

## ABSTRACT

All Telecommunication company today started to using NGN (Next Generation Network). The newest technology that using IP as a network base, has a standard called IMS (IP Multimedia Subsystem). IMS is a network architecture that risen up after softswitch technology established. Basic principle of IMS in telecommunication world is for completing the network and user needs, by integrating multimedia communication services in realtime or non realtime.

WiMAX is a broadband wireless access technology that has high datarate with wide coverage area and support mobility. Standard WiMAX IEEE 802.16e has morethan 75Mbps datarate and has handover capability. This standard has become a solution to completing internet service needs.

This final project research about the performance of tripleplay service based on IMS at WiMAX 802.16e network. For knowing this performance, a simulation has been done by remoting parameter like increasing the number of user, and the speed of user mobility inside the cell or when they were handover. For the scenario of increasing the user, throughput value reach the lowest value at 100 user each cell, VoD 170,5 Kbps, VoIP 11,75 Kbps, and E-MAIL 23,564 Kbps. Delay value wa increasing as the number as the number of user was added. The highest delay value for VoD 21ms and VoIP 70,3ms. The packet loss value also increasing as this scenario. The highest value for VoD 0,77%, VoIP 8,1% and E-MAIL 9,8%. For jitter, highest value reach on 0,00018ms for VoIp and 0,0963ms for VoD. The second scenario for the increasing velocity of user mobility inside cell, make decreasing the QoS value. The highest packet loss for VoD is 0,6%, VoIP 8,15% and E-MAIL 1,29%. Highest delay for VoD 14,08ms, VoIP 68,5ms. The lowest throughput value is when the velocity reach 120km/h, VoD 318,422Kbps, VoIP 11,409Kbps and E-MAIL 41,299Kbps. For the scenario of increasing the velocity of user mobility when handover reach the lowest QoS for VoIP has packetloss 11,71%, delay 61,71ms, and jitter 0,000472ms. For VoD packet loss 7,45%, delay 9,77ms and jitter 0,0039ms. E-MAIL has lowest performance value for packet loss 1,68%.

keyword: triple play, IMS and WiMAX 802.16e.