

Objectif Libre

Yours, Cloudly

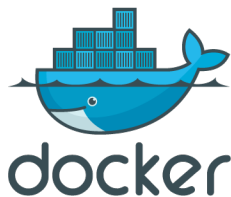
VMs and Containers: Mix and match

October 2018

www.objectif-libre.com
@OLNordics

Our expertise

- ✓ Help you build and run your **Cloud**
- ✓ Deploy your **CI/CD infrastructure** to turn your **DevOps strategy** into reality
- ✓ Organise your staff **skills upgrade**



Jenkins



In a nutshell

100%
Open Source
company

We ♥ Linux

Cloud & DevOps
experts



An innovative and
committed company



By your side all along
your projects

Audit / Consulting
Training
Integration
Support

Complete catalog of trainings
CloudKitty



Christophe Sauthier, CEO & founder
Award winner
'Open Source Entrepreneur of the year 2016'

Key figures

2009 Founding of
the company

+5000

Trained (and satisfied) individuals
Registered training center

+300%

Our growth over the past 3 years

Part of our revenue
invested in R&D each year 15%

Agencies
Toulouse | Paris | Stockholm 3

28 Employees
in our
dream team...
and still hiring !



They trust us



We are partners / contributors



Training schedule in Stockholm

✓ **Kubernetes: Using the orchestration tool**

- November 12-13th 2018



kubernetes

✓ **Ansible: Setup**

- November 29-30th 2018



ANSIBLE

✓ **OpenStack: Setup**

- December 12-13-14th 2018



openstack®

✓ To get more information or sign-up to one of the trainings: contact@objectif-libre.com





& !

Tea ~~or~~ Coffee?

France ~~or~~ Sweden?

IaaS ~~or~~ PaaS?

Cloud ~~or~~ containers?

OpenStack ~~or~~ Kubernetes?

 **Objectiflibre** is hiring!

Do not wait anymore: join us!

jobs@objectif-libre.com

And now... let's start for real!



Agenda

- ✓ Deploying containers on top of OpenStack
- ✓ OpenStack in containers
- ✓ Deploying VMs using container orchestrators
- ✓ VMs that actually are containers, or the other way around...



Deploying containers on top of OpenStack



Deploying containers on top of OpenStack

Cloud platforms instead of baremetal for container orchestration presents multiple advantages:

- ✓ Easy to **scale**
- ✓ Deployment **automation**
- ✓ **Integration** between COE and **Cloud platform** (LBaaS / Storage / Network)



Deploying containers on top of OpenStack

Plenty of ways and tools to deploy Kubernetes:

- ✓ *Kubeadm*: CLI
 - **Easy to use** but still limited
- ✓ *Kubespray*: Ansible playbook
 - **Lots of options**, requires to already understand K8S
- ✓ *Magnum*: OpenStack project, based on Heat templates
 - **Kubernetes as a Service**: as simple as a clic
- ✓ K8S distributions with OpenStack integration:
 - *SUSE CaaS platform*
 - *OpenShift*



Deploying containers on top of OpenStack

Integration examples:

- ✓ *Cinder* as storage backends for PVs
- ✓ *Octavia* / LBaaS to expose services
- ✓ *Kuryr* project to seamlessly integrate K8S / Docker networks with Neutron networks



OpenStack in containers



OpenStack in containers

OpenStack is easy to deploy!

But **day 2 is still hard**:

- ✓ Multiple services on one host: things can get messy
 - **Difficult to mix versions**
 - **Difficult to upgrade a single component**
 - Even service restarts can have a big impact
- ✓ **Containers can help** with all that



OpenStack in containers

- ✓ Deployment in containers is a trend
 - **TripleO** deploys everything in containers
 - **Kolla** project used in production and in OpenStack distributions (Oracle)
 - Openstack-ansible deploys in LXC containers
- ✓ Even **deploying using Kubernetes** is a thing:
 - Possible with Kolla
 - Some public clouds do it already



Deploying VMs using container orchestrators



Deploying VMs using container orchestrators

In a container world, we still need some VMs:

- ✓ To **enforce additional security**
 - Sometimes container security is not enough
- ✓ To deal with **legacy applications**
 - They still exist!
- ✓ And probably other use cases



Deploying VMs using container orchestrators

- ✓ **Standardization of container interfaces** (CRI / CNI / CSI) allows anything to run as containers
- ✓ **K8S pluggable architecture** is also a great help
- ✓ Two VM deployment projects already usable:
 - *KubeVirt*
 - *Virtlet*



VMs that actually are containers, or the other way around...



Kata containers: a mix of VMs and containers

- ✓ Goal: **add another security layer**
- ✓ Kata containers are used as containers:
 - Single process
 - Fast to create/destroy
 - Can be used in addition or to replace Docker and other runtimes
- ✓ Very light QEMU process



Kata containers: demo!



Key takeaways

- ✓ OpenStack brings **automation** and **scalability** to container orchestration platforms
- ✓ Deploying OpenStack in containers **solves** some **day 2 operations** issues
- ✓ Beginning of a **paradigm shift**: VMs could become second class citizens in a container world
- ✓ The security model of VMs is still considered stronger: **container-like VMs** are here



Let's keep in touch

Need more information?

contact@objectif-libre.com

Want to join us? jobs@objectif-libre.com



@OLNordics



Objectif-libre



ObjectifLibre



our newsletter

www.objectif-libre.com

