# ABSTRACT

***COMPARATIVE ANALYSIS OF LOAD BALANCING ON A WEB SERVER USING WEIGHTED ROUND ROBIN AND WEIGHTED LEAST CONNECTION ALGORITHM WITH HAPROXY***

***(Case Study: An E-Learning Website)***

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*The development of information technology and its use are becoming increasingly widespread in everyday life. The internet is being used in the world of education to develop learning methods that range from face-to-face to increasing online learning methods. The platform commonly used is E-Learning, which provides online learning facilities. Due to the high usage or access to the E-Learning website, it can overwhelm the server running the E-Learning platform, and when it is no longer able to handle requests from users, it will be temporarily inaccessible. Therefore, it is necessary to distribute the traffic load evenly among several e-learning web servers. This research will focus on testing the performance of a proxy-based load balancing system called Haproxy using two algorithms, WRR and WLC, in handling multiple connection simulations using httperf. The results of this study provide data that Haproxy using the WLC algorithm is more reliable than WRR in handling request traffic to E-Learning websites with test results on 100000, 140000 and 200000 connections/requests. The WLC algorithm is more reliable than WRR with no packet loss, average throughput of sequentially 9098, 13127, and 13808 kilobytes/s, and response times of sequentially 2.6, 5.5, and 142.5 ms. In testing 20,000 connections or requests at rates of 1000, 2000, and 3000, the WRR and WLC algorithms had performance that was close to or equal to the results of testing 20,000 connections or requests at rates of 1000, obtaining a throughput value of 1786 kilobytes/s; at a rate of 2000, the throughput value was 3,570 kilobytes/s; and at a rate of 3000, the throughput value was 5357 kilobytes/s with a response time of less than three milliseconds.*

***Keywords: WRR, WLC, Haproxy, Httperf, Iperf, E-Learning***