



Quality of Services in MANET: An Investigation

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Abstract—MANET is the most growing technology of present communication environment, impressive feature of such kind of network are participating so many people to make their communication easy that results, inventions of portable wireless devices as well as the heavier load of higher number of users in parallel in this condition many time network getting suffer from QoS issues, maintenance of each individual device with data is not easier forever. At some extent it is possible to give qualitative results but remember it's not for every time, such complexity shows that one has to focus on such type of MANET mechanism that will never compromise with quality issues. Future opportunity in MANET are getting increase by day to day business applications, therefore we can say every people of this work is now getting covered and depended over wireless communication network where quality factors like reliability,accessibility,availability and security gets important to be achieved at MANET for forever. So many engineers had proposed many scheme that make MANET easy, security has been also enhanced but quality issues has not been achieved at guaranteed level so that one can define MANET as guaranteed quality and safety wireless communication environment. Data loss is the big issue in MANET that loss trust of peoples over MANET, sometime MANET also gets suffer from jitter and bottleneck issues that need to be resolve at priority level. Before to propose new scheme to improve quality level of MANET author go through the various already proposed and implemented techniques to organize original and really required demand for QoS in MANET, in this paper previously proposed techniques for MANET has been discussed and summaries in this way of definition, for defined the new opportunity area in MANET for future research work.

Keywords—MANET, QoS, Wireless Network, Security and Reliability.

I. INTRODUCTION

The network without quality will be consider as unreliable services section over such network user can never trust for confidential and secure communication, in order to improve such factors author has to analyzed the point of quality factors that need to be introduced in future MANET development area because at presently MANET are the most dependable part of organization who like to work with confidential and secure way, that demands to improve quality of MANET which motivates author to develop such MANET that gives easy and less complex working environment with quality, this is that main objective of this research paper. MANET is the regular communication part of present users, to provides original research benefits, the requirement of Literature survey and Background study is necessary, in this section author go through the deep study of MANET traditional and latest trends to get maximum challenges for the proposed research work, One analyzing the MANET issues from reliable literature resources like IEEE, Springer and ACM publications that belongs to the period of 2000 to 2015 so that one can consider more opportunities to make proposed research for MANET can be more valuable and qualitative.

II. DEFINATION AND BACKGROUND STUDY

According to the Venkanna, U. in 2011 MANET is the appropriate solution for all those application who performs remote are communication services and belongs to the infrastructure less network environment.

Definition1: Venkanna U. define the MANET as a kind of network that secure their users from the type of attack like black and gray hole, wormhole, Sybil and the intermediate route table modification attacks also known as man in the middle attacks apart from these if in case of heavy number of user at same foot print area MANET some time gets fail that causes data loss due to the disconnection of communication link at run time[01].

To immune form the identified attacks more advance techniques has been proposed mane intrusion detection system, Data information routing table, and sequence number comparison so that user and their data gets secure more safely, with the help of trust based on demand routing protocols which elements malicious nodes [14] such trust based management also helps for secure remote site communication.

Selim B. in 2015 presented ant based routing techniques in wireless mobile network in which author presented the way of communication between mobile node as like the queue of ant it is just like a type of communication that no demand for high bandwidth overheads[02].

Definition2: Author proposed a state of communication art for the purpose of easy network information delivery services it is a biological way of communication inspired by way of ant nature of communication that should be appropriate for reactive protocols scheme that not demand for topological information system.

Ant based routing information scheme proposed by selim B. help to originate the destination path easily and efficiently for reactive routing protocols that result in the reduction of latency and efficient switching in between the communication.

KullaE. In 2013 proposed new scheme named Airborne Network (AN), where AN represents the group of interconnected node in wireless mobile ad hoc network that also consist at least single airborne node.

Definition3: Author proposed Airborne Network node scheme such type of node will be treated as a super special node among the all node for the communication ,in other way we can say that super node have the high bandwidth among all to perform or proceed the request as much as easy and possible way[03].

According to the Naddem A in 2013 says that MANET is the advance technology of wireless network but getting suffer from attack at network layer they found so many network layer issues has been raised with MANET that need to be resolve for QoS in MANET.

Definition4: Author introduces new scheme for intrusion detection at network layer. auhtor design a point detection algorithm that detect single type of attack at network layer and other that cover from range of attacks, with the help of such qualitative mechanism mobile network can be easily immune from the dos and man in the middle attack at network layer [04].

According to the recently proposed research by Anjum S.S. in 2015 they use MANET application for the search and rescue operations, considering the dynamic nature of MANET node it is very compulsory to make network secure [14] from battlefield, terrorist attacks and natural disaster, author investigate the operation mode of MANET and define network as following.

Definition5: MANET is a collection of independent group of devices belongs to the infrastructure-less connection over their that is dynamic and self adaptive in nature, author introduces TCP services with MANET node. In proposed research work MANET has been as a fast reponceing system used for emergency in rescue operations. Simply author trying to develop a new category of MANET that is more appropriate for real life [05].

In 2014 Rath M. brings analytical survey study to improve the quality in MANET architecture used with real time MANET application process since it very tedious task to achieve quality of service factors with real time multimedia , or other real time recovery applications, at presentably uses having the portable devices that demands for the real time communication applications , every network user are now getting interact with real time applications , market deals with consumer with many type of multimedia application that demands to achieve QoS in real time MANET applications.

Definition6: Author analyzed the MANET protocols routing protocols for performance metric to scale the QoS issues , to parameterize such factors author compare each routing model along with their performance metric on difference numbers of nodes with difference time scale , this literature define the performance analysis for both proactive and reactive MANET network services model [06].

According to the Patel D.N in 2014 proposed a MANET scheme where every participated network node will be treated as a router, science wireless network can work with fixed topology structure, so the typical task is to maintain the routing process in dynamic way with high performance considerations. In proposed research author design a network in which every participated node will follow the connection process as much like the same as TCP connection oriented connection process where if any mobile node want to exchange that with another so that reliable connection has been made for those only for the time to exchange the data as the process completed connection has been terminated [10] but it is not easy with the kind of network where the quantity of mobile nodes are higher and user request for connection is much higher than nodes , in this case network may go down with unreliability issues [07].

Definition7: Author summarizes the story by tacking help to get performance considerations with performance metrics , here author design good routing protocols for integrated service model that optimize the routing protocols, author changes and analyzes difference routing approaches with proposed model and found AODAV is much better in performance with DSR and DYMO like other protocols.

Finally in 2013 Shrikande S.D. present problem issues available in MANET for different scenario that author categories in optimization problem, low performance problem, energy consumption issues, routing discovery issues, localization of node, jitter, and dead lock issues.

Definition8: Author define and motivates for the protection of nodes energy in MANET, energy awareness was the aim behind this literature to solve the major issues of MANET , to do this thing author try to make concentration on Swarm Intelligence scheme that resolve the underlines problem issues of MANET. Ant colony is one of the considered Swarm scheme used for the MANET [08].

In Mehta S, 2011 represents, MANET new definition as a cluster of multiple nodes, such type of clustering allows to get topological communication for multiple nodes dynamically in parallel that provides efficient and node specific management among the nodes for fast network services [12], such policy also good for improving performance in routing and their throughput.

Definition9:As the users and uses of MANET application are growing demand is getting higher to over come the issues of topological communication in order to achieve high efficiency during the dynamic request and response process, Mehta introduces such compatibility issues by developing a kind of model that has been consider as a cluster of process that need to be proceed as they require in coming or in parallel sequence. In proposed clustered model researcher mainly focus on, performance factors especially when request moves from node to nodes and the event when the topology has been changes as per the need of network [09].

Verma M.K. in 2012 proposed security framework for MANET security solutions since security is the major considerations in most of the organizations, research proposal describes the need of wireless network because security aspect in MANET is more vulnerable due to its open infrastructure and portability issues, security will be the complex and compulsory parameter for such type of network system [10].

Definition10:In this literature author represents security measures which is the most demanding factor among the characteristics of MANET every system , every people want high security of data between the communication such quality make network trustworthy and reliable , to get focus on this author discussed various previously presented model of security in MANET and as well as currently implemented security model so that one can design new security scheme to protect more reliably to out MANET network from attack.

III. CONCLUSION

After survey study one found that at presently wireless network are more widely used compare to the wired technology due to the simplicity of MANET, at the end we found our MANET is still struggling with security aspects and quality of service factors, as per the definition of trusted and reliable network MANNET is not up to the mark, as in section II, author go through the detailed sturdy of MANET Quality and Security procedures in [01] author found the black , white and worm holes security drawback are still available in MANET ,[02,11] defined biological way to topology the node to node communication for interoperability to resolve delay issues,[03,05] describes airborne network node to resolve bandwidth issues and intrusion detection algorithm to cover the high range of attack so that network can be immune from the interior and exterior attacks in between the communication. In [07] one analyses the performance metric of different traditional routing protocols like AODV, DSR etc to major performance issues, in this way author found AODV is better then other in routing. Swarm Intelligence scheme has been introduces in [08], to immune and aware the network for the wastage of node energy issues, clustering may be resolve the integration and parallel communication issues in [09] clustering has been involve in dynamic MANET routing process to get efficiency during node to node communication and achieve QoS issues in MANET, when one talk about the QoS services , one has to focus on the security issues so that all the previous and new security policy as been classified and defined in [10] to overcome from the problem of security breakage during the communication to achieve reliability in MANET.

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