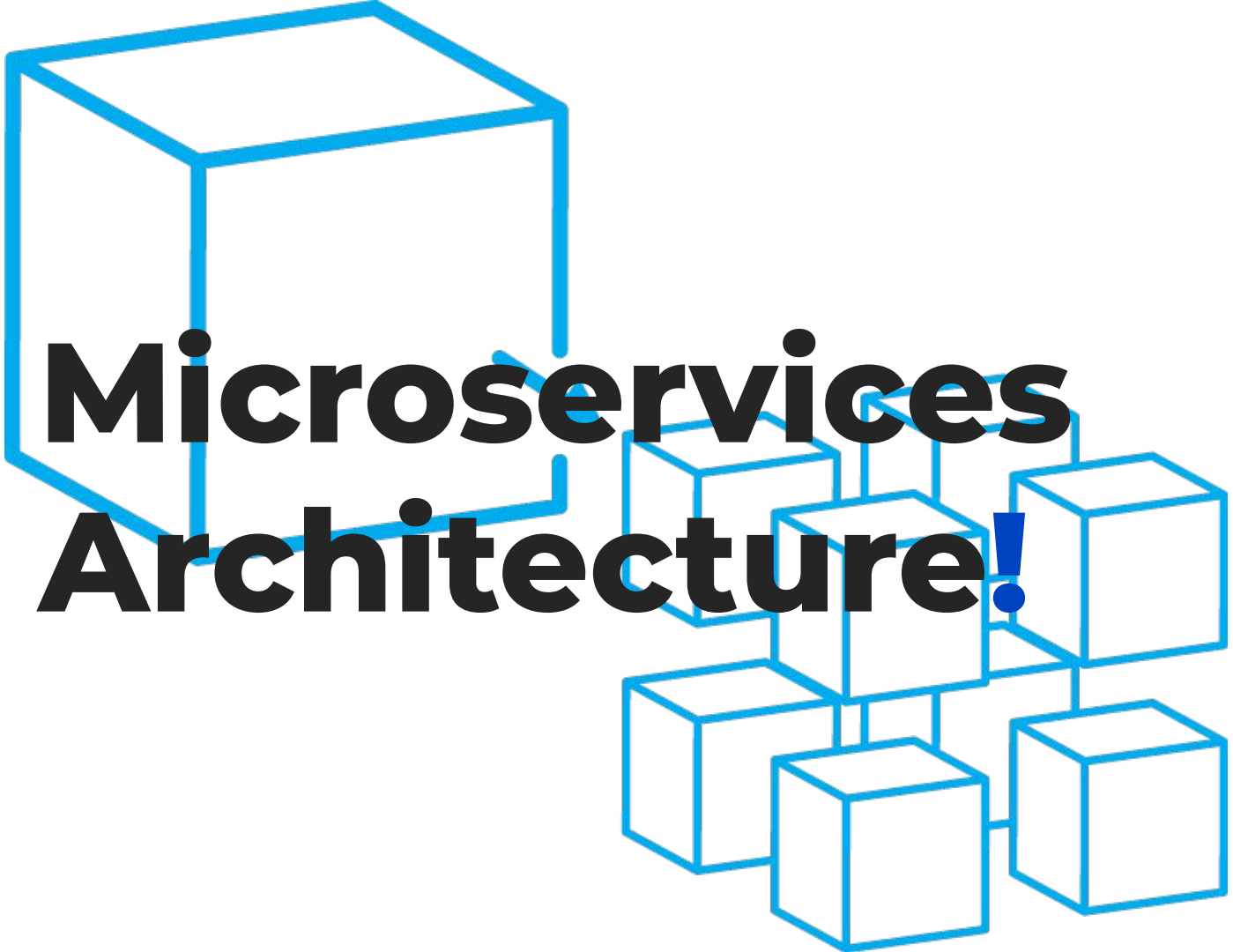

Microservices Architecture!

Robert C. Martin coined the term **single responsibility principle** which states “gather together those things that change for the same reason, and separate those things that change for different reasons.”


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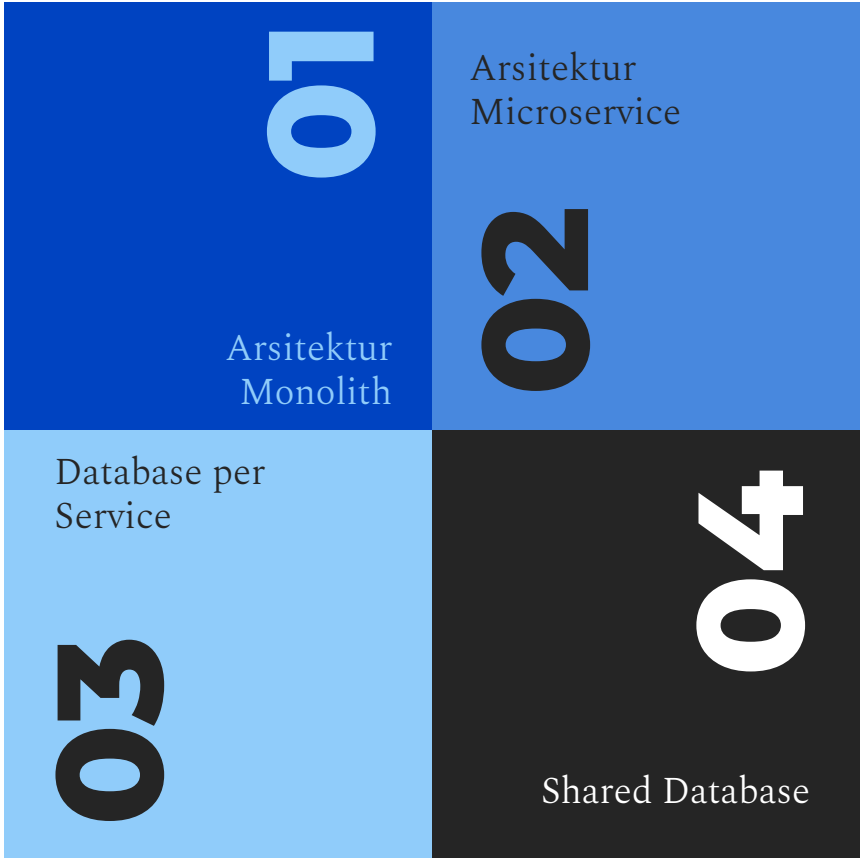
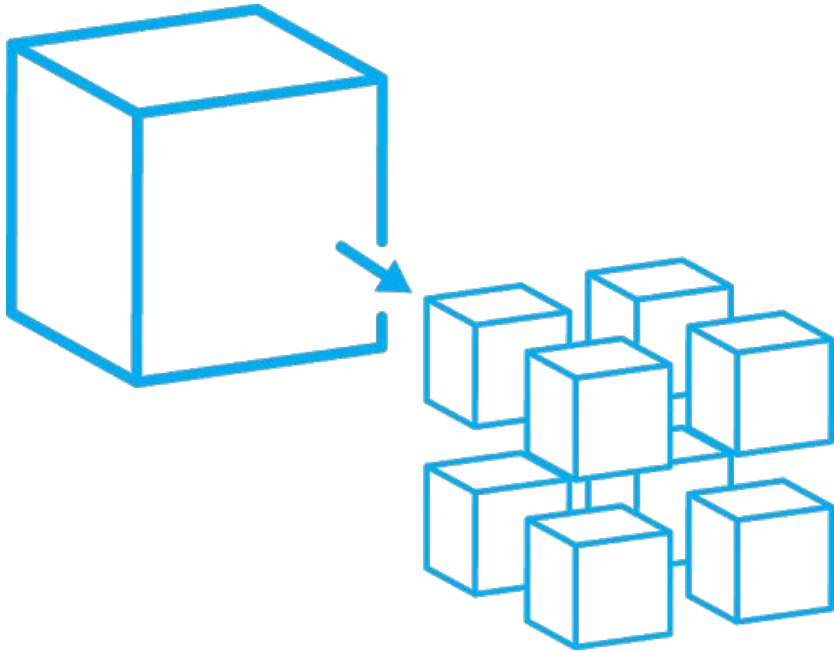
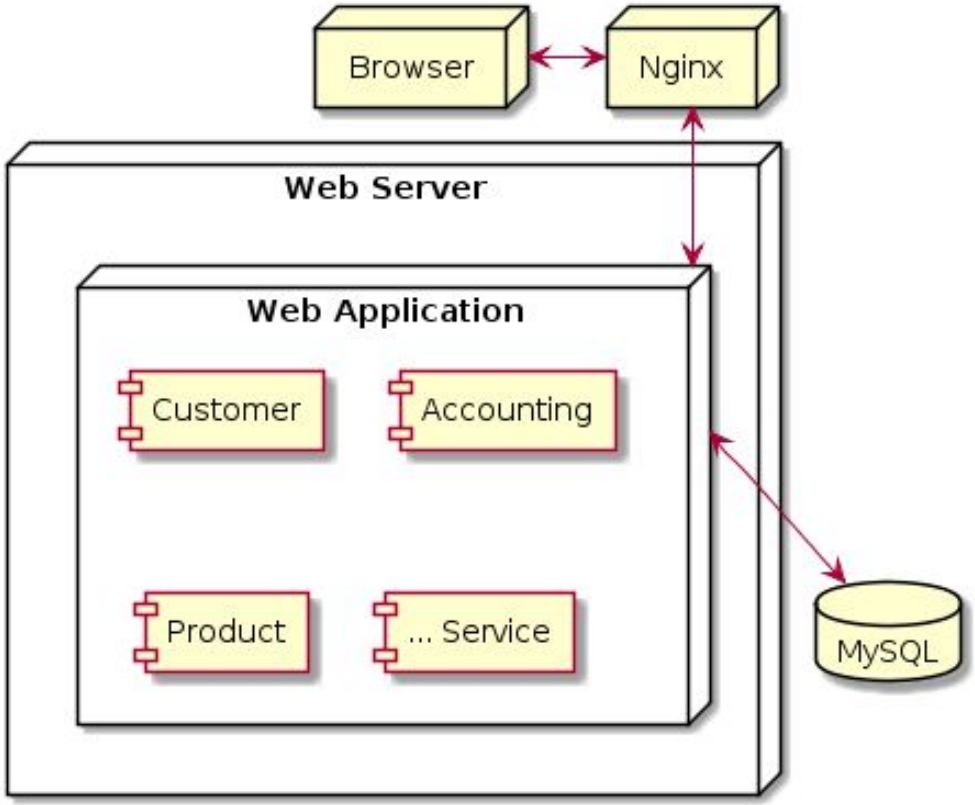

01
Arsitektur
Monolith
Arsitektur
Microservice
02
Database per
Service
03
04
Shared Database

Agenda

1. Arsitektur Monolith



Arsitektur Monolith



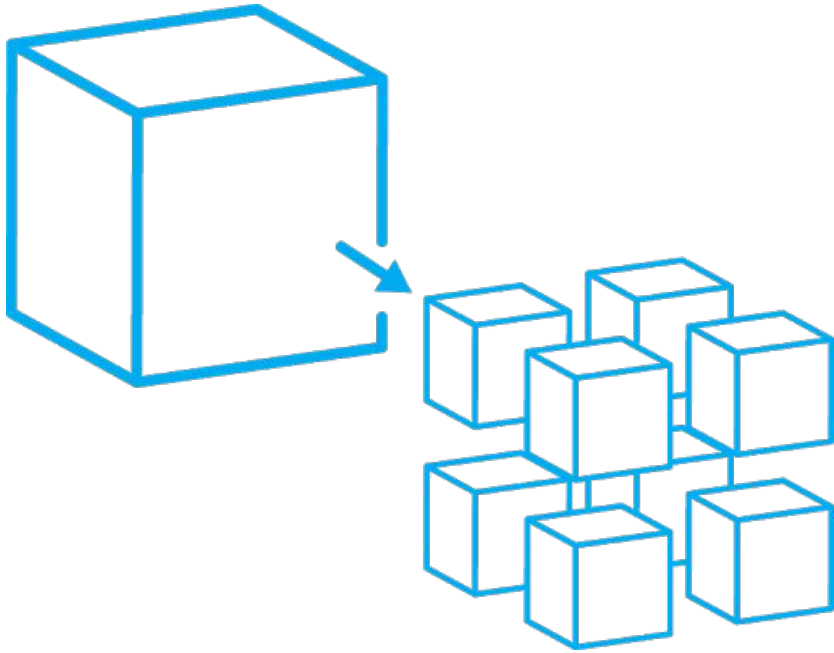
Kelebihan Arsitektur Monolith

- Mudah di Develop
- Mudah di Deploy
- Mudah di Test
- Mudah di Scale

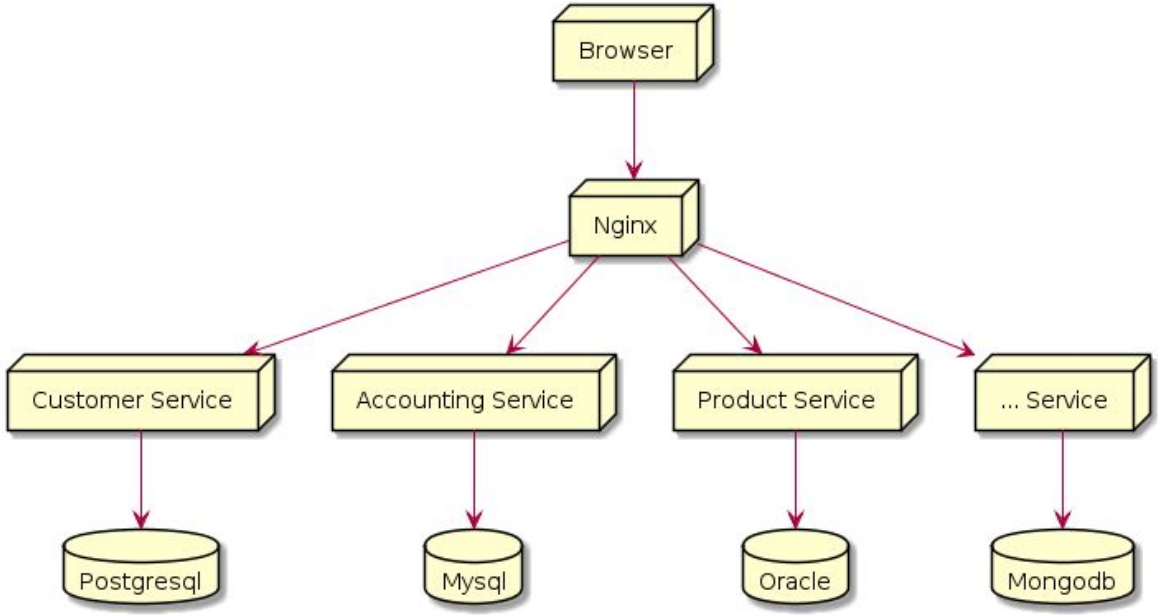
Masalah di Arsitektur Monolith

- Mengintimidasi Developer yang baru bergabung
- Scaling development dengan banyak Developer agak menyulitkan
- Butuh kontrak panjang dengan teknologi yang digunakan (bahasa pemrograman, database, dan lain-lain)
- Scaling pada bagian tertentu tidak bisa dilakukan
- Running app Monolith sangat berat

2. Arsitektur Microservice



Arsitektur Microservices



Apa itu Arsitektur Microservices

- Aplikasi-aplikasi kecil yang saling bekerja sama.
- Fokus mengerjakan satu pekerjaan dengan baik
- Independent, dapat di deploy dan diubah tanpa tergantung dengan aplikasi lain
- Setiap komponen pada sistem dibuat dalam service
- Komunikasi antar service biasanya melalui network-call

Kelebihan Arsitektur Microservices

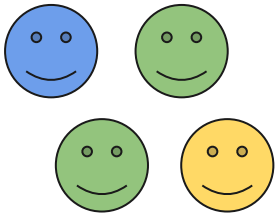
- Mudah dimengerti, karena relative kecil ukuran service nya
- Lebih mudah di develop, di maintain, di test dan di deploy
- Lebih mudah bergonta-ganti teknologi
- Mudah di scale sesuai kebutuhan
- Bisa dikerjakan dalam tim-tim kecil

Masalah di Arsitektur Microservices

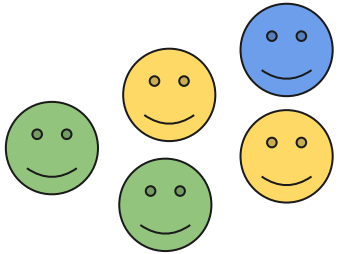
- Distributed system
- Komunikasi antar service yang rawan error
- Testing interaksi antar service lebih sulit

Pembagian Aplikasi Microservices

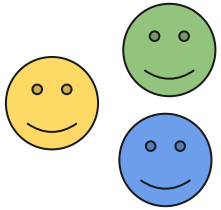
Merchant



Product



Shipping



Seberapa Kecil Aplikasi Microservices?

- Single responsibility
- Sekecil mungkin sehingga bisa dimengerti oleh satu orang
- Bisa di kerjakan sejumlah X developer

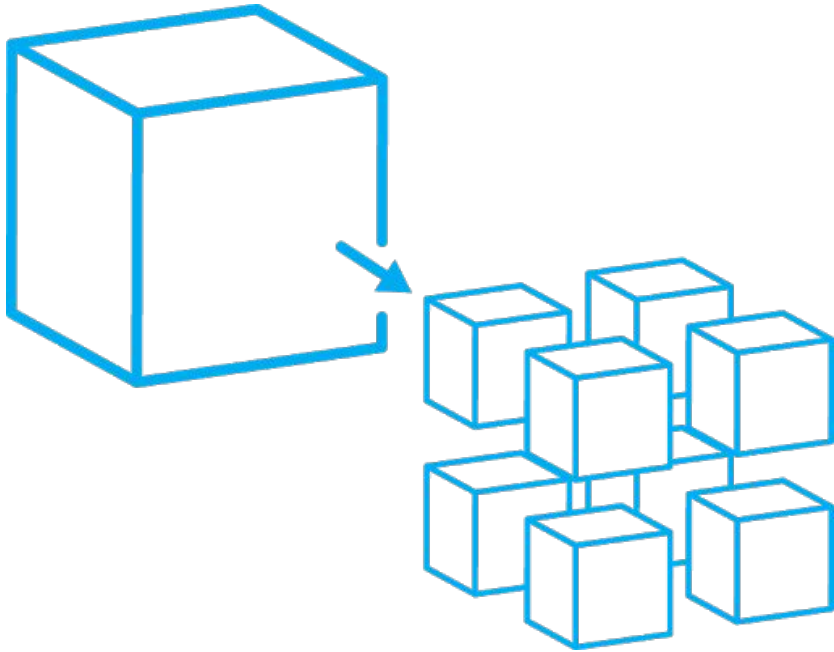
Monolith

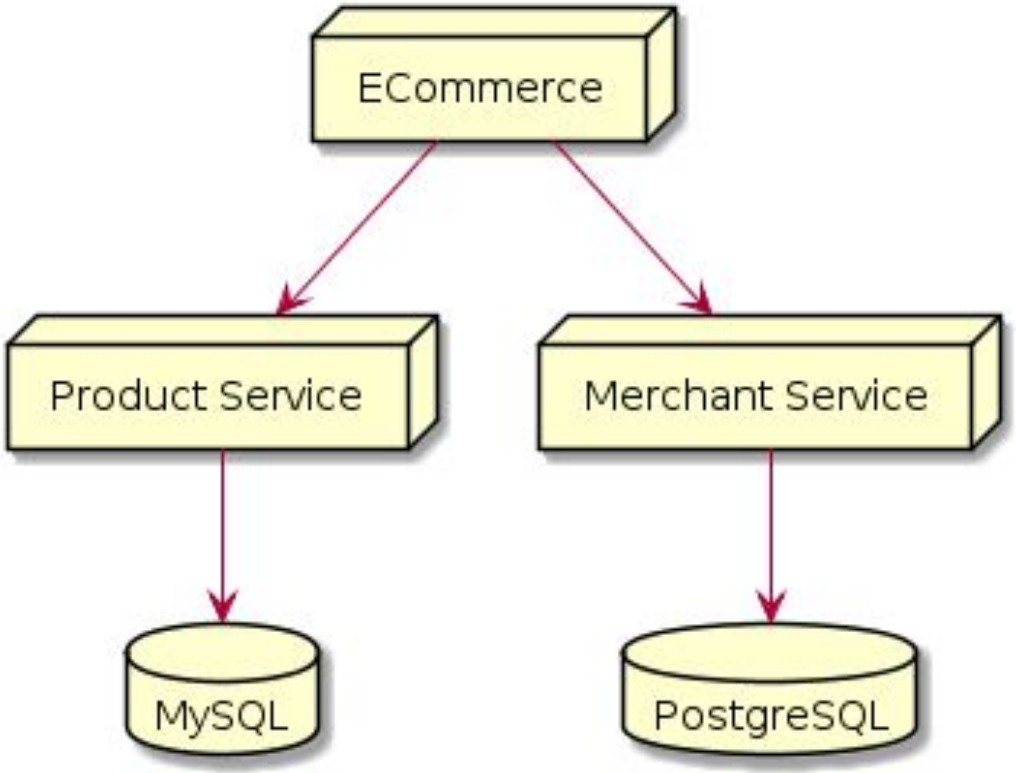
- Simplicity
- Consistency
- Easy to Refactor

Microservices

- Partial Deployment
- Availability
- Multiple Platform
- Easy to Scale

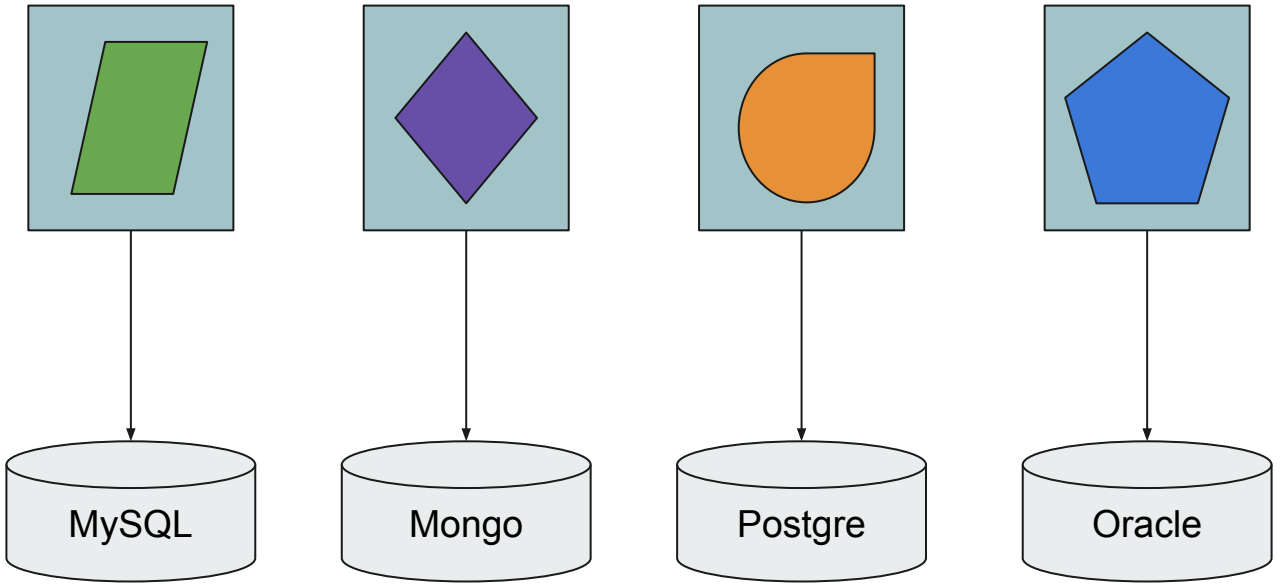
3. Database per Service





Contoh Database per Service

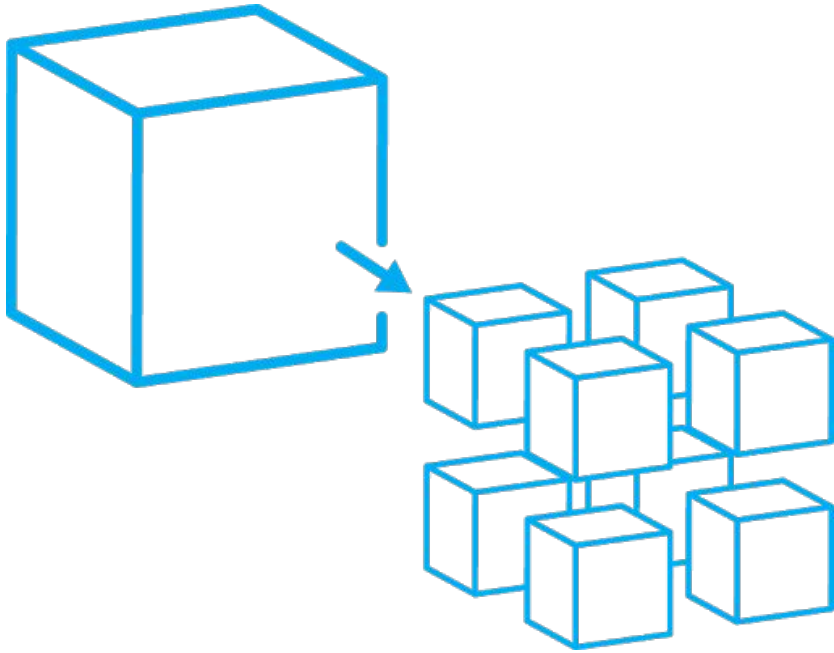
Decentralized Database



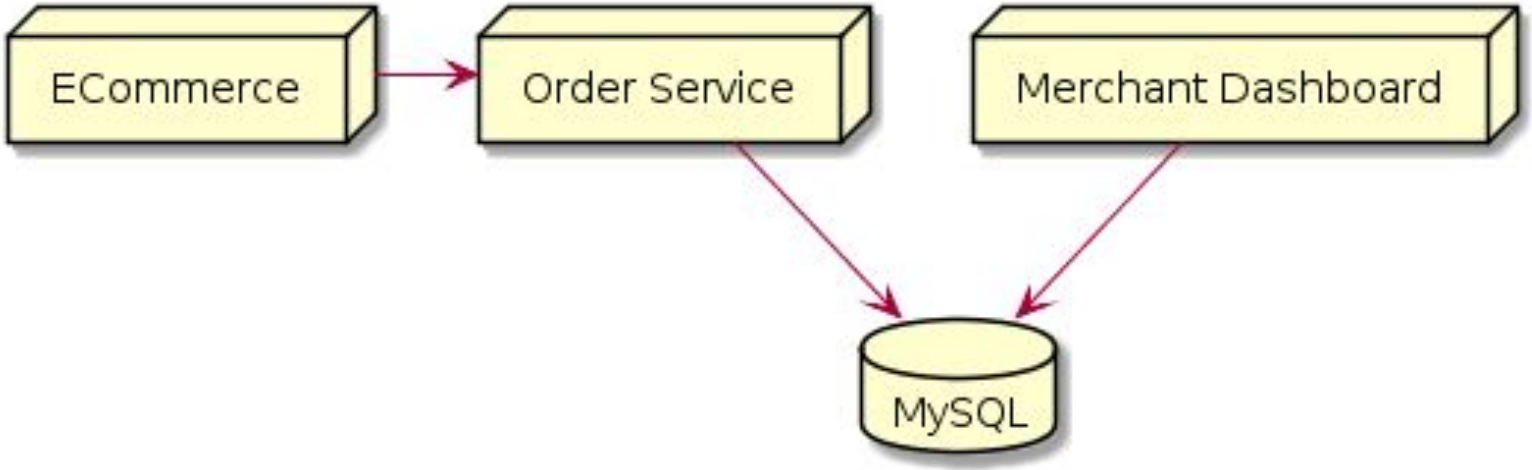
Kenapa Harus Database per Service?

- Memastikan bahwa antar service tidak ketergantungan
- Tiap service bisa menggunakan aplikasi database sesuai dengan kebutuhan
- Service tidak perlu tahu kompleksitas internal database service lain

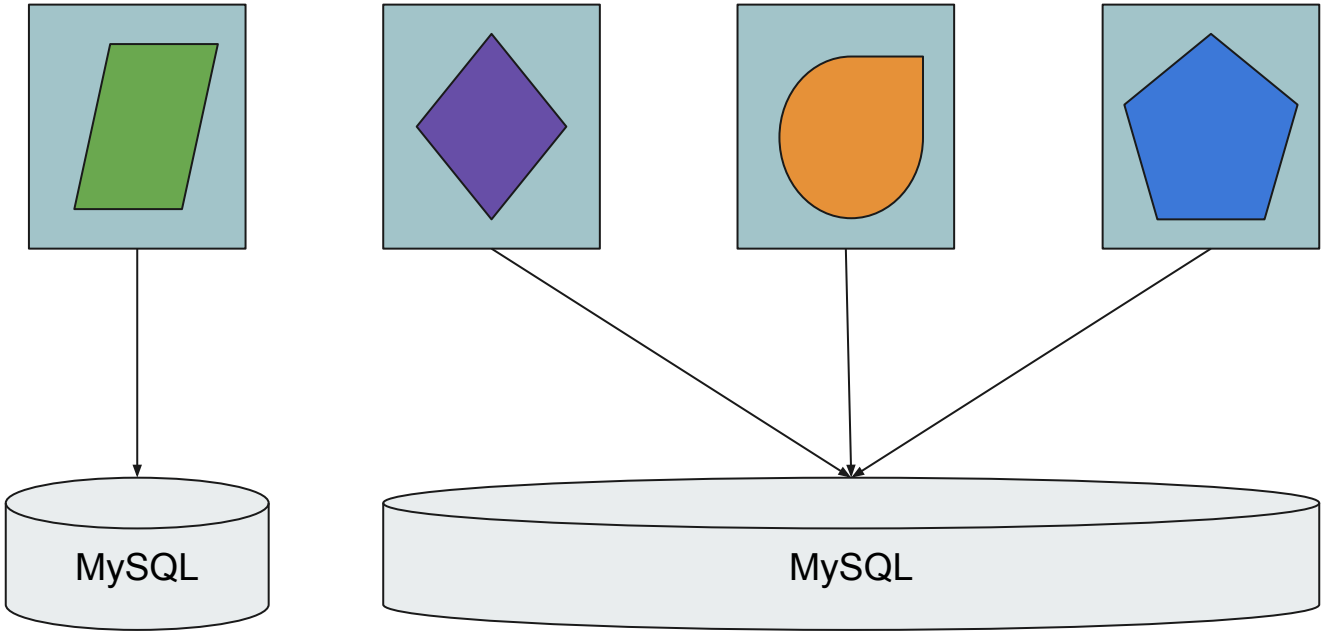
4. Shared Database



Contoh Shared Database

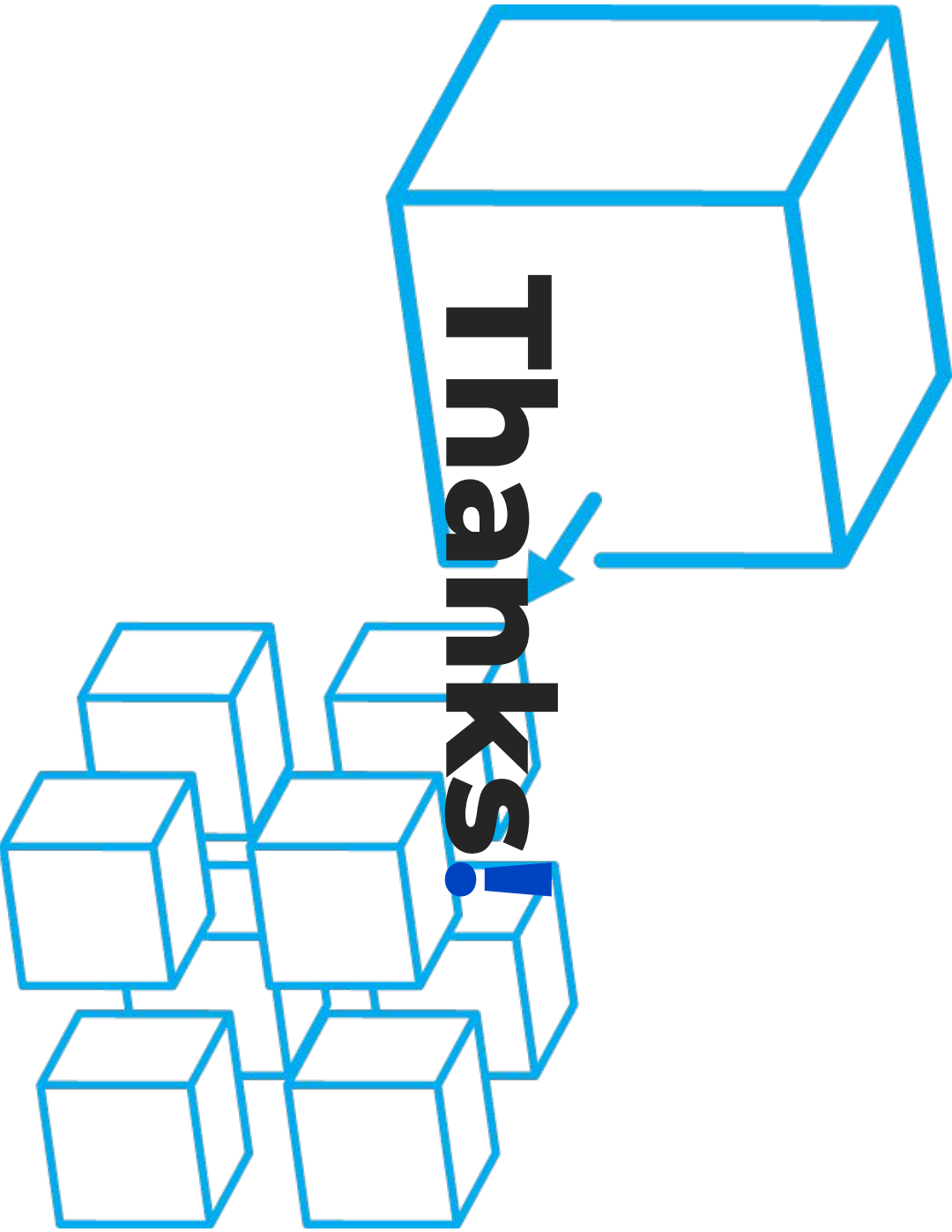


Shared Database



Kapan Harus Shared Database?

- Ketika melakukan transisi dari aplikasi Monolith ke Microservices
- Ketika bingung memecahkan data antar Service
- Ketika dikejar waktu, sehingga tidak ada waktu untuk bikin API


Thanks!