

IMPLEMENTING ENERGY EFFICIENT MECHANISM IN MANET

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ABSTRACT: This research is focused to provide energy efficient mechanism in MANET. Existing protocols are focusing on boosting of network lifetime and growing packet delivery ratio during routing to protect packet from dropping attack. But they did not try to reduce the size of packet. In Existing protocol due to large sized packet there is probability of congestion and the transmission delay occurs. Due to this lot of energy is consumed. Research considers factors influencing transmission speed such as size of Packet, The encryption and decryption of data, bandwidth of network, queuing delay, processing Delay, transmission delay. If size of packet increases then it will take more time to transfer from receiver to sender and for security reasons we use encryption decryption that lead to slow speed of network. On other hand bandwidth of network is another factor that lead to fast or slow data transmission. Proposed work is supposed to reduce the energy consumption during packet transmission over network.

Keywords: MANET, Bandwidth, Encryption, Delay, Cryptography,

[1] INTRODUCTION

Ad hoc Network (Mobile) has been considered as wireless Ad hoc network. It has been considered as a continuous self-configuring, without infrastructure network of the mobile devices which are linked wirelessly mobile. The network which works as the composition of various types of devices is Ad hoc network. These devices are communicating to one other in direct way. Several Ad hoc networks are considered as local area networks in which computers and 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

The network that uses wireless data connections is known as wireless network. These connections have been used to connect nodes of network. Wireless networking is the method. The costly process of including cables may be avoided through using this methodology by telecommunications networks and enterprise installations. Wireless networks have been managed using radio communication. Such

implementation is taking place at physical layer.

Types of wireless connections

It connects devices in a small area. Normally it is in the approach of a person. Bluetooth radio and Infrared light that is invisible is providing a Wireless Personal Area Networks for joining a mobile to a computer. Zig Bee is also supporting WPAN based applications. Wi-Fi PANs have become commonplace. This is because equipment designers [2] have started to check Wi-Fi. It is very easy to configure Wi-Fi PANs to enable Wi-Fi and virtual Wi-Fi capabilities.

Wireless Sensor Networks

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

The most challenging objective in Wireless Sensor Networks is generating minimum costing as well as small sensor nodes. Counting of small companies which produce Wireless Sensor Networks hardware is increasing as compared to counting in 1970s. Intrinsic to the sensor networks implementation is in use of the least amount of power methods for the two way radio communication and data attainment. The Wireless Sensor Network converses with Local Region Network or Wide Region Network by a gateway in many applications. This gateway plays an overpass between other networks with Wireless Sensor Networks. Now data is able to be processed

as well as stored by devices with added resources, example, in any server located at a distance.

[2] PROBLEM STATEMENTS

Existing protocol has focused on boosting of the network lifetime and growing the packet delivery ratio during routing to protect packet from dropping attack. But they did not try to reduce the size of packet. In Existing protocol due to large sized packet there is probability of congestion and the transmission delay occurs. Here we have used our own protocol to send the data as we have used port no above 1024, here we have not used reserved port number for data transmission. Second thing is that the probability of success of attack increases when data is large in size and sent as it is. So we have reduced the size of packets by exchanging contents of data file with some short words during send and original words are restored at receiving end. If huge Number of packets sent on common route then it becomes difficult to save data from intrusion detection attack.

[3] CRYPTOGRAPHY

It had been discipline of information security had been called Cryptography. Meaning of Cryptography had been "hidden" imitative from Greek krypton. Cryptography means hide information within storage or transfer including methods such as microdots, integration of words within image. Within existence of third party, this procedure is used for securing communication between two parties.

Nowadays, cryptography has become basic requirement of computer specialist so that without any modification and confidently, two parties could send data to each other. The material could be safely send to each other So that both sender and receiver could validate to each other for securing communication.

Cryptography is procedure of hiding plan data or data in form of cipher text. It is process used to keep information safe and hidden. Recent Cryptography is integration of computer science, mathematics along with electrical engineering. Cryptanalysis has been considered as a process of studying cipher text in order to get secret information.

[3] MATLAB

In this dissertation work Matlab has been taken as simulation tool. Matlab is known as tool for technical computing. It has been known as a high language. It is having interactive environment. Matlab allows us to achieve computationally missions quicker as compared to other programming languages like PASCAL, C, COBOL, and C++ and FORTRAN.

Matrix is known as rectangular numbers array in Matlab environment. Its Meaning is attached to 1x1 matrices. Matlab has different methods to store numeric and non-

numeric data. It is best to consider whole thing as a matrix in starting.

Characteristics of Matlab

Matlab has following characteristics.

1. It is used in case of numerical computation. It is also used for visualization along with application development.
2. It has given graphics features for visualizing information.
3. Matlab's programming interface has given development tools.
4. It has given several functions in order to integrate algorithms that are Matlab based. It is performing this with applications that are at external level. It is also using programming languages such as C, Java, .NET.
5. It has given lot of mechanism to build applications having flexible graphical interfaces.

Benefits of Matlab

Matlab has been used in various areas like computational tool in science and engineering. It is encompassing different areas such as chemistry, physics, math and each engineering streams widely. It has been utilized in a case of variety of applications such as [40].

- Test and Measurement
- Signal Processing and Communications
- Control Systems
- Computational Finance
- Image and Video Processing
- Computational Biology

[4] RESULTS AND DISCUSSION

Testing transmission and processing delay in packet transmission

To test transmission delay we have to check size of packet and 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.

Reduce size of packet during to improve qos in MANET

In this research work Data value would be replaced by X_Data using encoding scheme. Here we would check frequency of repeated data in Data and then replace then within corresponding data having less length before packet transmission. The size of packet automatically gets reduced.

The control packet has been utilized to transfer RTS and CTS packets in nodes. It is

to report nearest data. This has been composed of different seven elements. packet type is set by T_RTS data to check RTS packets and CTS data to check CTS packets got from neighbors, in this format. After receiving x_Data would be decoded to Data.

During research we concluded that these factors influencing transmission speed.

- **The size of Packet:** If size of packet increases then it will take more time to transfer from receiver to sender
- **The encryption and decryption of Data:** For security reasons we use encryption decryption that lead to slow speed of network
- **The bandwidth of network.** Bandwidth of network is another factor that lead to fast or slow data transmission.
- **Queuing delay:** Delay occurred during queuing of packets during transmission influence transmission speed of packet
- **Processing Delay:** Time taken during preprocessing of data to be sent, during sending operation also slows down packet transmission speed.
- **Transmission Delay:** Time take to transfer data from one location to other locations is another reason of delay in data transmission.

Evaluation and analysis of traditional data transmission within proposed work

Impact on Transmission Delay

In our work we have reduced packet length that leads to fast data transmission.

Impact of our research on transmission delay.

Table 1 Impact on Transmission Delay

Type of Delay	Effectuated/ No Effect
Transmission Delay	Effectuated
Processing delay	Effectuated
Queuing Delay	Effectuated
Propagation Delay	Effectuated

Evaluation analysis of overall Time consumption in tradition and proposed comparison

Table 2 Time consumption in tradition and 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

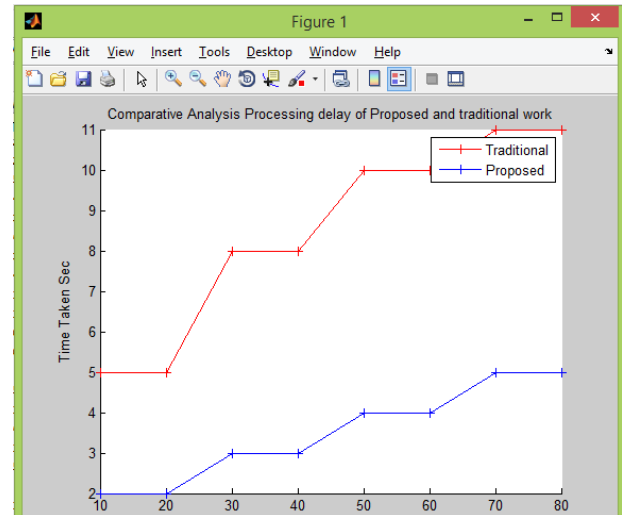


Figure 1 Comparative analysis of overall Time consumption

Comparative analysis of Queuing delay in tradition and proposed comparison system

Table 3 Queuing delay in tradition and 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

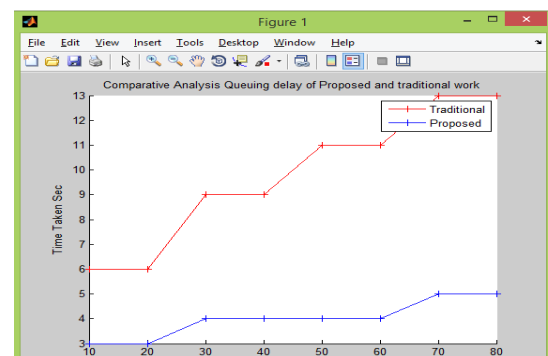


Figure 2 Comparative analysis of Queuing delay in tradition and proposed comparison system

Comparative analysis of File Size in tradition and proposed comparison system

Table 4 Comparative analysis of File Size in tradition and 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

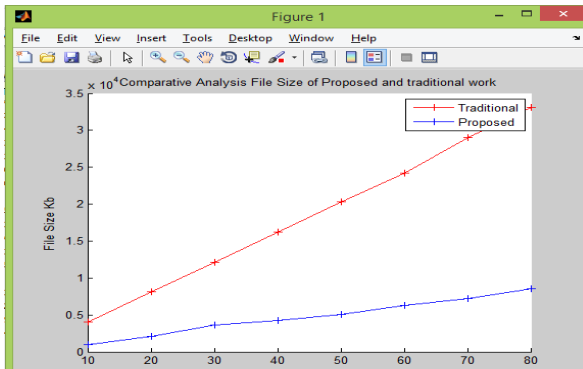


Figure 3 Comparative analysis of File Size in tradition and proposed comparison system

[5] CONCLUSION

Ad hoc networks have been considered as wireless networking paradigm for mobile hosts for particular purpose only. While old mobile wireless networks rely on fixed infrastructure, Ad hoc networks are independent. It is very necessary to stay online all the time in today's society because of development of mobile devices. For staying online 24 x 7 there is an issue for fast connectivity and cost effectiveness while moving among various infrastructures, Ad hoc networks are dealing with these type of problems. Secondly, we discussed security criteria for mobile Ad hoc networks and presented main attack types they are prone to. After the development of Ad hoc network, mobility of the nodes that connect network is possible. In that case a military squad is in attack and need to get away, the nodes would be capable of moving freely in Ad hoc networks. The information would be routed through new paths if old paths are broken. These types of networks are capable of handling clusters.

In this research, in order to improve quality and efficiency we have tried to reduce the pre-processing time, post processing time in order to enhance transmission speed. This is achieved by reduction of packet size so as to reduce probability of congestion and to secure network from packet dropping attack. We have to put minimum load on network during packet transmission. We have also avoided spending effort in resending of same data again and again by buffering packet in temporary database till its acknowledgement is received.

[6] FUTURE SCOPE

In past we have observed that a lot of work has been done on Ad hoc Network by various researchers. In this implementation packet transmits environmental data to destination in Ad

hoc Network. Content of packets are being replaced by corresponding small string in order to reduce size of packet to be transmitted on network. It has been observed experimentally, that if more attention is paid to security issues then transmission speed suffers resulting into an inefficient network. However, if packet size is reduced then speed of data transmission could be improved in contrast to secure traditional work. Because the security mechanism is user defined it is so further security layer could be added to Ad hoc network in order to make it more secure in future.

Our system would be able to apply to other servers. These are like SMTP Server, MANET Server, telnet, in future. This security mechanism would stop hacker to access data in an unauthenticated way firstly. After that it would stop them to understand data. In traditional system there were issue related to protection of data and it was increasing cost for the company.

In this work we have worked on Ad hoc network that is considered as a network which is a composition of different type of devices that are communicating to one other in direct way. Proposed work has secured Ad hoc networks where computers and different other devices have been enabled to transfer data in direct way. Work has been done on security of Ad- hoc network because it does not need any router or wireless base station making it more secure in turn. This network is established for single session only. This work would be beneficial if someone wants to share file to multiple computers then he could set more than one hop Ad hoc network might be utilized to transfer data on more than one node. Proposed work has been made to solve specific problem.

There can be new spaces of industrial and commercial applications for such Ad hoc based security system. Such Ad hoc network based system would play an important role in case of martial applications and many researches like global mobile information program. This would be useful in case of programs that are related to near digital radio. In this work the file has been transmitted from client to server in Ad hoc based network. To perform this user defined port has been used instead of FTP. Usually File Transfer Protocol which is an application level protocol is utilized to transfer files. FTP can be considered a protocol that is dependent on an Internet Protocol. But the new port has reduced the chances of hacking as port number of FTP that is 21 is known to all hackers.

In future the security mechanism could be enhanced to protect from further attacks such as wormhole attack, intrusion detection attack, Trojan horse attack.

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