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Secure Synchronous MANET Routing Policy to Achieve High Performance and Efficiency in Wireless Network

Manoj Kumar Khinchi[1], Dr. Bharat Bhushan[2]

[1]Research Scholar of Department of computer science, Singhania University, Rajasthan, India
[2]Head, Department of Computer Science and Applications, Guru Nanak Khalsa College, Haryana, India
{Email: [1] manojkhinchi@hotmail.com, [2] bharat_dhiman@hotmail.com}

Abstract— Wireless networking is growing in day to day business due to its portable working scenario, peoples like to work in wireless communication due to its less complex architecture that lead network user increase every day, so one can say that wireless MANET network are now the most desire part of user's business life, therefore it does high demand of wireless network devices to overcome from the limitation of network and to give more easy to use platform to the users , author investigate many traditional protocols and routing algorithm that make wireless communication more reliable and efficient, on the other hand devices makes network more complex because device follow parameters of limitation that deal with heavy traffic and congestion issues , many time performance degrades and efficiency gets down makes wireless network very poor and demands to introduce some more advance tools and techniques to manage this traffic pattern with high performance and efficiency.

Proposed MANET policy has been designed to meet wireless users requirement, the implementation of proposed technique provides good performance factors as well as quality of services issues for efficient communication, in this paper author present a implementation based comparative study of proposed MANET routing model with existing methods in order to compare performance factors and define new proposed approach in present MANET network.

Keywords— MANET, Routing Protocols, Wireless Network, Efficiency, Traffic Pattern

I. INTRODUCTION

We know that MANET is a simple network topology where each node of the network is getting communicate to each other without any centralised administration as in [11], therefore one can say that it is a self configured wireless are networking scheme dedicatedly available only for peer to peer node connections in static manner or dynamic based on the operation of rooming of mobile node location to location as in [8].The point of participation of each intermediate device like channel, bandwidth and

mobile devices cooperate to each other , among the available networking nodes also play routers responsibility to take over the decision of forwarding packets from one to other node within the network [14].

Specially in MANET, it happens that due to frequently rooming of nodes many time destination node goes down to for out of range that create complexity issues for maintaining such request packets until the destination node will aging found at specified range , in this case network need more superior way to explorer the operation of routing as in [5]. In case of MANET author found that dynamic changes are frequently going during the operation required more intelligent routing mechanism that prevents network from unfair decision and behaviour of mobile nodes as in [1][2]. MANET network users are growing increasingly one need to focus on the major requirements of the network on efficiency over data and voice wireless communication , such multimedia applications are mostly demanded by maximum number of peoples in social networking also that put stress over the network due to high volume and large size of data , wireless portable devices makes communication easy and efficient due to its inherent quality in communication, MANET provides efficient utilization policy for underlying network nodes but developers need to focus on the major prospects of limited are communication network for quality purpose [15].

In this paper author propose an approach for MANET that resolve the routing issues at its maximum extent by having some synchronous routing policy performing at each and every intermediate node of the network for the purpose of efficient working scenario and without centralized infrastructure network.

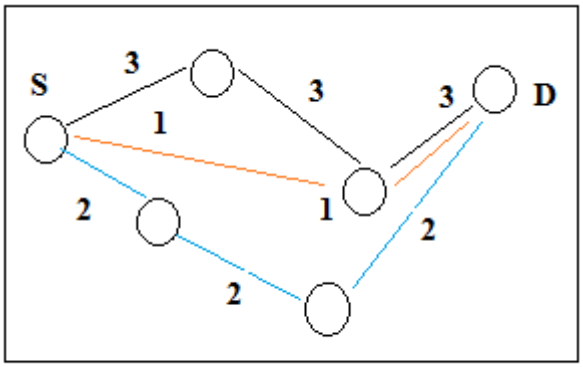

Fig 1. MANET node interaction

In Fig.1 node S finds different route to precede request for node D, proposed SSR routing model eligible for performing the best routing dynamically due to synchronous routing factors, buffer optimization take part during the routing process to control over the network processing.

II. BACKGROUND STUDY

A. MABR- Modified Associatively Based Routing Protocol

Associatively Routing algorithm has been traditionally proposed and implemented scheme of MANET network designed for similar type of networking issues in order to guaranteed communication interface it has been follow the relationship of managing routing information at each node performing the role of host to manage and maintain the load of limited networker, modification is also carried out in the literature as in [3][6] for the same purpose, In this way this algorithm is successful to achieve the quality in communication and efficiency in routing for wireless network , typically MABR algorithm is combine the operation of ABR and related MANET routing protocols like LAR (location aided routing etc.) . The main reason behind AMBR is to optimize the performance issues for bandwidth efficiency and to effectively use

routing agent to minimize network overheads [4]. At each node having a kind of tale called "Location information table" assigned at every node that is the extension of LAR existing protocol and the reaming network node will tract the initial node rout by GPS system as well, based on this tracing system all node will get update his table to proceed every upcoming request similarly.

B. ABAM- on Demand Associativity Based Multicast Routing for AD HOC Mobile Networks

In [9] author found ABAM multicasting wireless networking strategy. The major concept is to manage the stability factor of node during multicasting operation, it is ongoing for the hierarchical tree route discovery, selection and configuration process to achieve extended operation mode. The objective is how to reduce route reconstruction management [13]. To migrate all the node of tree oriented network it employs route reconstruction techniques, to repair the breakage in the tree architecture it follow and perform reconstruction of route with single operation, all the upper level and sub tree has been repaired by this algorithm frequently , it is robust so that every repairing has been triggered by a node activity . Multicast grouping operation also has been handled by dynamic event handler based on the decision of individual mobile node for joining the group as defined in [10]. In [7] we can see that there is a multicast routing policy has been proposed for the purpose of evaluation of performance that has been called by high dynamic process of multicast technique as found in [9]. The process has been use for multicasting in between the node group based on demand at dynamic time with stability measurement which has been also use in ABR for unicasting as in [12].

III. GRAPHICAL ANALYSIS BETWEEN VARIOUS MANET ROUTING PROTOCOL AND PROPOSED SSR MODEL

Fig. 2, 3, 4 describes the analytical comparison study between various MANET routing protocols based on the performance parameters like data transmission ratio as a function of pause time and using different types of traffic pattern. The throughput and response time has been majored by different type of frequency of every incoming signal. It shows the efficiency and accuracy of the signals during the transmission. As showing in the following figure, it is clear that performance decrease as the number of ode increases, this happens when the capacity of channels is low compare to the full capacity of signals. Following graphical study describes the performance comparison between SSR, CBRP and DSR in which SSR performs better in transmitting data packets which one can major in 95% and 86% but AODV consider an average PDR equals to 90% .

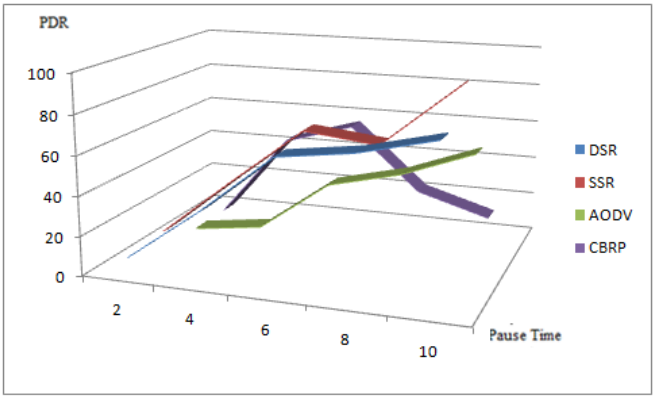

Fig 2. PDRVs Pause Time for 10 Nodes

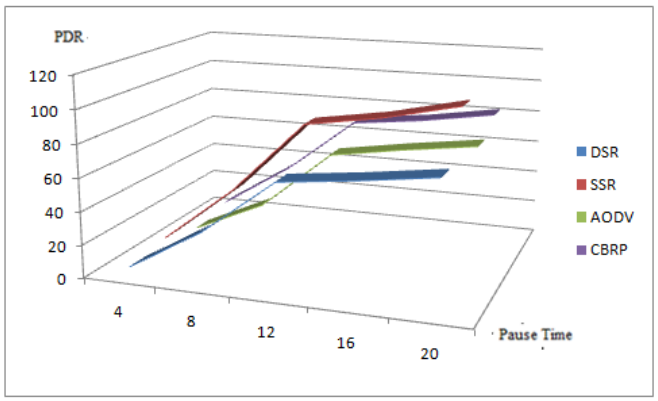

Fig. 3 PDR Vs Pause Time for 20 Nodes

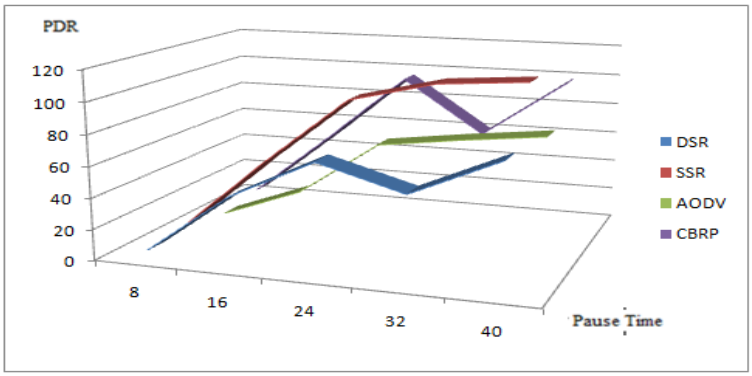

Fig. 4 PDR Vs Pause TIme for 40 Nodes

A. Average End to End Delay

Fig. 5-7 shows and describes the graphical analysis scenario for delay Vs pause time required and need to be observing with different node behaviour. Following graphical analysis describe that as the number of node increases the resultant parameter also gets increased in the way on delay, in the procedure all the packets gets wait for their performance by queuing technique. Apart from the delivery f data packets from node to node communication that describes the performance comparison scenario among the nodes, which is the first procedure to make be a part of a communication session? The source routing protocols many time faces longer delay issues as what observe by author because their route discovery demands more time as every individual node demands it separately. The similar type of scenario is implementing at that describes thing happens packets has been deliver from node to node.

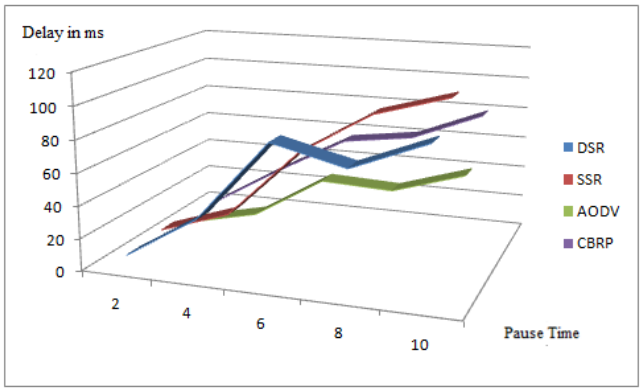

Fig. 5 Average end to end Delay Vs Pause Time for 10 Nodes

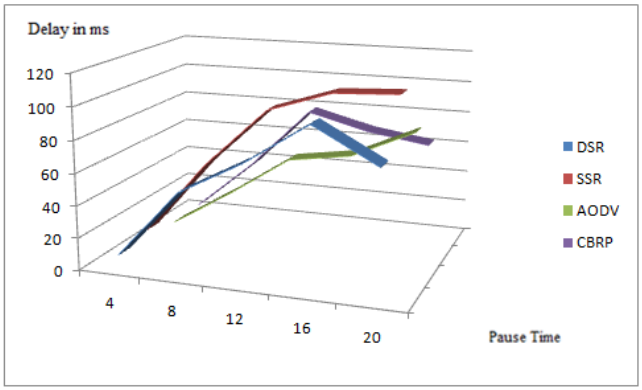

Fig. 6 Average end to end Delay Vs Pause Time for 20 Nodes

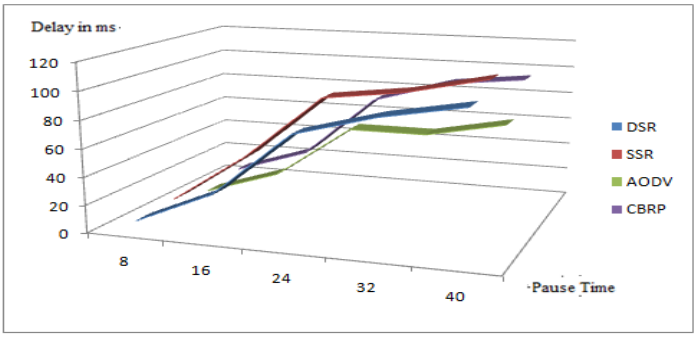

Fig. 7 Average end to end Delay Vs Pause Time for 40 Nodes

1. Fig. 5-7 shows the performance of SSR, CBRP, AODV and DSR by analysing and evaluating delivered data packets from one end to other, author found that data packets delivery ratio and maintenance has been considered over different number of data packets. Author found the evaluation of its first packet with 0.145, 1.98 and 1.45 for DSR, AODV and CBRP protocols respectively. We found that the overall maintenance and overheads of CBRP and an individual unit of AODV's. Author also found in SSR model that Showing less overhead then CBRP and AODV protocols, since lower average performance measurement CBRP and the number of outs route requests and replies is very less than that of DSR.

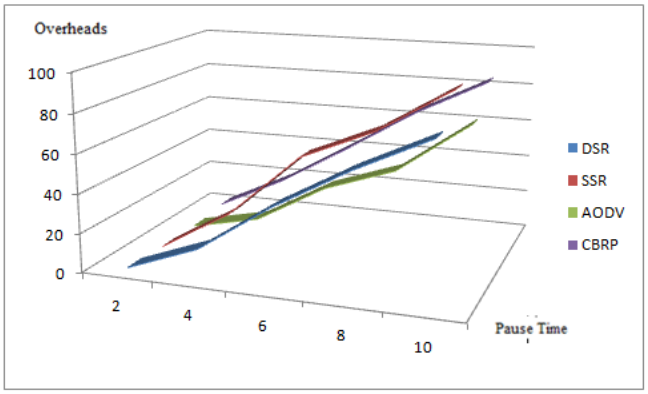

Fig. 8 Routing overheads Vs Pause Time for 10 Nodes

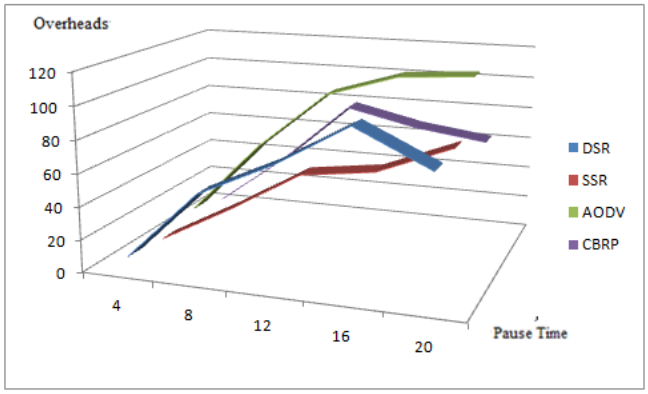

Fig. 9 Routing overheads Vs Pause Time for 20 Nodes

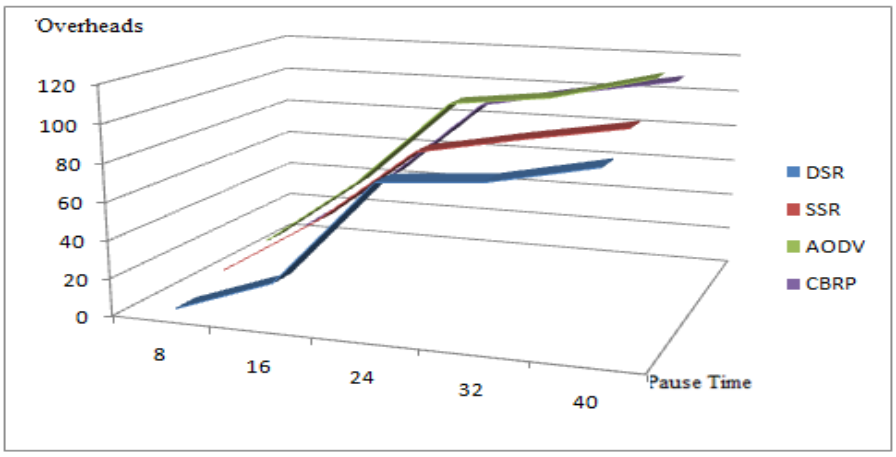

Fig. 10 Routing overheads Vs Pause Time for 40 Nodes

The objective behind such comparative study to observe that performance measurement of different routing protocols and their study for the outcomes of new advancement in computer science technology of this performance evaluation is a comparison of a MANET between AODV, DSR and SSR routing protocols. AODV is good for small number of network node and need to be improving as per user demand and requirement. DSR and DSDV is something more advance for performance measurement of how manage large traffic series which perform good when we check network from middle or first level .for saver multicasting through this node are challenging one to get improve network services. The proposed model is suit for the purpose of network performance and delivery ratio observation it seems to be more meaning full that SSR plays important role over the other routing protocols. In order to achieve the routing objectives SSR has been tested over the network for different traffic pattern the buffer optimizer define the routing path for efficient routing purpose and the accuracy in between this protocols.

IV.CONCLUSION

In this section author conclude the paper with comparison between most identified routing protocols like AODV,DSR and SSR based on the major factor of comparisons like scalability , adaptability, reliability and drop packets as many more , to identify the performance measurement among the different proposals , in table one can observe that SSR is most suitable for multicasting as well as other types of communication therefore in few cases DSR and AODV is seems to be good but not considered for large network. Based on the parameter which has been achieved by the new SSR routing is simply fulfils the requirements of MANET user's by exploring the capacity of traditional routing policy over wireless channels.

TABLE 1

COMPARISION BETWEEN VARIOUS ROUTING PROTOCOLS WITH PROPOSED ROUTING MODEL

Comparison Parameters	AODV	DSR	SSR
Scalability	2	3	2
Delay	3	2	1
Routing Overheads	2	1	1
Drop Packets	1	2	0
Throughput	1	2	3
Dynamic Adaptability	2	3	3
Energy Conservation	2	1	2

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