



Mastering Serverless PaaS with OpenShift

L1096

Natale Vinto
EMEA Specialist Solution Architect OpenShift

Francesco Vollero
EMEA Specialist Solution Architect OpenStack



Introduction

\$ oc whoami

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

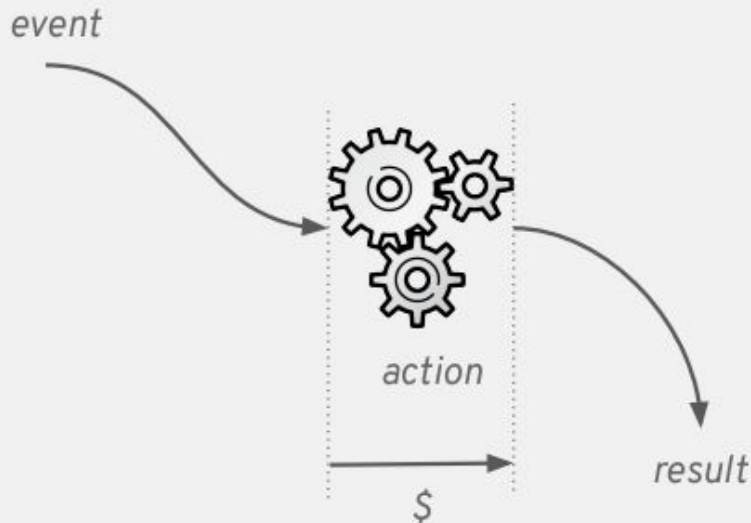


What is Serverless?

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



Architectural Evolution

Service



- > Autonomous
- > Loosely-coupled

Microservice



- > Single Purpose
- > Stateless
- > Independently Scalable
- > Automated

Function

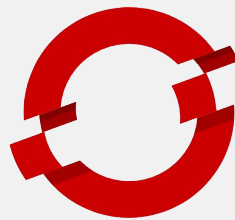


- > Single Action
- > Ephemeral

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®
OPENSSHIFT
Container Platform



APACHE
OpenWhisk™

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

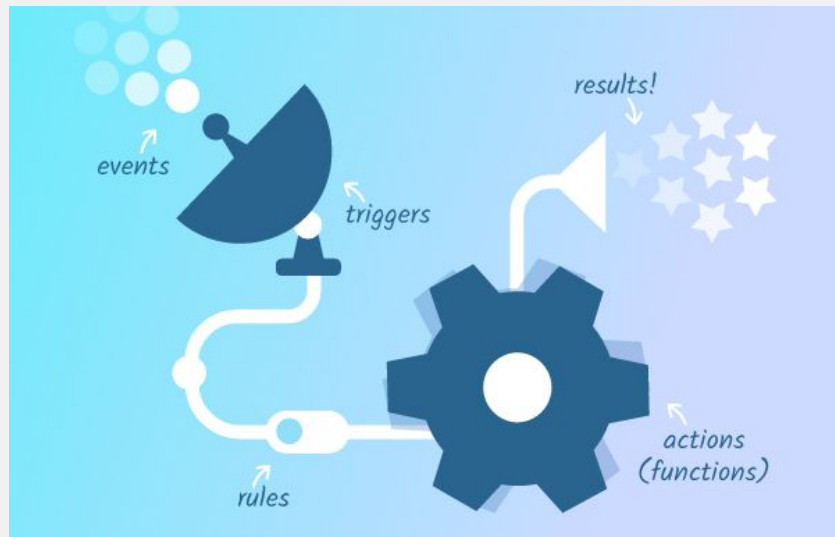
OpenWhisk Architecture

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**

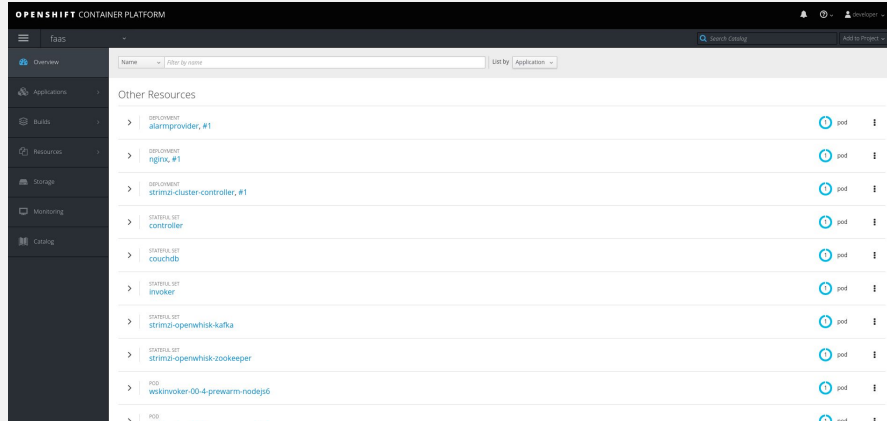


OpenWhisk on OpenShift Integration

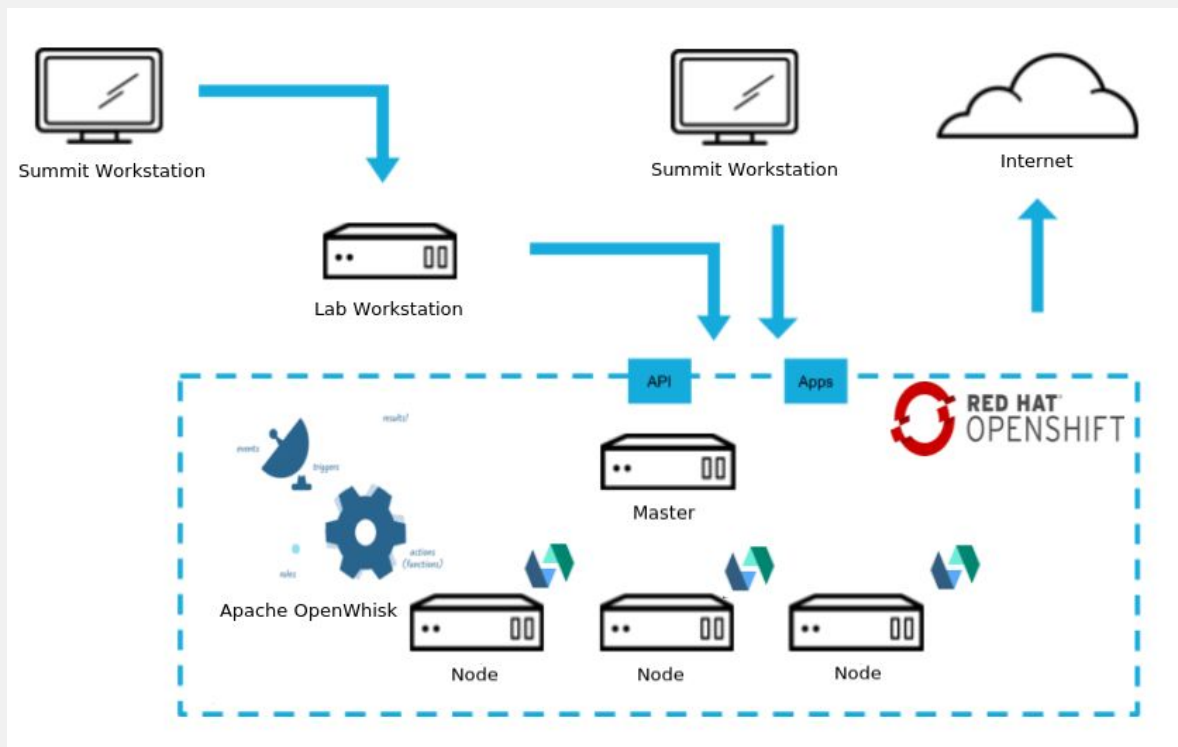
OpenShift runs OpenWhisk components as Docker containers and controls the creation of new containers containing functions to execute

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



Lab Architecture



ACCESS THE LAB

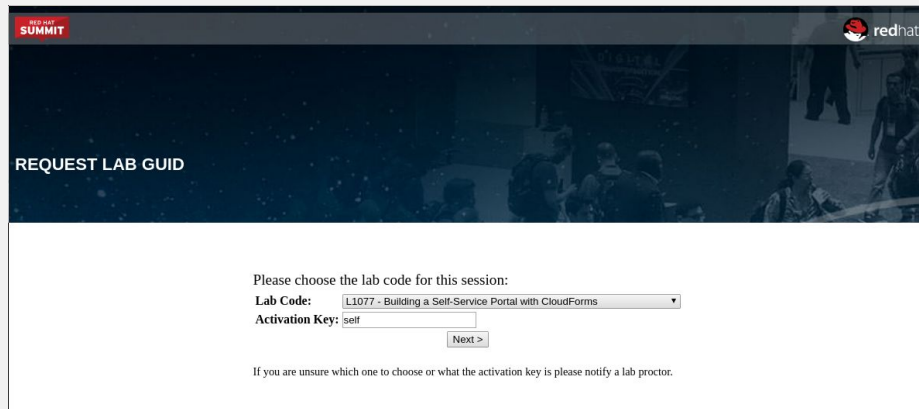
Access your Lab

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: **paas**
- Click **Next**



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REQUEST LAB GUID

Please choose the lab code for this session:

Lab Code:

Activation Key:

If you are unsure which one to choose or what the activation key is please notify a lab proctor.

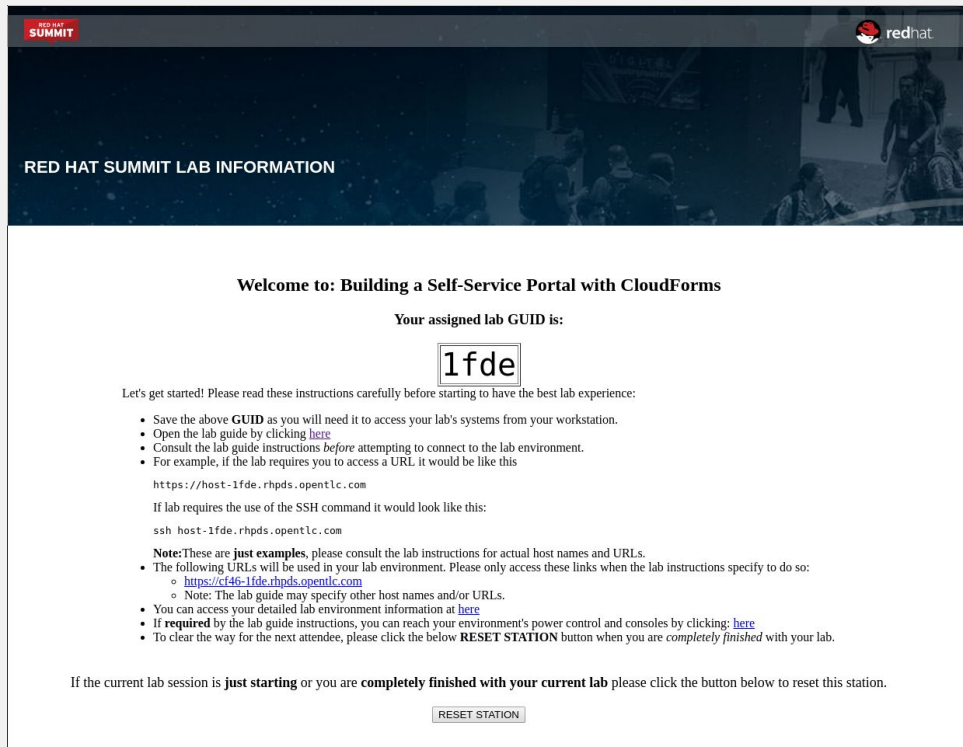
Access your Lab

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



The screenshot shows the 'RED HAT SUMMIT LAB INFORMATION' page. At the top, there's a header with 'RED HAT SUMMIT' and the Red Hat logo. Below the header, the main title is 'RED HAT SUMMIT LAB INFORMATION'. The content area starts with a welcome message: 'Welcome to: Building a Self-Service Portal with CloudForms'. It then states 'Your assigned lab GUID is:' followed by a box containing the GUID '1fde'. Below this, it says 'Let's get started! Please read these instructions carefully before starting to have the best lab experience:'. There are three bullet points: 1. Save the above GUID as you will need it to access your lab's systems from your workstation. 2. Open the lab guide by clicking [here](#). 3. Consult the lab guide instructions before attempting to connect to the lab environment. For example, if the lab requires you to access a URL it would be like this: `https://host-1fde.rhpdn.opentlc.com`. It then says 'If lab requires the use of the SSH command it would look like this:' followed by the command `ssh host-1fde.rhpdn.opentlc.com`. A note follows: 'Note: These are just examples, please consult the lab instructions for actual host names and URLs.' Then, another bullet point: 'The following URLs will be used in your lab environment. Please only access these links when the lab instructions specify to do so:' with a sub-bullet: 'Note: The lab guide may specify other host names and/or URLs.' Then, two more bullet points: 'You can access your detailed lab environment information at [here](#)' and 'If required by the lab guide instructions, you can reach your environment's power control and consoles by clicking: [here](#)'. The last bullet point says: 'To clear the way for the next attendee, please click the below RESET STATION button when you are completely finished with your lab.' At the bottom, it says: 'If the current lab session is just starting or you are completely finished with your current lab please click the button below to reset this station.' and there is a 'RESET STATION' button.

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RED HAT SUMMIT LAB INFORMATION

Welcome to: Building a Self-Service Portal with CloudForms

Your assigned lab GUID is:

1fde

Let's get started! Please read these instructions carefully before starting to have the best lab experience:

- Save the above GUID as you will need it to access your lab's systems from your workstation.
- Open the lab guide by clicking [here](#).
- Consult the lab guide instructions before attempting to connect to the lab environment.

For example, if the lab requires you to access a URL it would be like this

`https://host-1fde.rhpdn.opentlc.com`

If lab requires the use of the SSH command it would look like this:

`ssh host-1fde.rhpdn.opentlc.com`

Note: These are just examples, please consult the lab instructions for actual host names and URLs.

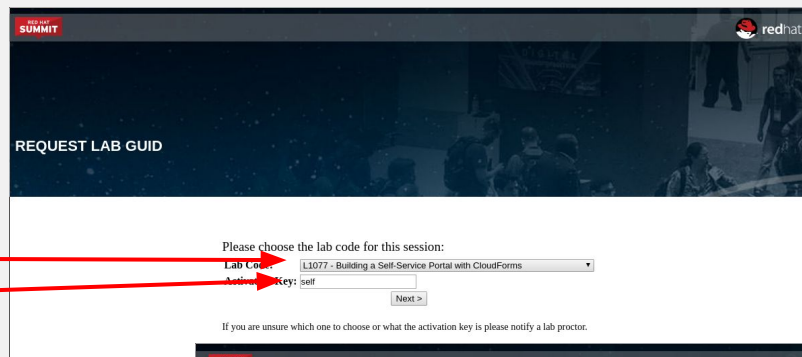
- The following URLs will be used in your lab environment. Please only access these links when the lab instructions specify to do so:
 - <https://cf46-1fde.rhpdn.opentlc.com>
 - Note: The lab guide may specify other host names and/or URLs.
- You can access your detailed lab environment information at [here](#)
- If required by the lab guide instructions, you can reach your environment's power control and consoles by clicking: [here](#)
- To clear the way for the next attendee, please click the below RESET STATION button when you are completely finished with your lab.

If the current lab session is just starting or you are completely finished with your current lab please click the button below to reset this station.

RESET STATION

Summary

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



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REQUEST LAB GUID

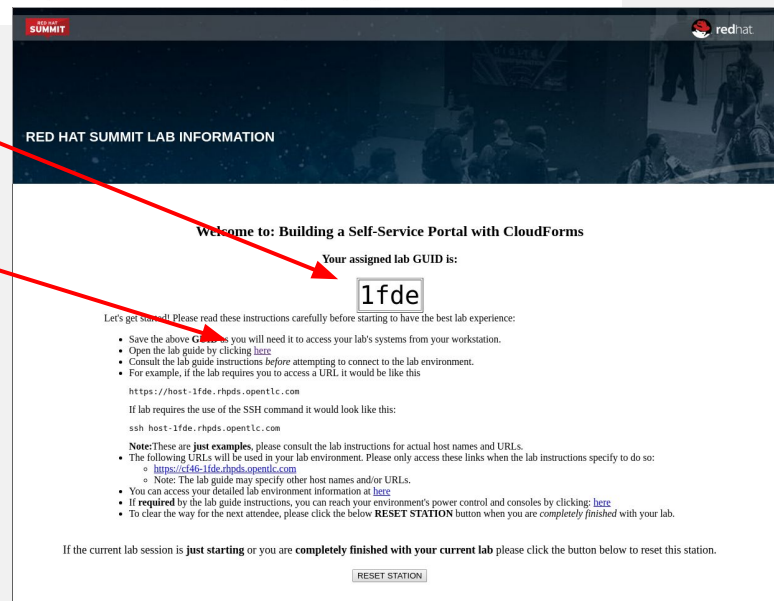
Please choose the lab code for this session:

Lab Code: **L1077 - Building a Self-Service Portal with CloudForms**

Activation Key: **self**

Next >

If you are unsure which one to choose or what the activation key is please notify a lab proctor.



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RED HAT SUMMIT LAB INFORMATION

Welcome to: Building a Self-Service Portal with CloudForms

Your assigned lab GUID is:

1fde

Let's get started! Please read these instructions carefully before starting to have the best lab experience:

- Save the above GUIDs you will need it to access your lab's systems from your workstation.
- Open the lab guide by clicking [here](#).
- Consult the lab guide instructions before attempting to connect to the lab environment.
- For example, if the lab requires you to access a URL, it would be like this
`https://host-1fde.rhps.opentlc.com`
If lab requires the use of the SSH command it would look like this:
`ssh host-1fde.rhps.opentlc.com`

Note: These are just examples, please consult the lab instructions for actual host names and URLs.

- The following URLs will be used in your lab environment. Please only access these links when the lab instructions specify to do so:
 - <https://cfde-1fde.rhps.opentlc.com>
 - Note: The lab guide may specify other host names and/or URLs.
- You can access your detailed lab environment information at [here](#).
- If **required** by the lab guide instructions, you can reach your environment's power control and consoles by clicking: [here](#).
- To clear the way for the next attendee, please click the below **RESET STATION** button when you are completely finished with your lab.

If the current lab session is **just starting** or you are **completely finished with your current lab** please click the button below to reset this station.

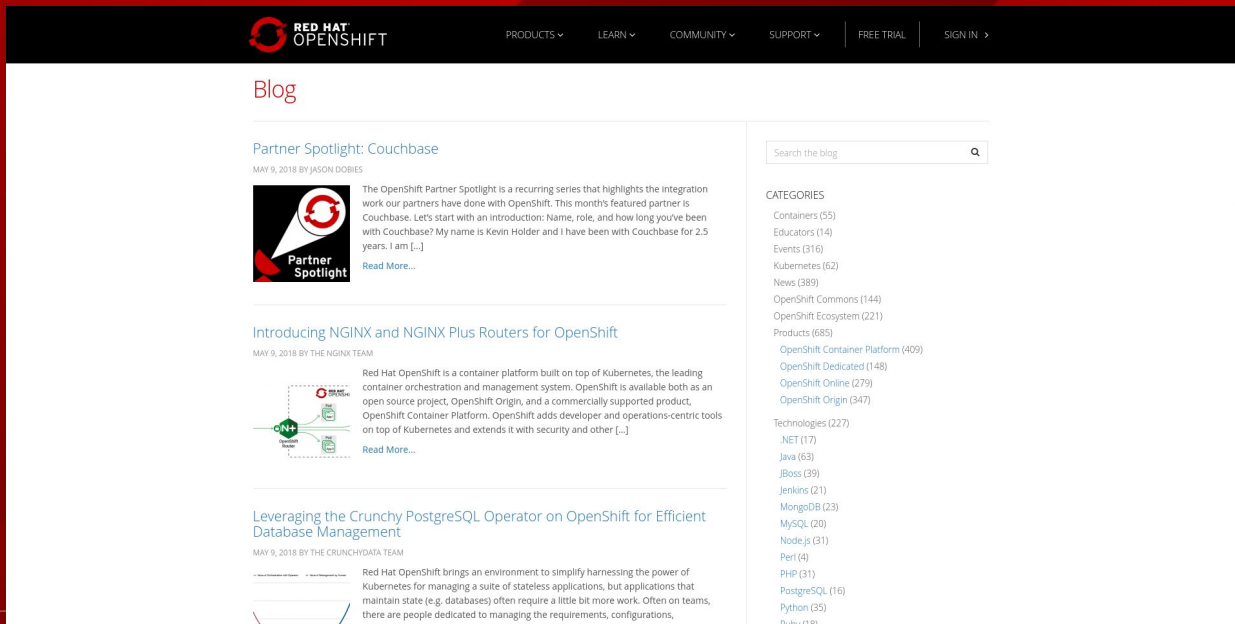
RESET STATION

Lab Instructions

<http://bit.ly/summit2018-serverless-lab>

Do you know our blog?

blog.openshift.com



The screenshot shows the Red Hat OpenShift Blog homepage. The header is black with the Red Hat OpenShift logo on the left and navigation links (PRODUCTS, LEARN, COMMUNITY, SUPPORT, FREE TRIAL, SIGN IN) on the right. The main content area is white and features a 'Blog' title. Below the title, there are three article previews. The first article is 'Partner Spotlight: Couchbase' by Jason Dobies, dated May 9, 2018. It includes a 'Partner Spotlight' icon and a 'Read More...' link. The second article is 'Introducing NGINX and NGINX Plus Routers for OpenShift' by the NGINX team, dated May 9, 2018. It includes a diagram showing NGINX Plus routers connected to OpenShift containers and a 'Read More...' link. The third article is 'Leveraging the Crunchy PostgreSQL Operator on OpenShift for Efficient Database Management' by the CrunchyData team, dated May 9, 2018. It includes a diagram showing a PostgreSQL database connected to OpenShift containers and a 'Read More...' link. On the right side of the page, there is a search bar and a 'CATEGORIES' section listing various topics and their counts, such as Containers (55), Educators (14), Events (316), Kubernetes (62), News (389), OpenShift Commons (144), OpenShift Ecosystem (221), Products (685), OpenShift Container Platform (409), OpenShift Dedicated (148), OpenShift Online (279), OpenShift Origin (347), Technologies (227), .NET (17), Java (63), JBoss (39), Jenkins (21), MongoDB (23), MySQL (20), Node.js (31), Perl (4), PHP (31), PostgreSQL (16), Python (35), and Ruby (18).

Blog

Partner Spotlight: Couchbase
MAY 9, 2018 BY JASON DOBIES

The OpenShift Partner Spotlight is a recurring series that highlights the integration work our partners have done with OpenShift. This month's featured partner is Couchbase. Let's start with an introduction: Name, role, and how long you've been with Couchbase? My name is Kevin Holder and I have been with Couchbase for 2.5 years. I am [...]

[Read More...](#)

Introducing NGINX and NGINX Plus Routers for OpenShift
MAY 9, 2018 BY THE NGINX TEAM

Red Hat OpenShift is a container platform built on top of Kubernetes, the leading container orchestration and management system. OpenShift is available both as an open source project, OpenShift Origin, and a commercially supported product, OpenShift Container Platform. OpenShift adds developer and operations-centric tools on top of Kubernetes and extends it with security and other [...]

[Read More...](#)

Leveraging the Crunchy PostgreSQL Operator on OpenShift for Efficient Database Management
MAY 9, 2018 BY THE CRUNCHYDATA TEAM

Red Hat OpenShift brings an environment to simplify harnessing the power of Kubernetes for managing a suite of stateless applications, but applications that maintain state (e.g. databases) often require a little bit more work. Often on teams, there are people dedicated to managing the requirements, configurations,

Search the blog

CATEGORIES

- Containers (55)
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- PostgreSQL (16)
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FINAL TASK:

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

Mastering Serverless PaaS with OpenShift

Natale and Francesco
2018-05-10

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THANK YOU



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