

## **ABSTRACT**

*Nowadays web applications face various challenges to deal with huge traffic on the internet. With the increasing number of users, to handle web traffic on a site becomes more difficult. If there is only one server that handles all traffic, then the server will overload which then results in slow response time and will also result in bottlenecks. Therefore this large traffic must be shared among several servers.*

*Therefore, one of the solution to face that problem can be implemented load balancer and so that the application of load balancers in the cloud can be more effective is to implement load balancer services in the cloud called LBaaS. This load balancer service in OpenStack can provide round robin load balancing algorithms, least connections, and source ip effectively in the cloud*

*In this research, a high-availability web server has been implemented using load balancer as a service on OpenStack. From the results of research it is known that the performance of servers that use load balancing is better than that of a single server. Proven with increase throughput of 65,61%, decrease elapsed time of 46,93%, decrease response time of 46,87%, increase transaction rate of 66,97%, and decrease cpu utilization of 58,74%. From the fairness parameter, the round robin algorithm is more fair with a fairness index value of 1 when compared to the least connection algorithm.*

**Keywords:** *cloud computing, openstack, load balancer, lbaas, web server*