



Topics

- Challenges with Cloud Native Applications
- Open-Source Spring Cloud
- Pivotal Spring Cloud Services

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Cloud Native Architectures

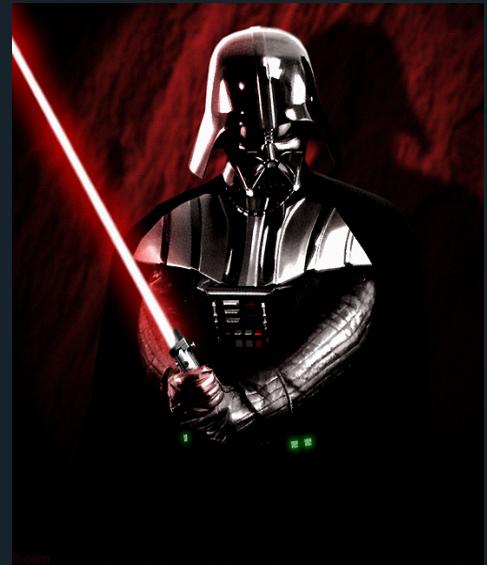
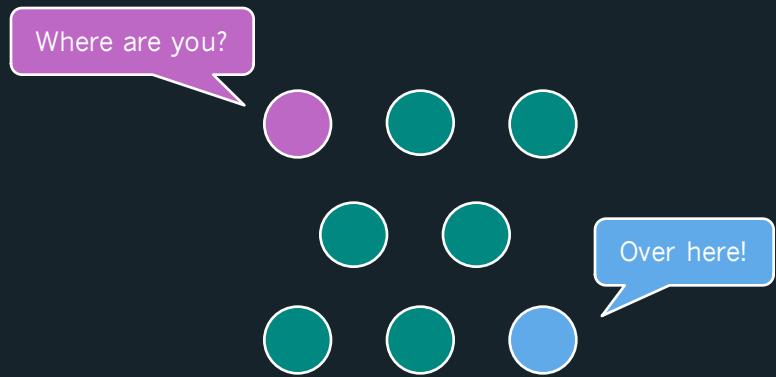
Light Side of the Cloud

- Scalability
- High Availability
- Easier to add new features
- Resilient to component failures
- Easier for new developers to join



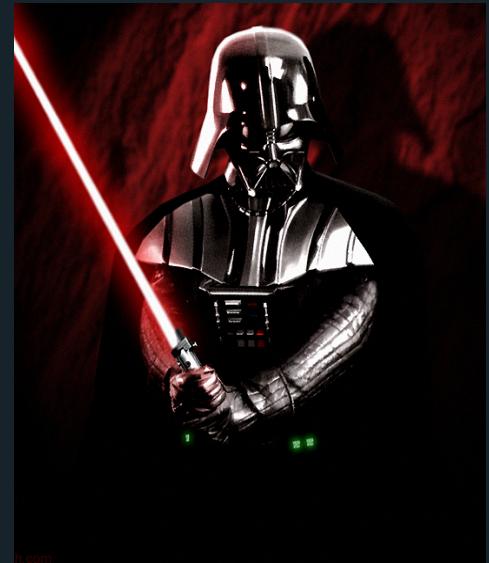
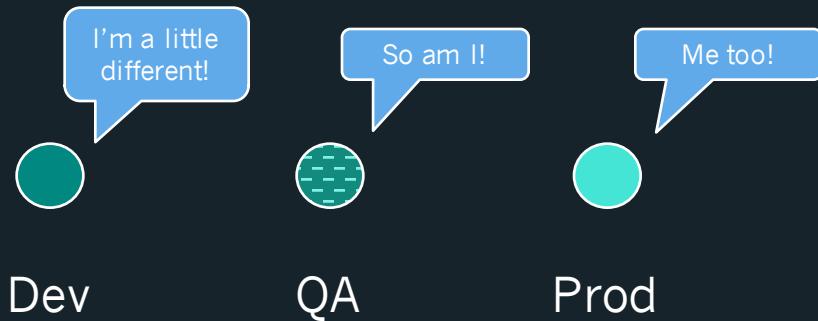
Cloud Native Architectures

Dark Side of the Cloud: Finding Services



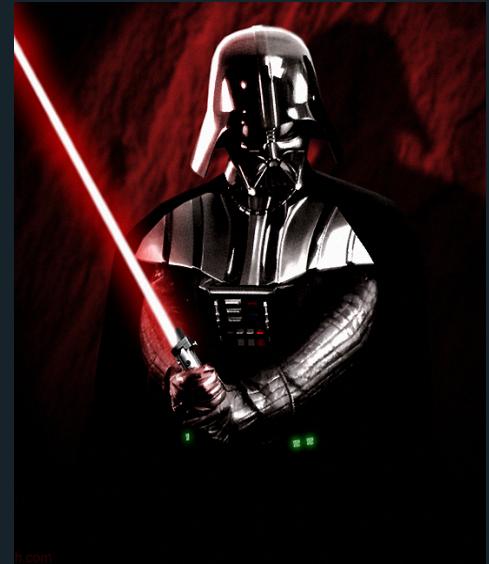
Cloud Native Architectures

Dark Side of the Cloud: Managing Configuration Differences



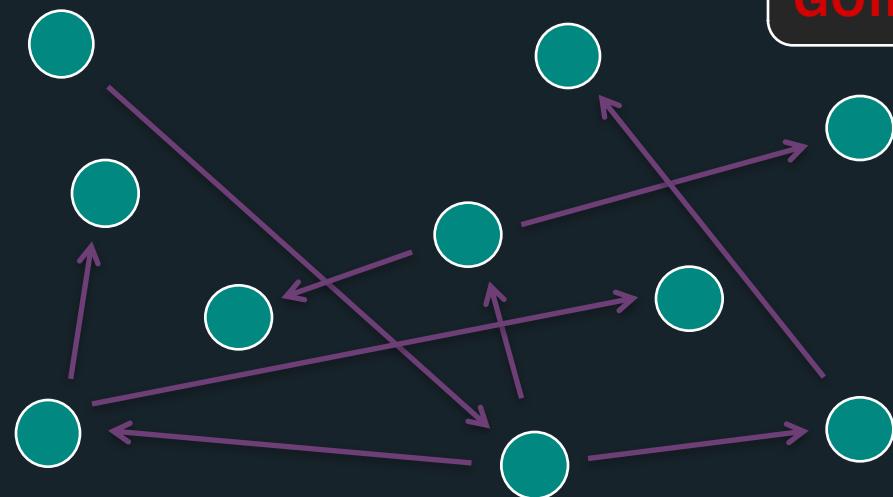
Cloud Native Architectures

Dark Side of the Cloud: Handling Failure

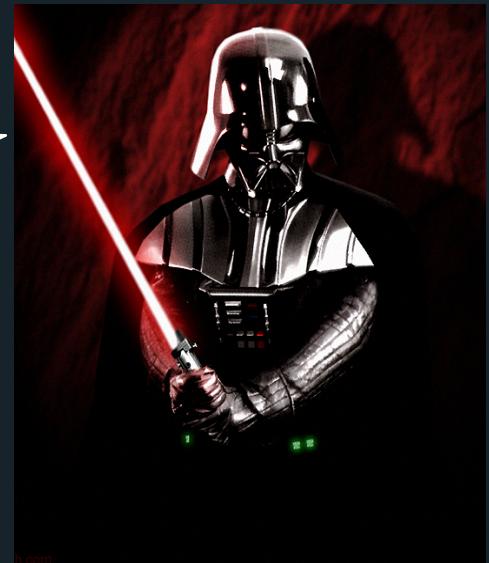


Cloud Native Architectures

Dark Side of the Cloud: Following call graphs

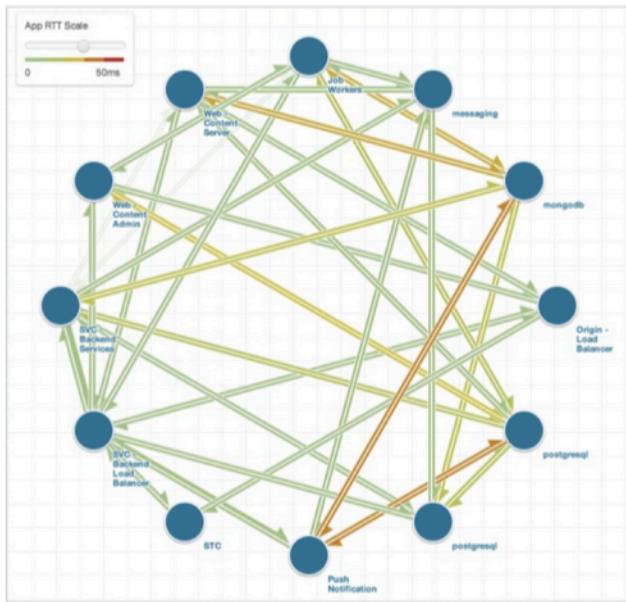


WHAT'S
GOING ON?!?





Netflix



Gilt Groupe (12 of 450)



Twitter

Microservices - Not a free lunch!

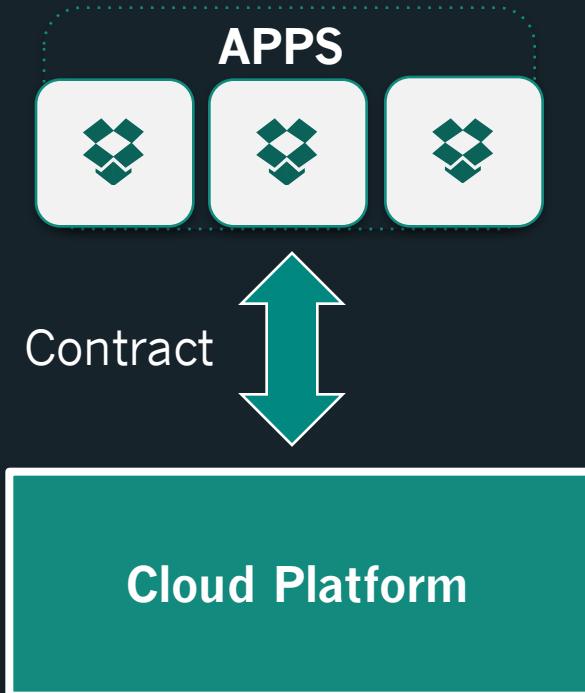
<http://highscalability.com/blog/2014/4/8/microservices-not-a-free-lunch.html>

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Cloud Native Principles

- Principles establish a contract between cloud native apps and the underlying platform
- Cloud native apps recognize they are ephemeral, and minimize dependencies on the underlying platform
- The Twelve-Factor App (<http://12factor.net>) is a popular and important set of principles
- Twelve Factors include Dependencies, Config, Processes, and Disposability



Netflix Cloud Libraries

- Netflix needed to be faster to win / disrupt
- Pioneer and vocal proponent of microservices – the key to their speed and success
- Netflix OSS supplies parts, but it's not a solution



Spring Cloud

- Provides tools for developers to quickly build some of the common patterns in distributed systems
- Quickly stand up services that implement these patterns
- Will work in any distributed environment – your own laptop, bare metal DC's and managed platforms such as Cloud Foundry



Spring Cloud

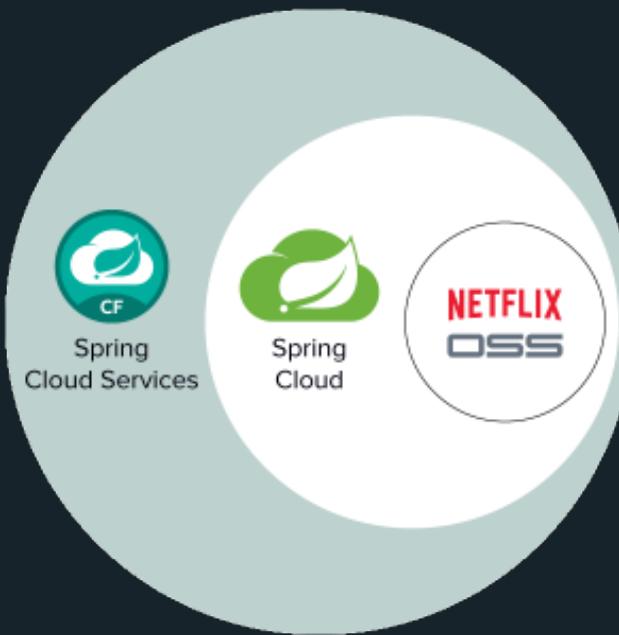
- Additional capabilities include Cloud Connectors
- Brings the Spring philosophy of convention over configuration, opinionated defaults, and developer simplicity



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Spring Cloud Services



Services Marketplace



Circuit Breaker

Circuit Breaker Dashboard for Spring Cloud Applications



Config Server

Config Server for Spring Cloud Applications



Service Registry

Service Registry for Spring Cloud Applications

Pivotal™

Spring Boot Trader

- Reference Application
- Download, Deploy, Run
- <http://tinyurl.com/boot-trader>

The screenshot displays three main sections of the Spring Boot Trader application:

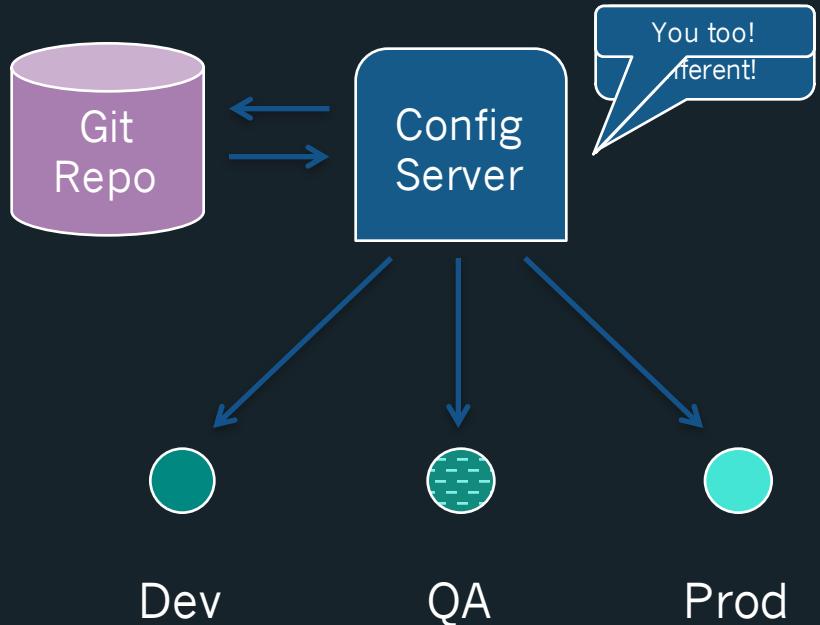
- Portfolio Summary**: A table showing financial metrics. The last two rows are highlighted in yellow and blue respectively.

Portfolio Summary	
Number Of Holdings	3
Current Value of held shares	9,798.94
Total Purchase Value	17,975.50
Total Sold Value	6,797.60
Total Gain/Loss	-1,378.96
Total Cash	988,758.00
- Financial Services**: A table showing stock prices and changes for BK, MS, and C.

Financial Services				
Symbol	Price	Change	High	Low
BK	35.47	-46 ↓	35.9	34.75
MS	25.24	-1.02 ↓	25.77	24.67
C	40.49	-1.45 ↓	41.03	39.44
- User Statistics**: A table showing user information.

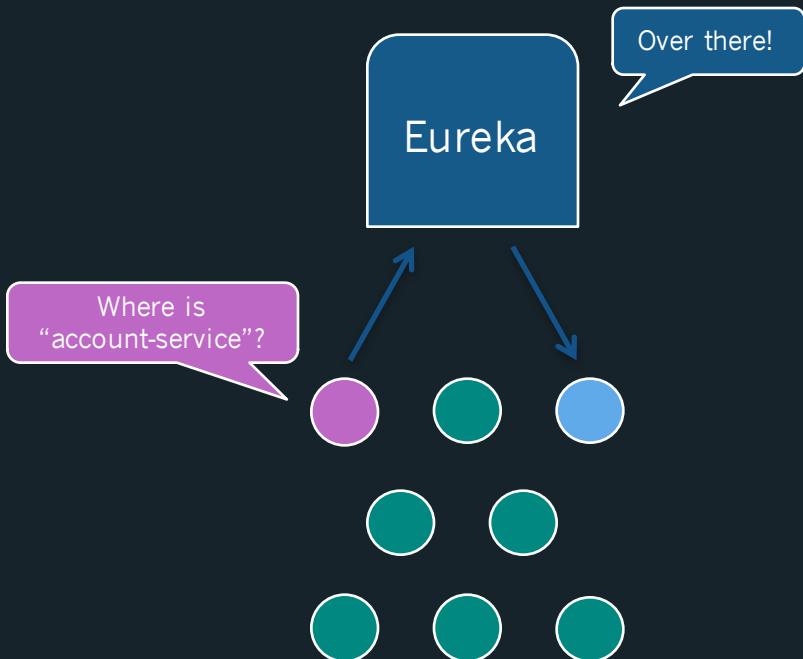
User Statistics	
Full Name	Corby Page
User ID / Email	corby / cepage@gmail.com
Creation Date	Tue Nov 17 12:57:00 UTC 2015
Total Logins	14
Session Creation Date	Wed Jan 20 21:23:00 UTC 2016
Open Balance	1,000,000.00

Config Server



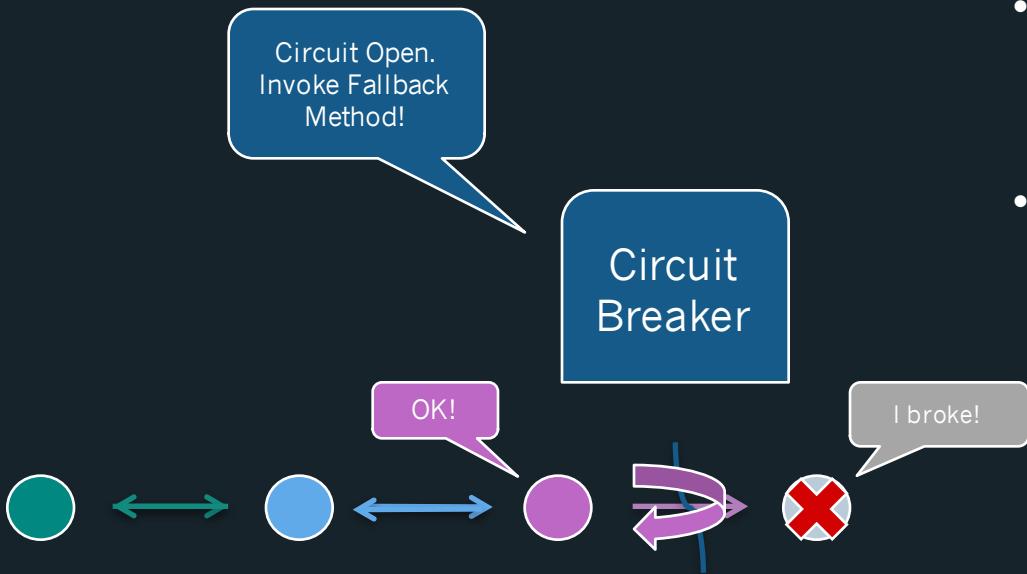
- Local or remote Git repositories
- Configuration specified by environment, service, or system

Service Registry



- Uses Service IDs, not URLs, to locate services
- Client-side or server-side load balancing

Circuit Breaker



- Safe fallback limits liability of failure
- Smart throttling reduces invocation of failed services

Spring Cloud Services

- Battle-tested Infrastructure, Out of the Box
- Highly available, Enterprise-class implementations
- Integrated with the logging, monitoring, and administration capabilities of Pivotal Cloud Foundry
- <http://docs.pivotal.io/spring-cloud-services/>



Pivotal.

Open.
Agile.
Cloud-Ready.

