

## ABSTRACT

HSUPA technology is the development of W-CDMA technology that already exists. HSUPA allows for fast data access services, video streaming and video conferencing. In the field of data transfer, its speed is reaching a maximum of 5.7 Mbps for the uplink direction, the speed is better than cable Internet connection like DSL (Digital Subscriber Line). While, the quadruple play is a marketing term for services that can be supported by current broadband technologies. Basically the quadruple play is a combination of triple play service (data, video, and voice) and wireless or mobile technology.

In this final project made a HSUPA mobile network using simulation software OPNET modeler 14.5 and implementing Weight Deficit Round Robin (DWRR) as the queuing method used. The network traffic will pass quadruple play services. Service performance will be analyzed include browsing, email, video conferencing, and VoIP.

From the simulations that have been made known that the DWRR can be applied in HSUPA network to route the quadruple play services. It is seen from the value of delay for all services in all three scenarios is still fine ( $<150$  ms) and still within tolerance ( $<250$  ms) in accordance with ITU-T standard. Similarly, with a good level of packet loss ( $<3\%$ ) and also a good jitter ( $<75$  ms) respectively in accordance with standard Thipon.

**Keywords: HSUPA, quadruple play, QoS, DWRR**