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PERFORMANCE ENHANCEMENT AND INTEGRATING SECURITY IN AD-HOC NETWORK BASED DATA TRANSMISSION

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Abstract:- Ad hoc networks has been considered as wireless networking paradigm for mobile hosts for particular purpose only. Unlike traditional mobile wireless networks, ad hoc networks do not rely on any fixed infrastructure. In this paper we have done in order to improve quality in we have to speed up packet transmission providing them better security to network of mobile. Here we have study to during packet transmission pre-processing time, post processing time & transmission speed must be considered. We have study to improve transmission speed & using replacement policy to reduce packet size during communication & cooperative driving among nearly ad hoc & between mobile. We have done avoid resending of same data again by buffering packet in temporary database.

[1] INTRODUCTION

The mobile ad hoc network that is also considered as wireless ad hoc network , is a continuous self-configuring, without infrastructure network of mobile devices which are connected wirelessly mobile Ad hoc network is considered as a network which is compositions of different type of devices that are communicating to one other in direct way. Several ad hoc networks are considered as local area networks in which computers & different other devices have been enabled to transfer data in direct way to one another instead of transferring through a centralized access point. In case of mobile Ad- hoc network does not need any router. It does not need any wireless base station. This network is established for single session only. If someone wants to share file in multiple computers then he could set more than one hop ad hoc network that can be used to transfer information on more than one node. It is created to solve specific problem. It becomes permanent network if someone is going to establish such network for longer period.

Wireless Networks

A wireless network is any type of computer network that uses wireless data connections for connecting network nodes. Wireless networking is a method by which homes, telecommunications networks & enterprise installations avoid costly process of introducing cables into a building, or as a connection between various equipment locations. Wireless telecommunications networks are generally implemented & administered using radio communication. This implementation takes place at physical level of OSI model network structure.

Types of wireless connections

Wireless Personal Area Networks

Wireless Personal Area Networks interconnect devices within a relatively small area that is generally within a person's reach. For example, both Bluetooth radio & invisible Infrared light provides a Wireless Personal Area Networks for interconnecting a headset to a laptop. ZigBee also supports WPAN applications. Wi-Fi PANs are becoming commonplace as equipment designers start to integrate Wi-Fi into a variety of consumer electronic devices. Intel My WiFi & Windows 7 virtual Wi-Fi capabilities have made Wi-Fi PANs simpler & easier to set up & configure.

Wireless local area network

A wireless local area network links two or more devices using a wireless distribution method, providing a connection through an access point to wider internet. use of spread-spectrum or OFDM technologies also gives users mobility to move around within a local coverage area, & still remain connected to network.

Wireless mesh network

A wireless mesh network is a wireless network made up of radio nodes organized in a mesh topology. Each node forwards messages on behalf of other nodes. Mesh networks can self heal automatically re-routing around a node that has lost power. Wireless wide area networks are wireless networks that typically cover large areas, such as between neighboring towns & cities, or city & suburb. These networks can be used to connect branch offices of business or as a public internet access system.

Wireless Sensor Networks

Wireless Sensor Networks are considered as wireless state network which consists of mainly isolated free tools using sensors to verify corporal & ecological terms. WSN system integrates opening which also gives wireless level attachment rear to wired level world & circulated knots.

[2] PROPOSED WORK

Proposed work targets on reduction of packet size to minimize probability of congestion.

Proposed work does not focus only on boosting of network lifetime & growing packet delivery ratio. This one has also focuses on reduction of packet size. In Proposed work due to reduced sized packet there is less probability of congestion & it reduces transmission delay. other benefit is that packet is not transmitted as it is so there is more security too. As energy is disseminated symmetric & traffic load is distributed over network so these are need to put minimum load on network during packet transmission.

The benefits of proposed work are as follows:-

1. System is more secure as compared to traditional.
2. The probability of congestion is less as compared to traditional.
3. The life of packet is more as probability of packet loss decreases.
4. As packet loss decreases packet delivery ratio is far better than traditional work.
5. As size of Packet reduces load on network gets decreased.
6. Transmission of packet increases due to reduced size.
7. The overall performance gets boosted in case of proposed work at sender & receiver end.
8. The queuing delay gets reduced in case of proposed work.
9. Clustering allows grouping of packet so these are transmitted according to condition. Preprocessing time is considered before grouping information. If preprocessing time is more than there is no need to swap packet information.

Proposed Protocol

In previous protocol enhancement network lifetime & increasing packet delivery ratio is strongly targeted. However proposed work focuses on reduction of packet size in order to reduce probability of congestion & to secure network from packet dropping attack.

Because energy is distributed symmetric & traffic load is disseminated over network so we have to put minimum load on network during packet transmission.

Packet Modification

The data packet & control packet are packets which are used in existing protocol. data packet transmits environmental data to destination, which consists of six elements. Buffer structure of nodes also consists of same elements as data packet to transmit packets throughout network. In data packet format, packet type is set by T_DATA value to identify packet format by neighbor nodes. In our proposed work T_Data value would be replaced by XT_Data using encoding scheme. Here we would check frequency of repeated data in T_Data & then replace then with corresponding data having less length before packet transmission. size of packet automatically gets reduced. Then packets would be grouped using clustering base in fuzzy system. control packet is used to transmit RTS & CTS packets among nodes to report neighborhood information. It is composed of seven elements. In this format, packet type is set by T_RTS value to identify RTS packets & T_CTS value to identify CTS packets received from neighbors. After receiving xT_Data would be decoded to T_Data.

Proposed Algorithm

1. At beginning consider Data packet & control packet are packets which are used.
2. Reduce Data Packet by replacing of T_Data with xT_data.

Packet Size Reduction Logic

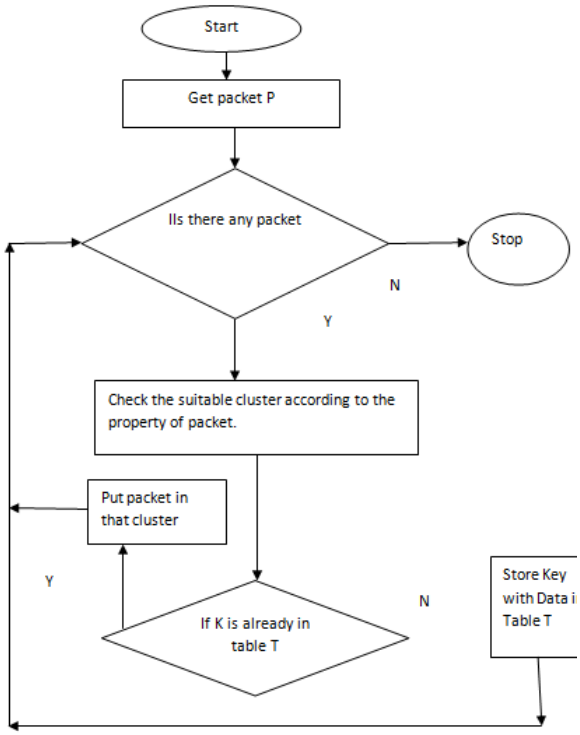

Fig 1 Proposed Model

3. Select CNs from among neighbors with (RE>REavg) & (ABS>ABSavg)
4. Specify NP based on sender node, SR & base station
5. Determine distance between CN & np, Determine number of neighbors at CN
6 Perform Fuzzification using Fuzzy set , cluster Base , Rule base in inference Engine.

[3] RESULT & DISCUSSION

In our paper we would establish of MANET Environment to test flow of packets then we would make develop of packet sender & receiver module. After that we would test transmission, processing, queing delay in packet transmission. Then we would compare both work previous & proposed work. We would use java based socket programming to transfer packet from sender to receiver in minimum time.

Testing transmission & processing delay in packet transmission

To test transmission delay we have to check size of packet & time taken to transfer it from sender to receiver.

Speed in packet transmission= Size of Packet / Time Taken

1. Testing queuing delay of network packets in MANET
2. Testing propagation delay at time of data transmission in MANET

Development of algorithm using java based socket programming to transfer packet from sender to receiver in minimum time in MANET.

During research we concluded that these Factors influencing transmission speed.

1. **The size of Packet:** If size of packet increases then it would take more time to transfer from receiver to sender

2. **The encryption & decryption of Data:** For security reasons we use encryption decryption that lead to slow speed of network

3. **The bandwidth of network.:** bandwidth of network is another factor that lead to fast or slow data transmission.

4. **Queuing delay:** delay occurred during queuing of packets during transmission influence transmission speed of packet

5. **Processing Delay:** time taken during preprocessing of data to be sent , during sending operation also slows down packet transmission speed.
6. **Transmission Delay:** time take to transfer data from one location to other locations is another reason of delay in data transmission.

Comparative analysis of overall Time consumption in tradition & proposed comparison system

PACKETS	TRADITIONAL	PROPOSED
10	5	2
20	5	2
30	8	3
40	8	3
50	10	4
60	10	4
70	11	5
80	11	5

Table 1 Time consumption in tradition & proposed comparison system

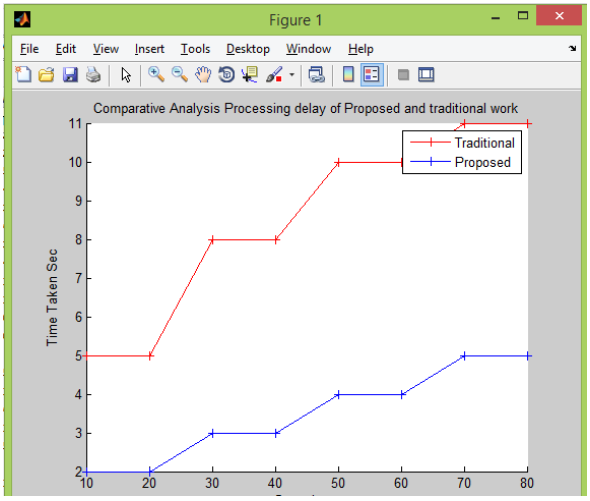

Fig 2 Comparative analysis of overall Time consumption

Comparative analysis of Queuing delay in tradition & proposed comparison system

FILE SIZE	TRADITIONAL	PROPOSED
10	6	3
20	6	3
30	9	4
40	9	4
50	11	4
60	11	4
70	13	5
80	13	5

Table 2 Queuing delay in tradition & proposed comparison system

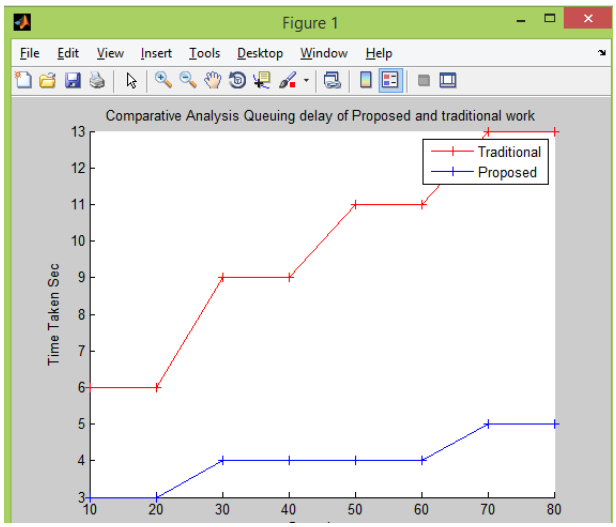

Fig 3 Comparative analysis of Queuing delay in tradition & proposed comparison system

Comparative analysis of File Size in tradition & proposed comparison system

PACKETS	TRADITIONAL	PROPOSED
10	4020	1020
20	8090	2050
30	12100	3600
40	16201	4201
50	20300	5100
60	24200	6300
70	29002	7210
80	33100	8543

Table 3 Comparative analysis of File Size in tradition & proposed comparison system

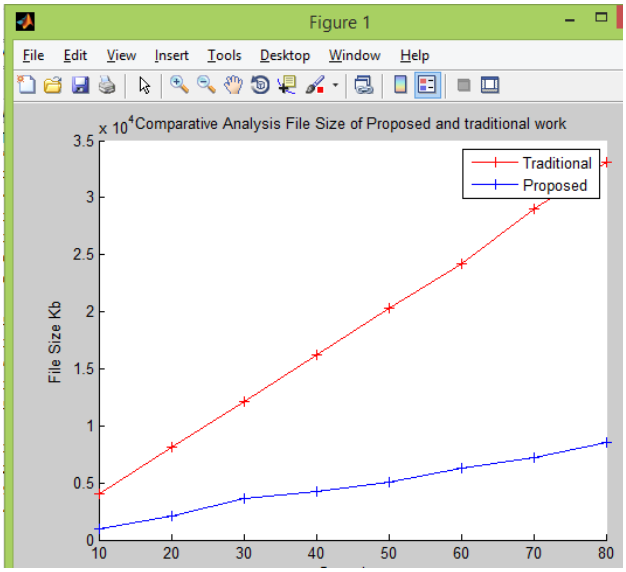

Fig 4 Comparative analysis of File Size in tradition & proposed comparison system

[4] CONCLUSION

Ad hoc networks has been considered as wireless networking paradigm for mobile hosts for particular purpose only. Unlike traditional mobile wireless networks, ad hoc networks do not rely on any fixed infrastructure. Instead, hosts rely on each other to keep network connected. In today's society with development of mobile devices this has become important to stay online all time. In order to stay online all time this must be possible to set up a network fast & cost effective when moving between different infrastructures, ad hoc networks deals with this kinds of issues. Then we discuss security criteria of mobile ad hoc network & present main attack types that exist within it. After ad hoc network has been established nodes that connect network might move, that one military squad is under heavy attack & has to escape. In ad hoc networks nodes would be capable to move freely. information would be routed through new paths if old paths are broken. In this type of network it would be able to handle clustering.

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