research. In a MANET, a collection of mobile hosts with wireless network interfaces form a temporary network without the aid of any fixed infrastructure or centralized administration. Due to its characteristics like dynamic topology, resource constraints, No infrastructure and limited physical security, it is vulnerable to a number of attacks. The mobile nodes can changes its position any time due to which link failure problem may occur in the network. In the work, improvement will be proposed in AODV protocol for link recovery in MANET .The proposed technique will leads to improvement in throughput, delay and packets loss.

Objectives The aim of the study is
- To analysis and improve the network reliability by enhancing the AODV protocol
- To Propose enhancement in AODV protocol for congestion control in MANET
- The novel technique will be based on energy and resource used for link recovery in MANETs
- To implement proposed technique and compare results with the existing problem.

ROUTE DISCOVERY

When a node finds that there is no available route to its destination then the source node start its route discovery process by broadcasting the RREQ query to all the neighboring nodes. This RREQ query includes source ID, destination ID, a sequence number of the source, a last known sequence number of the destination and max. number of hops the RREQ can be forwarded. Nodes receiving this RREQ query check whether they already have seen this RREQ, if so then they drop the RREQ query. If the RREQ query has not been seen before then they simply increments the hop count and rebroadcasts the RREQ query. If an intermediate node has the route to the destination having sequenced number equal to or greater than the last sequence number of the destination mentioned in RREQ query, then it generates the RREP query. Otherwise it just stores the information regarding the previous hop from which it receives the RREQ query. This information will be during RREP process. The destination node after receiving RREQ query, copy all the information included in RREQ query and generates a RREP query with updated sequenced number. This RREP query unicast back to the source node. This is the route discovery phase of AODV protocol.

ROUTE MAITAINANCE

A route which is discovered between a source node and destination node is maintained as long as the source node needed it.

If the source node moves during an active session, it can re initiate route discovery mechanism to establish a new route to destination. When either destination or intermediate node moves, the node upstream of the break initiates Route Error (RERR) message to the affected active upstream nodes. Consequently, these nodes propagate the RERR to their predecessor nodes. This process continues until the source node is reached. When RERR is received by the source node, it can either stop sending the data or re initiate the route discovery mechanism by sending anew RREQ

message if the route is still needed.

CONCLUSION
we have to studied that different research papers on energy efficient routing protocol in MANET, to determine the route which reduces delay, overhead and consumes lesser energy. The greatest challenge in designing wireless ad hoc network is limited availability of energy resources and to overcome the problem of energy conservation there exist a lot of routing protocols. Performance varies according to variation in network parameters and network properties. So we will choose the protocol in such a way that which performs best for that particular type of network. All these protocols have proved that they are better than the conventional AODV.

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