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A New Method to Recover the Link Failure and Reliable Data Delivery in MANET

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***Abstract* -The wireless mobile networks and devices are becoming increasingly popular as they provide users access to information and communication anytime and anywhere . MANETs differs it from wired networks in the way that they have fast and unpredictable topology that changes due to nodes mobility and in this no dedicated routers is required to do routing every node works as a router and a host, it also have the capacity of changing channel capacity due to environmental effects and use multi hop approach to deliver data. In this paper we proposed a new method to recover the link failure and reliable data delivery in MANET is ENAMP(Enhanced Neighbor Awareness of Multicast Routing Protocol).This method will be very beneficial for reliable data delivery for high dynamic MANET. The aim of this protocol is to avoid the link failure and to deliver the data very securely. ENAMP is a combined feature of NAMP ad SPREAD. NAMP means Neighbor Awareness of Multicasting Routing Protocol and SPREAD means Secured Protocol for Reliable Data Delivery.**

Keywords:- MANET,ENAMP, NAMP, SPREAD, Link Failure and Reliable Data Delivery.

I. INTRODUCTION

A mobile ad hoc network is a collection of digital data terminals equipped with wireless transceivers that can communicate with one another without using any fixed networking infrastructure .Efficient, dynamic routing is one of the key challenges in mobile ad hoc networks .Applications of mobile ad hoc networking technology include industrial, commercial, and military communication networks involving cooperative mobile data exchange where wireless mobile nodes comprise the communications infrastructure.

The Ad hoc Networks Characteristics are (i)The mobility model can have major impact on the selection of a routing scheme and can thus influence performance.(ii)Multihopping: a multihop network is a network where the path from source to destination traverses several other nodes(iii)Self-organization: the ad hoc network must autonomously determine its own configuration parameters including: addressing, routing, clustering, position identification, power control, etc. In some cases, special nodes (e.g., mobile backbone nodes) can coordinate their motion and dynamically distribute in the geographic area to provide coverage of disconnected is lands(iv)Energy conservation: most ad hoc nodes (e.g., laptops, PDAs, sensors, etc.) have limited power supply and no capability to generate their own power (e.g., solar panels)(v).Scalability: in some applications (e.g., large environmental sensor fabrics, battlefield deployments, urban vehicle grids, etc) the ad hoc network can grow to several thousand nodes (vi)Security: the challenges of wireless security are well known - ability of the intruders to eavesdrop and jam/spoof the channel. A lot of the work done in general wireless infrastructure networks extends to the ad hoc domain.

NAMP is a tree based hybrid routing Protocol. It utilizes neighborhood information. The routes in the network maintained by request and reply messages The main features of NAMP is if the receiver is not within the range it searches the receiver using dominant pruning flooding method.

SPREAD is a hybrid routing protocol. It provides data confidentiality security service in routing protocol ad also it use s secret sharing scheme between neighboring nodes to strengthen data confidentiality

II. ENAMP ARCHITECTURE

Several issues need to be addressed for NAMP and SPREAD scheme in order to recover the link failure and maximize the security To overcome the issues we designed a ENAMP .first the block diagram explains combined working methodology of ENAMP and SPREAD, secondly the pictorial representation of algorithm ,Thirdly step by step procedure of ENAMP

A. *Block diagram*

The diagram shows in fig 1 sensor node means source ad destination node it helps to transmit and receive the information. mobility represents the node movement random mobility is used for the node wherever to move Authorization is nothing but SPREAD features implementation multicasting is the place using the NAMP features To overcome the SPREAD issues here we implemented like failure detection and recovery portion. For NAMP we designed a algorithm Trusted dominant pruning flooding method ad also I the overall architecture of ENAMP we newly added onetime password (OTP) feature for the security purpose.

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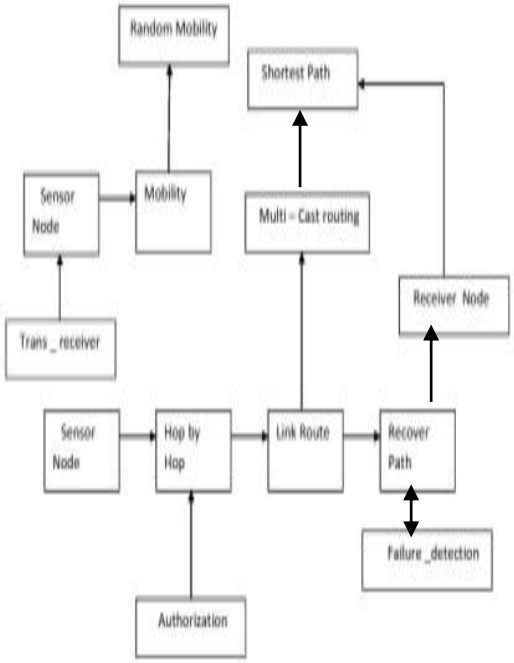

Fig .1. Block diagram

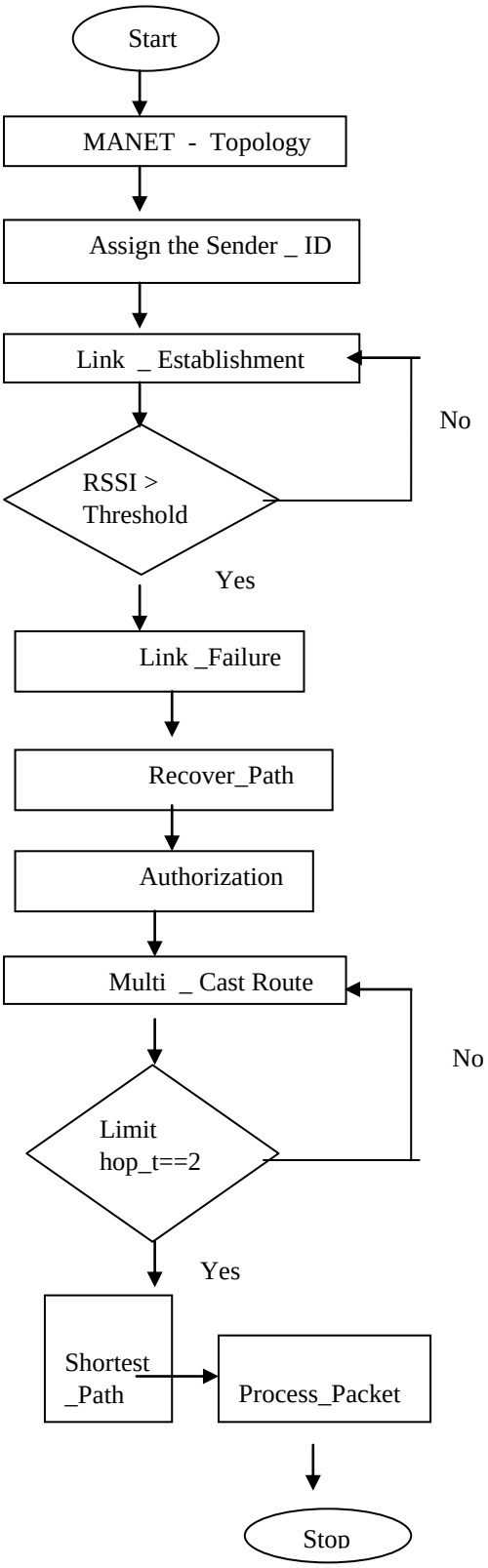

Fig 2 Flow chart

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B. *Flowchart*

Figure 2 presents an extension of block diagram. It should be explains how the algorithm works .MAET starts with topology work and its assign the sender_ID .If RSSI(Received Signal Strength Indicator) value is greater than threshold value the link establishment occurs otherwise its repeated the process. Then if its identifies any link failure it recovers ad establish the multicasting route with that identify the shortest path. Finally transmitting the packet.

C.*Algorithm*

For selection of intermediate nodes based upon the combination of SPREAD and NAMP algorithm

Step1: Initialization of nodes.
Set two route functions f1 *and* f2

Step2: Fixing the threshold trust value Ei from 0.5 to 0.7.

Step3: Analyze the signal strength.
Based on weight calculation and Efficiency in collection of data.

Step4: Comparing of signal strength RSSI and quality of nodes.
If (Ei < RSSI) {
Return higher attribute
}
Else {
Return lower attribute
}.
Step 5: Compute the multi cast routing between sender and receiver value (src,dst)
If (Dist <*Ph*(src,dst)) {
Return next hop.
}
Else {
Return src.
}
Step4: Selection of neighbours.
All processes in parallel do for timesteps do
if route_pkt > threshold then
hop_count++
end

SRC_ID

//select n pairs of objects S in datasets D
DST = Destination

Fig 3 Enhanced E**N**AMP Algorithm

Figure 3 represents the step by step procedure of Enhanced E**N**AMP .In this for selection of intermediate nodes based upon the combination of SPREAD and NAMP algorithm .The algorithm starts with initialization of nodes ad set two route functions named as f1ad f2.the fixing the threshold trust value and analyze then compare and compute the multicast routing finally identify the shortest path and send the packets.

Simulationn Results

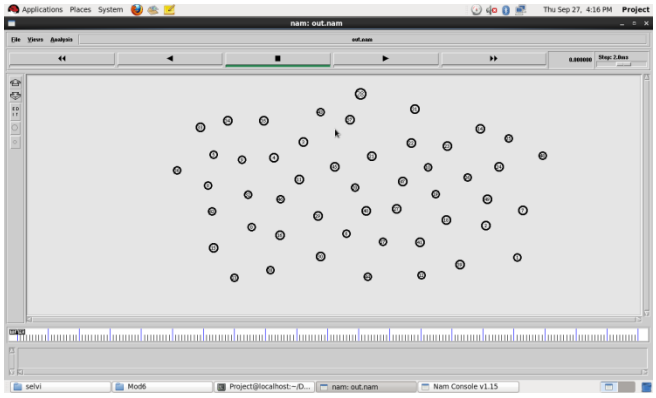

Fig 4 Nodes creation

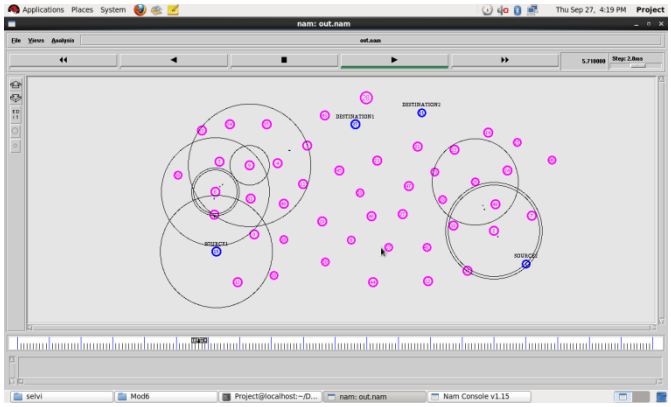

Fig 5 Establish the routes

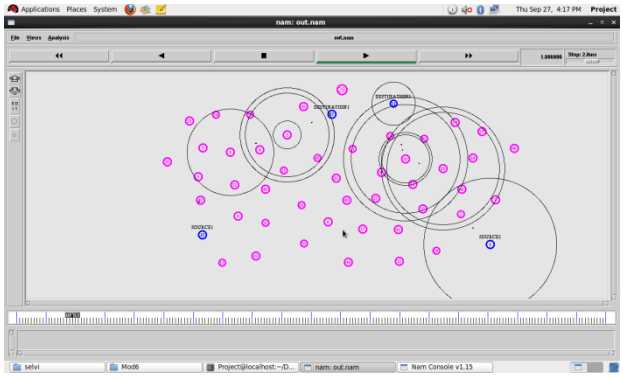

Fig 6 Identify the shortest path

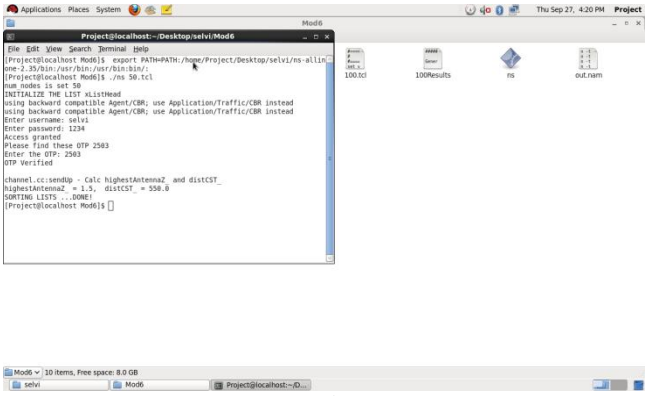

Fig 7 Establishment of Enhanced ENAMP

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CONCLUSION

In this paper we proposed efficient multicast routing protocol for mobile adhoc networks named ENAMP(Enhanced Neighbor Awareness of Multicast Routing Protocol) we expect that ENAMP improves the performance of the network by taking less time to transfer the packets from source to destination(s) .The tree based hybrid routing protocol ensures the high robustness and performance for end to end delivery of data packets.We believe that these works will surely improve its performance and reliability.

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