Abstract

Most Developers still use the monolithic architecture, where all components of the application are combined into one and integrated system, so each component depends on other components. The monolithic architecture has weaknesses, such as when a failure occurs in one component, all components cannot be executed because each component relies on one another components. Microservices can be a solution to this, considering that in the Microservices architecture, each component or services is created and put separately, so when a failure occurs in one component, other components will not be affected and can still run normally. The goal of this research is to determine the implementation and performance comparison between Monolithic Architecture and Microservices Architecture in the Agreeculture Market web app. The measurement method used to measure the performance of both architectures is load testing using JMeter and Performance Tools from Task Manager and comparing the response time,throughput, Disk Usage, CPU Usage, Memory Usage of both architectures used. With two measurement schemes with Docker and without Docker, the result of this research is a performance comparison between the two architectures, where The backend application Agreeculture Market, which uses Microservices Architecture with Docker and API Gateway, performs better than the Monolithic Architecture version. Conversely, the Monolithic Architecture performs better than the Microservices Architecture in the scheme without Docker and without the use of API Gateway.

Keywords: Microservice Architecture, Monolithic Architecture