2020-06-11 Cloud Native Architecture

Introduction

Cloud-native architecture is the design or plan for applications and services built specifically to exist in the **cloud**. Most resources emphasize the role of microservices in **cloud-native architecture**

Ribbon

Netflix Ribbon is an Inter Process Communication (IPC) cloud library. Ribbon primarily provides client-side load balancing algorithms.

Apart from the client-side load balancing algorithms, Ribbon provides also other features:

- **Service Discovery Integration** – Ribbon load balancers provide service discovery in dynamic environments like a cloud. Integration with Eureka and Netflix service discovery component is included in the ribbon library
- **Fault Tolerance** – the Ribbon API can dynamically determine whether the servers are up and running in a live environment and can detect those servers that are down
- **Configurable load-balancing rules** – Ribbon supports *RoundRobinRule*, *AvailabilityFilteringRule*, *WeightedResponseTimeRule* out of the box and also supports defining custom rules

Ribbon API works based on the concept called "Named Client". While configuring Ribbon in our application configuration file we provide a name for the list of servers included for the load balancing.

Note: Internally, Zuul uses Netflix Ribbon to look up for all instances of the service from the service discovery (Eureka Server). 💡

Websocket Usage

Zuul routing gateway is capable route the socket connection via service name. As an example
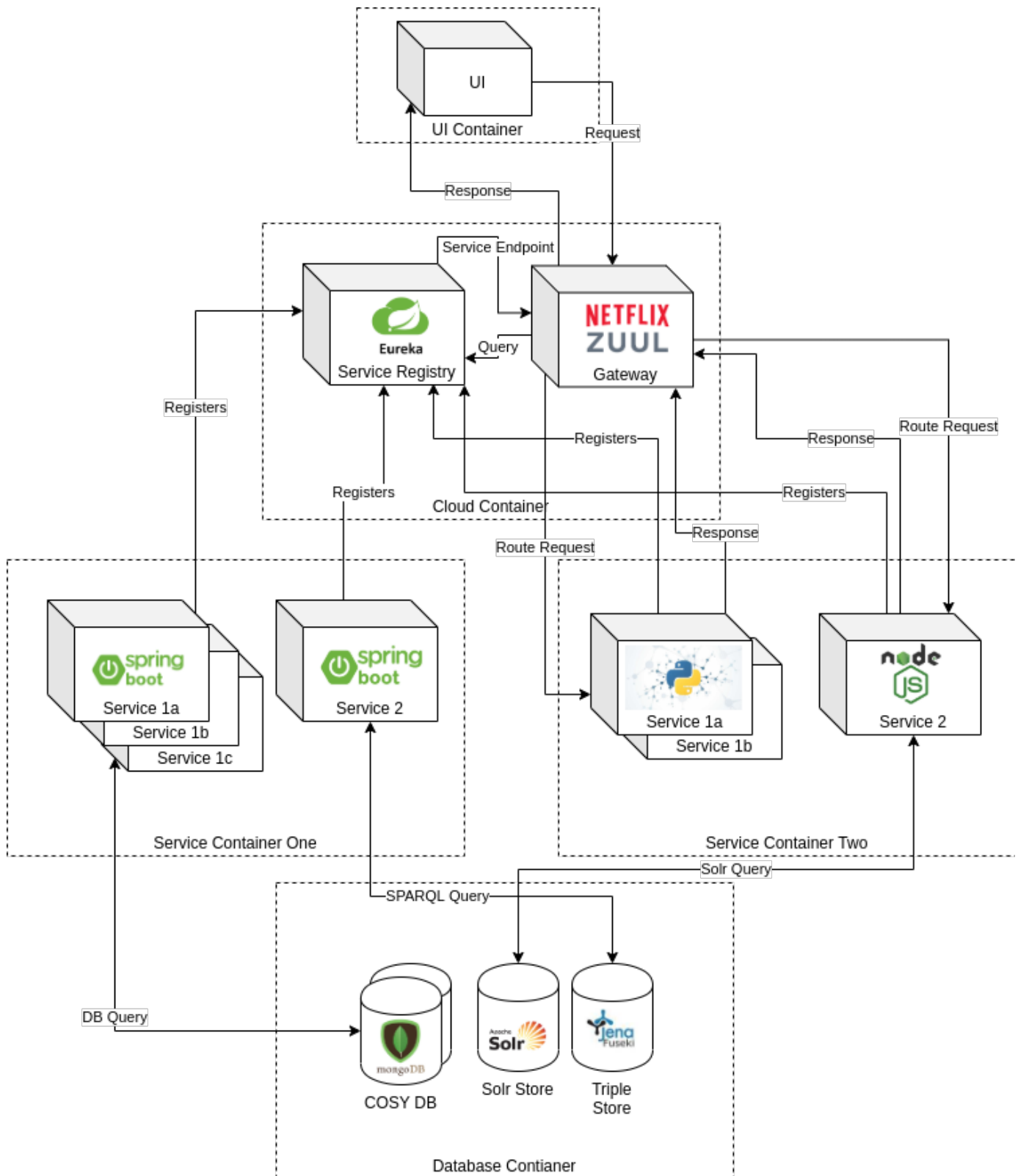
If application name : `transform-service` and websocket configured as `/transform`

If zuul is configured in port `8766` then socket client connection uri would be `http://localhost:8766/transform-service/transform`

The websocket communication works out of the box.

Architecture Designs

Option 1

Open Questions

- Basic Building Blocks and feature
  - Eureka @ Zamir Mammadov , Zuul @ Khaled Abumosallem , Hystrix @ Alexander Naumenko , Ribbon @ Sankha Sil ,
    Actuator @ Timon Färber , Configuration @ Tibor Csötönyi (Unlicensed)

- Differences between K8s and non-K8s on Native Cloud
  - Is it possible to work in both.
- Possible Integration Scenarios
  - Simple vs Ultimate
- How to Integrate SSO in Proxy
- Websockets usage ✅
- Service Dashboard examples
- Example code