ABSTRACT

Mobile Ad-Hoc Network (MANET) is a wireless network that functions temporarily and can be used without a centralized system (self-control), and without needed for assistance from fixed infrastructure (infrastructure-less). In MANET, each node can act as a host or router (self-organizing and self-configuring) where each node can distribute data to or from other nodes on the network by storing and accessing through its connecting nodes. The choicing of routing protocol is necessary to determine the specific path between the sender and receiver efficiency in relation to the network. Therefore, efficient and effective routing protocols are needed for Quality of Service (QoS) parameters on an integrated MANET network with Long Term Evolution (LTE) infrastructure.

The simulation results from four scenarios that have been made, can be concluded in a QoS value that uses the ZRP protocol is react in order to changes topology over time with using node movement which causes decrease QoS in the results. In all scenarios with every node number used, the ZRP protocol has the advantage of the E2E delay with an average of 46,268 ms, and *throughput* average 167,619 Kbps. While the ZRP protocol has a disadvantage of PDR with an average of 49,75925%, average of Jitter 41,488 ms, and average of Normalized Routing Load 25,11856. ZRP protocol combines the advantages and disadvantages of reactive and proactive protocols so that the ZRP protocol is a hybrid protocol that has advantages overall.

Keyword: MANET, Routing Protocol, QoS, ZRP, LTE Infrastructure.