

Abstract

WiMAX is a Broadband Wireless Access (BWA) who has been standarized by Institute of Electrical and Electronic Engineers (IEEE) and became the standard of IEEE 802.16e. WiMAX is a wireless technology who is promising a wide coverage area with high speed connection. However although mobile WiMAX already promising high mobility, there is still a chance that mobile WiMAX couldn't perform maximum data transfer like promised, especially if there is hard handover that happened in between the data transmittion process.

In this final project, hard handover process will be simulated using OPNET Modeler 14.5. Afterwards testing will be performed on mobile user who is having handover process accordance with the planned scenarios. The purpose of this research is to figure out if handover process affects quality of service of mobile user that is pointed by its troughput and delay.

Result from this research shows that quality of service when handover occures can be affected by amount of user in one cell, user's speed when performing handover, and amount of mobile user. In terms of throughput, the greater number of amount of user in one cell, the faster the speed of mobile user, then throughput will be getting smaller. In terms of delay, the greater number of amount of user in one cell, the faster the speed of mobile user, then delay will be getting bigger.

Keyword: WiMAX, Hard Handover, OPNET Modeler 14.5, throughput, delay, mobile WiMAX.