

*OpenShift Commons - Milano 2019*

# **Open Banking with OCP MSA and Kafka**

*Poste Case Study*

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# Agenda



Red Hat

[P. Patierno, Principal Software Engineer] @ppatierno

- Apache Kafka & Strimzi Intro

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[P. Gigante - P. Sforza, Senior IT PM & Solution Architects]

- No more baby steps: All in! with the Open Banking
  - A common story
  - A first bite!
  - Things become important
  - Apache Kafka and OpenShift Architecture
  - Strimzi test and considerations
  - Our path, your takeaways

# Apache Kafka on OpenShift : challenges



**A Kafka cluster requires ...**

- ... a stable broker identity and network address
- ... a way for brokers to discover each other
- ... durable state and storage recovery
- ... brokers accessible from clients, directly
- ... and we also have Zookeeper



**OpenShift provides ...**

- ... Statefulsets for stable identity and network
- ... together with Headless services for discovery
- ... Services for accessing the cluster
- ... Secrets and ConfigMaps for configurations
- ... PersistentVolume and PersistentVolumeClaim for durable storage

# You need an operator! Strimzi!



## ***STRIMZI***



**CLOUD NATIVE  
COMPUTING FOUNDATION**

### **Focuses on running Apache Kafka on Kubernetes**

- Container images for Apache Kafka and Apache Zookeeper
- Operators for managing and configuring Kafka clusters, topics or users

### **Provides Kubernetes-native experience**

- Kafka cluster, topic and user as Kubernetes custom resources

### **Open source project licensed under Apache License 2.0**

- CNCF sandbox project
- THE way to deploy Apache Kafka for cloud-native applications

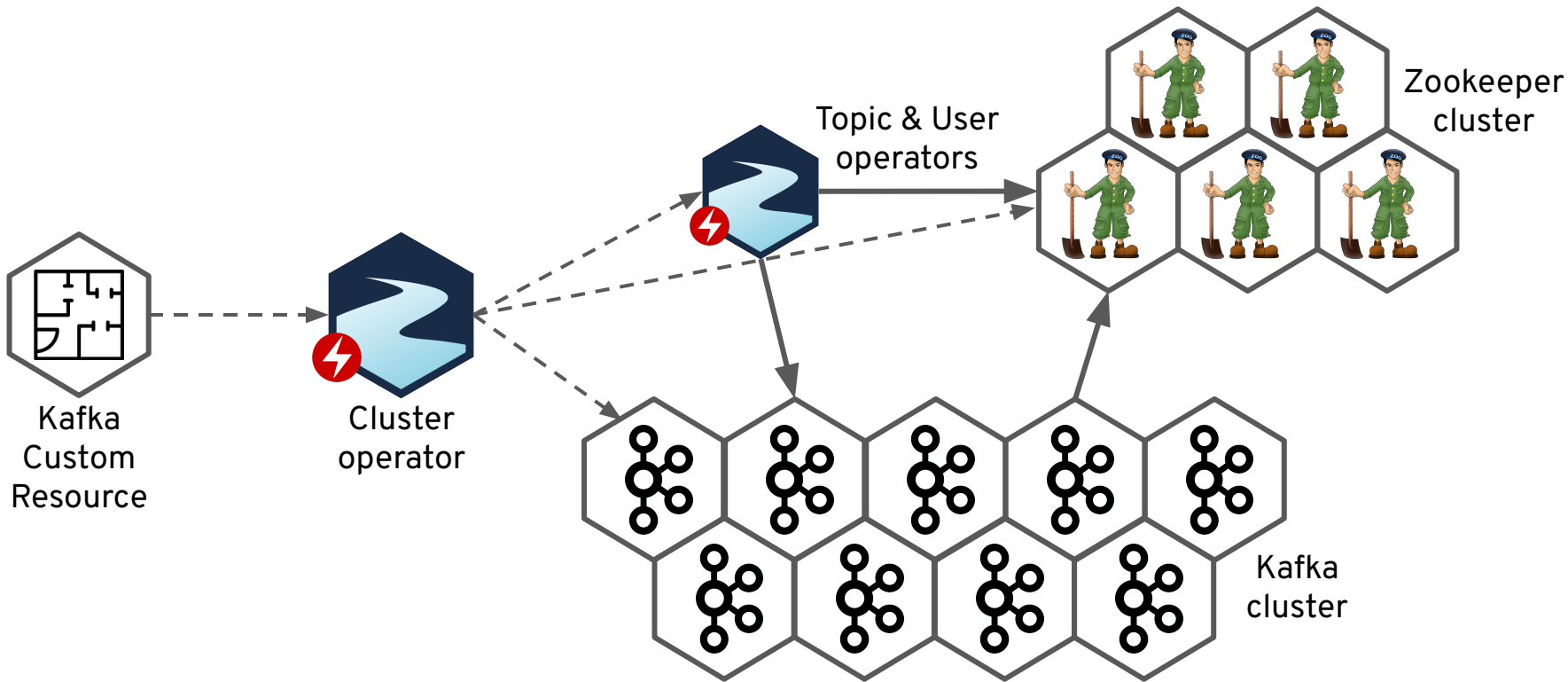
# Strimzi: Kubernetes Custom Resources

```
apiVersion: kafka.strimzi.io/v1beta1
kind: Kafka
metadata:
  name: my-cluster
spec:
  kafka:
    version: 2.3.0
    replicas: 3
    listeners:
      plain: {}
      tls: {}
    config:
      offsets.topic.replication.factor: 3
```

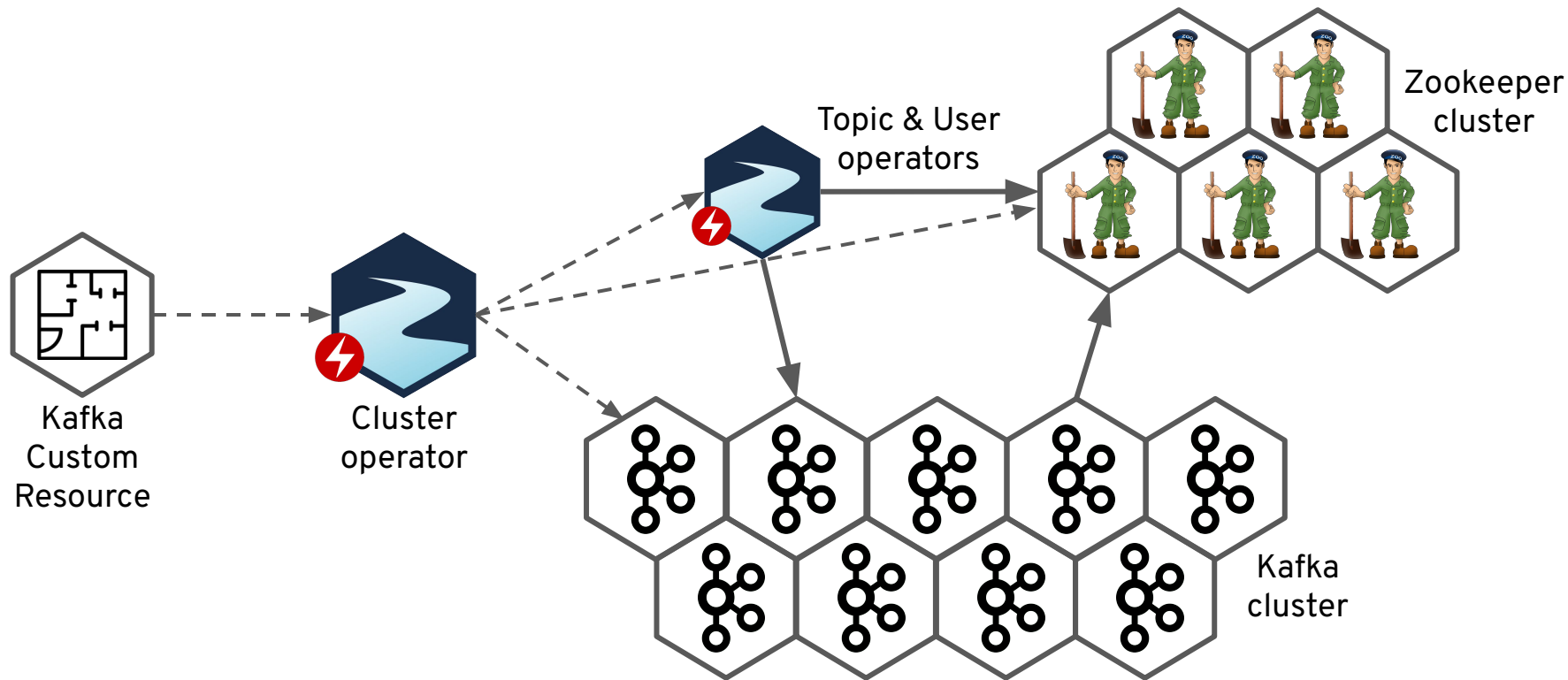
```
apiVersion: kafka.strimzi.io/v1beta1
kind: KafkaUser
metadata:
  name: my-user
  labels:
    strimzi.io/cluster: my-cluster
spec:
  authentication:
    type: tls
  authorization:
    type: simple
  acls:
    - resource:
        type: topic
        name: my-topic
```

```
apiVersion: kafka.strimzi.io/v1beta1
kind: KafkaTopic
metadata:
  name: my-topic
  labels:
    strimzi.io/cluster: my-cluster
spec:
  partitions: 1
  replicas: 1
  config:
    retention.ms: 7200000
    segment.bytes: 1073741824
```

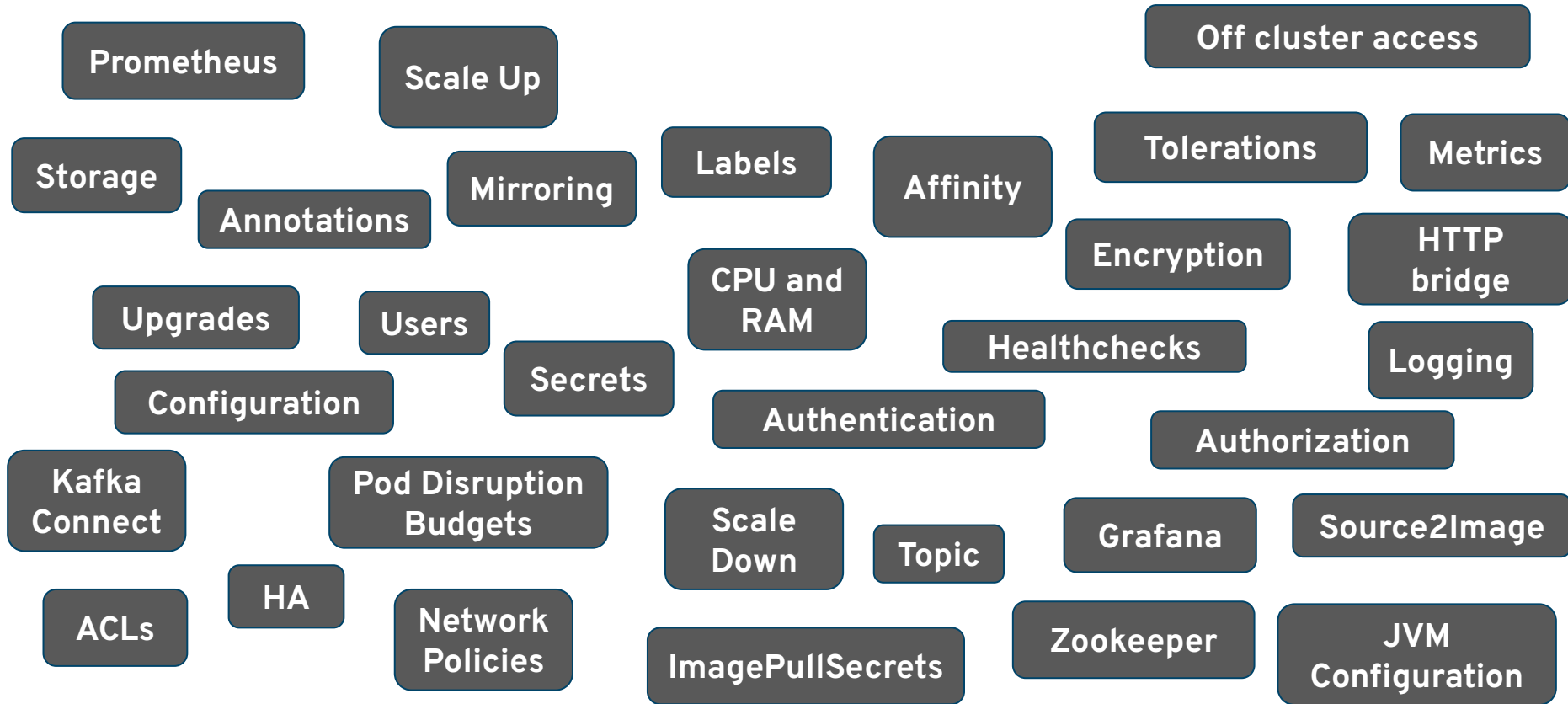
# How to deploy



# How to update



# Features





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Il piacere di ricevere una lettera

<https://www.poste.it/gamma/lettere.html>

Messaggio pubblicitario con finalità promozionale

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<https://www.poste.it/gamma/spedizione-pacchi.html>

Messaggio pubblicitario con finalità promozionale

# Posteitaliane



## Conto BancoPosta. Un mondo su cui contare, sempre.

Con Conto BancoPosta puoi gestire le tue spese in App e con la Carta di debito BancoPosta fai acquisti anche online e accedi a Sconti BancoPosta.

SCOPRI DI PIÙ

<https://www.poste.it/gamma/conti-correnti-bancoposta.html>

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# Posteitaliane



Se il futuro ti preoccupa, prevenilo con  
Poste Salute

Messaggio pubblicitario con finalità promozionale. Prima della sottoscrizione leggere il set informativo disponibile presso gli uffici postali e sul sito [www.poste-assicura.it](http://www.poste-assicura.it).

<https://posteassicura.poste.it/salute/poste-salute.html>

Messaggio pubblicitario con finalità promozionale

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... just loans at the moment but it's an evolving market ;)

<https://posteassicura.poste.it/cani-e-gatti/poste-amici-4-zampe.html>

Messaggio pubblicitario con finalità promozionale

# Posteitaliane



DA OGGI POSTEID È  
ABILITATO AL LIVELLO  
DI SICUREZZA

**spod**®

Gaia finalmente non deve più ricordare tante  
password diverse

<https://posteid.poste.it>

Messaggio pubblicitario con finalità promozionale



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## APP POSTEMOBILE

Gestisci la tua SIM in modo semplice e veloce!



<http://www.postemobile.it>

Messaggio pubblicitario con finalità promozionale



## LE OPERAZIONI

8,4 milioni di prodotti finanziari venduti l'anno  
127 milioni di pacchi recapitati l'anno



## LA RETE

12.812 uffici postali



## LE PERSONE

134.360 dipendenti



## I SERVIZI FINANZIARI

19 milioni di carte prepagate Postepay  
26,2 milioni di carte di pagamento



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# A COMMON(S) STORY

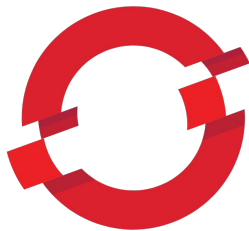


Many products, many users! daily, Lines Of Business push IT for quality and delivery speed

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# A FIRST BITE!

DevOps and OpenShift 3.9 for NSA



**OPENSIFT**



JAEGER



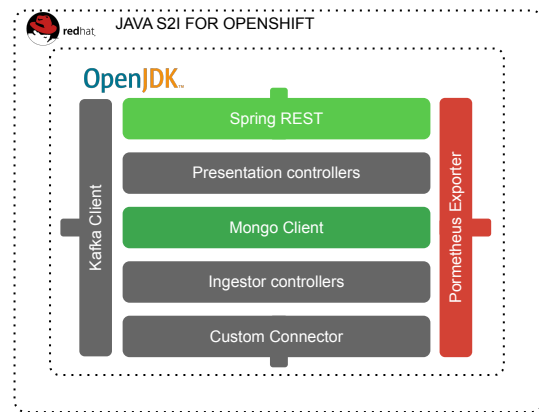
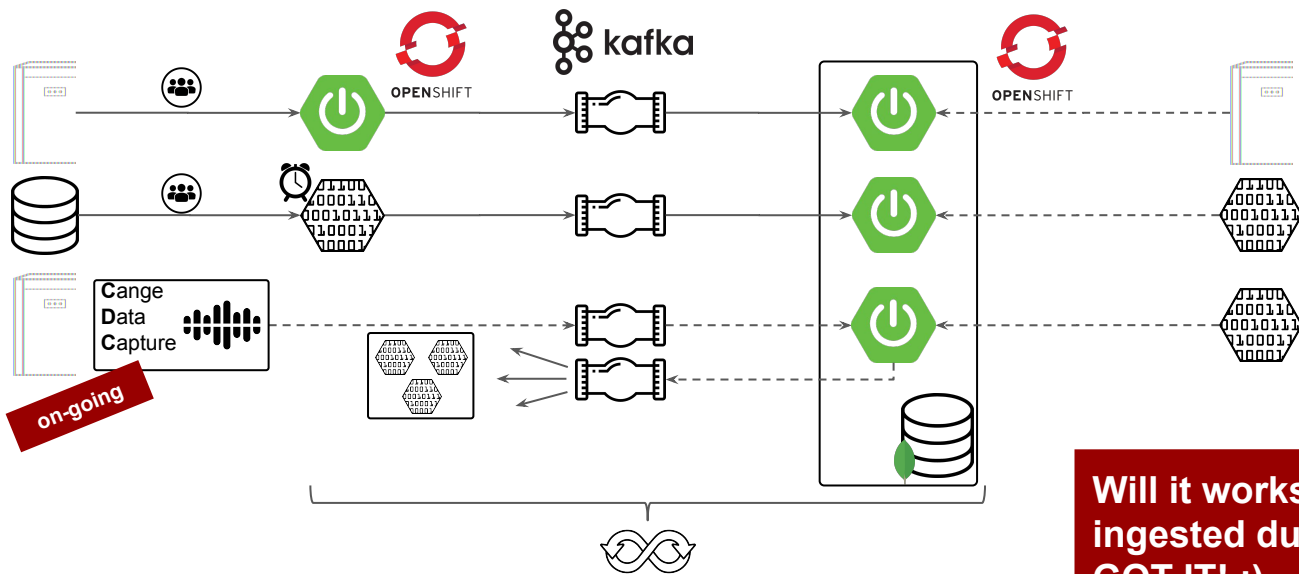
**sonarqube**

a stack upgrade plan (EAP4-5 to EAP7) for 7 monolithic apps was used to test and prototype a DevOps model, toolset and... OpenShift!

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## A SECOND BITE!

OneView App ... DevOps, OpenShift & Kafka were there!



Will it works?! ... 500 mln of records  
ingested during first 8 hours  
GOT IT! :)

Aggregated view of entities using upsert datastream from many sources

# THINGS BECOME IMPORTANT

...

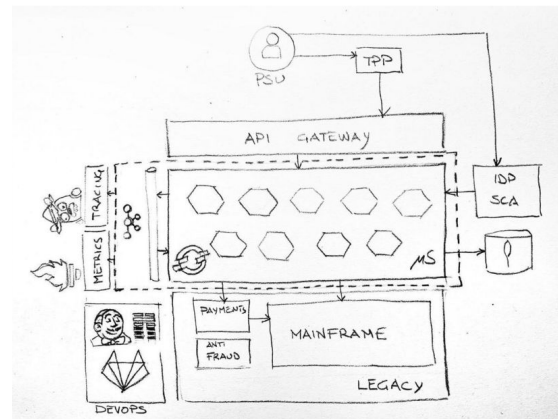


**Mirko Mischiatti** • 1st

Group Chief Information Officer presso Poste Italiane  
2mo

After playing around with less critical projects and getting more and more confidence with the underlying technology we wanted to show that we believe in our transformation path and we mean business. Our new PSD2 platform, based on containerized microservices, managed with a devops toolchain has just exchanged its first euro. No more baby steps!

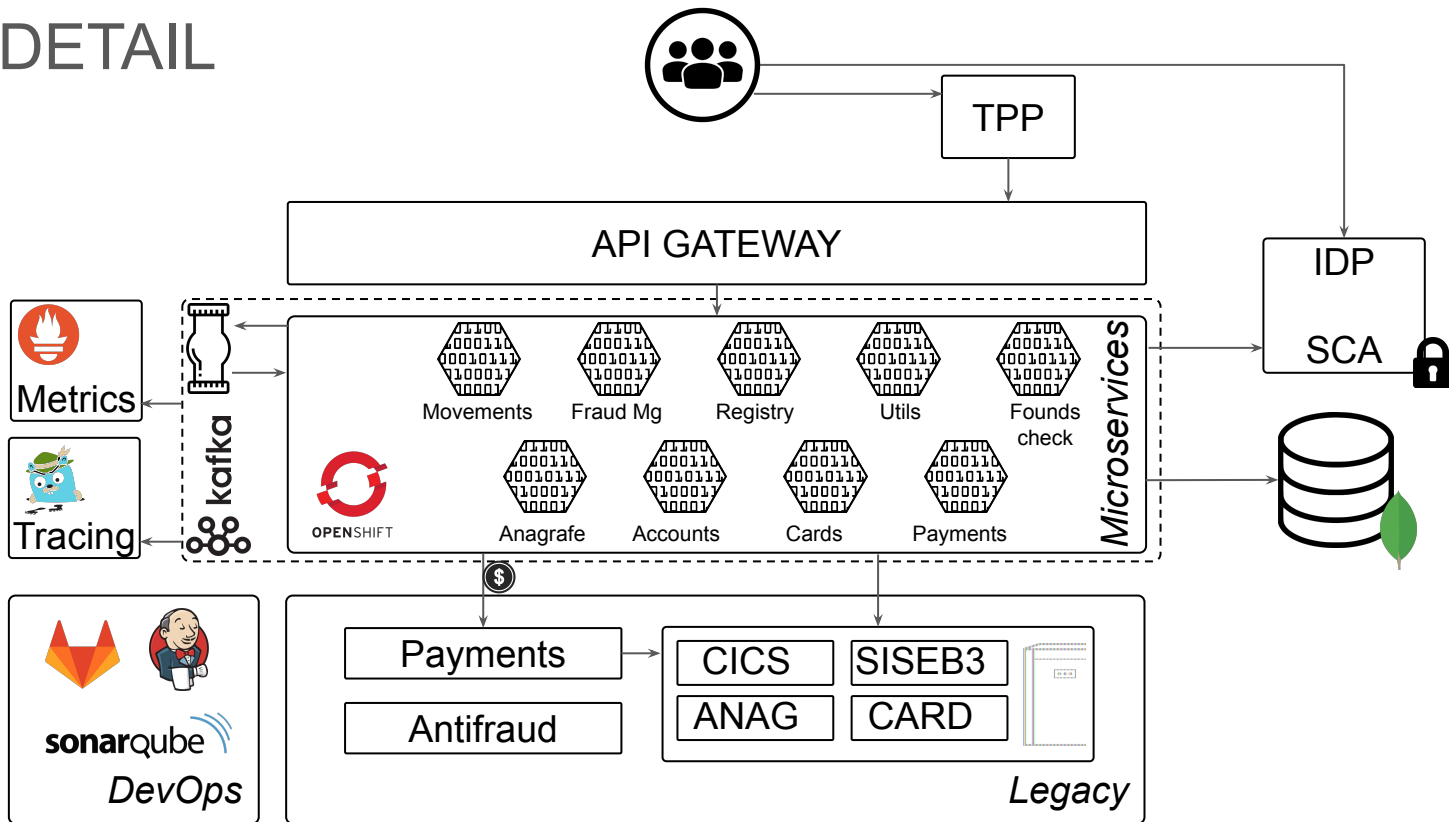
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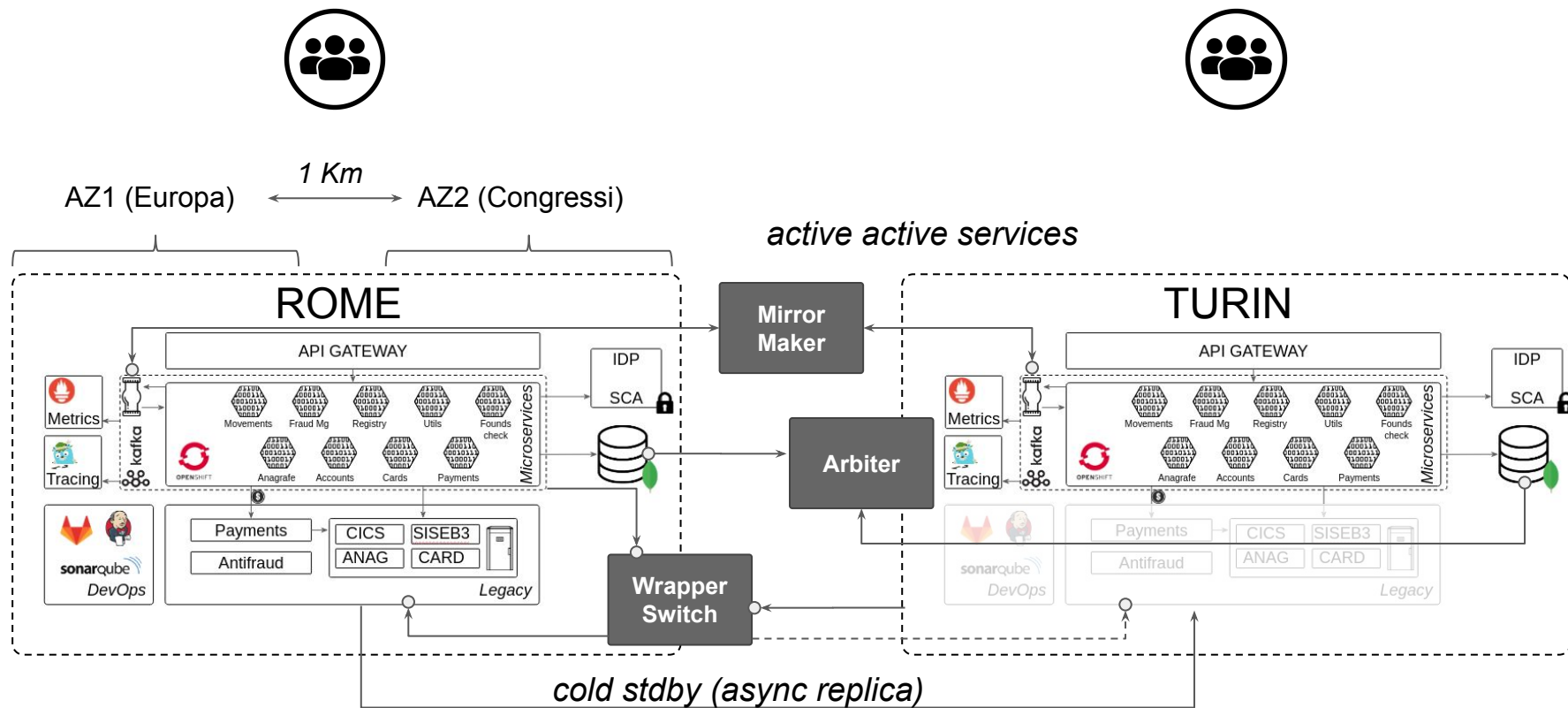
src: [linked-in](#)

The core financial app for the Open Banking now runs on OpenShift and Kafka...  
Poste got there **on time** and with the a **better response time** (in order of magnitude!)

## PSD2 DETAIL



# PSD2 GEO REPLICA



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AFTER < 1.0 Y



15 initiatives in develop stage,  
4 systems in production



863 repos, 353 developer



OPENSIFT

13 clusters (OCP, OKD 3.9 and  
3.11) with a production of 1300  
core



3 pipelines per project, 1200  
jobs



3 datacenter



1 Cloud Provider

a fast changing company

# Kafka (on bare metal) vs Strimzi



- + Efficient Bare Metal deployment
- + Massive Cross App communication
- + Resilient traditional storage
- Expensive
- Hard to maintain
- Hard to scale



- + Fast containerized setup
- + Easy inter-app async comm
- + Quick scale-up/out
- ?! hopefully none! :)

**Test running!**  
**Be tuned for next**  
**Commons**



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# Thanks for your time!

## Q&A ?! Ask now or reach us @

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