

## ABSTRACT

In recent years, mobile data consumption has experienced tremendous growth. With higher mobility of users and growing number of users, requires service providers to constantly develop its network capabilities.

With advantages in deploying infrastructure faster, simpler and more cost-effective, makes Wi-Fi Ad Hoc network becomes one of the appropriate solution. In this networks, nodes are free to move randomly and may join or leave the network at their will. Due to its randomness, the network topology can not be pointed and may change rapidly. The movement pattern of these nodes is differentiated by mobility models and several variables. The mobility models is mainly designed to describe the movement patterns of mobile users, and how their location, speed and acceleration change with respect to time.

According to random pattern of node's movement, this research build simulation trough *ns-3* simulator under Wi-Fi Ad Hoc 802.11b network. Analysis conducted on impact of randomness in Random Walk and Gauss-Markov mobility model and measure correlation between variables that influence the mobility.

Based on values of Throughput and Delay as the result of the simulation and measure correlation using Pearson's Correlation Coefficient, proving that Gauss-Markov mobility models will give more consistent correlation than Random Walk mobility models and the smaller the value of index of randomness ( $\alpha$ ) will make the Gauss-Markov mobility model tends to approach the Random Walk mobility model.