ABSTRACT

Today, the need for high communication becomes the important thing. This need through the convergence system so there are efforts to improve the quality in high efficiency in communication. The example for that convergence system of services is ad-hoc WLAN communications.

In communication systems such as ad-hoc WLAN, there are many problems that can reduce the quality in communication , one of them is hidden node problem that occurred on the access mode that is used. In this Final Project, scenario simulation process begins with a network using basic access mode and RTS/CTS access mode. These scenarios are working on the IEEE 802.11b protocol and multi-hop. These scenarios use a simple network topology and describe the condition of scenario with hidden node problem and non-hidden node problem.. The simulation uses the topology of the minimum requirement with three nodes and it is nomadic thing. Basic access mode is a scenario for the hidden node problem, while the RTS/CTS access mode is a scenario for the non hidden node problem. Each scenario is simulated by Visual C + + in order to obtain real simulations. The second step is using Markov chain by referring to the characteristic of the data with random events. Markov chain is very suitable to describe the probability value of the entire event/state that has been previously declared. That is implemented by calculating the probability of occurrence of each state in each scenario. The analysis process will be done by calculating the stability level of each scenario through the process of n-step stationary. This process use Matlab programming.

The final result states that the n-step stationary of Markov chain with the basic access mode in hidden node's problem is faster than the simulated network without hidden node problem in RTS/CTS access mode. At the hidden node problem reaches steady-state for n = 256, and for non hidden node for n = 512. Markov chain is very suitable to describe the problem of hidden nodes in the network simulation process with the basic access mode and RTS / CTS access mode.

Keywords : *wireless, hidden node, Markov Chain, n-step stationary*.