



A Novel Approach for Appraising the Performance of Multimedia Traffic for OLSR Routing Protocol in Manet

Authors

Syeda Tasmiya Tarannum¹, Mr Bhagavant Deshpande²

¹Cambridge Institute of Technology, Bangalore

²Associate Professor, Dept. of ISE, Cambridge Institute of Technology Bangalore

Email: syeda.tasmiya7@gmail.com

Abstract

Mobile Ad-hoc Network is a set of portable electronic receivers which detects and demodulates and amplifies transmitted signals. MANETs do not have any polarized armature. Immense excerpt of influx on the cyberspace transfer Transmission Control Protocol influx because of real time and non-real time multimedia influx. Constant Bit Rate influx has peculiar properties compare to cyberspace influx. In this, using Network Simulator 2, we analyze and appraise, conduct of various MANET routing protocols beneath CBR and TCP influx ways. By doing this, we constitute that here is a compelling work variation among diversified steering protocols because of diversities in its interior working. In this, the performance is figured out based on the measurements like Transmission rate, Latency, and work done. Lastly we conclude that Ad-Hoc On Demand Distance Vector Routing protocol which is a reactive protocol performs well for Constant Bit Rate influx. While OLSR which is a proactive protocol performs well for TCP influx. The TCP influx /multimedia in MANETs which is the dominant part of the total influx on internet, OLSR is appraised as the best steering protocol in all cases, in addition to, it is best for transferring the TCP influx.

Keywords: MANETs, CBR, TCP, OLSR

INTRODUCTION

A scattered type of wireless network is called as Wireless ad-hoc network (WAN). Since it does not have any framework, we call the network as ad-hoc type of network. The routing process is carried out by all the hubs in the set-up. Every hub forwards data to other nodes in the network. The flooding process can be used by ad-hoc networks for forwarding the data. In non-wired portable ad-hoc set of connections each hub is gratis to stir and the set of connections is a self-constructing network and it is dynamic in nature. This type of network enables the devices to fly anywhere at anytime.

Since the ad-hoc wireless network is frameless they can be used in different applications where it does not relay on central node and the scalability of the network can be improved. The fast deployment of ad-hoc networks is helpful in

emergency situations like conflicts in military field or during the natural disasters. Mobile ad hoc network (MANET) is a repeatedly self constructing set of connections. It is a frameless network where the mobile devices are linked without wires ^[6]. Each device or a node will forward the traffic not related to its personal utilize. The basic fundamental dispute in structuring a MANET is setting up each gadget to constantly preserve the information needed to correctly path the influx. They may include one or multiple transceivers connecting nodes.

Manet is a type of non-wired ad hoc setup which has a routable connection setting on apex of a link level ad hoc set of connections. Manet has become a popular research topic because of the growth of laptops and 802.11/wifi wireless networks, so studying the protocols related to manet becomes necessary ^[6]. The protocols used in manet must

cope with the dynamic change of the topology and the path breakages as well. Primary challenge of routing protocols in manet is its ability to respond quickly to the change in topology or network.

In manet both the real and non real-time multimedia communications takes place, so there will be more TCP traffic in such network. Providing the uninterrupted TCP traffic is challenging and hence much research work is carried out on this. Therefore we must know how the various routing protocols behave and support the TCP influx in manet [2]. The structure of the IETF Manet operational group is working on steering protocols. At present four routing protocols are being developed actively [1]. Under these four routing protocols two are proactive steering protocols and the rest two are reactive steering protocols. Reactive steering protocols include AODV and DSR, proactive steering protocols include OLSR and DSDV.

LITERATURE SURVEY

[1] Performance Comparison of Reactive Routing Protocols of MANETs using Group Mobility Model.(S.R Biradar, Hiren, H D Sharma, K Sharma, IEEE International Conference on Signal Processing Systems, pn. 192-195, 2009): Portable specially appointed system is a congregation of isolated adaptable hubs framing a concise arrangement lacking the aid of any stand-alone base. Versatile specially appointed systems have the qualities, for example, remote association, ceaselessly evolving topology, dispersed operation and straightforwardness of arrangement. This paper has looked at the execution of two receptive MANET directing convention AODV and DSR through utilizing collection portability representation. Equally offer comparable on request conduct, so far the convention's interior system prompt noteworthy execution contrast. We have examined the execution of conventions by differing system burden, portability and sort of activity. Bunch Mobility representation is created. An itemized reenactment has been completed in NS2. The measurements utilized for execution

examination are Data deliverance Fraction, normal end-to-end latency, congestion and standardize steering pack. It was pragmatic that AODV gives improved execution in cbr activity as well as ongoing conveyance of bundle. Anywhere as dsr gives superior outcome in TCP movement and beneath limited transfer speed circumstance.

[2] Traffic Pattern Based Performance Comparison of AODV, DSDV and OLSR MANET Routing Protocols using Freeway Mobility Model (Suman Kumari et al, IJCIT , Vol 2 (4), 2011, 1606-1611) : Portable Ad-hoc system is self-sorting out and even self-designing multi-link remote system where, the configuration of the system modified powerfully. It is essential because of the versatility of hubs. Analysis is made by executing three MANET routing protocols AODV, DSDV and OLSR by utilizing Expressway Mobility Model. The evaluation is done by executing the protocols by fluctuating system load, versatility and kind of movement (CBR and TCP).

[3] Survey of Various Routing Approaches Based on Quality-of-Service (QoS) criteria in MANET (Soni, S .J.; Shah, J. S,IOSR Journal of Computer Engineering, Vol 16, Issue 3, Ver. V, 2014,PP 32-34) :Since there is quick growth of video in portable activity, QoS routing algorithm needs to manage unfavorable conditions. Significant endeavors have been committed to this which prompts the rise of various QoS directing strategies. As a rule, two plans, new convention configuration and QoS-mindful expansion, are received to execute QoS routing. New convention outline alludes to building up an algorithm with another approach while QoS-mindful augmentation implies joining QoS ensure plans means adding the qos guarantee schemes to the protocols like DSR, DSDV, and AODV etc. Interactive media applications e.g. sound, video and so on needs to advance its execution as indicated by the system conditions.

[4] Performance Comparison of MANET Protocols Based on Manhattan Grid Mobility

Model (G. Jayakumar and G. Gopinath, Journal of Mobile Communication 2(1) 18-26, 2008): The correlation of three Manet steering protocols – DSDV, AODV and DSR are done. The correlation depends on top of its execution in a few current portability methods utilized as a part of MANET. The portability models utilized as a part of this work are Arbitrary waypoint, Manhattan network etc. It was concluded that the protocol which works best by consuming the limited resources is DSR.

[5]Ad-Hoc On Demand Distance Vector (AODV) Routing (S. Das, C.E Perkins, E. Royer, IETF Draft, June 2002): An Adhoc system is the collection of versatile hubs without the required intervention of any existing infrastructure. A novel algorithm for AODV is introduced. As necessary by clients wish to use ad-hoc systems AODV gives disk complimentary courses even while repair not working connections.

EXISTING SYSTEM

Existing protocol design for QoS-aware extension, are adopted to implement QoS routing. New protocol design refers to developing an algorithm with a new methodology while QoS-aware extension means combining QoS guarantee schemes with some well-studied protocols (e.g., DSDV, DSR and AODV). Real-time applications are generally requires QoS support. Multimedia applications e.g. audio, video etc. has to optimize its work according to the set of connections and conditions. On the other hand, some least amount of bandwidth should be guaranteed which is used to send the basic layer data for multimedia data carrier. Therefore, for QoS support design, admission control, scheduling of multimedia packets and adaptive feedback service are required.

PROBLEM STATEMENT

TCP influx keeps increasing in MANETs because of actual time and non-actual time transmission of multimedia data. Administrating the TCP influx is one of the most difficult tasks in MANETs

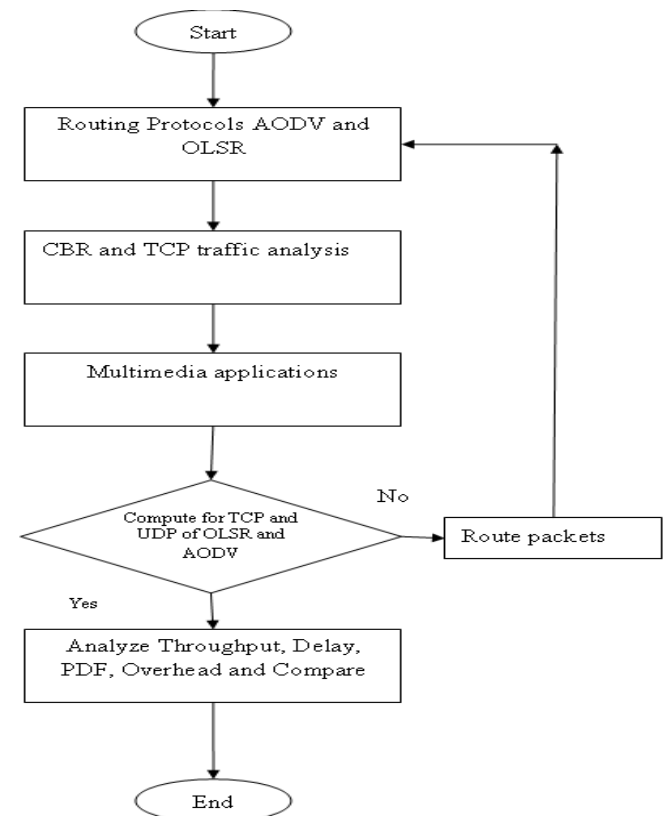
compared to the other network. High groundwork is being carried out and much attention is given in order to provide consistent TCP influx in MANETs using certain routing protocols. So it is very important to know or to examine the behavior of the different routing protocols in manets. Also how these protocols perform and reinforce the TCP influx.

PROPOSED SYSTEM

In our proposed solution supports the following features which the conventional steering does not.

- 1) Obtains resource data from inferior layers.
- 2) Offers bandwidth data to applications.
- 3) Predicts the route breaks.
- 4) Incorporates resource reservation schemes.

FLOW CHART



SIMULATION RESULTS

1) Figure 1 shows the throughput of CBR traffic of the routing protocols, we can observe that the AODV protocol's throughput is high compare to other protocols.

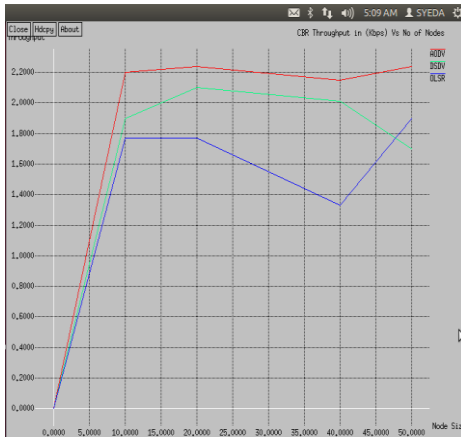


Fig 1: CBR throughput

2) Figure 2 shows that the throughput of TCP traffic of the routing protocols, we can observe that the OLSR works best compare to the other routing protocols because its throughput is high.

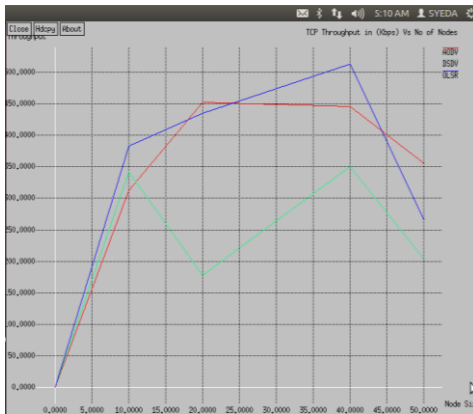


Fig 2: TCP throughput

3) Figure 3 shows the CBR traffic's delay for routing protocols, and we can observe that for OLSR the delay is unpredictable compare to other routing protocols.

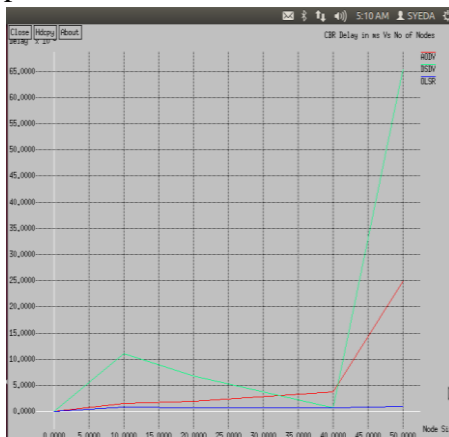


Fig 3: CBR Delay

4) Figure 4 shows the TCP traffic's delay for routing protocols, and we can observe that for AODV, the delay is unpredictable compare to other routing protocols.



Fig 4: TCP Delay

5) Figure 5 shows the packet delivery rate under CBR influx for the steering protocols (AODV,OLSR, DSDV) as well as we can observe that OLSR's PDF is less compare to other routing protocols.

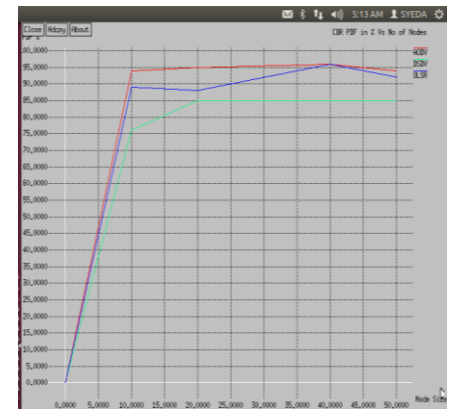


Fig 5 : CBR Packet Delivery Fraction

6) Figure 6 shows the packet delivery rate or packet delivery fraction under TCP influx for the steering protocols (AODV,OLSR,DSDV) as well as we can observe that AODV's PDF is less compare to other routing protocols.

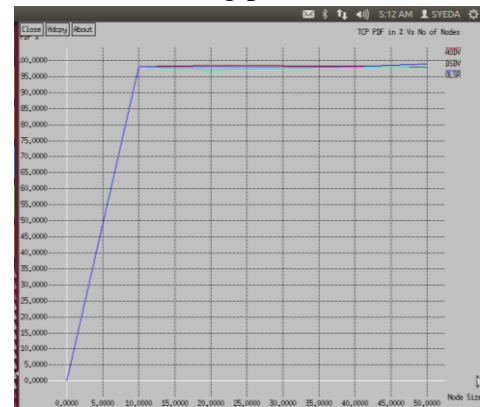


Fig 6: TCP Packet Delivery Fraction

CONCLUSION

The performance of the routing protocols in manets is calculated based on parameters like throughput, average end to end latency, and data carrier delivery rate using NS2. Since each protocol has a different way of working, the results vary. From the results we conclude that Ad-hoc on demand distance vector steering protocol works well for constant bit rate (CBR) influx where as Optimized link state steering protocol (OLSR) works well in case of TCP influx. Since there is huge TCP or multimedia traffic is being transmitted in manets, it is concluded that OLSR is the best routing protocol from all the perspective for transferring the TCP influx.

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