

ABSTRACT

Over the last decade wireless-based devices have grown very rapidly, especially the most popular is the IEEE 802.11 Wireless Area Network (WLAN) which has advantages in terms of mobility, but the next generation WLAN will operate in a dense and very dynamic scheme. SDN is able to be a solution to the challenges of wireless-based network operation because it has the advantages of flexibility and programmability. However, one of the problems in implementing a network, especially SDN is Network Flow Optimization, which is a problem related to selecting the shortest route, so an algorithm is needed to determine the shortest route. Dijkstra's algorithm is one of the algorithms that provides the advantage of minimizing delay, especially because of the working principle of the Dijkstra algorithm by selecting the shortest route.

In this final project, SDWN is implemented using the Dijkstra and Mininet-Wifi algorithm. QoS is necessary to see the reliability of a network on SDWN. QoS was tested based on the influence of user mobility on the addition of multimedia services such as Video, VoIP and Data. The QoS parameters used are packet loss, delay, jitter, and throughput.

In this final project, the Random Walk mobility model has a Packet Loss of up to 0% on VoIP and Data services. In VoIP services it reaches 1 ms and a jitter of 0.9 ms for VoIP and Data services. Meanwhile, the mobility of Random Direction and Random Way Point has a QoS value that is not much different from the Random Walk. This shows that QoS using the Dijkstra algorithm provides pretty good performance and is in accordance with the ITU-T G1010 standard.

Keywords: *Software Defined Wireless Network, Mininet-Wifi, Dijkstra Algorithm, QoS..*