

ABSTRACT

The need for technology network devices in a variety of companies experiencing rapid growth. Network performance, additional configuration of increasingly complex and large parts of the network control would be more complicated, inflexible and difficult to manage. Software Defined Networking (SDN) is a paradigm where the network control plane is separated from the forwarding plane. SDN is expected to run methods contained in conventional networks such as IP forwarding and routing.

In this final task will be proving the implementation of routing services using the path calculating algorithm dijkstra as engineering controls routing on the LAN network based on Software Defined Network and analyzing the comparative performance of the method of selecting the best path in the network traffic on the LAN network based on Software Defined Network with conventional networks are also dijkstra algorithm implemented with the same architecture, but do not have a separate control plane. Proof on the network Software Defined Network emulation is done by a network consisting of 11 pieces of switches that are connected to the control plane as a network controller.

Application performance testing results dijkstra algorithm based SDN network shows that the value of the four QoS parameters remain on the value of the standard ITU-T G.1010 and has a value of delay and jitter better than conventional network-based OSPF implementation. Value QoS for UDP on data services, VoIP each varies and is in the range (5.17 – 145.81) ms for the delay, (0.05 - 0.93)ms for jitter, (13.22 – 73.41) kbps for throughput, , 8,05 % - 33,81 % for packet loss in all scenarios that have been made. The value of QoS for TCP on data services and each varies in the range of (10.32 – 20.21) ms for the delay, (0.5 - 3.02) ms for jitter, (38.12 – 38.27) kbps throughput in all scenarios that have been made.

Keywords: *Dijkstra's Algorithm, SDN, SNHx, OSPF*