

ABSTRACT

Vehicular Ad Hoc Network (VANETs) is a mobile ad hoc network open drafted by mutual communication between vehicles and fixed access point. Each node in the network has the movement and features a random (changeable). Vehicular Ad Hoc Network (VANETs) is a dynamic wireless network where nodes move randomly without any infrastructure.

VANET is an open network and media communication without security mechanisms. So, there are many nodes malicious attacks on VANETs. One of the problems that exist on VANET network is blackhole attack. Blackhole attack is one of the security threats where the traffic is not transmitted to the destination node but will redirect to a node that actually does not exist in the network to drop traffic. Therefore, the dependence on routing protocols adaptive and effective against network environment be a matter of priority. In this final project for mobility schemes using ONE Simulator and software analysis using NS-2.

It can be concluded that the network performance by using a routing protocol such OLSR, AODV and ZRP using freeway mobility model based on number of nodes, large packet size, and increment speed influence on QoS performance. In the condition without blackhole attack, performance delay OLSR is the most good, the Average value of delay for all scenarios is 4.3552 ms. For performance throughput, PDR, and total packet drop AODV is highest. The Average value of throughput for all scenarios 24 398 kbps, PDR for all scenarios of 98.19%, total packet drop for all scenarios 43.552 packet or 44 packet. Blackhole attack causes a decrease in performance QoS. Delay Performance AODV most dangerous, the Average decline in the performance of delay in AODV for all scenarios is 96.4915 ms. For throughput and PDR OLSR and ZRP reduction in performance exceeded 50%. And a decline in performance total packet drop ZRP is highest. Average decline for all scenarios is 1249.1 packet or 1250 packet. Prevention blackhole attack using IDS algorithm for delay performance increase 72 682%, throughput performance of an increase 2.14 kbps, PDR performance increase 11.13%. total packet drop performance increased by 274 packet.

Keywords: ONE Simulator, NS-2, VANET, Blackhole, AODV, OLSR, ZRP, IDS.