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EX-OR LINK STATE OPERATION USING IN FISHEYE STATE ROUTING PROTOCOL FOR DESTINATION SEQUENCED IN MANET

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Abstract : In MANETs, opportunistic data forwarding has drawn abundant attention within the analysis community of multi hop wireless networking, with most analysis conducted for stationary wireless networks. One amongst the explanations why opportunistic data forwarding has not been wide used in mobile ad hoc networks. It's the need of high capable fisheye state routing scheme with efficient source routing capability. In this paper, we propose a fisheye state routing (FSR)[7] protocol to get efficient data we include extremely opportunistic routing (EXOR)[1] and link state protocol (LS)[2] which compared with proactive source routing (PSR) protocol. We tests using simulation in ns-2(Network Simulator-2) under different network parameters. We get good result in a fisheye state routing (FSR) protocol.

Keywords: Routing protocols, FSR, PSR, EX-OR, MANET, OLSR, DSR, BFS.

I. INTRODUCTION

MANET is a wireless communication network that contains varied mobile devices. These mobile devices form a network with one another while not any existing infrastructure or the other quite fixed stations. It is a self-configuring and self organized network of mobile devices. These devices will travel in any direction. The links between these devices are change regularly because of their movement. In a dynamic atmosphere of the MANET, Nodes in such network will act as end points of data transmission as a routers when the two end points of node are not in direct. In a de-centralization network, a node is accountable to realize the topology data and rescue of information to the destination. MANET could be a variety of wireless ad-hoc network that typically has a routable networking.

In MANET that will operate while not existing infrastructure and support variety of mobile users. It is one of the final scopes of multi-hop wireless networking. Such networking paradigm originated from the requirements in emergency operations, military communications, and disaster relief operations. The main challenges in this area of analysis include node to node data forwarding, communication link access management, network security and providing support for time period transmission streaming.

MANET contains an autonomous cluster of mobile users that communicate with slow wireless links. Due to the mobility of nodes, speedy and unpredictable changes may be done over the time. In such network, the mobile nodes maintain all the network activities like route discovery and message delivery.

In this paper, we propose a fisheye routing protocol to facilitate expedient data forwarding in MANET. Data are exchange and updated periodically in network topology. We doing this, we tend to attempt to decrease the routing overhead the maximum amount of we tried. The results of simulation denote that our methods used has only a fraction of overhead PSR however still offers a similar or higher data transportation capability compared with PSR protocol.

II. ROUTING PROTOCOLS

Routing could be a method of sending a message from one host to another it's called uni-cast. Routing protocols for ad-hoc wireless networks are measure typically used for mobility management and scalable design, in which mobility management is completed through information exchanges between mobile nodes in the ad-hoc wireless network. Commonly, the information exchanges occur often, the network maintains correct information of host locations and alternative relevant information since they consume a lot of communication resources like bandwidth and power.

With less frequently information exchanges, these metrics diminish however there is a lot of uncertainty concerning the host location. Scalable design needs each routing protocols and resource consumptions to be scalable. A routing protocol provides the discovery and maintenance of route should consume less overhead and data bandwidth. Routing within the ad-hoc wireless network poses special challenges as a result of its infrastructure less network and its dynamic topology. However, when all

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hosts move including the home agent such a strategy can't be directly applied. Routing information should be localized to fastly to changes such as hosts' moveable. A routing protocol is crucial whenever a packet wants to be bimanual over via many nodes to achieve at its destination. A routing protocol has to discover a route for data packet delivery and prepare the packet delivered to the destination.

Routing Protocols have been associate active space of research several for several years; many protocols are prompt keeping applications and type of network. Routing protocols are classified they are:

- Proactive or Table Driven Protocols
- Reactive or On-demand Protocols
- Hybrid Protocols

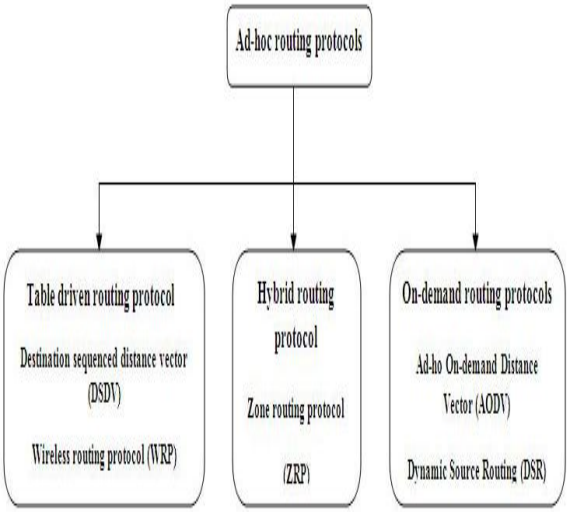

Fig.1 Basic Routing protocol

A. Proactive (or) Table driven

A proactive routing protocol is also called as table driven. Each node within the network maintains complete routing information concerning the network by sporadically change the routing table. One or additional routing tables are maintained at every node and are exchanged sporadically to share the topology information with the neighboring nodes so as to take maintain of within the network.

Thus, when a node must send data packets, there's no delay for locating the route throughout the network. The best network context for proactive protocols is that the low (or) no mobility networks. The foremost accepted proactive protocols are FSR, DSDV and OLSR. This kind of routing protocols works the same way as that of routing protocols for wired networks.

B. Reactive or On-demand

Reactive routing protocols, also called on-demand routing, Routes to the destination are discovered only when really needed. When current node wants to send packet to some destination, it checks it routing table to see whether or not it has a route. If no route exists, current node performs route discovery procedure to search a path to the destination. Reactive routing protocols will dramatically minimize routing overhead as a result of they are does not have to be compelled to look for and maintain the routes on that there's no data traffic. Such property is so much necessary within the recurrent limited environment.

The most accepted reactive protocols are DSR and AODV. They do not initiate route discovery by themselves, till they are requested, when a current node request to find out a route. These protocols setup routes when demanded. When a node needs to communicate with new node in the network, and the current node will not have a route to the node it needs to communicate with, reactive routing protocols can establish a route for the end to end node.

C. Hybrid routing protocols

This type of routing protocols combines features of the above two methods. Hybrid protocols inherit the advantage of high-speed routing type proactive and less overhead control messages from reactive protocols. The characteristics of proactive and reactive routing protocols are often able to integrate to realize hybrid routing technique.

Hybrid routing protocols might exhibit proactive or reactive behavior depending on the circumstance, thus permit flexibility based on the wireless network. Communication between nodes in several zones can deem the on-demand or source-initiated protocols. the foremost typical protocols are ZRP and TORA.

III. RELATED WORK

A. Fisheye State Routing (FSR)

Fisheye State Routing (FSR) [8] is an implicit hierarchal routing protocol and also consider thought of a proactive protocol and may be a link state primarily based routing protocol that has been included to the wireless ad hoc environment. Relays on link state protocol as a base, and it's the flexibility to provide route information instantly by maintaining a topology map at every node. So can maintain updated Information from the destination node through a link state table.

According to Klein rock and Stevens, Fisheye method was used to minimize the size of information required to represent graphical data. The eye of a fish captures with high detail the pixels close to the focal point. The detail decreases because the distance from the focal point increases.

In routing, the fisheye approach interprets to maintaining correct distance and path quality information regarding the immediate neighborhood of a node, with progressively less detail because the distance will increase.

Fish do have 360 or virtually vision..FSR [10] is analogous to link state (LS) [9] routing in this every node maintains a view of the network topology with a cost for

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every link. In LS [9] routing link state packets are flooded into the network whenever a node detects a topology amendment.

In FSR nodes maintain a topology table connected on the up-to-date data received from neighboring nodes and sporadically exchange it with their local neighbors. Relative to every node the network is split in different scopes.

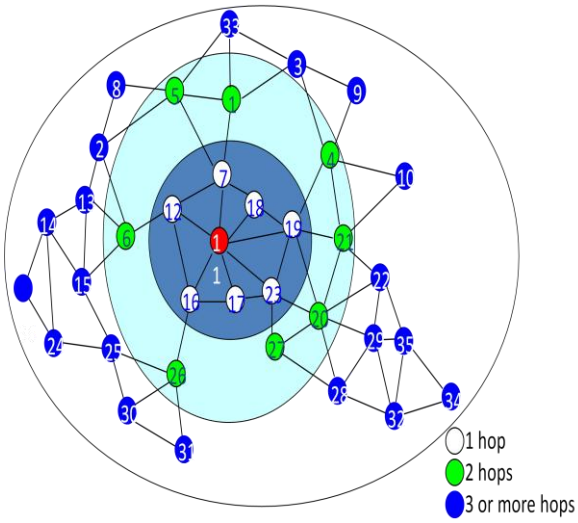

Fig.2 Scopes of FSR

B. Link State Routing Protocol

A link-state routing protocol is one amongst the two main categories of routing protocols used in packet switching and other is distance-vector routing protocol. The link-state protocol is performed by each switching node within the network it's use to ready forward packets within the routers. The essential conception of link-state routing is that each node constructs a map of the property to the network, within the form of a graph, showing that nodes are connected to those different nodes.

Every node then independently calculates consecutive best logical path from it to each possible destination within the network. the gathering of best path can then type the node's routing table. Link-state algorithms are sometimes characterized informally as every router telling the world regarding its neighbors.

C. EXOR : *Extremely Opportunistic Routing*

Extremely Opportunistic Routing (EXOR) [1] is a combination of routing protocol and medium access control for a wireless ad hoc network.

Based on high priority its works. Transmitted that packet with is closest to the destination. There are no acknowledging packets, and no collisions with them. It broadcasts each packet, choosing a receiver to forward only after learning the set of nodes which actually received the packet but it cannot totally avoid duplications (repeating), it can avoid it in a certain degrees.

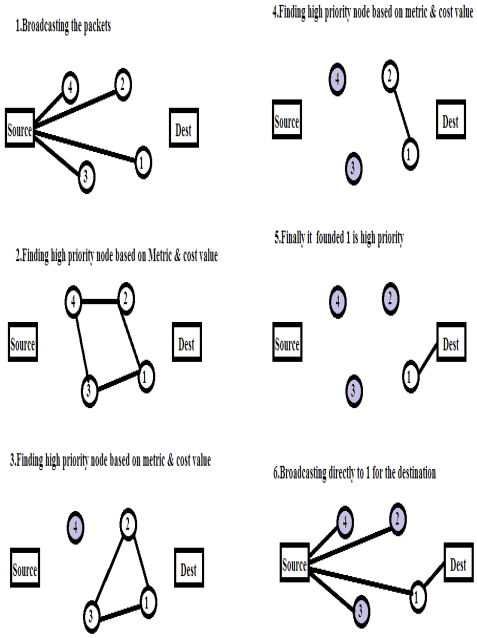

Fig.3 Operation of EX-OR

IV. DESIGN OF FISHEYE SOURCE ROUTING

In existing system they used the lightweight proactive source routing protocols. Every node with a breadth-first spanning tree of the entire network rooted itself and the nodes periodically broadcast in the tree structure. Each node within the network maintains complete routing information concerning the network by periodically change the routing table. One or more then routing tables are maintained at every node and they exchanged periodically to share the topology information with the neighboring nodes so as to take maintain of within the networks.

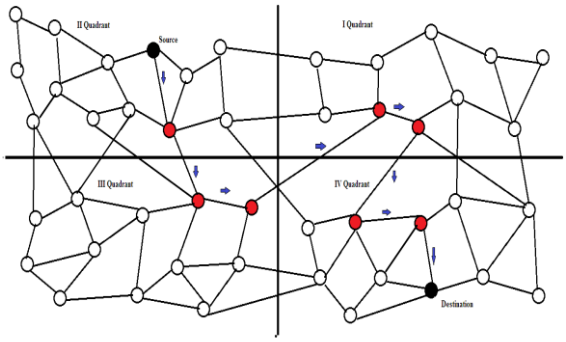

Fig.4 Flow diagram for using Breadth first spanning tree in PSR works

In NS-2 simulator the node moving from source node in II quadrant to destination has a IV quadrant by using breath first spanning tree. By increasing no. of nodes in simulator graph has delay on throughput, packet delivery ratio and Jitter.

In below you can see x-list head output in NS-2 simulator. To overcome we move on to fisheye routing protocol.

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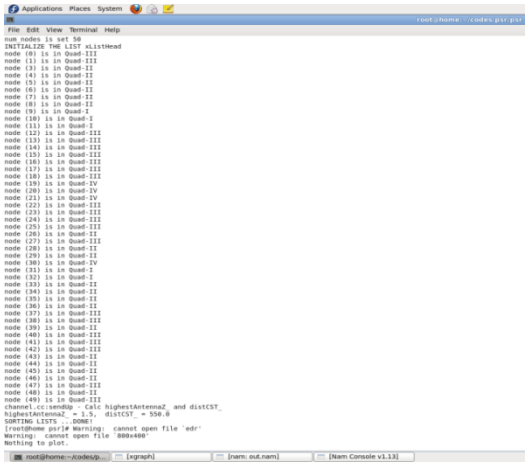

Fig.5 X-list head output for PSR Protocol

In this paper, we propose a fisheye routing protocol has a within scope of the eye. We decrease as the distance and increase the focal point by using link state routing protocol and operation has a EXOR.

In LS each node they independently calculates the next best logical path from it to every possible destination in the network. Collection of best paths based on routing table. Then FSR is reducing overhead control traffic.

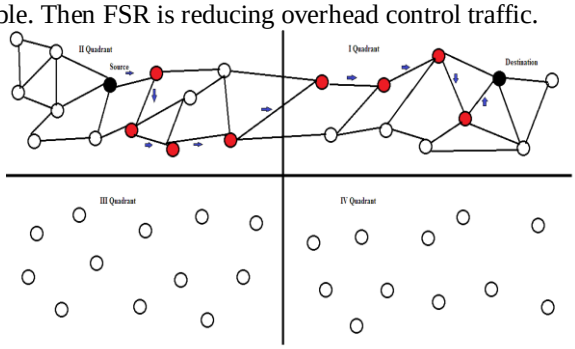

Fig.6 Flow diagram for FSR using LS and EX-OR Operation

Here source node moving from II quadrant to destination has a I quadrant it is within the scopes. By increasing no. of nodes in simulator graph somewhat network has improve on throughput, packet delivery ratio and Jitter. In below you can see x list head output in NS-2 simulator.

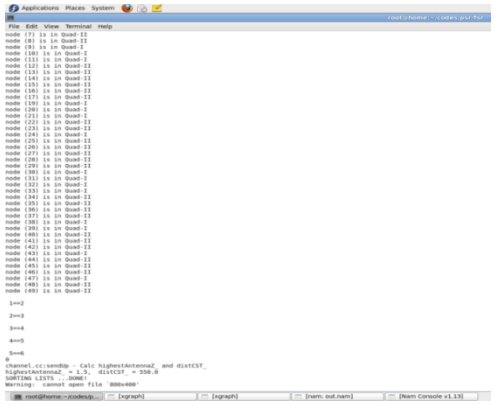

Fig.7 X-list head output for FSR Protocol

V. PERFORMANCE EVALUATION

Network simulator (NS) is an object–oriented, discrete event simulator for networking research. NS provides substantial support for simulation of TCP, routing and multicast protocols over wired and wireless networks. The simulator is a result of an ongoing effort of research and developed. Even though there is a considerable confidence in NS, it is not a polished product yet and bugs are being discovered and corrected continuously.

NS is written in C++, with an OTcl interpreter as a command and configuration interface. The C++ part, which is fast to run but slower to change, is used for detailed protocol implementation. The OTcl part, on the other hand, which runs much slower but can be changed very fast quickly, is used for simulation configuration. Fig.8 shows a comparison graph for throughput with time densities.

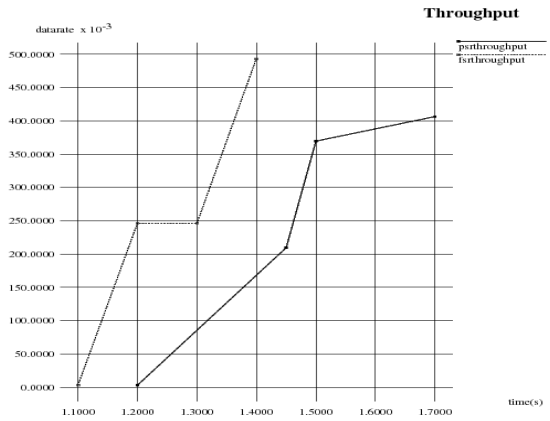

Fig.8 Throughput vs Time

Throughput -The total number of data packet received by the destination, within a time period it is represented in bits/bytes per second. Fig. show a comparison graph for packet delivery ratio with various node densities.

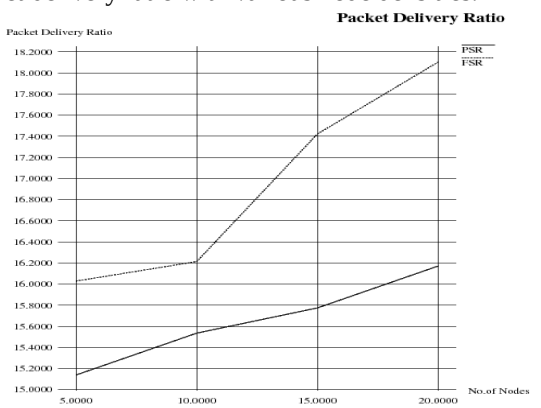

Fig.9 Packet Delivery Ratio vs No. of Nodes

Packet Delivery Ratio- The ratio of data packets which have been sent out by the sender that are successfully delivered to a destination.

Fig.10 shows a comparison graph for Jitter with various node densities.

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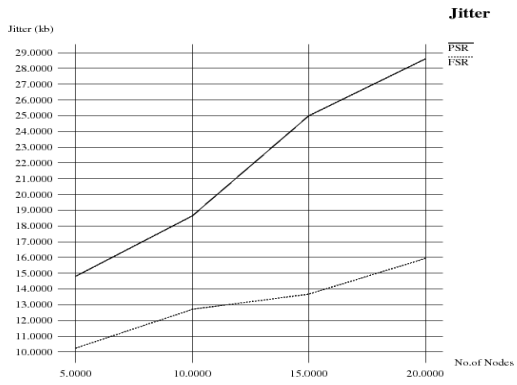

Fig.10 Jitter vs No.Of.Nodes

Jitter- Jitter is defined as a variation in the delay of received packets.

VI. CONCLUSION

Using a Fisheye routing protocol, link state protocol and operation in EX-OR [1]. We are providing seamless communication such that maximum data transfer occurs than the previous mentioned protocols. Though the performance metrics are improved, the network is not scalable for high bandwidth. To overcome the problems we move on to LTE concentrated network that sustains larger modes of data with larger link Time-To-Live (TTL).To improve network performance for life time.

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