

ABSTRACT

In recent years, the demand for better mobile services has been increasing, with the improvement of bandwidth and internet speed used by mobile users becoming more complex. The growing trend of users engaging in streaming services, games, and online meetings using mobile services forces operators to enhance the availability of bandwidth and maintain stable service speeds for users. It is estimated that by the year 2035, Indonesia will have a population of 305 million. Network disruptions frequently occur due to unexpected events with unpredictable timing, leading to bandwidth congestion and service looping.

Therefore, an innovation is needed to ensure that mobile operators can continue to meet the demands of traffic and maintain a stable network availability. To achieve a balance between these aspects, a feature that can be utilized is network slicing. Network slicing enables Software Define Network (SDN) to separate traffic according to needs and priorities, ensuring that no resources are wasted and can be maximized effectively. In this research, we simulate the implementation of network slicing to guarantee different levels of network performance. The emulator used to design the topology and serve as the data plane is Mininet. The testing process involves using parameters in Quality of Service (QoS) and analyzing the results.

The results of this research indicate that FlowVisor can isolate flowspace for each slice in an SDN network based on the Transmission Control Protocol (TCP) port used during communication between hosts. The amount of data transmitted will affect the Quality of Service (QoS) of the network due to limited link bandwidth. A comparison between an SDN network without using the network slicing method and an SDN network using the network slicing method shows better QoS values with network slicing. The network utilizing network slicing is able to maintain good throughput, jitter, latency, and packet loss values for priority hosts and ensure stable availability for priority hosts.

Keywords: *Software Defined Network, Network Slicing, FlowVisor, Pox Controller, Quality of Services.*