Microservice
No fluff, the REAL stuff

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The best preparation for tomorrow is doing your best today
Agenda

- Common Problems
- Microservice - core concepts
- Pros & Cons
- Code
About me

- Senior Software developer at 4FinanceIT
- Consultant and architect around JVM technology
Monolithic?
Common Problems
Too much complexity needs to be exposed
legacy components - Hard to upgrade
Workarounds
New functionality can just pop
Easy to maintain standards, hard to maintain quality
Easy to maintain quality, hard to maintain standards
Refactoring

(Before)
Refactoring

(After)
Microservices
Microservices

Application

1 2 3 4 5
6 7 8 9 N
Core Concepts
Concept 1 : Service Registry
Service Registry

- Zookeeper: Consistency, Partition
- Eureka: Availability, Partition
- Consul: Availability, Partition
Eureka

Components:

- Server - REST service
- Client - Java component
  (Used within a microservice)
Eureka Client Server Communication

Client

Registration: first heartbeat (after)

Renew lease: heartbeat/30s

Fetching Registry: retrieve & cache it locally

Registry Update: /30s

Shutdown: Cancel request on shutdown

Server

Renew failure: No heartbeat for 90s, REMOVE

Shutdown: Removes instance from registry

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Concept 2: Load balancing
Ribbon

- Client side load balancer
- Built-in Failure resiliency
- Rule based load balancing
Concept 3 : Edge Service
Zuul

Request → Pre → Routing → Post

Response

Error
Zuul features

- Load Shedding
- Authentication & Security
- Static Response handling
- Surgical Debug Filter
- Stress Testing
Concept 4: Failure management
Hystrix

- Manage failures
  (latency + fault tolerance)
- Cascading failures
- Fail fast approach
Pros & Cons
Pros

- Component
- Richer tech stack
- Scalability
- Resilience
Cons

- Distributed system.
- Arsenal of tools (Infrastructure)
- Testing
- Transactions
For those on reddit.com/r/java/ saying it’s Spring Boot is “the framework for a framework” here’s a diagram:
DEMO

CATALOG SERVICE

PRODUCT SERVICE

PRICE SERVICE

COMMENT SERVICE
Microservice in REAL life

- springcloud
- Docker
- Netflix OSS
- Apache
- Elasticsearch
- Kibana
- Grafana
- Zipkin
- Graphite
- DevOps
Metrics

- Orders Booked
- Orders processed
- Thread states
- GC Pauses
- DB connections
- Memory [GB] vs. classes
- Hits/minute
- Products Sold
Thank You

Questions?

Slides => http://tiny.cc/micro-slides
Review => http://tiny.cc/nklmish-micro

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