

# Advancement in Performance of Wireless Ad-Hoc Network using AOMDV in MANET

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## Abstract

In Mobile Ad hoc Network (MANET) all the nodes are mobile in nature, Because of the dynamic behaviour of network link are not maintained for long time. Our Work is towards a new performance based Throughput, PDR, End to End delay scheme with AOMDV protocol. In this scheme nodes are do routing with AOMDV protocol by using shortest path. Nodes in network are in some time not free then at that time here communication is lost, so using routing table we could know about which number of nodes are available or not. Using table we have time to time information about each node. Using AOMDV protocol I have to try achieve high performance with comparing to AOMDV.

**Keywords:** AOMDV, better pdr and throughput, wireless ad-hoc network, MANET

## I. INTRODUCTION

A Mobile Ad Hoc Network (MANET) is a collection of wireless mobile nodes forming a temporary, short-lived network without any fixed infrastructure where Each device in a MANET is free to move independently in any direction, and will therefore change its links to other devices frequently [8][9].In MANET, each node act as a router and host. Topology of the network may change arbitrary.

Mobile ad hoc network is a collection of independent mobile nodes that can communicate to each other via radio waves. The mobile nodes can directly communicate to those nodes that are in radio range of each other, whereas others nodes need the help of intermediate nodes to route their packets. These networks are fully distributed, and can work at any place without the aid of any infrastructure. This property makes these networks highly robust.

## II. OBJECTIVE

The objective of this research is to improve the throughput by analysis of the following parameters:

- Throughput
- End to End Delay
- Packet Delivery Ratio

## III. AOMDV PROTOCOL

One of the most commonly used AOMDV is a multipath routing protocol provides loop-free extension to another multipath routing protocol AODV. It ensures about disjoint alternate paths at every node, so that it can achieves path dis-jointness without using source routing. AOMDV with a route tables contain a list of paths for each destination, to support multipath routing. All the paths have the same destination sequence number to a destination. All the routes with the old sequence number are removed, once a rout advertisement with higher sequence number is received. Two additional fields, hop count and last hop, are stored in the route table entry to help address respectively the problems of loop freedom and path disjointness. The loop freedom guarantee from AODV is no longer required here, because the multipath routing protocol implement multipath discovery. AOMDV having two table fields hop count field and last hop field, in which hop count field initialized once at the time of the first advertisement for that sequence number and contains length of the longest path for a specific destination sequence number. That's why hop count field remain unchanged till a path for a higher destination sequence number is received. To ensure disjointness of that path in the route table, a node discards a path advertisement that has either a common last hop or a common next hop as already stored in the route table.

AOMDV is invariant of AODV routing protocol, which maintains multiple paths during route discovery.

### A. Qos Improvement in AOMDV through Backup & Stable Path [19]

In this paper mr.vishwa Chandra & Krishna kumar are mention the working of MANET it's all protocols briefly. In this paper they have shown the three types Of MANET proactive, reactive & hybrid. In this paper they have discussed about AOMDV protocol, its characteristics, working, etc. they use the property of AOMDV protocol and make proposed AOMDV, in which they have make a backup of path discovery & make a stable path for achieving better performance , using stable

path they have to try reduce link breakage between nodes. If chosen path is not adequate & if any link is broken then using backup path they have try to send the packet to destination consuming less time for the simulation they have to use ns-2 tool & make experiments. They take so nodes for checking throughput. In this there are BSAOMDV performs best in comparison with AOMDV protocol. In this paper they have try to make as much as possible make performance of each characteristics high.

#### ***B. Energy Efficient Multipath Routing Protocol for MANET using the Fitness Function [20]***

The Authors of this paper shows the multipath routing in MANET. In this paper they have present an energy efficient multipath routing protocol. It is called as FF-AOMDV. The FF-AOMDV uses the fitness function as an optimization method. There are two parameters are given and first is (1) select optimum route on of then is energy level of the route (2) route distance in order to destination. Here, FF-AOMDV is a new energy efficient multipath routing algorithm. It is tested by five parameters (1) packet delivery ratio (2) throughput (3) end-to-end delay (4) energy consumption (5) n/w lifetime. In the simulation result there is FF-AOMDV algorithm has performed much better than AOMDV.

#### ***C. Implementation of Load Balancing in Multipath Routing Protocol for Mobile AD-HOC N/W. [21]***

In this paper, mr.sanjeevkumar & mr.yogeshehaba shows the performance of AOMDV. Here they will use multipath routing, so any one node is not free then it will chose second path. Here in this paper there are using AOMDV protocol there are the firstly route is analyzed, & then packet are forwarded. In this there are entire packet are send to each node of the network. Here authors make improved AMODV protocol, In this protocol there are they have add the load balancing technique, in this technique there are the packet is divided in term of fragment , so if any node is busy, then it will forward to neighbour node. Using this they will try to make less congestion. Using simulation, at the phase of analysis there are better performance is achieved. This implementation technique is efficient in network resources in useful manner.

#### ***D. Mobility Model based Performance Evaluation of AOMDV Routing Protocol of MANET [22]***

In this paper, the authors would introduce to the mobile Ad-hoc network. To achieve better performance the authors will choose performance metrics. In the MANET there are pro-active, reactive and Hybrid routing is discussed. Using performance metrics they have to decide the suitability for a particular mobility model. In this paper they have compare the working of AOMDV & AODV and here AOMDV is achieve high performance compare to AOMDV, AOMDV performs well because of its ability to multipath routing, so if one link s fail then it will choose the another path & make successful communication.

#### ***E. A Scenario Based Simulation Analysis & Performance Evaluation of Energy Efficiency Enhancement of Routing Protocols in MANET [15]***

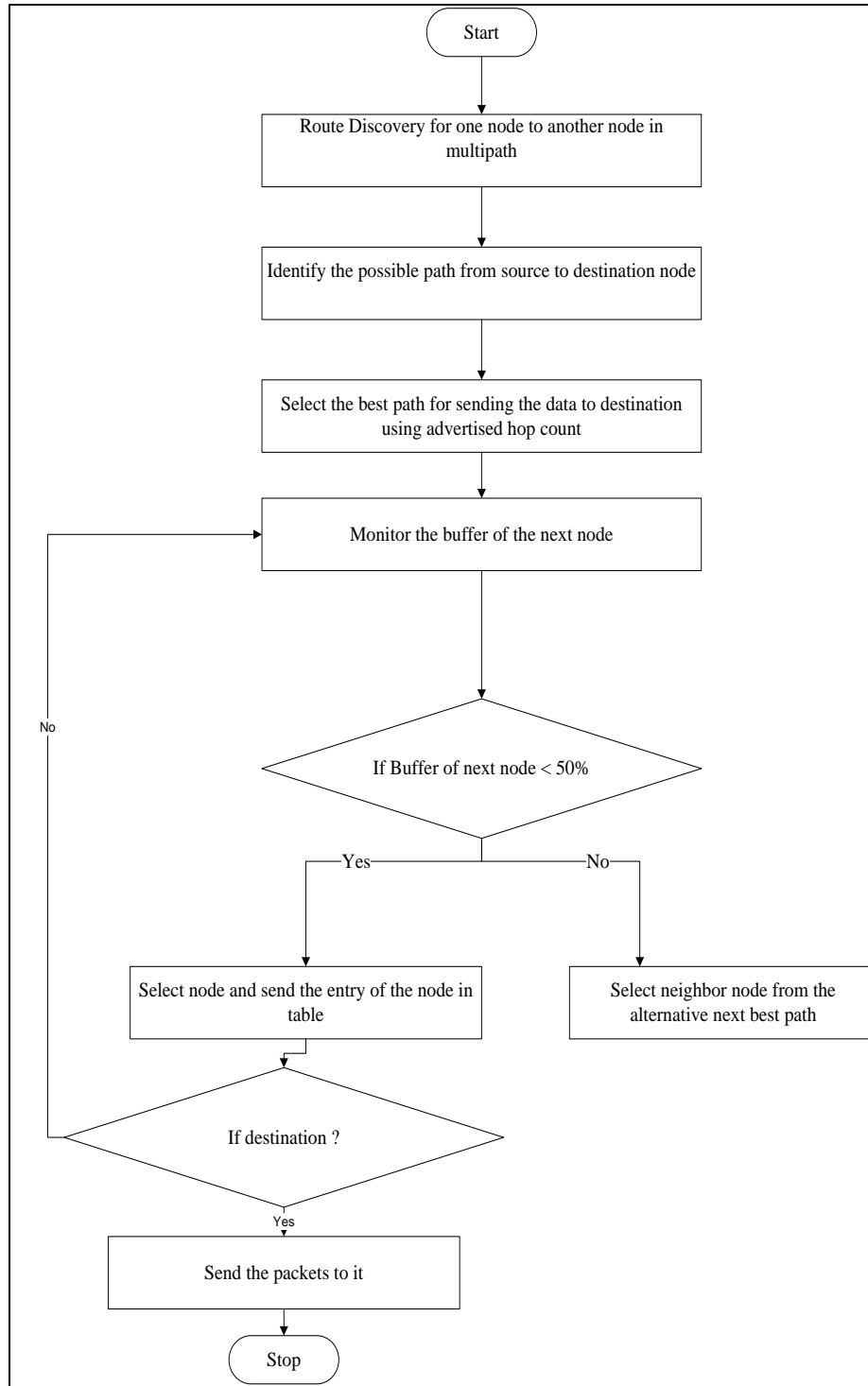
In MANETs, the nodes make the mobile and battery operated. Since the nodes have limited battery resources and multi-hop routes are used over a changing network environment due to behaviour of the node mobility, it requires energy aware efficient routing protocols to limit the power consumption, make longer the battery life time and to improve the robustness of the system.

EAOMDV protocol is performing well compared to the existing routing protocols.

##### ***1) Problem Statement***

Mobile nodes are continuously changing their positions so it has been difficult to maintain the location of the nodes. There are some single path algorithms to solve such problem but Multipath protocols have definitely sort the problem of single path by providing alternative route in between sender and receiver. AOMDV has more message overheads during route discovery due to increased flooding and since it is a multipath routing protocol, the destination replies to multiple RREQs those results are longer overhead. For this overhead improvement with improved AOMDV protocol with throughput and packet delivery measurement.

#### IV. PROPOSED ALGORITHM

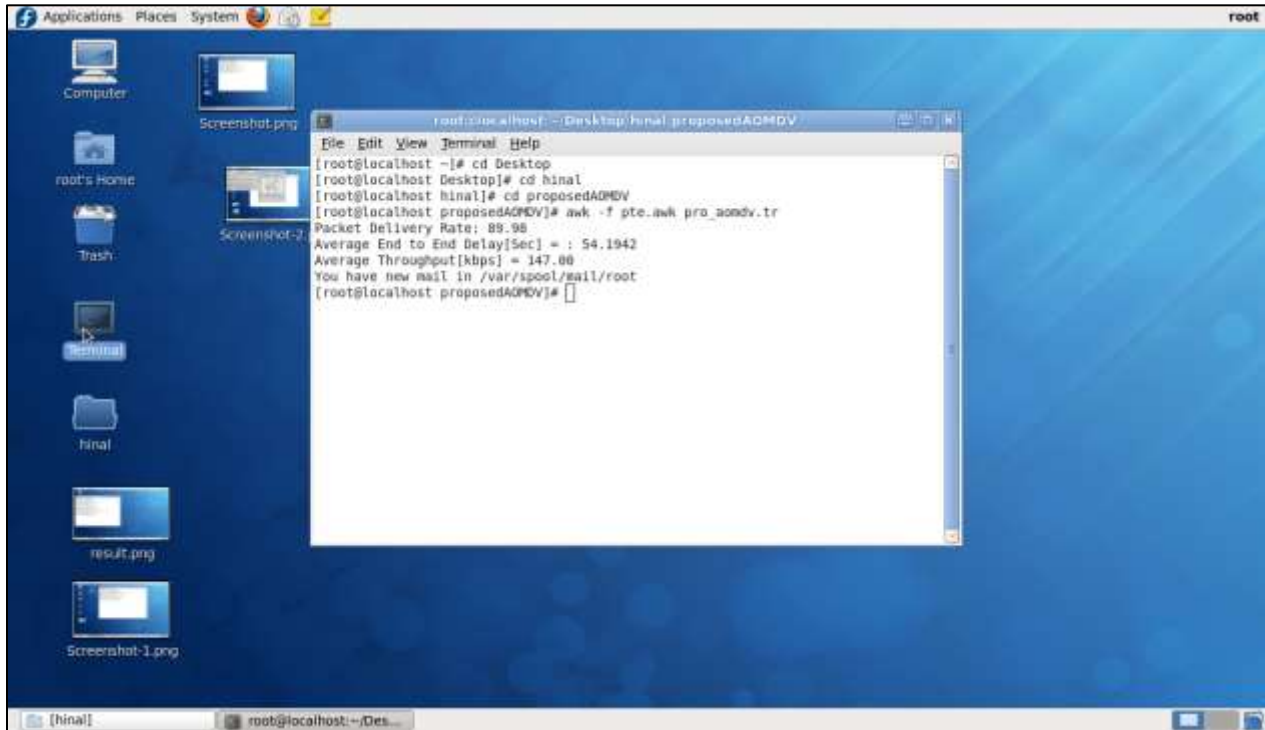


##### A. Algorithm

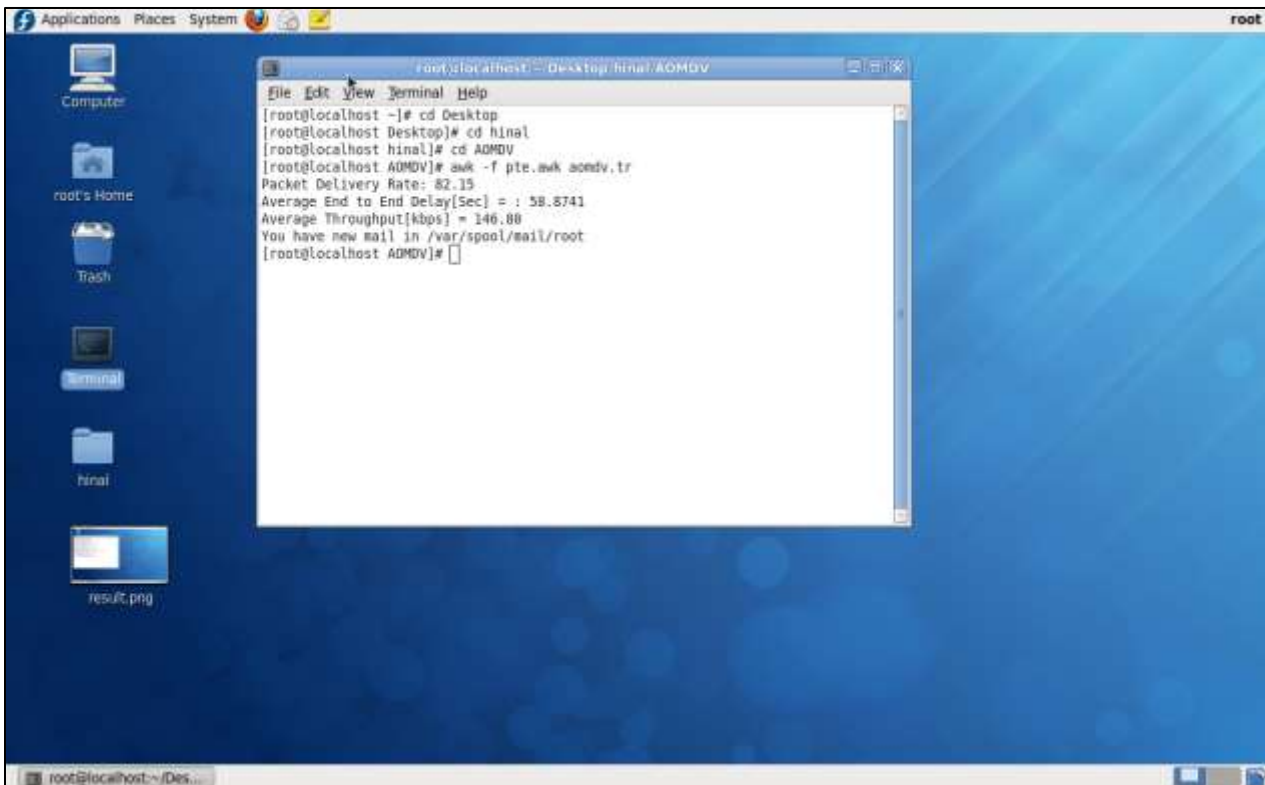
- 1) Step 1: Source to destination sending packet's process start
- 2) Step 2: Initialize node to send packet source to destination
- 3) Step 3: Set one by node to send packet source to destination
- 4) Step 4: Using AOMDV routing table select the shortest path using Advertise Hop Count
- 5) Step 5: Select the shortest path for sending data For each routing in a routing table do checks
- 6) Step 6: Select next node Using AOMDV routing table
- 7) Step 7: Using routing table check the length of the node

- 8) Step 8: if next node is less than 50% range of coverage area than this node is selected and this node's information is put enter in routing table If this node is destination then packets will be sent them otherwise repeat step6
- 9) Step 9: if next node is greater than 50% range of coverage area than this node is refused and select the neighbouring node of this current node for making another path for data send
- 10) Step 10: End of process.

## V. THE SCREENSHOTS



```
root@localhost: ~/Desktop/hinal/proposedAOMDV
File Edit View Terminal Help
[root@localhost ~]# cd Desktop
[root@localhost Desktop]# cd hinal
[root@localhost hinal]# cd proposedAOMDV
[root@localhost proposedAOMDV]# awk -f pte.awk pro_aomdv.tr
Packet Delivery Rate: 89.98
Average End to End Delay[Sec] = : 54.1942
Average Throughput[kbps] = 147.00
You have new mail in /var/spool/mail/root
[root@localhost proposedAOMDV]#
```



```
root@localhost: ~/Desktop/hinal/AOMDV
File Edit View Terminal Help
[root@localhost ~]# cd Desktop
[root@localhost Desktop]# cd hinal
[root@localhost hinal]# cd AOMDV
[root@localhost AOMDV]# awk -f pte.awk aomdv.tr
Packet Delivery Rate: 82.15
Average End to End Delay[Sec] = : 58.8741
Average Throughput[kbps] = 146.00
You have new mail in /var/spool/mail/root
[root@localhost AOMDV]#
```

## VI. CONCLUSION & FUTURE WORK

There are various algorithms available for packet delivery ratio and Throughput. The proposed work can be useful to improve values of multiple parameters of the network in multipath routing environment. Due to less number of packets dropped in proposed multipath routing so it becomes necessary to control the load of the network.

Future work includes, analyzed the performance of proposed algorithm with different values of parameters. Also try to further reduction of load in the network by increasing the lifetime of the network. Furthermore, the proposed algorithm can also be replaced with the existing work to improve the performance of the network.

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