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M/M(a,b)/Multiple Efficient Path TransmissionQueuing Model Using Energy Discover Path Transmission Routing (EDPTR)

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ABSTRACT:

In this paper, we present an efficient path selection for transmission using Efficient Path Discovery Transmission Routing (EPDTR) in multi hop network. In a network, single host and multi-clients are present and it uses client/server method for data transmission. In EDPTR protocol, when transmission starts it opt the efficient path and at the same time other nodes are dynamic. The nodes which are participate in data propagation are called 'active nodes' and other nodes are called 'sleeping nodes'. This method is used to select the efficient path from multiple paths in the network. If a path is not efficient it chooses alternative path for efficient transmission.

Key Terms: EDPTR, multi hop, host/client

I.INTRODUCTION

A network comprises of host and nodes(clients) and it uses client/host model for data transmission. A host is a single node that can be used to store and manageinformation' and resources in central location. A host is used to perform specific tasks and it is used toprovide particular services such as file sharing and resource sharing. The connection of nodes can be assured and monitored by the host because it acts as a single AP.[1-7]. By the way we can enhance the security of the network. By using centralized AP nodes does not depend on other nodes for routing informations. Host plays a vital role in a network because it provides significant features such as reduction in cost and efficiency in the network. Client/host model has distributed application structure.[8] Both host and clients can communicate over a network. In our project nodes are used as intermediates between source and destination. To communicate the nodes we must have a set of rules called protocols.

To transmit packets from source to destination, first we establish a connection between them by using the intermediate nodes. Data transmission occurs as flow of packets which consists of source and terminussystemdiscourses, mistakefindingenigmas and sequencing informations and it uses Constant Bit Rate (CBR). There are numerous paths between source and destination in the network.[9,11]. The source is also act as a host and in connection establishment process the host prefers a path for transmission. Then, it chooses a correct protocol which comprises a set of rules for efficient transmission. Finally the packet transmission takes place between source and destination. When packets are received by the destination then it intimates the source by sending an acknowledgement signal. The nodes which are participating in data transmission are called 'active nodes' other nodes are called 'sleeping nodes'.[10]. In this paper, we use EDPTR protocol for efficient path selection and it calculates priority for each and every path in the network. It takes highest priority path which can produce more efficiency for transmission.

II.RELATED WORK

In general case of transmission, path selection is not possible and the network cannot identify active nodes and sleeping nodes.[12]. The packet loss is increased because they did not follow any set of rules which is called protocols. These networks don't have the prior knowledge about transmission so, time delay and packet collisions also increased. As we know, at this instance the packet loss is an increased one. Hence the efficiency is reduced. By considering this event packet transmission rate is decreased. If a transmission over a path is blocked due to some noises, it does not choose other alternative path for transmission by the way the packet loss also occurs in that network. When the destination received the correct transmitted packets it does not send any acknowledgement to the source.[13]. Energy level of the node is very low because the nodes are dynamic in this case. In our proposed method, the nodes are static so all the intermediate nodes have higher energy level. Over all system lifetime is decreased when compared to proposed method. By using the protocols which can

select the efficient path, we can reduce the packet loss and packet collision and therefore we can increase the efficiency.[14]. Thus, we increase the overall lifetime of the network. In our paper, we use Energy Discovery Path Transmission Routing(EDPTR) protocol for efficient transmission.

III.EFFICIENT PATH DISCOVERY TRANSMISSION ROUTING (EPDTR) PROTOCOL

EPDTR protocol is a fully distributed based routing protocol and it has different message priorities with different quality of services (QoS). The EPDTR protocol is based on IEEE 802.11e standard. The mechanism of this protocol is to select the highest priority paths for efficient transmission and this protocol prevent the highest priority flows from the contention based lowest priority flows. By using this protocol we can avoid the interference between highest and lowest priority paths by reversing the highest priority path for efficient transmission and this process is only for temporary communication. A particular part of network is used for high priority packet transmission. In order to select maximally disjoint paths we can avoid the lowest priority routes and this process totally depends on the highest priority zones. According to reduce the contention between highest priority and lowest priority we can get efficient transmission paths in that reversed zone. But we don't have any assurance on the low priority paths that can able to completely avoid highest priority paths. For low priority flows it is very difficult to find and avoid the highest priority zones when the number of highest priority paths increases in the same network. Sometimes, the lowest priority paths cannot get even a single path via unreserved part of the network. Finally, the lowest priority paths are drew to get paths from high priority routes which cause interference and this interference can be reduced by blocking such type of low priority flows in the network. By continuously monitoring the reservation status we can get the unreserved zones for low priority flows in the network. If the low priority flows get a single path owing to the end of high priority session or mobility of nodes then it suddenly summarizes the blocked communication.

ALGORITHM FOR MULTIPLE EFFICIENT PATH DISCOVERY TRANSMISSION ROUTING (EPDTR):

1. Initialize Queue Process FIFO

2. $H_{ix<-}\ \mathrm{R}_{0i} + \mathrm{C}_{ix}$

3. $Source <-- Routing\ \mathrm{Pr}ocess-> Destination$

4. Collections of Data Formatted in Packets

5. $P_{ix<-1000}$

a. If $(P_{ix} = 0; P_{ix} < 1000; P_{ix}++)$

6. $H_{ix<-}T_{pix} -> P_{sel}$

7. Else

8. $H_{ix<-}T_{pix} -> A_{psel}$

with Time in travel (0.01sec)

a. If (N_{ix} =0; N_{ix}<22; N_{ix}++)

9.N_{ix}<=1;Active Mode

10. Else

11.N_{ix} <=0;Sleeping Mode

12. End if

13. CalculateH_{ix}=$\frac{P_{total}}{P_{Drop}}$%

14. Overall Network Performance

15. $H_{ix<-}\ \mathrm{R}_{0i} + \mathrm{C}_{ix}$

PARAMETERS AND DESCRIPTION

PARAMETERS	DESCRIPTIONS
H_{ix}	Host
R_{oi}	Router
C_{ix}	Client
P_{ix}	Packets
T_{pix}	Transmitted packets
P_{sel}	Path selection
A_{psel}	Alternate path selection
N_{ix}	Node
P_{total}	Total packets

P_{drop}	Dropped packets

Table 1: Parameter and Description

Parameters	Actual Transmission	EDPTR
Number of Nodes	100	20
Number of Packets	10/ ms	8 m/s
Antenna Type	Omni Directional	Omni Directional
Channel Type	Wireless	Wireless
Radio Frequency	4.5Ghz	5.5 GHz
Bandwidth Ratio	15db	25db
Transmitter Power	30m	18m
Path Selection	No Path Selection	If failures(HO) Process
Header Length	50	28

Number of Nodes	20
Number of Packets	1000 /100 (ms)
Antenna Type	Omni Directional
Channel Type	Wireless
Number of Channels	10 Path region
Transmitter Power	12db
Path Selection	If failures(HO) Process
Header Length	50
Slot Time	0.00009ms
Data rate	48e

Comparison of transmission Network Components

DESCRIPTION FOR DATA FLOW DIAGRAM:

An architecture model of network comprisesof server and clients. The server acts as storage device and it has collection of data inthe form of text, image, audio and video etc. Data transmission occurs as flow of packetswhich consists of source and destination network addresses, error detection codes and sequencing information's and it uses Constant Bit Rate(CBR).

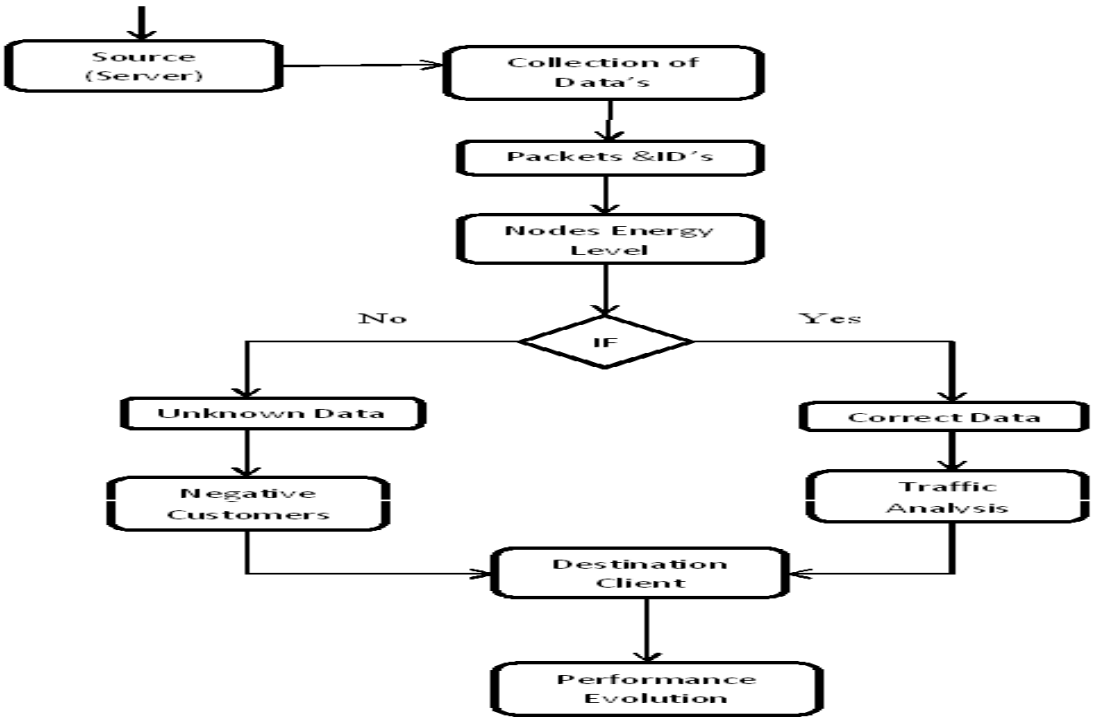
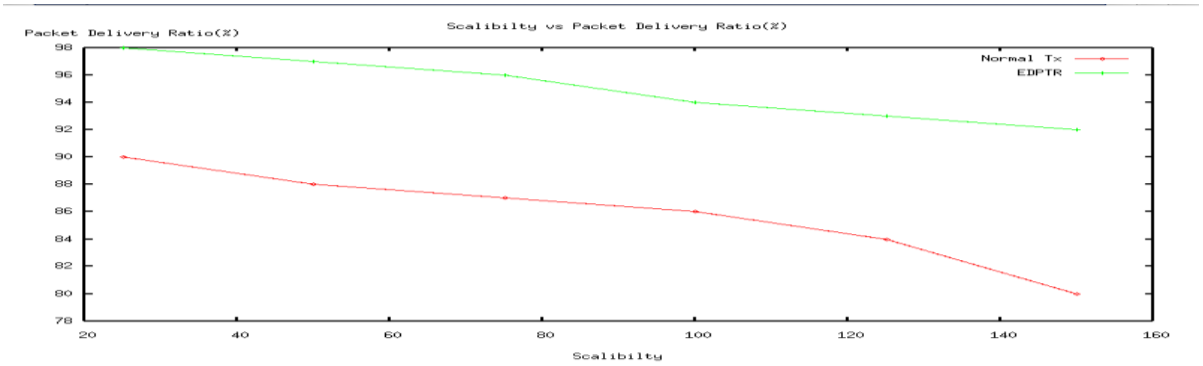
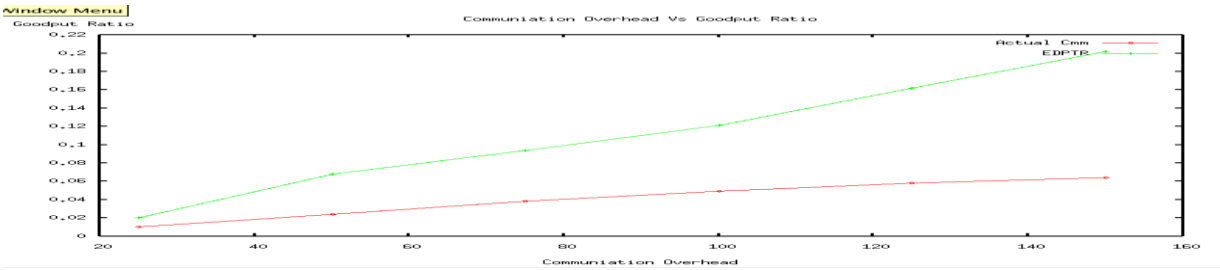


Fig 1: Flow Chart

By using the destination address we can transmit the packets to correct destination. Each nodes and packets has some energy levels and the energy level has some threshold values. If the incoming packet's threshold value satisfies or equal to the threshold value of the node, then the node determines it is a correct data otherwise it is unknown data. Traffic analysis can be done on the correct data. Then, it can be given to destination client. The unknown data is declared as negative customers. Finally, performance evaluation is done for both correct and unknown data.





IV.SIMULATION RESULTS

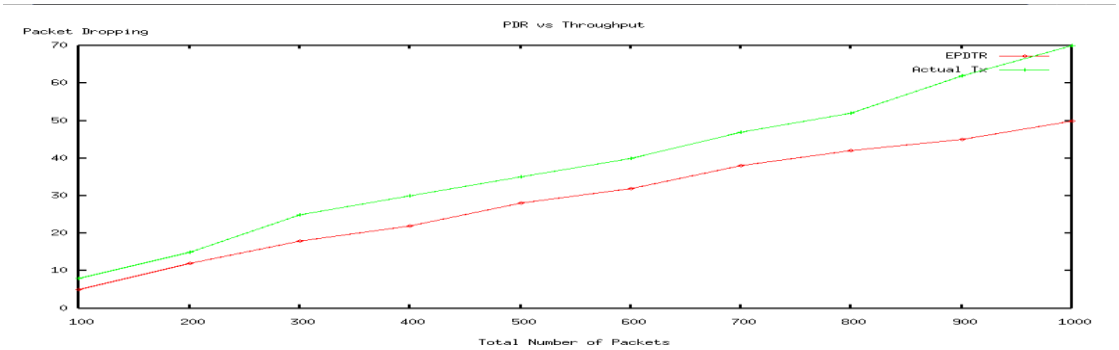


Fig 2:Comparison Between Packet Delivery ratio Vs Throughput

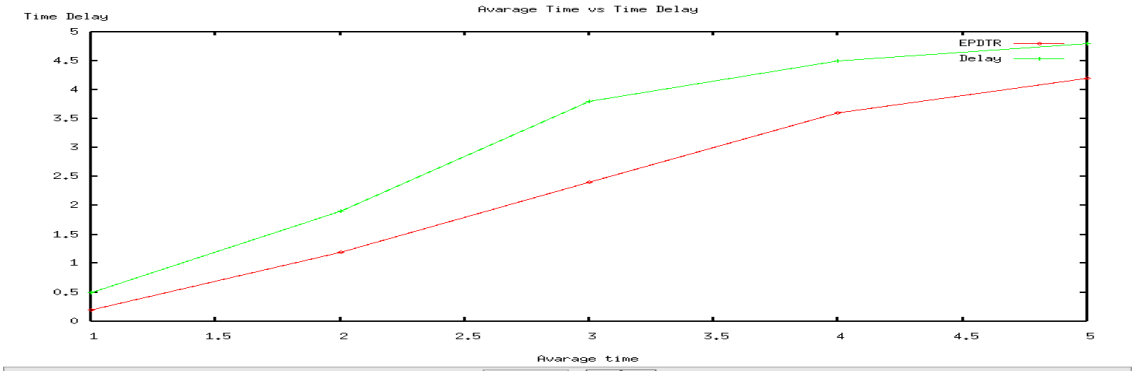


Fig 3:Comparison Between Average Time delayVs Time Delay

V.CONCLUSION:

Thus, we presented a protocol which is used to select efficient path for efficient transmission. Efficient routing is a necessary component of communication protocol in multi hop network. In this paper, we use Efficient Path Discovery Transmission Routing(EPDTR) protocol for efficient transmission and the design of these protocols has some goals and requirements based on the network properties. In order to select efficient path, this protocol analyzer a path and if the path does not has much efficiency, it selects the alternative one for efficient transmission. Here, we discussed about the algorithms and mechanism of operations for EPDTR protocol in detail.

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