DEPLOYING ENERGY EFFICIENT ROUTING PROCESS ON WIRELESS COMMUNICATION NETWORK THROUGH RELIABLE RESOURCE ROUTING TECHNIQUE

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ABSTRACT

Energy efficiency management is the major consideration whenever we talked about wireless communication system, since the combination of various tiny sensors are not enough to survive long during the process of highly engaged and loaded wireless network such tiny nodes are majorly responsible for the communication errors like network failure, data loss, highly delay and lower throughput issues will journal push down the reliability measurements of wireless routing protocols, in addition many traditional routing algorithms has deployed to make this possible but still wireless network are not very much suitable for highly loaded communication network but although the specialty and characteristics of wireless network cannot be ignored because in many ways there is a lots of communication benefits are achieved through this, in this regards in this paper we deployed an energy efficient routing strategy to brings wireless network more strong in all the way of communication apart from this the proposed Reliable Resources Routing algorithm will also ensure low delay, highly throughput and better communication services without getting errors like data loss, network failure during the process of communication and routing in wireless network.

Keywords: Wireless Communication Network, Routing Protocols, Delay, Throughput, Efficiency, Data Loss.

I.   INTRODUCTION

It is a matter for research to protect our network from the effect of congestion in wireless network, to overcome from this issues there are many researches has proposed and continuously working on them to make network error free as possible. In[1], author proposed Proportional Integral Derivative Model for resolve peer to peer network error control arises at fluid algorithm in wireless distributed network, in the proposed design one experimenting primal dual method in order to improve performance at throughput level rather than stability , algorithm has PID frame that takes the responsibility for performing controlled action along with distributed design scenario, it is good at some extent level but simulation study define variation at performance level has been introduced as traffic get heavy. Static Load Balancing can be effective solution based on topological aspect describe in [2] to define traffic engineering that focus on the capacity of link at run time dynamic to control and manage the load, the aim was to represent MPLS application to manage load, here one define when algorithm found in shortest path in wireless distributed network then protocols instruction takes the role to get select low load shortest path instead of previous one, based on the bandwidth optimization and computation .congestion in wireless distributed network can be the stronger barrier for wireless and wired communication if one talk about 3g void communication technology like in[3], network offer high speed data transfer but still there is many issues are happing at the time of communication due to heavier load of data to resolve these issues author proposed new design that expanding the network with parameter support. In[4], Genetic algorithm has been introduced for balance load at link level it can the solution for peer to peer network in modern network that manage non directed distributed traffic , experiment show it can be the better solution than other even it can be implemented at higher traffic area. Next hop routing is very common in routing algorithm to choose best interface among all. This techniques is dealing with big risk of getting failure of network , provides loss of information, in[5]one present a routing protocols named as multi next hop routing information protocol, the proposed techniques is the extension of RIP technique.

II.   RELIABLE ROUTING PROTOCOL

Mobile wireless distributed networks, called ad-hoc networks, are networks with no fixed infrastructure, such as underground cabling or base stations, here nodes are having capacity of moving dynamically in superior manner. Host in network perform as routers, which discover as well as updates routes to one to one node in the network. A part from this major challenge in the design and development of MNAET networks is the development of routing protocols that can efficiently search and find best routes among the networking nodes [3].

Routing protocols can be accessed as generally use either in distance vector routing scheme or in link state routing scheme, both of which updating the information in specific session for routing advertisements to be broadcasting node to node by each router. However, such protocols do not perform well in dynamically changing ad-hoc network environments. The limitations of mobile nodes, such as limited bandwidth, constrained power, and mobility, make designing new ad-hoc routing protocols particularly challenging. To reduce such limitations, author goes through the literature survey study of on-demand routing protocols, Dynamic Source Routing and AODV routing strategies [4].

Some of existing source-initiated routing protocols like DSR and AODV, during the route discovery procedure, attempt to choose a route having the minimal number of hop-count among the available routes. However, we also knew that long distance among neighboring nodes might provides shorter link as well as maintenance time required for routing process, this affects the routing performance and throughput measurement. In case if one found that routes are getting fails since host mobility movement, it needs additional time to reprocess the route and reconfigure it from source node to destination node , it results in higher flooding level for controlling packets. So that, we cannot say that a route with having smallest hop-count is find as optimal. To get this goal, here we discovery algorithm known as Reliable Route Selection algorithm.

2.1   Ad-Hoc On-Demand Distance Vector

AODV routing protocol supports various routing as well as supportive communication services like the multi-hop routing among multiple mobile nodes for securing establishing and upgrading an mobile ad hoc network. AODV working is based upon the Destination-Sequence Distance Vector strategy worked as an algorithm. The difference from other ad hoc protocol is that AODV is reactive category of protocols, on the other hand DSDV is belongs to proactive. AODV works in the way in which it requests a route only when it is required, and it does not need any mobile nodes to gets routes to the destination. To send or get connect a message to a destination node, a source node first initiates a route discovery investigation process to locate find the destination. A Route Request process control packet is works for flooded through the network activity until it gets to accurate destination or it reaches to a required node that having the details about routing to the destination node. On its way it will through the network nodes, the Resource REQ data unit it initiates the temporary routing information for the detail path at all the mobile nodes it passes. On the other proceeding stage, Route Reply control packet will be used to find destination by uni-cast routing from source end it brings along the routing information temporary reverse route. Routes has been chosen by the route technique used for discovery process are works as follows. If a is suffered during the process of routing and if we found that route is divided due to the movement of the source mobile node, then it will it reprocess the route discovery procedure to get a new route to reach towards to its destination. If a route is divided since the movement of a mobile node in their route, its neighboring upstream mobile node notices such type of movement then it taken action and produces link failure message through its all remaining mobile nodes of the active upstream nodes to the source nodes. A best feature of AODV is the use of sequence numbers for ordering purpose. Sequence numbers upgrading the newness or refreshes of routing information details and to prevent from routing loops cycle. If one found the process packets sequence is greater than its previous node in the nodes routing table information, it means that the packet having its own newer routing details and the mobile node will update and maintain its routing table based on the process to updated information. It does not support to process multi-paths from any source node to destination. Each data packet has to be to know the address and details of routing of the next hope to gets its requested destination place.

2.2   DSR

The Dynamic Source Routing protocol having many multiple verities like is a simple and robust routing protocol developed for support and use in wireless ad-hoc networks routing services of mobile nodes. The use

of source mobile node routing allows data packets routing to be loop-free, in such a way it avoids need for up-to-date routing information at the intermediate mobile nodes via packets are to be transmitted, and it allows source nodes transmitting or to caching the routing information kept securely in them. Dynamic Source Routing is comes into the category of beacon-less protocol. During routing phase, it designs a RREQ which is flooded in entire network. The similar process used by destination nodes responds by having RREP, which carries the information in route by the RREQ packet. Each RREQ packet having a sequence number created by source node which is used to secure loop formation and to protect by multiple transmission of the same RREQ packets by intermediate mobile node that receives it through information paths. DSR is also belongs to a purely on-demand ad hoc network routing protocol like AODV. This means that a route is designed and invented in dynamic manner means only when it is needed and no preprocess of connectivity is performed during the routing process, since it uses flooding for route discovery, so that nodes do not accumulate network topology details except for cached routes. Destination source routing includes two main procedures like: route invention and route information updating process. Route discovery is simple used to discover a route by using routing table from a given source to a given destination, while route maintenance is used to maintain node details of previously discovered routes, since we focused on route discovery. Route discovery is the combination of two processes: RREQ packets and RREP packets. Whenever a source mobile needs to communicate to a receiver side node and doesn't find the relevant detail in associate node regarding routing process in this it uses another way to find route using a special packet called RREQ for the initialization of new route.

III.   LITERATURE SURVEY

[06]. Anytime network can cause failure due to unrelevent design of network that affect overall communication therefore network design need to be excellent, it is always possible to get increase the capacity of resource at higher level but it is not sufficient to control peer to peer network error control , they need to implement with required specification of network and planning even at low traffic since when such traffic get increased the problem of congestion takes important for the point of view of fairness and higher throughput both are need to be consider as equally important , here one can conclude it as per it definition as —without having accurate network resource design network always go down as load get heavier [7,8].

As in [09] Internet services are growing day by day, now it has been working as a great accelerator of today's business for void and data communication. In order perform information process there are so many factors have been introducing that consider as a barrio for business information process. In [11] presents a novel approach for dynamic peer to peer network error control mechanism for real time streams over RTP, this research presents the mechanism to handle growing network due to the high demand and production of multimedia applications, author suppose the problem due to the massive growth in multimedia oriented application which uses data in the form of streaming like audio, video, etc such application produces big amount of data continuously causes stress over network that result, bottleneck problem on link due to heavy congested network , to address the solution regarding the bottleneck link author proposed a reliable, dynamic peer to peer network error control mechanism known as DCCM which works on the principle of RTP for stream delivery data services , author works on the conceptual principle as they convert persistence congestion from transient congestion. In [13], presents mechanism for wireless network belong to the services category of protocol IEEE 802.11 wide area network. Author design a novel point to point connection oriented peer to peer network error control mechanism known as —Media access peer to peer network error control — the major object behind this research is to control on fluctuate rate of sender and receiver window[14] . MACC improve the performance by having control over sending rate. so that synchronized communication can be achieve to get successful communication in wide area network ,such peer to peer network error control has been done at MAC layer to get reduce flow error occur due to congestion, MACC is useful to utilize channel capacity effectively and also capable to manage fairness at both end. Proposed model has been design after the analytical study of wired and wireless communication architecture regarding the study of congestion. In order to eliminate congestion from wireless local area network author mainly focus on the experimental study of congestion at wireless network on TCP reliable congestion less protocol. Another important research in the field of distributed peer to peer network has been proposed in [12] design a special mechanism to improves the service scenario of traditional multicasting mechanism like control multicasting, QoS multicasting etc., provide

many solution for the performance level at multicasting network but here some one proposed a different idea for the same problem, or to provide address from the problem of peer to peer in multicasting network , authors has been named it as —Active Wireless Distributed Control Mechanism for non-cumulative Layered Multicasting . in this approach network has been deal with the multicast tree to manage and provide multicast serving in the network communication scheme , the proposed multicast flow control algorithm identify the state of flow control called as Wireless Distributed wireless congested branch under design network node tree based on the computation for multicasting, if found something wrong regarding the error perform dropping preference factor in order to drop the congested node from the network which minimize the affect of congestion state. Such techniques provide tighter control over the network from congestion.

IV.   PROPOSED ALGORITHM

To make movement of all the moveable resources, RRS protocol should consider the following points:

- RRS protocol calculates the distance between all the resources, including moving resources and static resources.
- When simulation is in running, RRS finds the need of energy level of each and every resource for transferring the data from one resource to another resource.
- RRS protocol calculates the need of total time of the simulation and also analysis the need of total energy level of all the resources at run time.

RRS protocol need to follow some steps in the network. These are:

- RRS analysis the distance between the static resources in their coverage area.
- RRS calculate the length of coverage area between the resources.
- RRS find the correct places for fixing the movable resources to make a proper communication between the fixed resources.
- RRS protocol determines the energy level of movable resources when it moves in between the fixed resources. RRS maintains the energy level of movable resources. It helps to communicate easily with very less data loss.
- All resources have neighbor resources. RRS protocol maintains that all the resources must have at least one neighbor resource within that coverage area .It will helps to transfer the packet from the sender to the receiver without any loss
- Last step, the RRS protocol provides movement to all the moveable resources. Suppose, if the number of movable resources is 40, RRS maintain that all the 40 resources should be in moving state.

RRS place the neighbor resource as a movable resource within the coverage area. If any of the resources do not have any movable neighbor resource, the next nearer movable resource automatically come into a coverage area. From this, the RRS

- Avoid the link failure between the resources.
- Energy level differs on the bases of the speed of the network. If the network speed is high, all the resources need low energy to deliver the data. If the network speed is low, all the resources need high energy to transfer the data. RRS protocol manages the energy level of all resources to avoid the zero level energy at any time.
- Suppose, if RRS protocol finds that any of the resource's energy level is low or less, RRS make that resource as a fixed resource. Because, the fixed resource needs only less energy than moving resources.
- RRS protocol maintains a strong bandwidth link between resources which is used for transferring the data.

V.   SIMULATION AND IMPLEMENTATION

5.1 AODV

Figure 5.1(a) describes the overall behavior of two fix server interacting with different nodes in wireless network in this process the progress going on we find ADODV is not maintaining the overall network performance as well as data with highly load trafficked network.
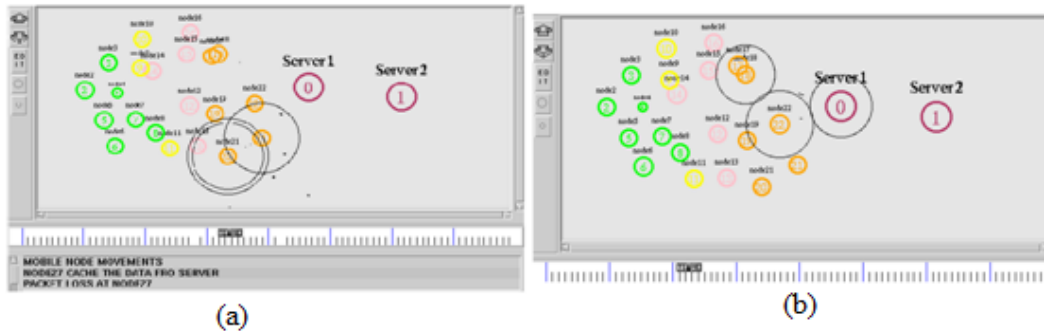
Figure 5.1: Observation of AODV protocol with high number of nodes

In figure 5.1 (b) we find that AODV suffer at node 27 with data loss issues since server1 is the primary server and server2 will interact in case when traffic load gets higher.

5.2 DSR

Figure 5.2: Simulation of DSR on NS2

As in showing in figure 5.2(a) DSR implementation defines there is only one node (0) has itseft works as server going through the destination node during this 0 node will interact to their neighbor nodes for the services , DSR perform well with limited no. of nodes as shown in figure 5.2 (b).
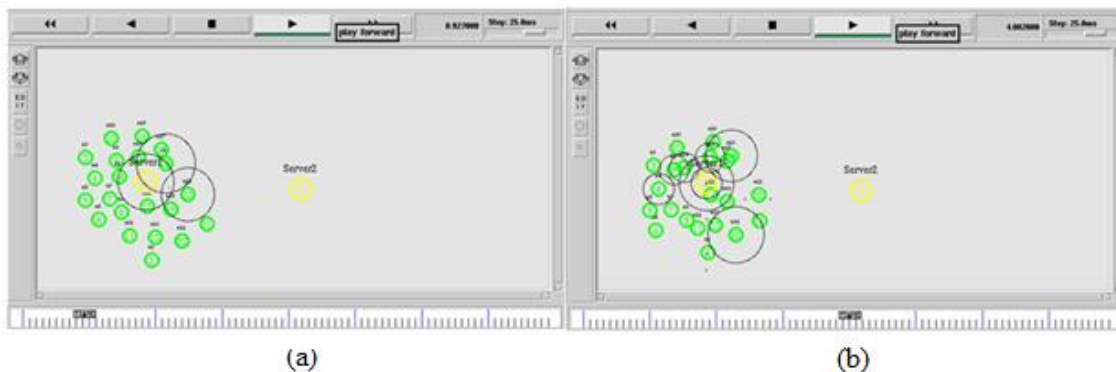
5.3 RRS

Figure 5.3: Simulation of RRS on NS2

In figure 5.3(a) we can see that RRS perform as per the proposed algorithm here RRS uses server 1 and server 2 for distributed wireless networking services in the same process we can see in figure 5.3(b) that server has been locate at the middle of the network node for best communication at the very begging and server 2 has been located over the away from server 1 to maintain heavier load.
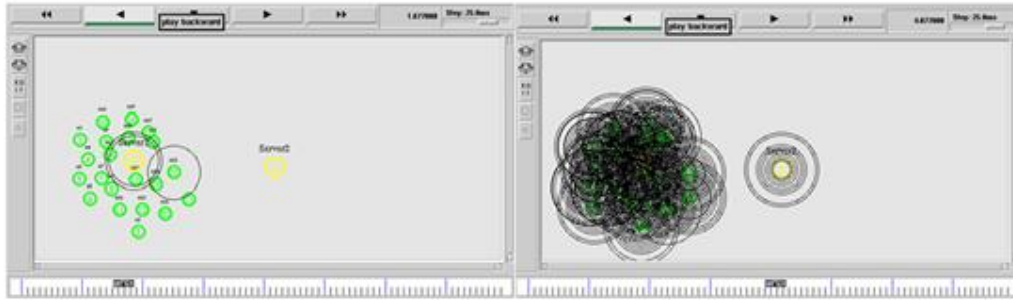
Figure 5.3(c): RRS wireless Communication services with higly loaded Network

In figure 5.3(c) one can see that how RRS will works under complex wireless network area with low and higher no. of nodes with the help of primary (server1) and secondary (server 2) for the management data loss and quality of communication services.

VI.   CONCLUSION

The proposed protocol RRS transfer the data from the source resource, to the destination resource in high speed, high packet delivery ratio and without any delay with the consideration of resources distance, angle, bandwidth and energy level. Finally, we conclude that, if we follow the step by step implementation of RRS protocol in network, get a better performance in transferring data and Wireless Distributed network structure.

VII.   REFERENCES

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