Systems for Design and Implementation

Outline

- Microservices
- Rails
- Container Engines

Microservices

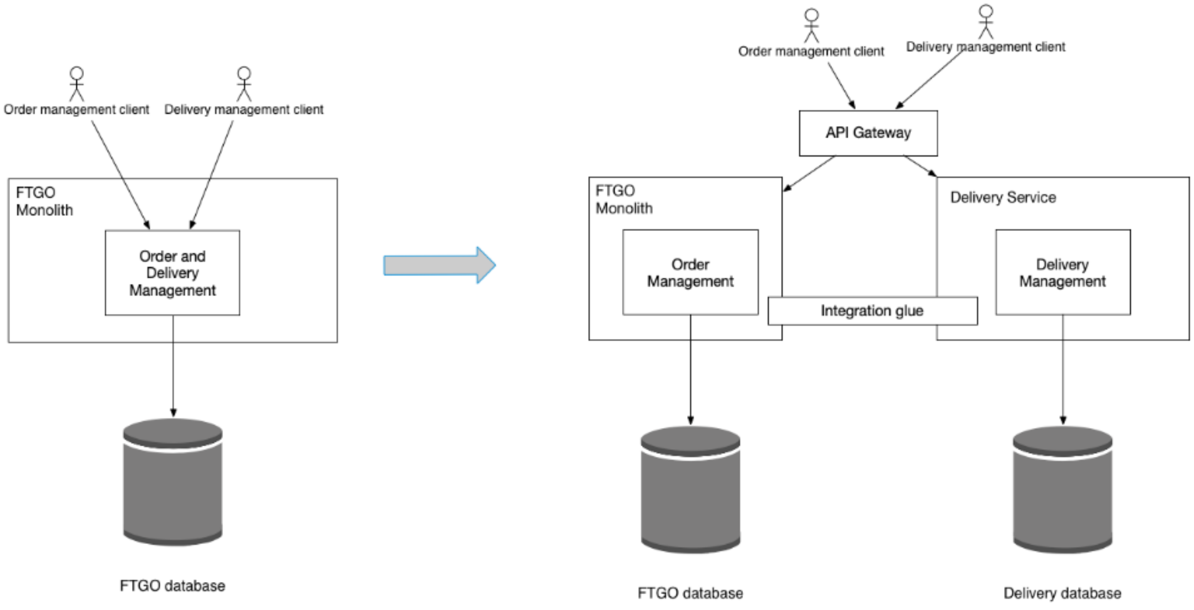

Image source: https://microservices.io/refactoring/

Microservice architecture characteristics:

- Fine-grained components
- Small/single responsibility; independent units of deployment; reusable
- Lightweight and technology-neutral communication protocols; multiple languages and technologies
- Small development teams.

Issues: increased complexity, fast delivery, performance and scalability, availability.
Microservices: small, simple, decoupled --> scalable, resilient, flexible.

Building a microservice architecture:

1. Decompose business problem: nouns, verbs, cohesion; microservices should completely own their data
2. Establish service granularity
3. Define service interfaces

Sings of a bad microservice architecture:

- Too many responsibilities
- Too many tables
- Too many test cases
- Too many microservices
- Too interdependent
- Too simple operations

Diagram

Rails

- Ruby
- Rails

```
$ rails new <app>
$ bin/rails server
http://localhost:3000/
```

Example

Container Engines; Docker