ABC Airline

Web ←→ http(s) ←→ **GUI(AngularJS)**

Mobile Apps ←→ http(s) ←→ **GUI(AngularJS)**

GUI(AngularJS) ←→ http(s) ←→ **API Gateway**

Key cloak-IAM-Security

Management → Service Discovery

API Gateway → Flight Service, Partner Service, Email/SMS micro Service, Booking Service, Ticket Service

Flight Service ←→ Partner Service ←→ Email/SMS micro Service ←→ Booking Service ←→ Ticket Service

Flight Service ←→ Flight Service DB Instance

Partner Service ←→ Partner DB Instance

Email/SMS micro Service → SMPP protocol — Email Notification → Remote Service SMSC

Booking Service ←→ Booking Database

Booking Database ←→ Ticket Database
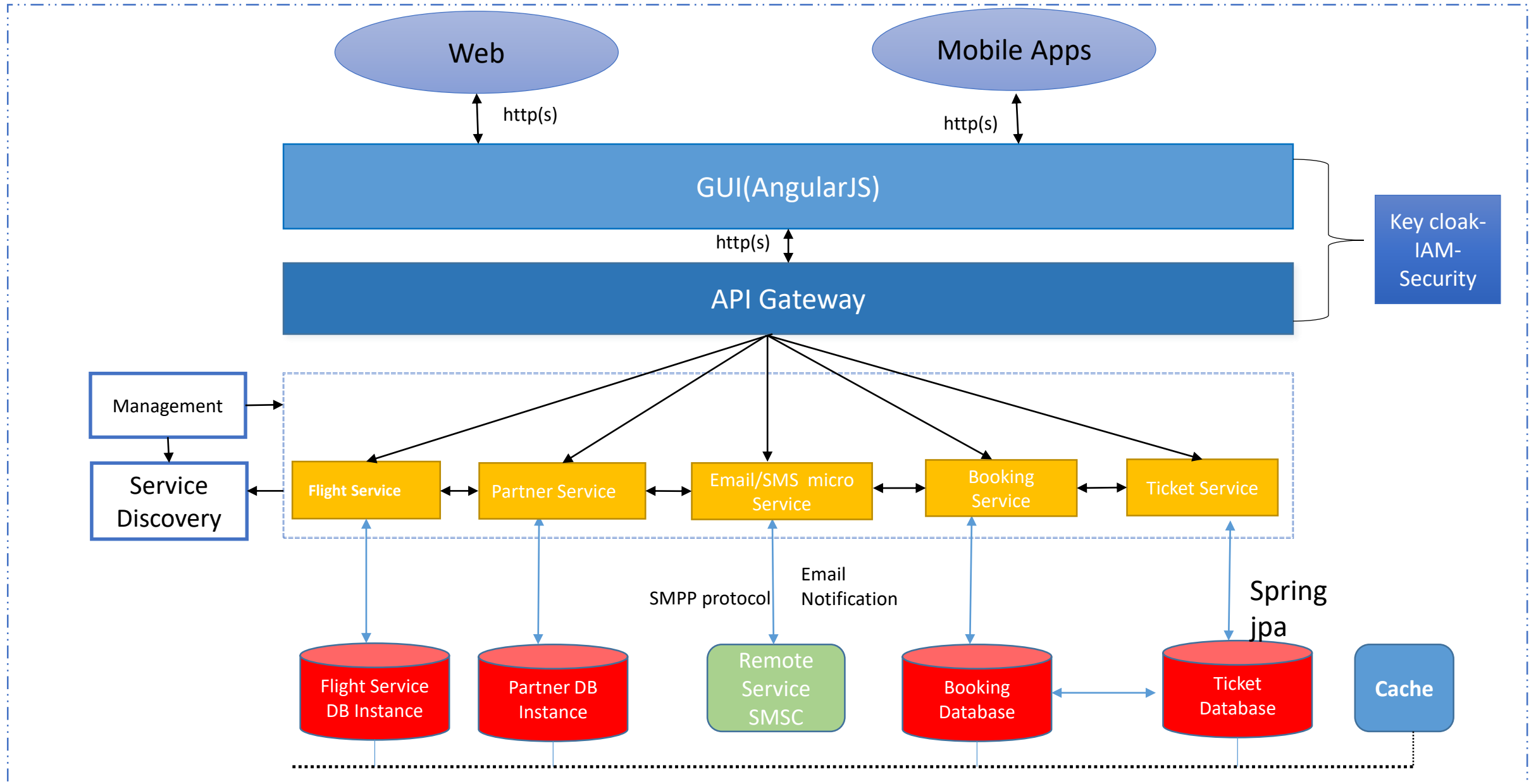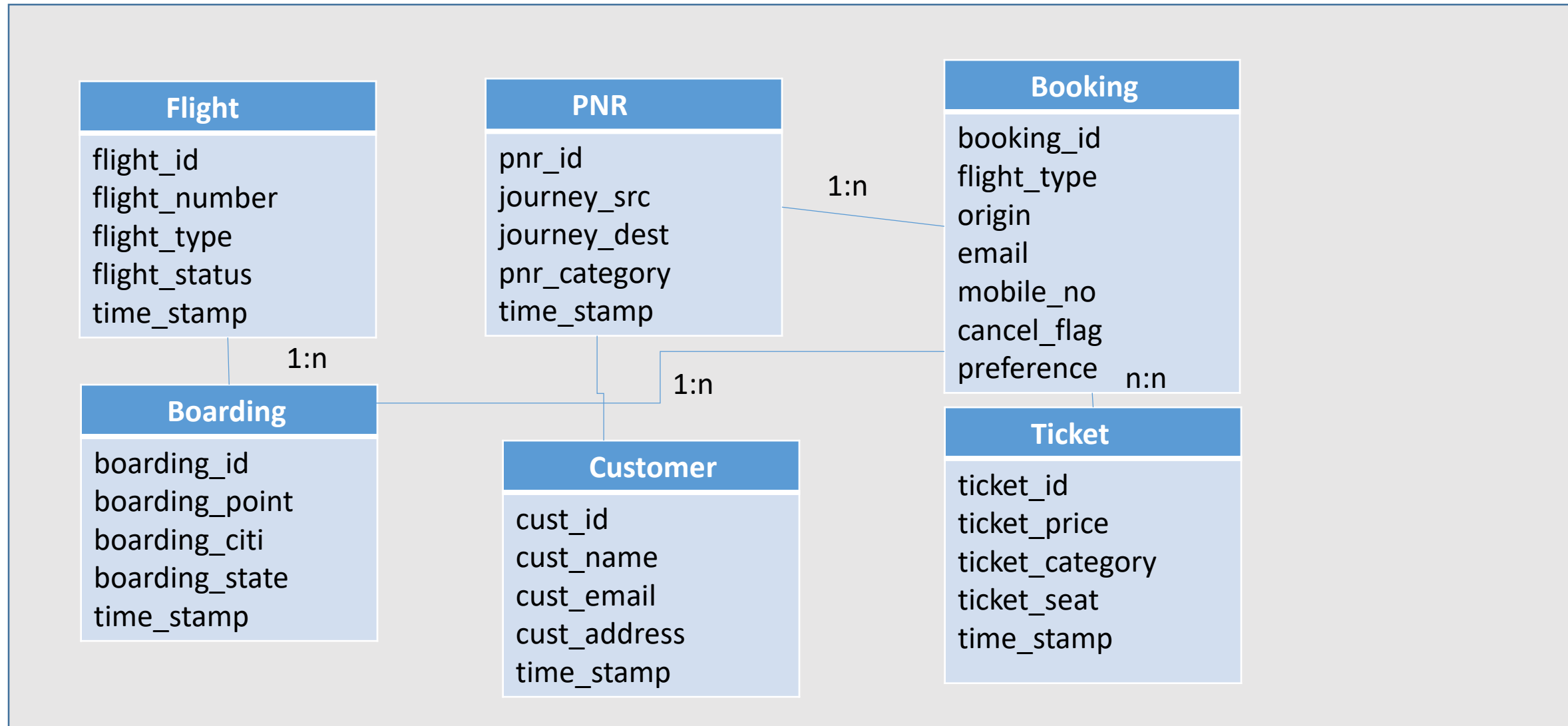
Ticket Service ←→ Ticket Database

Spring jpa

Cache

ABC airline Data model

Assumption:

- SMS notification and storing messages to be sent to customer is application is not in scope.
- UI is out of scope.
- Scale up and NFR are not specified.If further expansion required,Cloud will be used to take care performance and scaling issue.
- Considered Key-cloak as IAM for user authentication,role,group,scope mapping.
- No sql not considered.
- DevOps will be used for CI/CD.
- Monitoring tools will be used supported by springboot.

Service to Create:

❖**Booking:**

- Input:
    - 1)Customer Id(Customer details will be available form Customer service.)
    - 2)CRUD Booking operation(single or list of customer).Seat information and if additional service required(food,seat preference) as list.

- Output:
    1. Booking confirmation response(200,201,500etc).
    2. Email and SMS Notification to Customer.
    3. Event based Notification(if updated or cancelled ticket)

Note :it has been assumed here user authentication is successful and rest operation using token based user validation.

Service to Create:

❖ **Ticket:**

- Input:
    - 1)Customer Id(Customer details will be available form Customer service.)
    - 2)CRUD Ticket operation and assign against booking for a customer.
    - 3)save ticket type,price and seat details.

- Output:
    1. Ticket confirmation response.
    2. Email and SMS Notification to Customer.
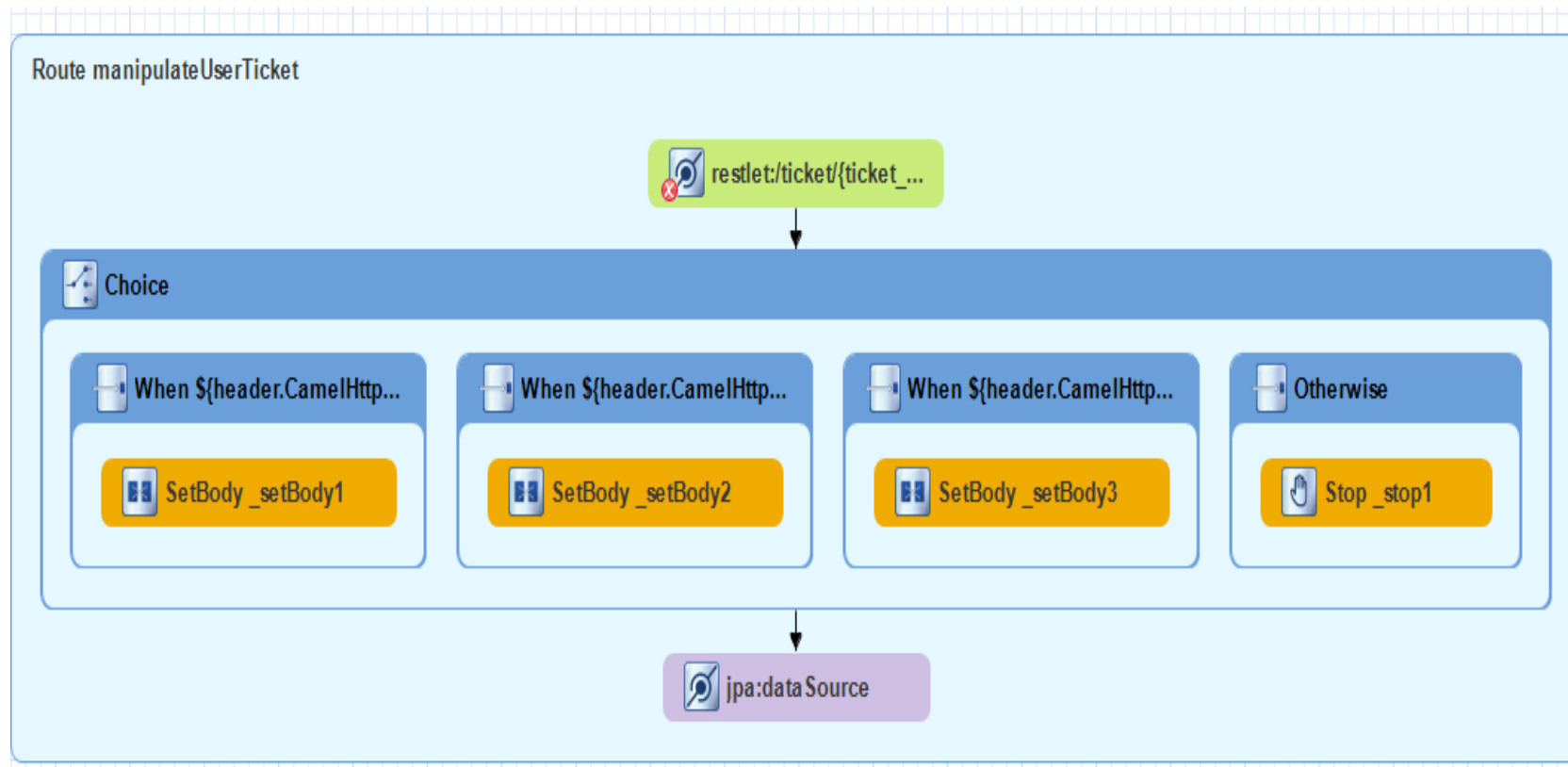   3. Event based Notification(if updated or cancelled ticket)

Service to Create:

❖ **Boarding Service:**

- Input:
  - 1)booking Id(Form Booking service)
  - 2)CRUD Book operation and assign against booking for a customer.
  - 3)save booking and flight details.

- Output:
  1. Flight booked and mapped to Customer.
  2. SMS Notification to Customer boarding time and precautions.

Service portfolio-Ticket service

- After UI validation using REST call from key-cloak user(partner) will be allowed to do CRUD Booking operation using REST api.
- camel-cxf and Camelcontext will be used for rest end point call.
- Sample camel context.We can edit by design or source code.

Service Technology:
- **JDK1.8**
- **Springboot2.x**
- **Apache Camel2.18**
- **JPA**
- **Postgres**
- **Spring Cloud**
- **Tools(Jboss EAP&Fuse karaf.CodeReady Studio,Jenkins,Docker,Openshift)**

Apache Camel feature to be used

Feature supported by Camel to consider:

- camel-rest to implement rest call.
- camel-cxf for SOAP support if applicable.hateoas if applicable.
- DSL (Spring/java DSL) for routing.
- camel-mail component for email.
- camel-cm-sms component for sms notfication.
- camel-avro for data serialization if required for sms messaging.
- camel-kafka if want to store sms and process in bulk.

Service Deployment

Code push to gerrit ,triggers Jenkins and code war move to artifactory

Dev
Test
Production

Dev Standalone Deployment: Jboss FUSE on Karaf(runtime)

Option-1

Option-2

War images

Docker container

War images

Redhat Openshift approach for Test and production

OPENSHIFT

- **During scale of the images can be deployed to cloud environment using kn8tes or open shift cluster in Cloud(AWS, Azure,GCP)**

- **Spring Cloud will take care client side load balancing,ServiceDiscovery,Routing**