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An Enhanced Routing Method And Average Energy Consumption Ratio For Using Manet

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***Abstract*—**A Mobile Ad-hoc Network is a rendezvous of mobile eventual are commonly derived the domical act of a slapdash network without any fixed centralized and framework infrastructure legislation. The Mobility Models are rescue operations and time critical utilizations. Network Simulator is low cost tool which is available for open source software developed the network designers. It can be assume the wireless network and wired networks used in the Mobile Ad-hoc Network. In ad-hoc network, the routing protocols are hypothesize the communication between the node or packet can be sending and receiving the data trough source to destinations. In this paper we analyzed the performance metrics are MANET commonly used in the throughput, packet delivery ratio and energy consumption ratio.

Keywords*—** *MANET, Mobility Models, NS2(Simulator), NPDU, Controlized Overhead.**

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I. INTRODUCTION

The Mobile Ad-hoc Network is commonly used in the less infrastructure mobile network have less host network that communicate with each other no fixed routers and all nodes are capable of movement and connected dynamically in an arbitrary manner. The network complexity of huge network that‟s like high complexity of the nature. The nodes can be esteemed in commodity and proliferation of backup technology available in the data handling. The MANET is used in communication along with Manet (internet Manet). To share the information and data acquisition operations are inhospitable terrains and mobile nodes link and fixed internet gateway nodes. Ad-hoc routing algorithms are used in the PDU, NCOH and DDR. The Manet have the following characteristics could like the no infrastructure of flat network. Radio Communication can shared the medium network and mobility models are used in the dynamic topology control. A mobile ad hoc network consists of a n number of the group of mobile nodes forming a temporary network on wireless links without the aid of any normalized administration. Some of its characteristics are: dynamic topology, Bandwidth constraint, Energy constraint and limited physical security. Ad hoc networks are used in rescue operations, disaster recovery, hospitals, conferencing, communication and military. Broadcasting a message from a source node to all the nodes in the network need the support of intermediate nodes.

These simulations have several parameters including the mobility model and the communicating traffic pattern. In this paper, we focus on the impact of mobility models on the performance of MANET routing protocols. We acknowledge that the communicating traffic pattern also has a significant impact on the routing protocol performance and merits a study on its own. However, as in most studies in this area, in order to isolate the effect of mobility, we fix the communicating traffic pattern to consist of randomly chosen source–destination pairs with long enough session times. Mobility pattern, in many previous studies was assumed to be Random Waypoint. In the current network simulator (ns-2) distribution, the implementation of this mobility model is as follows: at every instant, a node randomly chooses a destination and moves towards it with a velocity chosen uniformly randomly from ½0;

$Vmax_1$, where Vmax is the maximum allowable velocity for every mobile node [1].

The energy resources of devices used in MANET are limited, energy consumption is important issues to related the routing protocols. The RP is better than the average energy ratio are the same conditions. TD = Packet Size / Bandwidth + ST = 55 m/s. RTR = 3 / second, RRR = 1.32 / second, RSR = 0.13 / second. Ron = Radio turning on time. Roff = Radio turning off time.

II. MANET OF ROUTING METHODS

A. *MANET of Mobility Analysis*

Each node can analysis the velocity of direction to the random way point mobility model of ns2 simulator to generate the different mobility scenario. The maximum speed is fixed at 10 m/s and the total number of nodes can fixed with other parameters. The Performance control overhead like PDR, end to end delay and throughput are measured by varying the pause time. The control nodes are sending and receiving packets are required for each data packet transmission along mobility models. The node model of the energy source, memory capacity and processing capabilities.

B. *Node Mobility*

Node mobility establishes a range of problem that is not managing well by periodically stimulating state information as algorithms intended for static networks typically do. The design of quasi-static cover on top of a mobile topology has been performed. It has power-driven with local connections along with nodes and exhibits self-healing and self-organization capabilities with respect to failures and node mobility.

MANET has statistical models to exactly assess the allocation of the lifetime of a wireless link. In this method a nodes move arbitrarily within constrained areas. In this link the lifetime can be computed through a two-state Markov model and further apply the computed statistic tot eh optimization. It is the optimization of segmentation method of information stream.

Two kinds of routes are resolute roués with the minimum hop count and route with the longest lifetime. It is used to observe a route lifetime-hop count transaction for all the four mobility modes. The general trend of the results is the more realistic and constrained is a mobility model.

Node Mobility for dynamic network topologies as random waypoint mobility model. Traffic model of nodes are sending and receiving the data are destinations reached model in CBR, UDP network model.

C. *Density Classifier using Manet*

Wireless networks are fast popularity to its peak today in the users want wireless connectivity irrespective of their geographic location. There is an increasing threat of attacks on the MANET. Black hole attack is one of the security threat in which the traffic is broadcast to such a node that in reality does not exist in the network. An analogy to the black hole in the universe in which things vanish. The node presents itself in such a way to the node that it can attack other nodes and networks knowing that it has the shortest path. MANETs must have a secure way for communication and communication which is quite demanding and vital issue.

To develop the performance of immediate routing protocols in MANETs the Bayesian classifier model has been used. It can help to enlarge the network throughput and decrease end-to-end delay through controlling the broadcast area. Further information connected to hop-counts and node densities are used to support routing protocol in broadcasting. The number of control packets distributed during route discovery process decreased significantly in comparison with conventional scheme.

III. MOBILITY METHODS FOR MANET

Energy is a significant resource that needs to be preserved in order to extend the lifetime of the network. In contrast, the link and path stability among nodes permits the diminution of

control overhead and could offer some benefits also in terms of energy saving over MANET. However, as will be shown in this work, the choice of more stable routes below nodes mobility could direct to the choice of shorter routes. This is not forever appropriate in terms of energy consumption. Conversely, on occasion, attempting to optimize the energy could lead to the choice of more weak routes. Therefore, it is obvious that both the abovementioned parameters (specifically, link stability linked with the nodes mobility and energy consumption) must be measured in designing routing protocols, which permit right tradeoff between route stability and least energy consumption to be attained. In recent times, there has been an endeavor to classify the various types of mobile nodes assuming there is a centralized influence that has whole information of the network and its dynamics. In this work we give a new that classifies density of network and node mobility patterns. The Mobility Model is attempt to the movements of real mobile networks. It will be changes in speed and direction must occur in the reasonable time slots. The MM uses the random waypoint model in a random position, the chooses a new random location moves and velocity chosen model.

A. Network Management for Manet

A network management is defined as apply security management as incorporate firewalls, database, email, teleconferencing, e-commerce intrusion detection and access control applications. A Security management is considered the amendment, spoofing and reply. The Key Management to access the control of reliable implementation of management of Software. The security and network management is controlled by the remote style analysis and pattern recognition of management.

B. Mobility models

Spatial Dependency of Mobility Model:

The movement pattern of a mobile node may be influenced and correlated and neighborhood. Each mobile node moves through indecently. Moreover, it selects a duration T of movement from an exponential distribution and it goes towards„d‟ with the chosen velocity for T time units. If the network frontier is reached, it re-enters from the contrary side of the network. Once T time units it paemploys for a random amount of time selected from [0, Tmax] with average pause time Tstop. After that, a new epoch starts. For expediency, we review the notation used in the Random Direction model as well as throughout the work.

Epidemic Routing Mobility Model in Manet:

In the case of the Medium state Mobile Nodes in networks no contemporaneous end-to-end paths present most of the time and communication is attained by the store, carry and forward model of routing. Such paths are often said to be space-time paths to distinguish them from the contemporaneous space paths used in MANETs. Many routing models have also been proposed for this class of mobile nodes such as Epidemic Routing and Spray and Wait.

Dynamic State Mobility Model in Manet:

Such networks are actually sparse and the mobility of the nodes doesn‟t permit them to converse even through space-time paths. In fact, the lengths of the space-time paths are too elongated. In this class of mobile nodes it is preferable to use extra mobile nodes that shift around the network area collecting messages and transmitting them to the destination nodes.

Based on the states (i.e, slow state, medium state and high mobility state), non linear programming is applied. Non linear programming is used over the three states and identifies stable link path and minimum energy conserved routes for the transmission.

C. NMDC and Algorthims:

Throughout the Node Mobility and Density classification algorithm, it is assumed that the mobile network progresses in timeslots. In addition, we suppose that the nodes distinguish in progress the communication range (K). It is indistinguishable for all the nodes and they also identify the size of the network

area (N). It will befall obvious later that the algorithm could work with any node mobility model as long as we have analytical formulas for some fundamental elements of the model. The formulas in previous works for a broad range of mobility models such as the Random Direction, Random Waypoint, Random Walk and the Community-based model. In this work, without loss of generalization we suppose that the nodes shift according to the Random Direction mobility model.

IV. BLR AND DFD ALGORTHIMS IN MANET

The performance metrics considered are the throughput, average delay, overhead and the number of packets drapped. They analyzed the number of packets, nodes, pause time and mobility using NS2 simulator. The source and destination of the routing hops to reach the nodes and sequence number is generated. Every node maintains a route cache to store recently discovered paths. The node receives RREQ packet, the node will check from their cache route to the destination RREP, the route can reply.

The mobility model is an important parameter for manet‟s routing protocol evaluation. Nodes may move either in a high speed or a low pause time but toward the same direction without causing any topology change. The nodes speed and the movement direction and pattern are allowed the following formula.

$$N \text{ num of Mob} = {}^{n}\sum_{1\text{-}i} \mu i / n^2$$

The Mobility Models of the nodes can change the network technology may be ubiquitous and unreliable. It causes a new links can be appear and established the problematic tasks has been subject to the scopious research through the manet. The algorithms are BLR (Beacon Less Routing Algorithm),DFD (Dynamic Forwarding Delay), RLR (Reactive Routing Algorithm).

Some Formulas are used in the mobility models. They are follows as:

Add – start method = max – run (r-p / r)

Add – start edit = max – edit (p / r)

Add – end delay = max – delay (e (p^2 + d^2) / e)

Analytical results are commonly used in the following models.

$$P_r(d) = P_t G_t G_r^2 h_r^2 h_r^2 / d^4 L$$

Table 1: Simulation Setup

Parameters	Value
Area	100*1000 m
Number of Nodes	10 to 50 nodes
Group Density	0.001 node / m^2
Node Movement	5 to 35 m/s
Transmission Range	10 to 100 ms
Mobility Model	Variation Direction Models
Each Packet pattern	300 bytes
Traffic Type	CBR and PDU

The performance of the proposed Lifetime Forecast Routing with Node Mobility and Density Classifier (PDU-NM) Model is measured in terms of nodes.

Data Delivery Ratio:

The data delivery ratio obtained for various number of nodes in the MANET environment. The outcome of the proposed TD with LQ model in MANET is compared with an existing LAER and PERRA and it shows LFR-NMDC achieves higher delivery ratio.

Nodes Lifetime:

The PDR (Packet Data Ratio) it‟s a ratio of number of packets received by destination to n number of packets sent by source. Its takes a data packet to reach the destination.

NLT = Total no. of routing packets / Total no. of delivered data packets

Controliazed Overhead:

The number of packets generated by the routing protocol during the simulation.

$$\text{Overhead} = \sum^{n} / i - I \text{ overhead } i$$

The Normalized control overhead obtained when mobility rate increases in the MANET environment. The outcome of the proposed LFR with NMDC model in MANET is compared with an existing LAER and PERRA for detecting control overhead. Routing Overhead is the total number of routing packets in the total number of delivered packets.

Energy Consumption Ratio:

The n number of packets can sending and receiving data energy ratio through NMPU (Node Mobility and Protocol Unit). The packet delivery ratio is table driven protocol its require to delivering packets to next node of response and request method.

Temporal Dependency:

Due to the physical constraints the mobility nodes can be velocity to change the random waypoint model. To analyze the MANET routing protocol in ad-hoc network is correct and efficient route establishment between a pair of nodes. The manet packages are used in the tunneling protocols are create a private network through the point to point tunneling protocols.

V. EXPERIMENTAL RESULTS OF MANET

Table 1: Node Lifetime in Manet

Performances Metrics:

The Performance of the Node Density and Mobility Models are commonly derived the Mobile ad – hoc Network. In this case, Edit run, Edit delay and Edit replace.

End to End Delay (EED)

$$NLT / EED = PT+TT+QT+PD$$

Propagation Time, Transmission Time, Queuing Time, Processing Time.

Table 1 : Node Lifetime Model

Node Mobility (n)	Mobility Models (m/s)	Node Lifetime (Proposed)	PDU
10	20	62	83
20	40	68	86
30	60	75	92
40	80	80	98
50	100	95	102

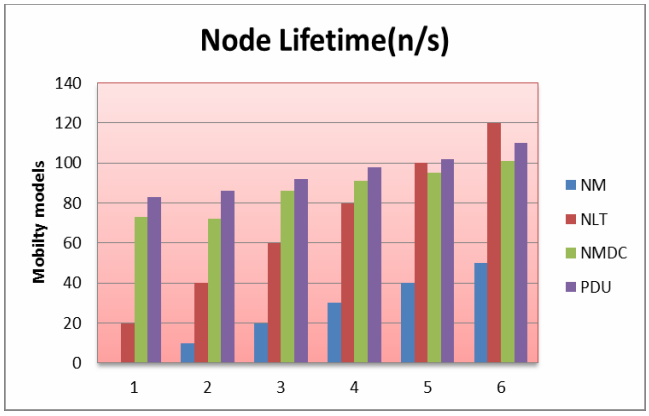

Figure 1: Node Life Time

Normalized Control Overhead

The n number of packets are generated by the routing protocol during the simulation. Overhead I is the control packets generated by node I. The protocol performance is less than the control packets are essential. The research was done by the past but the most significant contributions are PGP (Pretty Good Privacy). A MANET network is considered at the type of the data transmission using PPTP is not encrypted which less than the secured.

The Network Entity corresponds to a mobile nodes with enriched a set of Reputation Tables (RT) and a Watchdog Mechanism (WDM). The RT is defined as the data structure stored in each network data entity. The CORE scheme envolves the two various type of protocol entities at a requestor and one of the more provider that are with in the wireless transmission range.

Table 2: Normalized Control Overhead

Node Mobility (n)	Mobility Models (m/s)	NCO (Proposed)	PDU in Manet
5	2	5.4	4
10	4	6.2	5.1
15	6	5.8	4.2
20	8	5.2	4.1
25	10	4.8	3.2
30	12	4.2	3.0
35	14	3.8	2.1
40	16	5.4	4.1

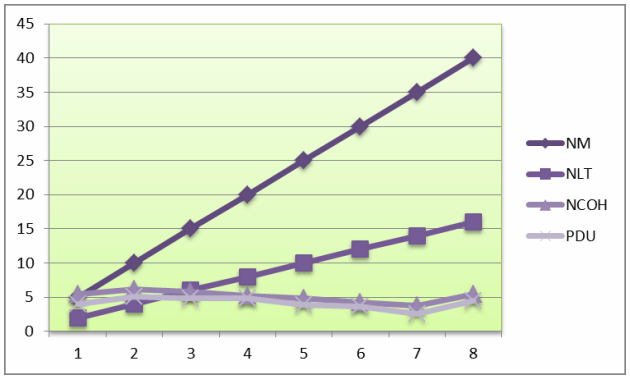

Figure 2: Normalized Control Overhead

Data delivery ratio

It is the number of packets received at destination on data packets sent by source in MM and NMPU protocols. The data delivery ratio obtained for various number of nodes in the MANET environment. The outcome of the proposed DR with model in MANET is compared with an existing PDU in Manet and NCO and it shows NLT – NLT achieves higher delivery ratio.

Table 3: Data Delivery Ratio

No. of Nodes(n)	Mobility Models (m/s)	Node Lifetime (Proposed)	DR(nodes)
10	20	60.25	72.25
20	40	67.75	77.21
30	60	68.2	78.2
40	80	70.01	79.91
50	100	75.15	86.23

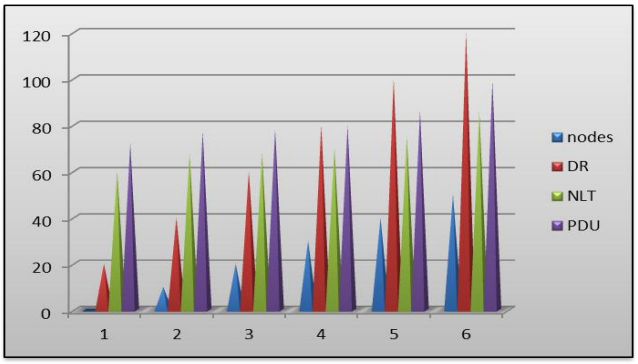

Figure 3: Data Delivery Ratio

The route discovery function the PF function does not offer the separate operations that can be qualified as RREQ. The original data packet can be included in the purpose of security. Each node stores a RT that are used to classify the other nodes of the network with response to the PF function.

VI. CONCLUSION

In this paper we evaluate, the performance measures to control overhead, PDR, end-to-end delay and throughput with different number of nodes. CO with PDU protocol inherits the scalability, improving the performance in terms of node selection with superior link duration when a higher weight is set to the stability index. LFR with NCOH outperforms NMCH and PDU in terms of control overhead and in terms of a higher capacity to balance traffic load because of the less energy consumption included in the joint metric. In future, utilizing these performances on a protocol in a data integrity as well as data delivery in highly random mobility network.

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