Mastering Serverless PaaS with OpenShift

L1096

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Introduction

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Natale Vinto - Specialist Solution Architect for OpenShift - joined Red Hat in 2016

DevOps, FOSS enthusiast, Blues man

Francesco Vollero - Specialist Solution Architect for OpenStack - joined Red Hat in 2008

Software engineer, FOSS enthusiast, Start-upper, Blues man

What is Serverless?

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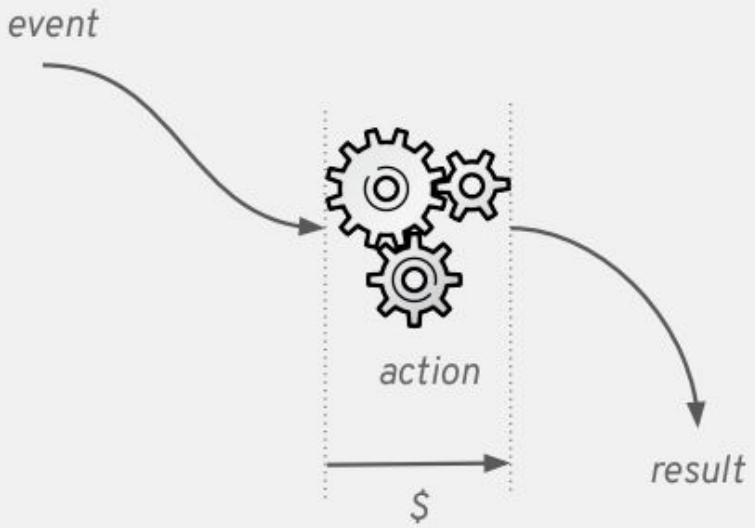
Serverless definition

*"... is a cloud computing **code execution model** in which the cloud provider fully manages starting and stopping of a function's container platform as a service (PaaS) as necessary to **serve requests**, and requests are **billed by an abstract measure** of the resources required to satisfy the request ..."*

- *wikipedia*



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Architectural Evolution

Service

> Autonomous
> Loosely-coupled

Microservice

> Single Purpose
> Stateless
> Independently Scalable
> Automated

Function

> Single Action
> Ephemeral

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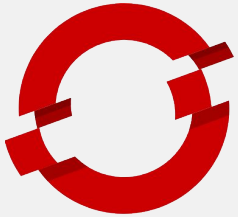
Functions-as-a-Service on OpenShift PaaS

OBJ

- Allows you to use the Function-as-a-Service (FaaS) paradigm in a containerized setup
- Scalable and controllable
- OPEN SOURCE (YEAH) - NO LOCK-IN! (WOW)



RED HAT®
OPENSHIFT
Container Platform

APACHE
OpenWhisk™

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Serverless Use Cases

- Processing Web-hooks
- Scheduled tasks (ala cron)
- Data Transformation :
  - (Mobile) Image manipulation (compression, conversion, etc)
  - Voice packet to JSON transformation (eg. Alexa, Cortana)
  - (Mobile) Video Analysis (Frame-grabbing)
- PDF Generation
- Mobile / MBaaS / Single Page Apps.
- ChatBots

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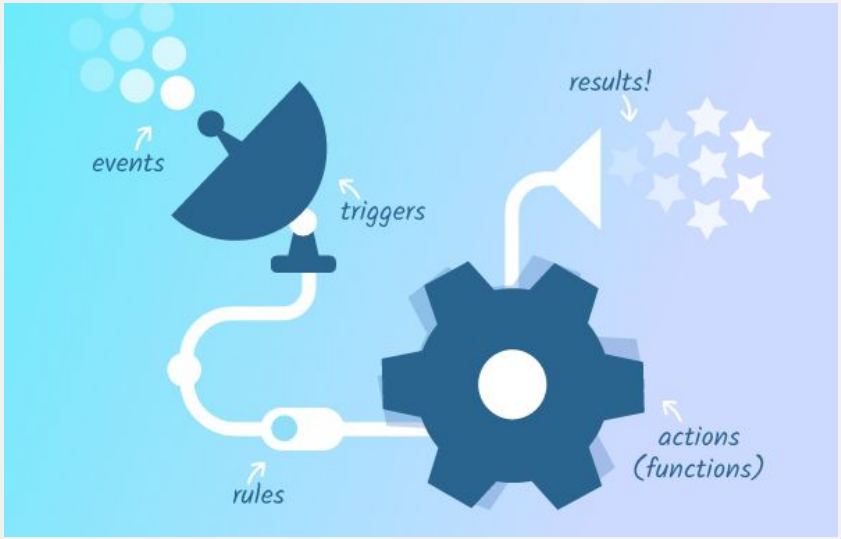
OpenWhisk Architecture

OpenWhisk is designed to act as an *asynchronous* and loosely coupled execution environment that can run *functions* against external *triggers*.

- **Actions**
- **Triggers**
- **Rules**

Main components are:

- **Invoker**
- Controller
- Kafka
- CouchDB



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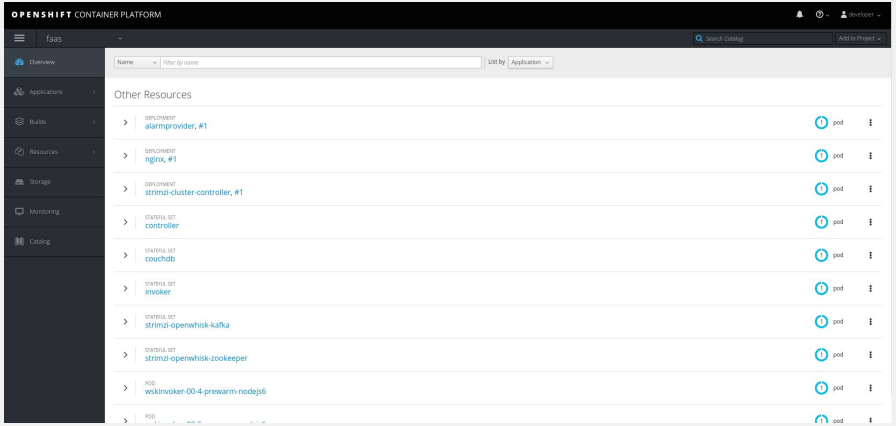
OpenWhisk on OpenShift Integration

OpenShift runs OpenWhisk components as Docker containers and controls the creation of new containers containing functions to execute



The **Invoker** makes the decision of either reusing an existing *hot* container, or starting a paused *warm* container, or launching a new *cold* container for a new invocation.

OpenShift **template** for OpenWhisk can be customized

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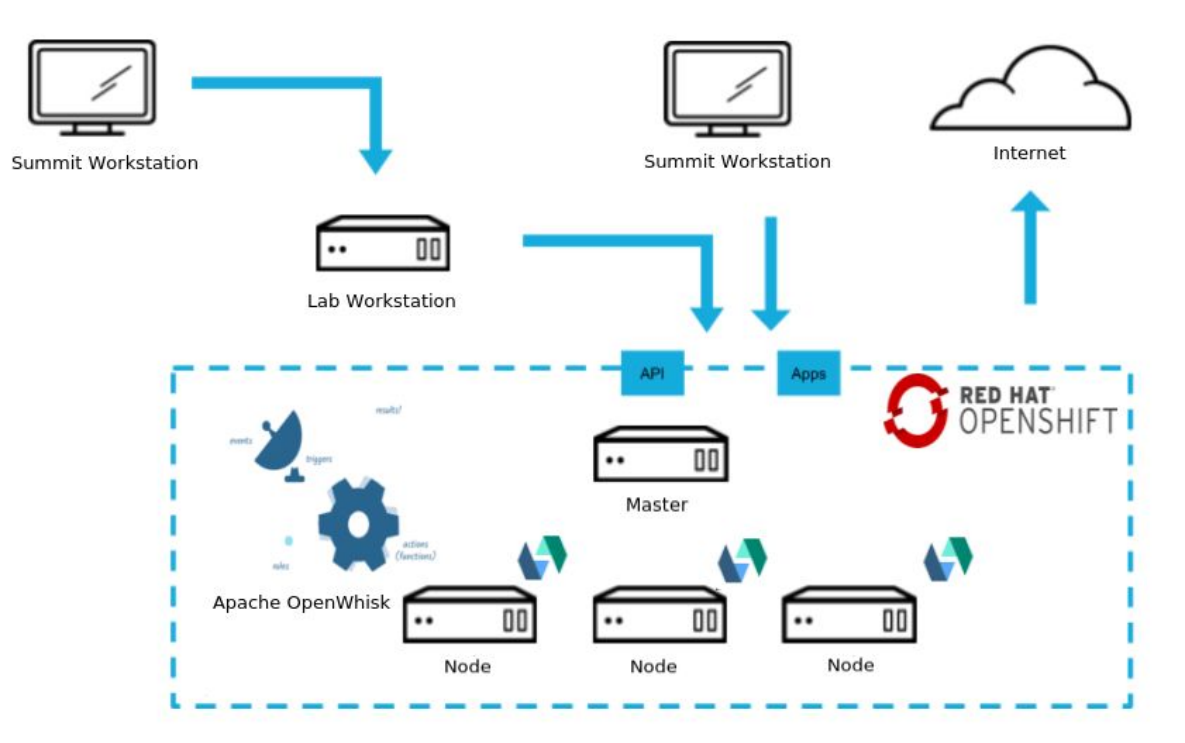
Lab Architecture



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ACCESS THE LAB

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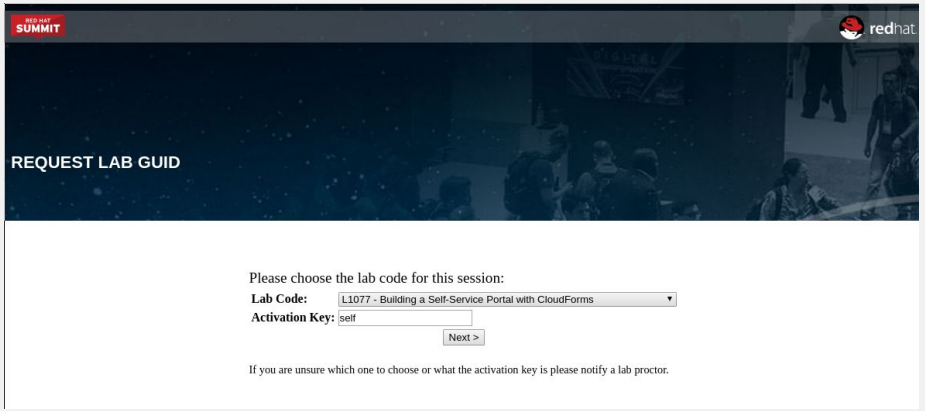
Access your Lab

Each attendee will get their **own cloud-based lab** environment.

Each attendee needs a **unique identifier** (GUID)

Get the GUID:

- Bring up the **homepage** on your browser
- Choose Lab: **L1096**
- Activation Key: **self**
- Click **Next**



Access your Lab

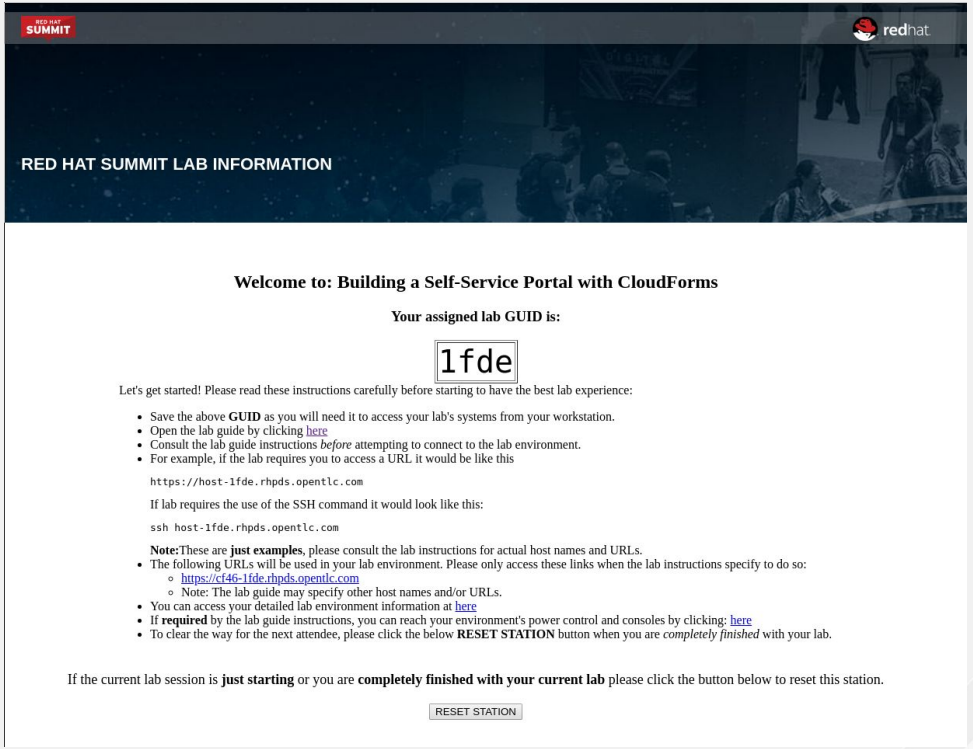
On the next page you **get your locked GUID, keep it at hand**

Access the Lab Guide:

the link in the **info page:**

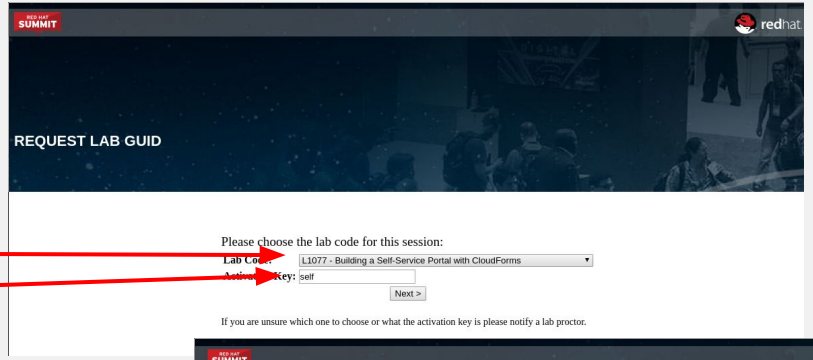
“Open the lab guide by clicking here”

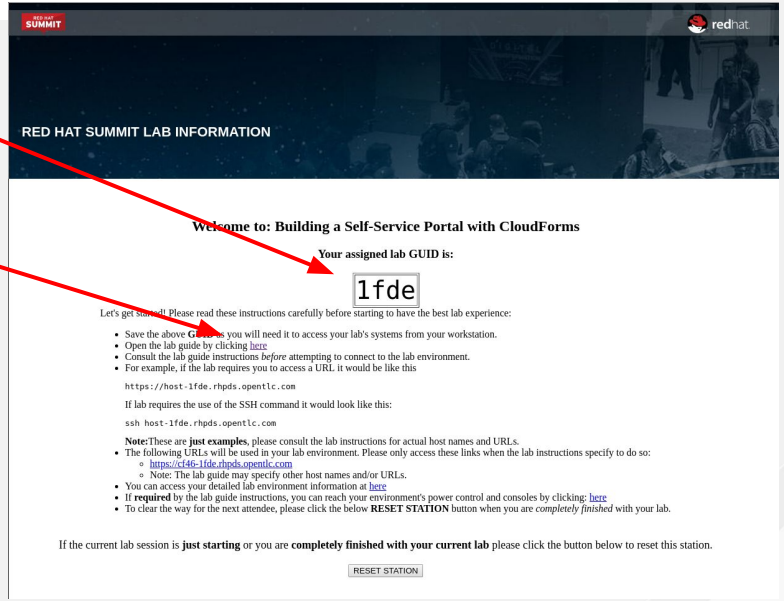
Follow the lab guide



Summary

- Choose lab: **L1096**
- Activation key: **self**
- Get **GUID**
- Access Lab Guide:
  “Open the lab guide by clicking here”
- **Follow the guide and start your lab!**





Password is always:
r3dh4t1!

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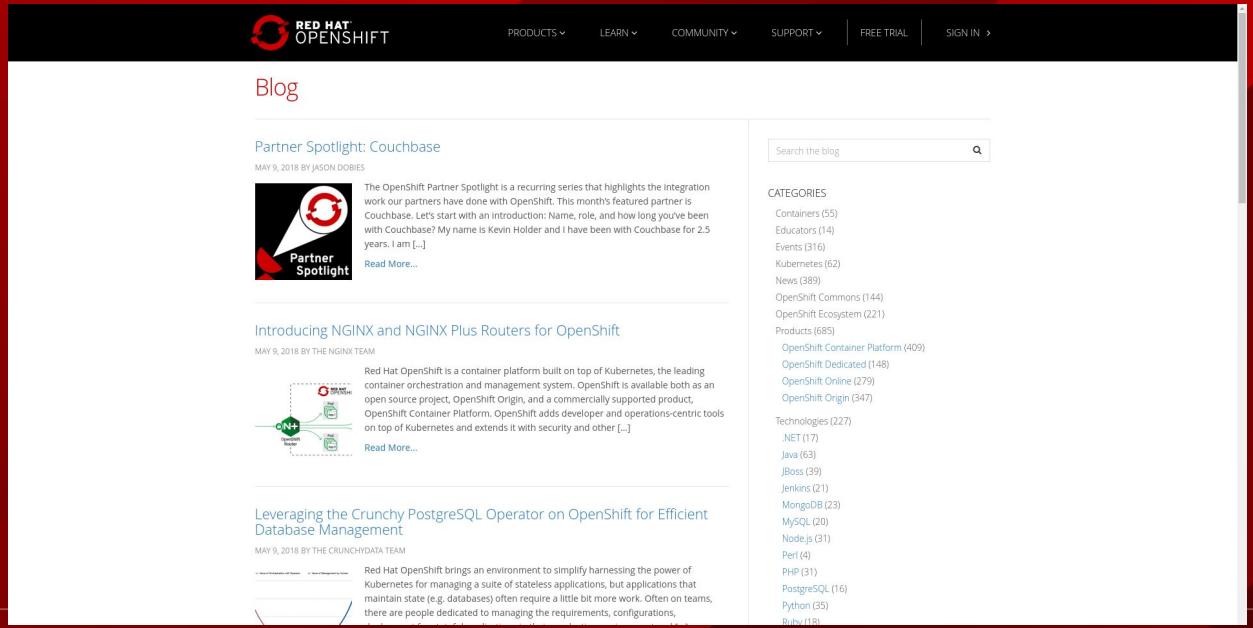

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FINAL TASK:

FILL IN EVALUATION FORM IN RED HAT SUMMIT APP, DO IT NOW!

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Natale and Francesco
2018-05-10

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