OpenRiskNet

RISK ASSESSMENT E-INFRASTRUCTURE

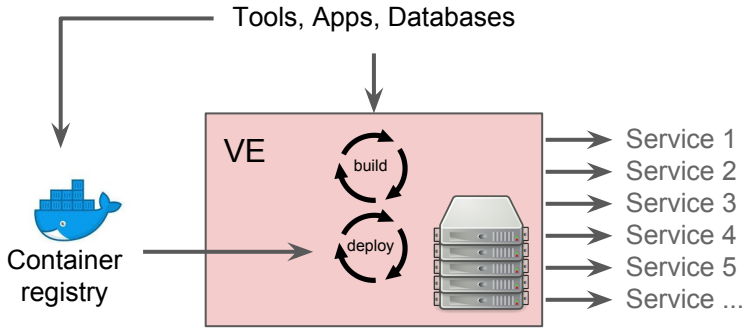
OpenRiskNet e-infrastructure Deployment

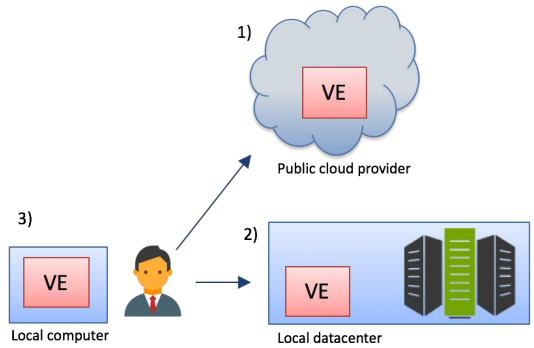
The OpenRiskNet Consortium

OpenRiskNet: Open e-Infrastructure to Support Data Sharing, Knowledge Integration and *in silico* Analysis and Modelling in Risk Assessment
Project Number 731075

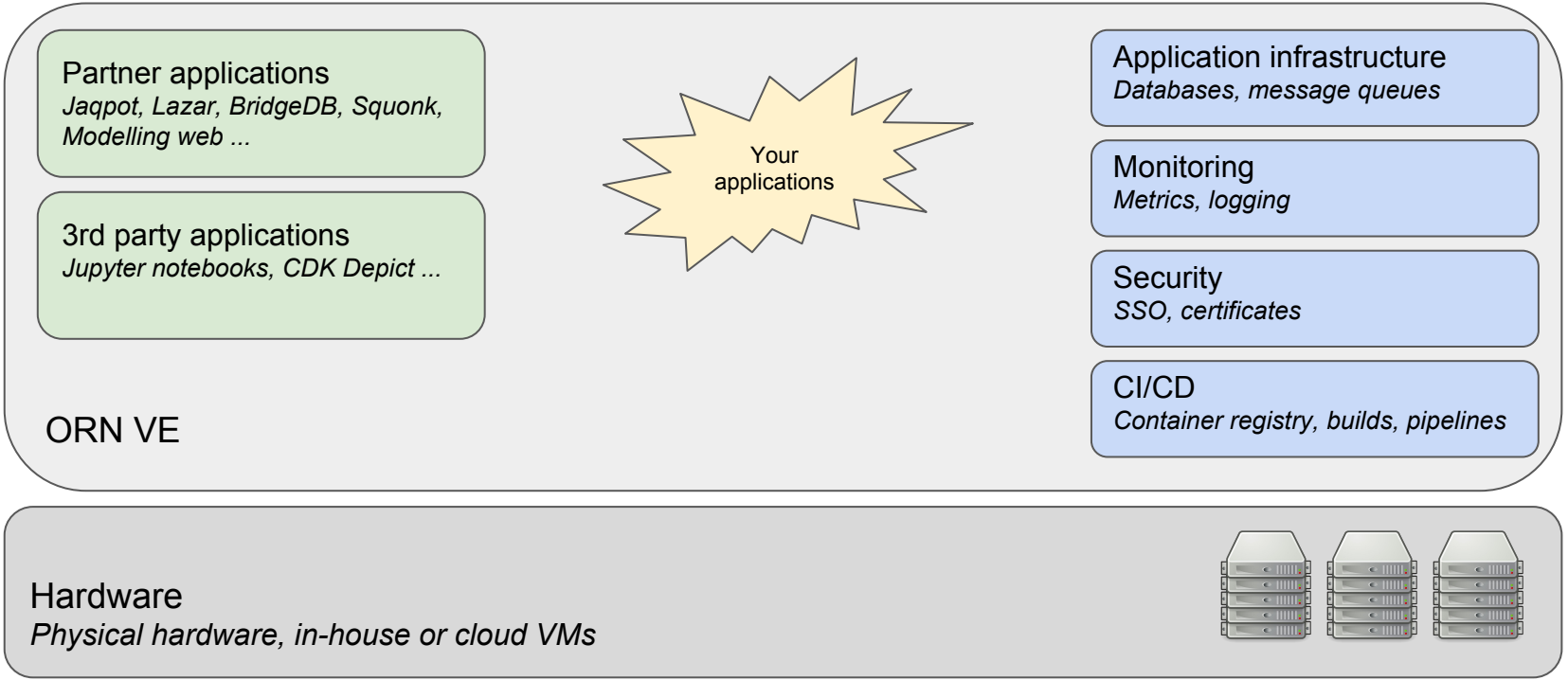
OpenRiskNet Virtual Environment (VE)

- Computational infrastructure into which applications can be deployed
- Includes environment for building and testing those applications
- Includes compute, security, storage, monitoring ...
- Can be deployed to range of infrastructures





VE Architecture



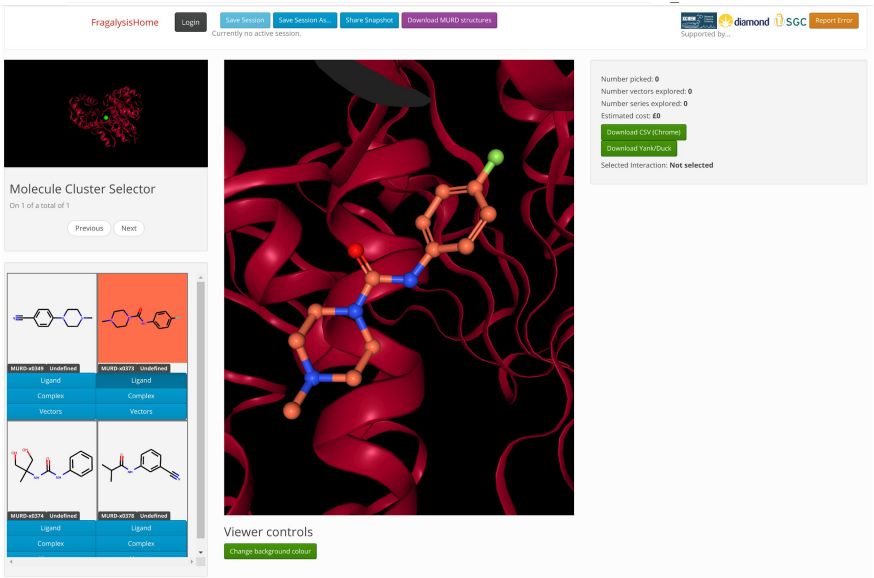
Example OpenRiskNet VEs

ORN Reference site (link)

ORN Development site

Sites run by ORN partners

Diamond Light Source (link)

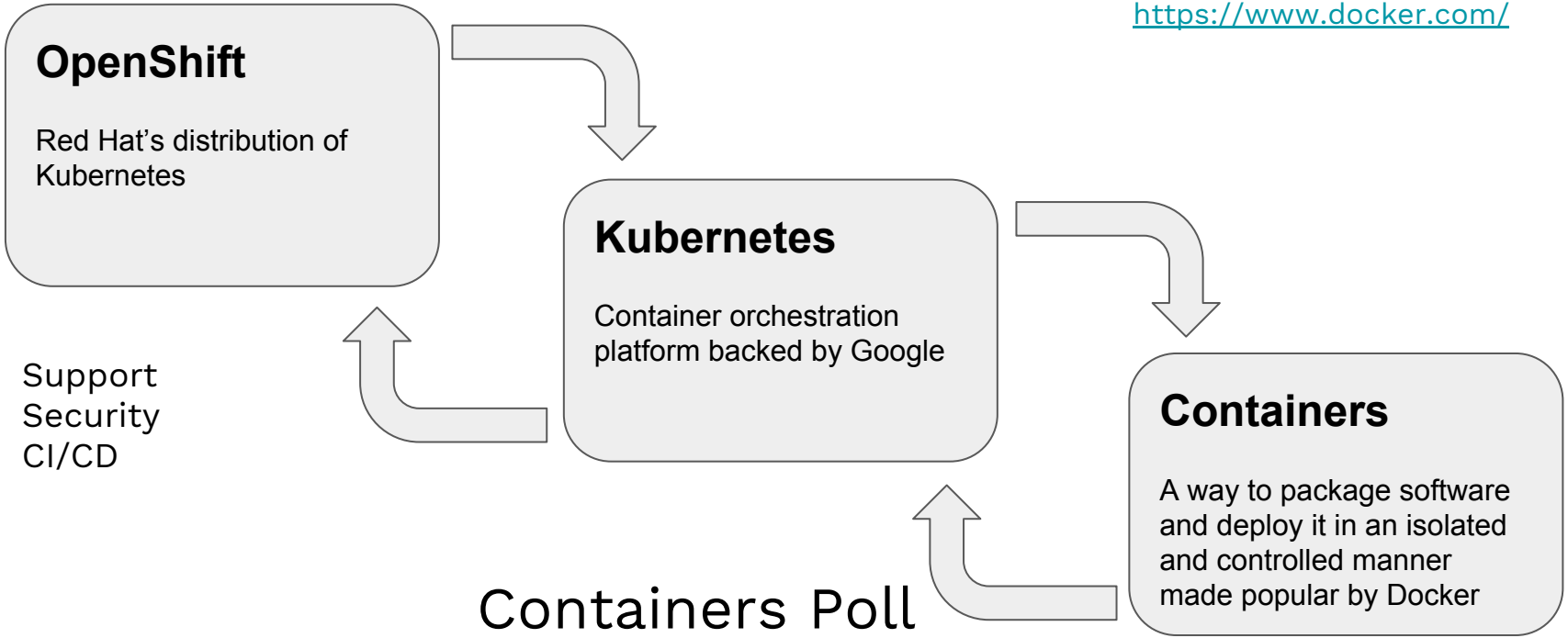


What forms a VE

https://www.openshift.com/

https://kubernetes.io/

https://www.docker.com/



History of Orchestration Tools

- KubeNow from UU allows to deploy K8S or Openshift
- OKD Orchestrator described here builds on principles from KubeNow to provide an orchestrator specific for OpenShift and targeted towards deploying an OpenRiskNet VE
- Orchestration tools coming with OpenShift 4 look much improved and may supersede these other tools

Steps to deployment:

1. Plan the hardware needs (Servers, CPUs, memory, availability ...)
2. Set up public IP addresses and hostnames
3. Run Orchestrator
    a. Stage 1: Define configuration based on #1 and #2
    b. Stage 2: Compile machine images (not needed if using bare metal)
    c. Stage 3: Provision VMs (not needed if using bare metal)
    d. Stage 4: Deploy OpenShift
4. Run “day 2” operations
5. Deploy applications

Supported platforms and setups

Platform

Setup

	Bare metal	OpenStack	AWS	GCE
Compact	+++	+	+++	+
Standard	+++	+	+++	+++
High Availability	-	-	-	-

+++ Tested
+ Should work but not much tested
- Planned

Other potential platforms:
- Azure
- Digital Ocean
- Others?

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Project partners:

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P12 Vrije Universiteit Amsterdam, Netherlands (VU)

Links

These slides and videos: https://openrisknet.org/events/57/

OKD Orchestrator Github: https://github.com/InformaticsMatters/okd-orchestrator

OKD Orchestrator Docs: https://docs.informaticsmatters.com/build/html/index.html

Red Hat OpenShift (OKD): https://www.okd.io/

OKD Documentation: https://docs.okd.io/latest/welcome/index.html

Red Hat OpenShift (OCP): https://www.openshift.com/products/container-platform/

OpenRiskNet website: https://openrisknet.org/

OpenRiskNet reference site: https://home.prod.openrisknet.org/