COMPARATIVE STUDY OF AODV, R-AODV & PHR-AODV IN MANET

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Abstract
Mobile ad-hoc network formed by wireless hosts which may be mobile. Ad-hoc network without using apre-existing infrastructure. Routes between nodes may potentially contain multiple hops. In MANET nodes are free to move randomly and organize themselves arbitrarily, thus the network's wireless topology may change rapidly unpredictably. Due to movement of nodes, QOS(Quality of Service)routing is difficult task in MANET. In this paper from the QOS, we differentiating traffic and services, QOS Provide a higher network PDR, maximum bandwidth, low delay, reduce control-overhead. In this paper we decrease the congestion and path failure during packet forward. Here multipath routes so packet goes to various path then hackers and unauthorized person does not get the packet and routes. By the QOS we increase the PDR and end to end delay, control overhead.

Keywords: QOS (Quality of Service),AODV and R-AODV,PHR-AODV.

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1. INTRODUCTION

MANET is the collection of mobile nodes that make network for information exchange. MANET is free from infrastructure and central authority and transfer message through hop by hop technique. AODV is the reactive routing protocol, when source need to send data then source node initiate route discovery process and established route to destination node on demand. AODV is the single path routing protocol where R-AODV and PHR-AODV is the multipath routing protocol. AODV is the single path routing protocol that increased latency and packet loss due to dynamic nature of mobile node and routing environment. The performance of AODV is decreased due to loss of unicast route reply packet. To overcome this problem R-AODV routing protocol is used. R-AODV supports multiple route reply packet and increased the performance. To increased the security and increased the throughput PHR-AODV routing protocol is used.

2. OVERVIEW OF ROUTING PROTOCOL

2.1. AD-HOC on Demand Distance Vector (AODV)

AODV routing protocol is initiated by destination node and its works on sequence number concept and provide loop free routing. AODV have works on two phase i) Route Discovery ii) Route Maintenance.

In route discovery process when source node want to send data to destination node then source node send RREQ packet to their neighbor nodes and these neighbor nodes forward RREQ packet to their neighbor node until it reach to destination node. When intermediate nodes receive RREQ packet then intermediate node set reverse path to previous node. When the first RREQ packet reach to

destination node then destination node send unicast RREP packet to source node. These RREP packets travel through the reverse path set by intermediate node.

If any link break or any node move out from network then there is possibility of packet drop. When node detect packet drop or link failure then that node send RERR packet to source node.

Intermediate node avoid RREQ packet by matching source IP address and RREQ ID of packet.

Algorithm Step:-
AODV (S, D , Data , EED, Bandwidth) // Route Discovery Phase
{ Source S initiates the RREQ packet and search neighboring nodes in the direction of destination D;
If (next-hop!=D && Loop free)
{ Source S broadcast the RREQ packet to all the neighboring nodes and continues till destination is not explored. }
else
{ Destination D is reached }
In the cache of the direct/intermediate nodes retrieve the routes from route caches. Add these routes inthe route record and then generate the route reply packets in that order . // Route Reply Phase
If the route/s is/are found { Maintain a list of all discovered routes as LR.
RA-AODV (LR , EED, BW , Hop count) ; } // AODV provisioning Reliability Phase being called here
else
{ Destination node D not reachable may be due to high mobility of nodes and network partitioning; }