

## **Abstract**

*Container is a technology that is widely used lately because of the additional features that are very easy and convenient to use, especially for development and operations (dev ops), with Container making it easy for system administrators to manage applications including building, processing and running applications on Container servers. Container Orchestration is one of Container technology. With Container Orchestration, the process of making and using the system will be easier, but along with too many user requests, the service will not run optimally. Therefore, Container Orchestration must have good scalability and performance. Scalability is needed for the system to match the needs of the user request. And performance is needed to maintain the quality of services provided. In this study, discussing Container Orchestration Kubernetes and Docker Swarm in terms of scalability and performance. The comparison parameters between Kubernetes and Docker Swarm are load testing for scalability, scaling up time and scaling down for performance. The results showed that the scalability of Kubernetes consumed more resources Cpu Utilization, namely in 10000 Kubernetes users consumed resources Cpu Utilization with an average of 94.20%, while at Docker Swarm with an average of 92.28%, because inside Kubernetes itself had complex systems, especially special components such as API , Etc, Scheduler, Controller manager to run Container. While in the Docker Swarm only has a Swarm Manager and Docker Daemon component only. For scaling up performance in Kubernetes is more favored due to automatic scaling while the Docker Swarm scaling is done manually but in terms of Load Balancing Docker Swarm is faster, with an average time of 55.8 seconds while Kubernetes 61.2 second. For Scaling Down Docker Swarm featured in terms of removing the container. Because the removal is done manually with an average time of 11.4 seconds. Although Kubernetes looks longer to delete but inside Kubernetes there is automatic Container removal, which is on average time 4 minutes 49 seconds..*

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