

## ***ABSTRACT***

*SDN is a new technology in developing computer networks. Many companies and organizations have begun researching and using SDN technology. SDN provides flexibility and convenience for administrators to handle a network. However, there are still security issues in this technology. SDN technology requires a security system in the form of a reliable firewall. Several types of firewalls have been implemented before but there are still shortcomings and most firewalls only work at layer 2. In this study, researchers will discuss how the firewall system is implemented on the SDN network using Mininet as an SDN network platform, Ryu for SDN network controllers, and the use of Redis database for packet filtering implementation in the firewall system on the SDN network. The results of using the Redis database for firewall systems on SDN networks allow configuration of flowrules on the controller without stopping the running network performance with relatively good QoS results in terms of Jitter, throughput, delay and packet loss, however the use of the Redis database is not suitable for use on a WAN network because it can only accommodate a list of ip addresses of as many as 254 network devices.*

*Keyword: SDN, Ryu, Firewall, Packet filtering, Redis database, QoS.*