

Chapter1. Overview of Microservices

Key Benefits

- Tech Heterogeneity
 - able to use different tech stack inside each service
- Resilience
 - isolate the problem if one component fails and keep rest of system carry on
- Scaling
 - just scale those services that need scaling
- easy to deploy
 - a service can be deployed independently
 - deliver faster, respond to change faster

Compared to

- SOA
 - a design approach, actually a very sensible idea
 - lack of good consensus on how to do SOA well
 - lack of guidance about service granularity
 - doesn't help to understand how to split big monolith into small things
 - microservices vs. SOA is similar with Scrum vs. Agile
- Shared libraries
 - fixed tech stack
 - not able to scale parts of system
 - deploy a new library needs redeploy whole system
- Modules
 - trying to enforce module lifecycle management without enough support in language
 - Open Source Gateway Initiative (OSGI)
 - Erlang
 - limit ability to use new tech, limit scale independently

No Silver Bullet

- associated complexities of distributed system
 - CAP theorem
 - Need better deployment handling, testing, monitoring to unlock the benefits

Emergence

- Domain Driven Design
 - representing real world in code
- Continuous Delivery
 - Get software into PRODUCTION effectively and efficiently
- On demand virtualization
 - allow provision and resize machines at will
- Infrastructure automation
 - bundle machines at scale
- Small autonomous teams

What

- small autonomous services work together
 - take SRP to independent units
 - focus service boundaries on business boundaries
 - avoid the temptation to grow too large
 - How small is small?
 - something could be rewritten in two weeks
 - small enough and no smaller
 - How well the service aligns to team structure
- Autonomous
 - enforce separation between services, avoid tight coupling
 - communication between services are via NETWORK CALLS
 - service able to change independently, can be deployed without forcing consumer to change
 - technology-agnostic APIs