

RED HAT
SUMMIT

10 YEARS *and counting*
SAN FRANCISCO | APRIL 14-17, 2014

PaaS Anywhere

Isaac Christoffersen
Architect, Vizuri

About Vizuri

- ◆ Java EE & Open Source Solution Provider
- ◆ Red Hat & JBoss Premier Partner
- ◆ 2009, 2010, 2011, 2012 Middleware Partner of the Year
- ◆ Preferred JBoss Certified Systems Integrator
- ◆ 4 time Red Hat Innovation Award winner

2006 (Orbitz), 2008 (Federal Government),

2009(eCommerce),

2011 (New York and Company)

Certified Red Hat Professionals



JBoss
CERTIFIED
APPLICATION
ADMINISTRATOR



redhat.
CERTIFIED
VIRTUALIZATION
ADMINISTRATOR



redhat.
CERTIFIED
SALESPERSON



redhat.
CERTIFIED
TECHNICIAN

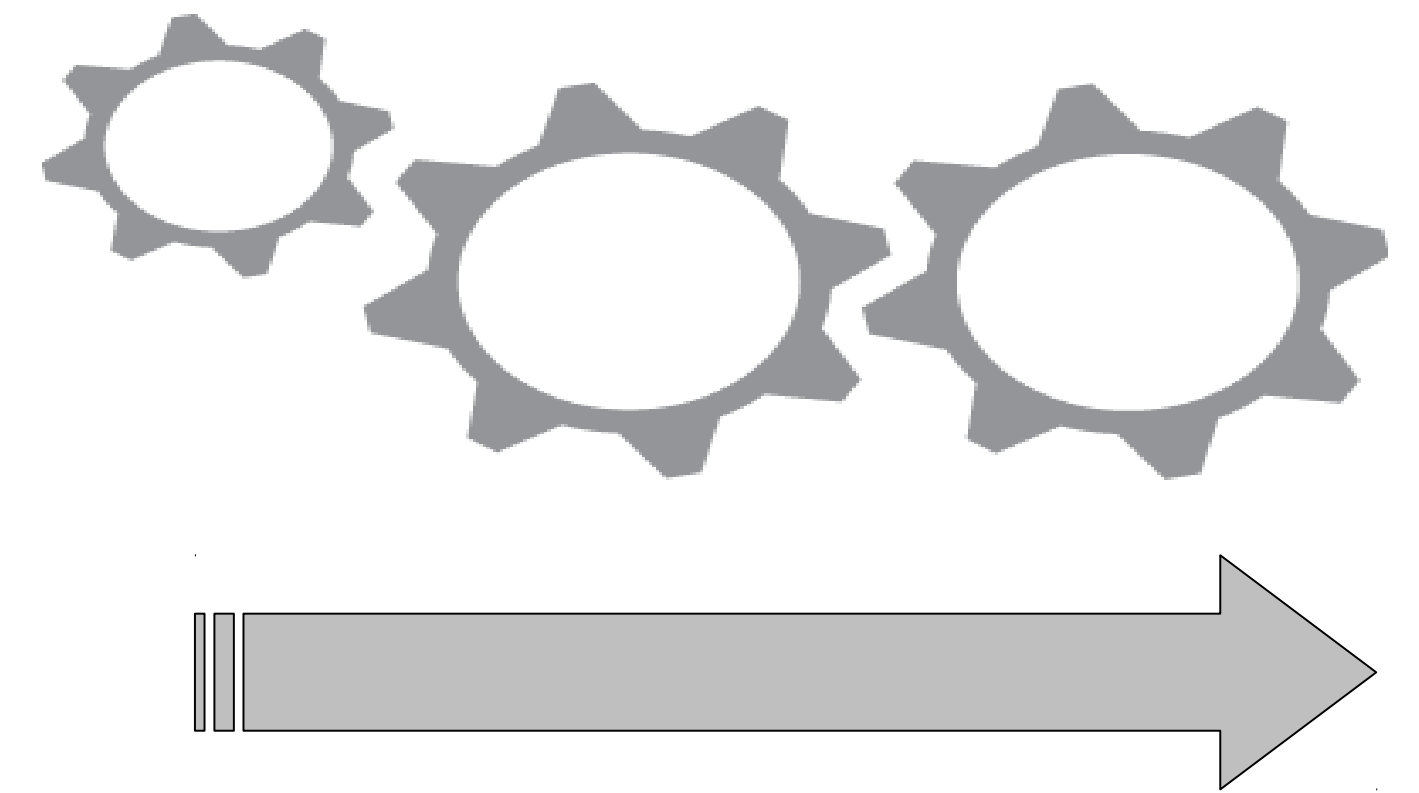
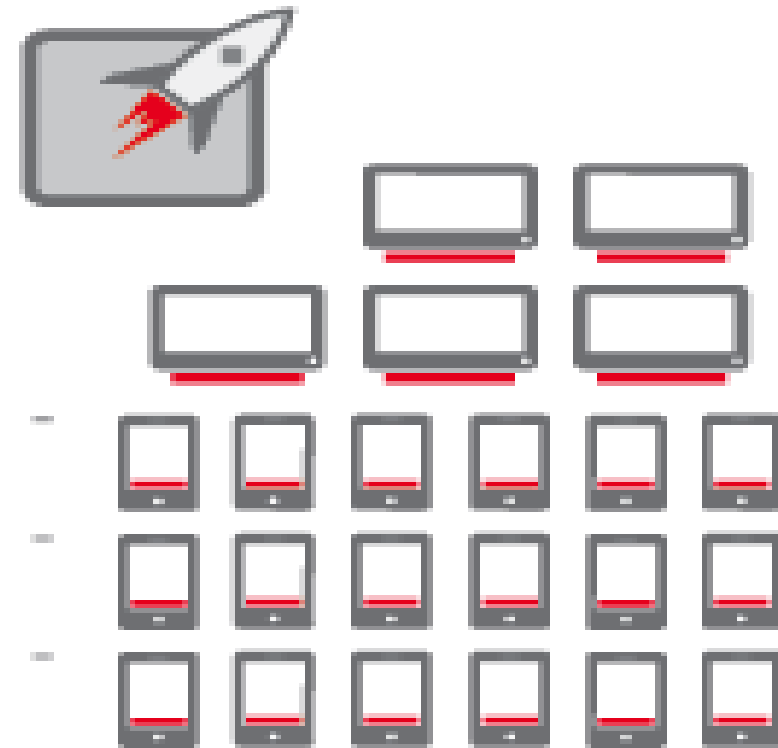
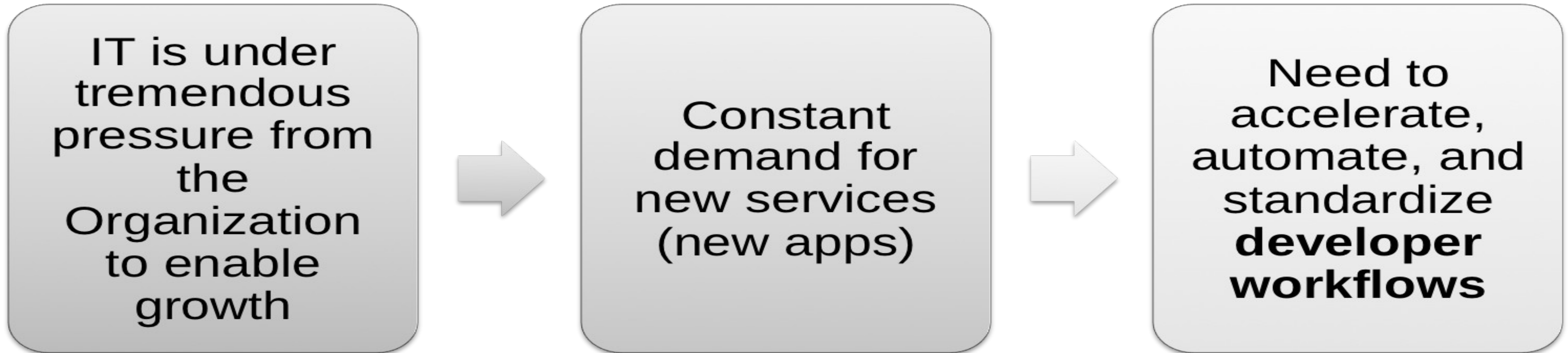


OPENSIFT
— by Red Hat —
**ADVANCED
PARTNER**

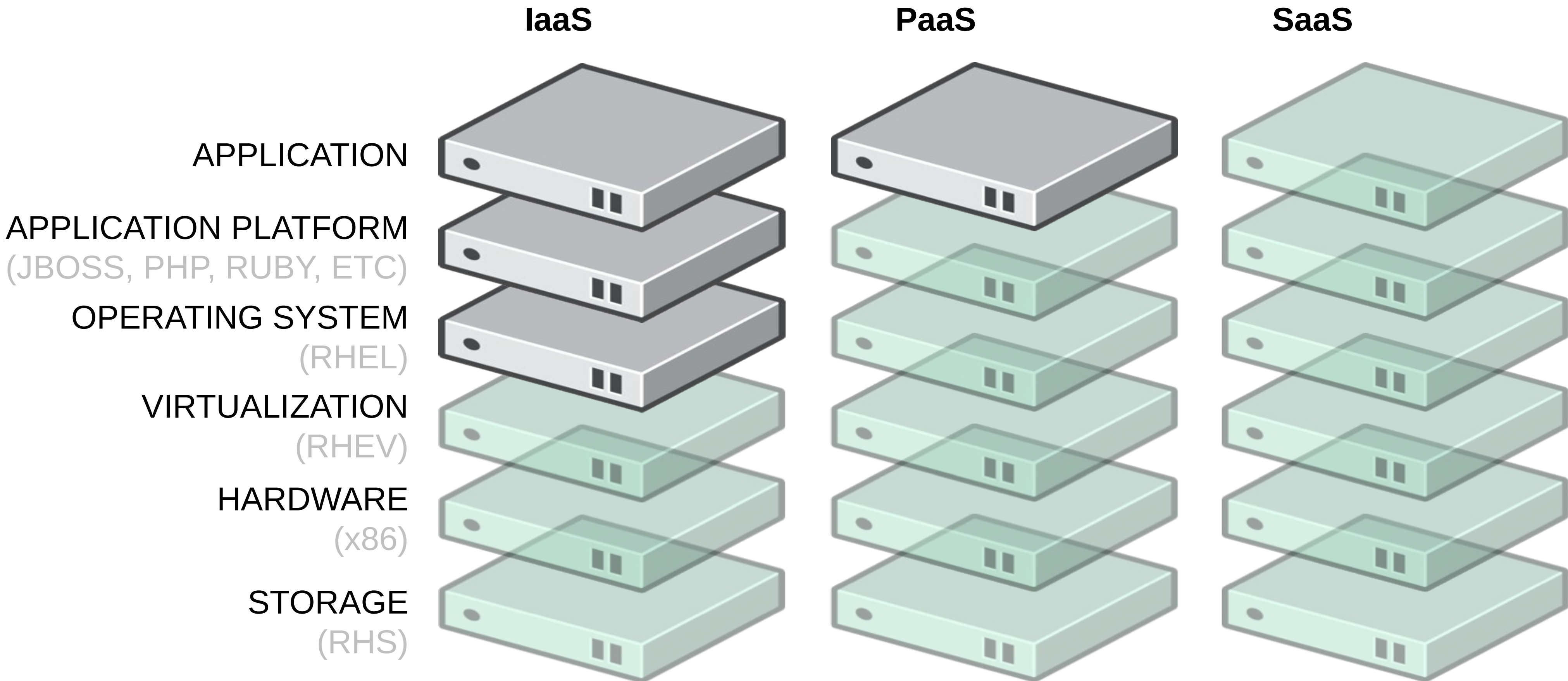


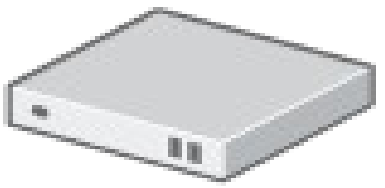
redhat.
**PREMIER
BUSINESS
PARTNER**

Today's IT Challenge




Cloud Service Models





Managed and Controlled by Customer (IT, Dev, or User)



Automated and Managed by the Public or Private Cloud Offering

← Increased Control

→ Increased Automation

Streamlining App Dev with PaaS

Craftwork

Physical

How to Build an App:

1. Have Idea
2. Get Budget
3. Submit hardware acquisition request
4. Wait
5. Get Hardware
6. Rack and Stack Hardware
7. Install Operating System
8. Install Operating System Patches/Fix-Packs
9. Create user Accounts
10. Deploy framework/appserver
11. Deploy testing tools
12. Code
13. Test
14. Configure Prod servers (and buy them if needed)
15. Push to Prod
16. Launch
17. Order more servers to meet demand
18. Wait...
19. Deploy new servers
20. Etc.

Virtualized

How to Build an App:

1. Have Idea
2. Get Budget
3. Submit VM Request request
4. Wait
5. Deploy framework/appserver
6. Deploy testing tools
7. Code
8. Test
9. Configure Prod VMs
10. Push to Prod
11. Launch
12. Request More Prod VMs to meet demand
13. Wait
14. Deploy app to new VMs
15. Etc.

Assembly Line

With PaaS

How to Build an App:

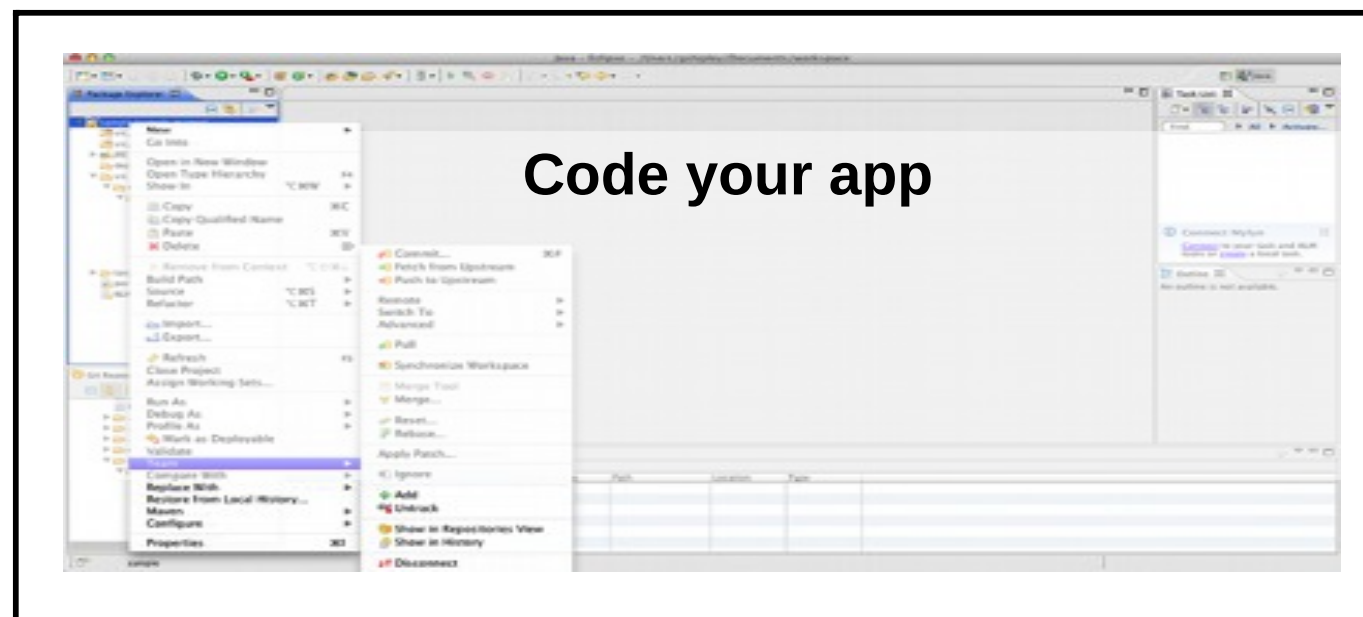
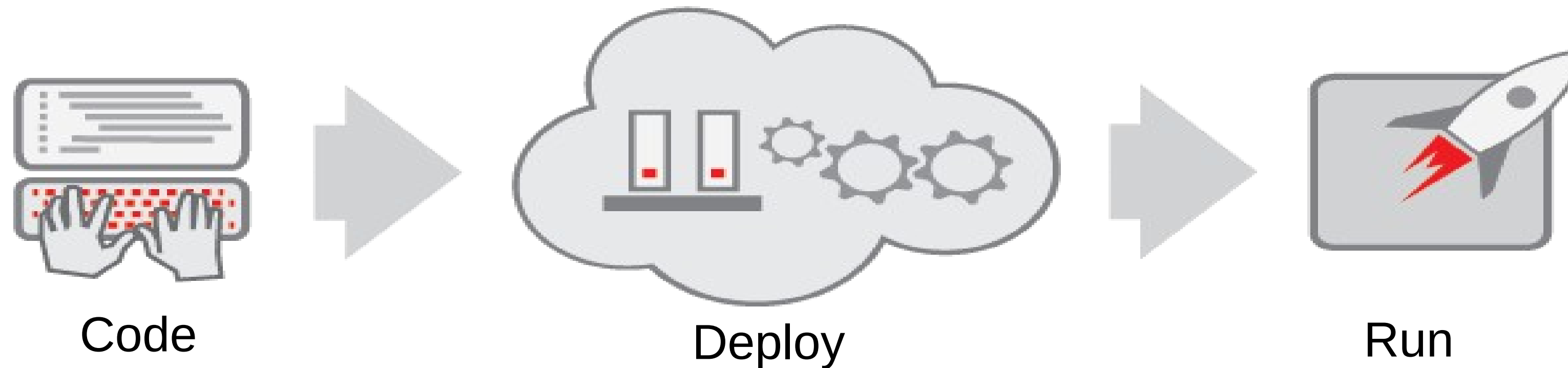
- 1. Have Idea**
- 2. Get Budget**
- 3. Code**
- 4. Test**
- 5. Launch**
- 6. Automatically Scale**



*"The use of Platform-as-a-Service technologies will enable **IT organizations** to become more agile and **more responsive to the business needs.**" –Gartner**

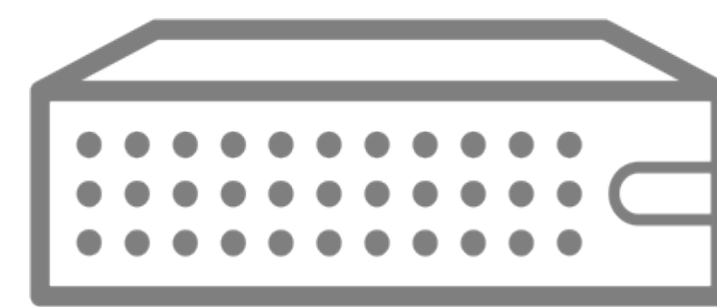
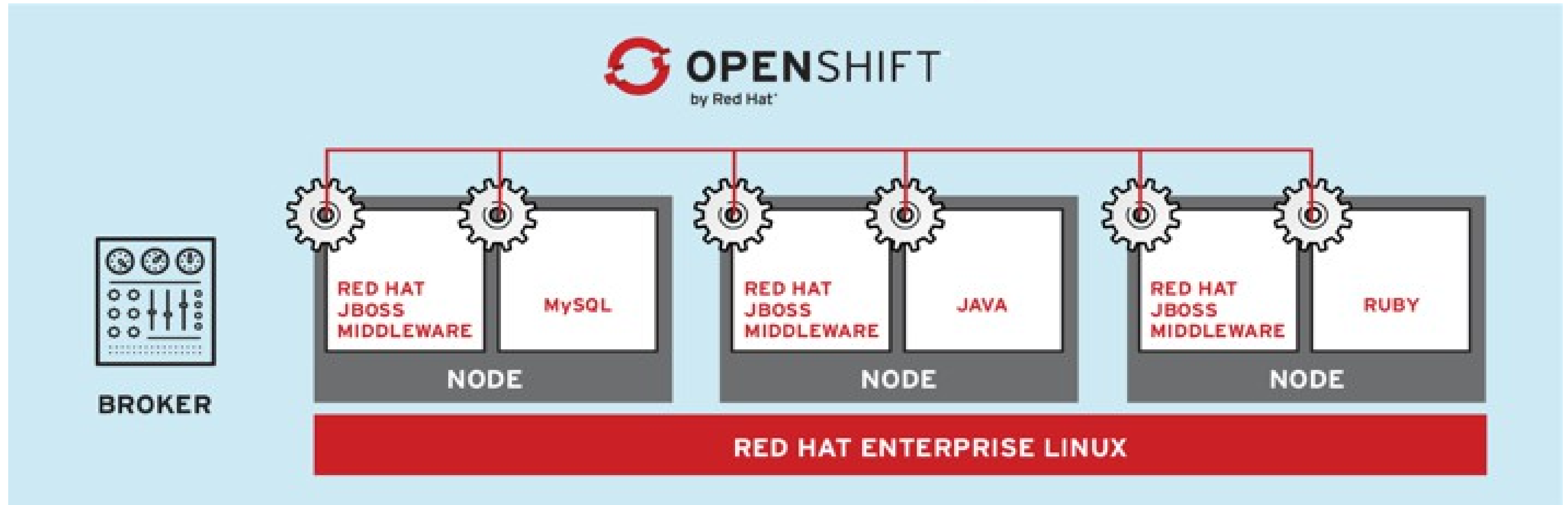
Accelerate IT Service Delivery with PaaS

PaaS leverages automation technologies and a **cloud** architecture...



...to drive **Velocity**, **Efficiency**, and **Scalability** in IT

OpenShift – A PaaS that is truly infrastructure-agnostic



PHYSICAL



VIRTUAL



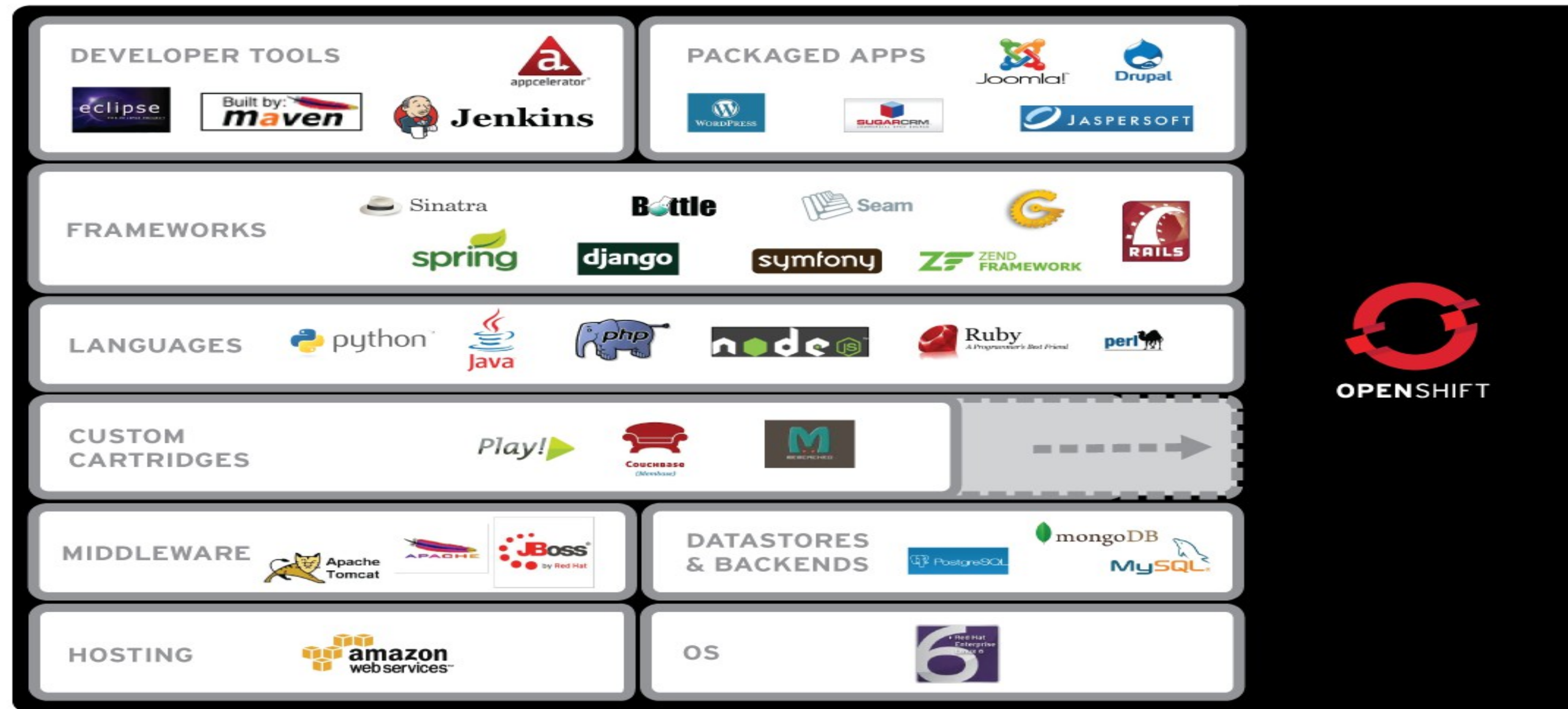
PRIVATE CLOUD



PUBLIC CLOUD

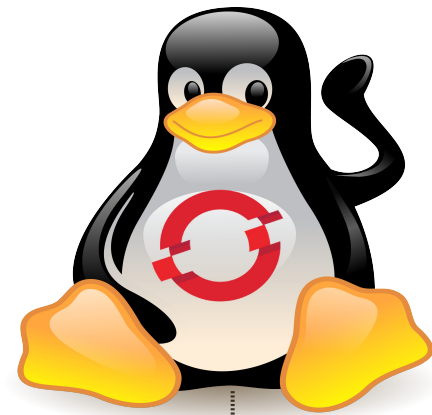
PaaS: It's Magic

SaaS/Applications Layer



Infrastructure Layer

OpenShift – Multiple Perspectives



Free as in Freedom

- Choice of Interface: Web Console, Command-line, or IDE
- Choice of Middleware: Java(EE6), Ruby, Node.js, PHP, Python, etc.
- Choice of Cloud: Public, Private, or Hybrid Cloud
- Choice of Elasticity: Automatic application scaling when needed

User janedoe

Plan Usage Account ID: none
Plan: free
Plan State: ACTIVE

Namespace mydomain

Gears: 3 of 3
Gear sizes: small

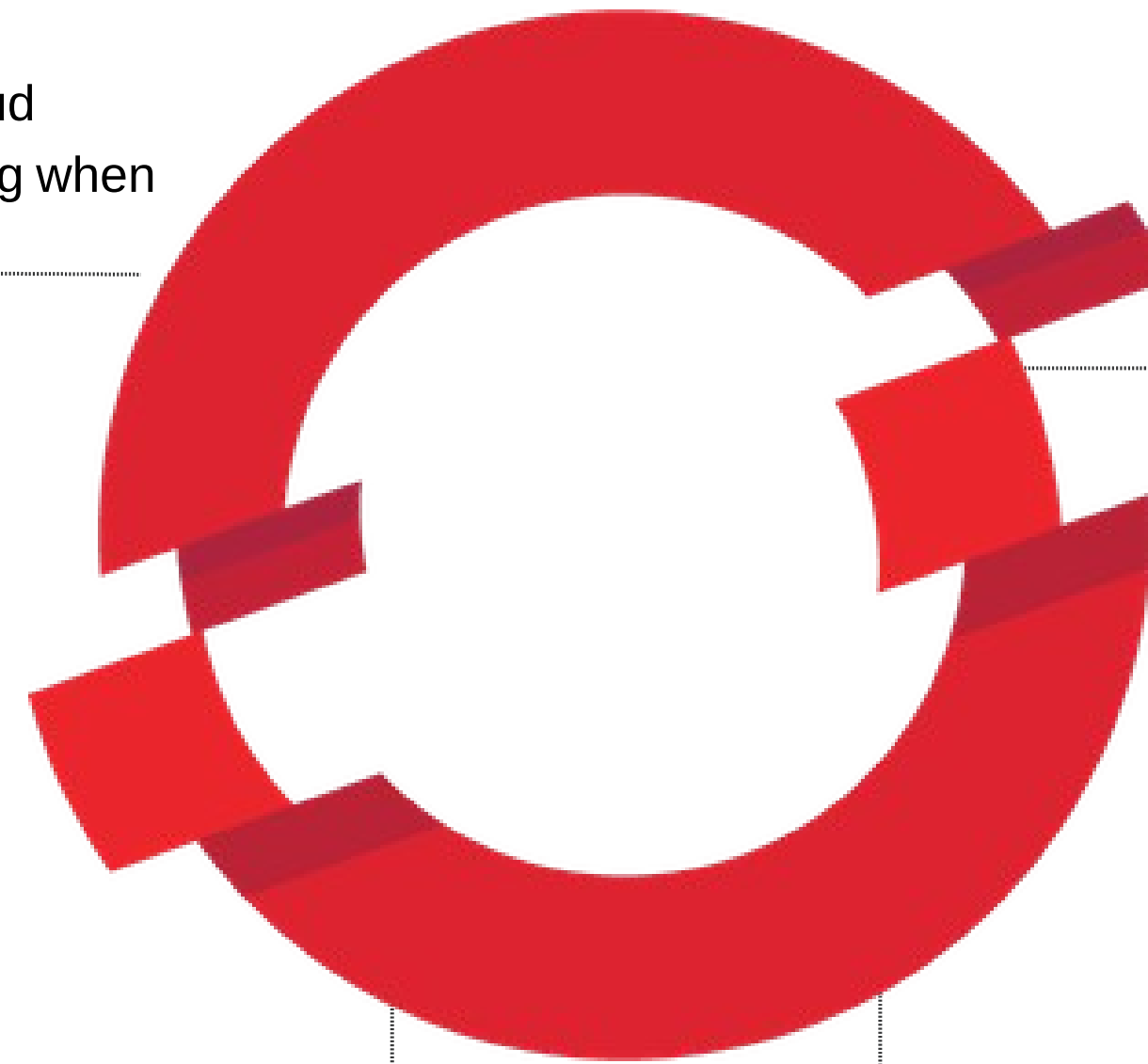
Applications

jenkins-mydomain.dev.rhcloud.com
ID: 523c998bca128caa27000030
Domain: mydomain
Cartridges: Jenkins Server
Gears: 1 small

myapp-mydomain.dev.rhcloud.com
ID: 523c9924ca128caa27000005
Domain: mydomain
Cartridges: PHP 5.3, OpenShift Web Balancer, Cron 1.4, Jenkins C
Gears: 2 small

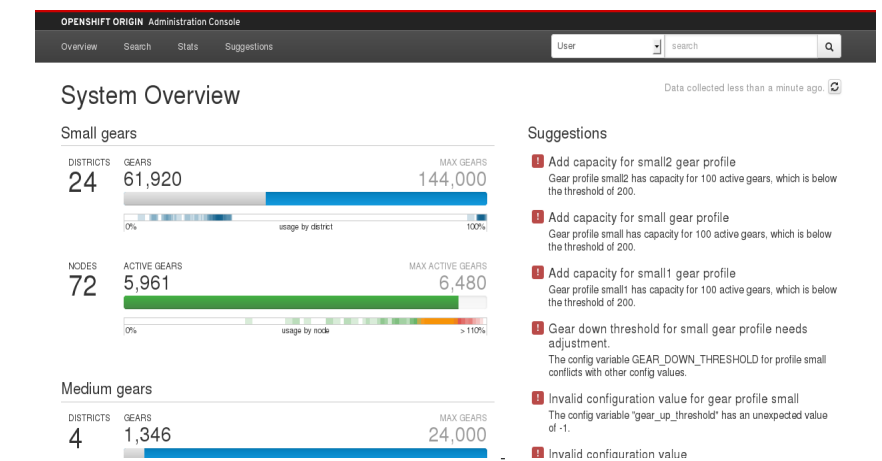
Administrative Tools

- Query information on User's applications
- See how many gears are being used
- See which cartridges are being used



Rich Set of Developer Tools

- Support for Multiple Languages including .Net, Java, Ruby, Node
- Multiple Database Platforms – MongoDB, Postgres, MySQL
- Quickstart and Instant Applications



Secure, Scalable Applications

- Security built-in with SE Linux
- Leverages cGroups to increase density
- Redundancy across OpenShift Nodes

RED HAT
SUMMIT

10 YEARS *and counting*

SAN FRANCISCO | APRIL 14-17, 2014

Demonstrating OpenShift Deployment Options

You Choose the Level of Control

Red Hat's OpenShift PaaS Offerings

Public PaaS
Service



Q1 2011
Dev
Preview
Launched

OPENSIFT[®]
ONLINE
by Red Hat[®]

Demo – Creating an Application on OpenShift Online

Create App

```
rhc app create -a javasample -t jbossas-7
```

Add MongoDB

```
rhc app cartridge add -a javasample -c mongodb-2.0
```

Add add EAR file to your deployments directory

```
cd javasample
```

```
cp /path/to/ear/earfilename.ear ./deployments
```

Add the EAR file to git

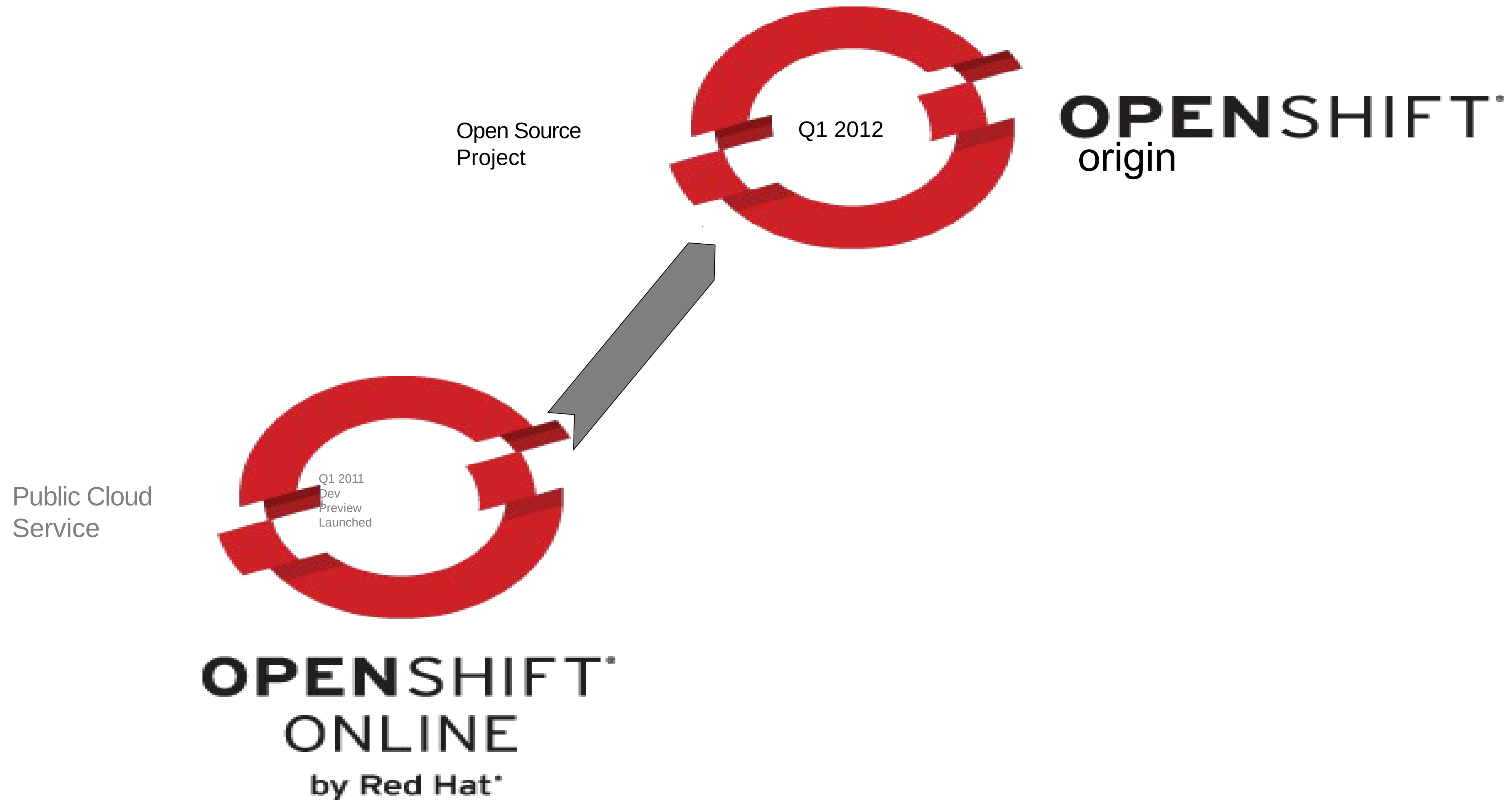
```
git add ./deployments/earfilename.ear
```

Push your code

```
git push
```

Done

Red Hat's OpenShift PaaS Strategy



Demo – Creating an Application in a OpenShift Origin VM

Download an OpenShift Origin OVA image from
http://openshift.github.io/documentation/oo_deployment_guide_vm.html

Re-Configure Client Tools

Create App

```
rhc app create -a javasample -t jbossas-7
```

Add MongoDB

```
rhc app cartridge add -a javasample -c mongodb-2.0
```

Add add EAR file to your deployments directory

```
cd javasample  
cp /path/to/ear/earfilename.ear ./deployments
```

Add the EAR file to git

```
git add ./deployments/earfilename.ear
```

Push your code

```
git push
```


Table of Contents

1. Download VM
2. Unpack VM files
3. Configure mDNS
4. Set up the Virtual Machine
 - 4.1. KVM
 - 4.1.1. Installing KVM Tools
 - 4.1.2. Convert The Image
 - 4.1.3. Create New VM
 - 4.1.4. Select VM Disk Image
 - 4.1.5. Set VM Memory Size
 - 4.1.6. Set VM Memory Size
 - 4.1.7. Starting the VM
 - 4.2. VirtualBox
 - 4.2.1. Create New VM
 - 4.2.2. Set VM Memory Size
 - 4.2.3. Select VM "Hard Drive" Image
 - 4.2.4. Add Bridged Networking
5. Accessing the Virtual Machine
 - 5.1. User Accounts
 - 5.2. Using a browser to view the OpenShift Console
 - 5.3. Using SSH to log into the VM
6. Summary

OpenShift Origin Virtual Machine Deployment Guide

OpenShift Origin Documentation Project <dev@lists.openshift.redhat.com> – ORIGIN VERSION 3.0

This document describes the process of setting up a VM running an OpenShift development environment inside VirtualBox.

You need to have a virtualization application such as KVM, or VirtualBox installed on your workstation and you will need at least 25GB of free disk space. The compressed download is about 1.3GB and when you unpack it the resulting image file is almost 4GB vmdk file or 20 GB uncompressed RAW disk file (Linux only).

1. Download VM

Download the VM from the OpenShift "mirrors" site:

```
$ wget https://mirror.openshift.com/pub/origin-server/release/3/images/openshift-origin.zip
```

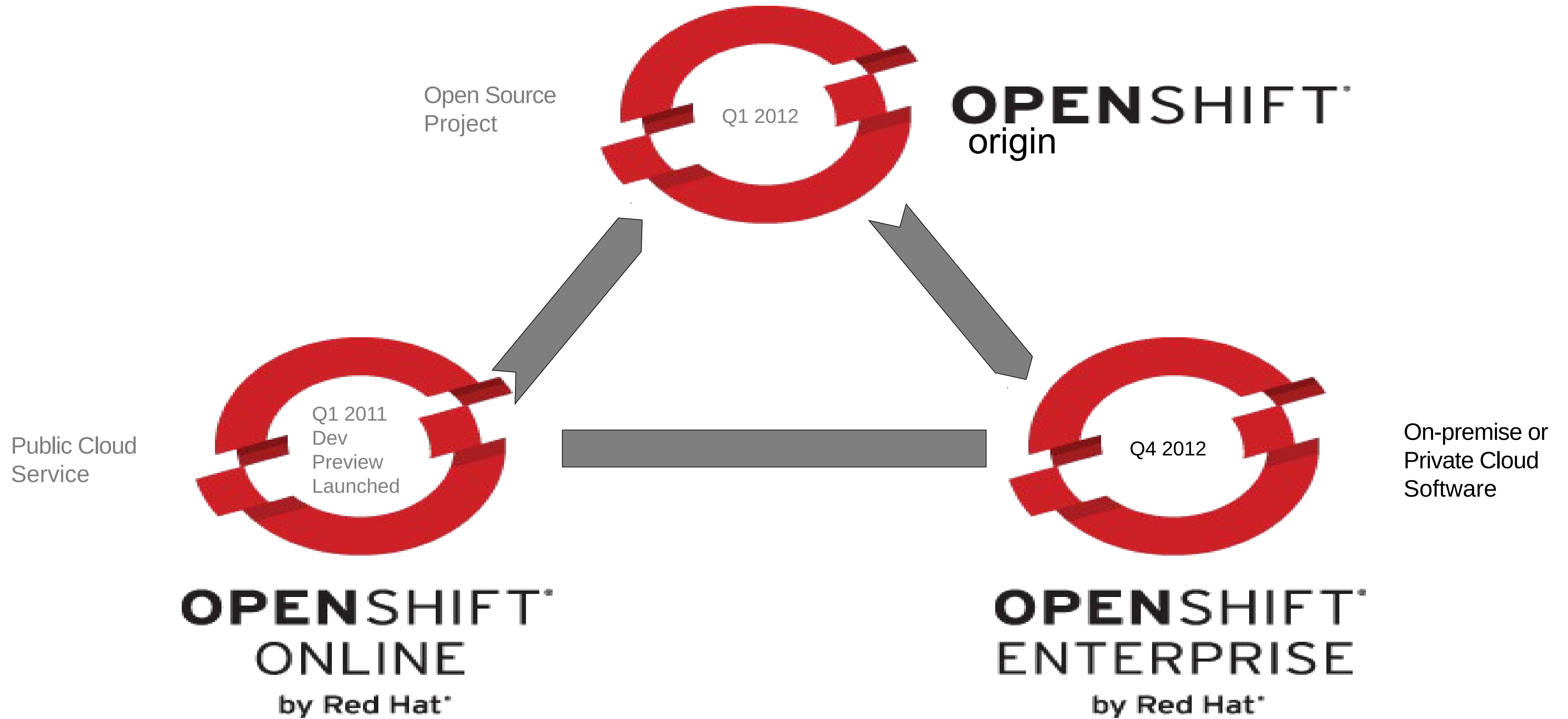
2. Unpack VM files

The download package is a ZIP archive. Unpack it with `unzip` or your system's archive utility.

```
$ unzip openshift-origin.zip
```

http://openshift.github.io/documentation/oo_deployment_guide_vm.html

Red Hat's OpenShift PaaS Strategy



Demo – Creating an Application in a OpenShift Enterprise Environment in AWS

Provision OpenShift Enterprise in AWS with oo-install tool. **Works with OpenShift Origin and Enterprise*

Re-Configure Client Tools

Create App

```
rhc app create -a javasample -t jbossas-7
```

Add MongoDB

```
rhc app cartridge add -a javasample -c mongodb-2.0
```

Add add EAR file to your deployments directory

```
cd javasample
```

```
cp /path/to/ear/earfilename.ear ./deployments
```

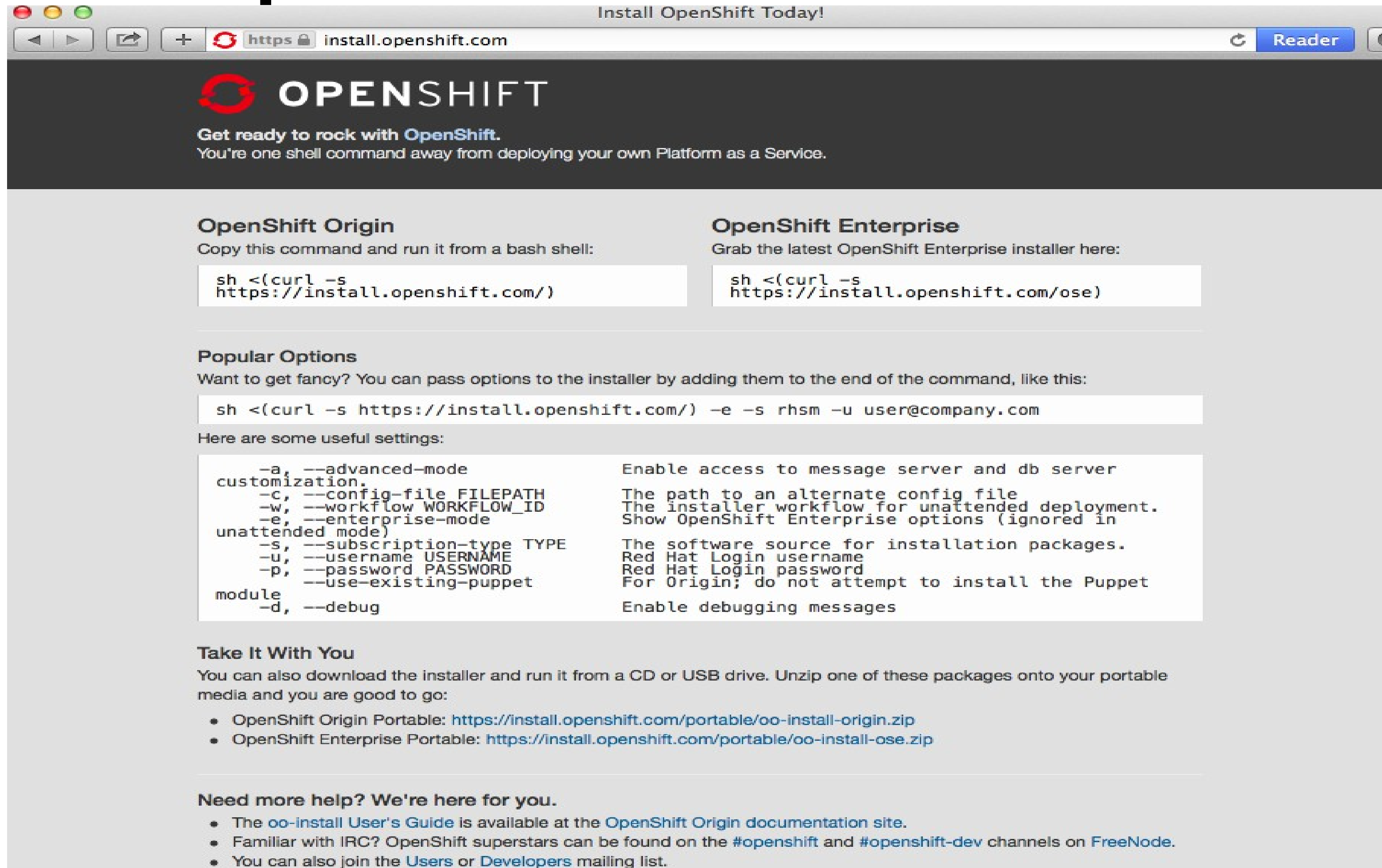
Add the EAR file to git

```
git add ./deployments/earfilename.ear
```

Push your code

```
git push
```


http://install.openshift.com



The screenshot shows a web browser window titled "Install OpenShift Today!". The address bar shows "https://install.openshift.com". The page features the OpenShift logo and the text "Get ready to rock with OpenShift. You're one shell command away from deploying your own Platform as a Service." Below this, there are two columns: "OpenShift Origin" and "OpenShift Enterprise". Each column provides a shell command to copy and run. The "OpenShift Origin" command is `sh <(curl -s https://install.openshift.com/)`. The "OpenShift Enterprise" command is `sh <(curl -s https://install.openshift.com/ose)`. Below these, there is a "Popular Options" section with a command `sh <(curl -s https://install.openshift.com/) -e -s rhsm -u user@company.com`. A table of useful settings follows, listing options like `--advanced-mode`, `--config-file`, `--workflow`, `--enterprise-mode`, `--subscription-type`, `--username`, `--password`, `--use-existing-puppet`, and `--debug` with their descriptions. The "Take It With You" section lists portable installers for Origin and Enterprise. Finally, the "Need more help? We're here for you." section provides links to documentation, IRC channels, and mailing lists.

OpenShift Origin
Copy this command and run it from a bash shell:

```
sh <(curl -s https://install.openshift.com/)
```

OpenShift Enterprise
Grab the latest OpenShift Enterprise installer here:

```
sh <(curl -s https://install.openshift.com/ose)
```

Popular Options
Want to get fancy? You can pass options to the installer by adding them to the end of the command, like this:

```
sh <(curl -s https://install.openshift.com/) -e -s rhsm -u user@company.com
```

Here are some useful settings:

<code>-a, --advanced-mode customization.</code>	Enable access to message server and db server customization.
<code>-c, --config-file FILEPATH</code>	The path to an alternate config file
<code>-w, --workflow WORKFLOW_ID</code>	The installer workflow for unattended deployment.
<code>-e, --enterprise-mode unattended mode)</code>	Show OpenShift Enterprise options (ignored in unattended mode)
<code>-s, --subscription-type TYPE</code>	The software source for installation packages.
<code>-u, --username USERNAME</code>	Red Hat Login username
<code>-p, --password PASSWORD</code>	Red Hat Login password
<code>--use-existing-puppet</code>	For Origin; do not attempt to install the Puppet module
<code>-d, --debug</code>	Enable debugging messages

Take It With You
You can also download the installer and run it from a CD or USB drive. Unzip one of these packages onto your portable media and you are good to go:

- OpenShift Origin Portable: <https://install.openshift.com/portable/oo-install-origin.zip>
- OpenShift Enterprise Portable: <https://install.openshift.com/portable/oo-install-ose.zip>

Need more help? We're here for you.

- The [oo-install User's Guide](#) is available at the [OpenShift Origin documentation site](#).
- Familiar with IRC? OpenShift superstars can be found on the [#openshift](#) and [#openshift-dev](#) channels on [FreeNode](#).
- You can also join the [Users](#) or [Developers](#) mailing list.

oo-install User's Guide

openshift.github.io/documentation/oo_install_users_guide.html

Reader

Table of Contents


- 1. Before You Begin
 - 1.1. The Base OS Setup
 - 1.2. Utility Prerequisites
 - 1.3. Where Should I Run This?
- 2. Running the Installer
 - 2.1. install.openshift.com
 - 2.2. Portable Installer
 - 2.3. Running oo-install from source
 - 2.4. Installer Command-Line Options
- 3. Configuring Your Deployment
 - 3.1. DNS
 - 3.2. Host and Roles
 - 3.3. Subscription
- 4. Pre-flight Checking and Installation
 - 4.1. Failing Pre-Flight?
 - 4.2. Installing (Grab Some Tea)
 - 4.3. Reboot
- 5. Post-Install Tasks
 - 5.1. Temporary DNS Integration
 - 5.2. Permanent DNS Integration
- 6. Using and Administering Your New OpenShift System

oo-install User's Guide

OpenShift Origin Documentation Project <dev@lists.openshift.redhat.com> – ORIGIN VERSION 3.0

The **oo-install** utility is designed to ease the experience of a trial or basic OpenShift installation by interactively gathering the data to run a simple deployment. The current iteration of **oo-install** enables the configuration and deployment of OpenShift according to the following scenarios:

- Deploy all OpenShift components to one or more hosts
- Add a new node host to an existing OpenShift deployment

 **oo-install** is a deployment tool that has been optimized to simplify the process of getting a running OpenShift system on your chosen host systems. If you want to use OpenShift with an existing MongoDB database, ActiveMQ server, or DNS server, check out the [Comprehensive Deployment Guide](#) instead.

Do I Have To Read a Manual?

In short, no. One of the design goals of the **oo-install** utility is to make this document completely unnecessary. If you are feeling bold, you are heartily encouraged to attempt to use the installer right now without any additional guidance. Check out <https://install.openshift.com/> for the quick rundown on how to get started. If you run into problems, head back here or send your questions and feedback to the mailing lists or IRC channels mentioned on the oo-install web page.

Source Code

The locations for the source code of this document and the **oo-install** utility are as follows:

- This document: https://github.com/openshift/origin-server/blob/master/documentation/oo_install_users_guide.adoc
- **oo-install**: <https://github.com/openshift/openshift-extras/tree/master/oo-install>

1. Before You Begin

This section covers some topics that will help you to have a successful OpenShift deployment. If you have jumped straight in with <https://install.openshift.com/> and are having problems, look over this section to make sure you've got the basics covered.

RED HAT
SUMMIT

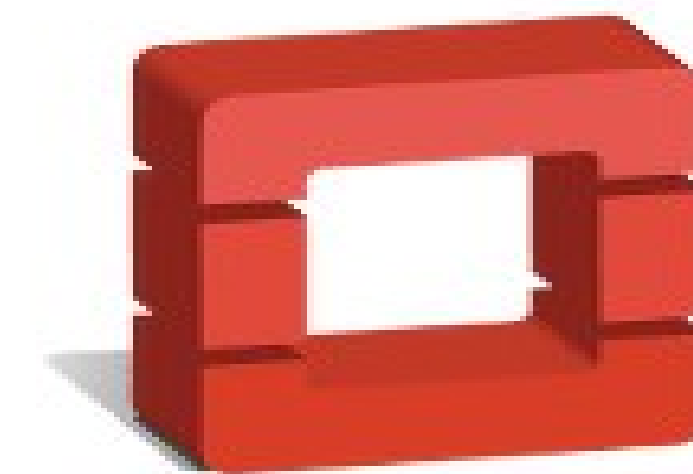
10 YEARS *and counting*

SAN FRANCISCO | APRIL 14-17, 2014

Even More OpenShift Deployment Options



≡ **AnsibleWorks**



openstackTM
CLOUD SOFTWARE

Choose Your Desired Infrastructure



OpenShift is Built on Instances of Red Hat Enterprise Linux (RHEL)

RHEL

RHEL

RHEL

RHEL

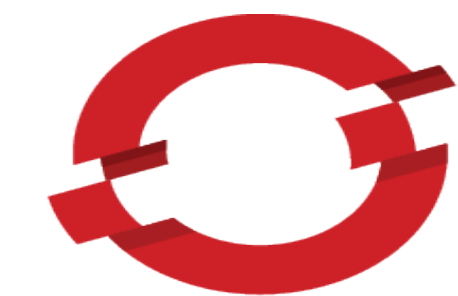
AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

Vizuri's JetStream Offering



Accelerate your Platform as a Service Adoption

- Maximize the value of OpenShift Enterprise 60-Day Evaluations
- 1st Week – An Operational OpenShift instance in your environment
- 2nd Week – Migrating Identified Candidate Applications
- Remaining Time – “Office Hours” style mentoring and collaboration



OPENSIFT
— by Red Hat —
**ADVANCED
PARTNER**

Questions

Additional Resources

- OpenShift Online – openshift.com
- OpenShift Community – openshift.github.io
- GitHub Projects - <https://github.com/openshift>
 - Quickstarts
 - Puppet & Ansible Install Scripts
 - OpenStack Heat Templates

Thank You

Isaac Christoffersen | @1Vizuri | ichristoffersen@vizuri.com