

## **ABSTRACT**

*Currently, the process parameter measurement is still at the service provider side. Therefore needed a system that can measure network performance data service provider, especially from the viewpoint of users (end user) which is expected to help the user to determine which service providers have the best quality.*

*This system view of the cellular network as a black box and built with a user base of smartphone as a device. Specifically, in the process of measurement, this system uses the TCP protocol (connection-oriented). This protocol allows a user to view time-based performance, namely latency, and network throughput.*

*Simulation system produces value Uplink Downlink Latency Latency and the smallest at the time to send the data packet size is 100 Byte with a value of 32 ms and 872 ms. While the value of Uplink and Downlink Latency occurs when the largest packet size of 5000 bytes of data sent with a value of 4609 ms and 836 ms . Uplink and Downlink throughput value of the smallest throughput occurs when the size of data packets sent at 50 Byte with a value of 512 bit / s and 24 511 bits / s. While the value of Uplink and Downlink Throughput is greatest at the time to send the data packet size of 5000 bytes with a value of 17,818 bit / s and 125 182 bits / s. From the simulation system is seen that the uplink latency is lower than the downlink data packet latency for the same size. For mode network technologies, UMTS mode gives the results of uplink and downlink throughput throughput greatest value 18 080 bit / s and 745 535 bits / s. For validation, the system has a correlation coefficient of 0.9982 with an application in the process of measuring RTT Pings.*

*Keywords: TCP, Latency Uplink, Downlink Latency, throughput Uplink and Downlink throughput,RTT.*