

ABSTRACT

Voice over Internet Protocol (VoIP) is a technology that is able to pass data and voice traffic over the network IP. The use of IP allows saving cost because there is no need to create a new infrastructure for voice communications. The application of VoIP currently still using conventional network infrastructure with the development of Software Defined Network (SDN). SDN offers a new paradigm in the world of computer networks and the use of SDN can facilitate network control.

In this final project implements VoIP service on SDN networks using several routing protocols, that are: Border Gateway Protocol (BGP), Routing Information Protocol (RIP), Open Shortest Path First (OSPF). As well as measuring Quality Of Service (QoS) and compare the measurements results of the server side with background traffic on the client side 10 Mbps, 30 Mbps, 50 Mbps, and 90 Mbps, convergence time, and Mean Opinion Score (MOS) based on the calculation of delay and packet loss to determine the quality of VoIP services.

The results of the QoS test in the Final Project can be concluded that the greater the traffic load given, the smaller the throughput value. This is because traffic on the network will be dense, so the available bandwidth is also getting denser and the number of bits sent every second also decreases. The MOS value includes a good category with a value of four. The QoS measurement results are included according based on that standard ITU-T G.1010.

Keywords: VoIP, IP, SDN, *routing*