

ABSTRACT

Telecommunications technology has evolved rapidly to facilitate activities in various aspects. So it's needed a particular network that can involve more people or communication equipment without dependence on any infrastructure. VANET (Vehicular Ad hoc Network) is the development of MANET (Mobile Ad hoc Network) communication with high mobility. VANET technology expected to improve safety driving on highway with applications such as: map location, traffic information sharing driving assistance and internet access on vehicle. However, VANET can change the network topology rapidly due to the rapid movement of nodes. Therefore, the appropriate routing protocols are needed to improve the performance of VANET.

This final project evaluates the comparative performance of AOMDV and AODV in VANET environment using highway scenario. In the environment, there will be tested effects of the number of nodes and changes of node speed. Simulations performed using Network Simulator-2 together with SUMO (mobility generator) and MOVE (script generator). Metric performances measured from packet delivery ratio, end to end delay, normalized routing load, and packet loss.

The simulations result shows that AODV outperforms AOMDV in overall performance metric average value; packet delivery ratio, normalized routing overhead, end to end delay, and packet loss ratio are 95.668 %, 95.995, 52.982ms, and 4.318 %. Routing protocol single path AODV is better than routing protocol multipath AOMDV due to highway environments; relatively straight path and minimal junctions indicates that the application of multipath routing protocols are not required for this condition. On the freeway the average node in constant motion so that the actual topology of the network is not experiencing much change, because of that multipath routing protocol for highway scenarios in particular can be said to be excessive.

Keywords: VANET, AOMDV, AODV, NS-2, SUMO, MOVE