ROUTING OPTIMIZATION IN MOBILE AD HOC NETWORK USING MEDSR AND LET

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ABSTRACT

In Mobile Ad hoc Network (MANET), nodes equipped by wireless equipment has the ability to manage and organize themself independently, even without the presence of a network infrastructure. MANET is highly dependent on the routing protocol which determines routes between nodes, one of which is the Minimum Energy Dynamic Source Routing (MEDSR) protocol, that has ability to improve energy efficiency in the process of finding a route. The use of energy in a MANET is not optimal when an interruption occurs during data transmission such as the breakdown of connections between nodes.

This research proposed modifications to the MEDSR protocol framework to reduce the search of new routes caused by the disconnected route using reliable route that has a small chance to fail. To obtain a reliable route, this research employs Link Expiration Time (LET) method, which will be applied to the MEDSR protocol framework. Routing protocol proposed in this study is called R-MEDSR (Reliable-MEDSR).

This new route searching process requires energy, it has to be reduced as much possible. The implementations of the proposed method is tested with a network simulator (Network Simulator 2 (NS-2)). The simulation results show that the R-MEDSR routing protocols that use MEDSR and LET, can optimize energy use and improve the quality of data transmission in MANET compared to standard MEDSR.

Keywords: DSR, MANET, LET, minimum energy routing, NS-2, the reliability of routes, routing protocols.