

Container Orchestration and Microservices

Lev Epshtein

Microservices

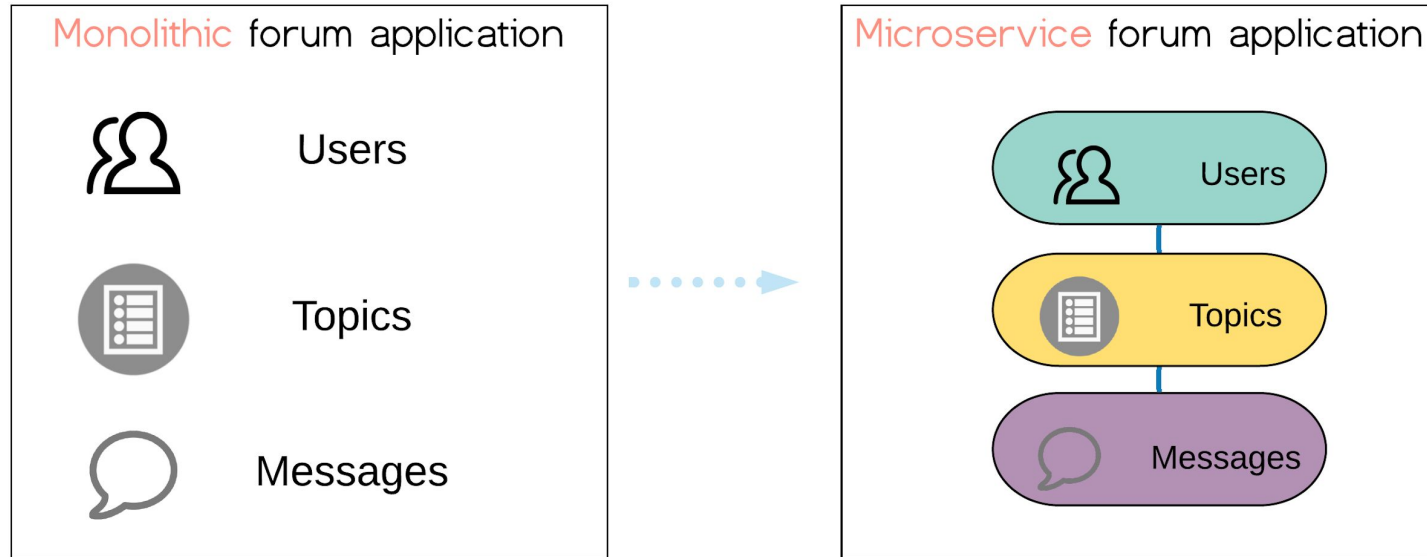
What Are Microservices?

Applications composed of **independent services**
that communicate over **well-defined APIs**

A complex, spherical molecular structure, likely a virus or a large protein complex, composed of numerous small, interconnected components in blue, orange, and green. The structure is highly symmetrical and dense, with a central core and a thick outer shell. The components are arranged in a way that suggests a highly organized, repeating pattern, characteristic of a crystalline or quasi-crystalline structure. The overall shape is roughly spherical, with some irregularities on the surface. The colors (blue, orange, green) likely represent different chemical environments or types of atoms within the structure.

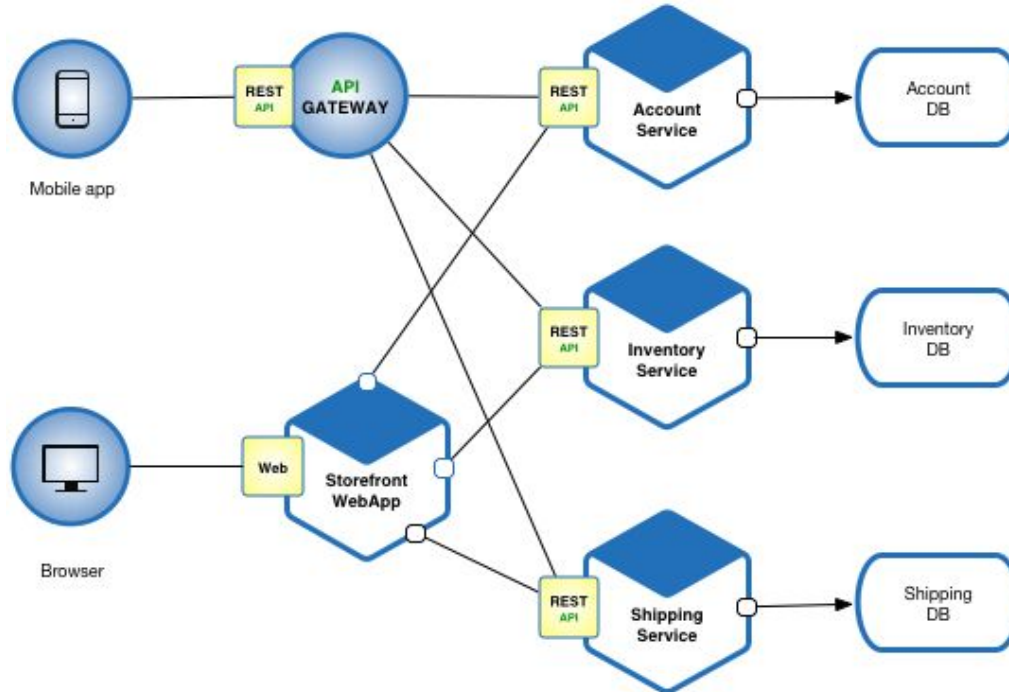


Monolithic to Container-Based Microservices

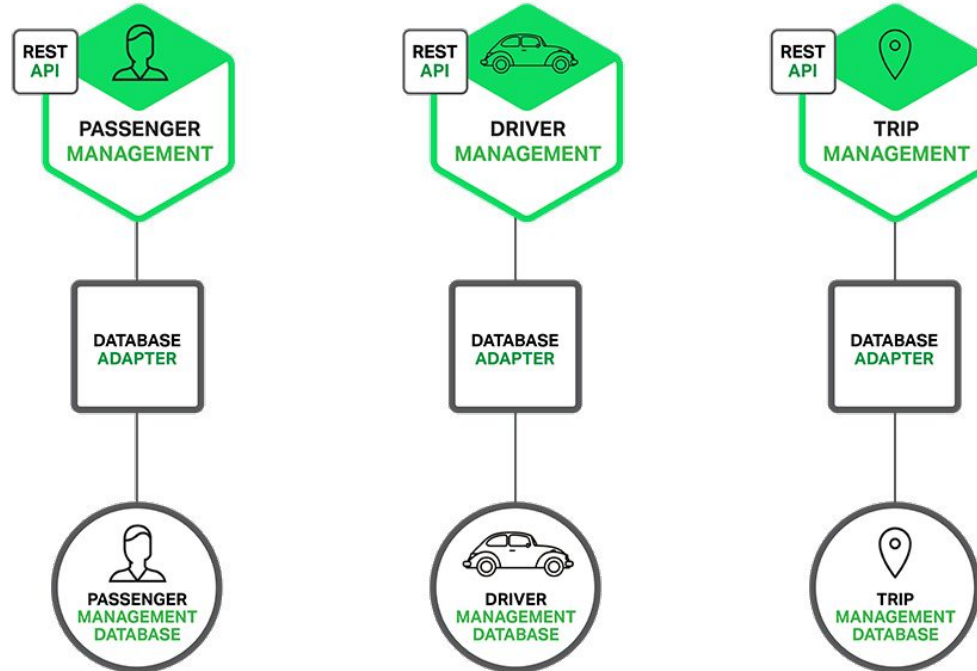


What Are Microservices?

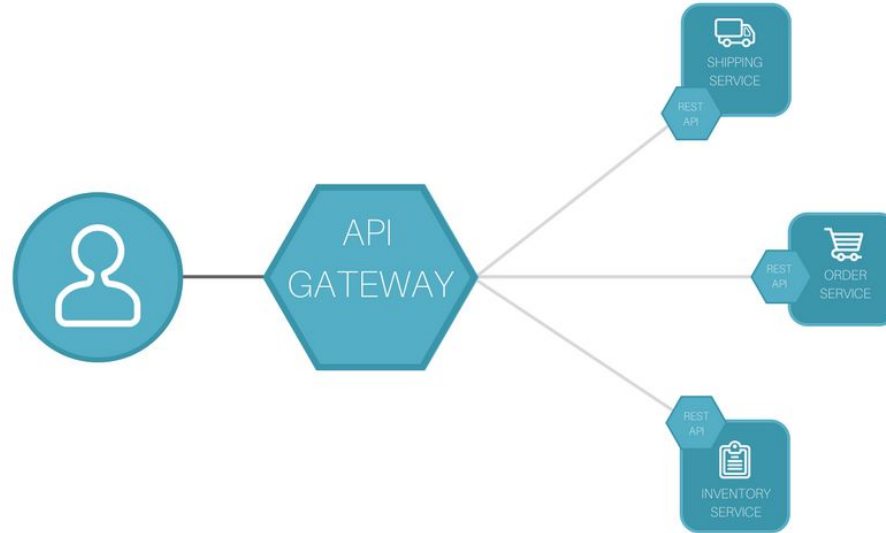
Applications composed of **independent services** that communicate over **well-defined APIs**



Microservices & DB Relationship



Microservices



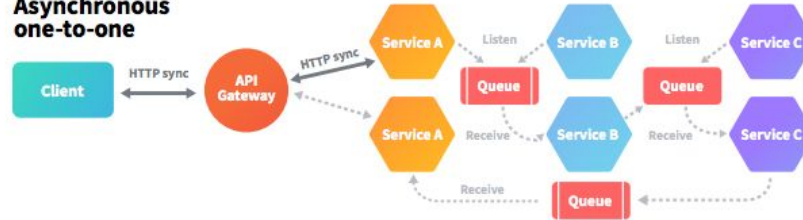
Communication in a microservice architecture

Anti-pattern →

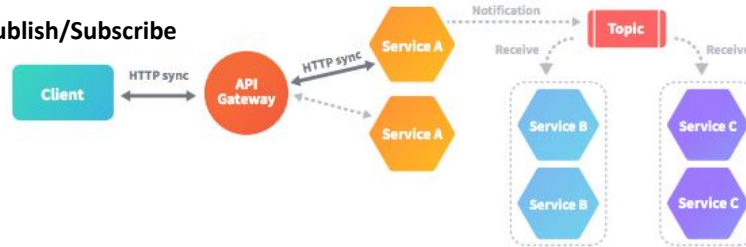
Synchronous



Asynchronous one-to-one



Publish/Subscribe

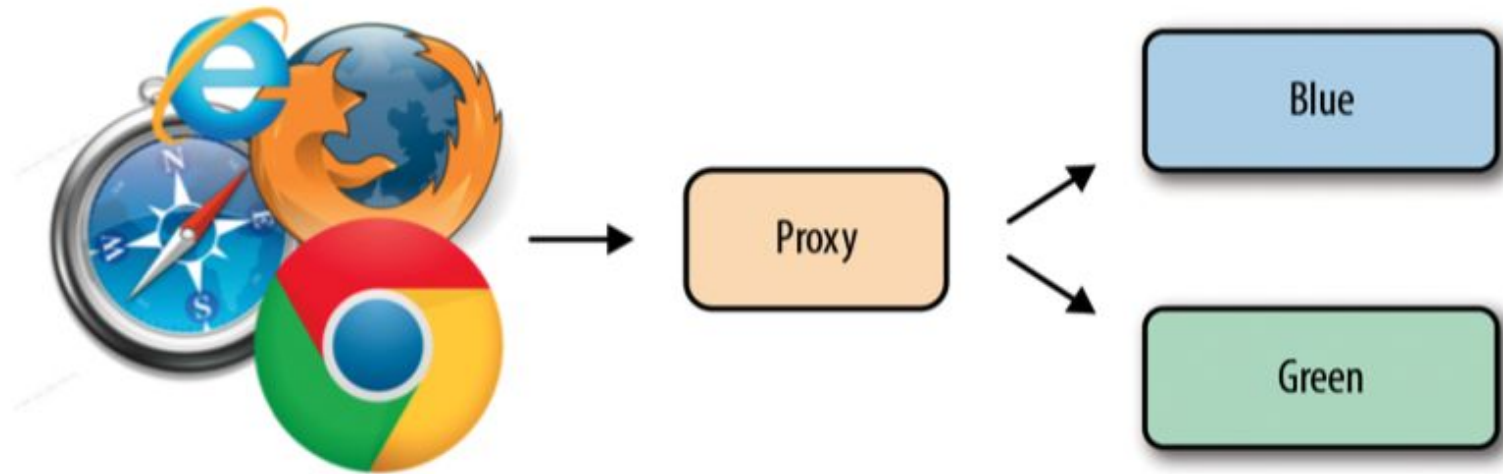


Why Use Microservices?

- Forced Separation of Concerns
- Natural Team Ownership
- Frequent Deployments
- Heterogeneous Selection of Languages

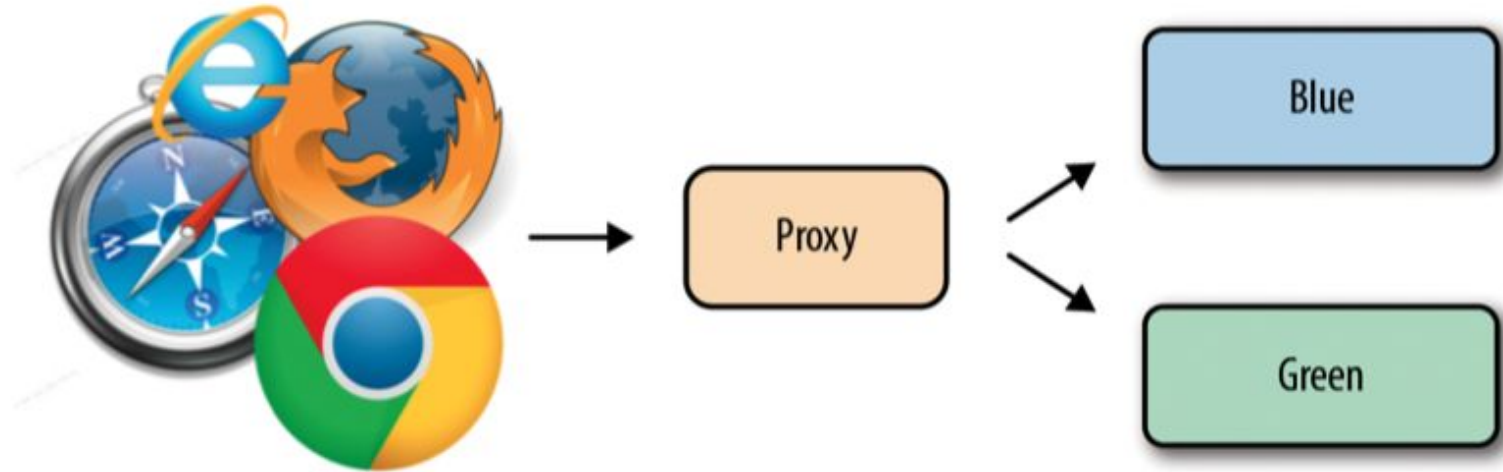
Zero Downtime and Microservices

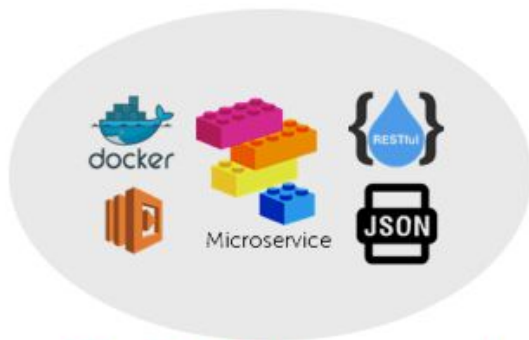
Blue/Green Deployment



Zero Downtime and Microservices

Canary Deployment





iPaaS & API Management

Web/Mobile



MICROSERVICES



Agile Development



DevOps



Container Orchestration

Container Orchestration

Container Orchestration Software
(Docker, Openshift & Kubernetes)



OPENSIFT

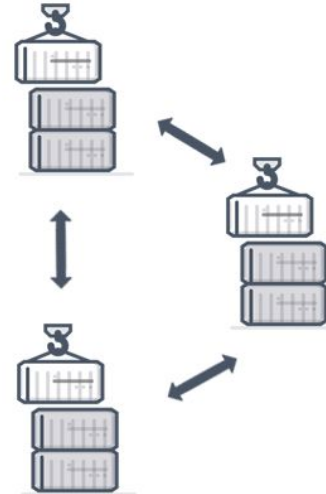


Automate:

- Configuration
- Provisioning
- Availability
- Scaling
- Security
- Resource allocation
- Load balancing
- Health monitoring



Application Environment
w/ Multiple Containers





kubernetes

VS



MESOS