Defined AODV for Link Breaks Detection and Route Repairs

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ABSTRACT

In this work In a parameterized point of view the accidental On-Demand Distance Vector (AODV) is known as routing protocol utilizing a network simulator 2 (ns2). There are two AODV functions used, the HELLO message and the native route repair. HELLO message is used to find out the link which is broken, while the other native route repair in AODV is used to find out the alternative routes within the event of route failure. In our work The normal AODV protocol by including the following two parameters to optimize its performance. Link breaks detection time (Llb), Link break position parameter (Lbp).

1. INTRODUCTION

Evolution of routing protocols In the Mobile Ad-hoc Networks (MANETs) is the one of the remarkable thesis. This must includes wireless networks regular constraints, including bandwidth which is low, error rates is higher, and limitations of power. We can use of these protocols to ascertain, maintaining and performing route fixing within the links by event which are broken. In The Ad-hoc On-Demand Distance Vector (AODV) system the reactive protocol, is going to be study and analyze. HELLO message is used to find out the link which is broken, while the other route fix work which is used for the purpose of route fix and discovery.AODV also consider a near route fixing methodology system to when there is locally live through connection losses. Nearby fix is activated when a connection failure occur between nodes within the route life. During this fix, the opposite to the current node break tries to look out elective middle-ways to the packets of goal node that it's gotten, however they can't able forward them (packets) due to the connection failure . Coping with connection failure identification and route fixing its means that AODV performance is upgrading. Here, there are two capacities to streamline AODV execution are used. The primary is connection break detection time (), using the HELLO message to notice connection failure, therefore the second one is the connection break position parameter () for AODV local route fix. The AODV protocol by including the following two parameters the performance can be optimized by using Link breaks detection time (Llb) and Link break position parameter (Lbp).

2. LITERATURE SURVEY

1. Performance Analysis of Proposed Local Link Repair Schemes for Adhoc on Demand Distance Vector.

The reactive routing protocols, in this novel technique are better options for adhoc network. To enhancement of performance we use local repairing in the basic protocol and in case of the link breaking we identify alternative route by using route maintains option.this paper also finds a new methodology for local link repairing, based on the alternative route identifying for neighbor node consider rest of node the route intact .in this proposed system by using this methodology we can decreases number of route breaks and we can also upgrade the performance of RLLR.

2. Novel Dynamic Link Connectivity Strategy Using Hello Messaging for Maintaining Link Stability in MANETs.

this paper proposes a novel dynamic link connectivity strategy to maintains stability among the randomly deployed nodes in the network, as per this proposed strategy status of future link between neighboring nodes can be predicted, Also stability of damaged link can be found by receiving strength signal, Signal to naïve ratio between the connection and termination state of connectivity and dis-connectivity of link.

3. Improving Routing Performance in AODV with Link Prediction in Mobile Adhoc Network.

Here they have proposed a methodology for predication connection availability in AODV routing by using strength of signal. By using this methodology we estimate time of connection breakage and it warns the other nodes if there is a connection break in the route. The proposed methodology shows the results that there is decreasing in the number of dropped packets and significant average end-to-end delay. The AODV with the link predication and also upgrade in the service of quality there is better packet deliver ratio.

4. New Multipath AODV Routing Based On Distance Of Nodes From Network Center.

The purpose for this paper frame a following load adjusting multi-way routing algorithm called CDM-AODV. Burden adjusting uniformly spreads the traffic heap of one way from a start hub to a goal hub on the many ways between them. The proposed routing algorithm tries to drive out routing ways indicated they push the traffic farther from the center of the system, so winds up in diminishing the amount of dropped parcels contrasted with clear multi-way AODV or M-AODV. CDM-AODV is works good than M-AODV now and again the traffic of system focus is past system outskirt because of the amount of hubs, the hubs most extreme speed or system territory size. Nonetheless, if the heap dispersion is dreary it doesn't make CDM-AODV exceptionally better than M-AODV.

3. EXISTING WORK

In AODV, messages like HELLO are the common way to find out the failure of connections, while other route fix work is for the route discovery and fixing. In AODV, a node would intermittent HELLO messages with its near nodes, for the sake of work out the connection's state and to point that the connection keeps on being alive. To work out the connection wellbeing, HELLO INTERVAL (HI) and ALLOWED HELLO LOSS (AHL) are two important aspects it's decided interface lifetime between the two nodes next to each other. The most issue is, there's an exchange off in fixing the AODV's AHL and HI parameter. A setting that is too low for a HELLO packet that will make to endure an impact. Likewise HELLO packets which are far not reaching up inside the specified time, causing lost connectivity. In AODV, the nearby fix plan can decrease the time and estimation of the route fixing procedure which progressively improves organizes execution.

4. PROPOSED SYSTEM

So as to solve the issues of HELLO message interchange in AODV, during this paper, the creators identified replacement parameters, called one is "detection of connection break" and another is "connection break position parameter". "Detection of connection break" that is the result of HI and AHL. "Connection break position parameter" is used to unwind the issues of neighborhood fix plan of AODV. The creators have presented another parameter, called nearby Route Repair Threshold (TLR). Where the connection failure occurs serving to trigger neighborhood route fix at that TLR decides the whole position. Advantages of proposed system Adaptable decision for connection breaks identification, Adaptable decision route fixing methodology and it joins the discovery of connection break and strategy of the route fixing it leads to improvement in the AODV execution.

5. IMPLEMENTATION STEPS

Steps needs to follow before executing the program

Please ensure you have done the following steps before executing the tcl script.
(i) You have to successfully install the Ubuntu 9.0 or 11.
(ii) ns-allinone-2.32.zip into /home directory you have to copy and extract.
(iii) Binary file ns you have to copy from the package-2.32 directory into directory called ns-allinone-2.32/bin and the existing file should be replaced.
(vi) You have to set the path in the terminal,

PATH=$PATH: system/home/ns-allinone-2.32/bin

(vii) You have to type bellow the command

echo $PATH

To see any other ns2 paths are included.
(viii) You have to run the following tcl files from tcl folder

cd /system/home/Module-1/tcl

This path name is where the code we store in our virtual machine

ns PAODV.tcl (proposed parameterized AODV)

(ix). You can see the output by executing bellow command,

nam cover.nam

Steps Included In the Graph Generation

Based on Flows
1. Initially set the following settings.
You have to set the set opt (speed) to 10
You have to set the set rate to 16Kb
You have to set the set flows to 1
2. Then we have to execute the bellow commands to get the output:
   1. Type the command ns PAODV.tcl
   2. Then enter and type command. /create1
   3. Then enter and type command. /create2
   4. Then enter and type command cc graph.c
   5. Finally press enter and type command /a.out

Enter the value as 1.
It will generate the Delratio, Delay and Throughput.
Repeat the above steps by changing the flows as 2, 3, 4 and 5.
3. Copy all data files into the folder graphs/S10-R16Kb.
4. Similarly execute the following tcl file and repeat all the above steps.

To view the graphs

Go to the directory graphs/S10-R16Kb folder and execute bellow tcl file as,

Type the command cd..
Enter and Type the command cd graphs/S10-R16Kb
Enter and Type the command ns DelRatio.tcl (we see the graph of Delay ratio)
Enter and Type the command ns Delay.tcl (we see the graph of Delay)
Enter and Type the command ns Throughput.tcl (we see the graph of Throughput)

6. SIMULATION RESULTS

6.1 Simulation Parameters

NS-2 is used simulate The PAOMDV and compared with AOMDV and PAODV. End-to-End delay (E2D), PDR and throughput of the performance metrics can be measured.

Total Nodes	50
Total Area	500m X 500m
MAC Protocol	IEEE 802_11
Channel type	Wireless Channel
Transmission Range	250m
Rate	16Kb and 32 Kb
Speed	20 m/s
Flows	1,2,3,4 and 5
Stop time	200 sec

Table 4 Simulation parameters

Transmission Range in PAOMDV
Physical/Wireless Physical set CPThresh_ 7.0
Physical/Wireless Physical set CSThresh_ 1.559e-11
Physical/Wireless Physical set RXThresh_ 3.652e-10
Mac/802_11 set dataRate_ 11Mb
Mac/802_11 set basicRate_ 5Mb

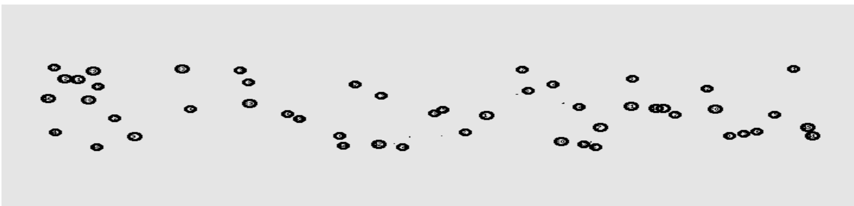


Fig 6.1: Simulation Topology

6.2 Results and Discussion

Scen-1 (Speed=10m/s, Rate=16Kb)

A. Varying the Flows

In the first cycle, the flows are varied as 1,2,3,4 and 5.

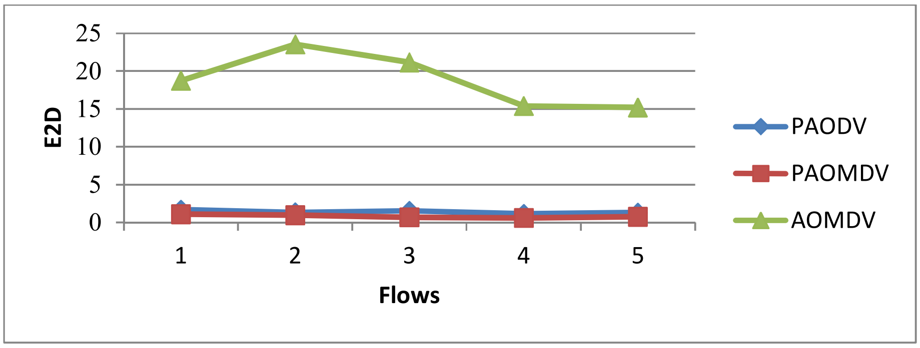


Figure 1: E2D for varying the Flows

Figure 1 indicates the between PAOMDV, PAODV and AOMDV of E2D observed by differing the count of flows, the PAOMDV of E2D is ranges from 1.07 to 0.70sec, the PAODV delay is ranges from 1.70 to 1.28 and the AOMDV of delay is ranges from 18.7 to 15.1 sec. Hence the results show that PAOMDV is 96% lesser than AOMDV and 42 % lesser than PAODV.

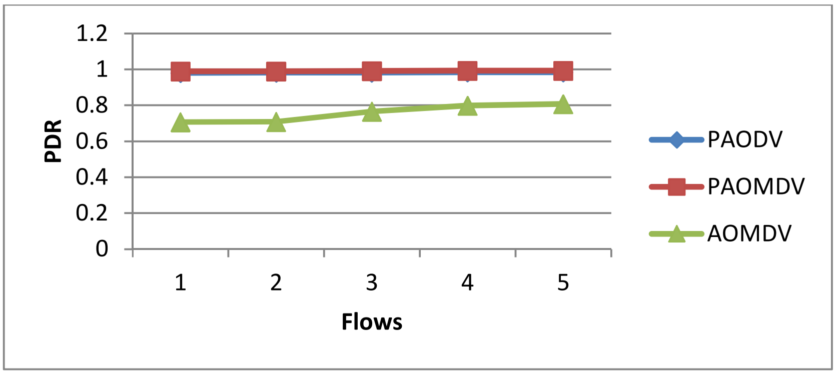


Figure 2: PDR for varying the Flows

Figure 2 indicates the between PAOMDV, PAODV and AOMDV of PDR observed by differing the count of flows, the PAOMDV of PDR is ranges from 0.98 to 0.99, the PAODV of PDR is ranges from 0.980 to 0.985 and the AOMDV of PDR is ranges from 0.70 to 0.80. Hence the results show that PAOMDV is 24% higher than AOMDV and 1 % higher than PAODV.

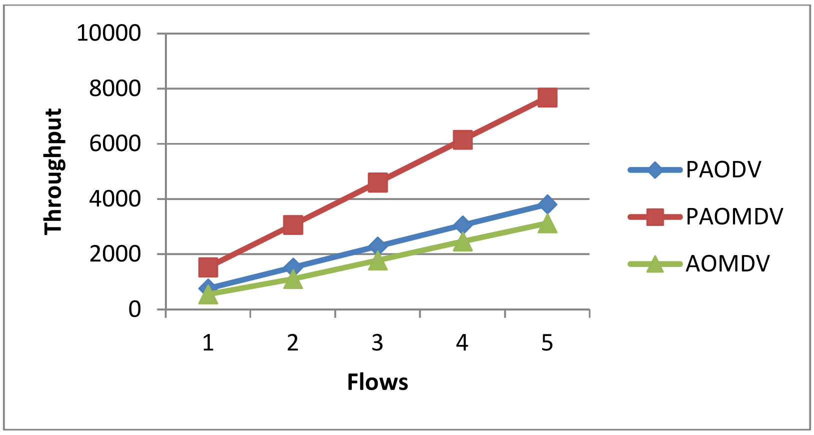


Figure 3: Throughput for varying the nodes

Figure 3 indicates the between PAOMDV, PAODV and AOMDV of throughput observed by differing the count of flows, the PAOMDV of throughput is ranges from 1532 to 7683, the PAODV of throughput is ranges from 760 to 3815 and the AOMDV of throughput is ranges from 548 to 3125. Hence the results show that PAOMDV is 62% higher than AOMDV And 50% higher than PAODV.

Scen-2 (Speed=10m/s, Rate=32Kb)

A. Varying the Flows

In the first cycle, the flows are varied as 1,2,3,4 and 5.

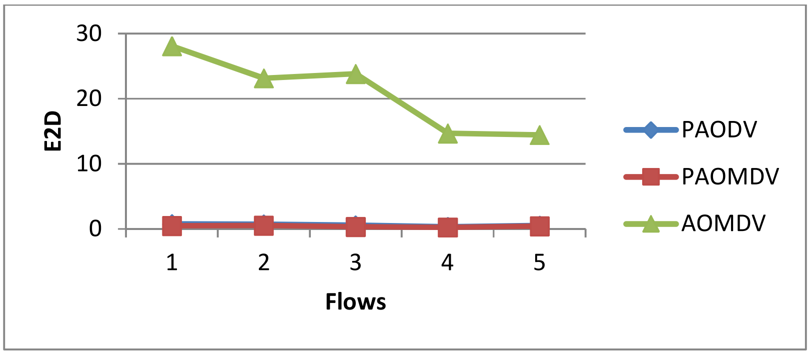


Figure 4: E2D for varying the Flows

Figure 4 indicates the between PAOMDV, PAODV and AOMDV of E2D observed by differing the count of flows, the PAOMDV of E2D is ranges from 0.47 to 0.45sec, the PAODV of delay is ranges from 0.78 to 0.52 and the AOMDV of delay is ranges from 28.0 to 14.4 sec. Hence the results show that PAOMDV is 97% lesser than AOMDV and 30 % lesser than PAODV.

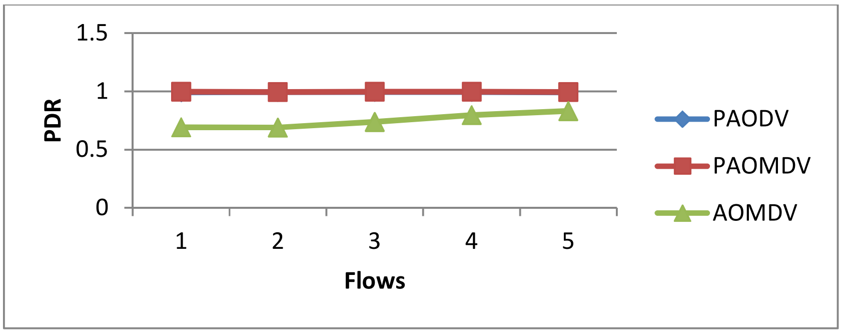


Figure 5: PDR for varying the Flows

Figure 5 indicates the between PAOMDV, PAODV and AOMDV of PDR observed by differing the count of flows, the PAOMDV of PDR is ranges from 0.996 to 0.995, the PAODV of PDR is ranges from 0.992 to 0.993 and the AOMDV of PDR is ranges from 0.69 to 0.83. Hence the results show that PAOMDV is 25% higher than AOMDV and 1 % higher than PAODV.

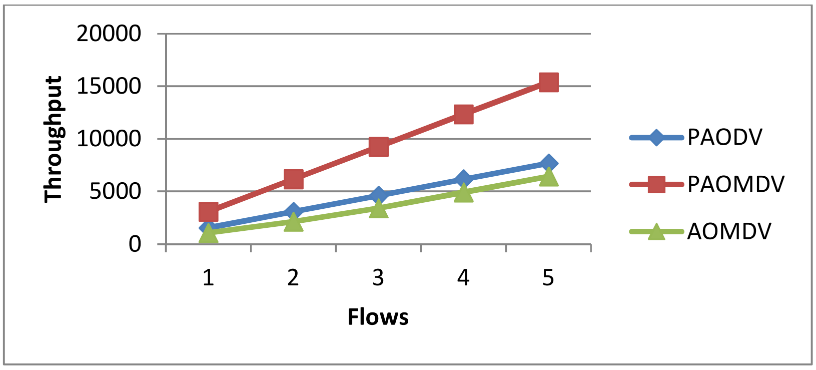


Figure 6: Throughput for varying the nodes

Figure 6 indicates the between PAOMDV, PAODV and AOMDV of throughput observed by differing the count of flows, the PAOMDV of throughput is ranges from 3085 to 15402, the PAODV of throughput is ranges from 1536 to 7683 and the AOMDV of throughput is ranges from 1071 to 6423. Hence the results show that PAOMDV is 62% higher than AOMDV and 50% higher than PAODV.

Scen-3 (Speed=20m/s, Rate=16Kb)

A. Varying the Flows

In the first cycle, the flows are varied as 1,2,3,4 and 5.

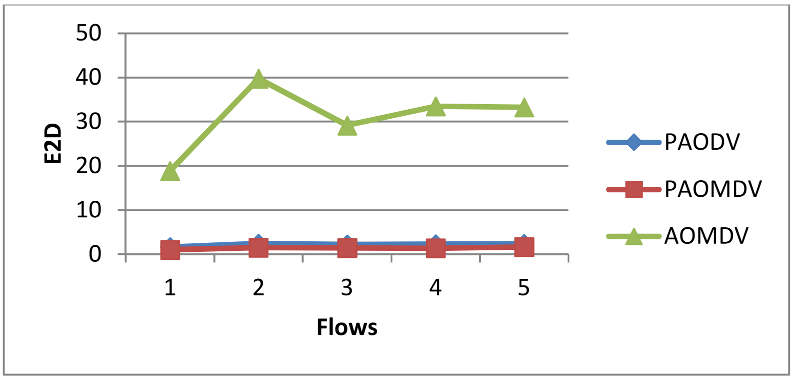


Figure 7: E2D for varying the Flows

Figure 7 indicates between PAOMDV, PAODV and AOMDV of the E2D observed by differing the count of flows, the PAOMDV of E2D is ranges from 1.02 to 1.67sec, the PAODV of delay is ranges from 1.62 to 2.33 and the AOMDV of delay is ranges from 18.8 to 33.2 sec. Hence the results show that PAOMDV is 95% lesser than AOMDV and 36% lesser than PAODV.

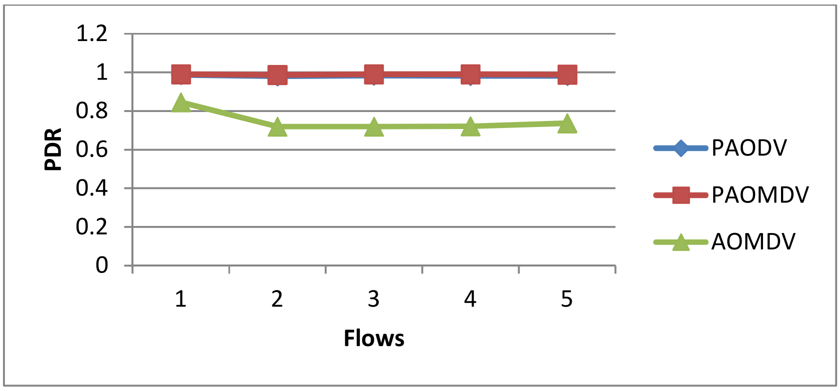


Figure 8: PDR for varying the Flows

Figure 8 indicates between PAOMDV, PAODV and AOMDV of the PDR observed by differing the count of flows, the PAOMDV of PDR is ranges from 0.989 to 0.987, the PAODV of PDR is ranges from 0.987 to 0.982 and the AOMDV of PDR is ranges from 0.84 to 0.73. Hence the results show that PAOMDV is 24% higher than AOMDV and 1 % higher than PAODV.

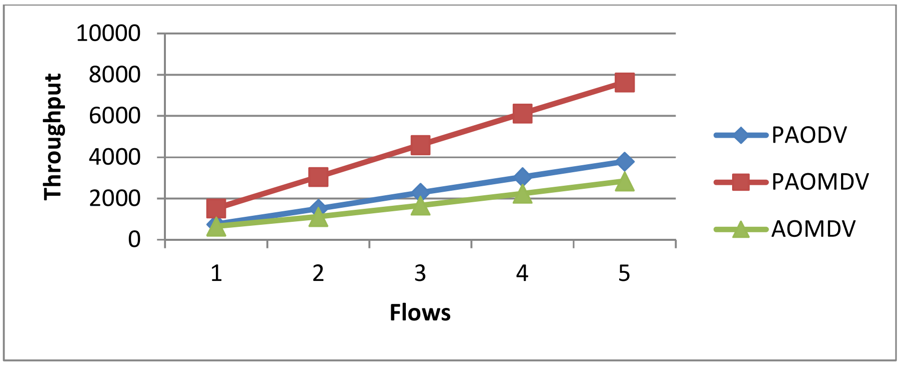


Figure 9: Throughput for varying the nodes

Figure 9 indicates between PAOMDV, PAODV and AOMDV of the throughput observed by differing the count of flows, the PAOMDV of throughput is ranges from 1532 to 7638, the PAODV of throughput is ranges from 765 to 3802 and the AOMDV of throughput is ranges from 654 to 2850. Hence the results show that PAOMDV is 62% higher than AOMDV and 50% higher than PAODV.

Scen-4 (Speed=20m/s, Rate=32Kb)

A. Varying the Flows

In the first cycle, the flows are varied as 1,2,3,4 and 5.

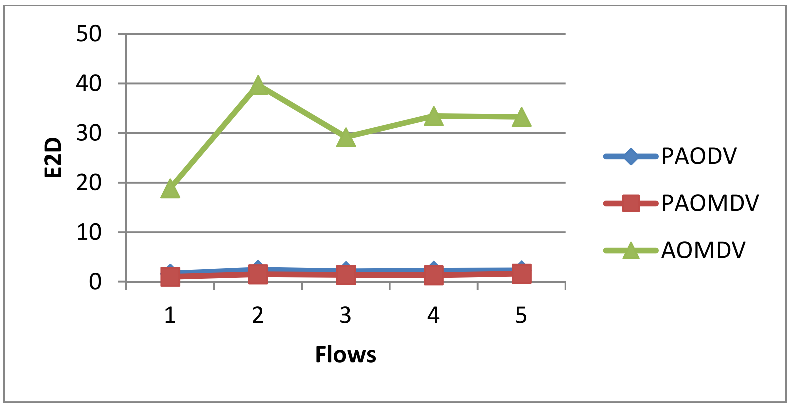


Figure 10: E2D for varying the Flows

Figure 10 indicates the between PAOMDV, PAODV and AOMDV of E2D observed by differing the count of flows, the PAOMDV of E2D is ranges from 0.47 to 1.15sec, the PAODV of delay is ranges from 0.80 to 1.28 and the AOMDV of delay is ranges from 25.3 to 29.6 sec. Hence the results show that PAOMDV is 97% lesser than AOMDV and 34% lesser than PAODV.

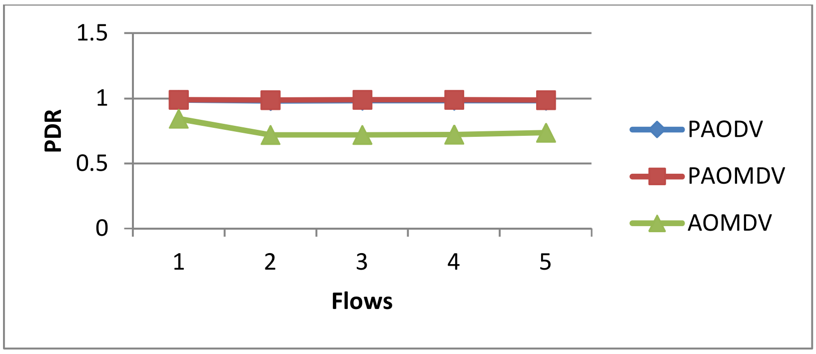


Figure 11: PDR for varying the Flows

Figure 11 indicates the between PAOMDV, PAODV and AOMDV of PDR observed by differing the count of flows, the PAOMDV of PDR is ranges from 0.994 to 0.991, the PAODV of PDR is ranges from 0.991 to 0.989 and the AOMDV of PDR is ranges from 0.80 to 0.76. Hence the results show that PAOMDV is 23% higher than AOMDV and 1 % higher than PAODV.

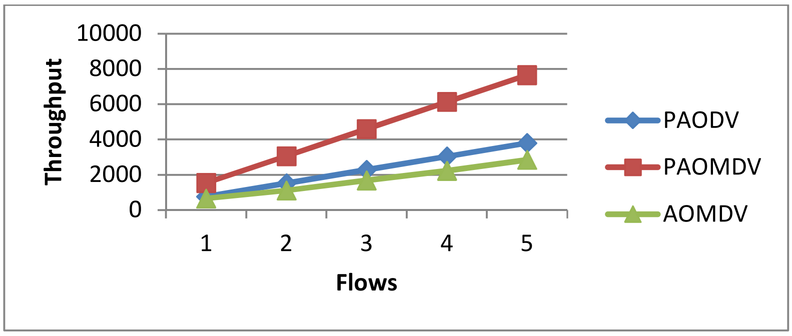
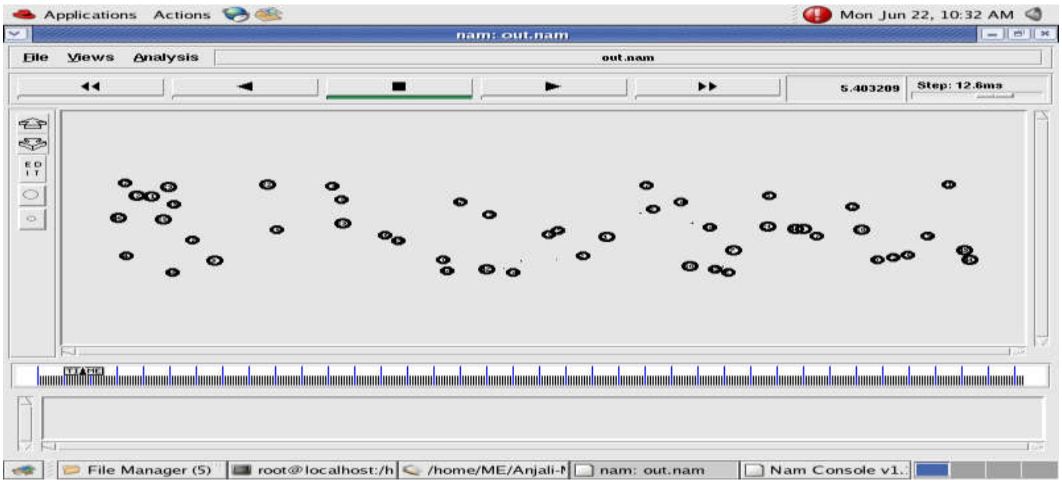


Figure 12: Throughput for varying the nodes

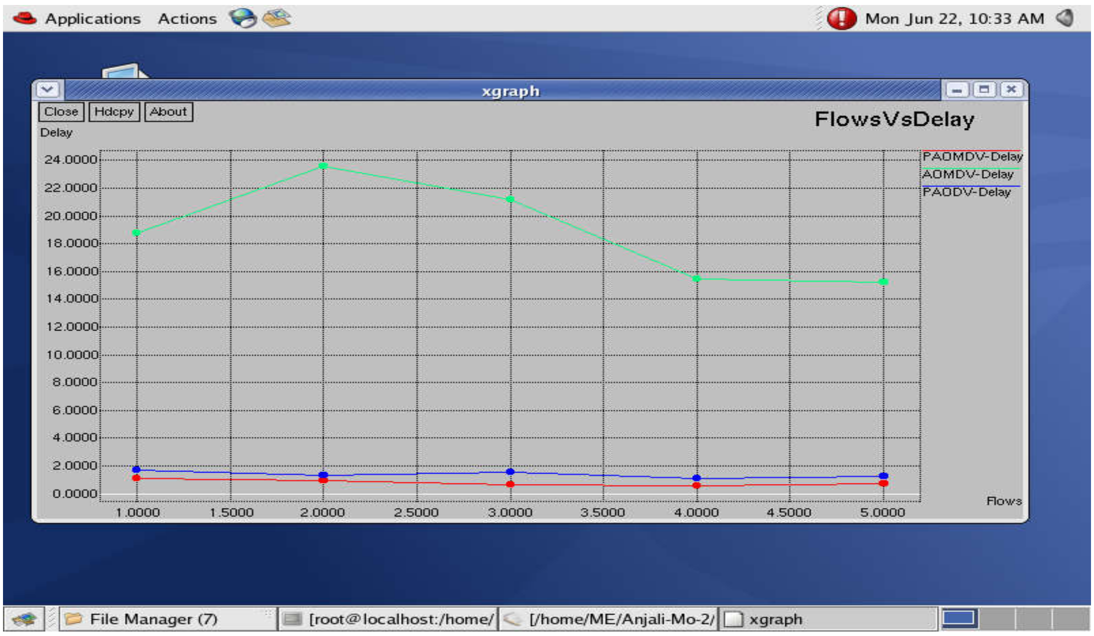
Figure 12 indicates between PAOMDV, PAODV and AOMDV of the throughput observed by differing the count of flows, the PAOMDV of throughput is ranges from 3079 to 15337, the PAODV of throughput is ranges from 1535 to 7656 and the AOMDV of throughput is ranges from 1243 to 5946. Hence the results show that PAOMDV is 62% higher than AOMDV and 50% higher than PAODV.

7. SCREENSHOTS OF OUTPUT:

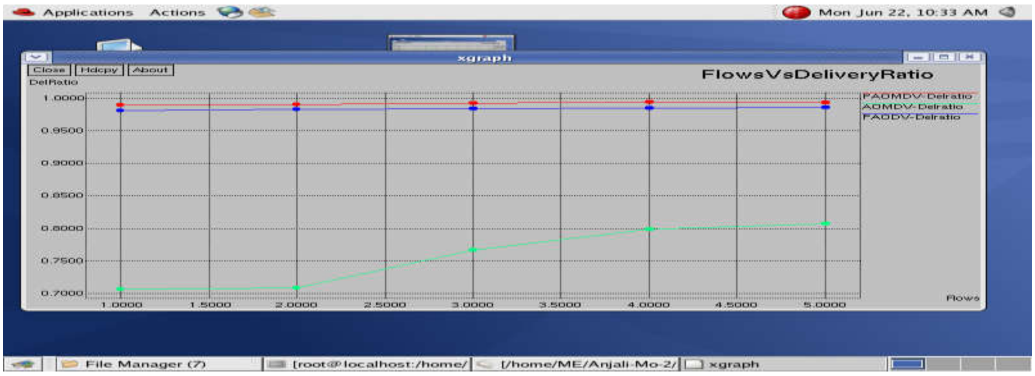
PAOMDV simulation output



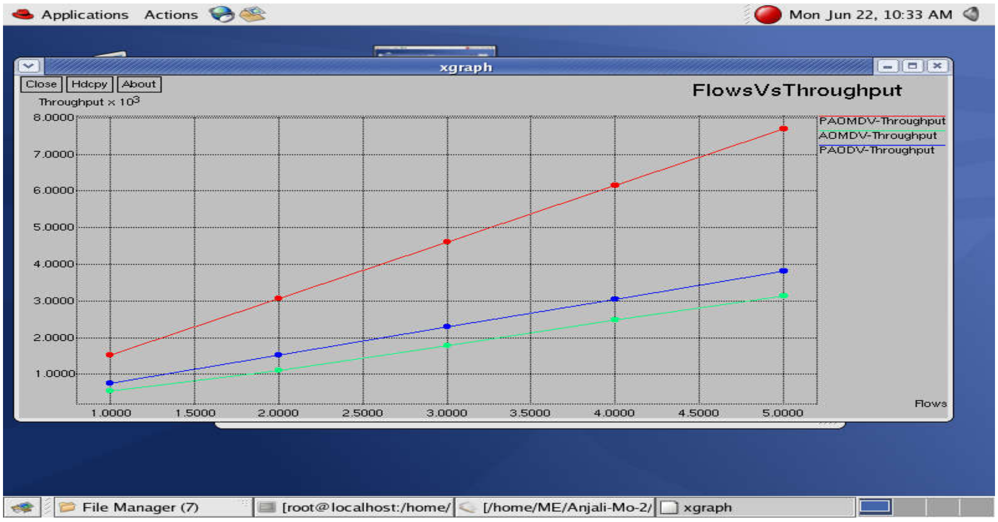
PAOMDV DelayOutput



PAOMDV delivery ratio output



PAOMDV throughput output



CONCLUSION

In our work the purpose is to give out a procedures and have contend for more adaptable and comparable options of both connection break detection and route fixing methodologies .for more and more aureate model and to select the optimal results for methodologies we need a simulations with different network scenarios. This analysis also seen at by joining both detection and route fixing methodologies, for the improvement in the performance of the AODV.

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