



# IJRASET

International Journal For Research in  
Applied Science and Engineering Technology



---

# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

---

**Volume: 10    Issue: VI    Month of publication: June 2022**

**DOI: <https://doi.org/10.22214/ijraset.2022.44679>**

**[www.ijraset.com](http://www.ijraset.com)**

**Call:  08813907089**

**E-mail ID: [ijraset@gmail.com](mailto:ijraset@gmail.com)**

# Review of Different Routing Protocols and Routing Techniques

Ram Sudhakar Rao Kaje<sup>1</sup>, Prof. N. A. Dawande<sup>2</sup>

<sup>1,2</sup>Department of Electronics and Telecommunication, D.Y. Patil University Ambi Pune

**Abstract:** Mobile Ad-hoc Network could be a dynamic network that works with the characteristic of wireless Communication Network. It doesn't have a centralized server or an arbiter. it's a system that works separately connecting with wireless links using mobile routers. because of the infrastructure less network each mobile node moves freely with the absolute direction with no warranted path. Routing in Manet could be a challenge because of the quality of Nodes and lack of server. thus a routing protocol is important to own an economical communication between nodes in numerous network things that are heavily loaded at some purpose. This paper presents a review based on Manet and Manet routing Protocols.

**Keywords:** MANET, Protocol, proactive, Reactive, Hybrid;

## I. INTRODUCTION

The mobile ad hoc networks (MANET) are cluster of mobile nodes that kind a network severally and are connected through wireless links. variety of routing protocols are developed to assist within the maintenance of route mechanism for the mobile nodes so they'll communicate with different nodes in painter. the most aim of the protocols is to seek out the simplest possible and reliable path. every node behaves sort of a router.

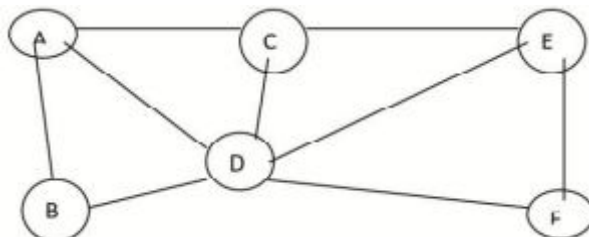


Fig1: Representation of mobile ad hoc network

## II. ROUTING PROTOCOLS

This has been the constant attention of researcher that helped them to develop many routing protocols which may be classified into three types

- 1) Pro-active ,
- 2) Reactive and
- 3) Hybrid (combination of pro-active and reactive).

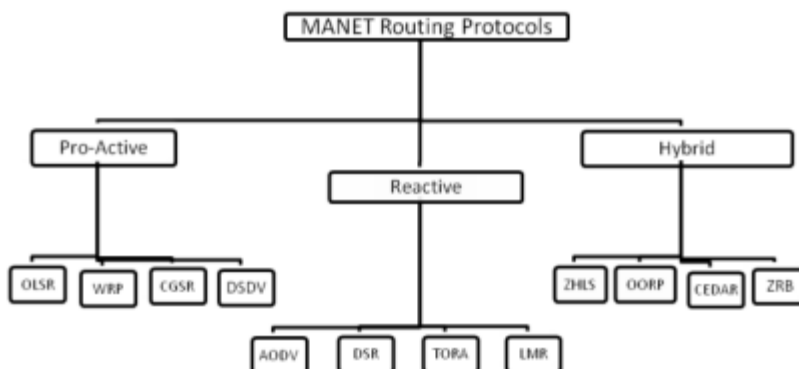


Fig2: MANET Routing Protocols

If a node is classified to be slow then the pro-active protocol will be used else the reactive protocol is applied. Routing protocols for MANET has been evaluated based on their performance metrics, throughput and delivery ratio.

#### A. Pro-active Routing Protocol

Every node continuously acquires the routing information which is stored in the routing tables. These tables differ according to the information propagated through all the nodes in the network. Flooding mechanism is used often to discover and update routes. The table is updated by two kinds namely, periodic update and triggered update. They generate more traffic because of the constant updating routing tables and the increase in nodes. The routing protocol like Link State Routing (LSR) protocol (open shortest path first) and the Distance Vector Routing Protocol (Bellman-Ford algorithm) are not suitable to be used in mobile environment. Destination Sequenced Distance Vector routing protocol (DSDV) and Wireless routing protocols were proposed to eliminate counting to infinity and looping problems of the distributed Bellman-Ford Algorithm.

#### B. Reactive Routing Protocol

They discover and maintain the route table by the most recent topology as and once required. Route search is required for each new destination thus the communication overhead is reduced at the expense of delay to go looking the route. They are classified as source routing (data packet headers, carry the path) and hop by hop routing (intermediate nodes will increase that causes route failure). Flooding strategy is employed to get the route to its destination. This discovery packet is termed the Route Request (RREQ) packet and therefore the mechanism is called Route Discovery. The destination replies with a Route Reply (RREP) packet. The protocols are: accidental On-demand Distance Vector Routing (AODV). Dynamic source Routing (DSR). Location aided Routing (LAR). Temporally Ordered Routing algorithm (TORA).

#### C. Hybrid Routing Protocol

This has both the proactive and reactive features. It is used when there is increase of nodes. This minimizes the delay and over head caused by pro-active and reactive. They are best known for their scalability of using few nodes in the routing and topology discovery. Zone Routing Protocol (ZRP), Zone-based hierarchical link state protocol (ZHLS) is an example of the hybrid routing protocols. The main concept of hybrid is reactive can be used in global network and pr-active may be used at the Node's local point.

### III.LITERATURE SURVEY

An ad hoc mobile network is outlined as a collection of communication hosts that are connected together with no preset topology of wireless links and additionally while not the necessity for a hard and fast central purpose. one in every of the foremost challenges that occur during this kind of networks is that the routing. This [1] aims to simulate, analyze, evaluate, and build a comparison to the performance of Manet routing protocols AODV and DSDV. Reactive protocols AODV, proactive protocol DSDV with their characteristics are analyzed based on variety of parameters metrics like throughput packets received, delay, jitter-delay, using NS2. Mobile Ad-hoc Network (MANET) is outlined as a mix of mobile nodes that lack a set infrastructure and is quickly deployable underneath any circumstances. These nodes have self-conscious design and are ready to move in multiple directions, that renders it dynamic topology. Its dynamicity makes routing in manet rather difficult compared to mounted wired networks. [2] aims to perform a comparative study on the 3 classes of Manet routing protocol by comparing their characteristics and operations, also as their strength and weaknesses

Mobile Ad- hoc Network could be a dynamic network which works with the characteristic of wireless Communication Network. It doesn't have a centralized server or an mediator. it's a system that works on an individual basis connecting with wireless links using mobile routers. because of the infrastructure less network each mobile node moves freely with the absolute direction with no bonded path. Routing in manet could be a challenge due to the quality of Nodes and lack of server. so a routing protocol is critical to own an economical communication between nodes in several network are that ar heavily loaded at some purpose. [3] presents A comparative study is formed on however the reactive protocols (on-demand) that have the potentiality to deliver the packets in a very massive ad hoc network perform best in these varied things.

Mobile ad hoc network (MANETs) are quickly growing as a crucial space of wireless communication with the revolutionary inventions within the mobile devices. economical routing protocols build MANETs reliable. Despite the considerable simulation works, still a lot of investigation is needed within the performance analysis of routing protocols for multimedia traffic especially Variable Bit Rate(VBR).In [4],

Gurpreet Singh , Atinderpal Singh can conduct variety of simulations for the performance evaluation of two popular routing protocols of manet, specifically AODV and DSR, for VBR transmission traffic exploitation Real Time Protocol(RTP).We will investigate the performance exploitation four metrics-packet received, throughput, routing overhead and network load.

In [5], authors have planned bandwidth aware multipath reactive (BAMR) routing protocol for mobile ad hoc networks. The projected protocol was an extension of ad hoc on demand multipath distance vector (AOMDV) routing protocol for mobile circumstantial networks. The projected protocol, named as BAMR, tries to find methods with adequate bandwidth and fewer link failures.

Increasing traffic in mobile ad hoc networks (MANETs) demands high bandwidth. quality of human action nodes is another crucial concern for such sort of networks. Providing flourishing finish to finish communication in mobile circumstantial networks could be a difficult task. In [6], we have a tendency to aim at providing a bandwidth aware multipath reactive routing protocol for mobile ad hoc networks. The projected protocol is an extension of ad hoc on demand multipath distance vector (AOMDV) routing protocol for mobile ad hoc networks. The projected protocol, named as BAMR, tries to find paths with adequate bandwidth and fewer link failures. The performance comparison of BAMR routing protocol is finished with AOMDV and BAOMDV, an another bandwidth aware on demand multipath distance vector routing protocol for MANETs. Simulation results exhibit that proposed protocol BAMR considerably improves the performance of other 2 routing protocols and might be used a lot of effectively for information transmissions in MANETs.

In [7], the author introduced yet one more innovative load balancing methodology also as a brand new way for estimating manet for Edouard Manet on demand routing protocols like AODV. The destination node selects the most the path route exploitation the trail data from the RREQ packet in this approach.

In [8], adaptive reliable and congestion management routing protocol was proposed to resolve congestion and route errors paths bypass route choice in MANETs. The multiple methods are made. Among that, the shortest methods are found for efficient information transmission. The congestion is detected on the basis of utilization and capability of link and paths.The SLA (Simple Load equalization Approach) approach is presented by the authors in [9] with alleviating of presented the matter of traffic concentration by permitting any mobile node to allow up packet forwarding or discarding RREQ.

#### IV. CONCLUSIONS

Obstacles occur in mobile ad hoc networks (MANETs) due to packet loss, which may be efficiently mitigated by combining congestion management strategies (comprising routing approaches) with control inflow at the network layer. Congestion is the key challenge for routing in the mobile system, which overall degrades network performance owing to insufficient accessibility of wireless network resources of the nature, node mobility, and dynamic topology of the wireless network. In this paper we discussed the various routing protocols and its literature.

#### REFERENCES

- [1] Suad A. Alasadi, Alyaa Abdulhussein Al-Joda, Enas Fadhil Abdullah, "Mobile ad hoc network (MANET) proactive and reactive routing protocols", Journal of Discrete Mathematical Sciences and Cryptography, DOI: 10.1080/09720529.2021.1958997
- [2] Abdulleh, M.N., Yussof, S. and Jassim, H.S. (2015) Comparative Study of Proactive, Reactive and Geographical MANET Routing Protocols. Communications and Network, 7, 125-137.
- [3] Keren Lois, "Comparative Study of Reactive Routing Protocols for MANETs", Special Conference Issue: National Conference on Cloud Computing & Big Data, pg.180-183.
- [4] Singh, G. and Singh, A. (2012) Performance Evaluation of Aodv and Dsr Routing Protocols for Vbr Traffic for 150 Nodes in MANETs. International Journal of Computational Engineering Research ([ijceronline.com](http://ijceronline.com)), 2, 1583-1587.
- [5] Krishnamoorthy, D., Vaiyapuri, P., Ayyanar, A. et al. An Effective Congestion Control Scheme for MANET with Relative Traffic Link Matrix Routing. Arab J Sci Eng 45, 6171-6181 (2020).
- [6] Prasad, S. K., & Bhatia, K. (2018). BAMR: a novel bandwidth aware multipath reactive routing protocol for mobile ad hoc network. International Journal of Systems, Control and Communications, 9(1), 75. doi:10.1504/ijsc.2018.088338.
- [7] Vadivel, R., Bhaskaran, V.M. Adaptive reliable and congestion control routing protocol for MANET. Wireless Netw 23, 819-829 (2017).
- [8] Kumar, J., Singh, A. & Bhadauria, H.S. Congestion control load balancing adaptive routing protocols for random waypoint model in mobile ad-hoc networks. J Ambient Intell Human Compute 12, 5479-5487 (2021).
- [9] Dalal, Surjeet & Dahiya, Neeraj & Seth, Bijeta & Jaglan, Vivek & Malik, Meenakshi & Surbhi, Surbhi & Rani, Uma & Le, Dac-Nhuong & Hu, Yu-Chen. (2021). Adaptive Traffic Routing Practice for Load Balance and Congestion Control in AdHoc Network in Cloud-MANET. 10.21203/rs.3.rs-723513/v1.



10.22214/IJRASET



45.98



IMPACT FACTOR:  
7.129



IMPACT FACTOR:  
7.429



# INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089  (24\*7 Support on Whatsapp)