Abstract

In the data center performance in the network is crucial where there is a system that requires high throughput and very sensitive to delay. In addition, the data center also requires redundant links to avoid the occurrence of failure in the network. By applying a topology such as a fat-tree, it can solve the needs of redundancy links. But the use of redundant links that are only used as a backup is considered ineffective. It takes a routing mechanism that can exploit the potential of existing links effectively. Equal-cost multipath routing (ECMP) is a routing scheme that can be implemented to solve the problem. By implementing software defined network on the network, it can be easier to build this routing scheme. The ECMP scheme takes advantage of modifications of Dijkstra's algorithm in the search for the shortest path, and uses the modulo-n hash method in the selection of the forwarding path. In this final project will be done implementing equal cost multipath routing scheme on fat-tree topology with SDN based network. The results obtained in this study prove that the ECMP network has 60.14Mbps diferences more throughput when compared with static routing in the 20 Mbps bandwidth traffic test scenario. As well as the ECMP network can also provide packet loss of 15.72 % less when compared to the static routing network.

Keywords: data center, load balancing, Software Defined Network, multipath routing