iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 2 **Issue:** X **Month of publication:** October 2014

DOI:

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology(IJRASET)

A Survey About MANET

Vipin Mohan[1], Dr.P.Marikkannu[2]

[1]*Anna University, Regional Centre-Coimbatore*
Assistant Professor, Department of Information Technology,
[2]*Anna University, Regional Centre-Coimbatore*

Abstract: Our aim in this paper to take a survey about MANET. That is by collecting the information of transmission capacity and packet delivery delay in mobile ad hoc networks. In order to achieve the fundamental understanding of MANETs, we focus on various closed-form expressions of the network capacity and end-to-end delay. A MANET with the generalized correlated mobility model is considered in this paper, where the mobility of nodes clustered in one group is confined within a specified area, and multiple groups move uniformly across the network. The lack of a MANET capacity theory has stunted the development and commercialization of many types of wireless networks, including emergency, military, sensor, and community mesh networks. Information theory, which has been vital for links and centralized networks, has not been successfully applied to decentralized wireless networks. Thus we take all the issues into account and collect different methods which and all gives a better solution to this.

Keyword: MANET, wireless network, routing protocol, Ad hoc network, peer to peer, RPGM

I. INTRODUCTION

In today's fast and rapidly growing world of technologies, more and more businesses understand the advantages of usage of computer networking. Depending on the firm's size and resources it might be a small LAN containing only a few dozen computers; however in large corporations the networks can grow to enormous and complex mixture of computers and servers. A computer network is a system for communication between computers. These networks may be fixed (cabled, permanent) or temporary (as via modems or null modems). Carrying instructions between calculation machines and early computers was done by human users.

In September, 1940 George Stibitz used a teletype machine to send instructions for a problem set from his Model K at Dartmouth College in New Hampshire to his Complex Number Calculator in New York and received results back by the same means. Linking output systems like teletypes to computers was an interest at the Advanced Research Projects Agency ARPA when, in 1962, J.C.R. Licklider was hired and developed a working group he called the 'Intergalactic Network', a precursor to the ARPANet. In 1964 researchers at Dartmouth developed a time sharing system for distributed users of large computer systems. The same year, at MIT, a research group supported by General Electric and Bell Labs used a computer (DEC's PDP-8) to route and manage telephone connections. In 1968 Paul Baran proposed a network system consisting of datagrams or packets that could be used in a packet switching network between computer systems.

In 1969 the University of California at Los Angeles, SRI (in Stanford), University of California at Santa Barbara, and the University of Utah were connected as the beginning of the Sumyla 4 ARPA Net network using 50 kbit/s circuits. Networks and the technologies needed to connect and communicate through and between them, continue to drive computer hardware, software, and peripherals industries. This expansion is mirrored by growth in the numbers and types of users of networks from researchers and businesses to families and individuals in everyday use. Since their emergence in the 1970s, wireless networks have become increasingly popular in the computing industry. This is particularly true within the past decade which has seen wireless networks being adapted to enable mobility. There are currently two variations of mobile wireless networks. The first is known as infrastructured networks, i.e., those networks with fixed and wired gateways. The bridges for these networks are known as base stations. A mobile unit within these networks connects to, and communicates with, the nearest base station that is within its communication radius. As the mobile travels out of range of one base station and into the range of another, a "handoff" occurs from the old base station to the new, and the mobile is able to continue communication seamlessly throughout the network. Typical applications of this type of network include once wireless local area networks (WLANs).

The second type of mobile wireless network is the infrastructureless mobile network, commonly known as an ad-hoc network. Infrastructureless networks have no fixed routers; all nodes are capable of movement and can be connected dynamically in an arbitrary manner. Nodes of these networks function as routers which discover and maintain routes to other

nodes in the network. Example applications of ad-hoc networks are emergency search-and-rescue operations, meetings or conventions in which persons wish to quickly share information, and data acquisition operations in inhospitable terrains.

II. ARCHITECTURE OF MANET

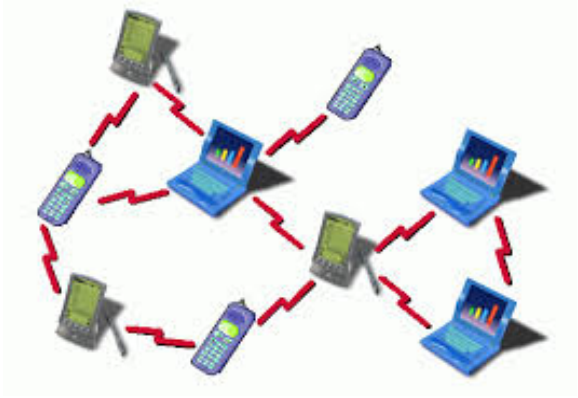


Fig 1: Architecture of MANET

A mobile ad-hoc network (MANET) consists of mobile hosts equipped with wireless communication devices. The transmission of a mobile host is received by all hosts within its transmission range due to the broadcast nature of wireless communication and omni-directional antennae. If two wireless hosts are out of their transmission ranges in the ad hoc networks, other mobile hosts located between them can forward their messages, which effectively build connected networks among the mobile hosts in the deployed area. Due to the mobility of wireless hosts, each host needs to be equipped with the capability of an autonomous system, or a routing function without any statically established infrastructure or centralized administration. The mobile hosts can move arbitrarily and can be turned on or off without notifying other hosts. The mobility and autonomy introduces a dynamic topology of the networks not only because end-hosts are transient but also because intermediate hosts on a communication path are transient.

III. CLASSIFICATION OF AD HOC ROUTING PROTOCOLS

Ad hoc routing protocols are classified into various types based on different criteria. Classification is shown in Fig 2. Classification is not commonly restricted and few more protocols fall under other classes. The routing protocols designed for ad hoc wireless networks are generally classified into four types based on Routing information update mechanism, Use of temporal information for routing, Routing topology and Utilization of specific resources.

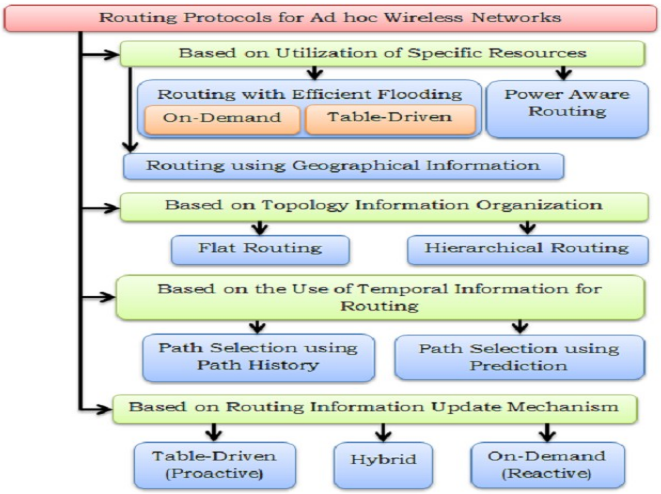


Fig 2: Classification of ad hoc routing protocols

IV.SURVEY OF EXISTING METHODS

A. Rethinking Information Theory for Mobile Ad Hoc Networks

Et.al was overcome the long-standing open problem of developing a general capacity theory for wireless networks. They can be used for capable of describing the fundamental performance limits of mobile ad hoc networks (MANETs). A MANET is a peer-to-peer network with no pre-existing infrastructure. MANETs are the most widely used for wireless networks, with single-hop, relay, interference, mesh, and star networks comprising special cases. MANETs was used for overcome three roadblocks. First, most current capacity results rely on the allowance of unbounded delay and reliability. Second, spatial and timescale decompositions have not yet been developed for optimally modeling the spatial and temporal dynamics of wireless networks. Third, a useful network capacity theory must integrate rather than ignore the important role of overhead messaging and feedback to overcome these roadblocks and develop a more general theory that we refer to as non-equilibrium information theory.

B. Mobility Increases the Capacity of Ad Hoc Wireless Networks

Et.al has proposed a model of an ad hoc network where each node is communicate in random source–destination pairs. These nodes are assumed to be mobile. They examine the per-session throughput for applications with loose delay constraints, such that the topology changes over the time-scale of packet delivery. This improvement can be achieved by using a form of multiuser diversity via packet relaying. The ad hoc wireless networks were constrained by the mutual interference of concurrent transmissions between nodes.

C. Throughput-Delay Trade-off in Wireless Networks

Et.al was proposed this paper is on distinguishing the delay and determining the throughput-delay trade-off in such fixed and mobile ad hoc networks. For the Gupta-Kumar fixed network model, they show that the optimal throughput-delay trade-off is given by D (n) =Θ (nT(n)), where T (n) is a throughput and D (n) is a delay respectively. For the Grossglauser-Tse mobile network model, they show that the delay scales as Θ, where v (n)is the velocity of the mobile nodes. Then describe a scheme that achieves the optimal order of delay for any given throughput. The scheme varies (i) the number of hops, (ii) the transmission range and (iii) the degree of node mobility to achieve the optimal throughput-delay trade-off. In this work, they recover the existing results of Gupta and Kumar, and Grossglauser and Tse using simpler techniques, which might be of a separate interest.

D. On the Throughput-Delay Trade-off in Geo routing Networks

Et.al has proposed the aim is to increase the network capacity quasi linearly with n while keeping the average delay bounded. This paper work models contains mobile nodes move according to an i.i.d. random walk with velocity v and transmit packets to randomly chosen destinations. The order of the average packet delivery delay is 1/v and it attains the network capacity of order n log n log log n. They can shown a practical throughput-delay trade-off, in particular when compared with the seminal result of Gupta and Kumar which shows network capacity of order pn/ log n and negligible delay and the groundbreaking result of Gross glausser and Tse which achieves network capacity of order n but with an average delay of order$\sqrt{n}$/v models.

E. A Group Mobility Model for Ad Hoc Wireless Networks

Et.al has proposed a survey of various mobility models in both cellular networks and multi-hop networks. They can show that group motion occurs frequently in ad hoc networks, and introduce a novel group mobility model Reference Point Group Mobility (RPGM) - to represent the relationship among mobile hosts. RPGM can be willingly applied to many existing applications. The main aim is to investigate the impact of the mobility model on the performance of a specific network protocol or application. To this end, they have applied our RPGM model to two different network protocol scenarios, clustering and routing, and have evaluated network performance under different mobility patterns and for different protocol implementations.

V.CONCLUSION

This thesis focus on various key issues of MANETs such as impact of scalability on different category of routing protocols to provide QoS-aware routing support, handling of cache coherence problem that arises in routing protocols due to

mobility and performance analysis of routing protocols to provide VOIP support over Hybrid MANETs. Our research work also contributes towards providing trust conscious secure route data communication support. Thus in this paper we present a study of various techniques which and all make worth for our estimations.

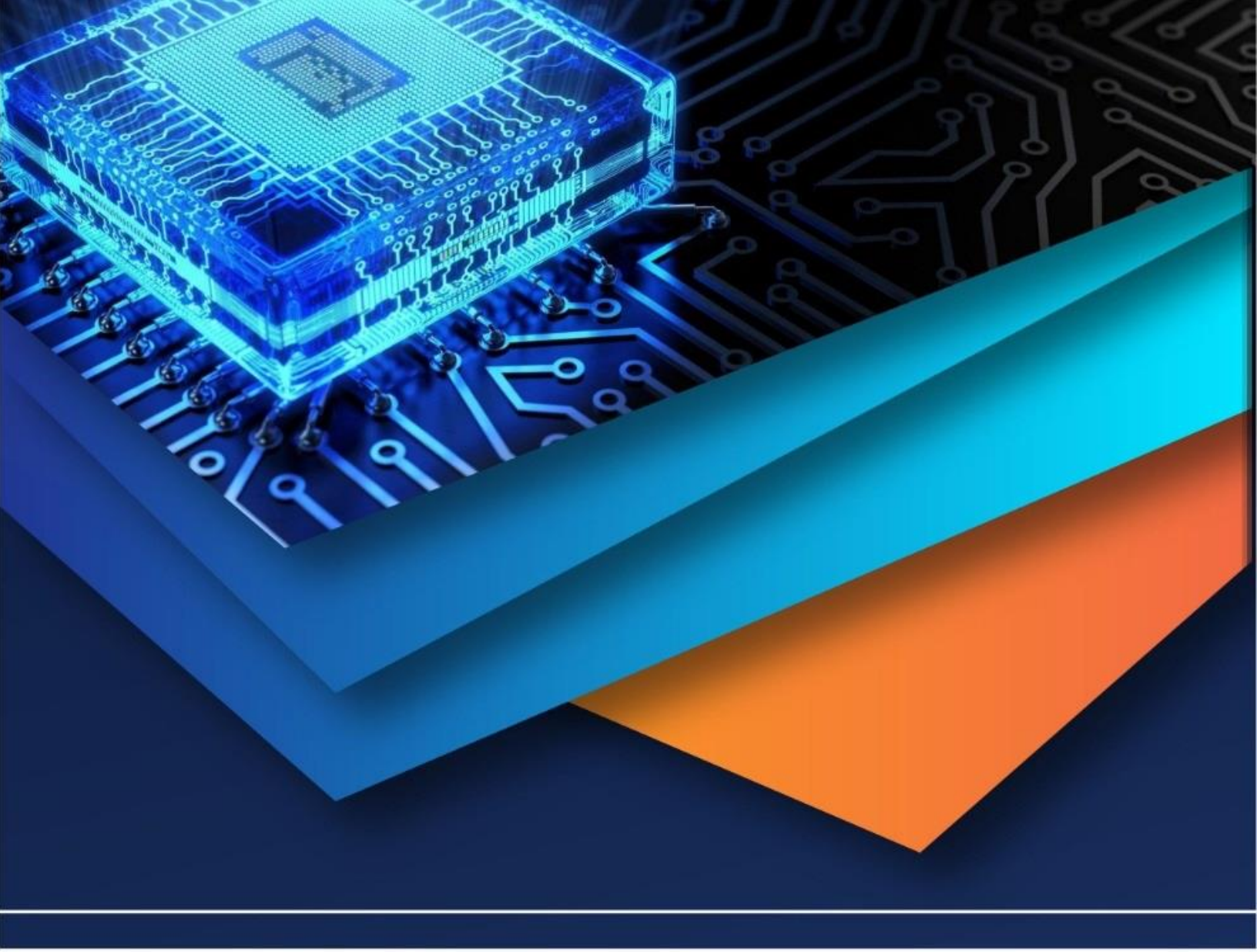
REFERENCES

[1] J. Andrews, S. Shakkottai, R. Heath, N. Jindal, M. Haenggi, R. Berry, D. Guo, M. Neely, S. Weber, S. Jafar, and A. Yener, "Rethinking information theory for mobile ad hoc networks," IEEE Communications Magazine, vol. 46, no. 12, pp. 94–101, Dec.2008.
[2] M. Grossglauser and D. Tse, "Mobility increases the capacity of ad-hoc wireless networks," in Proc. IEEE INFOCOM, 2001.
[3] A. E. Gamal, J. Mammen, B. Prabhakar, and D. Shah, "Throughput-delay trade-off in wireless networks," in Proc. IEEE INFOCOM, 2004.
[4] P. Jacquet, S. Malik, B. Mans, and A. Silva, "On the throughput delay trade-off in georouting networks," in Proc. IEEE INFOCOM, 2012.
[5] X. Hong, M. Gerla, G. Pei, and C.-C. Chiang, "A group mobility model for ad hoc wireless networks," in Proc. ACM MSWiM, 1999.

AUTHORS BIOGRAPHY

Vipin Mohan completed his B.Tech from Government engineering college, Sreekrishnapuram, Palakkad. Currently, He is pursuing his M.E degree from Anna University ,regional centre, coimbatore. His research area include wireless communication, wireless sensor networks, Computer Networks.

Dr.P. Marikkannu received his Ph.D (Information and Communication Engineering) from Anna University Chennai and Masters (Master of Technology) in Information Technology from College of Engineering, Guindy, Anna University, Chennai. He is working as an Assistant Professor in the Department of Information Technology, Anna University Regional Centre, Coimbatore. He has published many research articles in various Journals. His research interests include Agent-Based Intelligent Systems, Network
Security, Data Mining, Cloud Computing and Distributed Computing. Dr. P.Marikkannu is a life member of ISTE.



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY