
CERN

Oracle Developer Live Deploying Multicloud Apps on Verrazzano

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CERN: a unique environment

Study fundamental particles

- How they interact
- Understand the fundamental laws of nature

Large Hadron Collider (LHC)

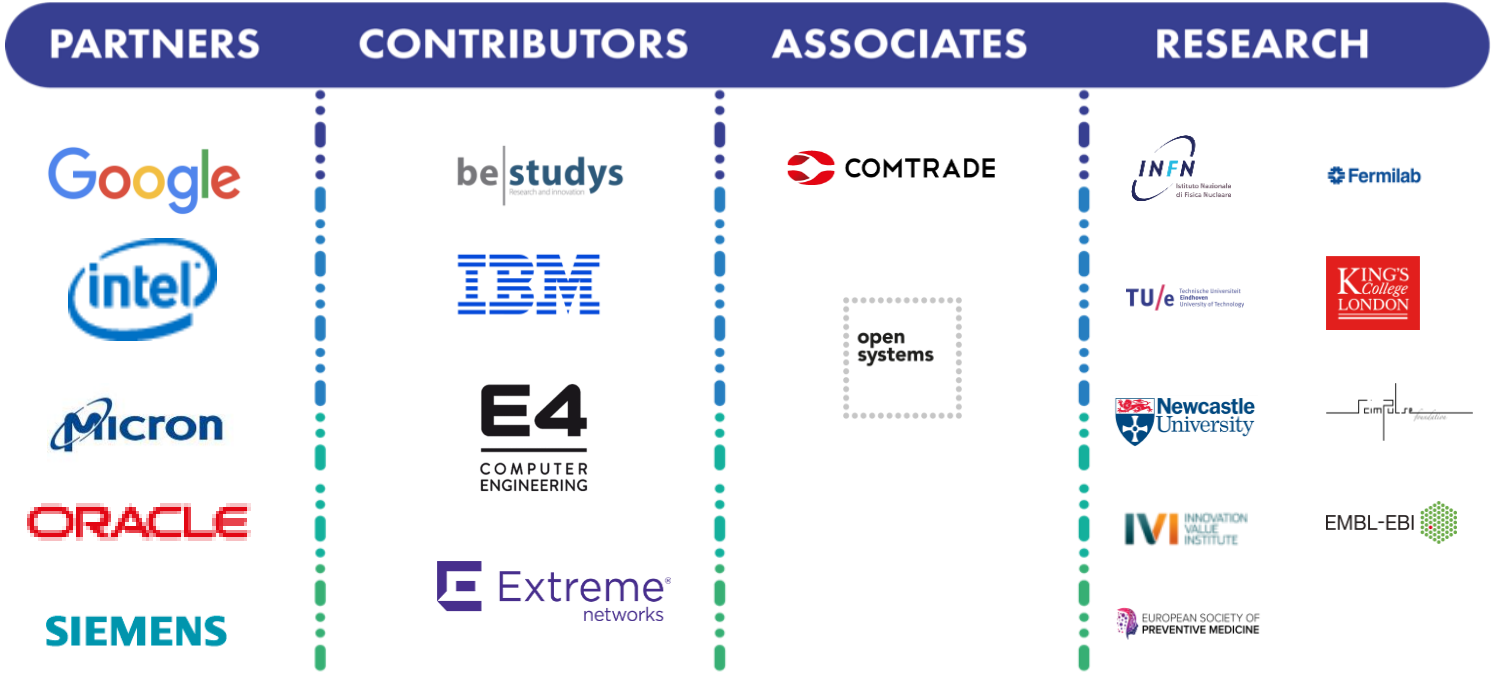
- Largest particle collider in the world
- 27 km in circumference
- Thousand of magnets

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:

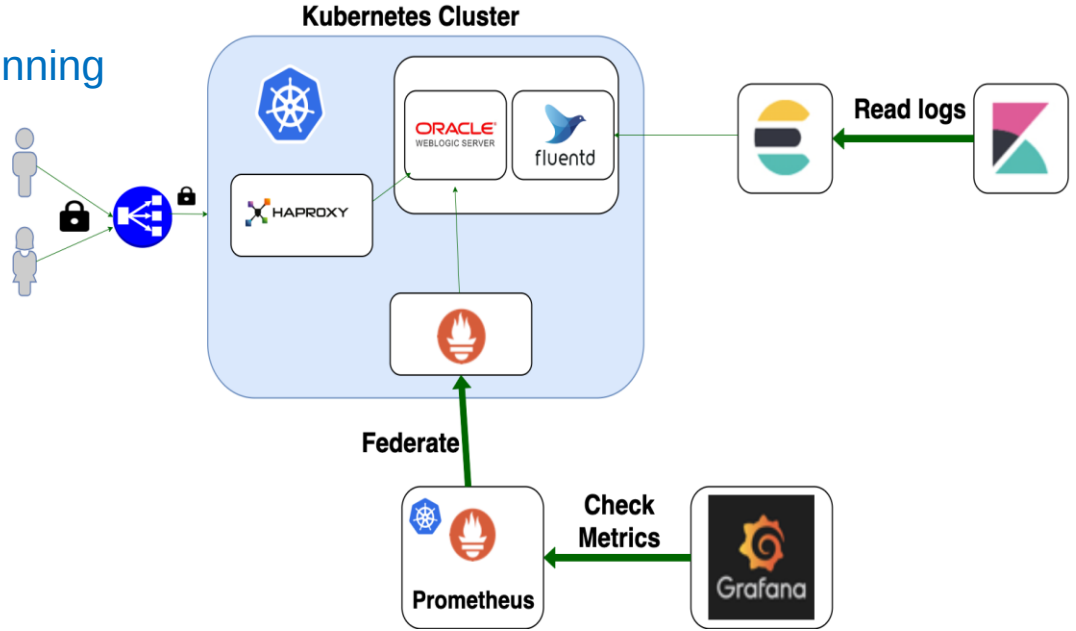
More than 15 Kubernetes Clusters

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