# Microservices Spring Cloud

# Overview

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- Microservice Architecture
- Cloud Native Apps
- 12 Factor
- Spring Cloud Family
  - Cloud Connector
  - Config Server
  - Discovery
  - Feign + Ribbon + Hystrix
  - API Gateway
  - Sleuth + Zipkin
- Live Demo … horee !!

# Microservice

Architecture

- Apa maksudnya?
- Apa bedanya dengan SOA?
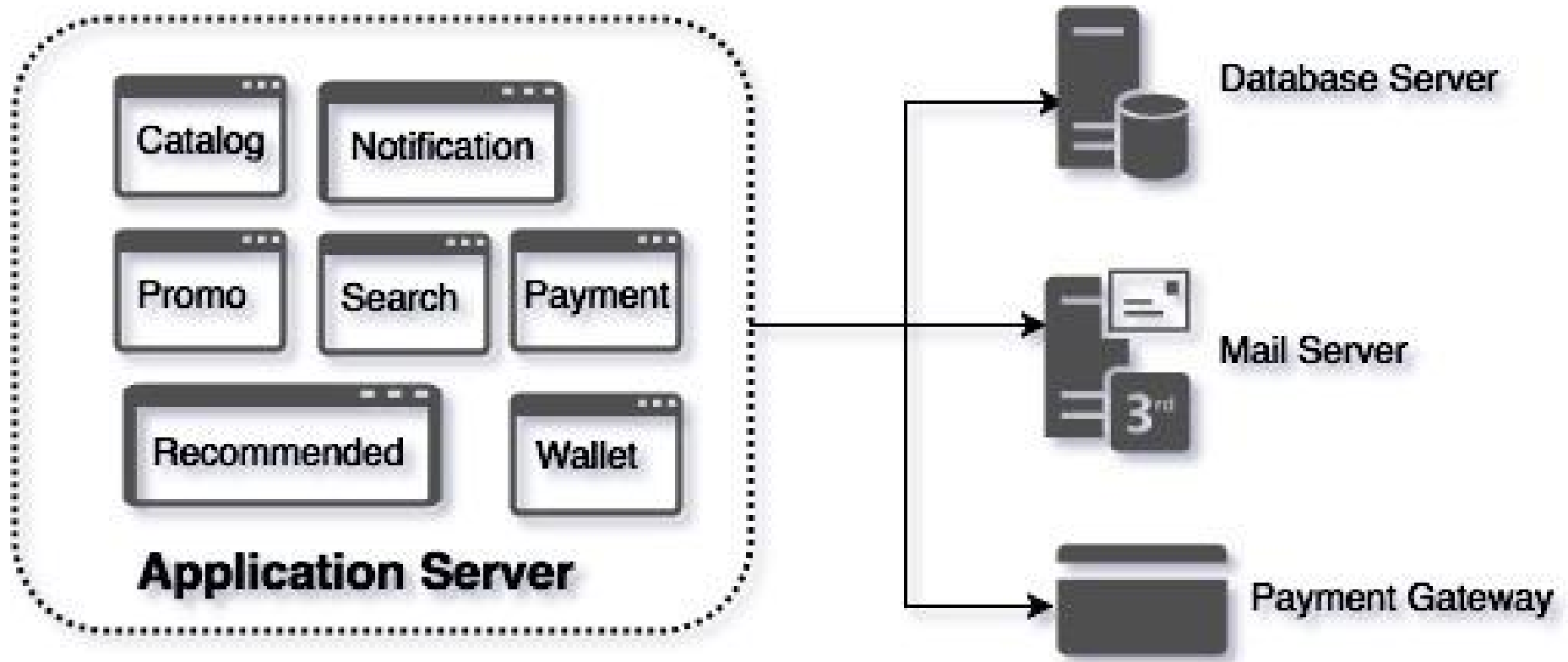- Apa plus/minusnya?
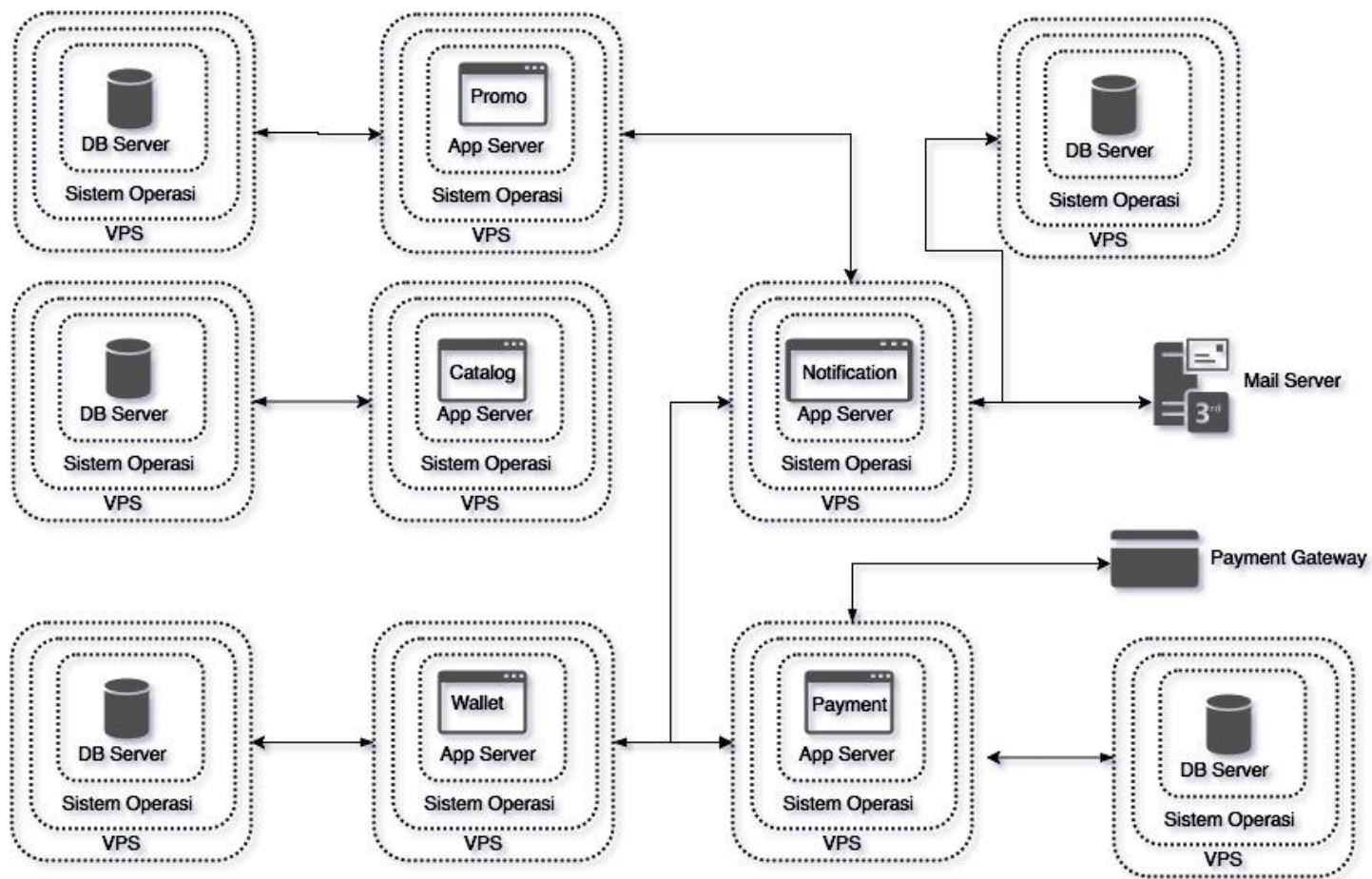
# Apa itu Microservice ???

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- Jargon baru, mulai dipopulerkan sejak 2012
  - James Lewis : http://2012.33degree.org/talk/show/67
  - Fred George :
    http://www.slideshare.net/fredgeorge/micro-service-architecure
  - Adrian Cockcroft :
    https://www.slideshare.net/adriancockcroft/microservices-workshop-all-topics-deck-2016

*an approach to developing a single application as a suite of small services, each running in its own process and communicating with lightweight mechanisms*

Martin Fowler : https://martinfowler.com/articles/microservices.html

**Arsitektur Monolith**

**Arsitektur Microservices**

# Contoh

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- [https://www.amazon.com/Klean-Kanteen-12-Ounce-Insulated-Stainless/dp/B00X6ZFPQ0/](https://www.amazon.com/Klean-Kanteen-12-Ounce-Insulated-Stainless/dp/B00X6ZFPQ0/)
- [http://www.lazada.co.id/united-bike-wall-bracket-braket-dinding-tempat-gantung-sepeda-2885105.html](http://www.lazada.co.id/united-bike-wall-bracket-braket-dinding-tempat-gantung-sepeda-2885105.html)
- [https://www.blibli.com/adidas-men-running-alphabounce-1-m-sepatu-lari-bw0539-MTA.0756475.htm](https://www.blibli.com/adidas-men-running-alphabounce-1-m-sepatu-lari-bw0539-MTA.0756475.htm)

# Microservices vs SOA

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- Microservice is subset of SOA (Martin Fowler)
  - https://youtu.be/wgdBVIX9ifA?t=13m10s
- Microservice is SOA Done Right
  - https://www.youtube.com/watch?v=ilmFJ0FK0bE

# Plus Minus Microservices

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+   Independent Development
+   Independent Data Management
+   Independent Technology
+   Independent Release
+   Independent Scaling

-   Level of Modularity
-   Interoperability / Versioning
-   Transaction Management
-   Deployment
-   Configuration Management
-   Integration
-   Discovery
-   Tracing Error / Performance

# Wat?

More Negatives??

# Microservice Tooling

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- Continuous Delivery
  - Travis CI
  - Gitlab CI
  - Jenkins
- Spring Cloud
  - Config Service
  - Discovery Service
  - Integration
  - Distributed Tracing
- Cloud Native App

# Cloud Native

Application

- Apa itu Cloud Native?
- Bagaimana cara membuatnya?
- 12 Factor Apps

# Cloud Native Apps

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*Cloud-native is an approach to building and running applications that fully exploits the advantages of the cloud computing model*

# 12 Factor - https://12factor.net/

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- Single Codebase Multiple Deploy
- Dependency Management
- Configuration Management
  - Environment Variable
  - Vault
- Backing Services
  - Database, MQ, File
- Build, Release, Run
  - Continuous Delivery
- Stateless / Ephemeral Process
  - Instances come and go

- Port Binding
  - Setiap app bisa menangani request
  - Embedded HTTP server
- Concurrency / Scale Out
  - Setiap app bisa direplikasi
- Disposability
  - Kebalikan dari scale out
- Environment Parity
  - dev/staging/prod harus mirip
- Logs
- Admin Process

More Factor : http://pivotal.io/beyond-the-twelve-factor-app

# Spring Cloud

Family

- Config Server
- Discovery Service
- Feign Client
- API Gateway
- OAuth
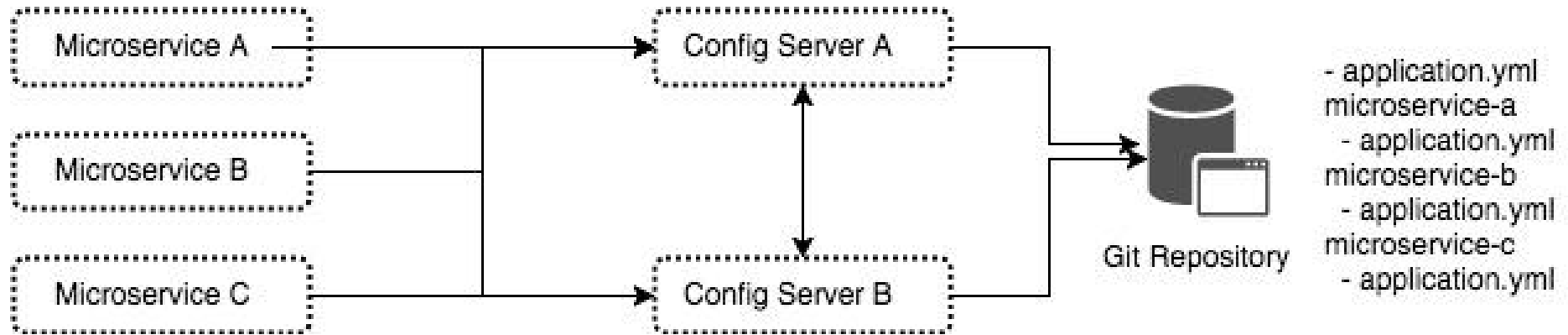- Distributed Tracing

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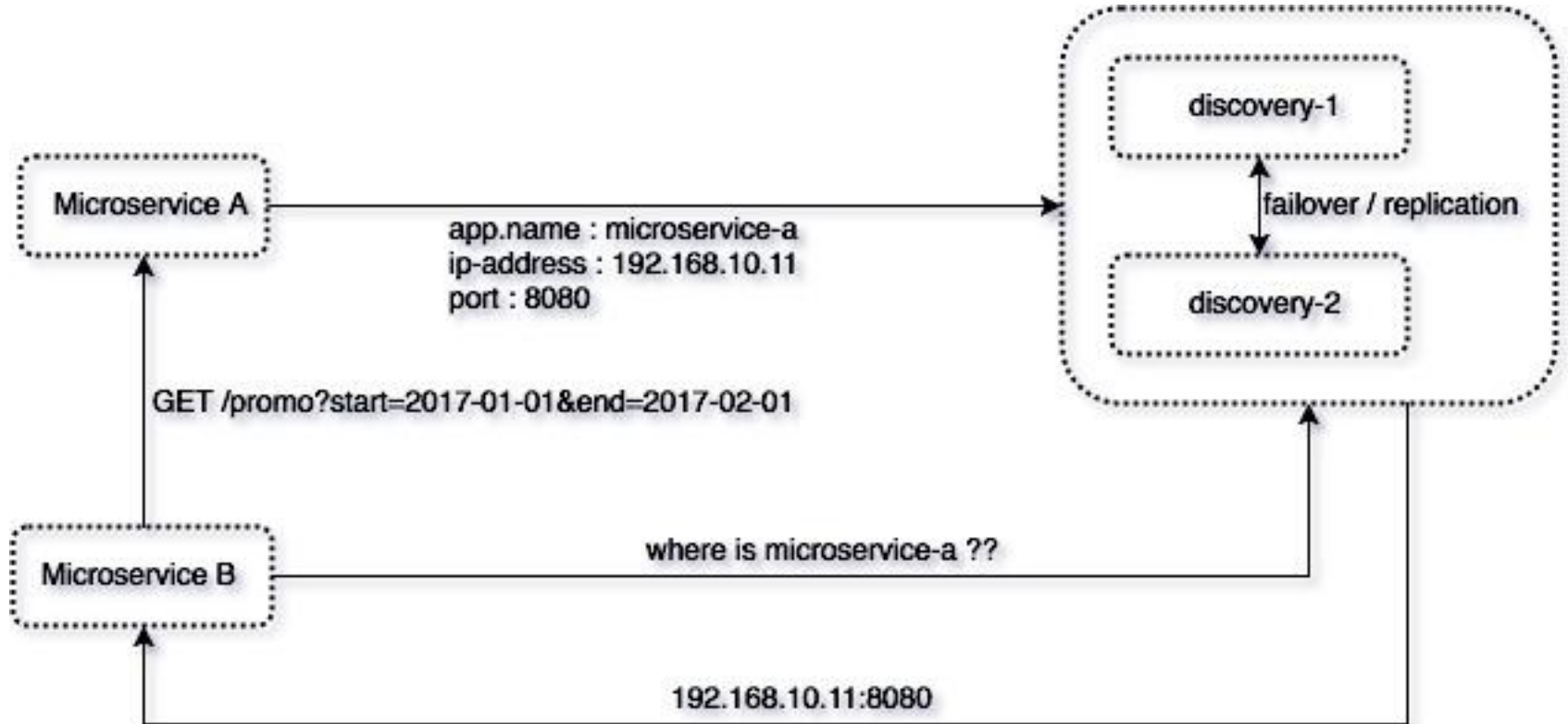# Spring Cloud Family - http://projects.spring.io/spring-cloud/

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- Config Server
- Registry & Discovery Service
- Service Integration
- Routing / API Gateway
- Load Balancing
- Failover / Circuit Breaker
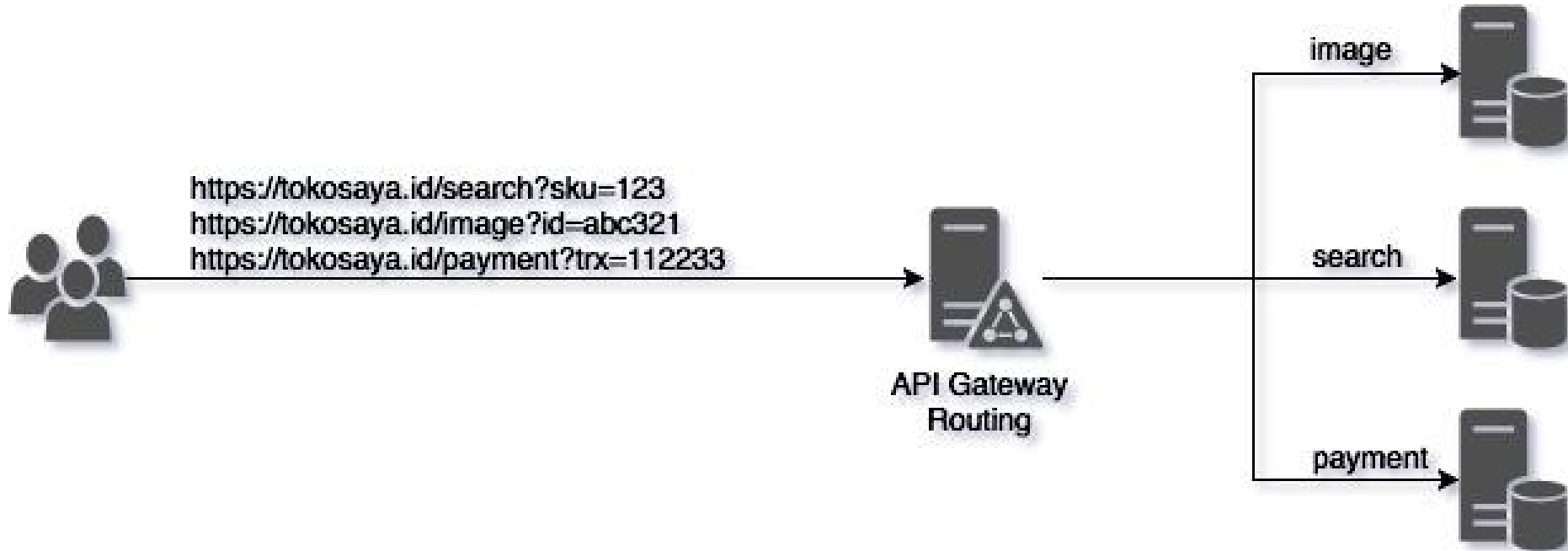- Distributed Tracing
- Authentication / Authorization

- https://github.com/endymuhardin/belajar-springcloud
- https://github.com/endymuhardin/belajar-springoauth2/

# Config Server



Microservice A
Microservice B
Microservice C

Config Server A
Config Server B

Git Repository

- application.yml
microservice-a
  - application.yml
microservice-b
  - application.yml
microservice-c
  - application.yml

# Discovery Service

# API Gateway

https://tokosaya.id/search?sku=123
https://tokosaya.id/image?id=abc321
https://tokosaya.id/payment?trx=112233

API Gateway
Routing

image

search

payment

# Live Demo

# Live Demo

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- Discovery Server
- Config Server
- Catalog Service
- Image Service
- API Gateway
- Distributed Tracing

# Q & A

# Terima Kasih

- software.endy.muhardin.com
- https://goo.gl/ITBCBI
- https://t.me/JVMUserGroup
- https://goo.gl/MHq3hZ