ABSTRAK

Iskak Purnomo, 2024. **IMPLEMENTASI *MICROSERVICES* PADA STUDI KASUS LAYANAN PEMBELIAN TOKEN LISTIK**. Tugas Akhir, Program Studi Informatika (S1), Sekolah Tinggi Informatika & Komputer Indonesia, Pembimbing: Rakhmad Maulidi

Kata kunci: *Microservices*, Token Listrik, Javascript

Teknologi informasi dan komunikasi (TIK) telah mengalami kemajuan yang signifikan dan kini menjangkau berbagai aspek dalam kehidupan masyarakat. Pembelian token listrik saat ini sudah bisa diakses secara daring. Namun ketika pembelian dilakukan secara serentak, tentu saja hal ini menambah beban berat pada server yang dapat menyebabkan down dan semua proses terhenti. *Microservices* adalah cara mengembangkan aplikasi sebagai sekumpulan rangkaian *service* kecil yang menjalankan fungsinya sendiri dan dapat berkomunikasi menggunakan mekanisme yang ringan. Penelitian ini bertujuan membangun sistem *backend* arsitektur *microservices* dengan *schema* yang efisien pada sistem pembelian token listrik. Adapun metode penelitian menggunakan metode dekomposisi arsitektur *microservices* berdasarkan *decomposition by business capability pattern* yang terdiri dari *identifying business capability*, *defining services for business capabilities* dan *defining service APIs*. Pembuatan aplikasi pembelian token listrik dengan arsitektur *microservice* berhasil diimplementasikan dengan *framework* fastify, terdiri dari 3 layanan (*service*) yaitu *service* user, master, dan transaksi. Kesimpulan yang diperoleh, arsitekur *microservice* mengurangi *error* jika terdapat kesalahan penulisan kode atau kesalahan saat *deployment* dan membutuhkan *resource* yang lebih untuk *service-service* kecil. Untuk pengembangan selanjutnya perlu menerapkan konfigurasi keamanan antar *service*, melakukan komparasi antara pendekatan CI/CD (*Continous Integration and Continous Development*) dengan *business capability pattern* dan menerapkan *automation testing*.

ABSTRACT

Iskak Purnomo, 2024. **IMPLEMENTATION OF MICROSERVICES IN A CASE STUDY OF ELECTRIC TOKEN PURCHASE SERVICES**. Final Project, Study Program Study Program Informatics (S1), Sekolah Tinggi Informatika & Komputer Indonesia, Advisor 1 : Rakhmad Maulidi

Keyword: Microservices, Electricity Token, Javascript

Information and communication technology (ICT) has experienced significant advancements and now reaches various aspects of society. The purchase of electricity tokens can currently be accessed online. However, when purchases are made simultaneously, this naturally adds a heavy load to the server, which can cause it to go down and halt all processes. Microservices is a way of developing applications as a collection of small services that run their own functions and can communicate using lightweight mechanisms. This research aims to build a backend system with a microservices architecture using an efficient schema for the electricity token purchasing system. The research method uses a microservices architecture decomposition method based on the decomposition by business capability pattern, which consists of identifying business capability, defining services for business capabilities, and defining service APIs. The development of the electricity token purchasing application with a microservice architecture was successfully implemented using the Fastify framework, consisting of 3 services: user service, master service, and transaction service. The conclusion obtained is that the microservice architecture reduces errors if there are code writing errors or deployment errors and requires more resources for small services. For further development, it is necessary to implement security configurations between services, compare the CI/CD (Continuous Integration and Continuous Development) approach with the business capability pattern, and implement automation testing.