PERFORMANCE MEASUREMENT IN ENAMP

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Abstract : In adhoc wireless network many protocols are performing poorly in node cooperation.This may happen because of lack of global Authority.It has been done to improve the reliability of broadcasting in the face of limited trustworthiness of nodes.In this paper trusted dominant pruning(TDP) method implemented on which performance is high,more redundant and better coverage.The proposed mechanism is also enhance the network performance .simulation results using network simulator 2 (nS2) shows that in a high mobility environment,malicious ode could be detected and the packet delivery ratio has been improved.

IndexTerms - **adhoc network,broadcast,reliability,packet delivery ratio and trusted dominant pruning.**

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I. INTRODUCTION

A wireless ad hoc network or MANET is a decentralised type of wireless network. The network is ad hoc because it does not rely on a pre-existing infrastructure, such as routers in wired networks or access points in managed wireless networksthough theoretical and practical limits to the overall capacity of such networks have been identified. Minimal configuration and quick deployment make ad hoc networks suitable for emergency situations like natural disasters or military conflicts. The presence of dynamic and adaptive routing protocols enables ad hoc networks to be formed quickly. Wireless ad-hoc networks can be further classified by their applications. Mobile ad hoc networks (MANETs). A mobile ad hoc network (MANET) is a continuously self-configuring, self-organizing, infrastructure-less network of mobile devices connected without wires. It is sometimes known as "on-the-fly" networks or "spontaneous networks".Advantages is Highly performing network,No expensive infrastructure must be installed,Use of unlicensed frequency spectrum,Quick distribution of information around sender ad No single point of failure.Disadvantages is All network entities may be mobile means very dynamic topology ,Network functions must have high degree of adaptability,No central entities means operation in completely distributed manner.Routing in wireless ad hoc networks or MANETs generally falls into three categories, namely: (a) proactive routing, (b) reacting routing, and (c) hybrid routing.

Proactive routing this type of protocols maintains fresh lists of destinations and their routes by periodically distributing routing tables throughout the network. The main disadvantages of such algorithms are:Respective amount of data for maintenance a**nd** Slow reaction on restructuring and failures.Example is Optimized Link State Routing Protocol (OLSR)

Reactive routing this type of protocol finds a route based on user and traffic demand by flooding the network with Route Request or Discovery packets. The main disadvantages of such algorithms are:High latency time in route finding a**nd** Excessive flooding can lead to network clogging. However, clustering can be used to limit flooding. The latency incurred during route discovery is not significant compared to periodic route update exchanges by all nodes in the network.Example is Ad hoc On-Demand Distance Vector Routing (AODV).

Hybrid routing this type of protocol combines the advantages of *proactive* and *reactive routing*. The routing is initially established with some proactively prospected routes and then serves the demand from additionally activated nodes through reactive flooding. The choice of one or the other method requires predetermination for typical cases. The main disadvantages of such algorithms are:Advantage depends on number of other nodes activated a**nd** Reaction to traffic demand depends on gradient of traffic volume. Example is Zone Routing Protocol (ZRP)

II. RELATED WORK

Over the past few years new routing protocols for adhoc networks(MAETS) have bee proposed but only few have bee evaluated for their performance . for instance Sandeep Kumar Arora,Mubashir yaqoob Mantoo et.al 2014 Performance Measurement in MAET. Gang Ding, Xiaoxin Wu, and Bharat Bhargava"Performance Evaluation of Multiple-Rate Mobile Ad Hoc Networks"School of Electrical and Computer Engineering, Purdue University,W. Lafayette, Department of Computer Sciences, Purdue University, W. Lafayette, IN 47907.P.chenna Reddy, Dr .P.chandrasekhar Reddy," Performance Analysis of Adhoc Network Routing protocols," 2006 .A.Boukerche,Broch,D.Maltz et.al presented some evaluations for routing protocols in MAETS.C.perkins,B.E Royer et.al ,M.Bouhorma, et al evaluated routing protocol in ordef to judge their performance using various metrics.

III . RESEARCH METHODOLOGY

3.1 Simulation Tool

Network Simulator (Version 2), widely known as NS2, is simply an event driven simulation tool that has proved useful in studying the dynamic nature of communication networks. Simulation of wired as well as wireless network functions and protocols (e.g., routing algorithms, TCP, UDP) can be done using NS2. In general, NS2 provides users with a way of specifying such network protocols and simulating their corresponding behaviors.

3.2 Simulation Design

The Simulation Design means simulating a network is to design the simulation. The users should determine the simulation purposes,network configuration and assumptions, the performance measures, and the type of expected results.

3.3 Performance Parameters

3.3.1 Packet Delivery Ratio(PDR)

PDR can be defined as the ratio of number of delivered data packets to the destination.

PDR=(DataR/DataS)*100

3.3.2 Throughput

Throughput can be defined as the rate at which a message is successfully delivered to the required destination.its usually measured in bits per sec(bps).

3.3.3 Delay

The delay of a network specifies how long it takes for a bit of data to travel across the network from one node or endpoint to another. It is typically measured in multiples or fractions of seconds. Delaymay differ slightly, depending on the location of the specific pair of communicating node

3.3.4Packet loss

Packet loss occurs when one or more packets of data travelling across a computernetwork fail to reach their destination. Packet loss is either caused by errors in data transmission, typically across wireless networks or network congestion.

3.3.5Time complexity

Time complexity is a concept in computer science that deals with the quantification of the amount of time taken by a set of code or algorithm to process or run as a function of the amount of input. In other words, time complexity is essentially efficiency, or how long a program function takes to process a given input.

3.3.6 Space complexity

Space Complexity of an algorithm is total space taken by the algorithm with respect to the input size.

IV . SIMULATION RESULTS

Based on simulation parameters listed in table I

Simulation Area	1800 x1840
Simulation Time	25s
Channel Type	Channel/wireless channel
Antenna Model	Omni Antenna
Radio Propagation Model	Two Ray Ground
number of nodes	20,50,100
Packet size	512 Bytes

Traffic Type	Constant Bit Rate(CBR)
Mobility	Radom Way Point

The experimental results show the simulation result of the Qos parameters such as Throughput, Packet Delivery Ratio, Delay ,packet loss, time complexity ad space complexity are achieved with their X Graph using NS2.
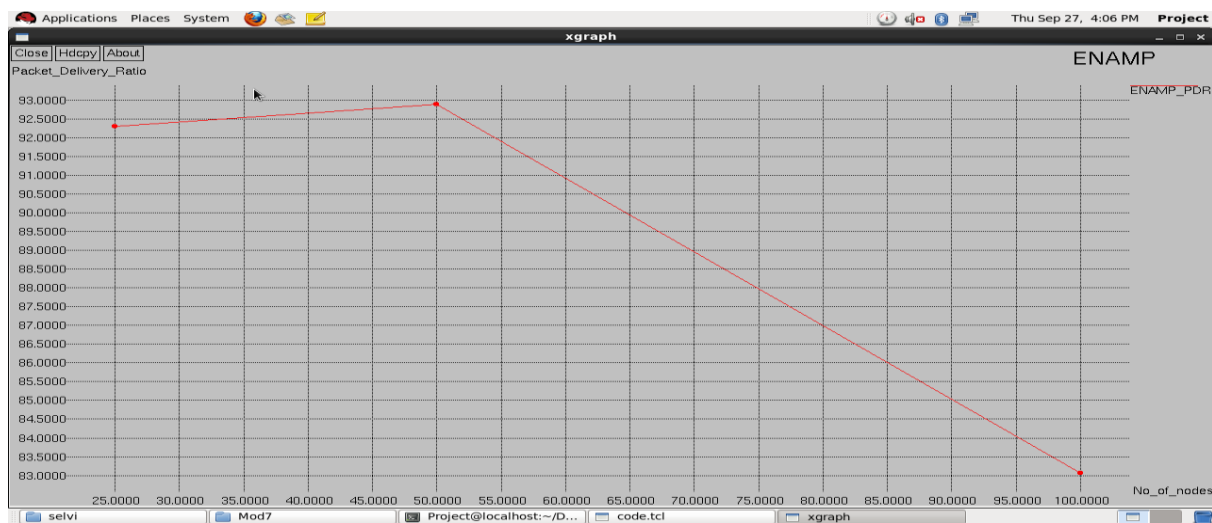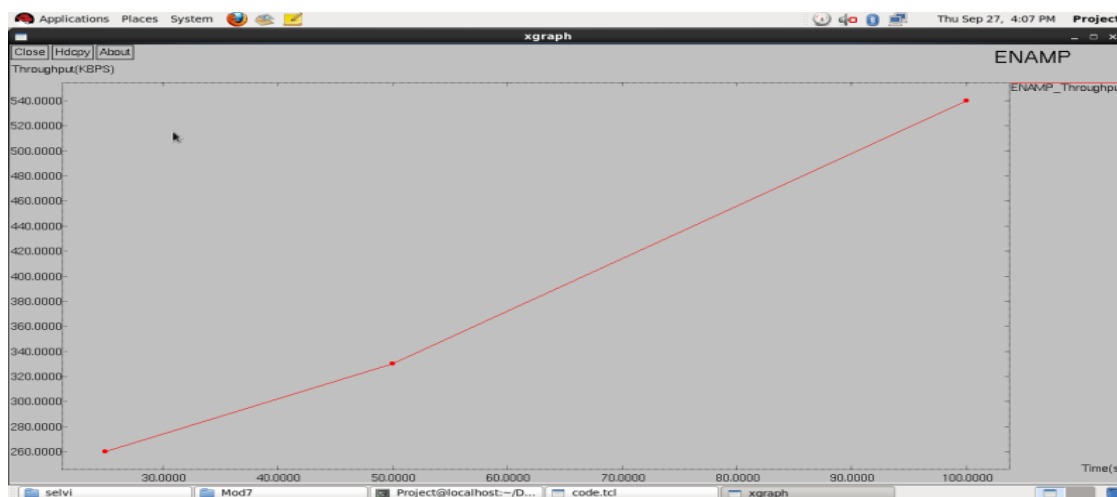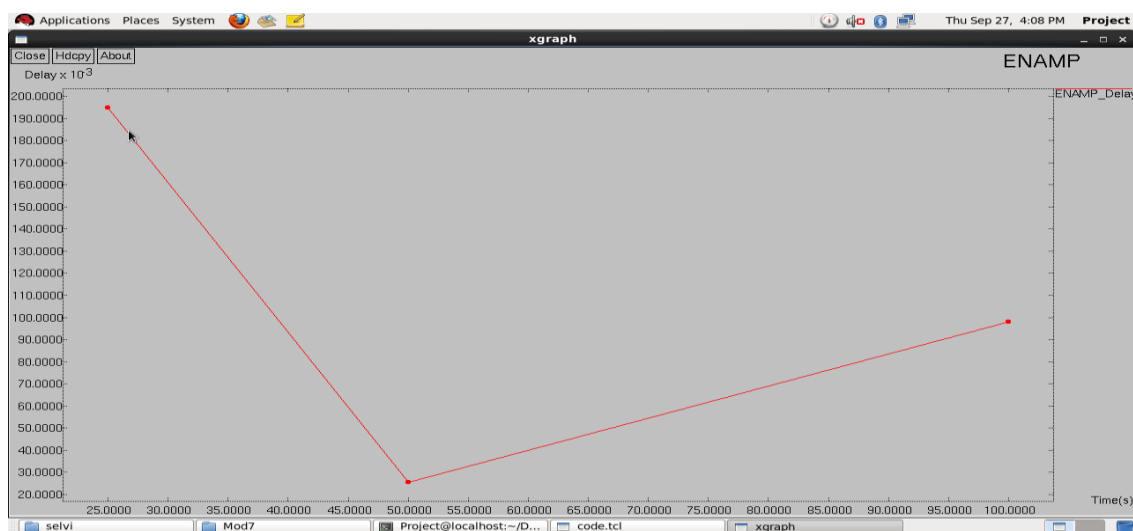

Fig.1 Packet Delivery Ratio

Fig.2 Throughput
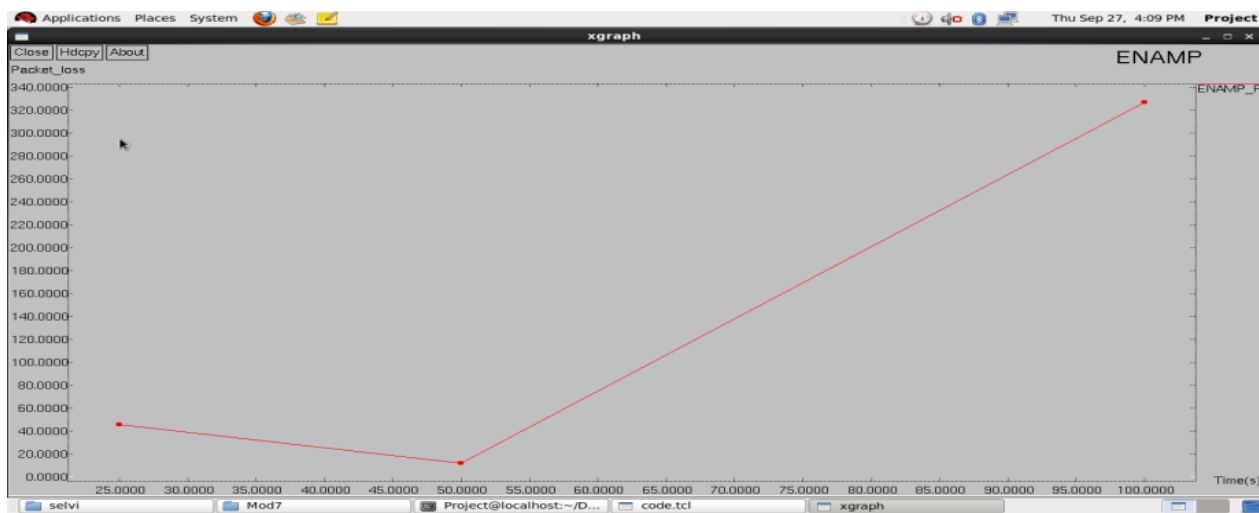

Fig.3 Delay

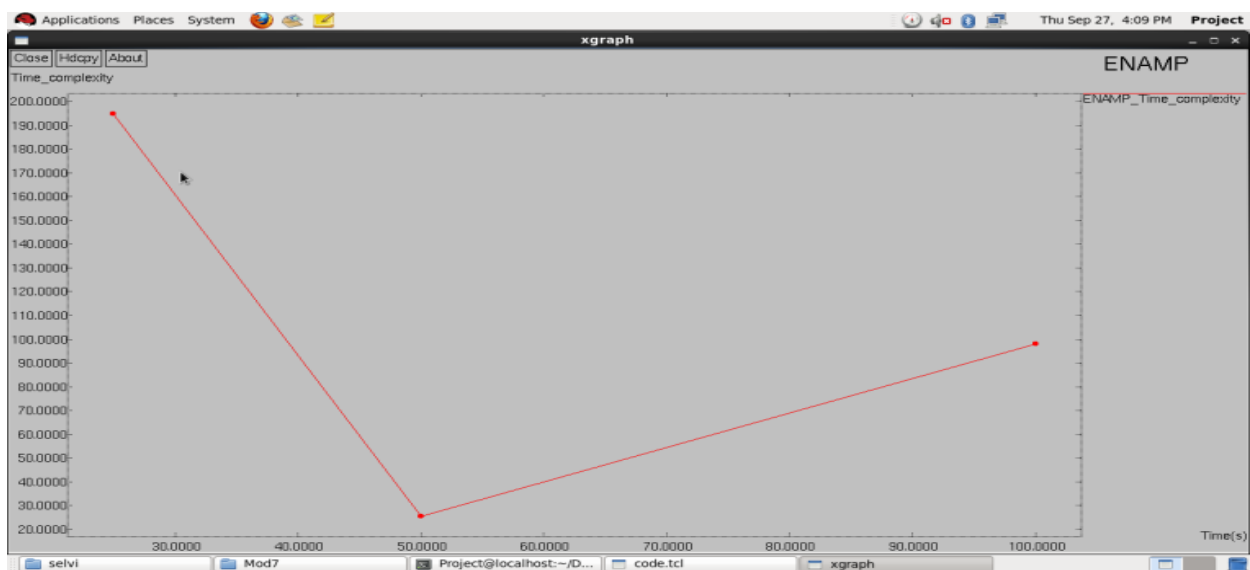**Fig.4 Packet Loss**
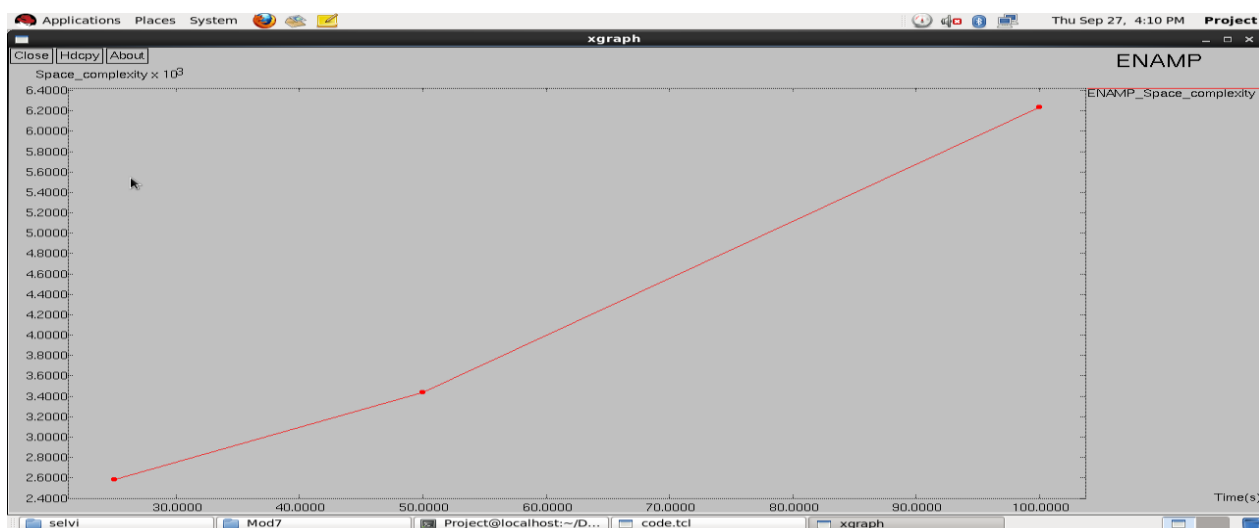

Fig.5 Time Complexity

Fig.6 Space Complexity

V . CONCLUSION

MANETs have the ability to deploy a network in the places where traditional network cannot be deployed. Over the past few years MANETs has been receiving increasing attention especially in networking as such new routing protocols have bee proposed. This paper has presented a comparing performance of various protocols for routing packets between mobile odes in MANETs.Through the analysis of network Simulation results, we can conclude the that when the number of nodes is varied ,ENAMP has the highest in PDR and throughput, lowest in delay, packet loss, time complexity ad space complexity.

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