Comparative Study of Two Effective Routing Protocols

Students, Department of Computer Science and Engineering, Periyar Maniammai University, Thanjavur, India

Abstract: In Wireless Multimedia Sensor Network (WMSN), one sink or multiple sinks collecting information and transmitting it through wireless channels. For Multimedia data transmission WMSN requires an un-interrupted power, greater bandwidth, huge memory, and low latency. AODV algorithm is used for finding of effective routing, because of its reactive nature. AODV can handle dynamic behavior of Vehicle Ad hoc (VA) network, it time consume to build the routing table and lacks supports for high throughput routing metrics, and also have some problems on latency, Jitter and reliability. We move to Optimized Link State Routing (OLSR) protocol, which has less average end to end and does not need central administrative system to handle routing process. We compared the performance of AODV and OLSR protocols.

Keywords– Wmsn; Aodv; Olsr; Quality Of Service; Routing Protocol.

I. RELATED WORK

TANG and ZHANG [1] discussed a AODV protocol by updating route information. The Route is built On Demand and maintained. The Protocol tries to enhance AODV with MPS. The RREP is sent back to the foundation node, each in-between node shapes the advancing path, and the nodes, which nearby the path and overhears the PREP, build backup routes. If link breaks it Broadcast the data packet and sends an RERR to source at time. The packet will be forwarded, if neighboring nodes have backup paths.

Sakurai and Katto [2] proposed a protocol by applying a newly developed route updated procedure with combined metrics of delay. Extension of RREQ/RREP packets with the source route list is also incorporated with the limitation of hop count to provide more efficient multiple routes. The protocol specifies two methods with different metrics. The first one is hop size minimization principle. The second method is delay Minimization principle.

Many methods have been done to improve the performance of routing protocol. However, they cannot overcome the problems. In the protocol Feng and Cheng [3] proposed a self – healing on AODV is proposed the long life time the routes can be constructed and unstable route can be self-heal to stable one before being broken absolutely.


L. Xia et. al. [5] proposed an improved AODV protocol known as AODV-I. In this protocol, congestion processing is added to the RREQ message avoids selecting the busy nodes automatically. If congestion is encountered during route establishment, the route repair mechanism is performed instead of initiating a new route discovery.

AODV and DSR procedures for two dissimilar traffic classes, in a designated atmosphere are completed. It is demanded that DSR and AODV implement if the traffic weight is heavy then the network load is reasonable.

II. METHOD USED IN AODV

Wireless networks with flexibility and simplicity such as the WLAN and used in various places. WNs have depended on infrastructure that is router and access point. Ad-hoc networks independent to infrastructures are needed and many researchers are understudied in this topic. Mobile nodes with wireless media functions and routers are presented in Ad-hoc networks. As the network topology is changed in each node, the routing algorithm must have ad-hoc networks. AODV can be called a pure on-demand route, gaining system nodes not in attendance on active paths neither keep any steering data or yield portion in any sporadic routing board relations nodes that are lacking on active paths, another node doesn’t have to discover and maintain one route to another node awaiting communicate between two nodes unless connectivity uphold between two nodes, the earlier node is giving in its services as an in-between forwarding position. But, some disadvantages in AODV.

III. METHOD USED IN OLSR

The Optimized Link State Routing. MANETs developed by proactive routing protocol and table-driven. It is an optimization of unpolluted link state protocols in that it reduces the amount of control packet as well as the amount of control packets communication required. OLSR reduce the control transfer overhead by using Multipoint Relays (MPR), which is the key idea at the back OLSR. A MPR is a node's one-hop national which has been selected to forward packets. Instead of unpolluted flooding of the network, packets are presently forwarded by a node's MPRs. These delimit the network transparency, thus being more capable than pure relationship state routing protocols. OLSR is well matched to huge and dense mobile networks. Since of the use of MPRs, the superior and more crowded a network, the further optimized link state routing is achieved.

IV. OPERATION OF AODV PROTOCOL

A. RREQ Messages

AODV doesn’t contribute any role in connection routes among nodes are effective. A RREQ message is publicized after a node wants to define a route to a goal. As a RREQ transmits throughout the linkage in-between nodes practice it to bring up to date the transmitting tables. The RREQ also holds the most hate sequence number for the goal. A legal target route must have a order digit at smallest as grand as that restricted in the RREQ.
B. RREP Messages

When a RREQ extents a goal node, the goal route is made available by unicasting a RREP inverse to the basis route. RREP agree the target itself. As the RREP broadcasts backside to the basis node, in-between nodes keep educated their routing tables.

C. Rerr Messages

RERR messages are dispatch for broken contacts. We Produced straight by the node or agreed on when projected form another node.

V. OPERATION OF OLSR PROTOCOL

Neighbor recognizing, MPR collection, MPR information announcement and route table design this are the four steps to producing a route table in OLSR protocol.

A. Neighbor sensing

Each node recurrently broadcasts the HELLO note containing data about its one-hop neighbors and connection status. The HELLO messages are documented by all the one-hop neighbors nevertheless they are not retransmitted to additional nodes. The facts about One-hop as well as two-hop neighbors are familiar in a neighbor board. Each node implements the selection of its MPR sets.

B. MPR Selection

Each node helplessly selects its MPR set rendering to the MPR collection scheme. As a result, all the two-hop neighbors of each node are controlled in the combination of the neighbor’s sets of its MPRs in the successive HELLO messages. From the HELLO messages, which hold the MPRs, each node can notify its MPR choosers and construct its MPR selector table.

MPR data declaration individually node announcements specific controller messages called topology device messages to announce its MPR chooser set. The TC messages are promoted through MPR nodes and communicated to all nodes in the MANET. Connection maintains a link topology table to highest the MPRs of other nodes. The topology board is a base of manipulative the route table.

C. Route table design

A node analyses the route tables created on the information controlled in the neighbor table on the topology table.

VI. COMPARISON BETWEEN AODV AND OLSR PROTOCOL

A. Enactment and scalability

OLSR decreases the control overhead compelling the MPR to circulate the fill in of the link states and also advance the efficiency compared to classical link state protocol. But the disadvantage of this is that it necessity uphold the routing table for all the possible routes. So there is no alteration in small networks. When the number of the mobile host increase, then the overhead from the control messages is also increases. OLSR protocol mechanisms are most efficiently used in thick networks.

AODV is related typically to the detection of the new path and from the explains of the practical routes so in the network with light traffic and load flexibility the sensitive protocols scales perfectly to the greater networks with small bandwidth and storing above. As the unwanted condition for reactive protocols in the link with substantial traffic with huge number of end point with high flexibility. This condition will effect that a big amount of routes will disruption resulting repetitive route discoveries and fault report in the network. Proactive protocols produce higher routing effectiveness than reactive protocols in the network with distributed traffic.

The AODV protocol need to determine the route first in demand to send the real data, so the search latency upset the AODV protocol, OLSR does not essential to do the additional work for the finding so it offers low latency. OLSR disadvantage is that it use regularly the bandwidth but AODV is trying to keep the bandwidth low for the upholding of the paths.

B. Resource usage

The storing difficulty of the OLSR protocols is connected on how much hosts are in the link, the storage difficulty of AODV is linked to the number of the communication couples.
C. Security Considerations

AODV and OLSR protocols are that the control messages must be safe, that the malicious data sent by some attacking host could not affect the routing process in the network. The AODV wants fewer defenses of the control messages it is sufficient to guard the RREP and RREP messages in order for the protocol to be protected. OLSR all the control messages are wanted to be protected.

VII. EXPERIMENTAL RESULT

Figure 4: Throughput

Figure 5: Packet Delivery Ratio

Figure 6: Delay Rate

CONCLUSION

We compared AODV and OLSR protocol in wireless multimedia sensor network. When compared to AODV, the OLSR has high throughput and low delay rate and the quality of service when compared to AODV the OLSR is advanced. OLSR has less average end to end and does not need central administrative system to handle routing process. Thus we conclude that OLSR is advanced than AODV.

References

[1] Suhua TANG ‘and Bing ZHANG’, A Robust AODV Protocol with Native Inform, 10th asia-pacific Conference on Infrastructures and 5th International Symposium an Multi-Dimensional Moveable Communications, 2004


