

Review of Various Routing Protocols for Network Capacity Enhancement over MANET

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Abstract— In wireless ad hoc network each node is treated as wireless node and passes the message to other node within the network. Wireless ad hoc means rather relying on base station each node within the network forward packets to and from each other. Intelligent Transport System is the major application of MANET, Intelligent transportation system (ITS) is the application of sensing, analysis, control, and routing and communications technologies to ground transportation in order to improve safety, mobility and efficiency. This paper, checked on different kinds of network capacity enhancement over MANET, posting their advantages and disadvantages. In conclusion conceivable tendencies of prospective research connected to MANET steering are talked about.

Keywords: Routing, Protocol, MANET, ITS, MANET

I. INTRODUCTION

An ad hoc steering protocol is a tradition, or standard, that controls how nodes choose which approach to course parcels between figuring gadgets in a versatile ad hoc network. In ad hoc networks, nodes are not acquainted with the topology of their networks. Instead, they need to find it: ordinarily, another node reports its quality and tunes in for declarations broadcast by its neighbors. Every node finds out about others close-by and how to contact them, and may report that it also can contact them. Versatile ad hoc networks (MANETs) are utilization of Portable ad-hoc network (MANETs). MANETs were first said and introduced in 2001 under "auto to-auto uncommonly delegated convenient correspondence and frameworks administration" applications, where frameworks can be surrounded and information can be given off among cars. It was exhibited that vehicle-to-vehicle and vehicle-to-roadside exchanges plans will exist together in MANETs to give road security, course, and other roadside administrations. MANETs are a key bit of the clever transportation systems structure. A portion of the time, MANETs are evaded as Shrewd Transportation Networks. By 2015, the term MANET wound up being commonly synonymous with the more nonspecific term between vehicle correspondence (IVC), despite the manner in which that the thought stays concerning unconstrained systems association, broadly less on the use of structure like Road Side Units (RSUs) or cell systems.

The structure is spur of the moment since it doesn't depend upon a prior structure, for example, switches in wired structures or passages in administered (foundation) remote frameworks. Or then again perhaps, every inside values directing by sending information for different focuses, so the affirmation of which focus focuses forward information is made powerfully in perspective on brains openness and the planning figuring being utilized. In the

Windows working structure, without any preparation is a correspondence mode (setting) that engages PCs to coordinate chat with one another without a switch. Dynamic structures in which focuses are allowed to move. Remote systems don't have the complexities of foundation setup and affiliation, empowering gadgets to make and join structures "on the fly" – wherever.

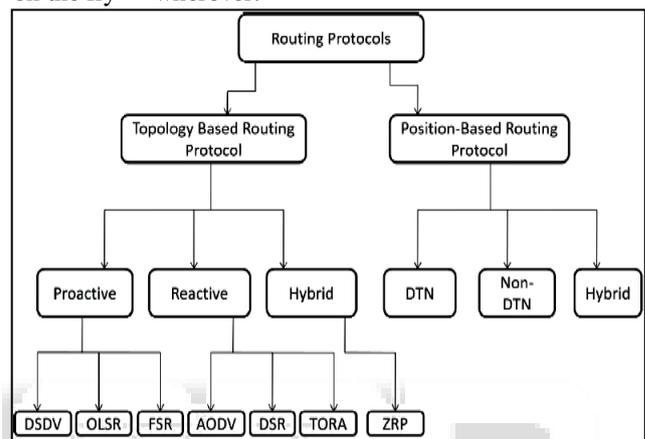


Fig. 1: Different Routing Protocol

VANETs bolster a wide scope of uses – from straightforward one bounce data dispersal of, e.g., helpful mindfulness messages (CAMs) to multi-jump spread of messages over immense separations. The greater part of the worries important to portable ad hoc networks (MANETs) are of enthusiasm for VANETs, yet the subtleties differ.[5] Instead of moving aimlessly, vehicles will in general move in a sorted out manner. The cooperation with roadside gear can in like manner be described decently precisely. Lastly, most vehicles are limited in their scope of movement, for instance by being compelled to pursue a cleared expressway.

- Electronic brake lights, which permit a driver (or a self-sufficient vehicle or truck) to respond to vehicles braking despite the fact that they may be darkened (e.g., by different vehicles).
- Platooning, which enables vehicles to firmly (down to a couple of inches) pursue a leading vehicle by remotely getting speeding up and guiding data, subsequently shaping electronically coupled "road trains".
- Traffic data frameworks, which use MANET correspondence to give up-to-the moment obstruction reports to a vehicle's satellite route framework
- Road Transportation Crisis Administrations – where MANET interchanges, MANET networks, and road security cautioning and status data scattering are utilized to decrease postponements and accelerate crisis salvage activities to spare the lives of those harmed.
- On-The-Road Administrations – it is likewise imagined that the future transportation interstate would be "data driven" or "remotely empowered". VANETs can help

advertise administrations (shops, corner stores, eateries, and so on.) to the driver, and even send warnings of any deal going on right then and there.

II. LITERATURE SURVEY

Harinder Chen et al., [1] Due to significant advances in wireless modulation technologies, some MAC standards such as 802.11a, 802.11b, and 802.11g can operate with multiple data rates for QoS-constrained multimedia communication to utilize the limited resources of MANETs more efficiently. In this work, by means of measuring the busy/idle ratio of the shared radio channel, a method for estimating one-hop delay is first suggested. Then, by constructing a multicast tree, a delay-sensitive multicast protocol for real-time applications in multirate MANETs is proposed. In order to increase the network capacity, the proposed multicast protocol intends to minimize the sum of the total transmission time of the forwarders and the total blocking time of the blocked hosts, by taking the neighboring information of the forwarders into account and properly adjusting the data rates of the forwarders. Simulation results show that the proposed delay estimation method is more accurate, as compared with previous works. Besides, the proposed multicast protocol can induce higher network capacity, while satisfying the delay requirement.

E. H. Wu et al., [2] Network coding is a promising technology proven to improve the performance of wireless networks. To successfully design a quality-of-service (QoS)-satisfied routing protocol with network coding, the bandwidth consumption of a coding host should be determined. Furthermore, coding opportunities should be increased to improve network capacity. Nevertheless, it is challenging to determine whether a host can be a coding host and to determine the bandwidth consumption of a coding host in a mobile ad hoc network (MANET). In this work, it is first present and define the coding conditions to identify a coding host. The bandwidth consumption of a coding host is then estimated under the contention-based wireless networks with a random access mechanism. Finally, it is propose a bandwidth-satisfied and coding-aware multicast routing protocol (BCMRP). By taking into account the residual bandwidth of the carrier-sense neighbors of the forwarders, the proposed protocol can satisfy the bandwidth requirements of the requested flow and other ongoing flows. As a consequence of considering coding opportunities in multicast tree construction, the proposed multicast protocol can reduce the total bandwidth consumption. The simulation results show that BCMRP outperforms the prior multicast routing protocols in receiving ratio, admission ratio, and total bandwidth consumption.

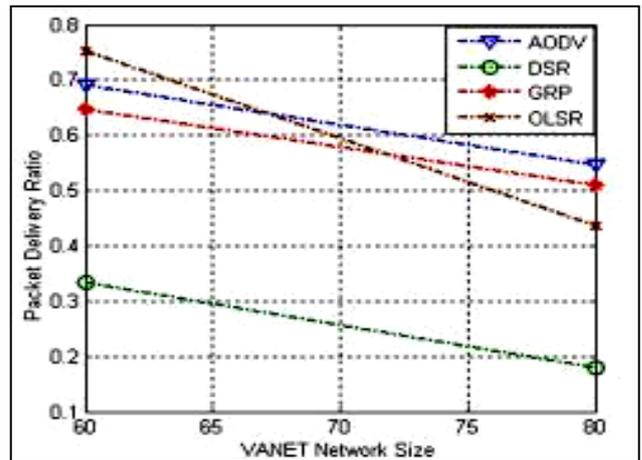


Fig. 2: Comparison of different protocols n/w size vs PDR

P. R. Satav et al., [3] the research in MANET has been carried out for the development of various techniques which will increase the competency of the network only. A plenty number of proposed routing protocols are magnificent in terms of efficiency. However, proposed protocols were generally fulfilling the set of trusted network and not considered for adversarial network setting, hence there is no security mechanism has been considered. MANET is widely used in sensitive fields like battlefield, police rescue operation and many more in such type of sensitive field an attacker may try to gather information about the conversation starting from the origin node to the terminal node. Secure route selection approach for route selection in adverse environment is discussed in this article. The results shows that proposed algorithm, will resolve the single & collaborative attack by increasing the computational & storage overhead and by improving the significant PDR, achieves a noticeable enhancement in the end to end delay.

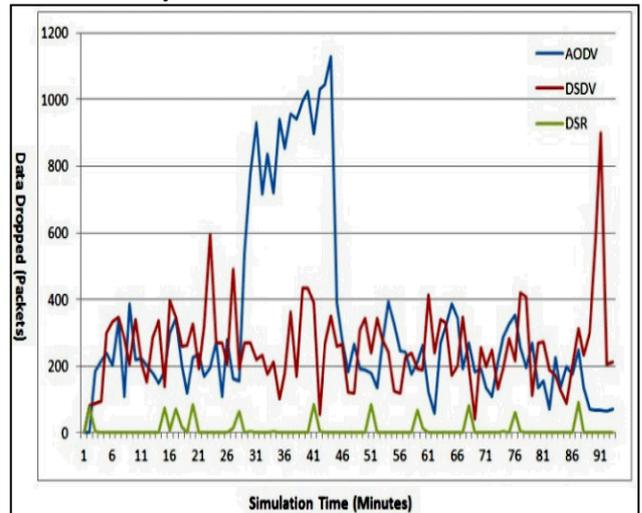


Fig. 3: Simulation time vs packet lost

J. Kniess et al., [4] The search for service providers (e.g., ambulance, fire truck, etc.) after a disaster, must take place within a short time. Therefore, service discovery protocol which looks for providers that can attend victims, respecting time constraints, is crucial. In such a situation, a commonly solution for ensuring network connectivity between victims and providers is ad hoc networks (MANET), composed by battery-operated mobile nodes of

persons (victims or not). However, an efficient service discovery protocol must care about energy consumption of mobile nodes and also prevent useless movement of providers. These are the aims of the Resource Reservation Protocol (Δ RRP), presented in this paper. Applying both Gauss-Markov [1] and Mission Critical Mobility [2] models to characterize human mobility, performance evaluation results on the Network Simulator NS2 confirm the effectiveness of Δ RRP protocol when compared to other protocols.

M. Maragatharajan et al., [5] A Multicast routing protocols for Mobile Ad hoc remote system assumes an essential part in the typical applications of ad hoc wireless networks, namely, emergency & rescue operations, Distributed & Collaborative computing, Wireless mesh networks and etc. Multicasting is nothing but send information not to all members but for a group of members. It is the most favored technique for group communication because it decreases overhead and improves transmission capacity use. Multicasting in a mobile and multihop wireless network is considerably more complex than in wired networks due to node mobility, Security, Energy management, Routing, Addressing and deployment considerations. This work discusses some state of the art multicast routing for mobile ad hoc network. Protocol comparison table can also be given.

The following is a list of some ad hoc network routing protocols.

- Table-driven (proactive) routing
- Respective amount of data for maintenance.
- On-demand (reactive) routing
- High latency time in route finding.
- ABR - Associativity-Based Routing
- Ad hoc On-demand Distance Vector(AODV)
- Dynamic Source Routing
- Flow State in the Dynamic Source Routing
- Power-Aware DSR-based
- Hybrid (both proactive and reactive) routing
- ZRP (Zone Routing Protocol)
- ZHLS (Zone-based Hierarchical Link State Routing Protocol)
- On demand multiple routing protocol (ODMRP)

A. Hierarchical Routing Protocols

With this sort of protocol the decision of proactive and of responsive steering relies upon the hierarchic dimension in which a node lives. The directing is at first settled with some proactively prospected courses and after that serves the interest from additionally initiated nodes through responsive flooding on the lower levels. The decision for either strategy requires appropriate attribution for particular dimensions. The primary disadvantages of such calculations are:

- CBRP (Cluster Based Routing Protocol)
- FSR (Fisheye State Routing protocol)
- Order One Network Protocol
- ZHLS (Zone-based Hierarchical Link State Routing Protocol)

The Vehicular Receptive Steering (VRR) protocol is coordinated with the WAVE stack and is installed at the Rationale Connection Control layer.

AUTHOR	PROTOCOL	PERFORMANCE
Hafez Seliem	MAC & VDNET	60 S
Jos E Grimaldo	AODV, OLSR, DSR, And DSDV	1 S To 300 S
Forough Goudarzi	Routing Protocol	800 S
Bhuvanewari Madasamy	MGOR	100s
Guiyang Luo	SDNMAC	300s

Table 2: Comparison of some Protocols

III. CONCLUSION

In this paper, we have investigated different protocols for network capacity enhancement over mobile ad-hoc network. By concentrate distinctive directing protocol in MANET we have seen that further execution assessment is required to check execution of a steering protocol with other steering protocols dependent on different traffic situations. Presently multiple ODMRP protocol is utilizing generally in numerous application. Consequently in protocol based MANET design, can be utilized such protocol.

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