

ABSTRACT

The increasing amount of data traffic affects the performance of the web server while the use of a single server is still widely used. To overcome these problems, a load balancing technique is needed. The load balancing used is Zevenet CE. Load balancing has several algorithms including round robin and least connection. To find out which load balancing algorithm is better in handling connections from clients, it takes measurement of response time, CPU Utilization and Memory usage of the web server. The web server is built using docker swarm. The test was carried out 20 times for each parameter, then the average was taken for the response time and the highest CPU Utilization and memory usage values during the experiment. Each algorithm is given a load of 500 with 100 concurrency, 2000 with 400 concurrency, and 5000 connections with 1000 concurrency using H2load Benchmark. The results show that round robin works more optimally and faster than least connection because it has a smaller response time value, larger CPU Utilization and smaller memory usage with a response time value of 500 connections with 100 concurrency of 6.28 seconds, 19.83 second on 2000 connection with 400 concurrency and 30.19 second on 5000 connection with 1000 concurrency. The percentage of CPU Utilization of web servers on connection 500-5000 node manager is 62.56%-78.55% and node worker is 61.99%-62.32%. The memory usage value of the web server on a 500-5000 connection is 344.10MB-602.44MB on the node manager and 319.72MB-586.70MB on the worker node.

Keywords: *Web Server, Load Balancing, Zevenet, Least Connection, Round Robin, Docker Swarm*