

Secure and Efficient Communication in MANETS using AES encryption and Fisheye State routing protocol

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ABSTRACT In mobile ad hoc network there is no centralized infrastructure to monitor or allocate the resources used by the mobile nodes. The absence of central coordinators makes the routing complex one compared to cellular networks. and also link failures and breakages may occur this may be result in loss of information that is transmitted. In this paper we proposed a protocol called fisheye state routing protocol that have the information about the neighboring nodes so even the link failures occur the path can be easily identified to transmit the information.

KEYWORDS: AES(Advanced Encryption Standard), fisheye state routing protocol, RREQ(Route Request), Manets

I. INTRODUCTION

Manets can be easily attacked by the attackers due to the inherent characteristics of such networks, such as the open channel wireless medium and no centralized topology. On the other hand nodes inside the network cannot be always trusted since a valid node may be attacked by the malicious nodes as a result of this a secrecy may be lost as a result secure communications are important in the adversarial environment for MANETS. The algorithm used for secure communication is AES algorithm and the protocol used to route the message here is fisheye state routing protocol. Paper is organized as follows. Section II describes how the AODV protocol routing the data packets and its drawback. The flow diagram represents the step of the algorithm the route selection technique of fisheye state routing protocol that is given in Section III. Section IV presents experimental results showing results of fisheye state routing protocol's throughput compare to AODV. Finally, Section V presents conclusion.

II. RELATED WORK

In the existing system the data packets are routed using AODV protocol which will have only the information about the neighbor nodes here we propose an fish eye state routing protocol in which each and every nodes have the information about all the nodes present in the communication environment

1.First we have to construct a network consists of 'N' number of nodes so that the nodes can request the data from other nodes in the network.

2.Since the nodes having the mobility property, we assume that the nodes are moving across the network.

3.In this module source node sends the hello interval request to all intermediate nodes for identifying minimum hop count

4.each intermediate nodes validate the RREQ packet and updates its routing tables.

5.Finally the RREQ reaches to the destination node.

6.After the RREQ is verified by the destination node it will select the route based upon the minimum distance and also based on the energy of the nodes.

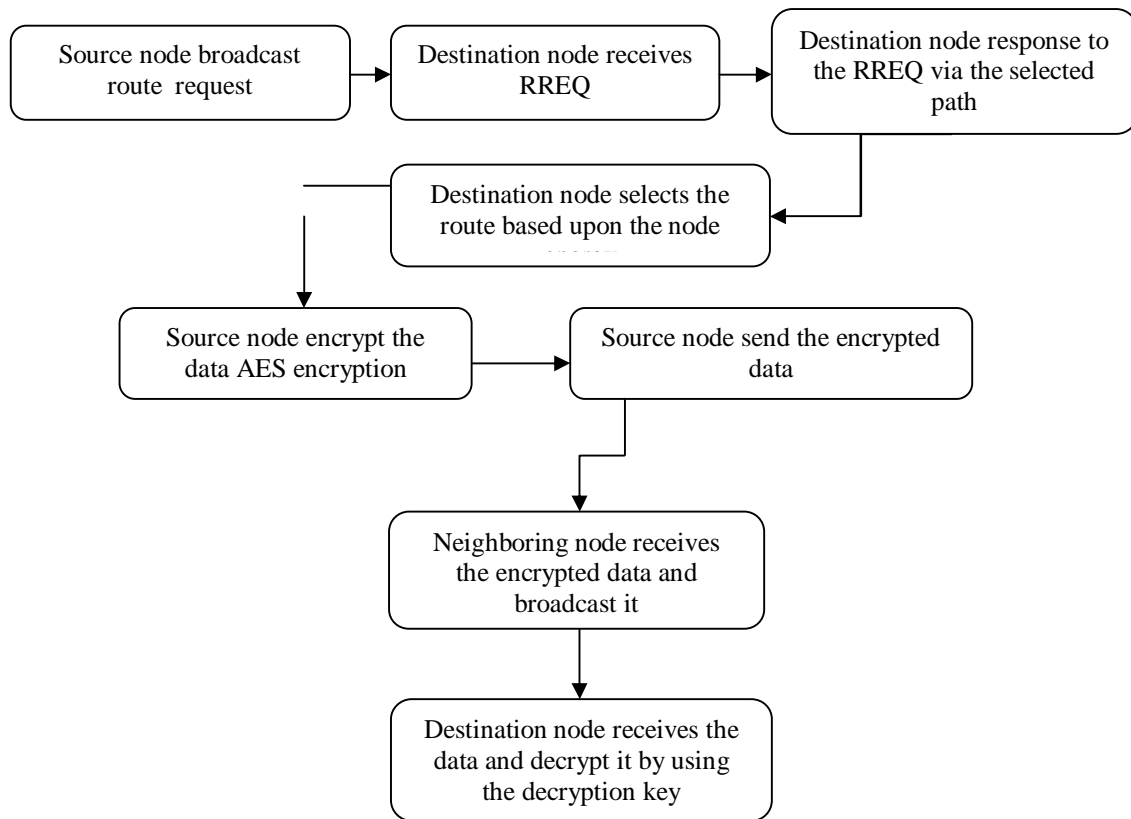
7.And the message that is encrypted with the AES key is broadcasted to the neighbouring nodes.

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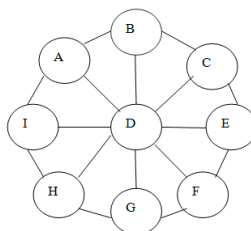
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III.ROUTE SELECTION

source node broadcast the hello request to the neighboring nodes. the neighboring nodes validate the hello request and the transmit it to the further nodes once the request is verified by the destination node it will select the best path based upon the energy of the nodes since energy is one of the important parameters of the Manets it selects the path based on the energy of the nodes.



IV.EXPERIMENTAL RESULTS

In Fish eye state routing protocol the link state of the neighbouring node is updated and transmitted to all nodes. Even the link failure occurs between the nodes the path can be easily established to transmit the message since each node have the information about the neighbouring nodes.

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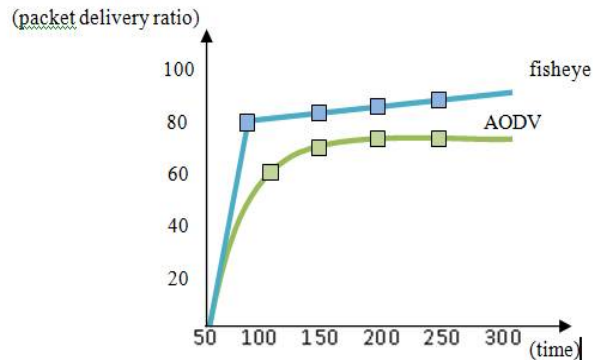


Figure 3. Packet Delivery Ratio vs Time

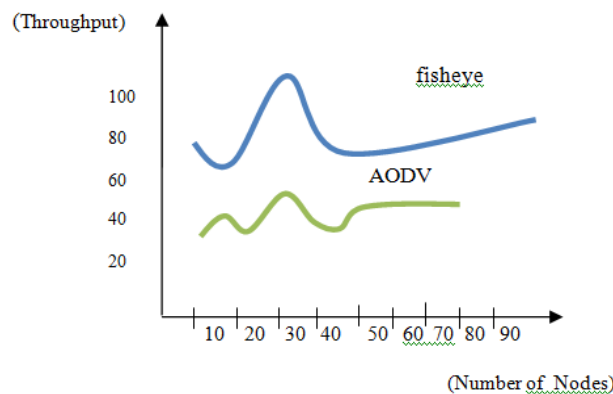


Figure 4. Number of Nodes vs Throughput

V. CONCLUSION

In this work, we proposed a fisheye state routing protocol which will reduce the link failures and the AES algorithm will improve the security. To find a robust virtual path with low overhead by introducing a biased back off scheme in the route discovery phase. Without using the location information, data packets can be routed towards the destination. considering multiple factors including the route length, reliability and route lifetime based on nodes capability, our protocol can help us to make routing decisions. According to simulation results Fisheye routing protocol can effectively improve packet delivery ratio, throughput, decrease end-to-end delay and improve efficiency when compared to other protocols.

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