ABSTRACT

This study compares load balance using the least connection and round robin algorithms on a web server using Kubernetes containers. This study uses two Kubernetes clusters. Each cluster has a Kubernetes master and a Kubernetes worker in which there is a web server. Zevenet as a load balancer to manage the least connection and round robin algorithms in the test. This study aims to determine the performance of the QoS parameters and response time parameters obtained from testing using the h2load application to send 1000, 2000, 4000 and 6000 requests with 100 total concurrent connections. From the results of the QoS test on the round robin algorithm, the throughput parameter with very good performance with a value of 31,756 Mbps (standard 2,1 Mbps), delay with very good performance with a value of 0,292 ms (standard <150ms), jitter with good performance with a value of 0,532 ms (standard 0 – 75 ms), packet loss with very good performance with a value of 0,00006% (standard 0% - 2%), response time parameter with a value of 3663 ms. While the results of the QoS test on the least connection algorithm obtained throughput parameters with very good performance with a value of 18,113 Mbps (standard 2,1 Mbps), delay with very good performance with a value of 0,639 ms (standard <150ms), jitter with good performance with a value of 1,179 ms (standard 0 – 75 ms), packet loss with very good performance with a value of 0,00012% (standard 0% - 2%), response time parameter with a value of 5660 ms. Based on the QoS and response time results, it can be concluded that the round robin algorithm is superior to the least connection algorithm. This is because the round robin algorithm takes a shorter time to complete each received packet by calculating the number of connections compared to the least connection algorithm, which compares the available connections on the network.

Keywords: *Web Server, Kubernetes, Load Balancing, Round Robin, Least Connection*