

# An Efficient Analysis of Ad-Hoc on Demand Distance Vector Routing Protocol at Different Transmitted Power and Speeds

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**Abstract**—Mobile Ad-Hoc Network (MANET) is a dynamic system which is totally free of fixed infrastructure. In (MANETs), each node is responsible for routing its data according to a specific routing protocol. The three most common ad hoc routing protocols are Ad-hoc On-demand Distance Vector (AODV), Optimized Link State Routing Protocol (OLSR) and Dynamic Source Routing protocol (DSR). This paper proposes an efficient evaluation of AODV routing protocol by testing the MANETs routing protocol with variation in transmission power at different speeds. The performance analysis has been given using OPNET Modeler simulations and evaluated using metrics of throughput and delay. The results show that the throughput increases as the transmission power increases up to a certain value after which the throughput decreases, also the network work optimally at a certain transmission power which varied at different speed.

**Keywords**—MANET, AODV, Throughput, End to End Delay, OPNET

## I. INTRODUCTION

MANET devices can communicate without infrastructure which supported by wireless communication technologies such as WiMAX, ZigBee, and WiFi [1]. The routing protocols of MANET can be classified into three categories as shown in figure 1:

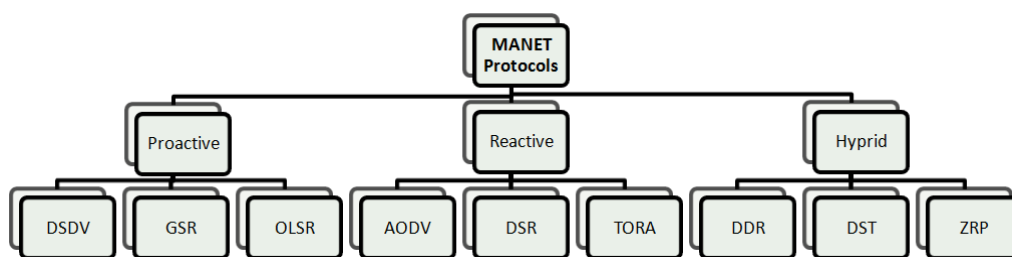


Figure 1: Routing Protocols in MANET

i. Proactive routing protocols: A route table about the position of each node is built frequently and routing is based on it. So, the proactive routing also called “table driven routing” such as Destination-sequenced distance vector (DSDV), Global state routing (GSR), and Optimized link state routing (OLSR).

ii. Reactive routing protocols: This category have no predefined routes, thus, route establishment is done on demand dynamically with the request packets. Based on the response, the next node is identified and this process goes on until a fixed path is established and the data packets reach the destination. So, the reactive routing also called “on demand routing”.

iii. Hybrid routing protocols: It is a mix of both proactive and reactive routing protocols. The choice of one or the other routing depends upon the particular type of application or typical cases.

A review of possible methods for applying clustering algorithms to solve problems in routing networks of MANET has been discussed in [2].

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