

**SpringOne Platform**

by Pivotal

# Beginner's Guide To Spring Cloud

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By Ryan Baxter

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# Nice To Meet You



- Rookie engineer on the Spring Cloud team
- Father, Husband, OCR Athlete
- Get In Touch
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# Agenda

- Spring Cloud Background
- Key Projects
- Getting Down and Dirty With Spring Cloud
- Questions?

# Survey Time



# Anyone Know This Guy?



# Why Spring Cloud?

- In general, cloud native apps are a good thing, just not easy
- It is easy for big companies to put forth the resources to succeed with Cloud Native, but what about the little guys?
- Why do we have to reinvent the wheel each time someone wants to build a Cloud Native app?
- Follow the Spring Boot model of providing useful defaults for Cloud Native apps with the ability to easily configure them
- Cloud Agnostic

# Spring Cloud Components

Configuration

Service  
Discovery

Circuit  
Breakers

Routing and  
Messaging

API Gateway

Tracing

CI Pipelines  
and Testing

# Yes There Are More

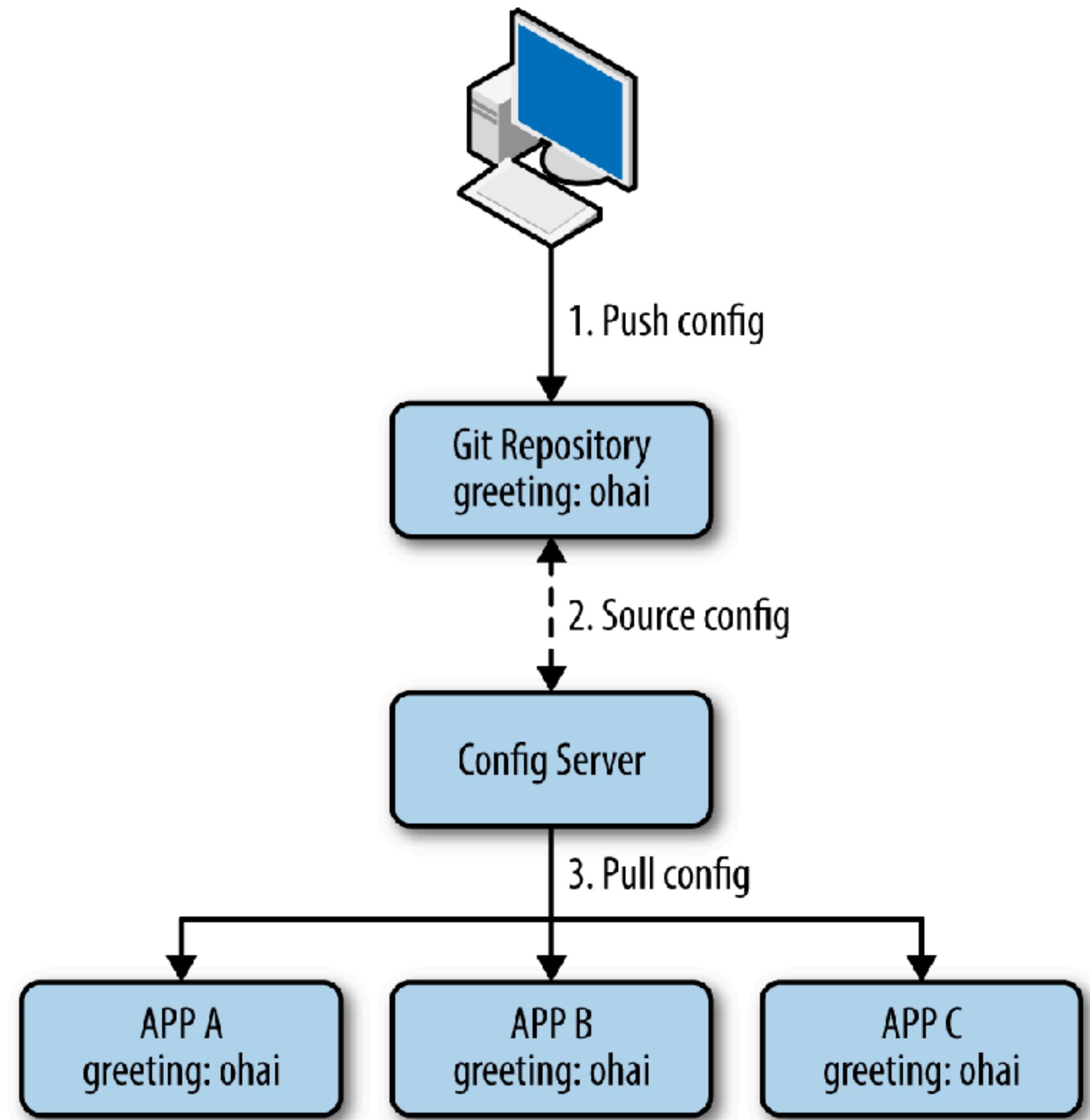


- Spring Cloud Bus
  - Spring Cloud Stream
  - Spring Cloud Data and Task
  - Spring Cloud AWS

....and more

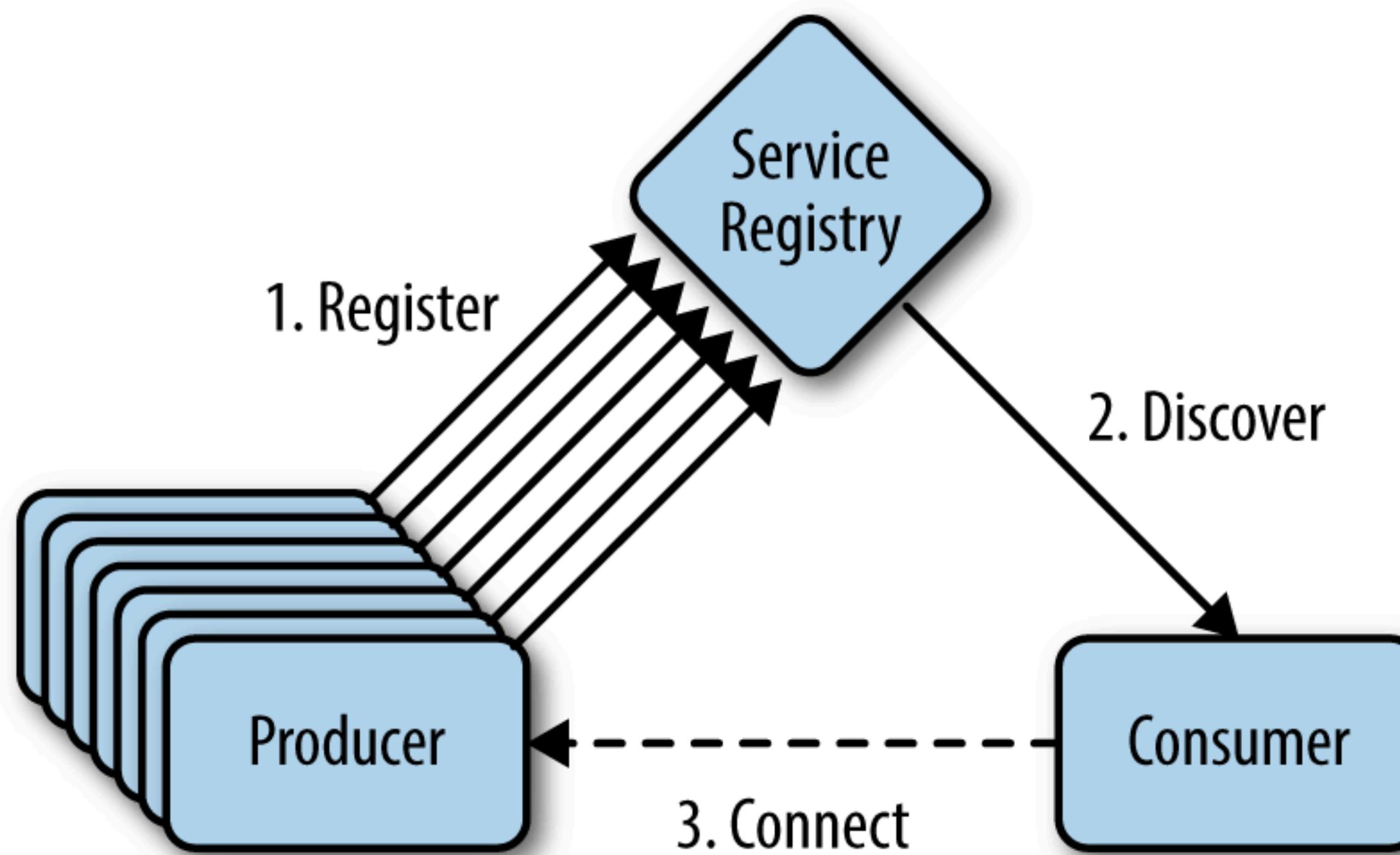
# Configuration

- We want to remove the configuration out of the application to a centralized store across all environments
- Spring cloud Config Server can use Git, SVN, filesystem and Vault to store config
- Config clients (microservice apps) retrieve the configuration from the server on startup
  - Can be notified of changes and process changes in a refresh event



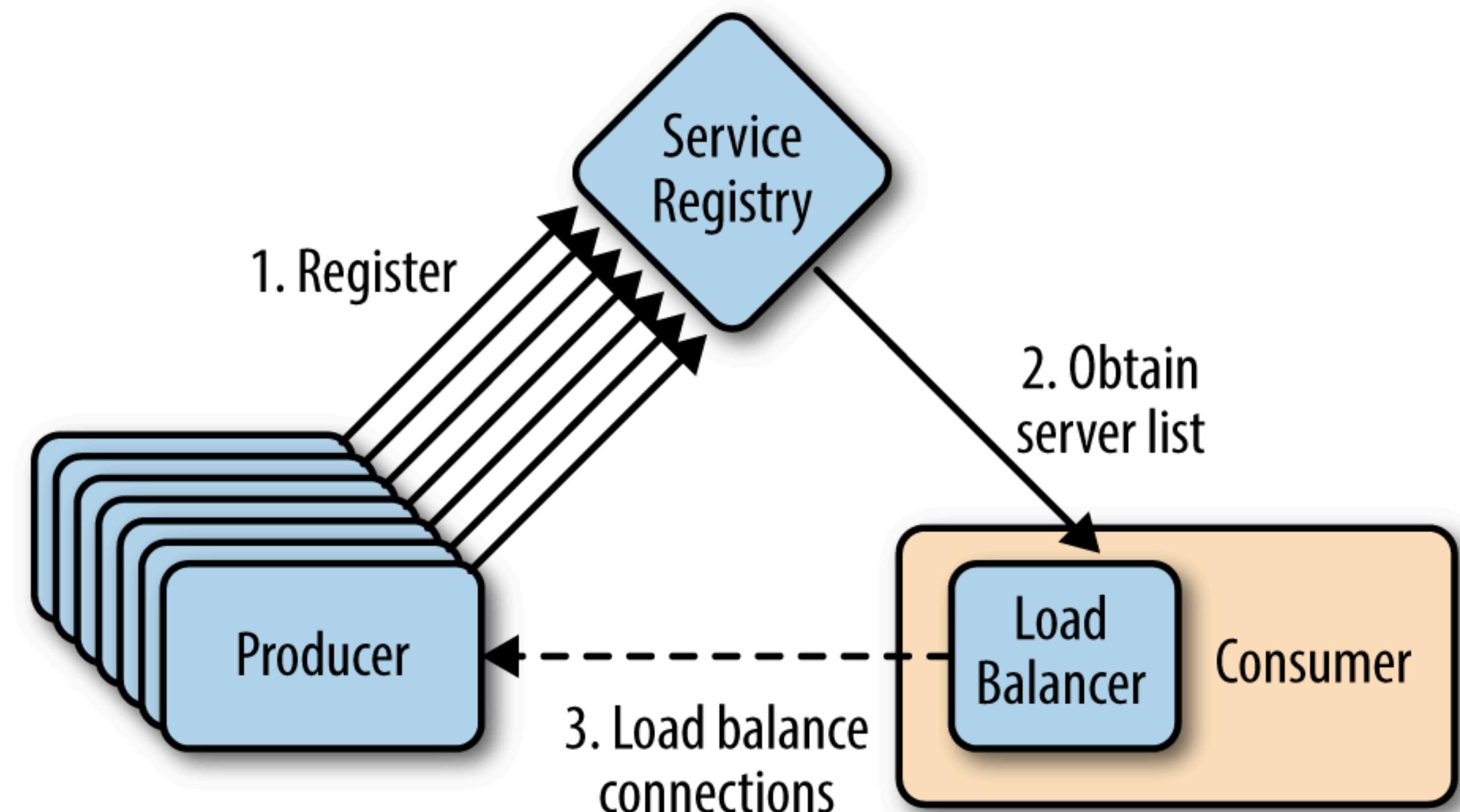
# Service Discovery

- With the dynamic nature of any cloud native application, depending on things like URLs can be problematic
- Service Discovery allows micro services to easily discover the routes to the services it needs to use
- Netflix Eureka
- Zookeeper
- Consul



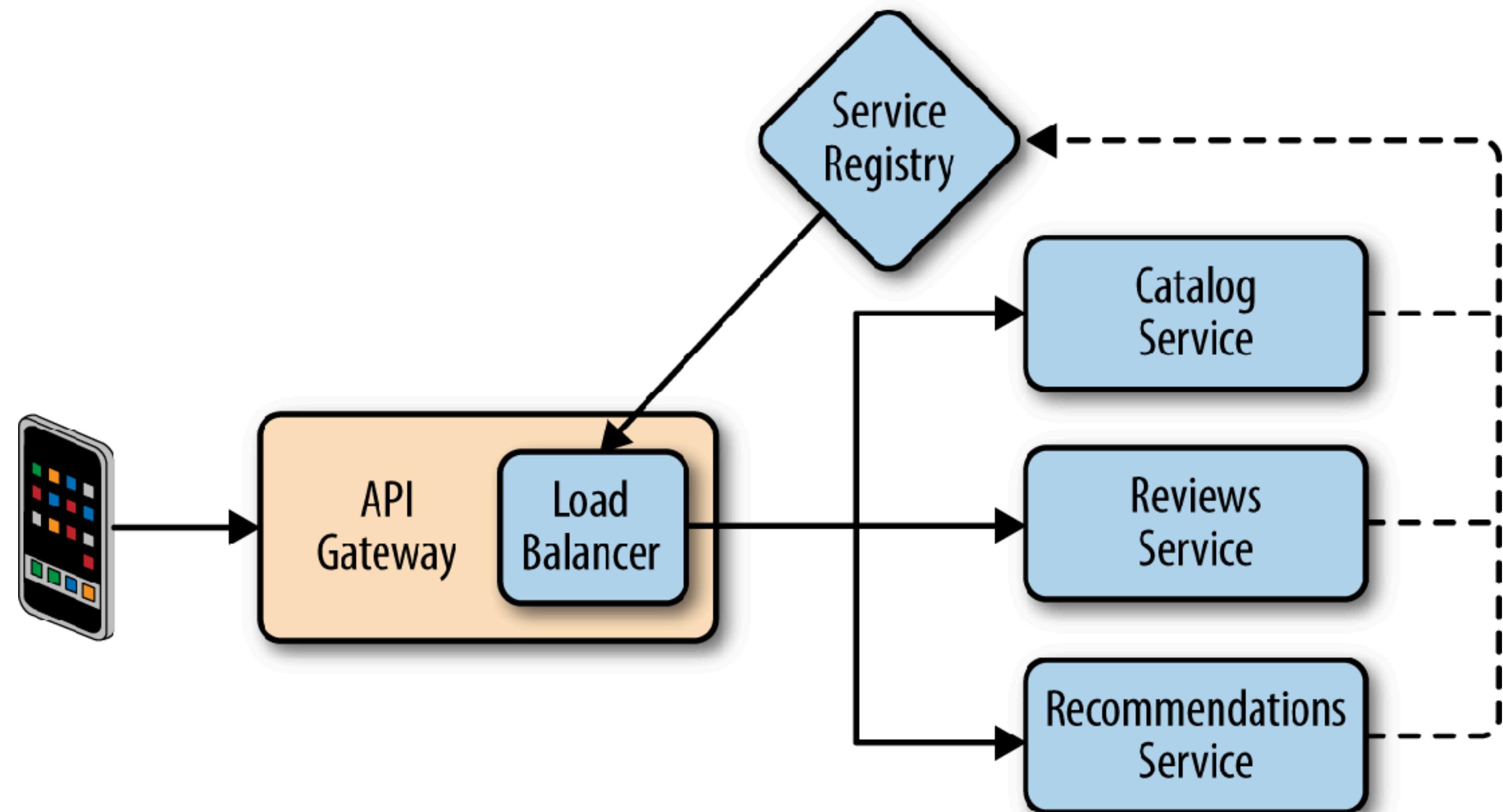
# Routing and Messaging

- Your cloud native app will be composed of many microservices so communication will be critical
- Spring Cloud supports communication via HTTP requests or via messaging
- Routing and Load Balancing:
  - Netflix Ribbon and Open Feign
- Messaging:
  - RabbitMQ or Kafka



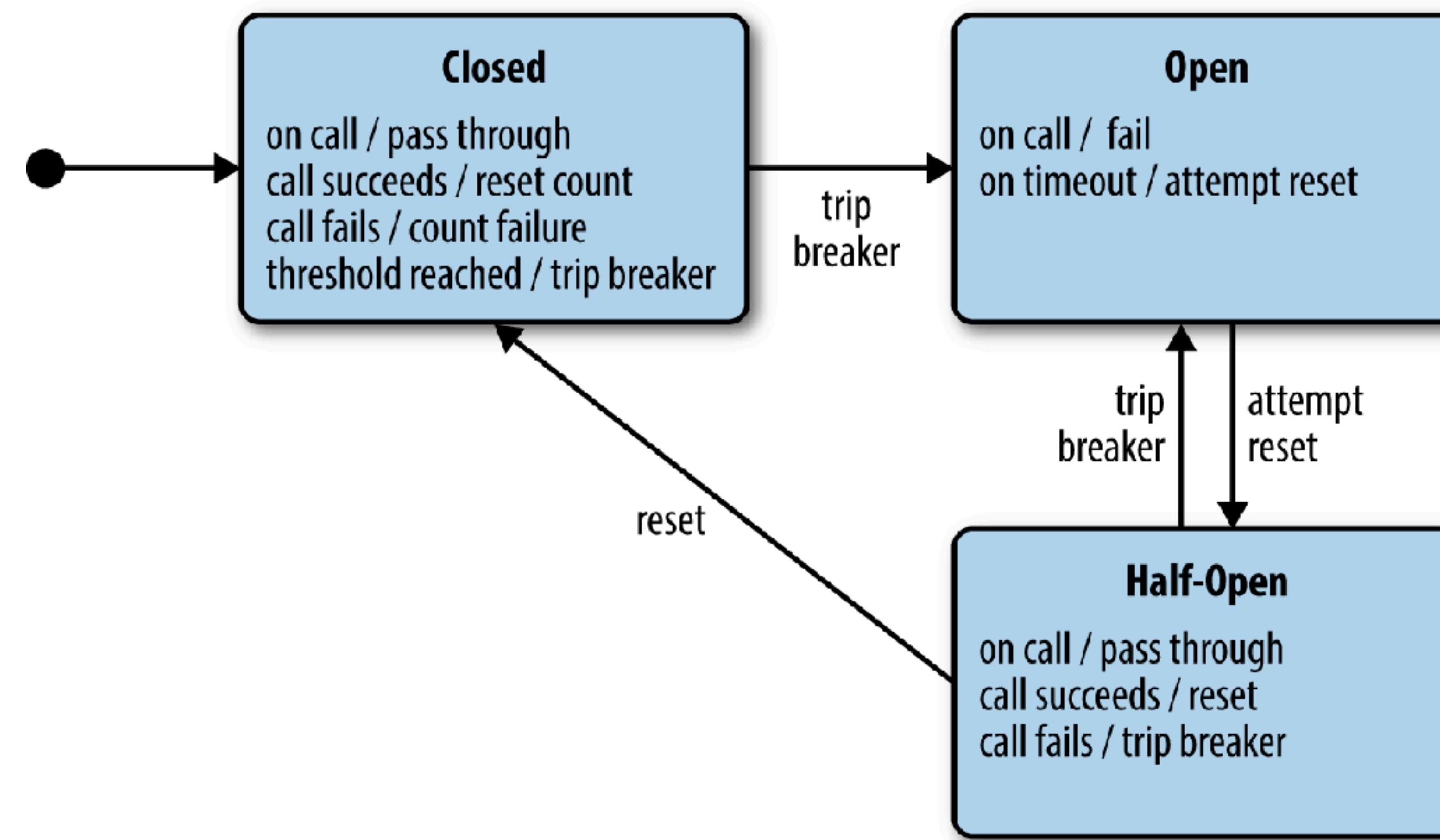
# API Gateway

- API Gateways allow you to route API requests (internal or external) to the correct service
- Netflix Zuul
  - Leverages service discovery and load balancer
- Spring Cloud Gateway



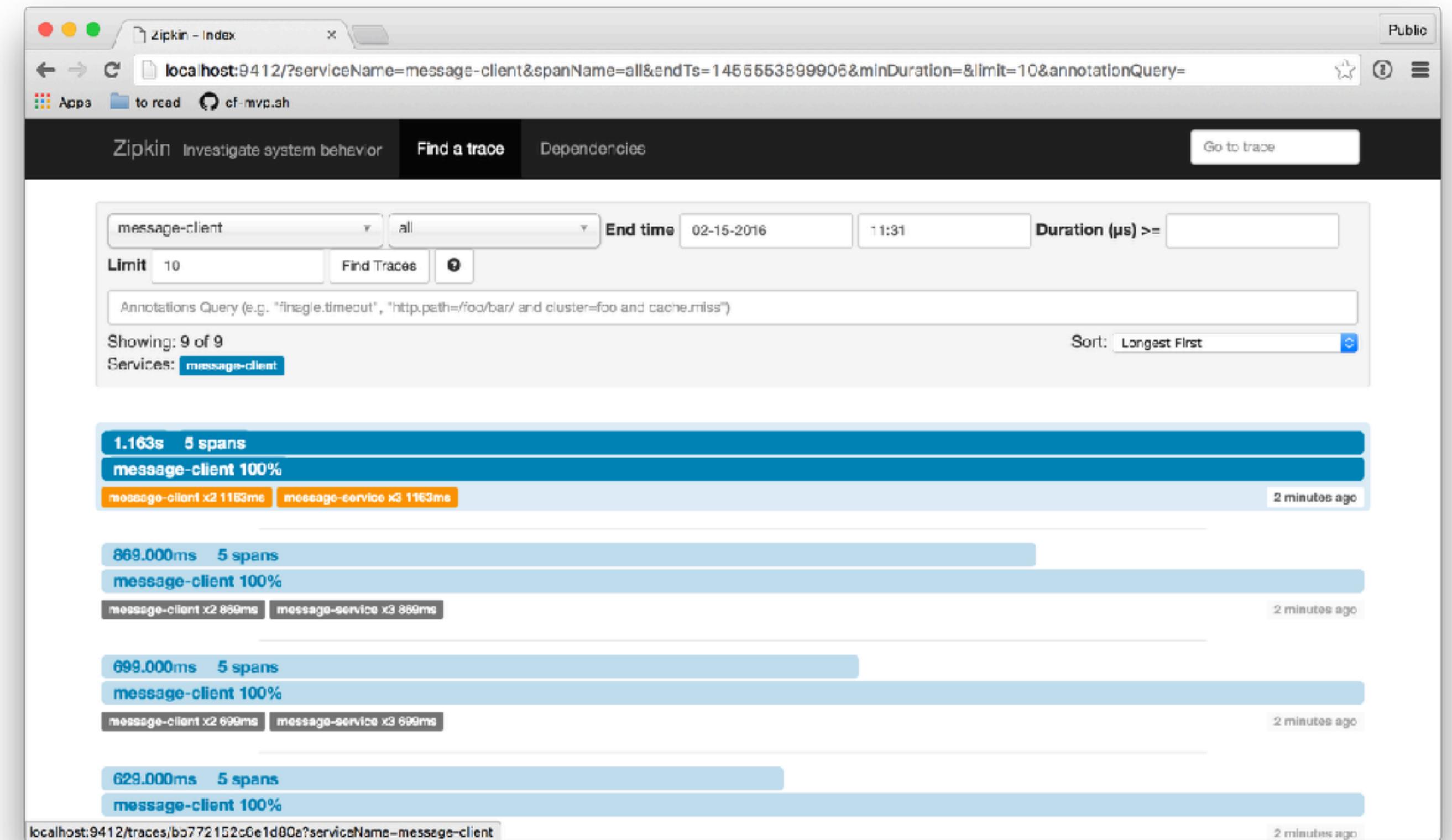
# Circuit Breakers

- Failure is inevitable, but your user's don't need to know
- Circuit breakers can help an application function in the face of failure
- Netflix Hystrix



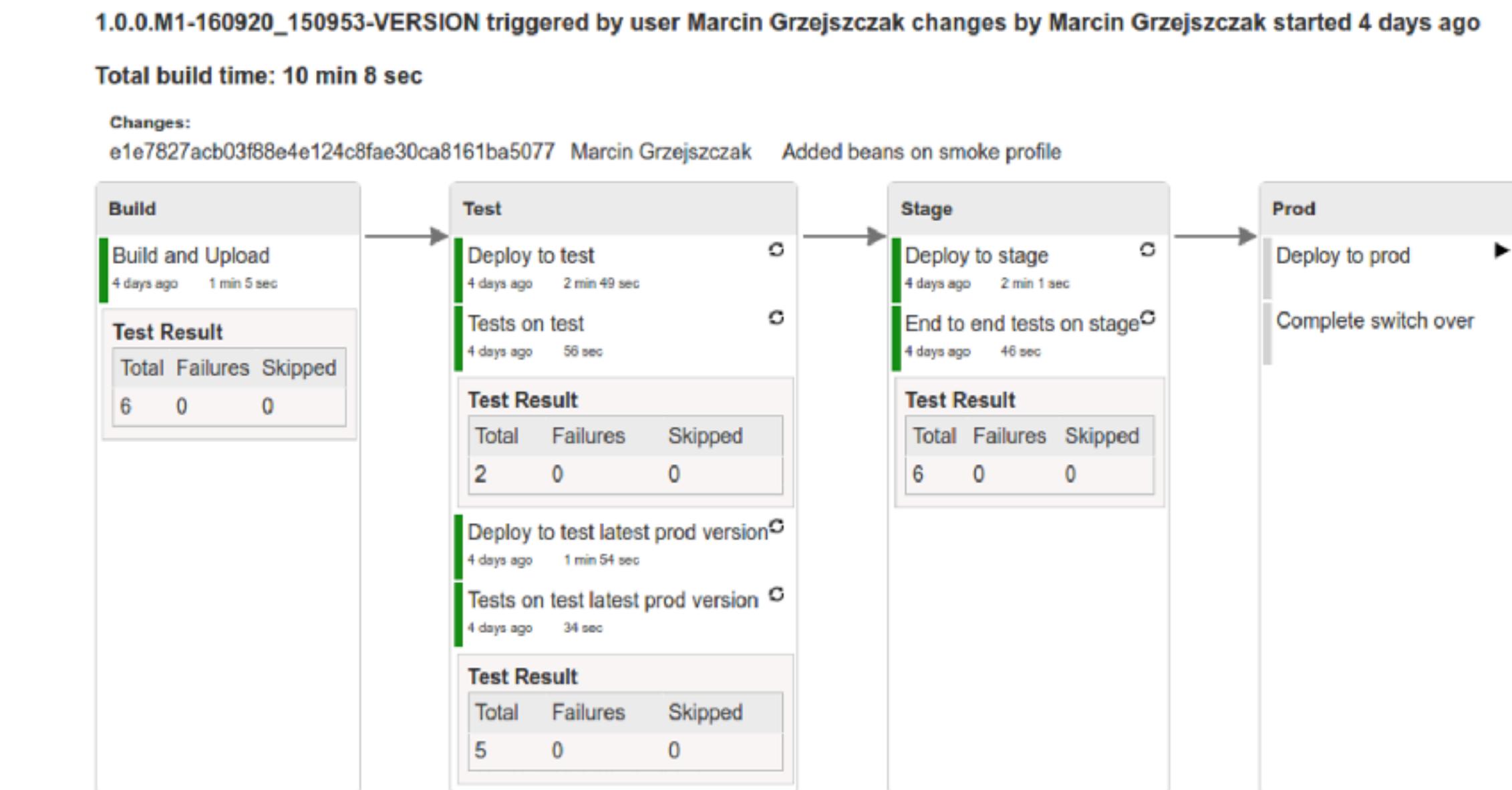
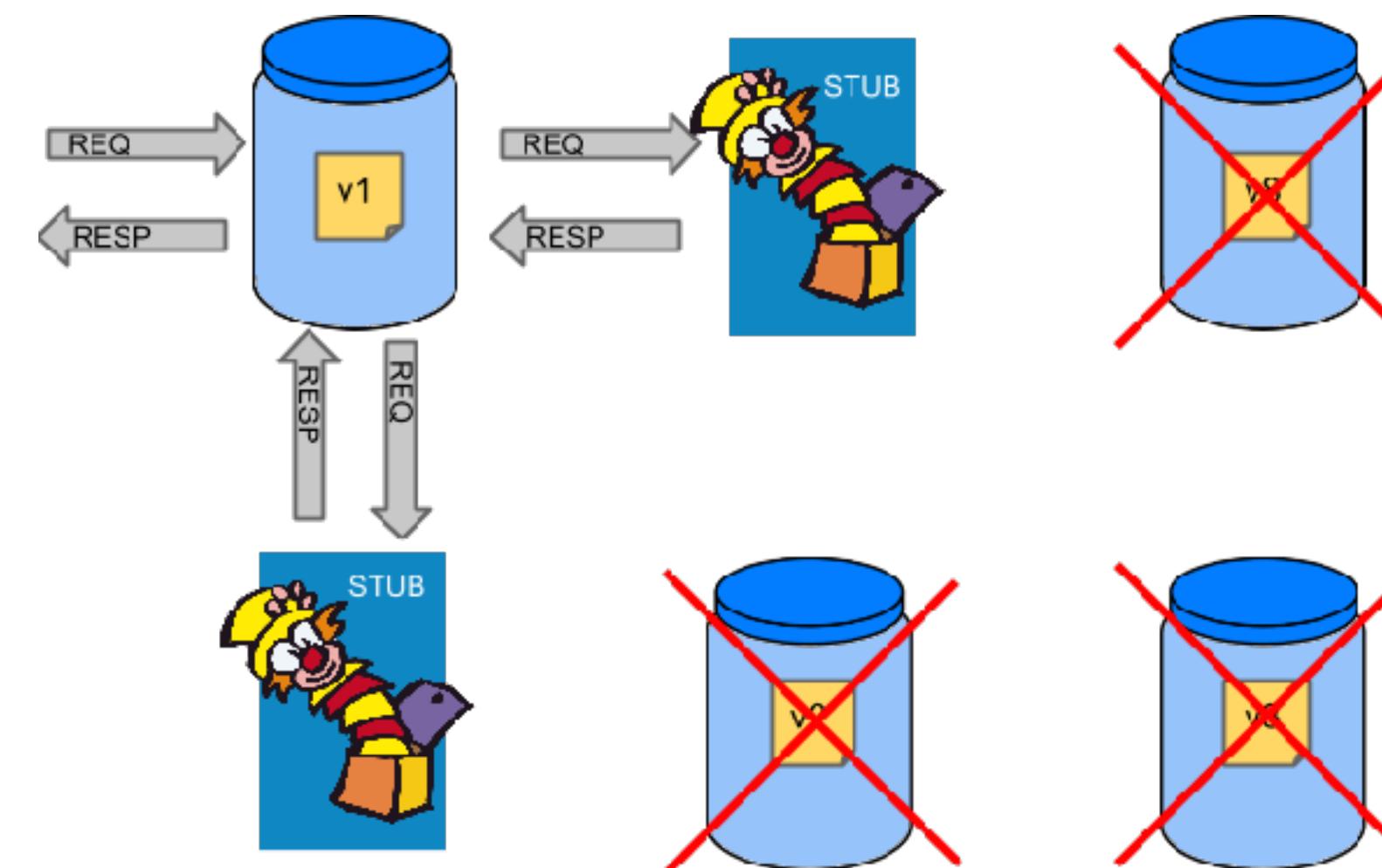
# Tracing

- A single request to get data from your application may result in an exponentially larger number of requests to various microservices
- Tracing these requests through the application is critical when debugging issues
- Spring Cloud Sleuth and Zipkin



# CI Pipelines and Testing

- Building, testing, and deploying the various services is critical to having a successful cloud native application
- Spring Cloud Pipelines is an opinionated pipeline for Jenkins or Concourse that will automatically create pipelines for your apps
- Spring Cloud Contract allows you to accurately mock dependencies between services using published contracts



# DEMO

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# Learn More. Stay Connected.

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**12/5**

Spring Cloud Gateway - 4:20-5:30

**12/6**

Continuous Deployment to the Cloud - 2:30 - 3:10

**12/7**

Consumer Driven Contracts and Your Microservice Architecture 10:30-11:40

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