Microservices

Tejas Parikh (t.parikh@northeastern.edu)
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What Are Microservices?

Microservices - also known as the microservice architecture - is an architectural style that structures an application as a collection of loosely coupled services.

Microservices are…

- Small, and focused on doing one thing well
- autonomous

Benefits of Microservices

- Technology Heterogeneity – Pick right tool (programming language, framework, operating system, database, etc.) for the job.
- Resiliency – A service failure does not cascade into total system failure.
- Scaling – Scale on the services that need to be scaled.
- Ease of Deployment – Service deployments are independent of the rest of the components.
- Composability – Microservices can be designed to allow its functionality be consumed in many different ways for different purposes.
- Optimizing for Replaceability – Easy to kill a service when not needed.

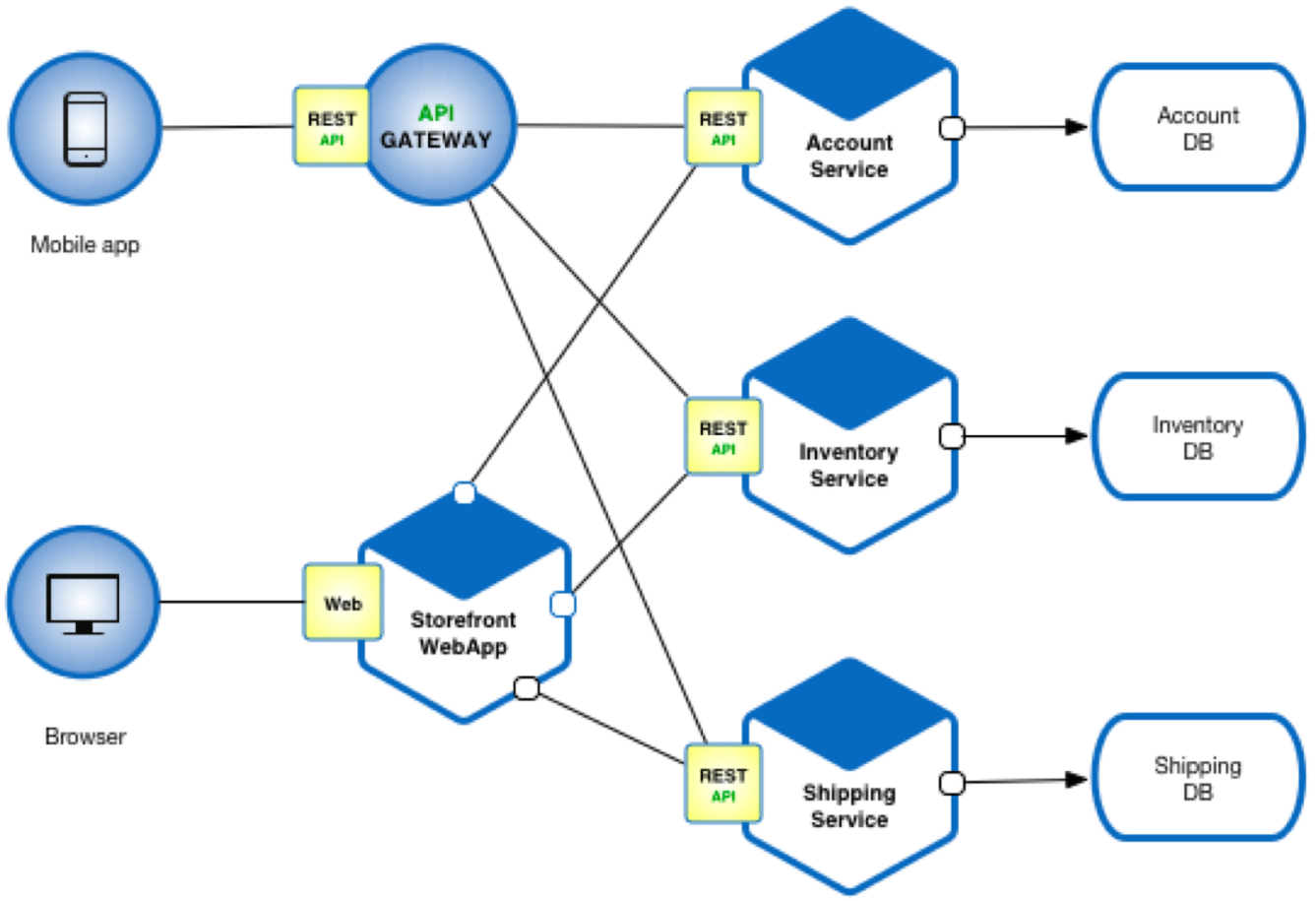
What Makes a Good Service?

- Loose Coupling – When services are loosely coupled, a change to one service should not require change to another.
- High Cohesion – Related behavior should sit together and unrelated behavior to sit elsewhere.

Integration

- Shared Database?
- Synchronous Versus Asynchronous
- Remote Procedure Calls
- REST
- Message Queues
- Reactive Design

Fictitious e-commerce application



Drawbacks of Microservices

- Services can be too small.
- Microservices architecture introduces additional complexity and new problems to deal with such as network latency, message formats, load balancing and fault tolerance.
- Calls between services over a network have higher cost in term of network latency and processing time compared to in-process calls in monolithic services.

Additional Resources

https://spring2018.csye6225.com/