

ABSTRACT

WiMAX is a broadband wireless access technology (broadband wireless access or abbreviated BWA) that has a high-speed access to a wide range. In the Mobile WiMAX technology, the movement of users result in dynamic changes of link quality and interference levels in system. Therefore, it takes a reliable handover mechanism which is expected to improve network performance.

This research is to analyze and simulate the handover process in Mobile WiMAX so that can know the cause of the handover failure in mobile WiMAX. The parameters input into the simulation is the number of users in the area of cell slices, the speed of a user moving from cell service to the target cells, and the distance traveled by users. While the output parameters that determine the failure or success of the handover in mobile WiMAX is the handover margin (HOM) which accordance with the provisions of which is 2 dB and the value of time to trigger (TTT) is 50ms-2s for voice service and 150ms-2s for video services.

From the simulation results in this thesis can be seen that the handover failure in mobile WiMAX is the most widely experienced by the user moving with a speed of 120 km / h with a maximum capacity of users in the handover area is 3 which represented 10% of the total number of users in the cell. In this condition, there are 10 users with voice service which failed handovers and 13 users with video services that have failed handovers. This is influenced also by the many users who run into the target cell without going through the incision area or regional cell handovers and the number of users in the area handovers exceeds the stipulated maximum number of users so that the greater the possibility of a handover failure. While the ideal condition where no user is experiencing handover failure occurs when the user moves with a speed of 50 km / h with a maximum capacity of users in the area of handover is one which is 15% of the total number of users in the cell.

Keywords: handover failure, Mobile WiMAX (IEEE 802.16e), handover margin (HOM), time to trigger (TTT)