Oracle Developer Live Deploying Multicloud Apps on Verrazzano

Antonio Nappi

CERN: a unique environment

Study fundamental particles
How they interact
Understand the fundamental laws of nature

Large Hadron Collider (LHC)
Largest particle collider in the world
27 km in circumference
Thousand of magnets

Place where the Web was born

Science for peace
Melting pot

CERN Openlab

WebLogic PaaS at CERN

WebLogic on Kubernetes

    Different versions

        12.1.3

        12.2.1

    Web Profile application Stateful

    Users
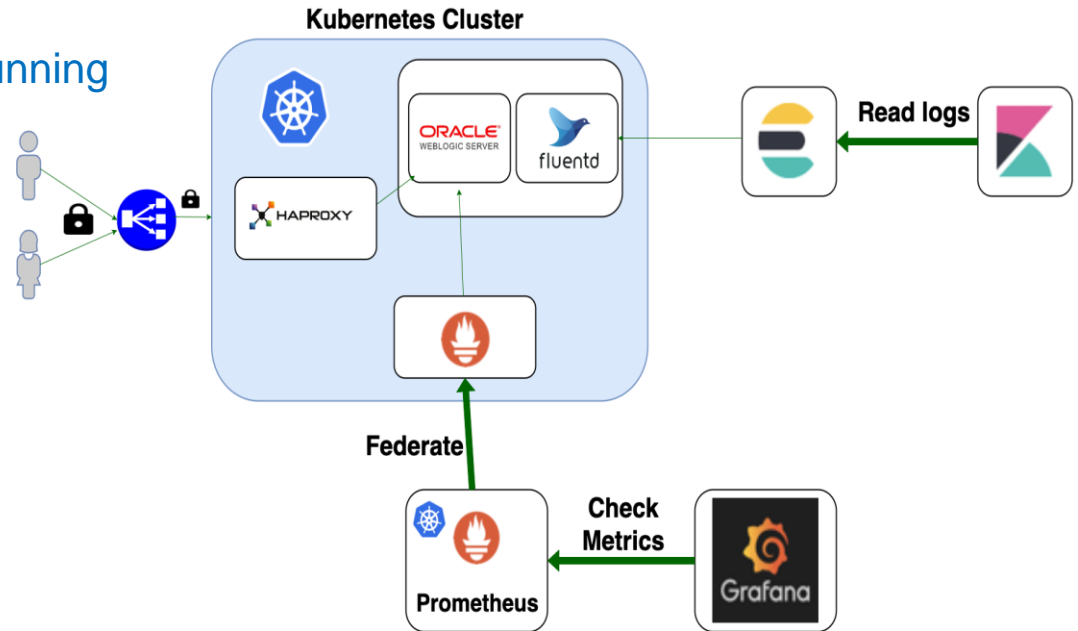
        Engineers

        Administration

        IT

Numbers:

More than 15 Kubernetes Clusters
    dedicate clusters for each
    developers' community
    production applications are running
    on 3 clusters in 3 Avz

Almost 400 Kubernetes nodes

More than 3000 Pods

New Challenges & scenarios

1. DR and Multi Cloud/Cluster Deployments

How to manage in one way deployments of application on different cluster (e.g. DR)

Have a single place where check the overall status of the deployments

2. Management

Logging and Monitoring

persistence

retain policies

Infrastructure Components

Upgrade

Maintain

License issues

New Challenges & scenarios

3. Uniform way to deploy different Kubernetes Workloads

WebLogic

Tomcat

Custom images from Developers

Derby DB

Postfix

etc.

Verrazzano tests

Run WebLogic

    Get advantages of all WebLogic Kubernetes Toolkit

    SSL configuration dropped

      Relying on mTLS provided by Istio

Run Derby DB

    No Problem with that. It just worked.

Verrazzano tests

Multi Cluster

Run Derby DB and example app on both clusters

Both clusters on premise

They need to see each other

Logging and Monitoring

Fluentd sends whatever you have on stdout to ES on Admin Cluster

Prometheus didn't explore too much, but on multi cluster they are automatically federated.

Impression

What I liked

- The idea
  - It could help to simplify deployment on K8s (and It is open source!)
- Great support from the Oracle team
- Simplifies the management of the infrastructure
  - Logging, monitoring, TLS out of the box
  - Ingresses out of the box.
- Unify the deployment of different components with a single tools
- All the consoles allow to know what you are running and where.
  - They can be used to let our developers to be aware of infrastructure

Impression

Things to improve/nice to have

Docs

Customization

Fluentd

Customize configuration for adding fields or add/extend grok patterns

What about logs that aren't on stdout?

Prometheus

How add custom rules ?Maybe Prometheus Operator could help ?

Not big fan of annotation approach

Multi Cluster registration require multiple steps

Could it be simplified ?

You need an External LB if you want to balance traffic on applications running on multi clusters.

Conclusions

Overall positive impression

    It could simplify operation teams and developer life

    These things look easy but try to run in production…

More features that would be nice to have

    Increase customization

    Alerting

    Manage Helm Charts, kustomize, jsonnet as components

    GitOps approach

THANK YOU