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A Minimization Scheme for Routing paths in AMMNET using OSPF

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***Abstract*:-*Mobile Adhoc Networks (MANETs)* are more suitable situations for stable infrastructures which are inconvenient or impracticable, rather than MANETs are affects from network partitioning and cost of increased routing paths. These drawbacks are leads to MANETs as unsuitable for several applications such as crisis management, battlefield communications, using this group communication are simply addressed and also groups are works separately in the application terrain. In several applications intergroup communications are failure to the collaboration of group. In order to eradicate these problems in MANETs a new type of class of MANET are Introduced which is called as *Autonomous Mobile Mesh Network (AMMNET)*, unlike conventional networks it plays a major role in MANET and also it avoids the problem of network partitioning problems in group communication also its functioning tracking of client location as dynamic mobility in nature. AMMNET has several advantages such as high throughput relay for clients and provide robust communication against network partitioning also adapting the dynamic allocation of topology. Through these AMMNET also suffers several drawbacks the communication of routing paths cost are high in AMMNET. In order to overcome these problem we applying the Scheme called *Open Shortest Path First (OSPF)* algorithm, using this we minimize the routing paths in AMMNET and provides optimal communication over a network. It also solves the problem of overlapping between nodes while at communication. Our results will prove improved performance over AMMNET using OSPF.**

Keywords— ***Autonomous Mobile Mesh Networks, Open Shortest Path First, Topology Adaptation, Client identification***

I. INTRODUCTION

Wireless Technologies are playing a major role in communication also a most empowering and transforming technologies in recent years. In detail MANETs are most suitable in network communication based on the references, as MANETs are suitable in the sense of based on the environment which is survived,it doesn't need no communication infrastructure is required. In this network a node can be act as router and client in order to forwarding a packets to their destinations by multi-hop relay, MANETs can be successful by based on the fixed infrastructure which is impracticable or inconvenient. Instead of achieving cost effective solution in MANETs the same networks can be isolated and reused in another location based on their applications the network can be used.In MANET the great challenges are attempt to design a robust network, also reduce the network partition, for an autonomous users in a network which suffers continuous flow of changes in topology over a time, this limitation can leads to the partitioning of network. Inorder to over these changes a new class of robust MANET can designed also it is called as Autonomous Mobile Mesh Network (AMMNET)[1].

In Fixed wireless network it provides a routing and relay capabilities. They allow us to communicate based on the predefined allocation of paths and destinations, which is scalable and flexible in communication and less maintenance in network. In fixed network whenever a node fails based on the predefined structure we dynamically identified the problem also rectified easily. By same the proposal of AMMNET in wireless technologies by dynamically reconfigure the network also protecting from network partitioning to provide optimal services in the communication. The Identification of nodes in network by GPS values of nodes, GPS value in the sense of Latitude and Longitudinal position of nodes. The Challenges in AMMNET are initially the nodes in the network doesn't know its location we need to function these schema by GPS value, next we functioning a topology adaptation scheme, also we have to concentrate on the routing paths during packet transmission we concentrate to minimizes the

routing paths using Open Shortest Path First(OSPF) Technique[3][4]. This Technique can be suitable for Autonomous environment. It processes the minimization scheme by selecting best path by shortest and minimized cost.

II. RELATED WORK

We deploying these works which related to AMMNET using OSPF into four categories: 1) Fixed Wireless mesh networks, it assist dynamic topology adaptation scheme, 2) Sensor coverage: the methods for sensor coverage is related to planning of coverage in mobile clients in AMMNET, 3) Tracking of mobile client location in AMMNET and 4) Minimization of routing paths.

A. Stationary wireless mesh networks

In the most recent years, fixed wireless mesh networks have been Developed to activate wireless broadband access at last mile existing work on fixed mesh networks identifies on routing traffic in a mesh topology to best utilize the network capacity. On further study it describes utilization of non-overlapping channels and explicit control of network topology to improve the capacity of a network in fixed mesh. Our work builds on the concept of such a fixed mesh-based infrastructure, and applicable it to enable communication among partitioned mobile clients. We study dynamic deployment of an AMMNET in this work, and leave utilizing non-overlapping channels to improve capacity of network as our future study.

B. *Sensor coverage*

Our work on router establishment is also related to recent work on sensor coverage in afixed sensor network. These schemes Process that each point in a target field is in the interior portion At least k different sensors [11][12][13]. Several work on further takes at energy efficiency scheme into account, and assign each sensor a sleep-active mode to guarantee sensor coverage also verifies the lifetime of a sensor network. Most recently, some work about sensor mobility is to improve the performance of sensor coverage. A self-established protocol is proposed in to enable randomly scattered sensors to self loading move to the target planned positions. Instead of deploying stationary sensor nodes to cover the entire monitoring field, also an alternative scheme is deployed in to use mobile mulesto move around various monitoring areas and collect data along the visited paths. All the above literatures are states to focus on establishing sensor nodes to monitor a given target area. Our work differs from the sensor coverage schemes in that it builds a dynamic mesh infrastructure for mobile clients that have unpredictable moving patterns and move around a non-predefined application terrain.

C. *Tracking of client location*

The functionality of tracking the client location as, there is much work that has been done on the problem of tracking the geometric location of a mobile node [19][20]. Most of the localization technologies are to measure the distance between nodes and use this range information to estimate the location of a client. Some other range-free schemes are only use node connectivity and total number of hops information to measure node locations without explicitly measuring every link distance. Compared to those existing localization schemes are designed to minimize the estimation errors in node locations, In AMMNET it only needs to track mobile clients, and does not require the exact location information of each client. These localization technologies however can be combined with AMMNET to improve the intended of client tracking.

D. *Minimization of routing paths*

The minimization of routing paths is indeed, the process of minimization can functioned to reduce the cost of paths. Most of the minimization schemes are provides the logic about the shorter distance which could be functioned in fixed networks. In AMMNET, while using OSPF it provides optimal shortest distances over an autonomous environment also providing an efficient communication in a network.

III. OSPF ALGORITHM

Open Shortest Path First (OSPF) is a routing protocol for Internet Protocol networks. It based on the principles of link state routing algorithm and falls into the group of interior routing protocols, operating within an autonomous system (AS).It is a routing protocol which used for autonomous environment. OSPF follows best optimal path while traversing on it, the best path in the sense of it follows a minimized path cost to reach the destination. It functionalities based on the dedicated point to point communication between each node also it establish a connection followed by sending HELLO message between nodes.

The OSPF Algorithm can be followed as:

dist[s]
for all v €V–{s}
do dist[v] ← ∞
Q← V
Do u ← min distance (Q, dist)
S← S U {u}
For all v €neighbors[u]

Do if dist[v] > dist[u] + w (u, v)
Then d[v] ← d[u] + w (u, v)
Return dist

IV. SYSTEM IMPLEMENTATION

In Existing System, An AMMNET resolves the problems of network partitioning and dynamic topology adaptation schemes. But it doesn't concentrate on these schemes only, due to this which increased routing paths cost during packet transmission leads to high.In order to overcome these problem we propose a scheme called OSPF(Open Shortest Path First) this scheme can be applied on AMMNET environment, we have to reduce the routing paths also we have to recovering overlapped communication between nodes by forming clustering scheme such as Fuzzy C-Means Clustering algorithm, in this algorithm it form a group in the sense of based on the member which is located by ordering of nodes,by this way we have to grouping them and also processing a communication based within the group.

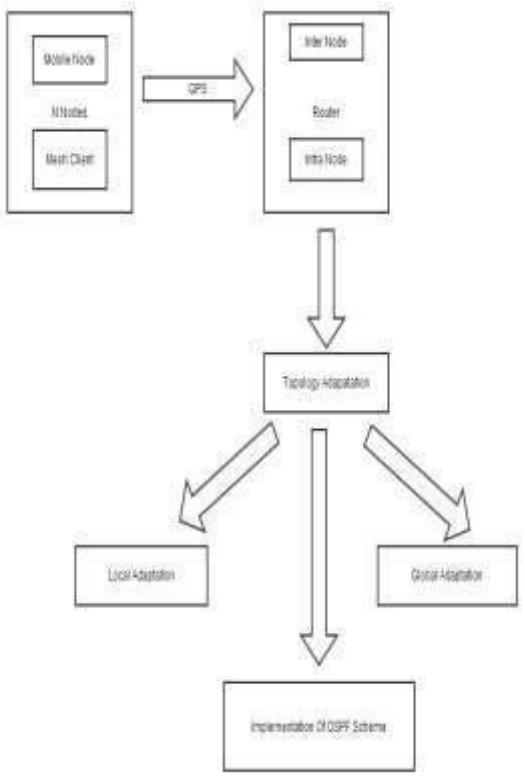

Fig3.1 System Architecture

System Architecture deals about the working strategy of AMMNET using OSPF, Initially a network consists of large number of mesh client and mobile node with number of N Nodes due to mobility the nodes are move farthest towards its original position Inorder to tracking a particular client location we have use the technique as GPS (Global Positioning System), The GPS track its current location and report towards it router. In AMMNET it has used three types of routers are implemented: 1.Inter router 2. Intra router,3.Free router: The function of Inter router is collecting local client information and tracking to processing them as adapting a topology by locally. The function of Intra router are functioning collecting and tracking of client information between the inter routers and function topology adaptation as globally. The function of free routers are simple its functioned as free whenever the node can be migrated over a network the Inter and Intra router notifies to free router to track nodes and act as inter router to collect and communicate with them. Based on these we solve the problem of network partitioning these router helps to prevent for such problems. Next stage is Topology Adaptation in AMMNET it can be achieved using two methods: 1.Local Adaptation 2.Global Adaptation. The local adaptation means that if one group of node wants to communicate with another group of nodes with the help of inter and intra group routers in local adaptation. Before finding inter and intra router forms the cluster using the k-means routing algorithm. From that we identify concern groupsto find inter and intra router position by adapting by locally. The process of reducing a network partitioning in the global adaptation scheme, we identifying thedynamicallychanging the network topology. In global adaptation scheme the number of inter groups and intra groups are identified by constructing R-Tree based on these group members are adapted by globally. Hence we achieved the AMMNET Scheme orientation, in order to rectifying the problem of AMMNET; here we implement the OSPF scheme. The goal of the OSPF is choose the best optimal path based on the shortest path cost, here we achieved the limitations of AMMNET using with OSPF, also it recognized node with scalable and less maintenance cost between communications over a network.

V. PERFORMANCE AND RESULT

The Performance of our paper deploys higher advantage as compared to existing one[9], it achieves a reduced path cost as compared to existing one. Initially we track to locate a client location and avoids network partitioning, next we recognizes the dynamic topology adaptation scheme using routers, at the time of functioning it executes packet transmission. The resultant graphs which functioning by its axis such as X-axis deals about the Number. Of.Nodes and Y-axis deals about the Packet density

Ratio between nodes. The result of path cost comparatively reduced with the implementation of OSPF scheme in AMMNET. These performance and result which states an efficient communication while using OSPF scheme in AMMNET. It could diagrammatically proved.

E. *Packet Transmission*:

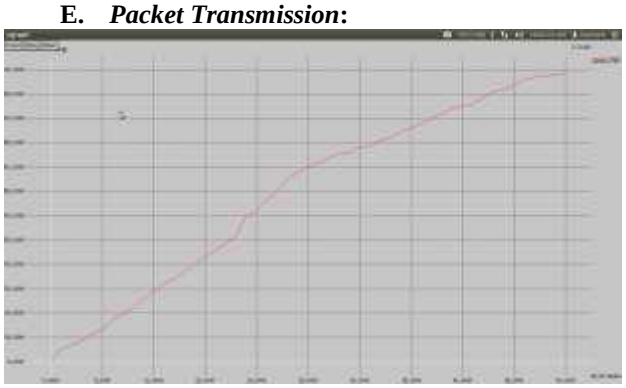

Fig5.1 Packet Transmission

F. Comparison Graph:

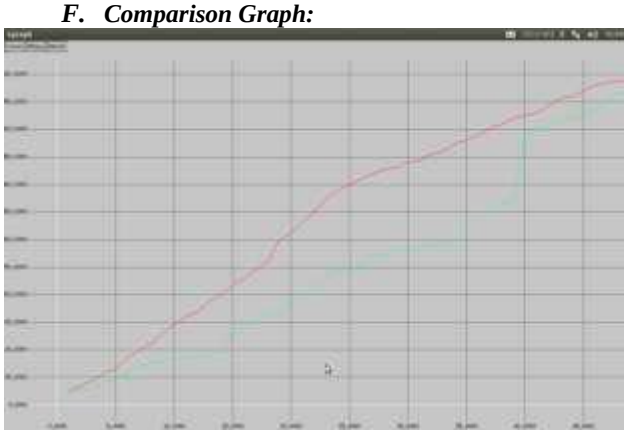

Fig 5.2 Comparison Graph

VI. CONCLUSION

The main goal of this paper is to avoid network partitioning and ensure robust communication with minimizing routing paths. The mobile users need to work in dynamically formed group, which occupies different large parts and uncertain application terrain at different times in crisis management and battlefield communication. The cost effective solution is not there for such application. In the existing system it uses an AMMNET; it solves the problems of network partition. When the user groups move apart, the mobile mesh routers of an AMMNET track the users and dynamically adapt the network topology to seamlessly support both their intra group and inter group communications, also it uses an autonomous mobile mesh routers which is effective than stationary mobile mesh nodes. It also achieves a scalable communication. Inorder to overcome the problem of AMMNET can be achieved using OSPF, using this scheme it can be tend to reduce the routing paths with improved efficient communication also non-overlapped communicated nodes can be rectified. In this paper some limitations are such as disappearing of mobile nodes and non-overlapping communication over channels are investigated it could be rectified in ongoing future research.

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