

ABSTRACT

Mobile Ad hoc Network (MANET) is a new technology that is still the subject of study for researchers in the world. Due to the network are not affected by the fixed network infrastructure and complex. Each network nodes act as routers and hosts. So each node can forward the received data packet to the next node. That's needed for a routing protocol to help a node transmits a data to the next node. Because it is wireless, then others can easily cripple the network by attacking the routing protocol. This has been realized by the researchers to create a secure protocol for ad hoc networks. For that there are some existing security protocols until now, among other SAODV, Ariadne, ARAN, and Endaira.

In this thesis analyzed a routing protocol in MANET routing protocols using ARAN and ENDAIRA security. Both protocols are simulated in the Network Simulator. Network Simulator (NS) designed a MANET network by using multiple nodes are connected and each node is configured by using the ARAN protocol and ENDAIRA protocol. There are several scenarios that do the routing topology and security concerns in the protocol. Some output data for testing routing protocols analyzed in this thesis include the packet delivery ratio, packet loss ratio, end-to-end delay, and routing overhead. And the data were analyzed for security testing method is to use unauthorized participation, fabricated routing messages, and blackhole attack.

From the simulation results it can be concluded that Endaira has better performance than the normal ARAN on the test track and the track is damaged due to the change in the number Endaira better on the search if there is a path that is broken. In testing to track changes in the number of nodes normal number of nodes 60, the percentage of packet delivery ratio Endaira 92,19% while the packet delivery ratio of 83,85% ARAN. And on the test track changes in the number of nodes to 60 nodes broken density, percentage of packet delivery ratio Endaira 93,97% while the packet delivery ratio of 70,91% ARAN. However ARAN has a better performance than Endaira at testing the speed change lanes and lines damaged due to normal ARAN mechanism to work optimally on small node density. In testing the speed of the node changes to normal track speed of 4 m/s, the percentage of packet delivery ratio ARAN 81,87% while the packet delivery ratio of 81,76% Endaira. And in testing the speed of change in the speed of the nodes in the path node is damaged 4 m/s, the percentage of packet delivery ratio ARAN 82,90% while the packet delivery ratio of 77,55% Endaira. In security testing, both have security forces on testing using the methods of unauthorized participation. But both of them have security flaws in the test using the fabricated method and message routing blackhole attack because the source node can not recognize neighboring nodes are turned into nodes intruder.

Keywords : MANET, routing protocol, ARAN, Endaira, Network Simulator