

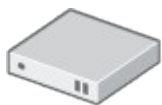
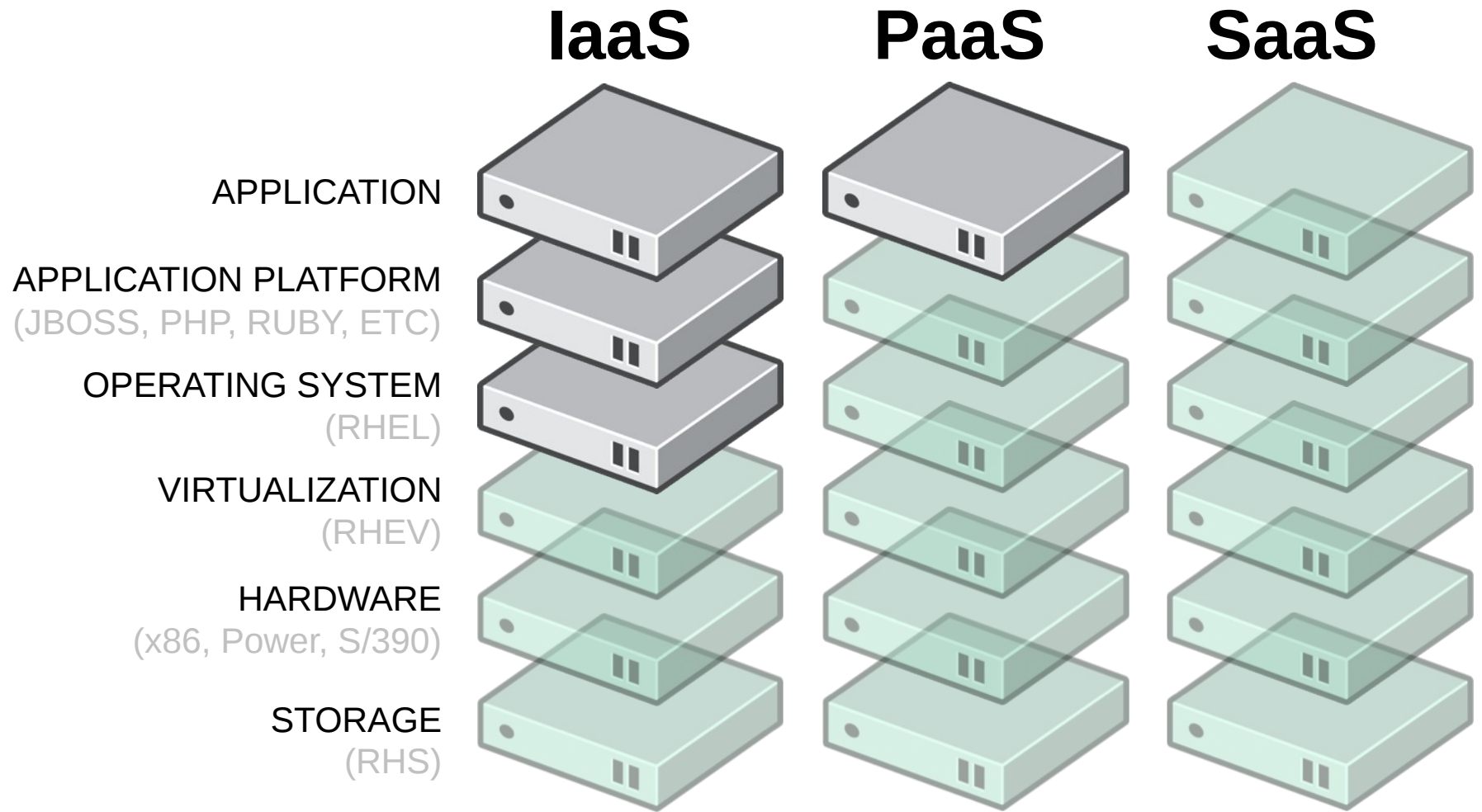


OpenShift PaaS Overview

Blaine Mincey
Sr. Middleware Solutions Architect

November 2012

Cloud Service Models



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



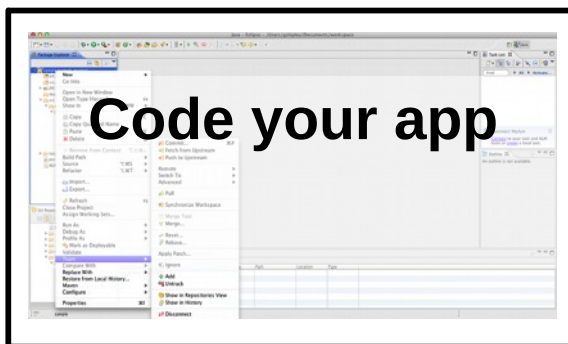
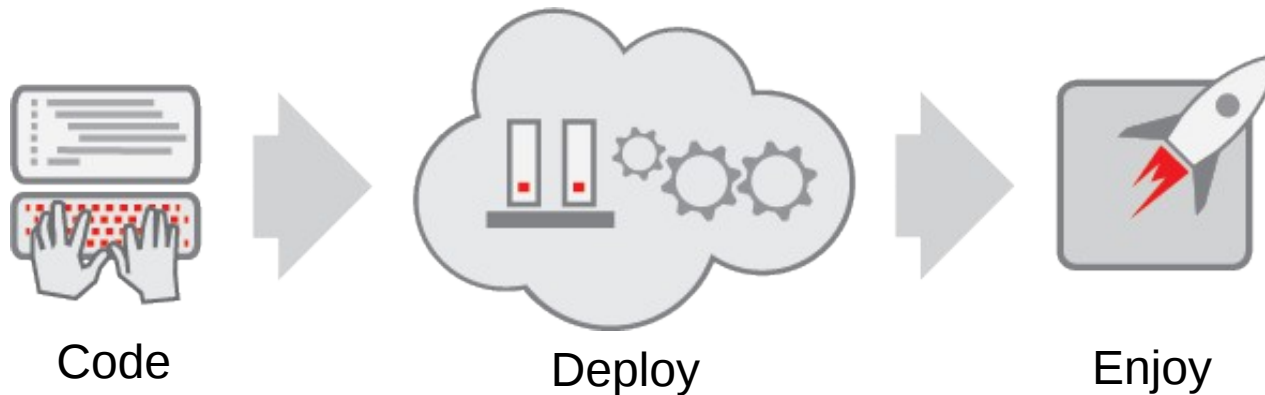
Automated and Managed by the Public or Private Cloud Offering

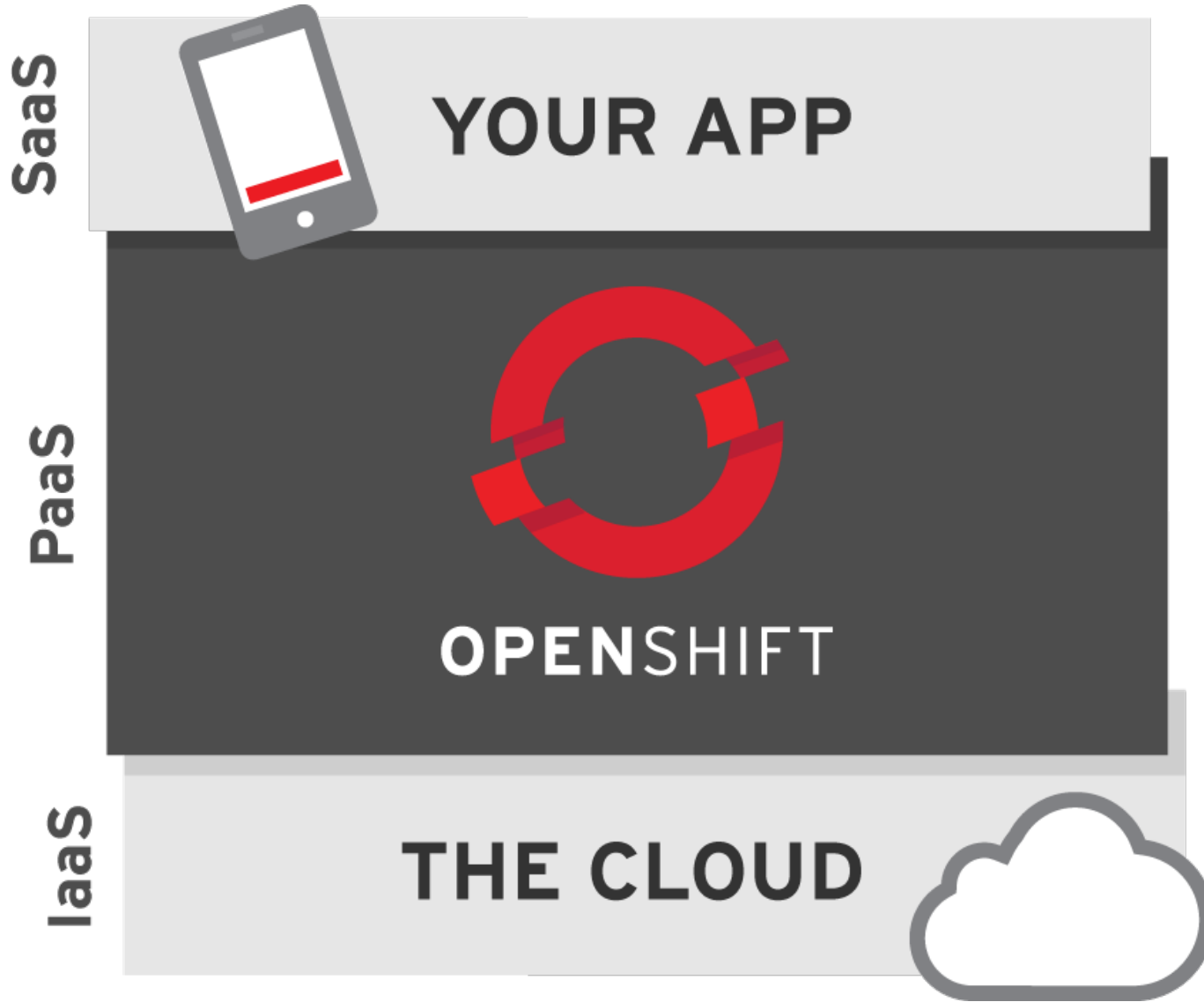
Increased Control

Increased Automation

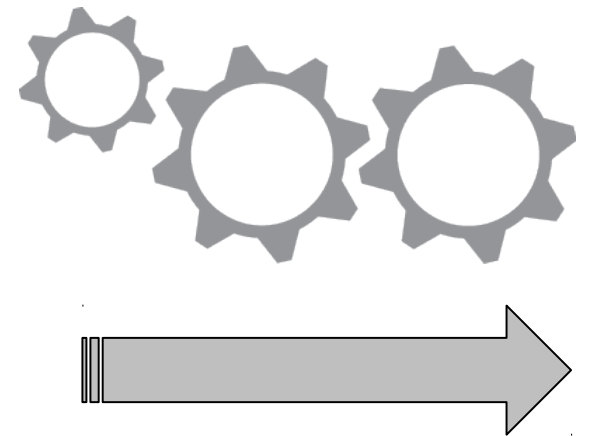
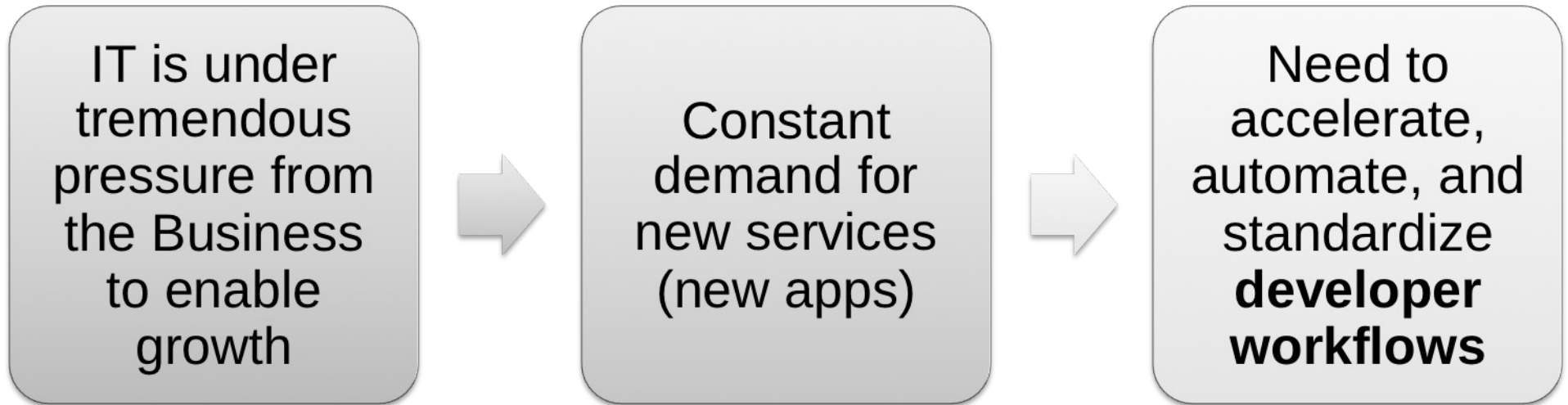
PaaS = Platform as a Service

A Cloud Application Platform





Today's IT Challenge



Application Development

Yesterday

How to Build an App:

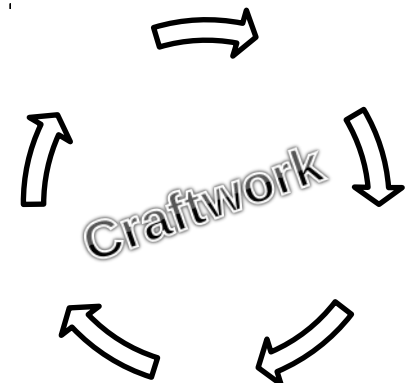
1. Have Idea
2. Get Budget
3. Submit hardware acquisition request
4. Wait
5. Get Hardware
6. Rack and Stack Hardware
7. Install Operating System
8. Install Operating System Patches/Fix-Packs
9. Create user Accounts
10. Deploy framework/appserver
11. Deploy testing tools
12. Test testing tools
13. Code
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.

Today

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. Test testing tools
8. Code
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.

➤ Process Repeated
for every App Project



Manufacturing as a Model for IT



Consolidated Aircraft B-24 Liberator

Incredibly sophisticated. ~500k parts, assembled by unskilled labor.

No Mfg process. Parts were cast in rubber molds, so every part was slightly different.

Assembled in the heat of San Diego, which warped the metal and required whole assemblies to be adjusted.

Ford Motor Co. brought a Manufacturing process ... went from 250 planes a year to 650 planes a month.

THIS IS OUR CHALLENGE TODAY.

Streamlining App Dev with PaaS

Craftwork

Assembly Line

Yesterday

Today

With PaaS

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
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How to Build an App:

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

How to Build an App:

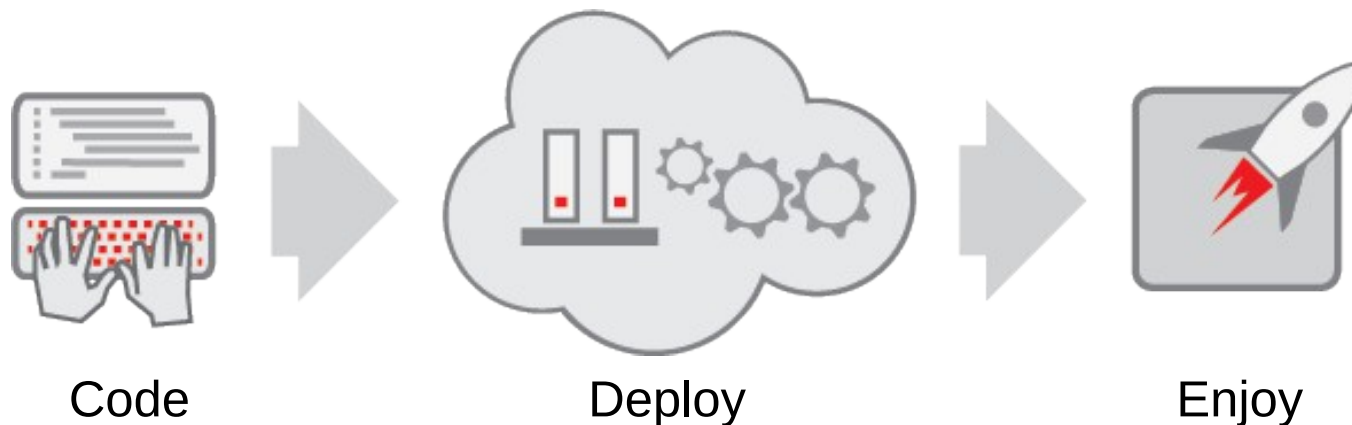
1. **Have Idea**
2. **Get Budget**
3. **Code**
4. **Test**
5. **Launch**
6. **Automatically Scale**



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

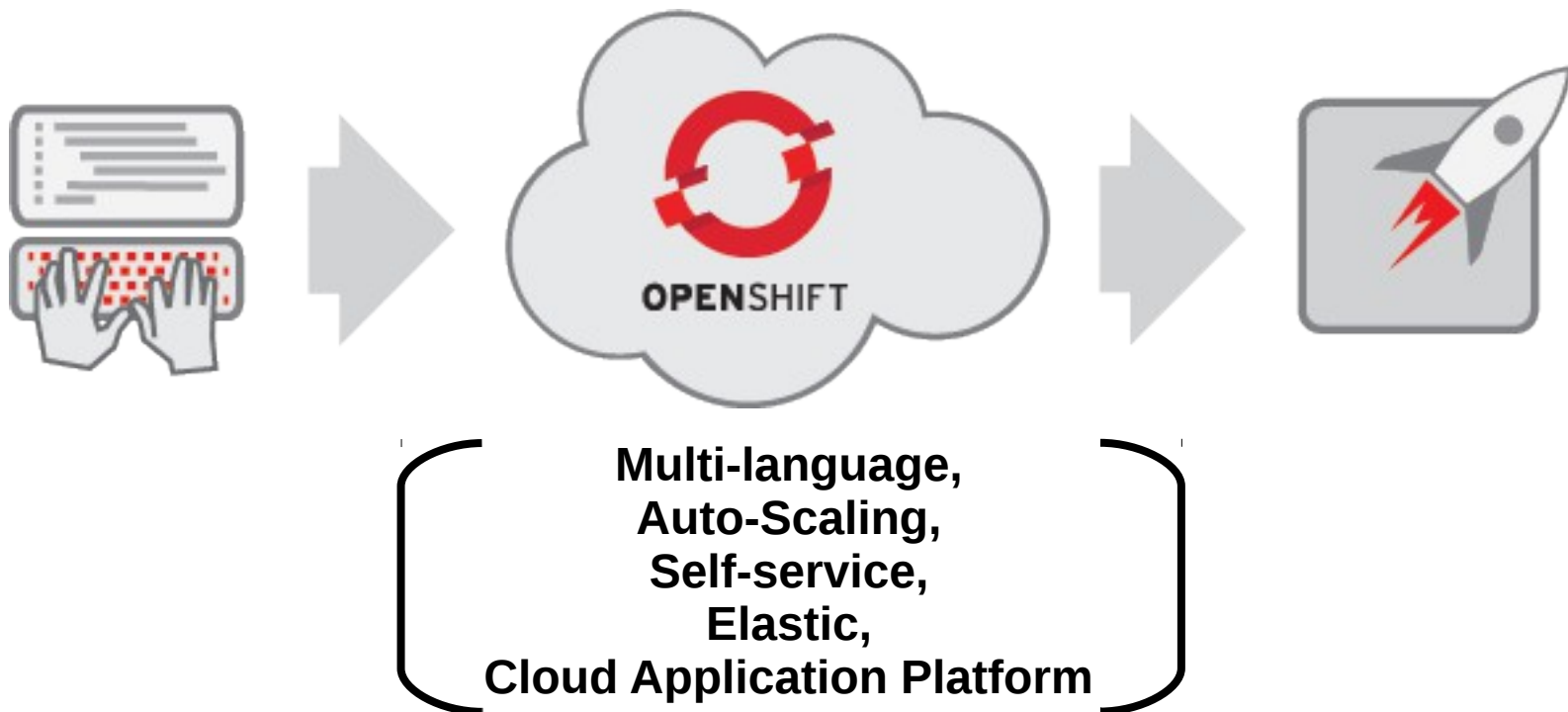
Why PaaS?

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



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

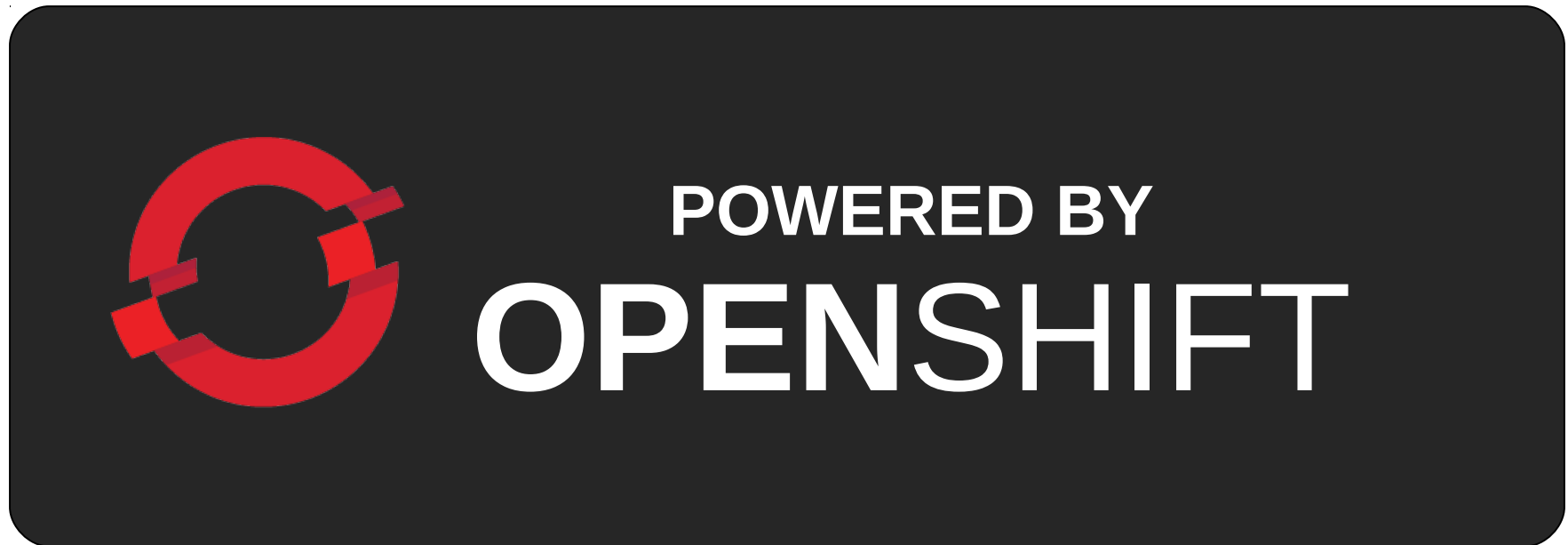
OpenShift is PaaS by Red Hat





Let's Take a Look...

How OpenShift Works



OpenShift is a PaaS on top of... Infrastructure



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

The Foundation of OpenShift is Red Hat Enterprise Linux



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

RHEL

RHEL

RHEL

RHEL

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

An OpenShift Broker Manages Multiple OpenShift Nodes



Nodes are where User Applications live.
Brokers keep OpenShift running.

RHEL

Brokers

RHEL

Node

RHEL

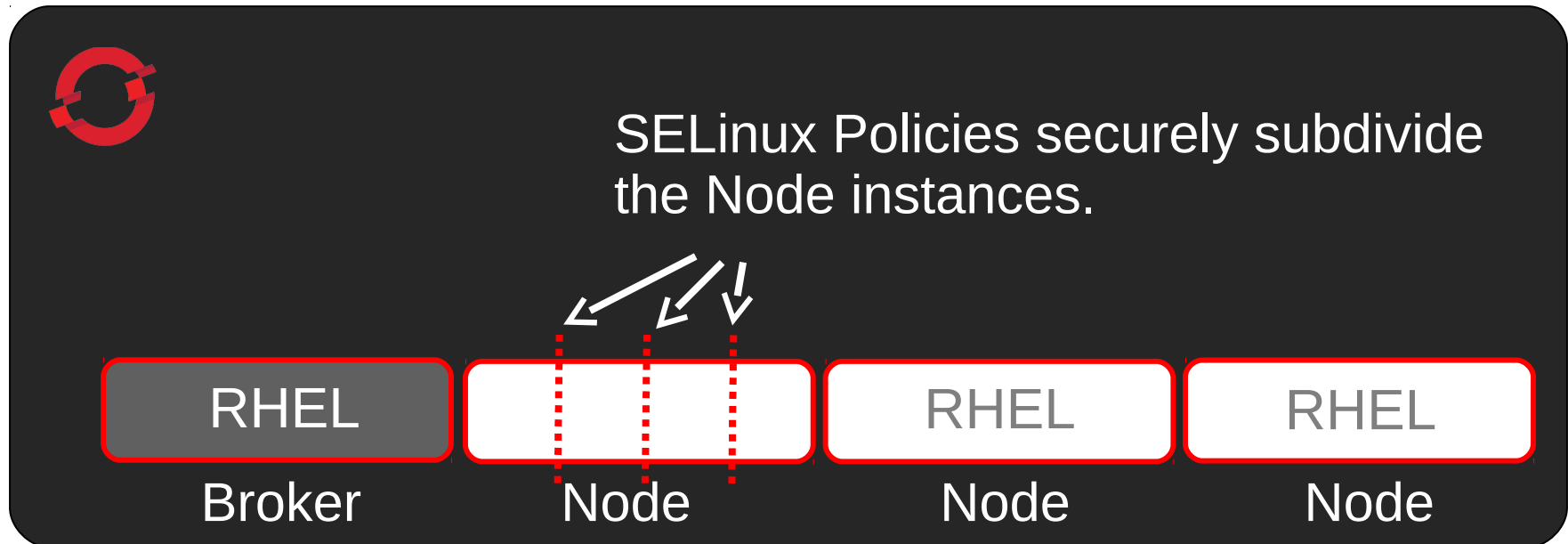
Node

RHEL

Node

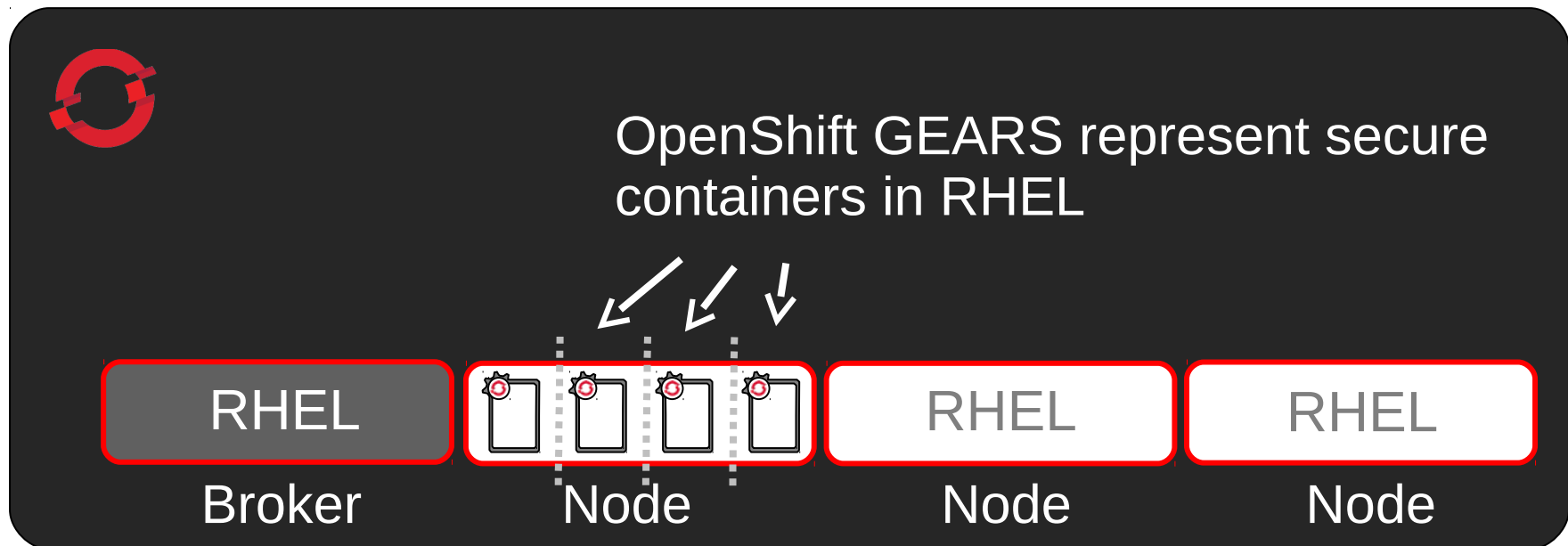
AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

Unique SELinux Approach Enables Security and Multi-tenancy



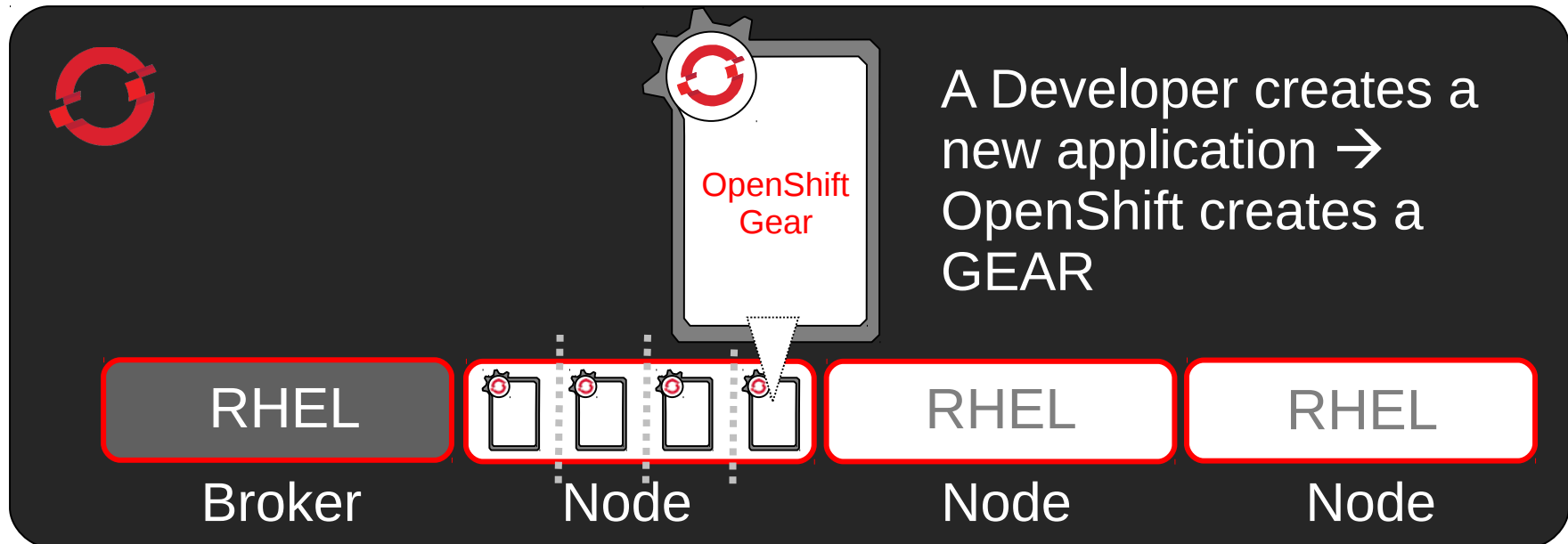
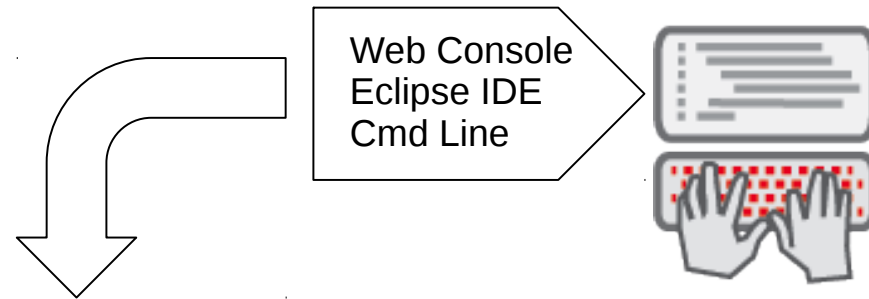
AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

OpenShift User Applications Run in OpenShift Gears



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

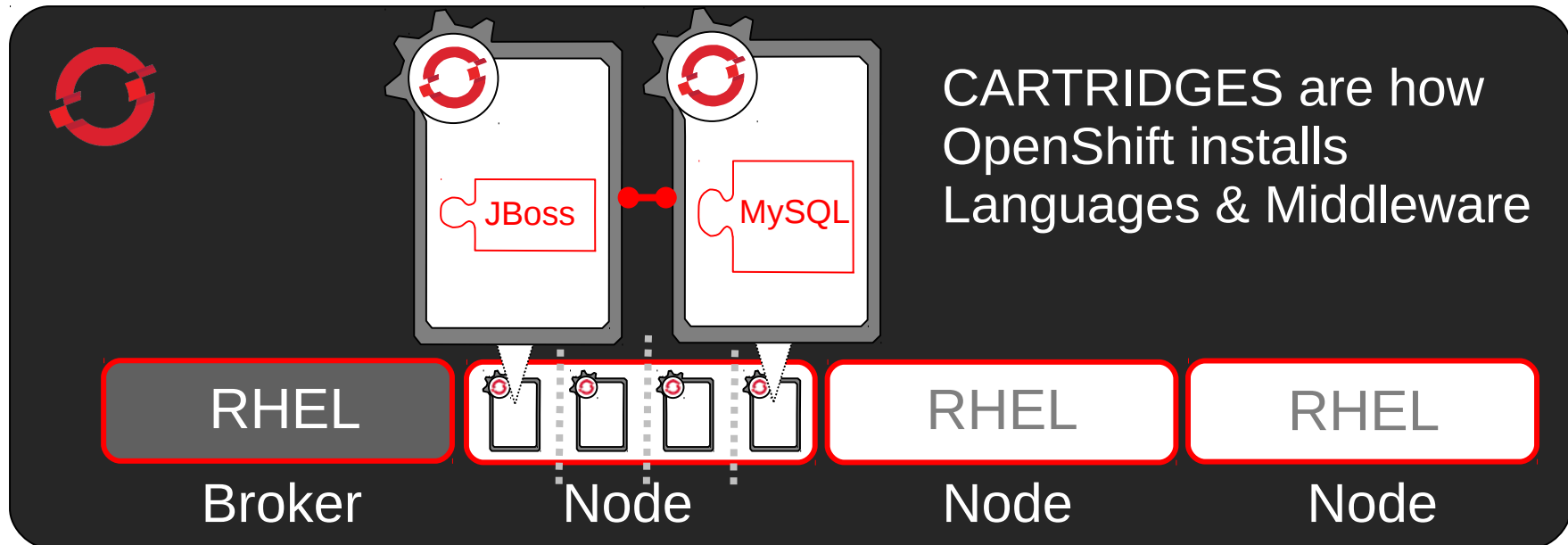
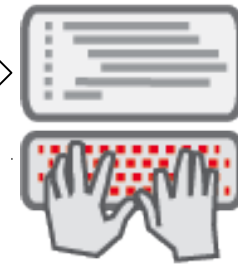
Developer Workflow



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

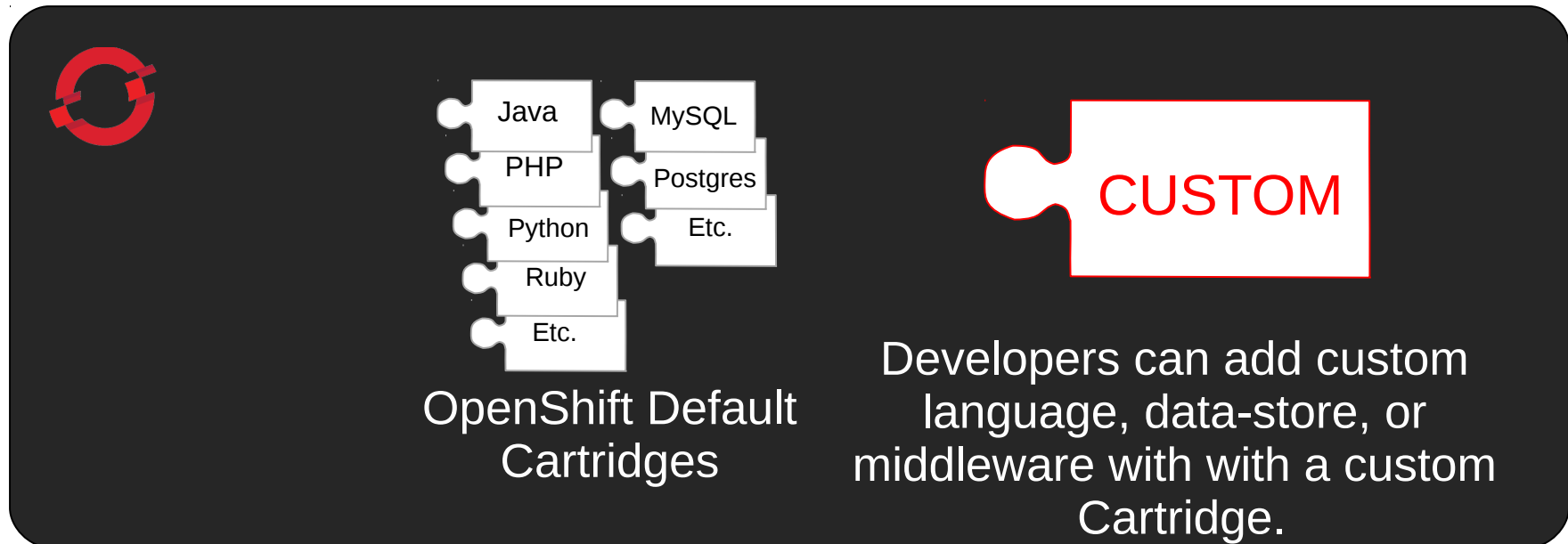
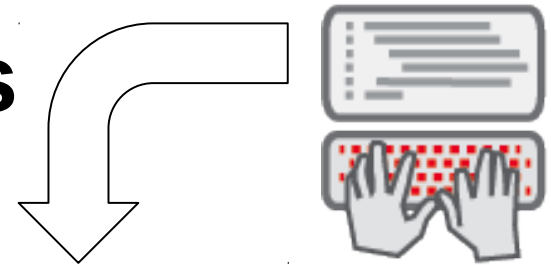
OpenShift Automates Gear Configuration via Cartridges

Web Console
Eclipse IDE
Cmd Line



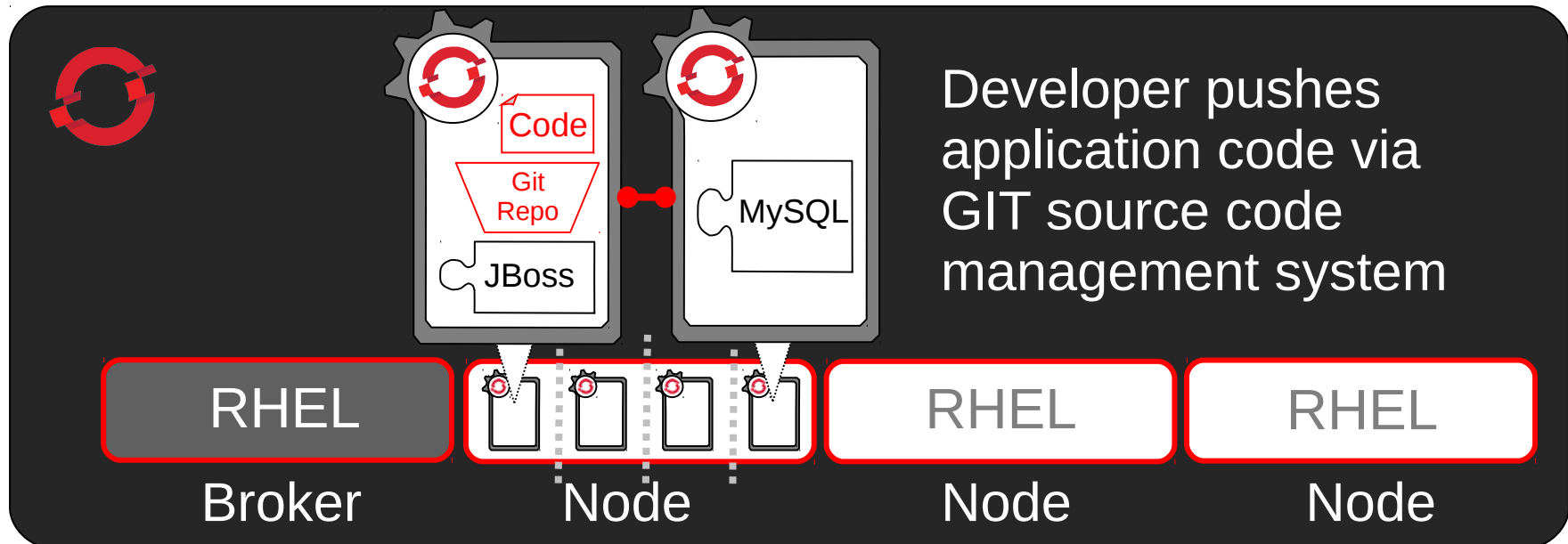
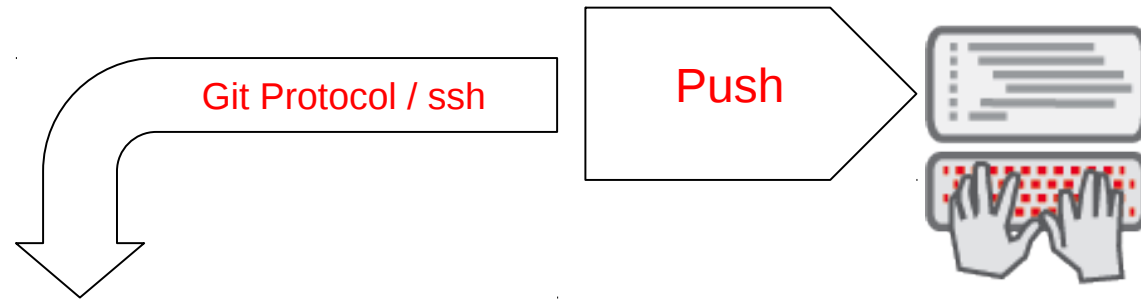
AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

OpenShift Cartridge System Enables User-Built Cartridges



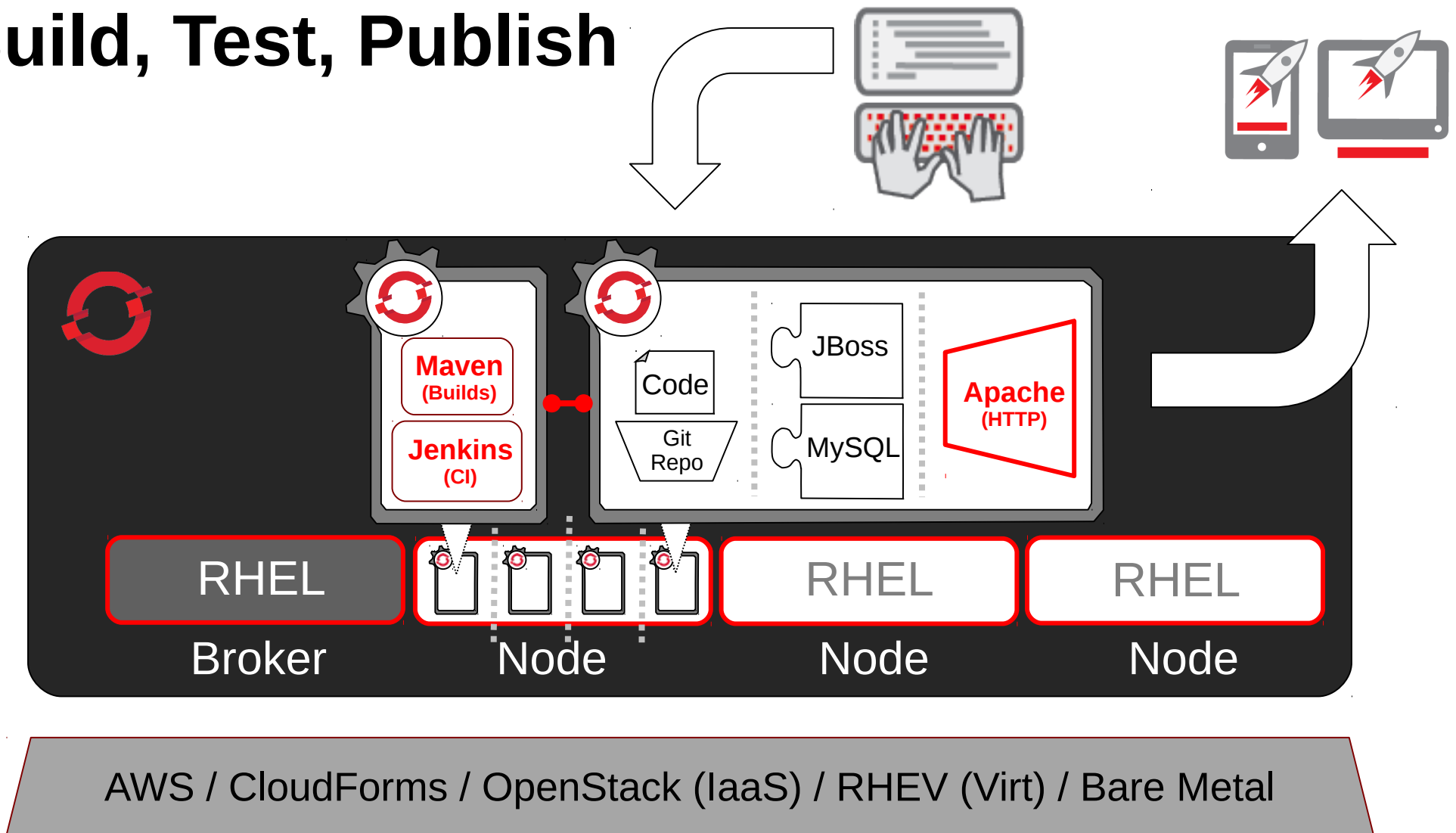
AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

Now, Code and Push

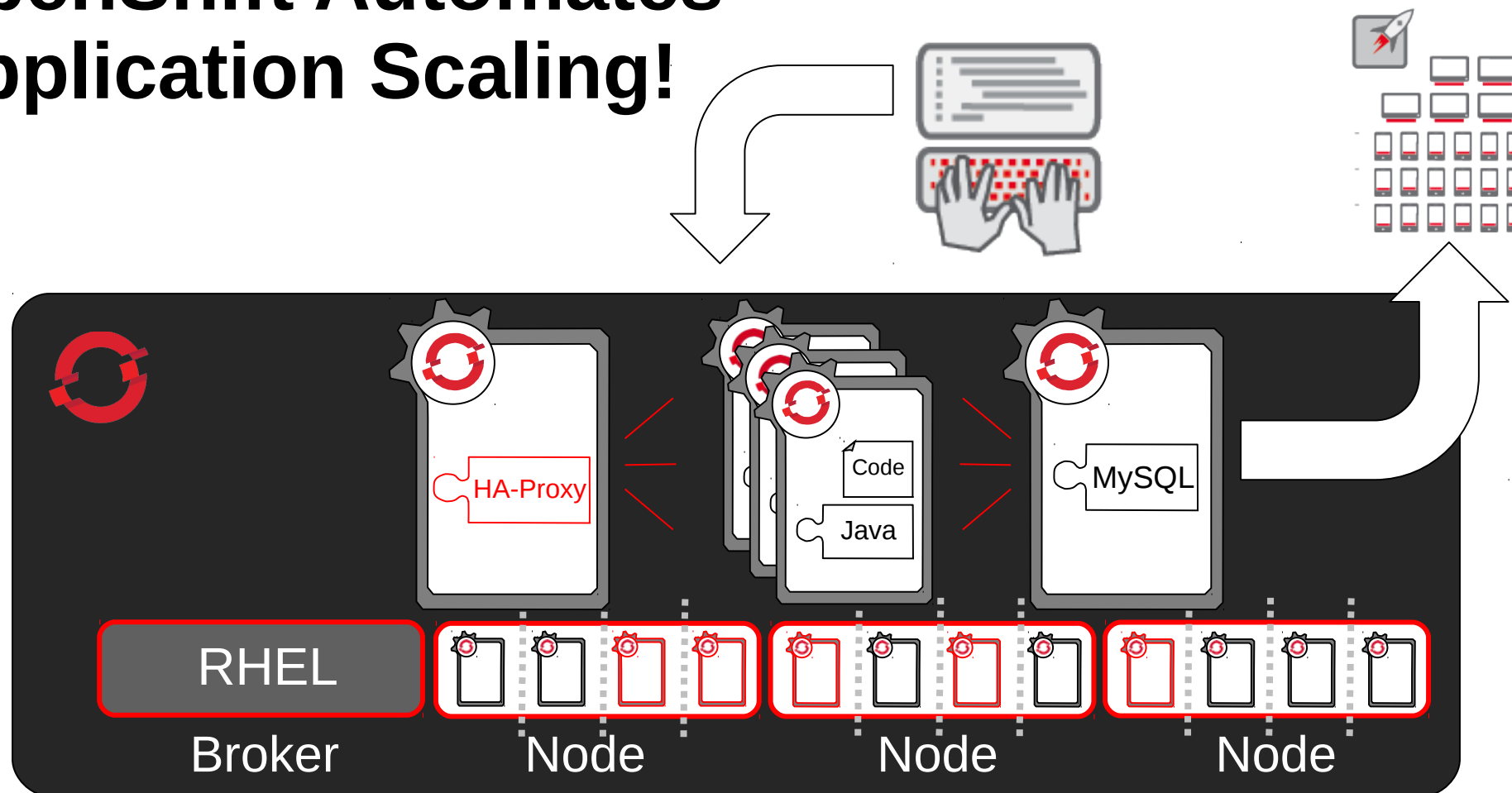


AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

OpenShift Automates Build, Test, Publish



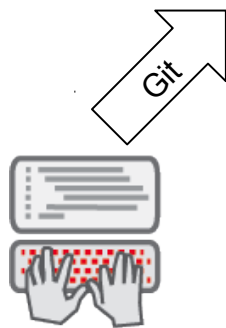
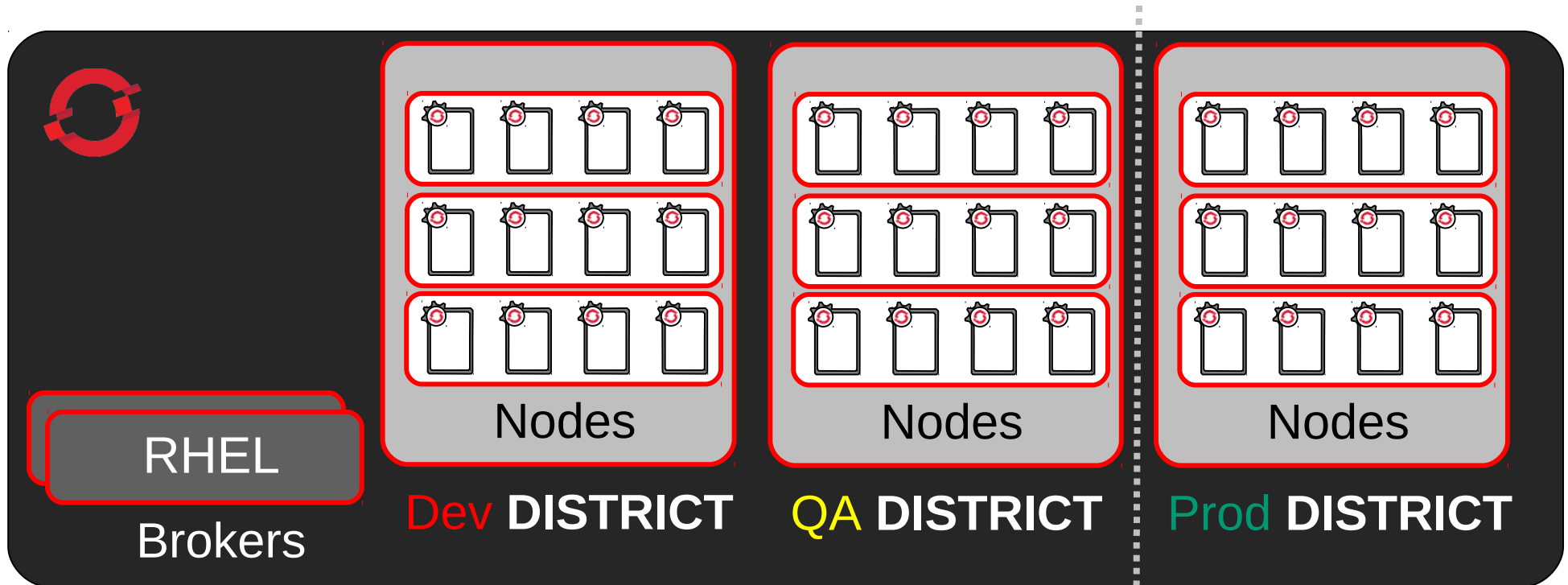
OpenShift Automates Application Scaling!



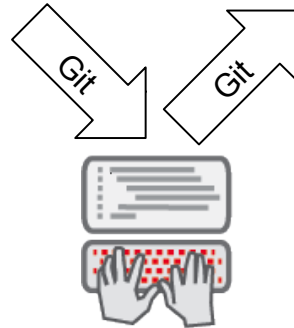
AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

Real-world App Dev

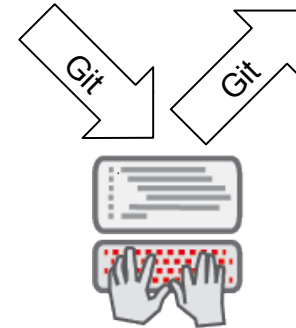
- Multi Environments, Single PaaS



Dev



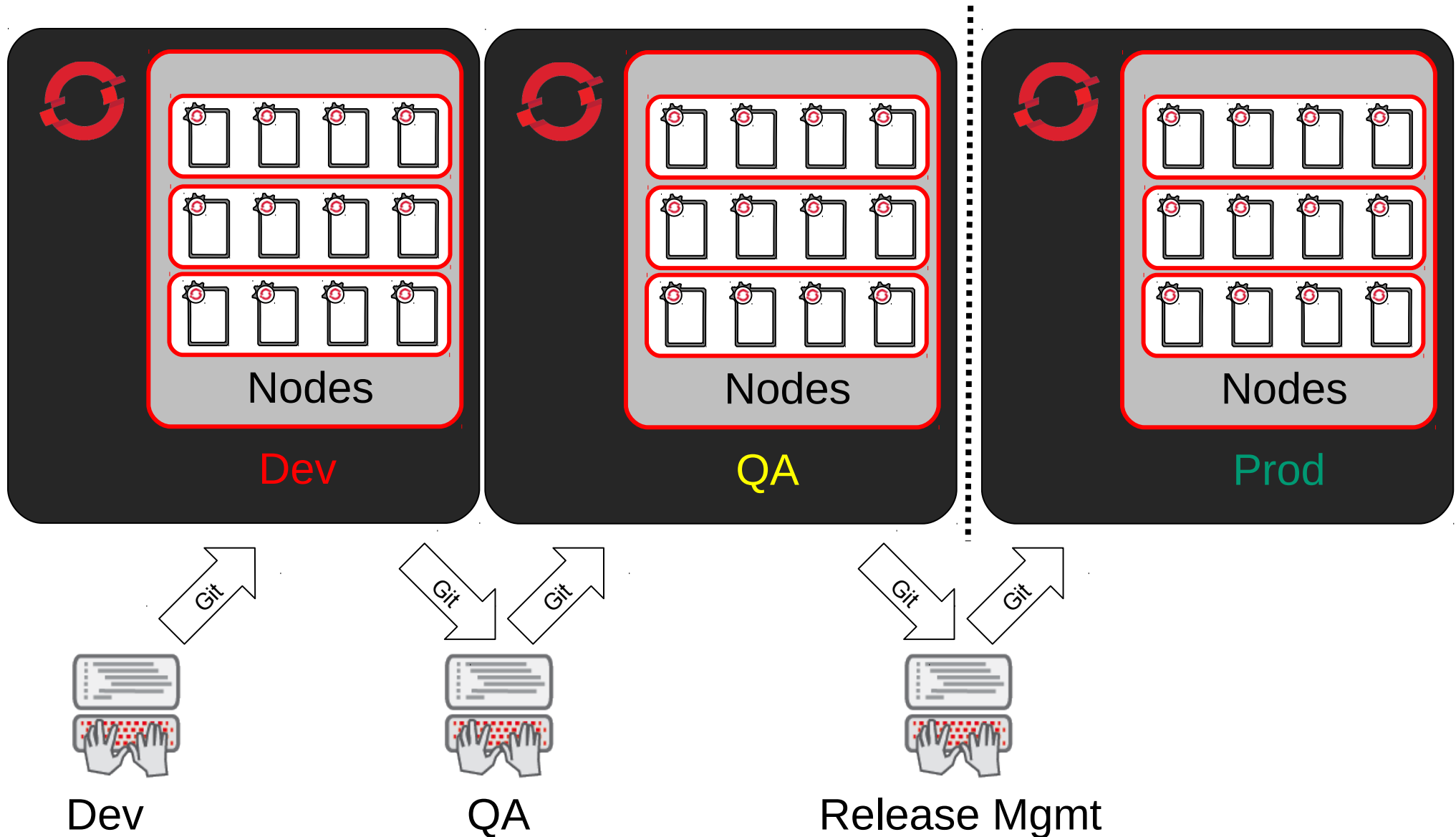
QA



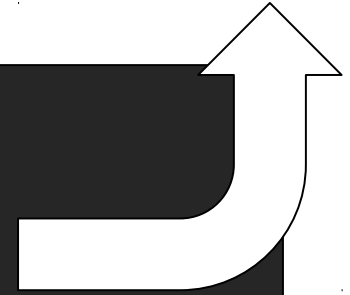
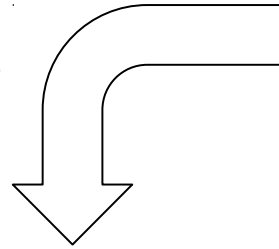
Release Mgmt

Real-world App Dev

- Multi Environments, multiple PaaSes



OpenShift Automates the IT Assembly Line

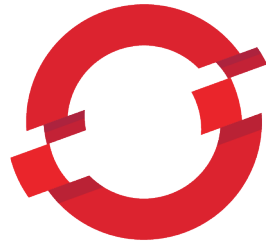


POWERED BY
OPENSHIFT

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

How Can I Consume OpenShift?

Public
Cloud
Service



**OPENSHIFT
ONLINE**



On-Premise or
Private Cloud
Software

**OPENSHIFT
ENTERPRISE**

Developer
Controls

Developer
Controls

APPLICATION

APPLICATION PLATFORM
(JBOSS, PHP, RUBY, ETC)

OPERATING SYSTEM
(RHEL)

VIRTUALIZATION
(RHEV)

HARDWARE
(x86, Power, S/390)

STORAGE
(RHS)

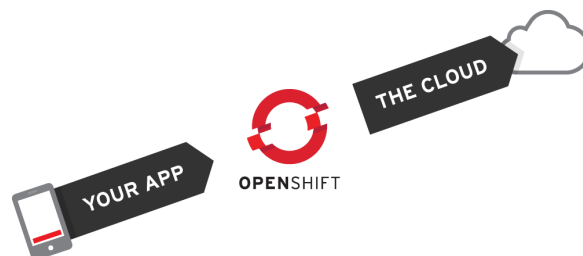
OpenShift
Automates,
IT Ops
Controls

IT Ops
Provides

OpenShift
Manages

Why OpenShift?

- 1. Strength.** OpenShift is built on proven Red Hat technologies.
- 2. Freedom.** In OpenShift, work the way you want.
 - Choice of Interface: Web Console, Command-line, or IDE
 - Choice of Middleware: Java(EE6), Ruby, Node.js, PHP, Python, and Perl
 - Choice of Cloud: Public, Private, or Hybrid Cloud
 - Choice of Elasticity: Automatic application scaling when needed
- 1. Openness.** OpenShift's open source software stack ensures application portability and No Lock-In.



1. Strength.

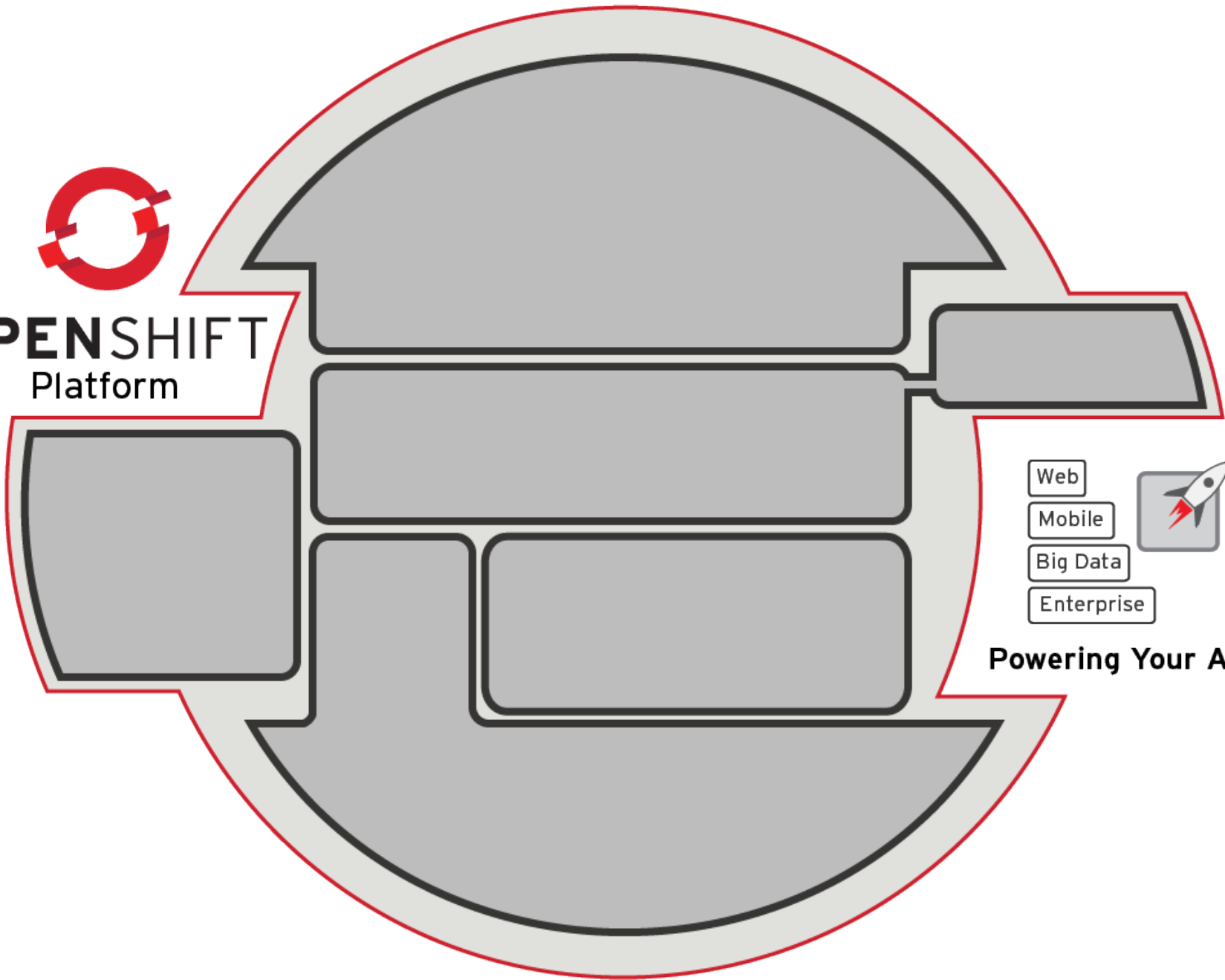


**OpenShift is Built on
Red Hat Goodness...**



OPENSHIFT

Platform



Web

Mobile

Big Data

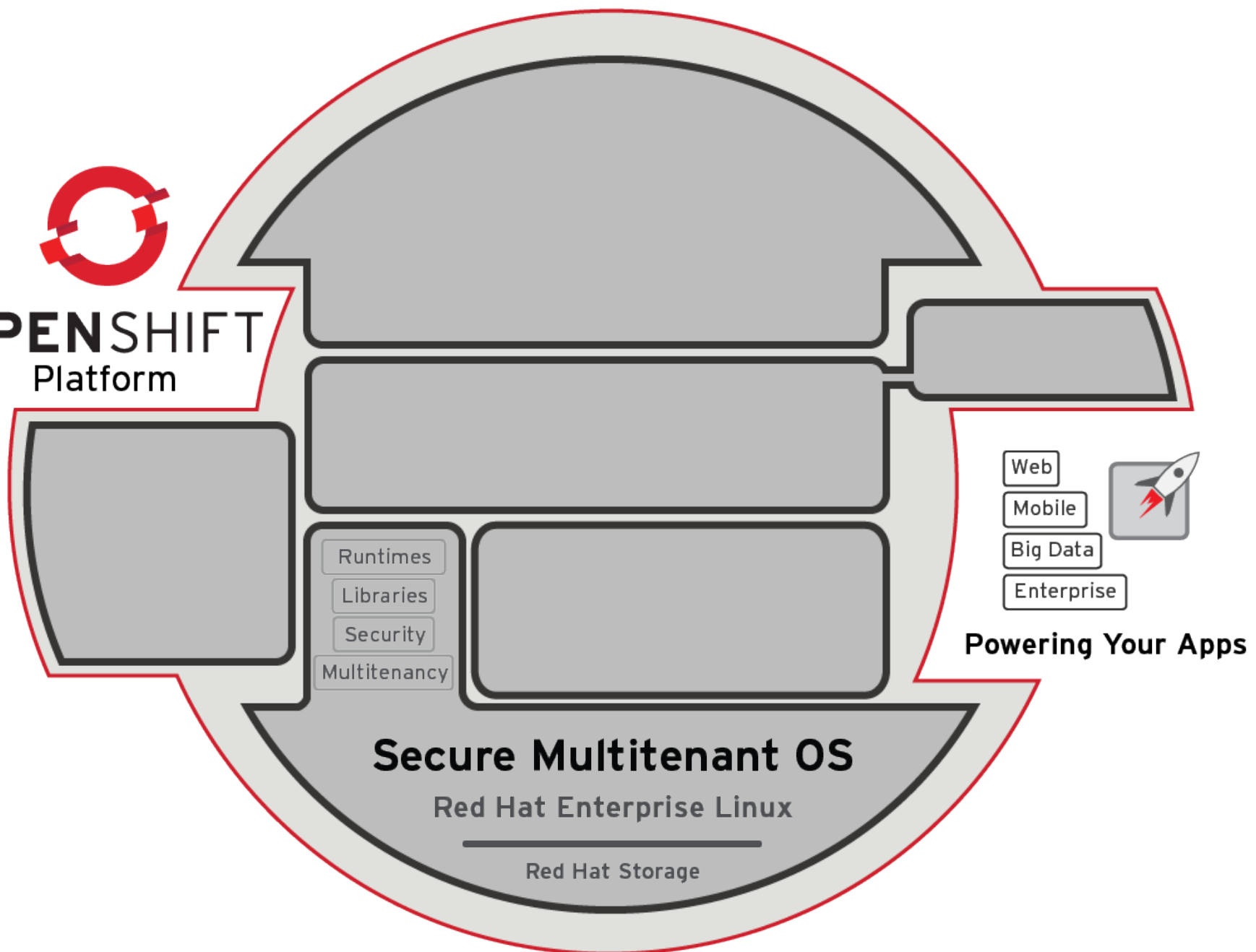
Enterprise



Powering Your Apps



OPENSHIFT Platform



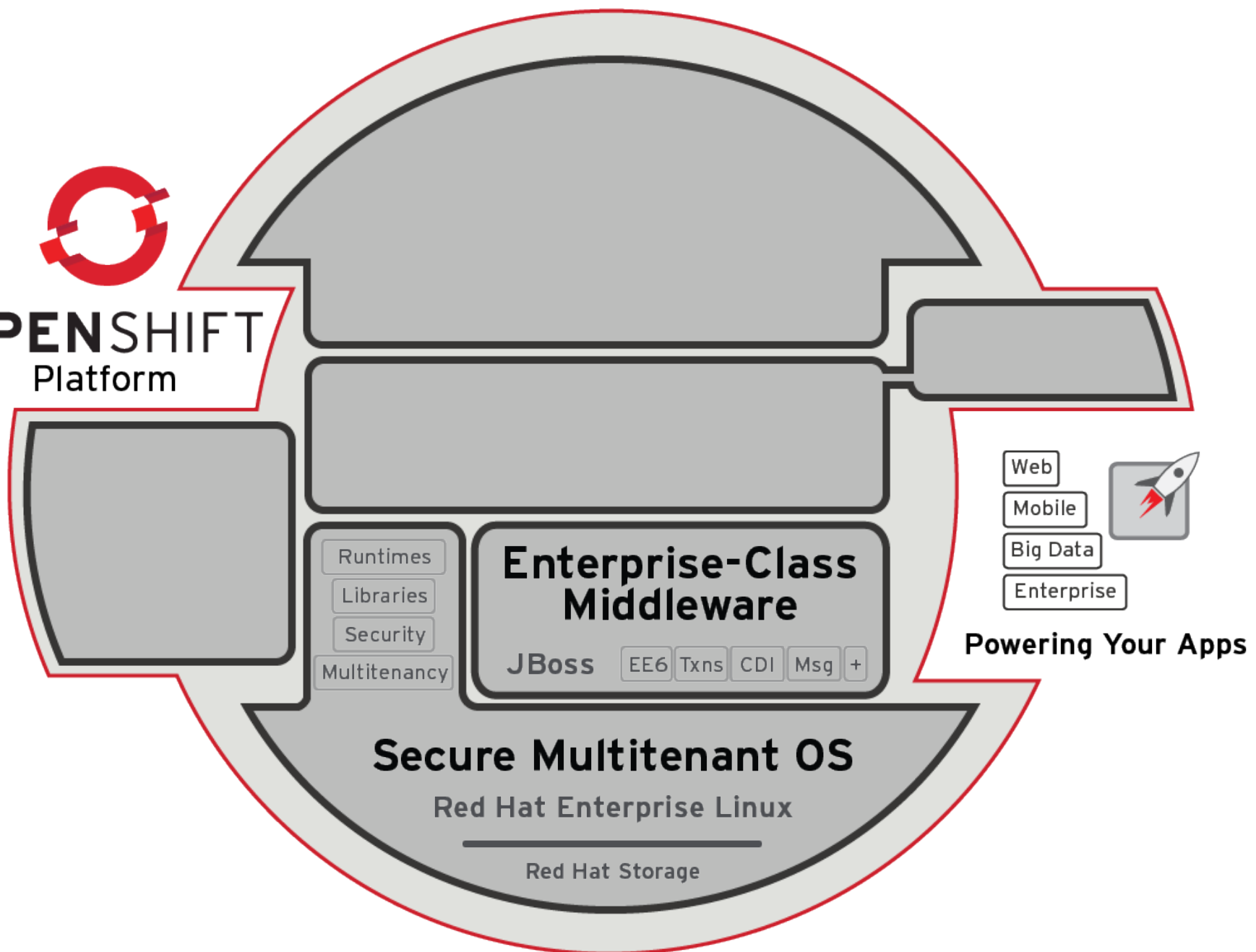
Secure Multitenant OS

Red Hat Enterprise Linux

Red Hat Storage

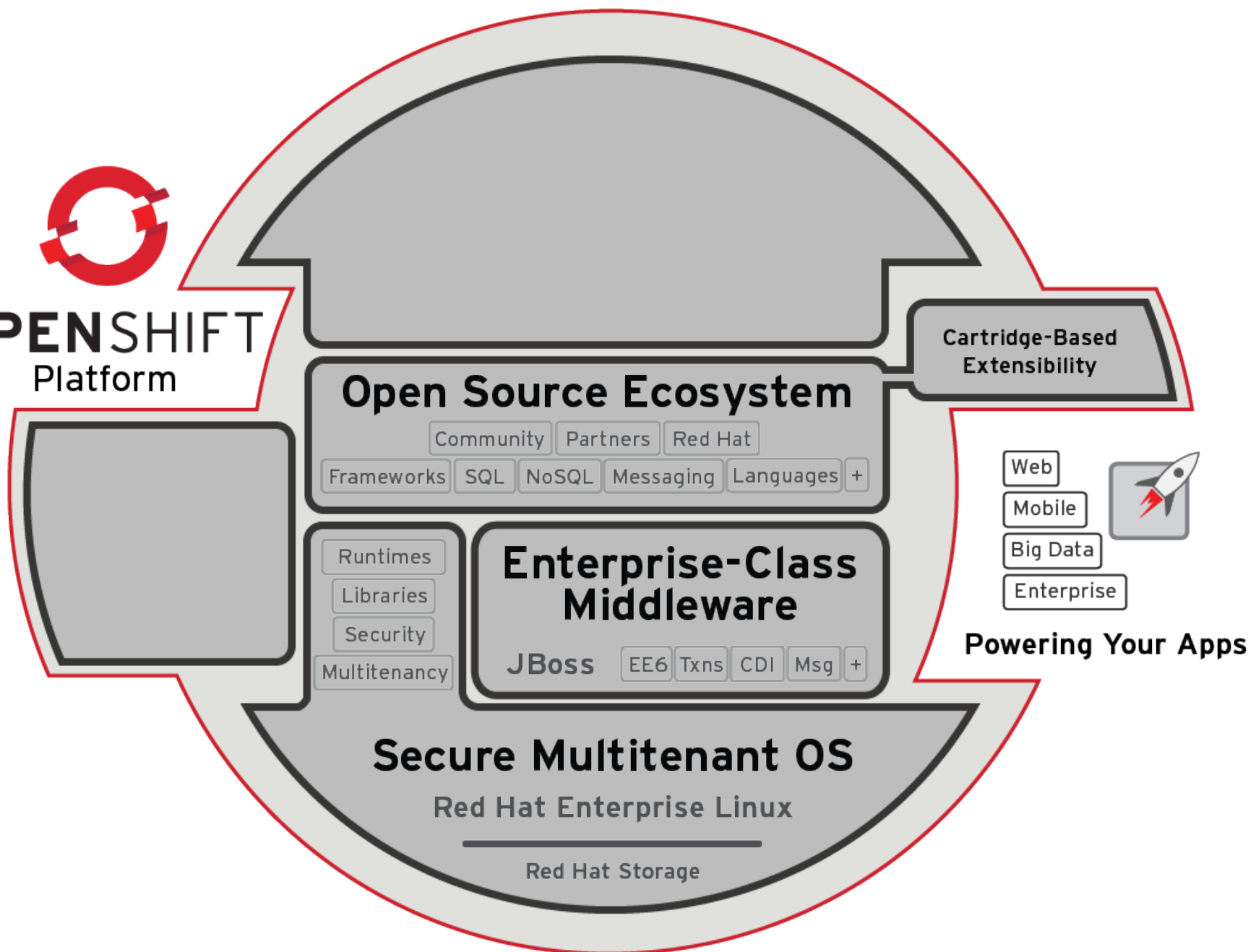


OPENSHIFT Platform





OPENSIFT Platform



Open Source Ecosystem

Community Partners Red Hat

Frameworks SQL NoSQL Messaging Languages +

Enterprise-Class Middleware

JBoss EE6 Txns CDI Msg +

Runtimes
Libraries
Security
Multitenancy

Cartridge-Based Extensibility

Web
Mobile
Big Data
Enterprise



Powering Your Apps

Secure Multitenant OS

Red Hat Enterprise Linux

Red Hat Storage



OPENSIFT Platform

No Lock-In Languages & Frameworks

Java Node.js Ruby Python PHP Perl
JavaEE Rails django Zend Spring +

Cartridge-Based Extensibility

Open Source Ecosystem

Community Partners Red Hat
Frameworks SQL NoSQL Messaging Languages +

Web
Mobile
Big Data
Enterprise



Powering Your Apps

Runtimes
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JBoss EE6 Txns CDI Msg +

Secure Multitenant OS

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Red Hat Storage



OPENSIFT Platform

No Lock-In Languages & Frameworks

Java Node.js Ruby Python PHP Perl
JavaEE Rails django Zend Spring +

Cartridge-Based Extensibility

Open Source Ecosystem

Community Partners Red Hat
Frameworks SQL NoSQL Messaging Languages +

Dev Tools



JBoss Dev Studio
Titanium Studio
Jenkins
Maven Git

Enterprise-Class Middleware

Runtimes
Libraries
Security
Multitenancy

JBoss EE6 Txns CDI Msg +

Web
Mobile
Big Data
Enterprise



Powering Your Apps

Secure Multitenant OS

Red Hat Enterprise Linux

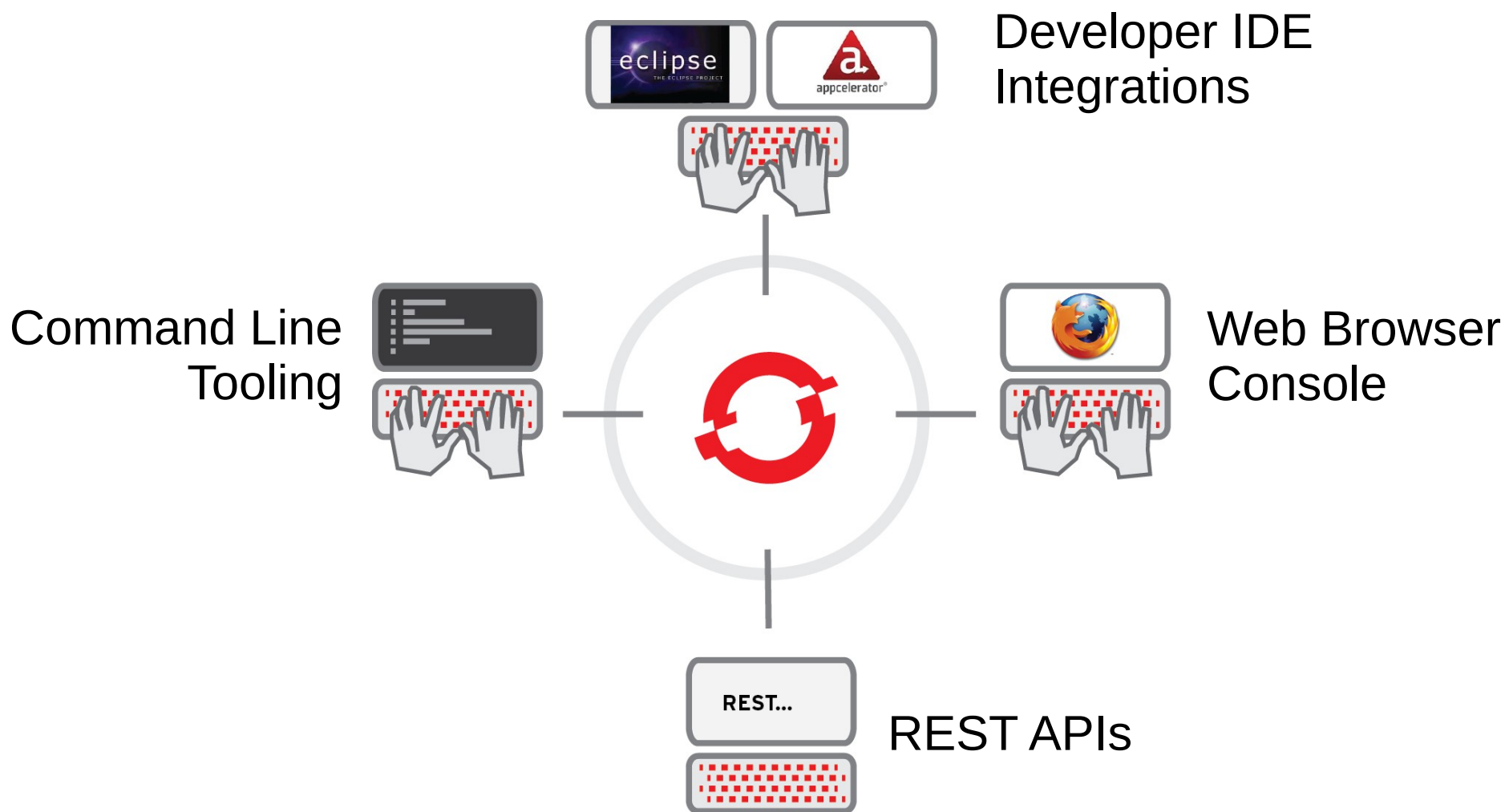
Red Hat Storage



2. Freedom.

**To Work The Way You Want
To Work**

Developers Choose How To Work with OpenShift



OpenShift's Intuitive and "Responsive" Web Console Runs on Any Device

The screenshot displays the OpenShift Management Console interface. At the top, there is a navigation bar with the OpenShift logo and the text "OPENSHIFT | MANAGEMENT CONSOLE". To the right of the logo, there are links for "Community", "Developer Center", and a user profile "bmincey@redhat.com". Below the navigation bar, there are four tabs: "My Applications", "Create Application", "Help", and "My Account". The "Create Application" tab is active. The main content area features a three-step process: 1. Choose a type of application (highlighted in red), 2. Configure and deploy the application, and 3. Next steps. Below the steps, there is a paragraph of text: "Choose a web programming cartridge (from scratch) or kick the tires with a preconfigured application. After you create the application you can add **cartridges** to enable additional capabilities like databases, metrics, and continuous build support with Jenkins." Underneath this text is a section titled "Web Cartridges" with a sub-header. The text below the sub-header reads: "The web cartridge is the heart of your application, handling incoming web requests and dishing out web pages, business APIs, or the content for your next hot mobile app." There are two cartridge cards. The first is "JBoss Enterprise Application Platform 6.0" with a "RECENTLY ADDED" badge and a "Select »" button. The second is "Zend Server 5.6" with a "RECENTLY ADDED" badge and a "Select »" button. The description for Zend Server 5.6 reads: "A PHP server by Zend for applications that require performance, reliability and security. Zend Server combined with Zend Studio offers code optimization, debugging, and code assist."

Community Developer Center bmincey@redhat.com

OPENSHIFT | MANAGEMENT CONSOLE

My Applications Create Application Help My Account

1 Choose a type of application 2 Configure and deploy the application 3 Next steps

Choose a web programming cartridge (from scratch) or kick the tires with a preconfigured application. After you create the application you can add **cartridges** to enable additional capabilities like databases, metrics, and continuous build support with Jenkins.

Web Cartridges

The web cartridge is the heart of your application, handling incoming web requests and dishing out web pages, business APIs, or the content for your next hot mobile app.

JBoss Enterprise Application Platform 6.0 **RECENTLY ADDED**

Market-leading open source enterprise platform for next-generation, highly transactional enterprise Java applications. Build and deploy enterprise Java in the cloud.

Select »

Zend Server 5.6 **RECENTLY ADDED**

A PHP server by Zend for applications that require performance, reliability and security. Zend Server combined with Zend Studio offers code optimization, debugging, and code assist.

Select »

Are You a Command-Line Fan?

OpenShift's RHC CLI Tools

1. Create App

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

2. Add MongoDB

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

3. Add add EAR file to your deployments directory

```
cd javasample
```

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

1. Add the EAR file to git

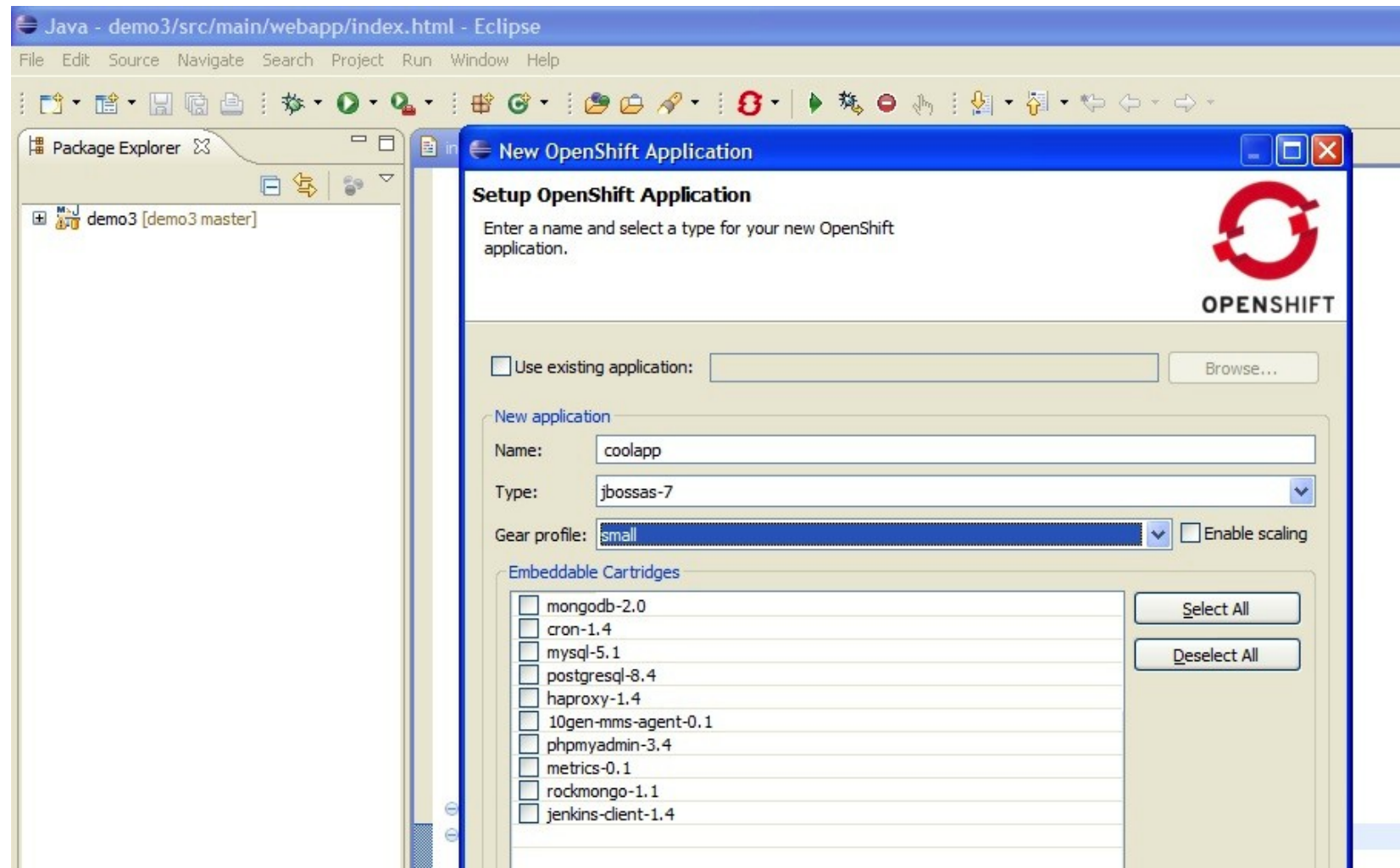
```
git add ./deployments/earfilename.ear
```

2. Push your code

```
git push
```

3. Done

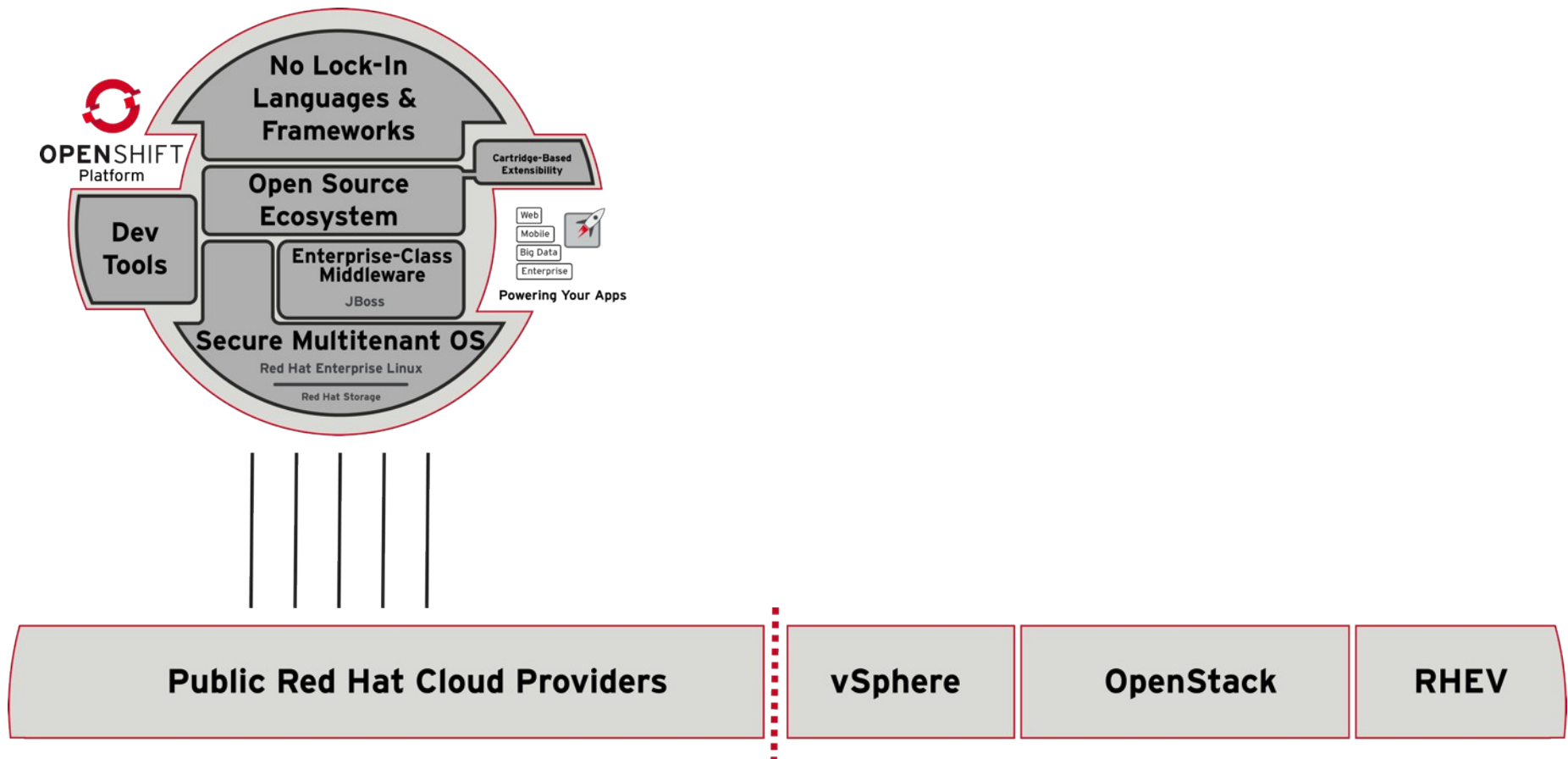
And, of Course, a Powerful JBoss Dev Studio IDE Integration



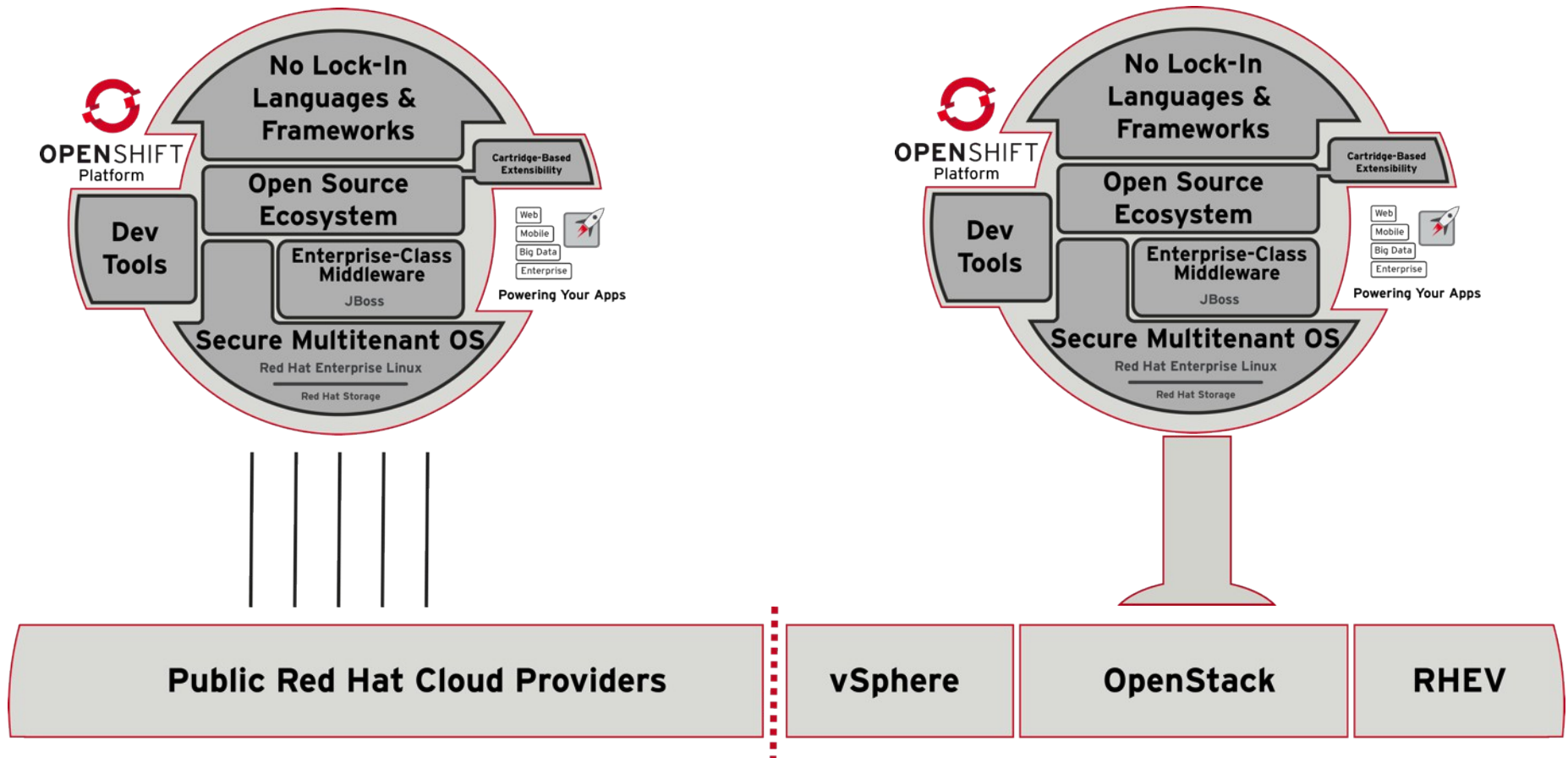
Developers Choose Languages, Frameworks and Middleware



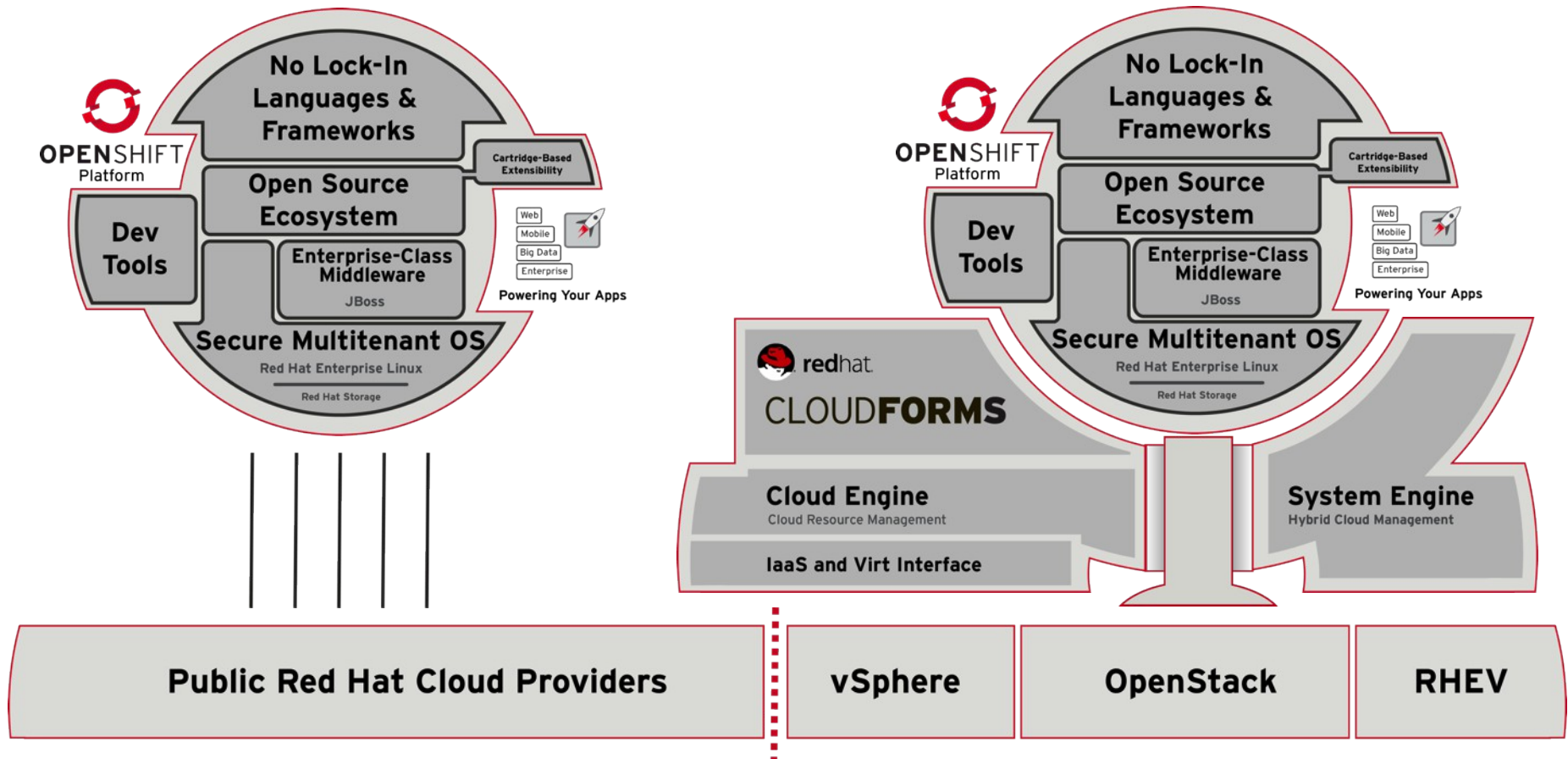
Choice of Public, Private, or Open Hybrid Clouds



Choice of Public, Private, or Open Hybrid Clouds



Choice of Public, Private, or Open Hybrid Clouds



3. Openness.

And of course,
OpenShift is Open
Source...

OpenShift Origin

<https://openshift.redhat.com/community/open-source>
<https://github.com/openshift>

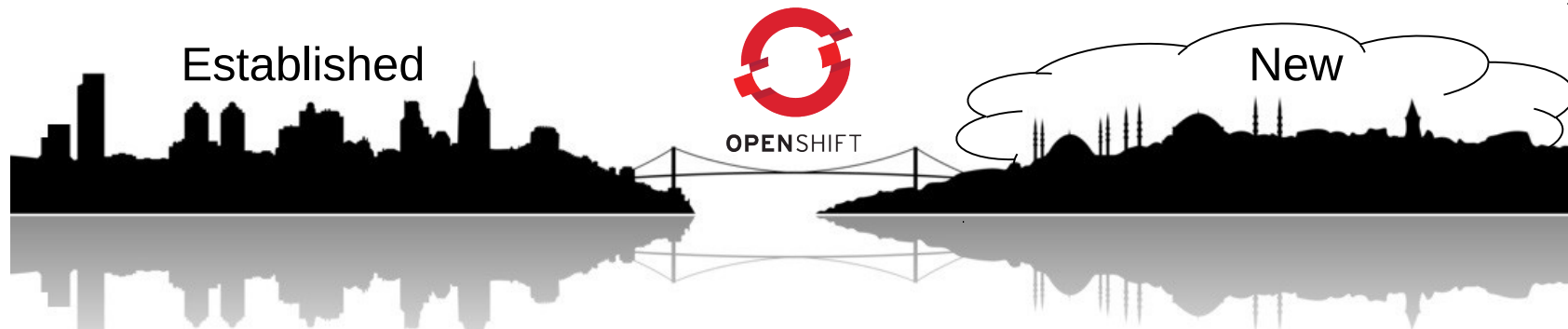
The upstream project for the OpenShift PaaS platform

- Apache 2.0 License
- Available as:
 - Source, RPMs
 - .ISO, LiveCD (run your own)
- IRC, email, forums



OpenShift PaaS

... Bridging App Dev Worlds



Enterprise-Class Strength

- Best PaaS for Enterprise Java
- EE6 via JBoss
- Jenkins, Maven, Git
- Multi-tenancy and NSA-grade Security via RHEL and SELinux
- Auto-Scaling
- On-Premise, Hosted, or Hybrid

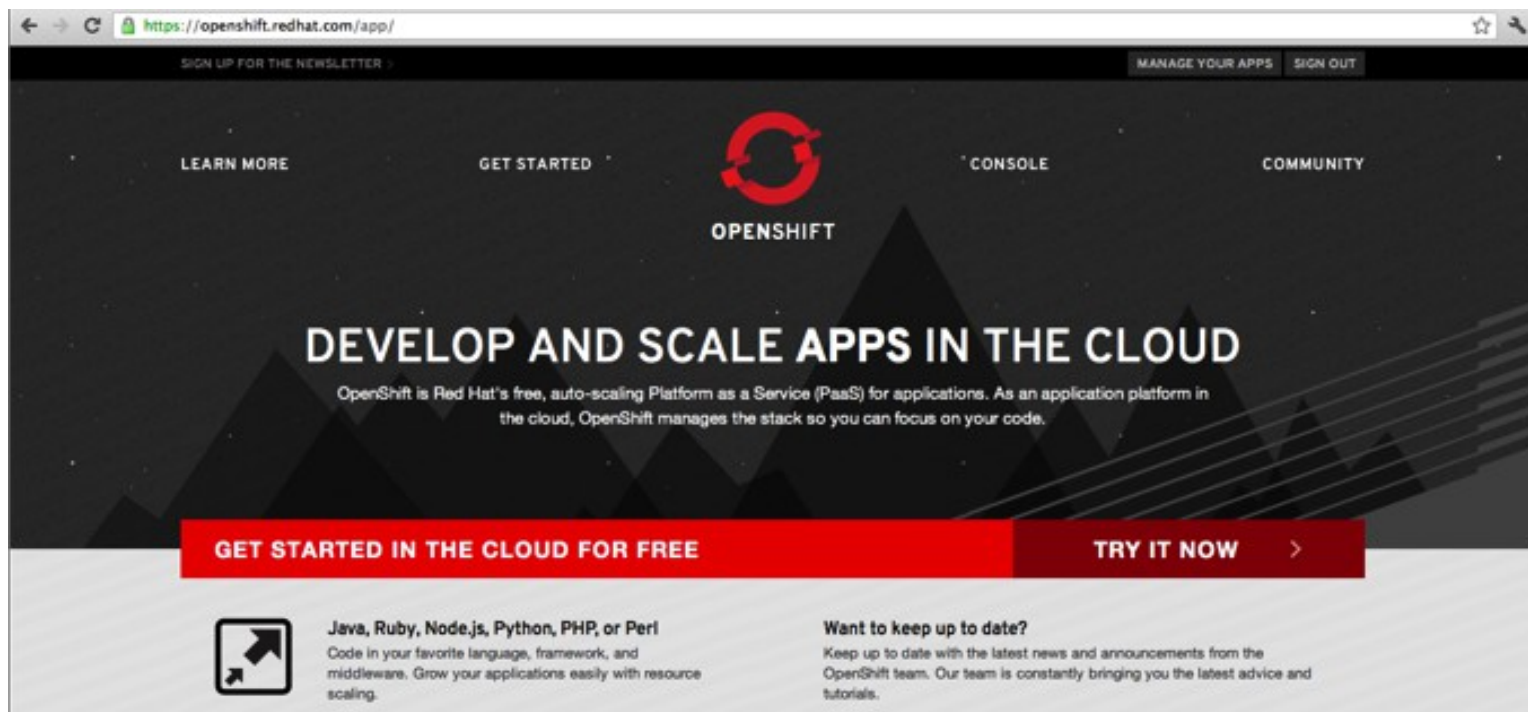
Cloud-Class Agility

- Never any Lock-In
- Polyglot with Java, Ruby, Node.js, PHP, Perl, Python
- Mobile, NoSQL
- REST and Javascript

OpenShift = Open Hybrid PaaS

Get Started Today for Free!

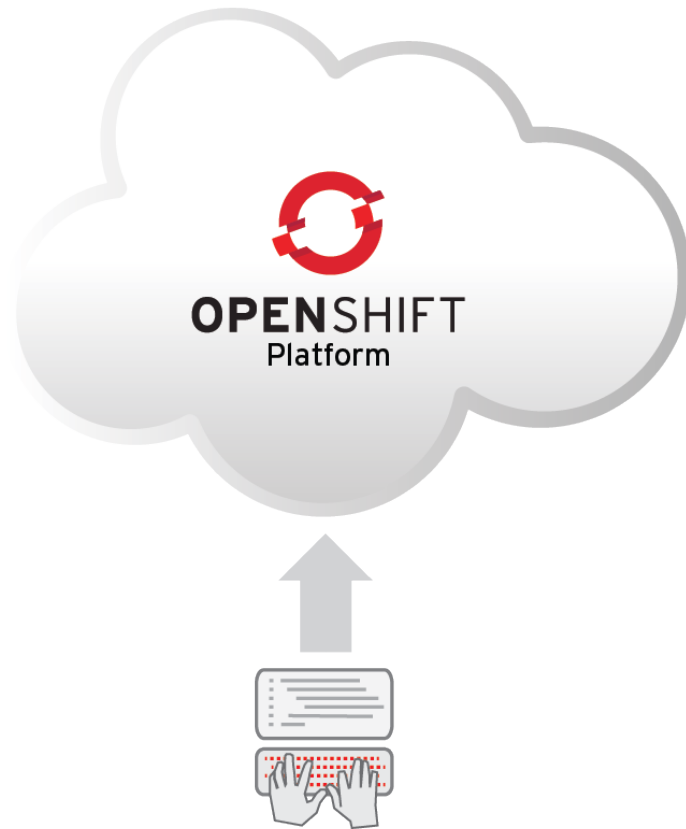
- Deploy Apps to the [OpenShift OnLine Developer Preview](#)
- Join the [OpenShift Origin](#) Open Source Project community



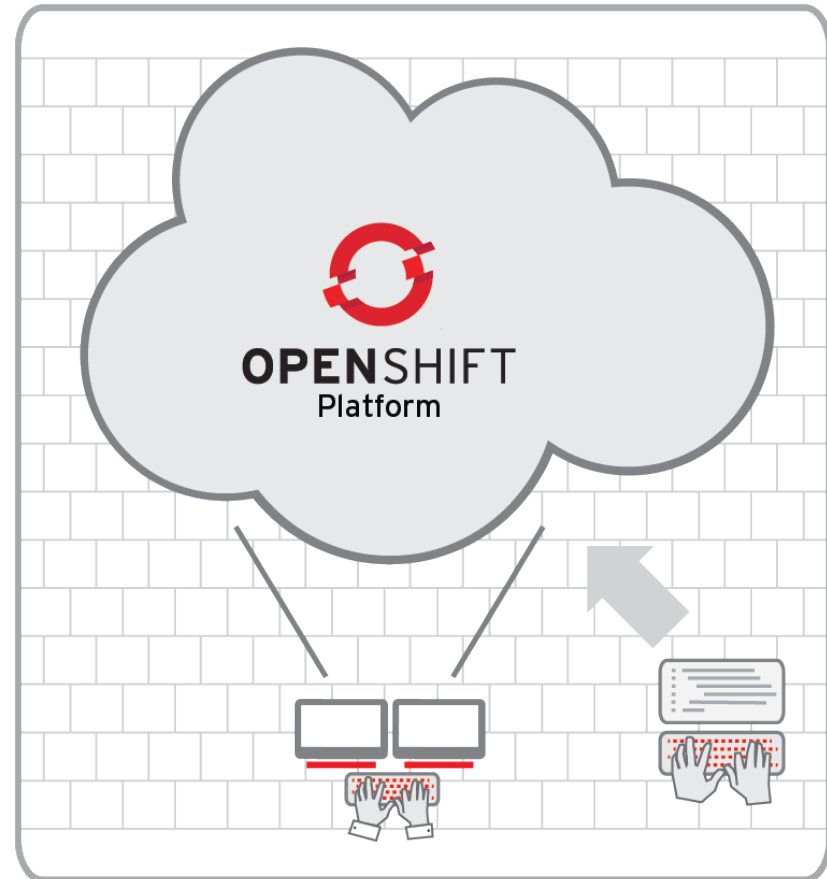
<http://openshift.redhat.com>

OpenShift Commercial Offerings

- Coming Soon



OpenShift OnLine



OpenShift Enterprise



Thank You
Questions?

O P E N S H I F T