

## Comparison of QoS Routing Protocol with Existing AODV & DSDV Protocol

Uma K. Thakur<sup>1</sup> and C. G. Deth<sup>2</sup>

<sup>1,2</sup>Research Scholar, IT

Sant Gadge Baba Amaravati University, Amravati

<sup>1</sup>umapatel21@gmail.com, <sup>2</sup>cgdethe@gmail.com

### Abstract

*With the expanding level of wireless transmission in today's condition, individuals regularly required QoS for sharing their information between the hubs. For bearing QoS to the client, numerous specialists proposed a lot many techniques to give QoS ensured directing to hybrid systems, they endeavor to enhance the system limit and dependability yet they avoid oblige in QoS. For this issue, our principle goal of this paper is to enhance the QoS and proficiency of directing methodology with compels over hybrid wireless data spilling utilizing QoS convention. This expects to build up the QoS based reliable architecture against the hybrid wireless routing issues. The framework likewise goes for giving both proactive and responsive answers for powerful routing. The objective of this paper is to give a proficient element routing management to bargain with difficulties of information transmission to channel the neighbor hubs through which the next hop transmission happens.*

**Keywords:** Hybrid Network, Wireless Network, QoS Routing, Distributed Routing

### 1. Introduction

The hybrid network is an extension of a structured network, in which a mobile number may hook up to an accessibility point (AP) making use of multi-hop wireless routes via various another mobile host. The APs include a configuration to use a single or several readily available networks. Mobile host and wireless routers can identify their operating stations dynamically through station switching hybrid wireless networks (for example., multihop cellular systems) are been shown to be a far better network design for the generation that is next networking sites. It will also help to deal with the strict end to end QoS specifications of various solutions. Hybrid networks synergistically blend system channels and MANETs to leverage each other.

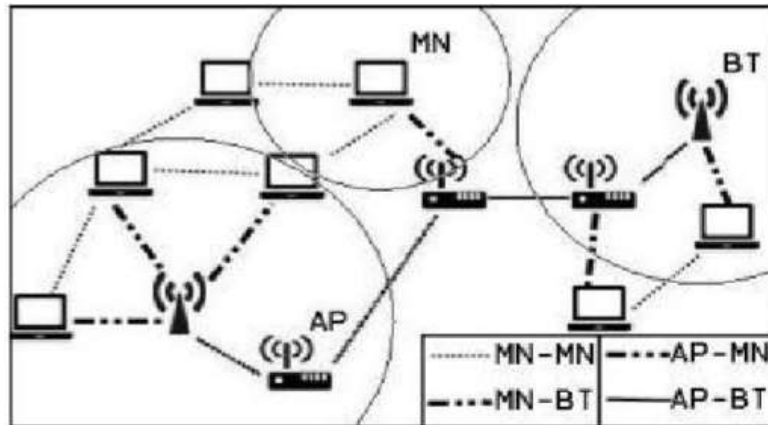
For instance, it integrates a mobile wireless Ad Hoc Network (MANET) and infrastructure that is wireless showed a better approach subsequent generation wireless companies hybrid wireless channels (for example., multi-hop cellular networks) have now been proven to be an improved network structure for the following generation wireless systems and can help deal with the stringent end-to-end QoS criteria of various solutions. Hybrid channels infrastructure that synergistically combines and MANETs to leverage each other. Especially, infrastructure networking sites improve the scalability of MANETs, while MANETs instantly establish self-arranging networks, extending the insurance coverage regarding the system channels.

In a vehicle opportunistic access system (a case of hybrid companies), folks in automobiles have to publish or install video from remote Internet machines through accessibility guidelines (APs) (for example. base stations) spreading call at an urban area.

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Since it is not likely that the bottom programs include the entire town to keep sufficiently strong transmission everywhere to guide a credit card application demanding higher website link costs, the vehicles themselves can develop a MANET to increase the coverage regarding the base station, providing steady circle relationships.



**Figure 1. Network Scenario**

In a few wireless multicast programs, the resource and intermediary nodes tend to be mobile for moving the information, nevertheless, the multicast users stores are solved and known they also sent the packet in the same intermediate node. When you look at the above figure which shows the integration of wired and wireless networks, makes use of base stations in order to avoid an overwhelming load of relying on boxes between the source and resort if needed. Providing multicast that is robust when it comes to those powerful circle circumstances is actually a significant challenge for sustaining these applications.

In this paper, we are going to achieve the QoS with the help of AODV and DSDV techniques. The proposed technique is explained in the following section. The section III briefly explains the implementation following with the results and the conclusion concludes the paper.

## 2. Proposed Techniques

In this section we are going to propose a technique made using the techniques explained below:

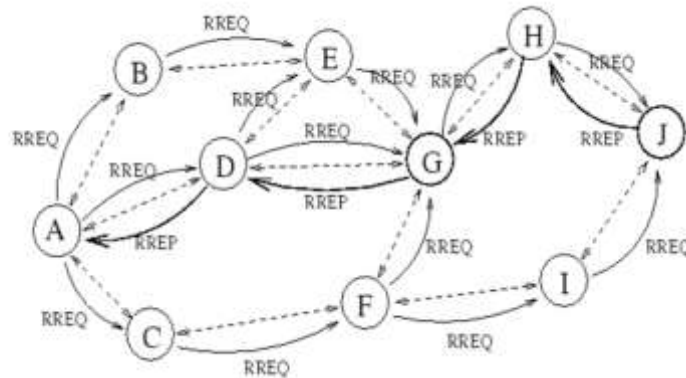
### (A) AD HOC ON DEMAND DISTANCE VECTOR ROUTING PROTOCOL(AODV):

Being a reactive routing protocol AODV makes use of routing that is traditional, one admission per location and series data are widely used to see whether routing suggestions was current also to prevent routing loops. Route Request message to their neighbors to get the path to resort. The foundation node broadcast the RREQ in other words. Destination Sequence Number may be the sequence number that is latest obtained in past times by the foundation for almost any path to the resort and supply Sequence quantity could be the latest series number to be utilized within the path entryway pointing to the way to obtain the path request.

If any node from a listing of friends is resorted or understands the path to the location, it may send RREP information to the origin. AODV makes use of <RREQ, RREP> pair to get the route. It can help both in unicasting and multicasting. The RREQ message contains the supply and resort target, lifetime of content, sequence variety of supply and resort and request ID as distinctive identification.

The main advantage for AODV is the source route does not need to be included in each packet. So this will give less overhead than other protocols. So in our research, we go to use AODV to simulate ad hoc Mobile network (MANET), for this reason. The routing messages do not contain information about the whole route path, but only about the source and the destination. In AODV when source node needs to send the packet to the destination node, it broadcast its request (RREQ) to its neighbors.

Then each node that found in neighbors do reverse route toward the source node to tell it about the fresh route to the destination when the destination receives RREQ, it relies on (RREP).

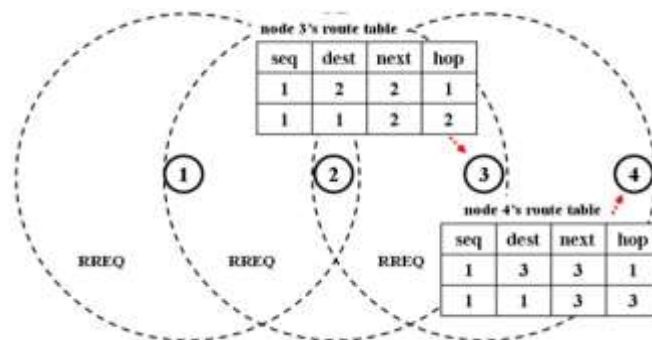


**Figure 2. Route Discovery Mechanism**

**(B) DESTINATION SEQUENCED DISTANCE VECTOR (DSDV):**

Destination-Sequenced Distance-Vector (DSDV) Routing Algorithm is founded on the classical BellmanFord Routing Algorithm with some improvements. So, the modification is that it is both time-driven and event-driven. The stations sporadically transfer their particular routing tables for their neighbors that are immediate. A station furthermore transmits its routing desk in cases where a change that is significant took place the table through the last upgrade sent.

Every mobile facility maintains a routing desk that lists all offered destinations, a number of hops to achieve the resort, therefore, the series quantity designated because of the location node. If you have room when you look at the progressive modify package then those records might be integrated whose sequence numbers has changed. a full dump delivers the entire routing table to the friends and might span numerous packages whereas in an incremental improve just those entries through the routing dining table are sent which includes a metric modification because the latest modify plus it must easily fit into a packet.



**Figure 3. DSDV Routing Table**

In the next section of the paper, we are going to see the implementation of the proposed system.

### 3. Implementation

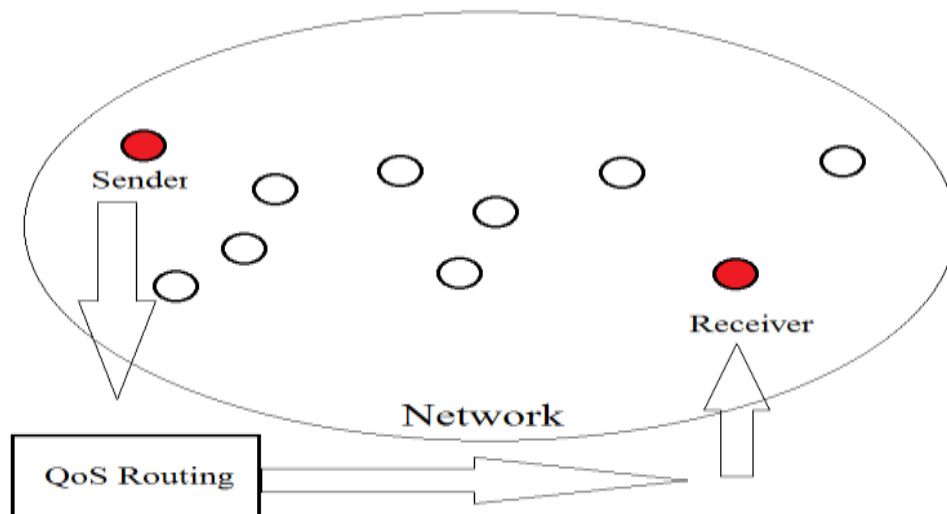
Here we are implementing the AODV protocol which it is one of the most popular routing protocol by used NS2 simulator. The experiments are conducted on different measurement are throughput, packet delay, and packet loss to find out the best accurate results. The experimental is done by NS2 simulator, which is a Network tool. In order to get accurate results from the simulations, we used UDP protocol.

Implementation Plan is like here twenty nodes were used to form the network scenario. Each of which is all mobile nodes. Detect the location of all nodes. Select source and destination. Then, the source node will send the route request RREQ to all nearest node to reach the Destination and the destination will send the route response RREP to all nearest node to reach the Source.

Enter the choice whichever routing we required whether normal routing, only quality of service or quality of service aware through cluster head.

Find the path between the source and destination will be detected. We use to select the secure path between the source and destination using an AOVD protocol which is using RREP mechanism. Finally, the packets will be transmitted.

We generated Xgraph for Number of Packet in bits vs. routing time which gives us throughput, Xgraph for throughput vs. time, Xgraph for energy vs. time and Xgraph for jitter vs. time.



**Figure 3. QoS Routing Senario**

As observed from the above we can see that there are multiple nodes present in a network the data is to be sent from sender to receiver. The modules of the system are as follows: [11]

[1] **Input Data:**

In this the data is selected by the system itself. As observed the red dot is the sender in the network it will select the data to be sent.

[2] **Priority:**

Once the data is selected the system sends the data for processing. If the data is of high priority it is sent first similarly if the data is of low priority it is sent with a small delay. Due to which the efficiency of the network increases.

[3] **Routing Protocol:**

We are going to use a hybrid algorithm using ASDV and DSDV protocols. According to the priority, the hybrid selects the algorithm to route the data from sender to receiver. The next section of the paper illustrates the results observed during the initial testing.

## 4. Result & Analysis

In the first scenario, the previous parameters with normal AODV protocol were used. We started our experiment using AODV routing protocol then initialized 30 nodes, given each node the mobility, create the connections between each two nodes.

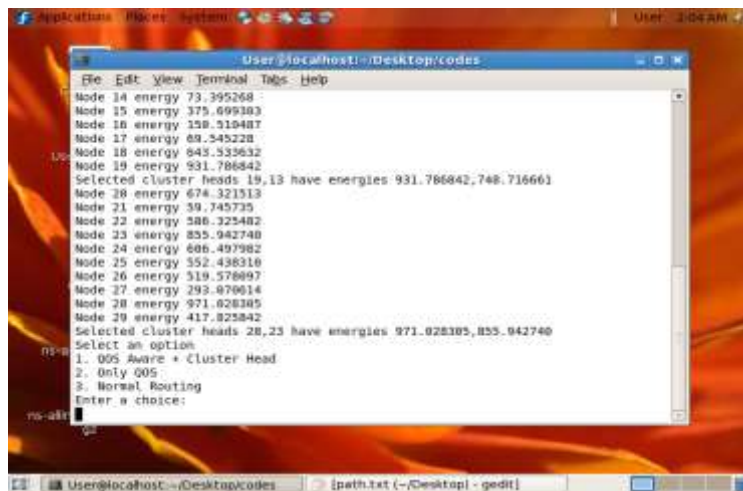


Figure 4. Shows the Basic Scenario which Shows Choices over the Different Protocols and Nodes Values

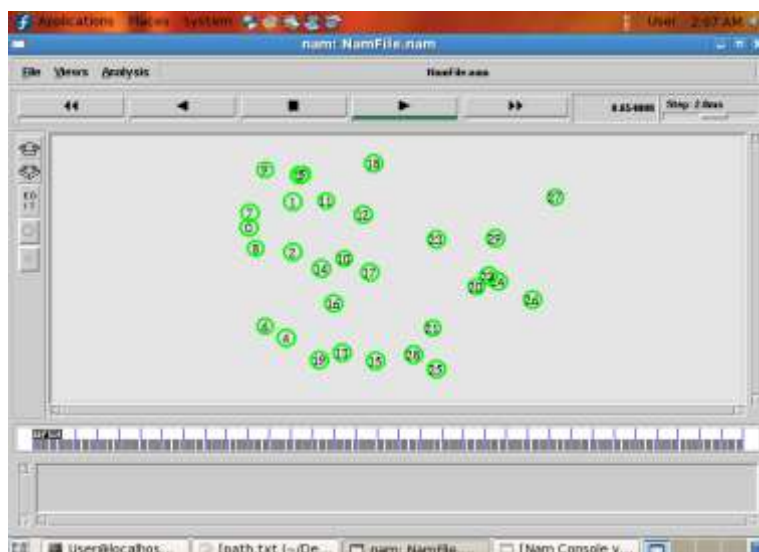


Figure 5. Shows the Name File for the Implementation Scenario for that we have 30 Circles Indicated the Mobile Nodes



Figure 6. Illustrates the Throughput in Xgraph Showing Throughput vs. Time

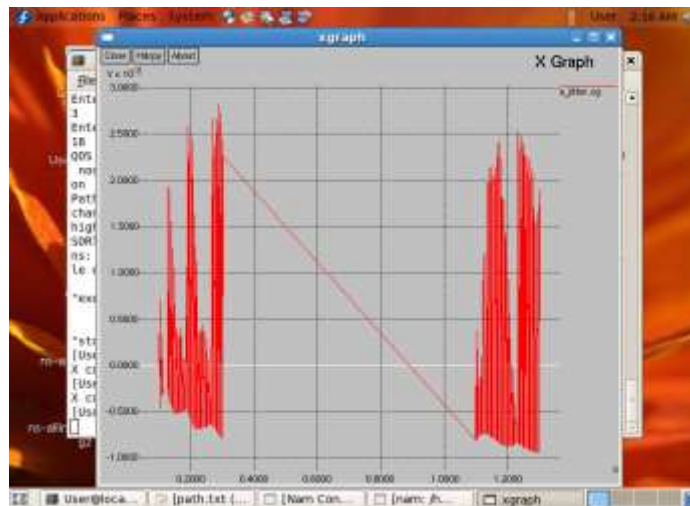


Figure 7. Illustrates the Jitter in Xgraph Showing Jitter vs. Time



Figure 8. Illustrates the Energy in Xgraph Showing Energy vs. Time

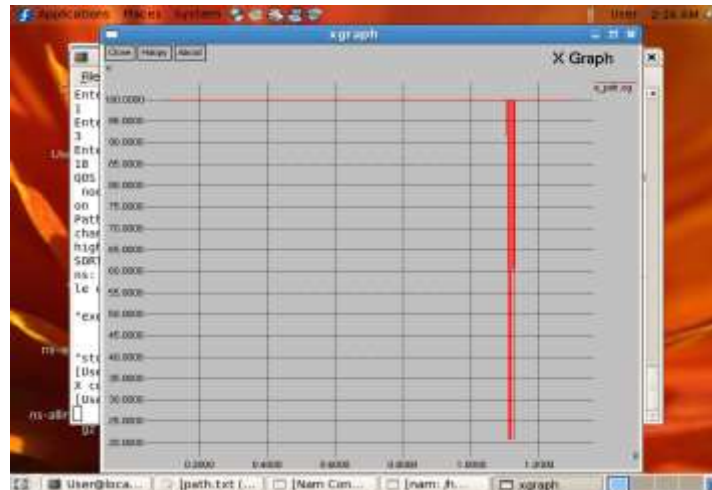


Figure 9. Illustrates the pdr in Xgraph Showing pdr vs. Time



Figure 10. Illustrates the All Parameters such as Throughput, Jitter, Energy, pdr in one Xgraph Showing all Parameters vs. Time

## 5. Conclusion

In this way this paper gives a proficient element routing management to bargain with difficulties of information transmission to channel the neighbor hubs through which the next hop transmission happens via NS2 simulator.

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### Author



**Ms. Uma K. Thakur** received the B.E. degree in Computer Science & Engineering from RTMNU University, India in 2004 and M. Tech degree in Wireless Communication & Computing from RTMNU University, India in 2010. She is currently working towards Ph.D. degree in Information Technology from SGBAU Amravati University, India. She is having the lifetime ISTE, IEEE and CSI membership. Her research interest included the wireless communication and its related network security, mobile computing, wireless sensors network and cloud computing. She is Assistant Professor at Priyadarshini Institute of Engineering & Technology Engineering College, India.