ABSTRACT

Containerization technology as an alternative in virtualization is developing. Flexibility and effectivity offered by containerization technology now is integrated with cloud computing, the implementation of Magnum project in OpenStack as one of the solution for large and scalable cloud. Container has many names, among them are Docker, LXC, and LXD, the most adapted container for enterprise.

This research will reveal the performance of aforementioned container when running popular services on cloud, FTP Server, Mail Server, and Web Server. The testing is done with a purpose to know the overall performance of a server running on the top of each container compared to native server. Furthermore, the goal of this research is also to know the performance of each tested server's service, such as HTTP request that can be served by a web server in a time, time needed to complete FTP request on FTP server and performance of how many messages that a Mail Server able to process by SMTP Protocol.

Result of this research shows that there is a difference between native and Docker, LXC, and LXD performance system. Performance system of LXD show the most promising one with 90,5% compared to native based on overall performance metrix. While in FTP Server testing, LXD show the best result in term of response time, while in latency and transfer rate dominated by LXC. In email server testing, all of the container has a very little performance difference compared to native, below 2%. While in web server testing, LXD show a better result if running on a low concurrent level that is 2000 user at a time. For a higher concurrent level, LXC show a better and stable result compared to other containers.

__Keywords:__ Docker, LXC, LXD, cloud computing