

Pivotal

# Cloud Native Architectures

## Spring Cloud Netflix & SteelToe

# Microservice: benefits



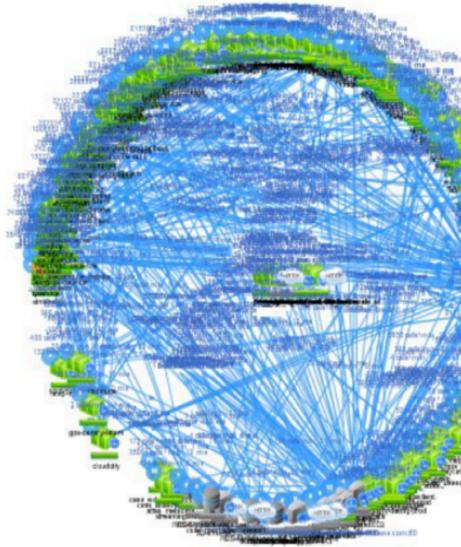
- Change cycles are decoupled: Enabling frequent deploys
- Allow for efficient and independent scaling
- Developers learn a smaller codebase faster
- Better coordination and scaling of development: Fewer developers in each code base
- Eliminate long-term commitment to technical stack

BUT ...

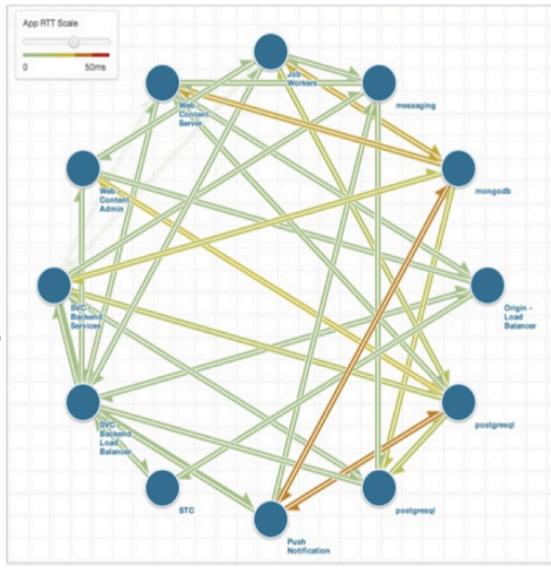
# Challenges in a Distributed System

- Configuration management
- Registration and discovery
- Routing and load balancing
- Fault tolerance and isolation
- Aggregation and transformation
- Monitoring and distributed tracing
- Process management

# Microservice pioneers



*Netflix*



*Gilt Groupe (12 of 450)*



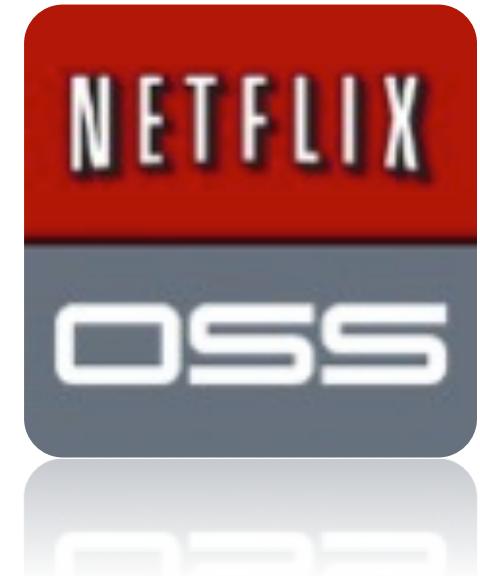
*Twitter*



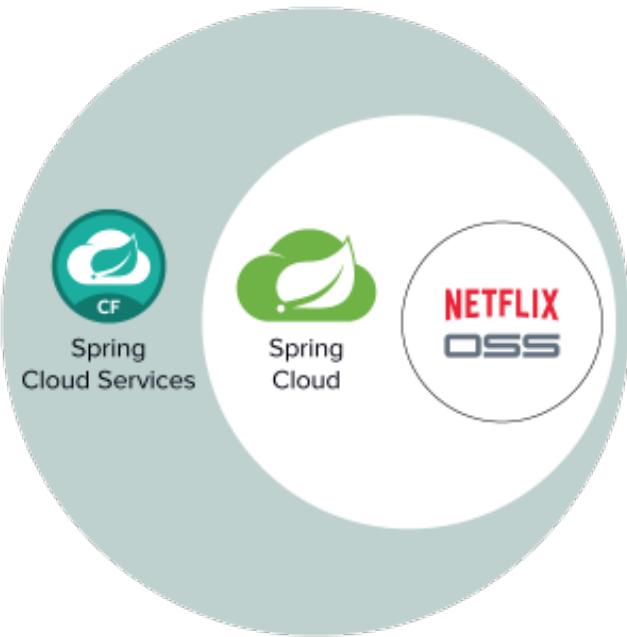
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# Netflix Cloud Libraries

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



# Spring Cloud - Spring Cloud Services



- Operationalizes Spring Cloud in your deployment environment
- Provisions highly available infrastructure (messaging, databases) to support Spring Cloud deployments
- Adds key security features, including OAuth support, required for enterprise deployment of Spring Cloud

# Spring Cloud Netflix for .NET: Project STEELTOE



<http://steeltoe.io/>



Enterprise-ready .NET toolkit for common microservices patterns

## Breaking the Monolith

- Project Steeltoe contains best of breed components around configuration, service discovery, and soon, distributed tracing from NetflixOSS and Spring Cloud Services.
- These can be used to evolve an infrastructure from a monolithic application to a set of microservices.

## Write Once, Scale Anywhere

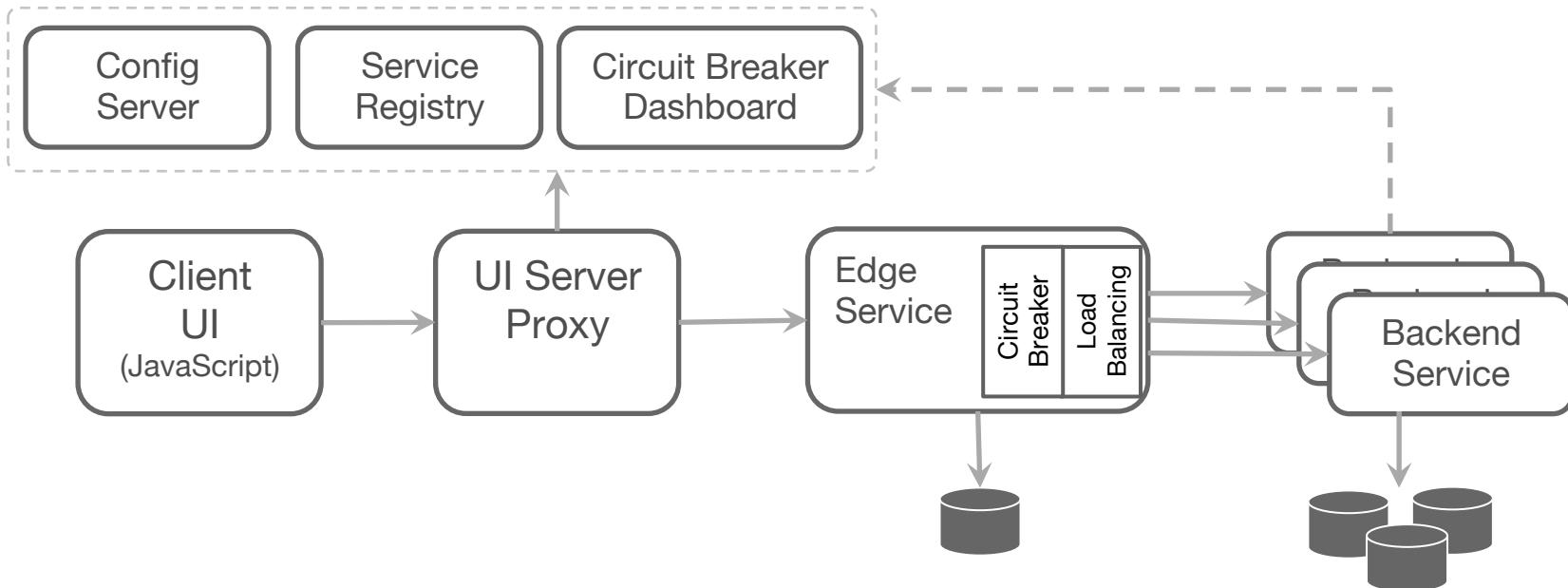
- Project Steeltoe is built to work especially well with platforms like Pivotal Cloud Foundry. It also integrates seamlessly with Java microservices written with Spring Cloud, allowing for true polygot architecture.

# What would be better? The future!

## Steeltoe

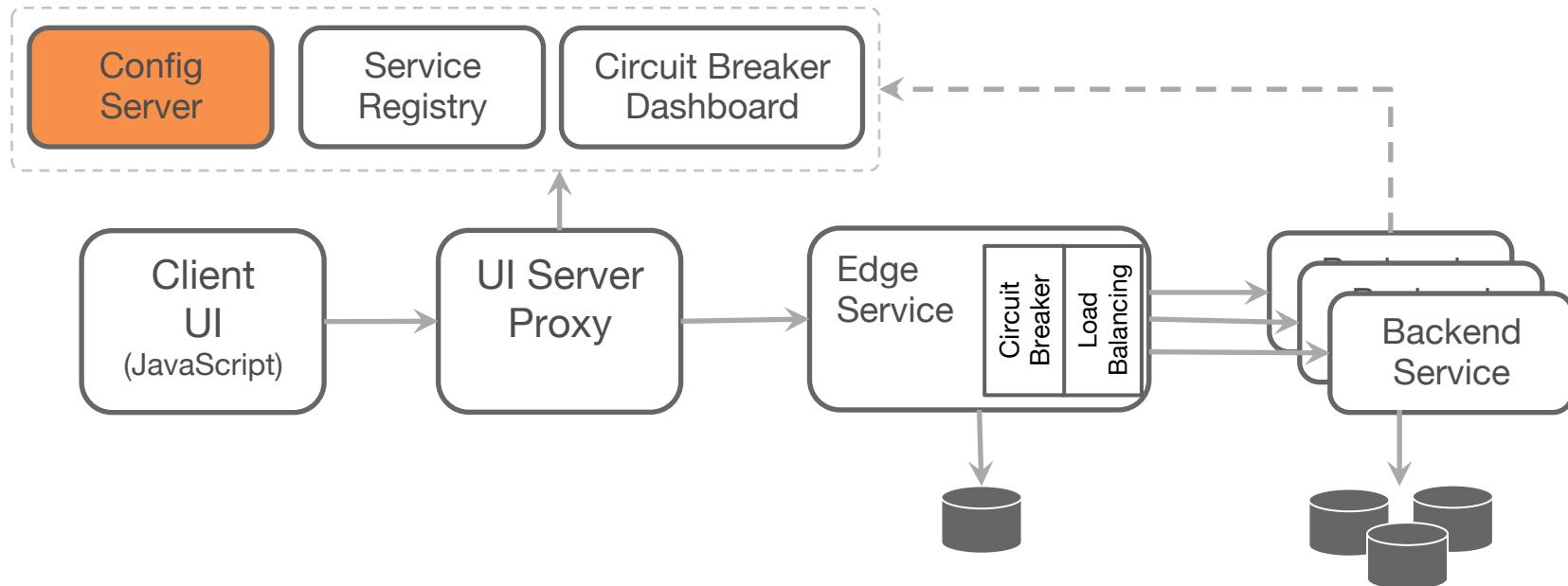
- Spring Cloud clients for ASP.NET and ASP.NET Core
  - Spring Cloud Config Server
  - Service Discovery with Eureka
  - Spring Cloud Connectors
  - Works with OSS or Spring Cloud Services
  - Open Source!
- Spring Cloud Connectors
  - SQL Server + EF6 (Windows / Greenhouse)
  - mySQL
  - Redis
  - RabbitMQ
  - PostgreSQL

# Design Patterns & Automation to the Rescue!



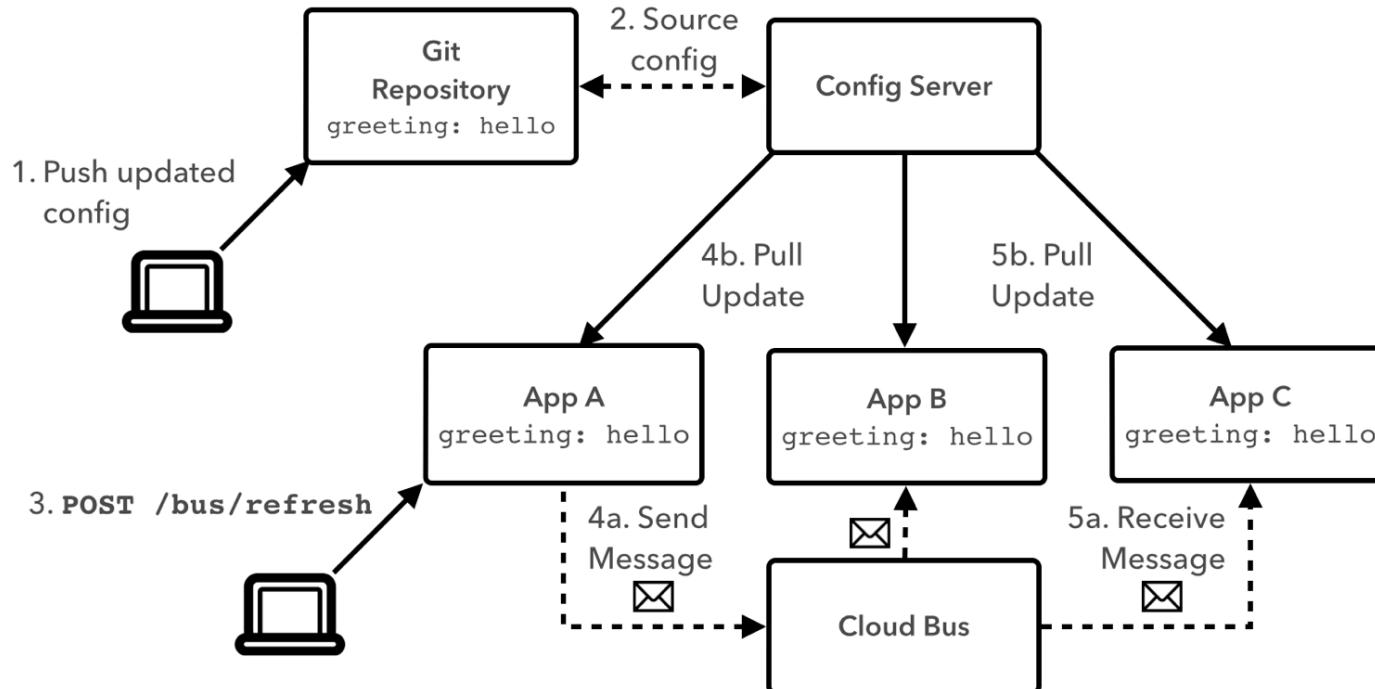
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# Configuration Management

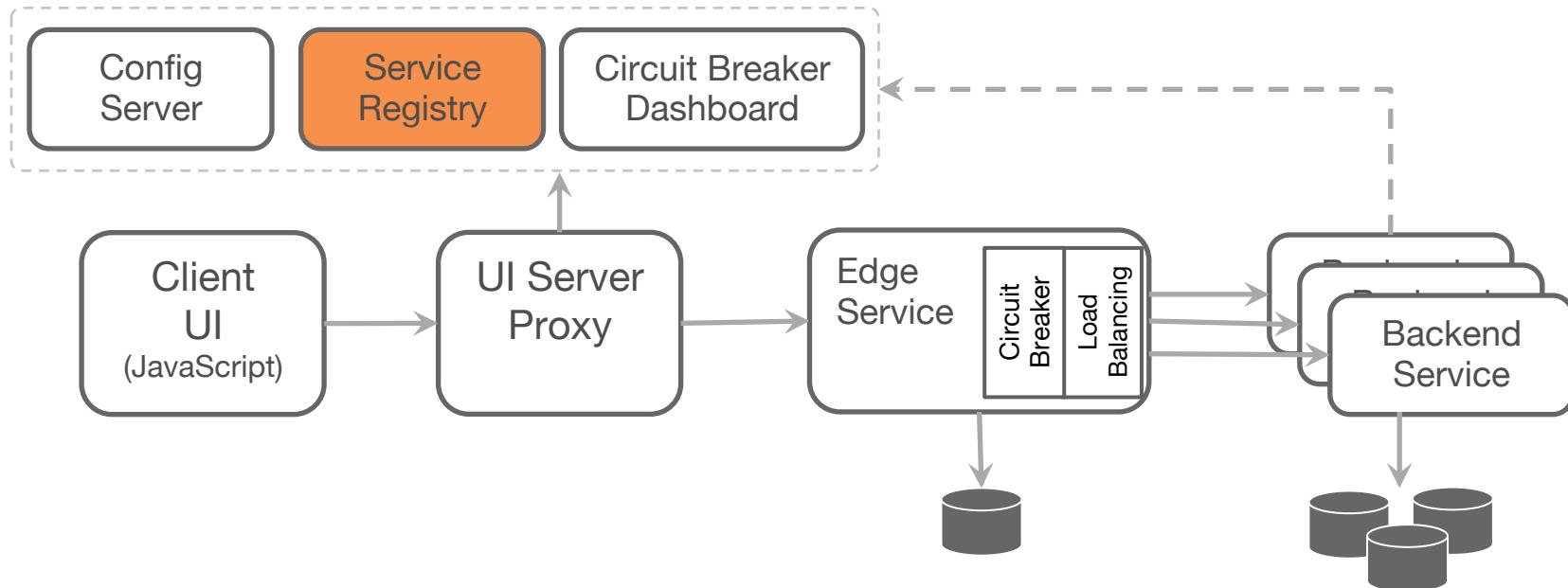


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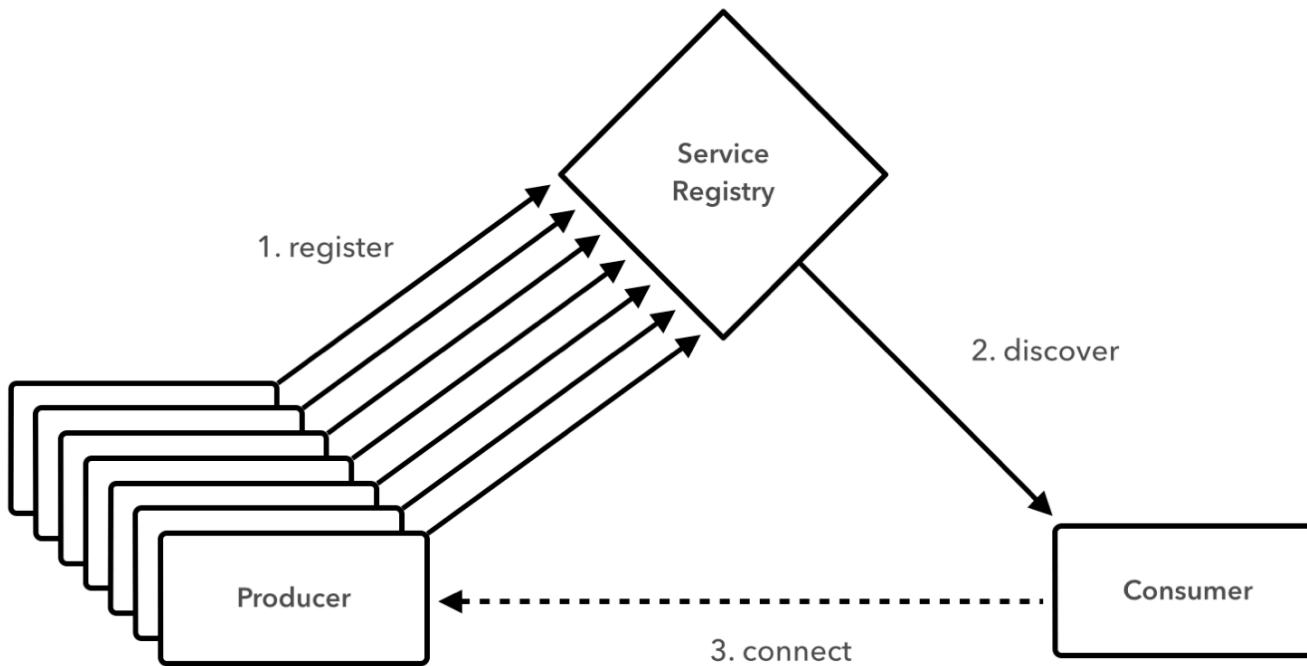
# Configuration Server



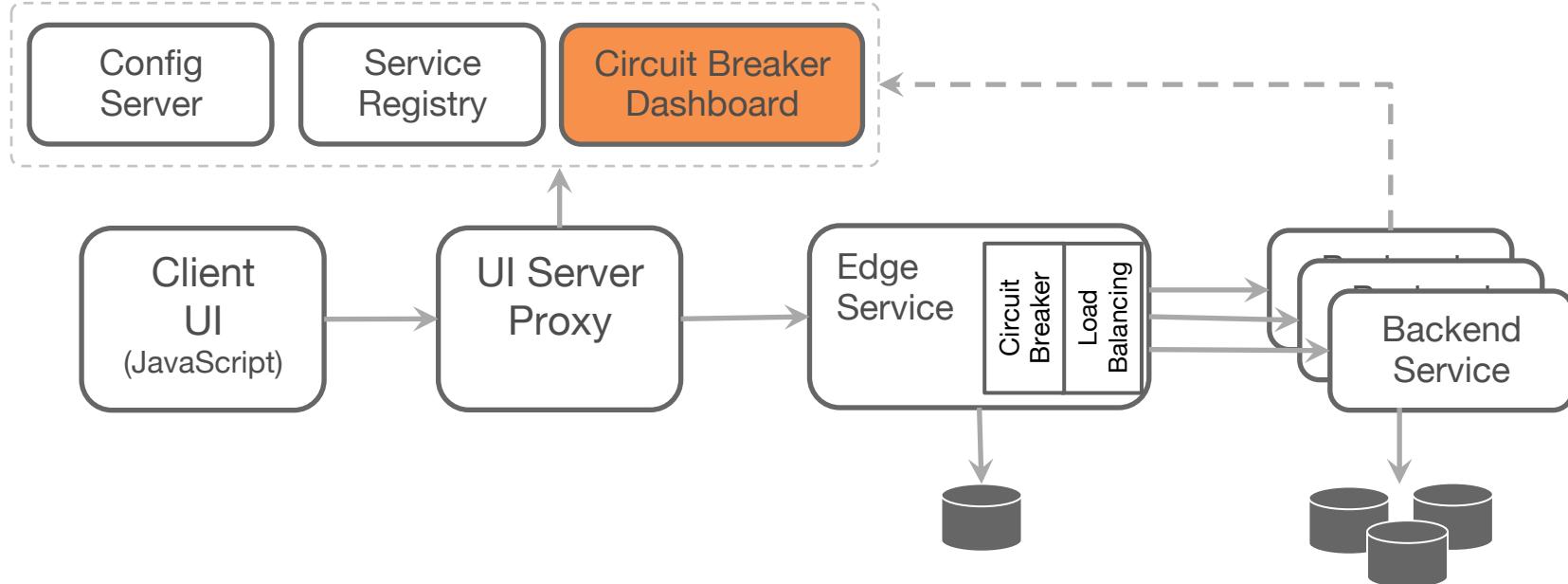
# Registration and Discovery



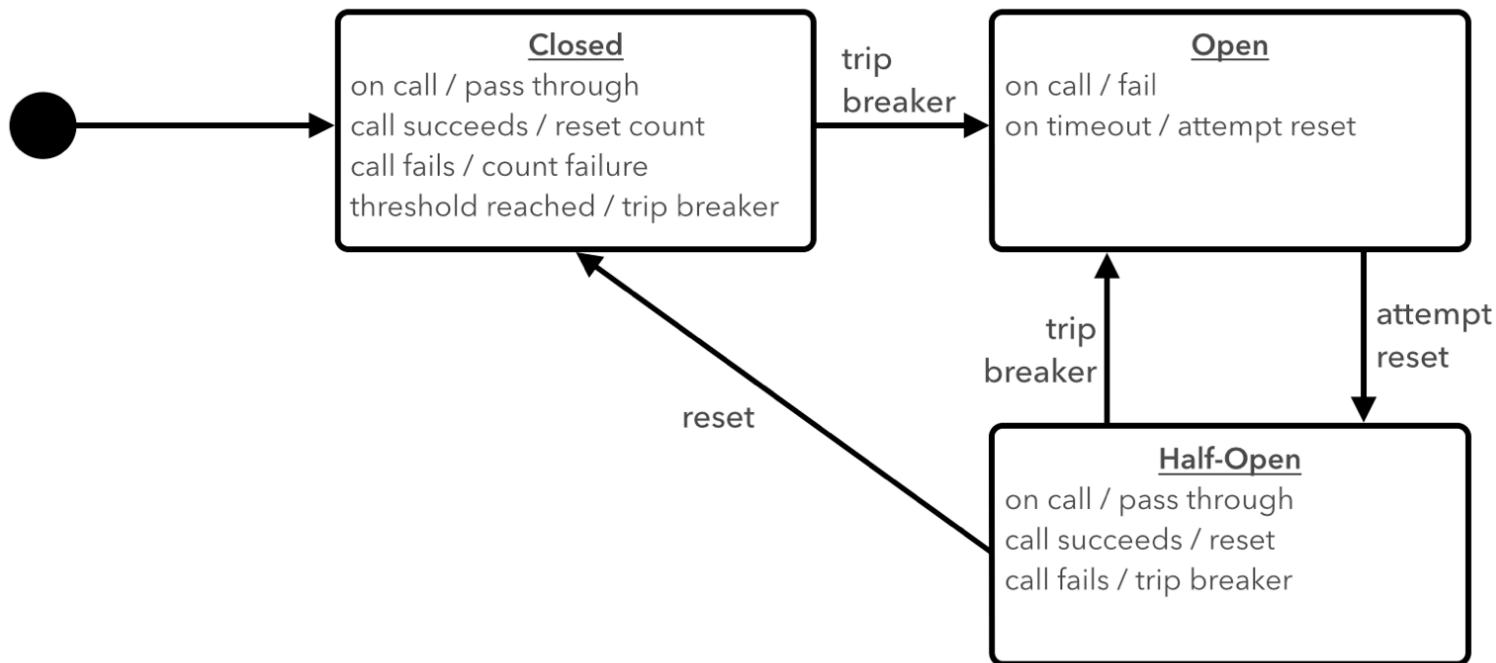
# Registration and Discovery Server



# Fault Tolerance and Isolation



# Circuit Breaker



A black and white photograph of two men in an office environment. One man, wearing a striped shirt, is seated at a desk looking down at a laptop. The other man, wearing a t-shirt, stands beside him, also looking at the screen. In the background, another person is visible working at a computer. The overall atmosphere is professional and focused.

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Thank You!