ABSTRACT

One of the main problem encountered in the implementation of triple play service within IEEE 802.16e network is high handover delay. The major factor that contributes to high handover delay is the separation in layer 2 and layer 3 handover executions. Various methods have been proposed to reduce handover delay to achieve seamless handover.

The research in this final project is to analyze the proposed handover scheme to reduce handover delay in IEEE 802.16e network for triple play service with focus on seamless handover. The proposed mobile IPv6 fast handover scheme exploits link-layer handover indicators of Media Independent Handover to synchronize layer 2 and layer 3 handover executions.

The results of this final project research show a significant decrease in handover delay compared to traditional mobile IPv6 handover scheme. At minimum speed of 7.2 kmph, divided based on service, data, video, and voice, handover delay and packet loss respectively are 861,2252 ms, 4,9594 %; 406,6726 ms, 12,194 %; 416,932 ms, 12,104 % and at maximum speed of 122.4 kmph respectively are 1586,541 ms, 17,749 %; 1117,801 ms, 24,6582 %; 1130,591 ms, 24,6244 %. However, both handover delay and packet loss obtained are not low enough to meet seamless handover requirement. Mobile IPv6 fast handover scheme also has user's movement speed limit on simple mobility (up to 60 kmph) to ensure good performance.

Keywords: Triple Play, IEEE 802.16e, Fast Mobile IPv6 Handover, Media Independent Handover.