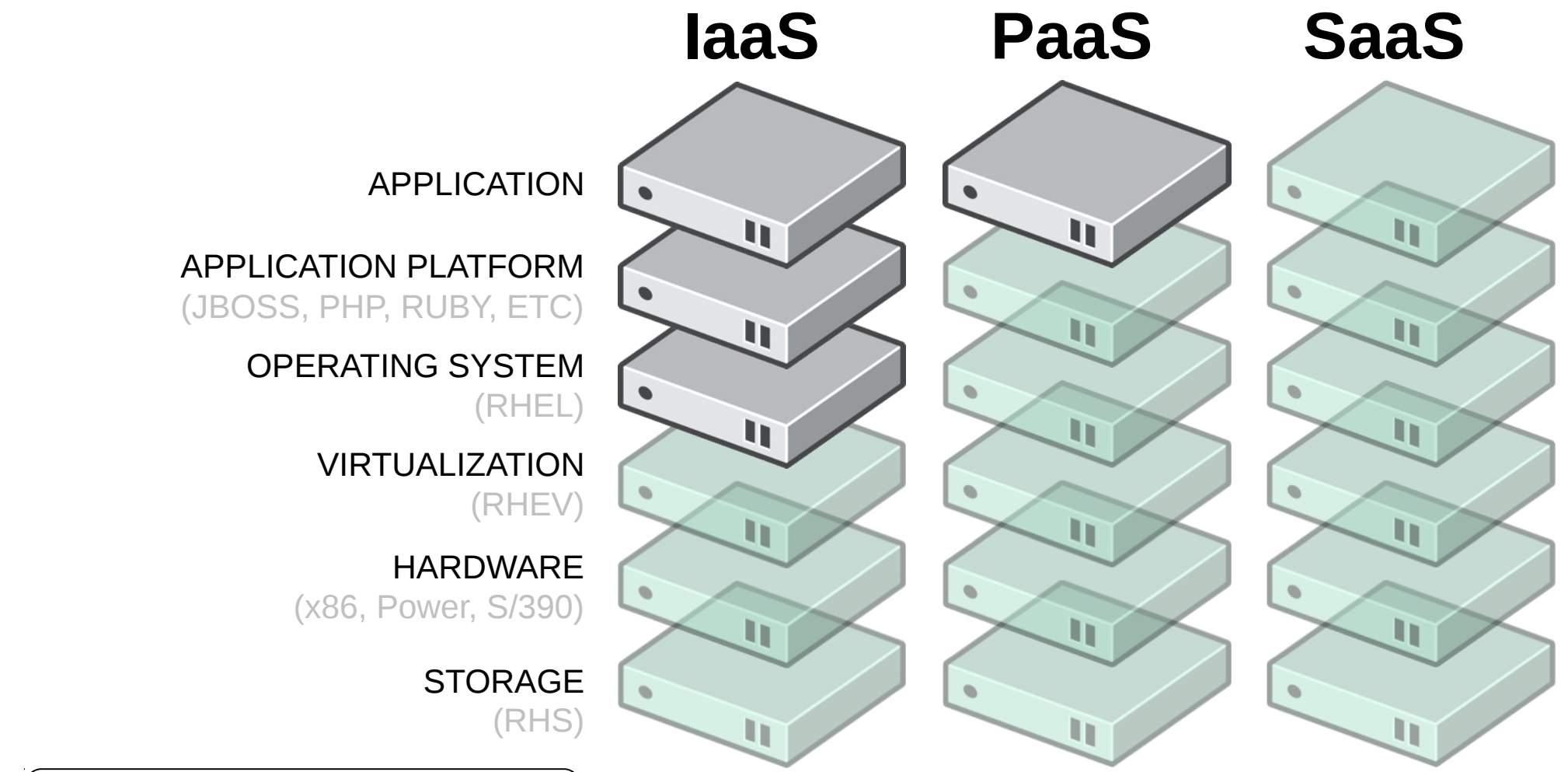
OpenShift PaaS Overview

Blaine Mincey
Sr. Middleware Solutions Architect

November 2012

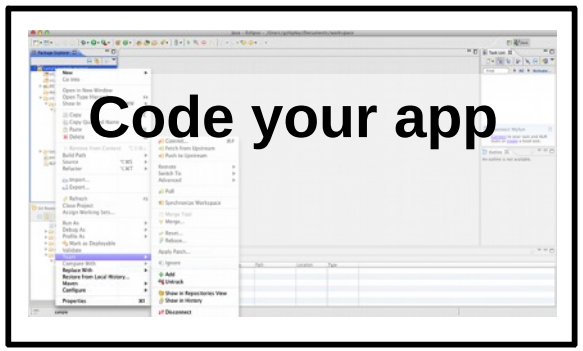
Cloud Service Models

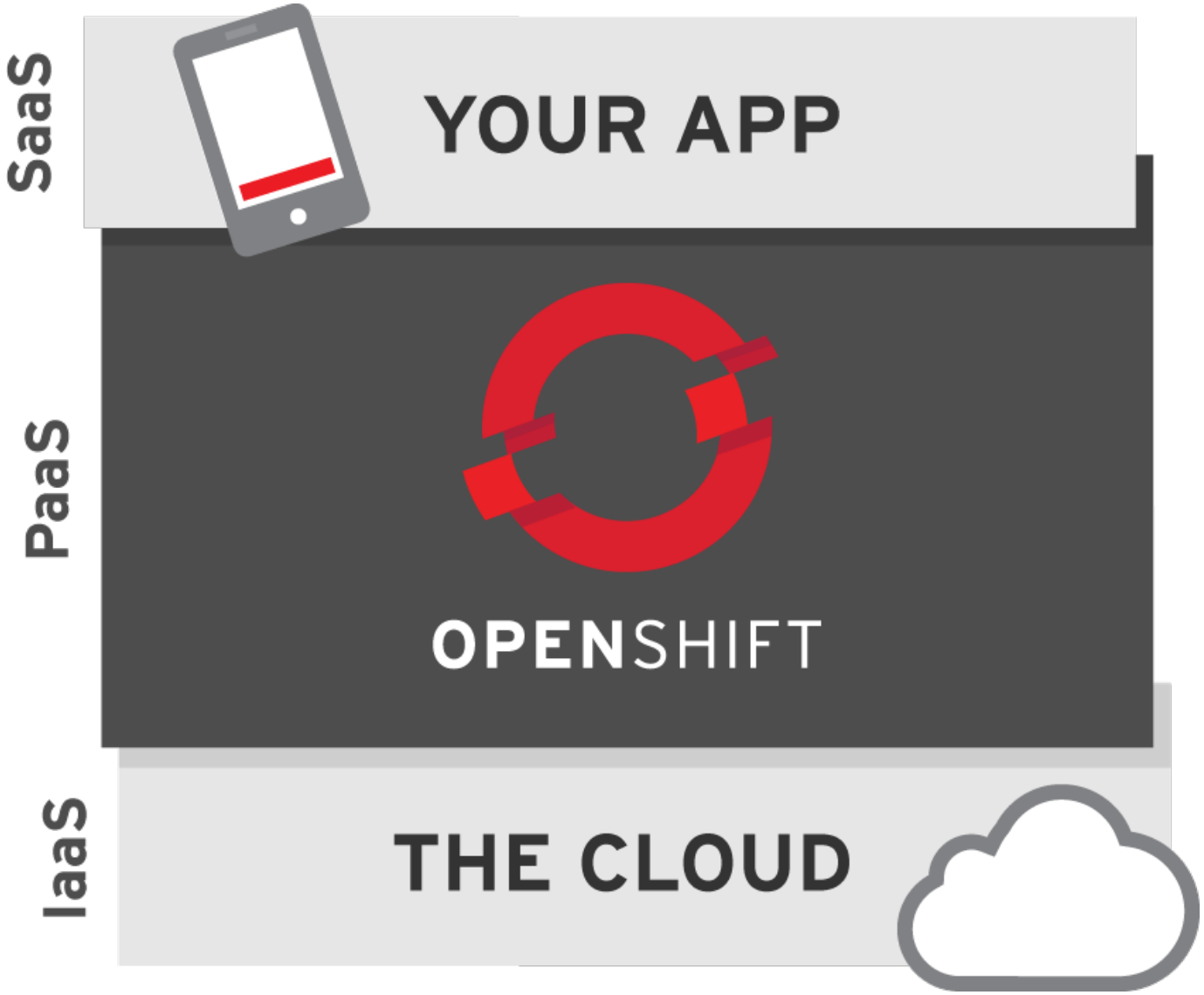


PaaS = Platform as a Service

A Cloud Application Platform

Code | Deploy | Enjoy



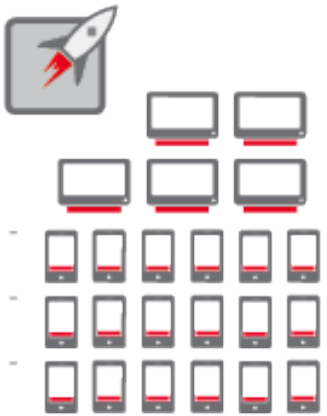

SaaS
YOUR APP
PaaS
OPENSHIFT
IaaS
THE CLOUD

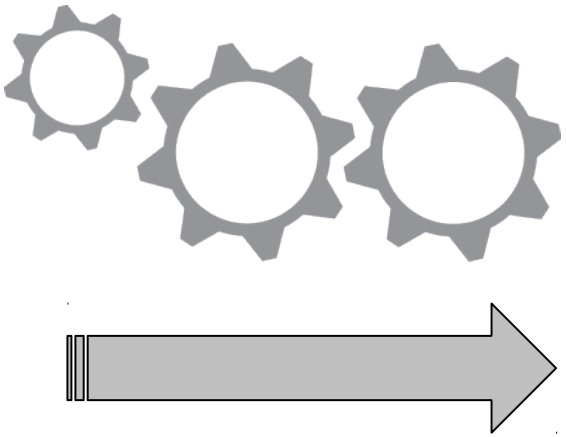
Today's IT Challenge

IT is under tremendous pressure from the Business to enable growth

Constant demand for new services (new apps)

Need to accelerate, automate, and standardize **developer workflows**





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
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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

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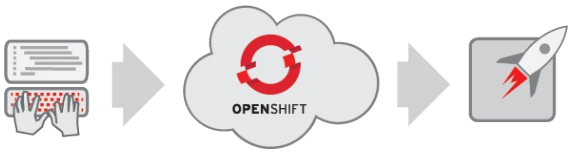
With PaaS

How to Build an App:

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



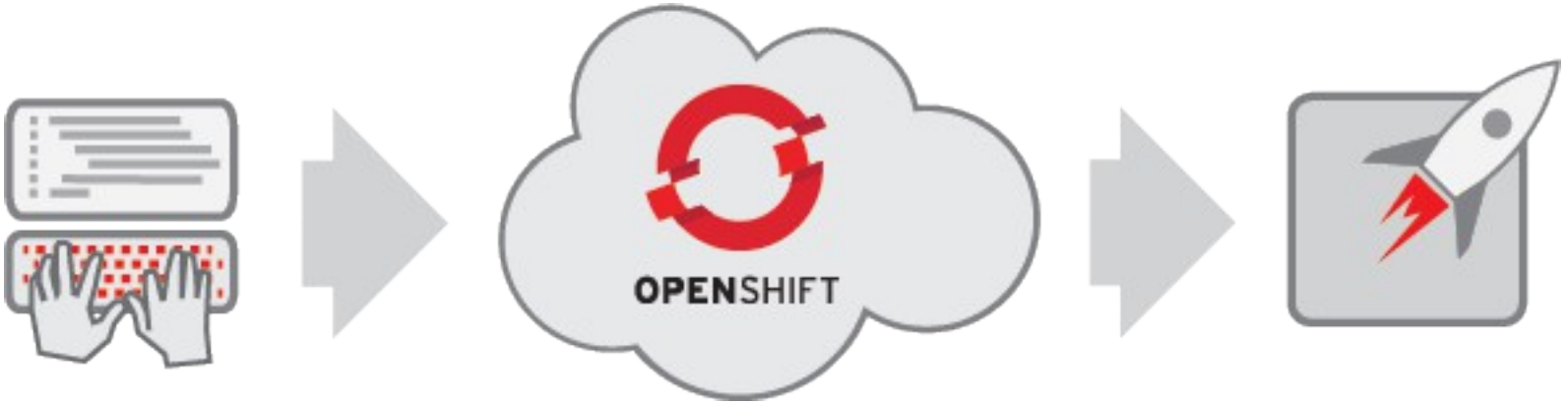
*"The use of Platform-as-a-Service technologies will enable **IT organizations** to become more agile and **more responsive to the business needs**." –Gartner**

Why PaaS?

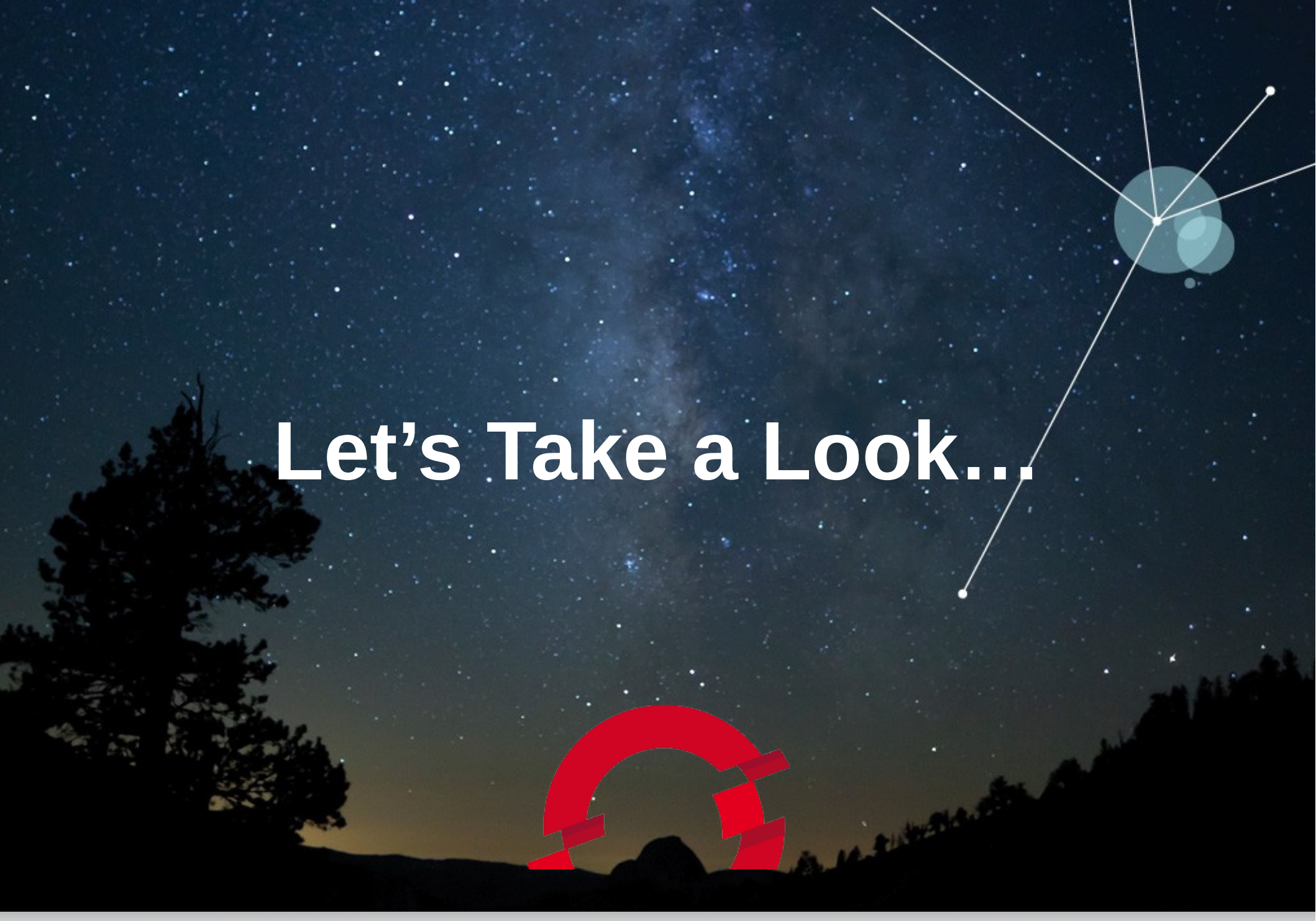
PaaS leverages **automation** technologies and a **cloud** architecture…

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

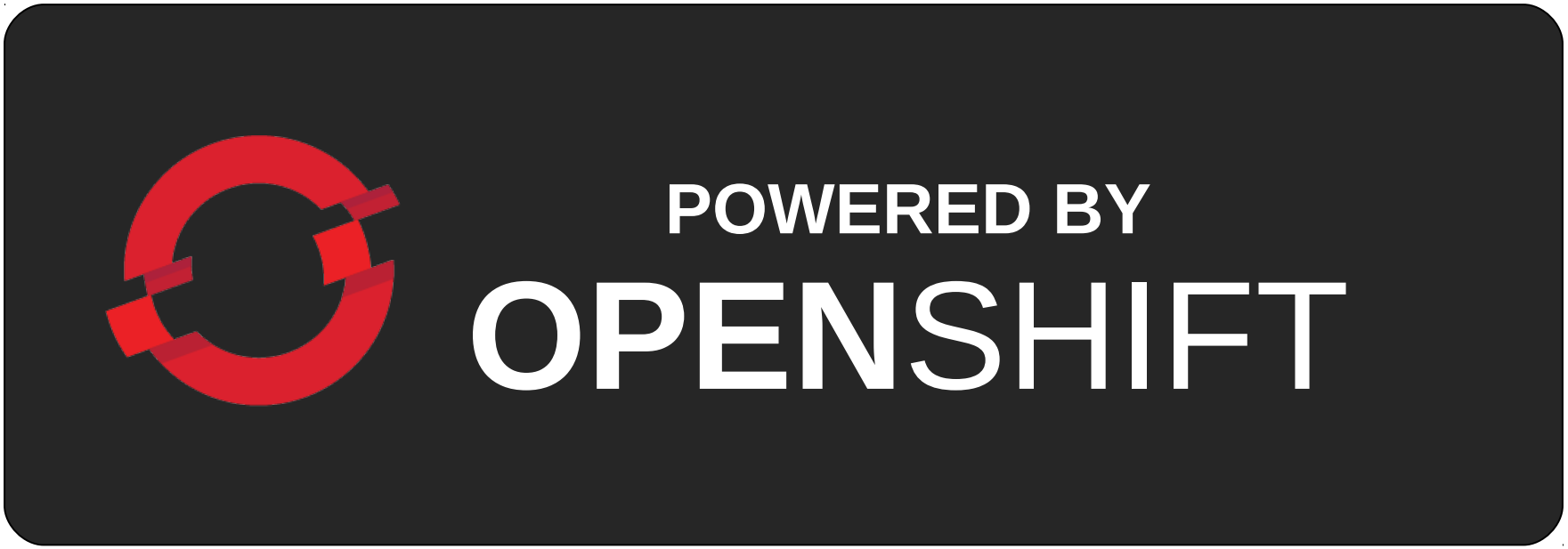
OpenShift
is
PaaS by Red Hat



Multi-language,
Auto-Scaling,
Self-service,
Elastic,
Cloud Application Platform


Let’s Take a Look...

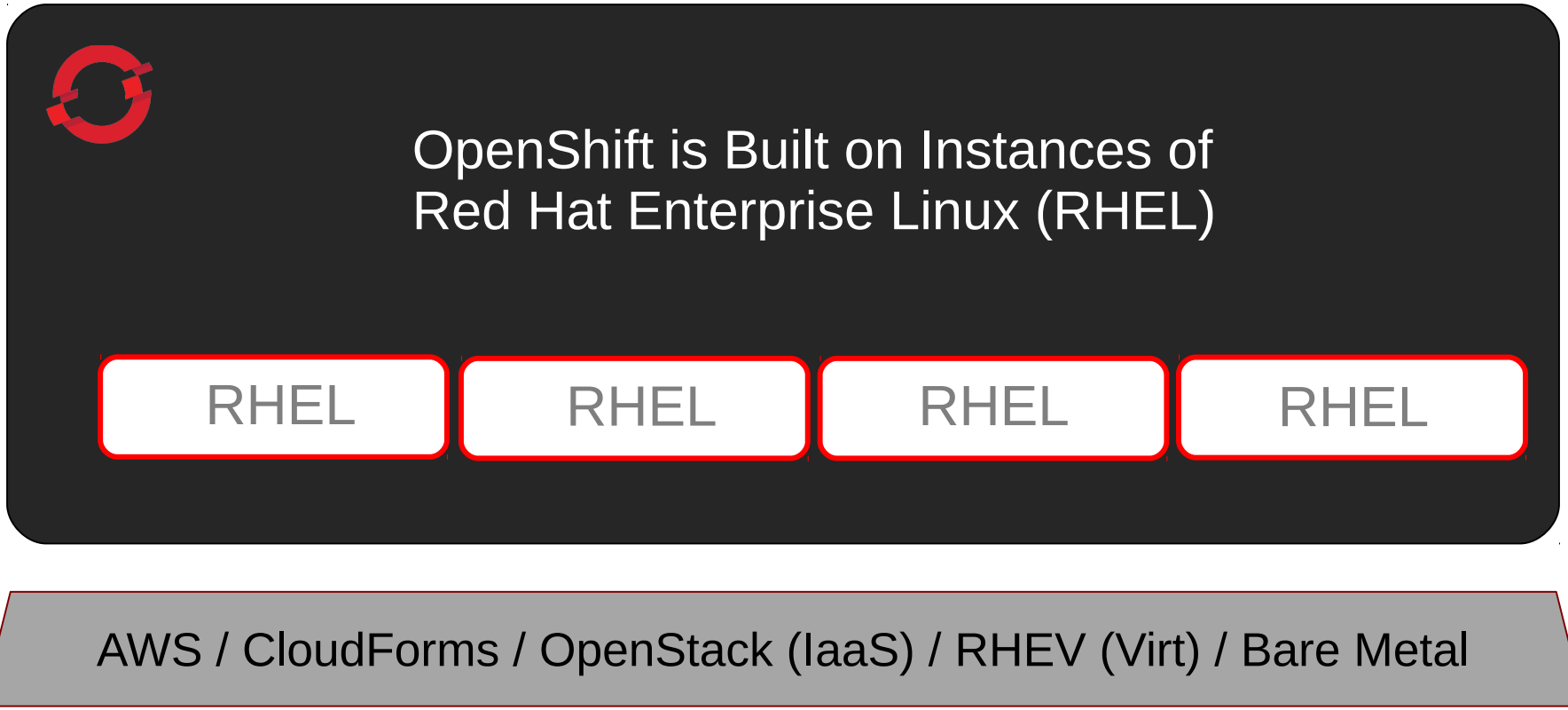
How OpenShift Works



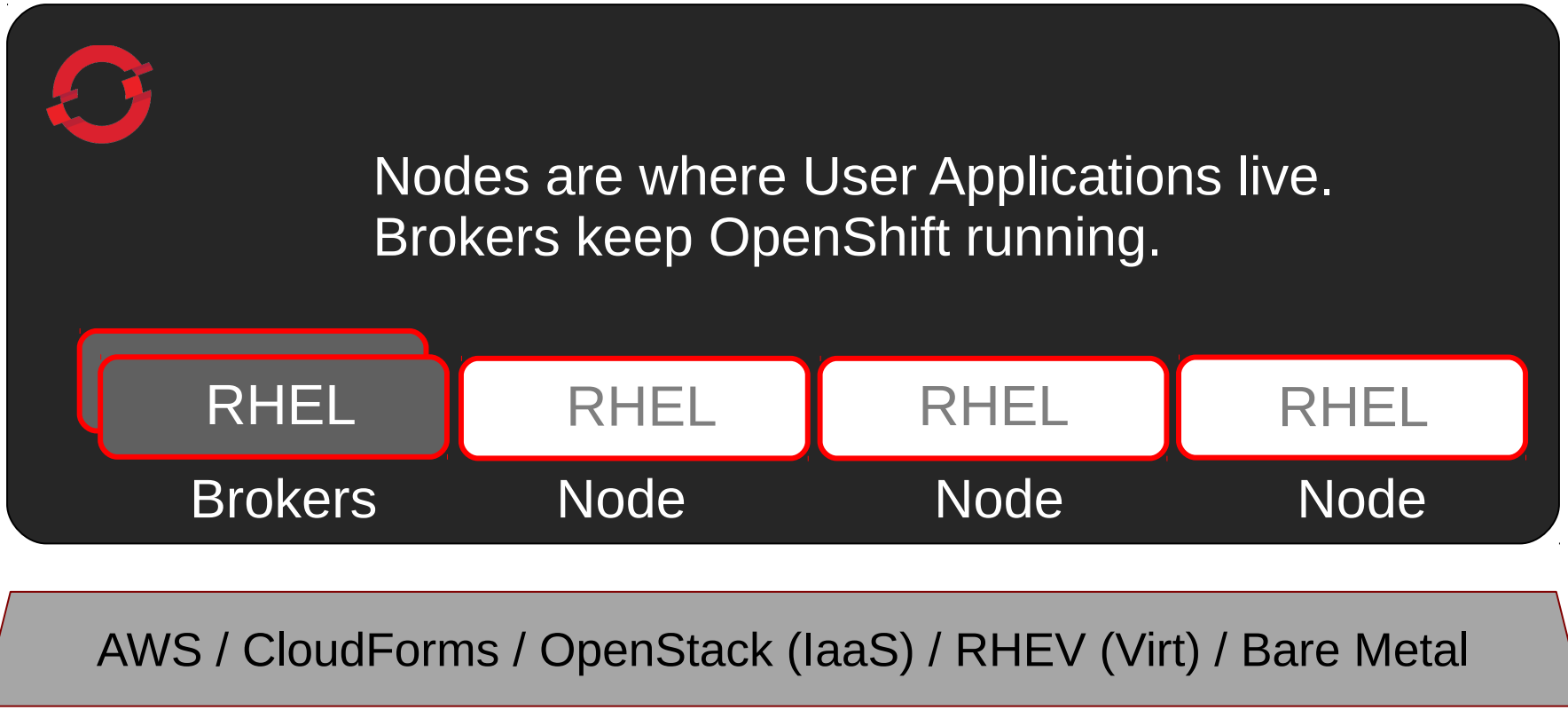
OpenShift is a PaaS on top of… Infrastructure

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

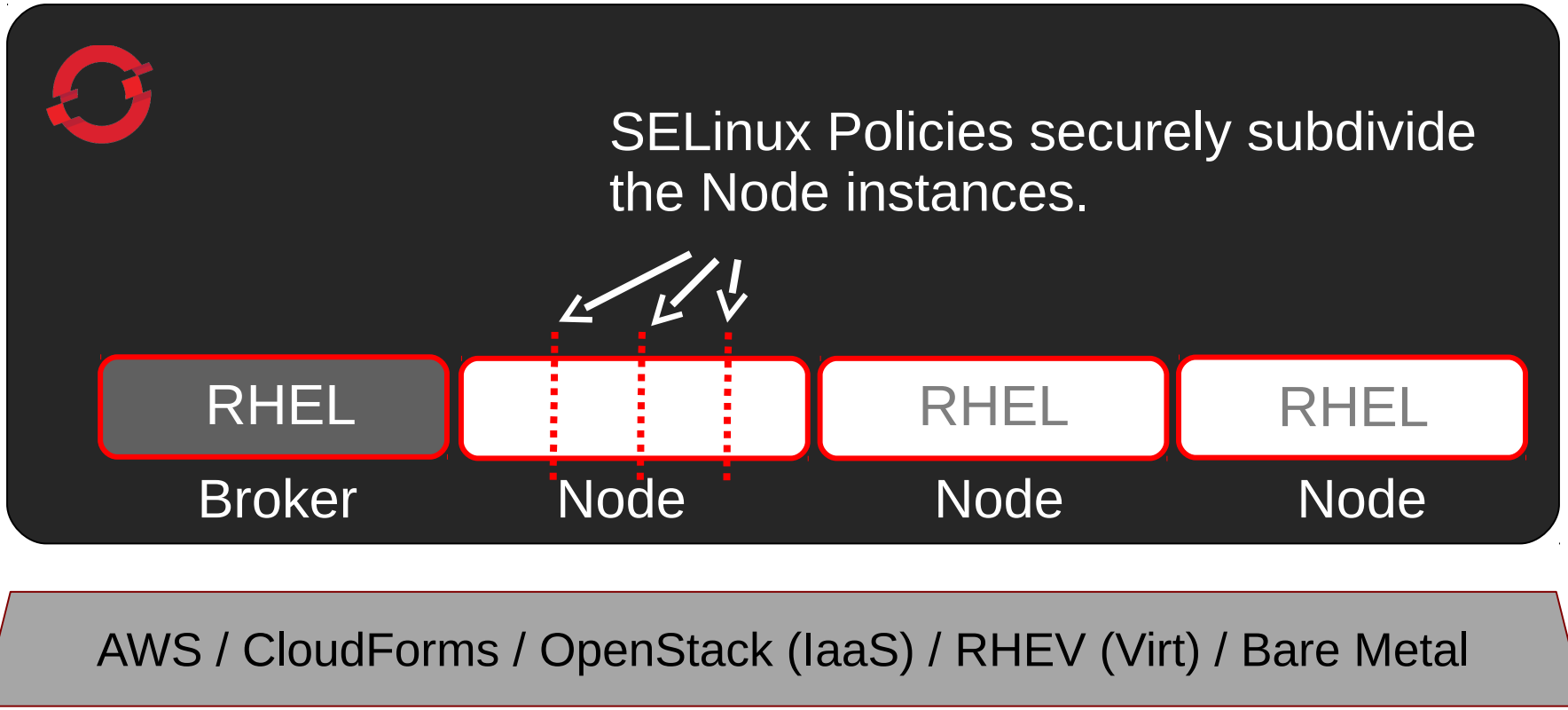
The Foundation of OpenShift is Red Hat Enterprise Linux



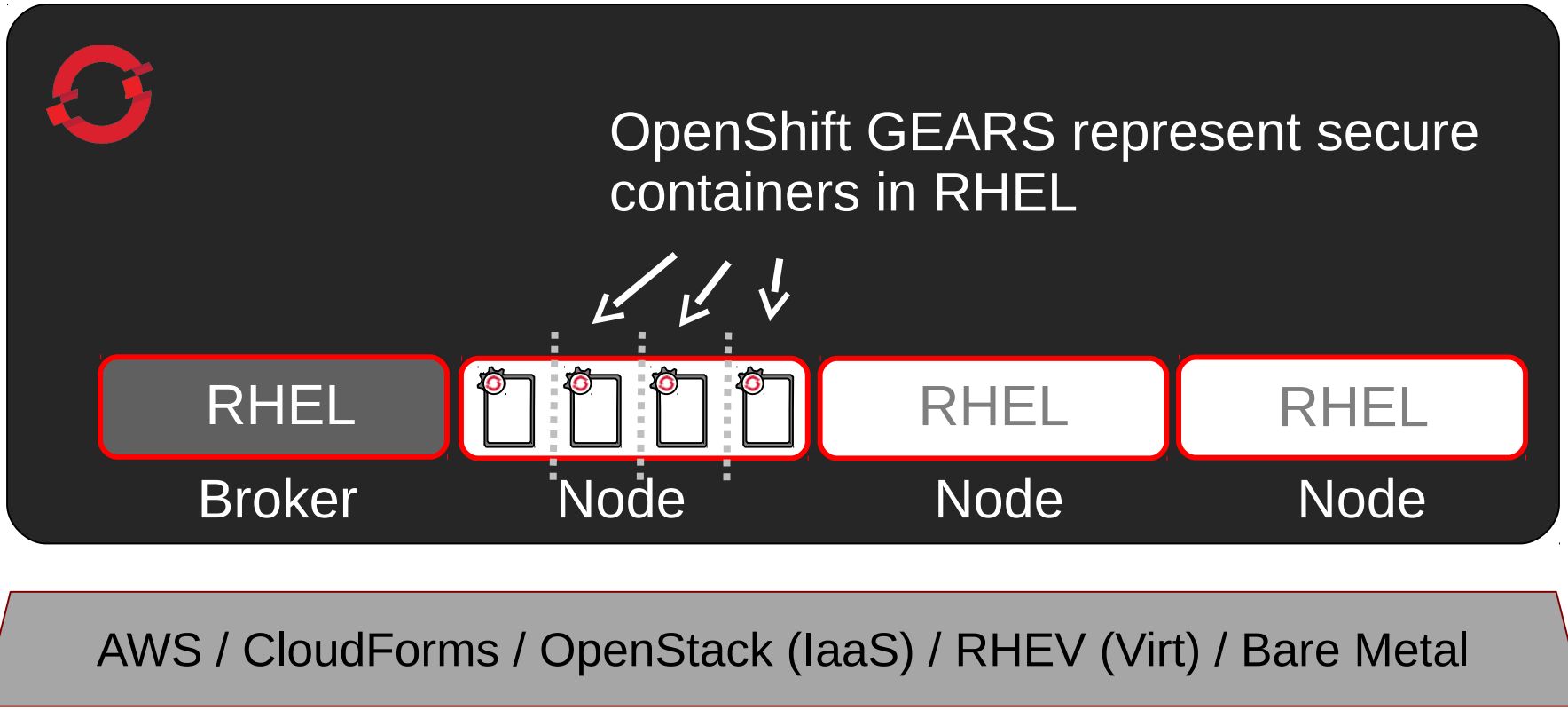
An OpenShift Broker Manages Multiple OpenShift Nodes



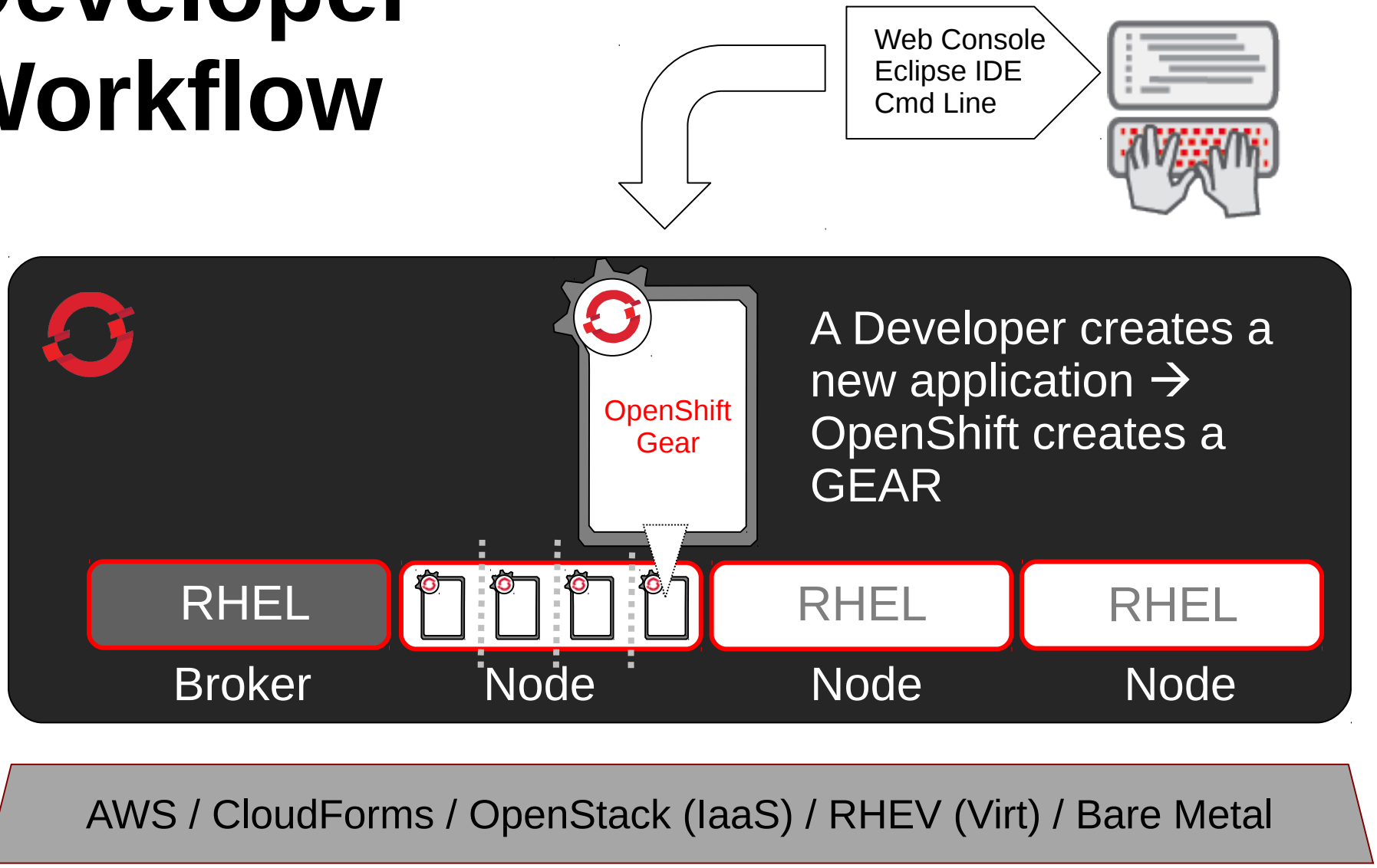
Unique SELinux Approach Enables Security and Multi-tenancy



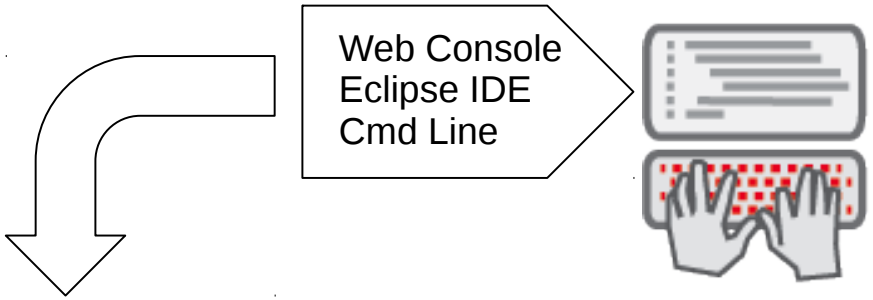
OpenShift User Applications Run in OpenShift Gears

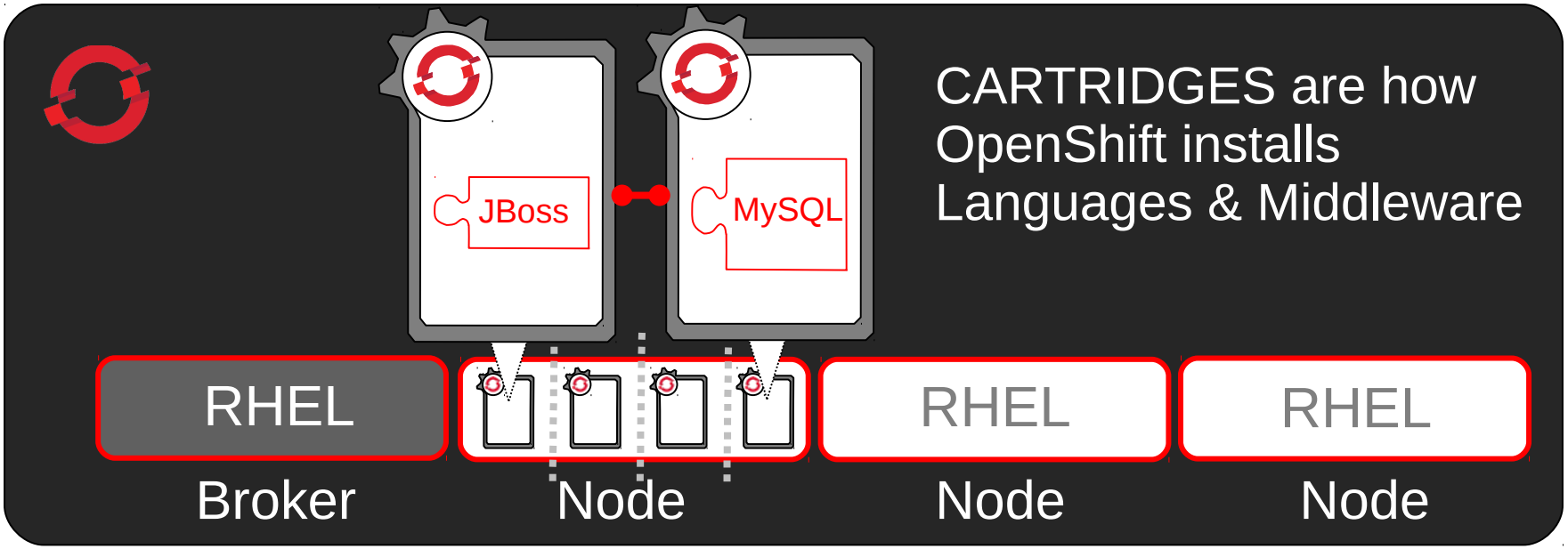


Developer Workflow



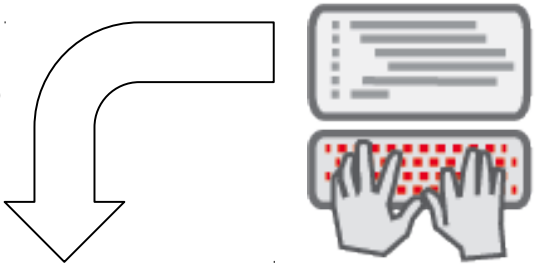
OpenShift Automates Gear Configuration via Cartridges

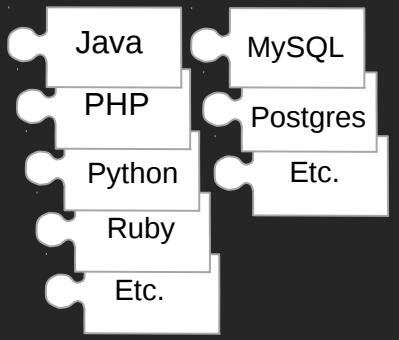




AWS / CloudForms / OpenStack (IaaS) / RHEV (Virt) / Bare Metal

OpenShift Cartridge System Enables User-Built Cartridges





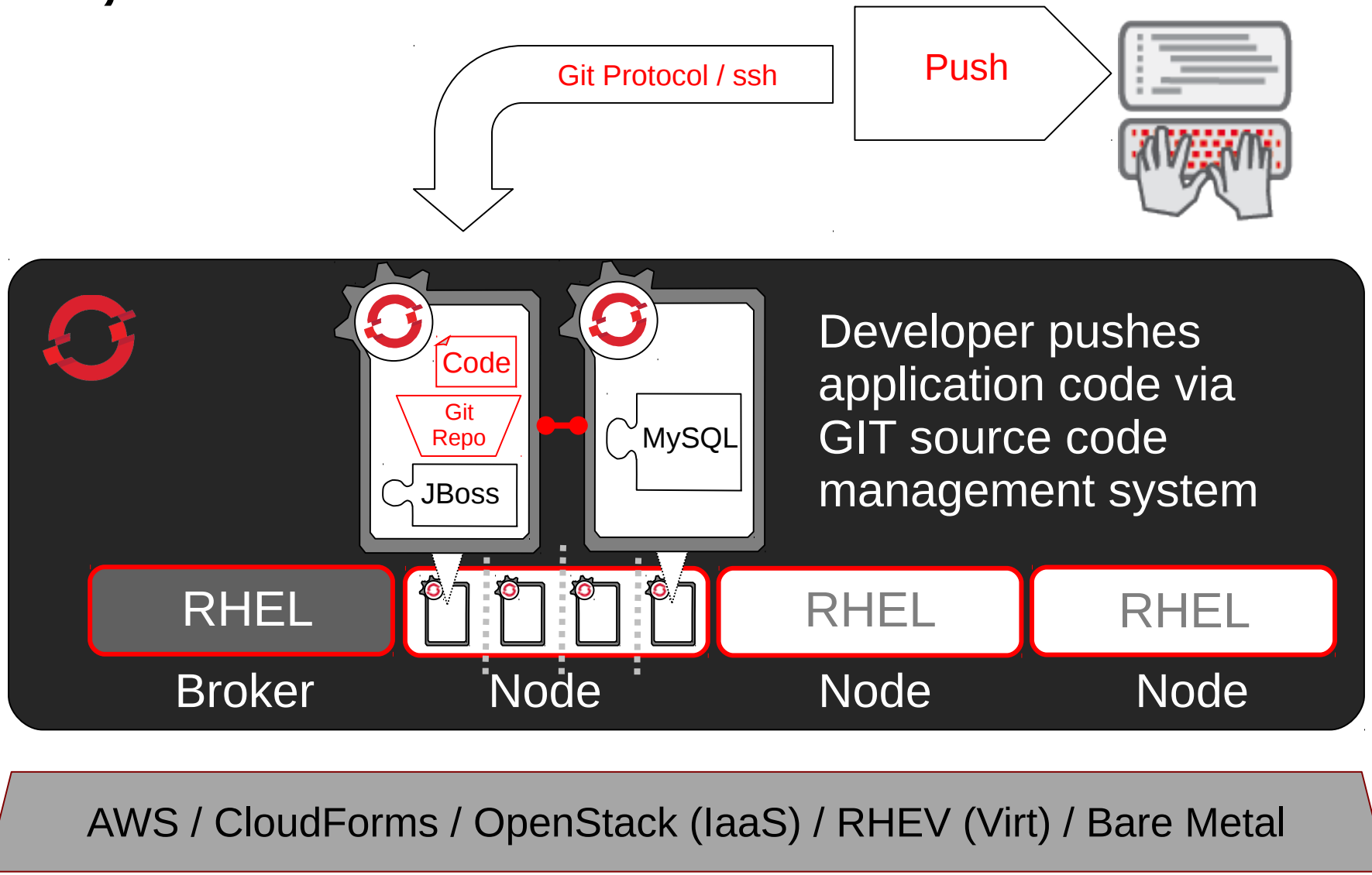
OpenShift Default Cartridges

CUSTOM

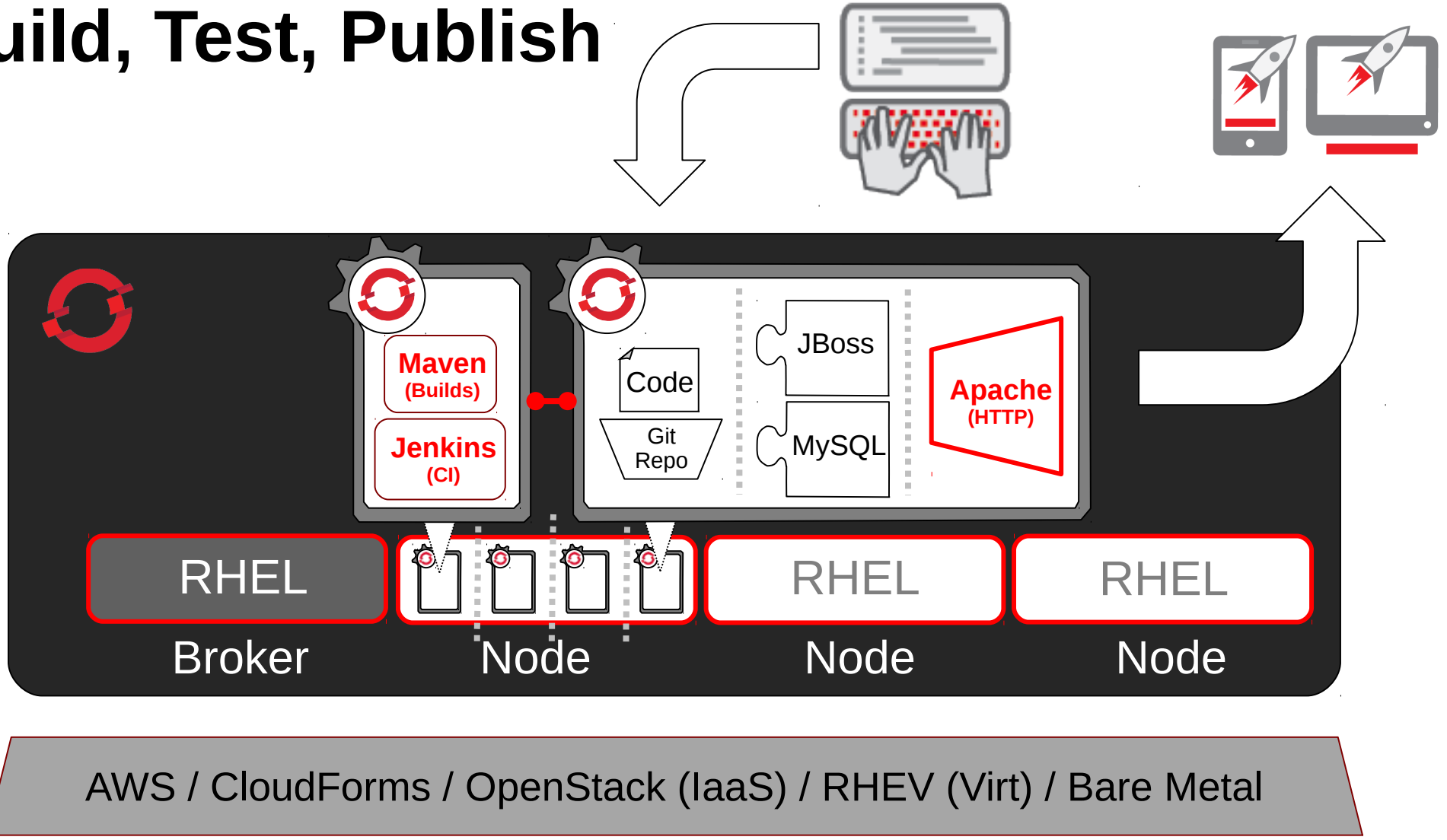
Developers can add custom language, data-store, or middleware with with a custom Cartridge.

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

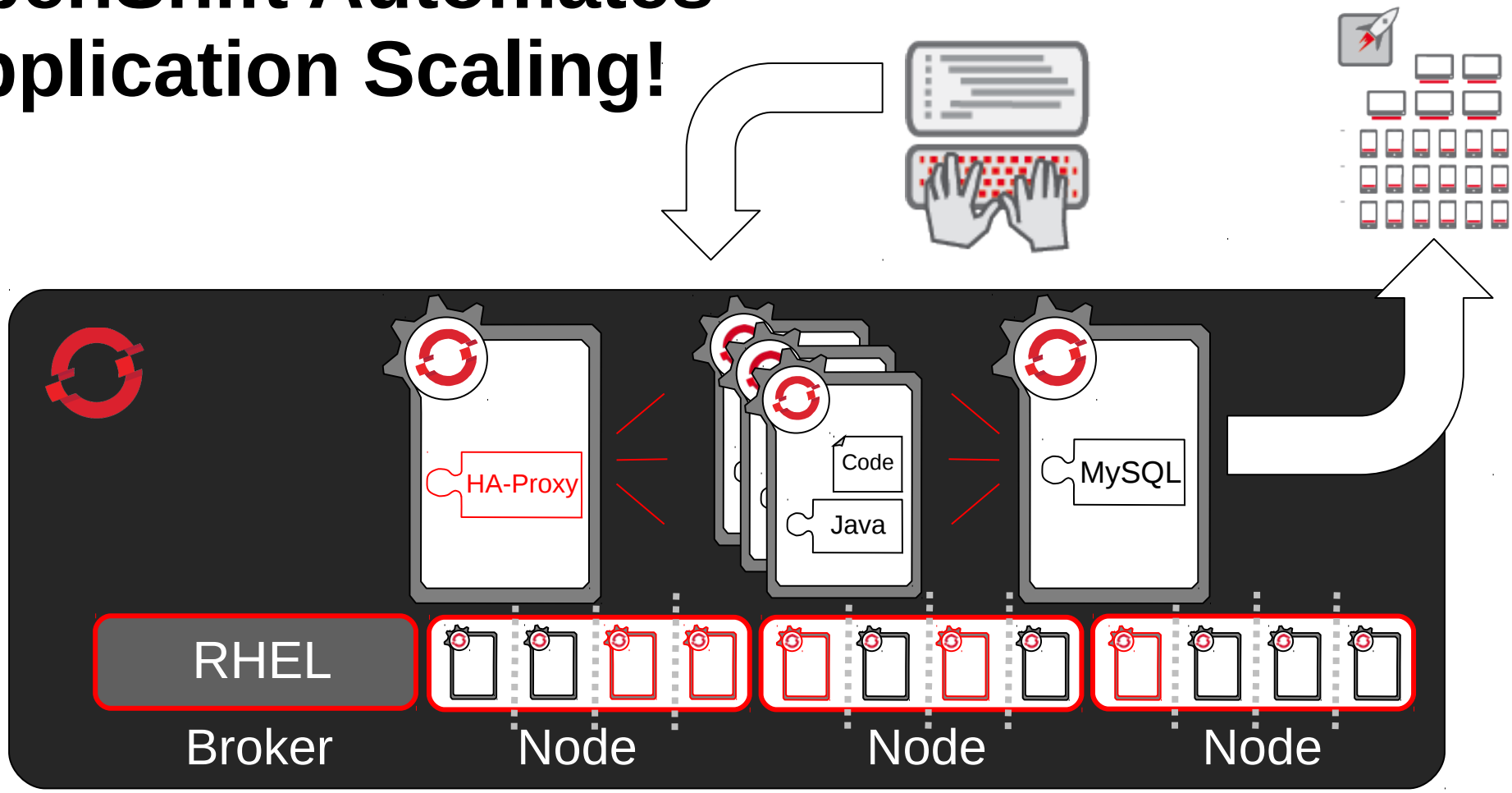
Now, Code and Push



OpenShift Automates Build, Test, Publish

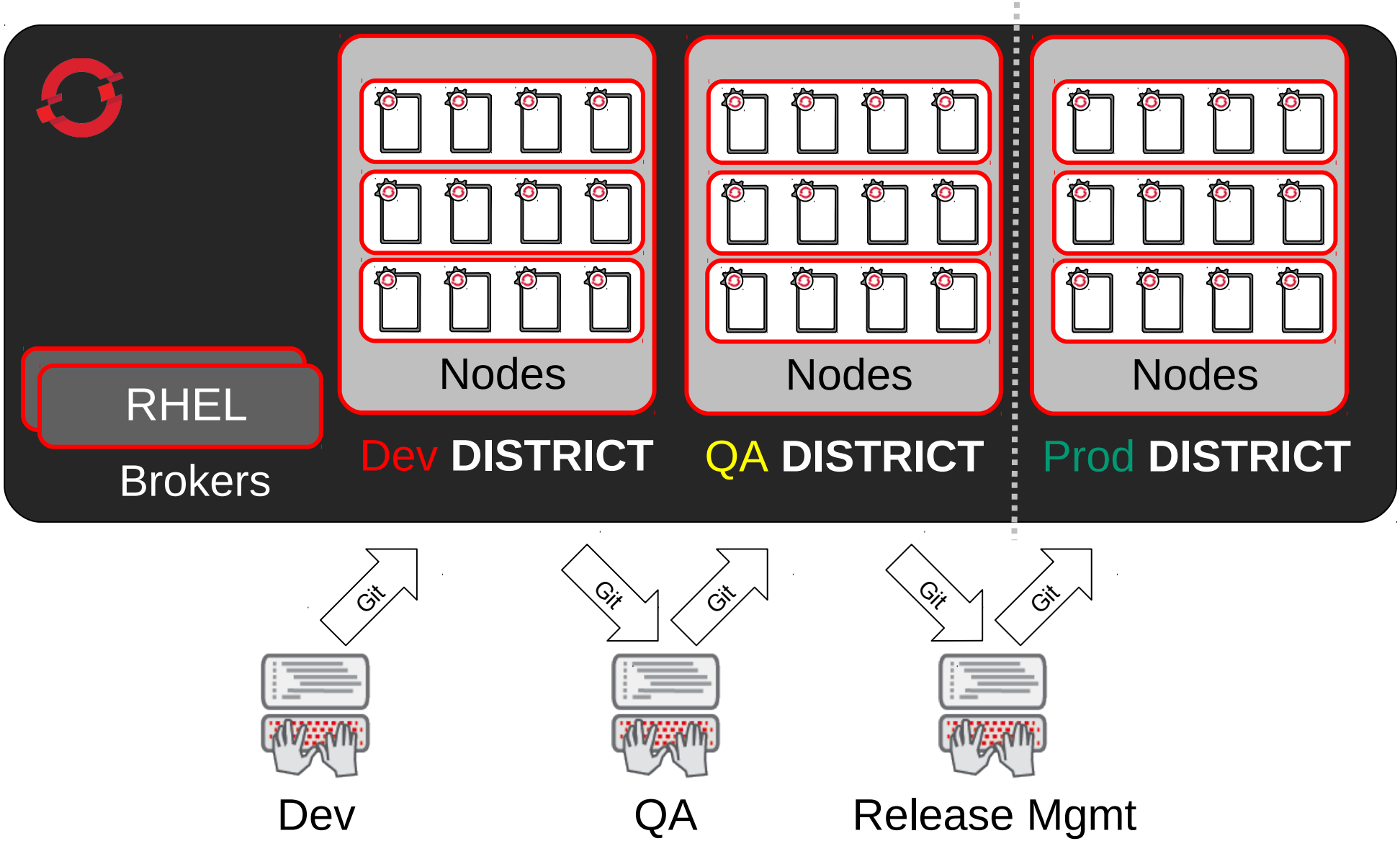


OpenShift Automates Application Scaling!



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

Real-world App Dev
– Multi Environments, Single PaaS



Real-world App Dev
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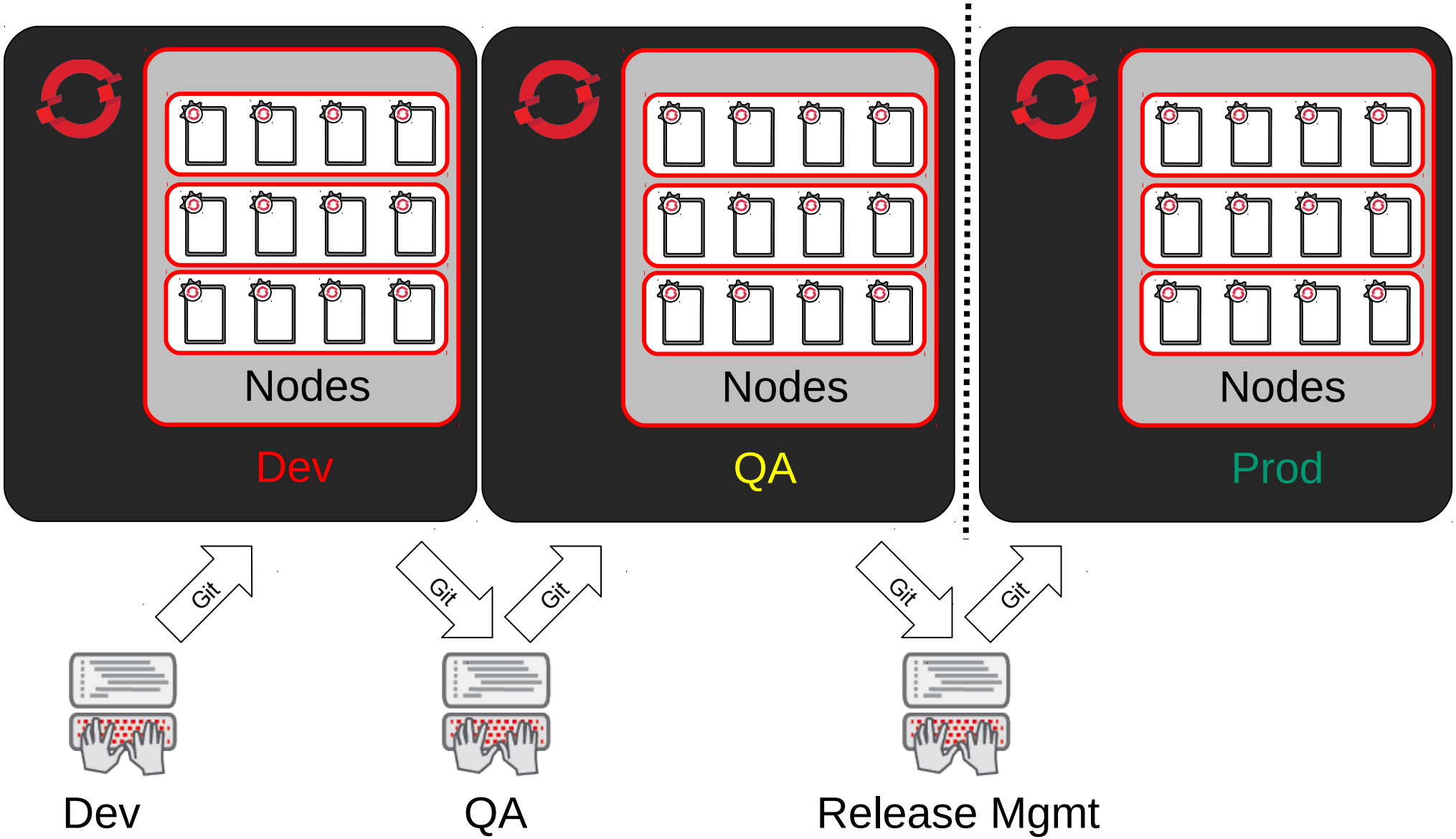
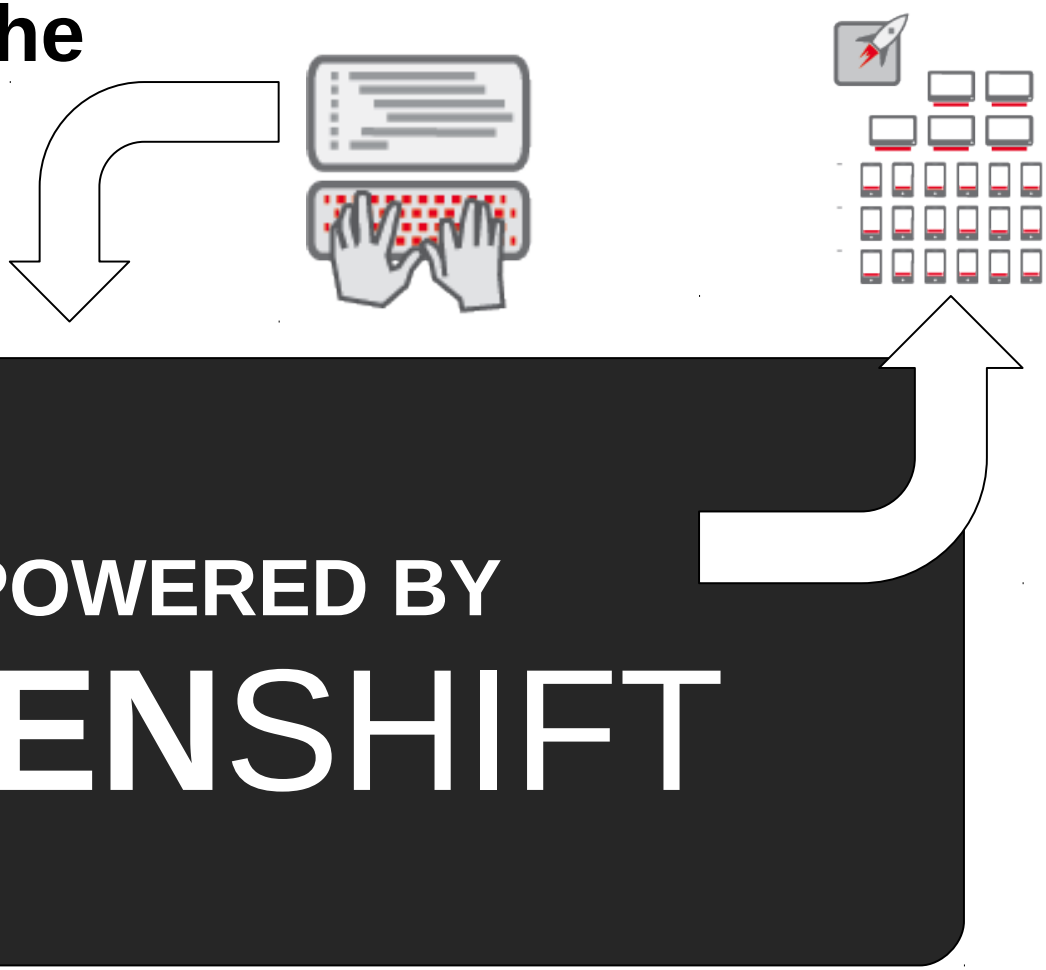


OpenShift Automates the IT Assembly Line



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

How Can I Consume OpenShift?

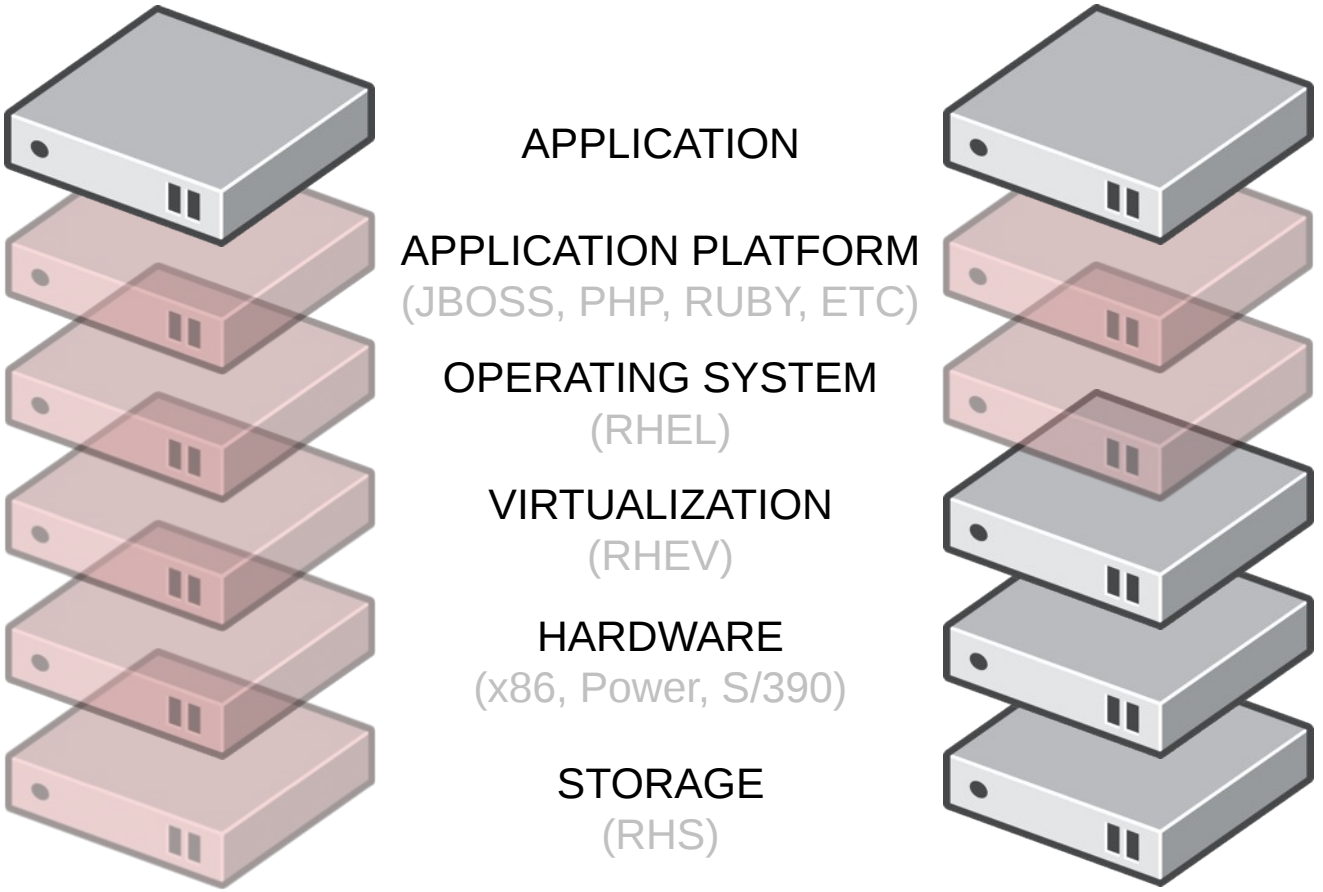
Public Cloud Service

OPENSHIFT ONLINE

Coming Soon..

On-Premise or Private Cloud Software

OPENSHIFT ENTERPRISE



Developer Controls

OpenShift Manages

APPLICATION

APPLICATION PLATFORM
(JBOSS, PHP, RUBY, ETC)

OPERATING SYSTEM
(RHEL)

VIRTUALIZATION
(RHEV)

HARDWARE
(x86, Power, S/390)

STORAGE
(RHS)

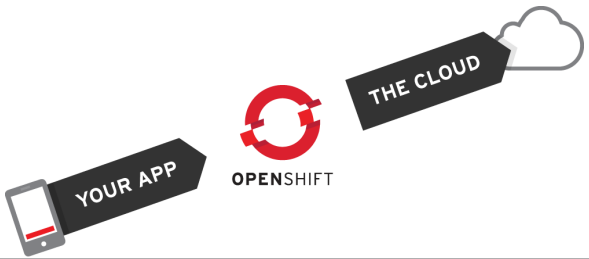
Developer Controls

OpenShift Automates, IT Ops Controls

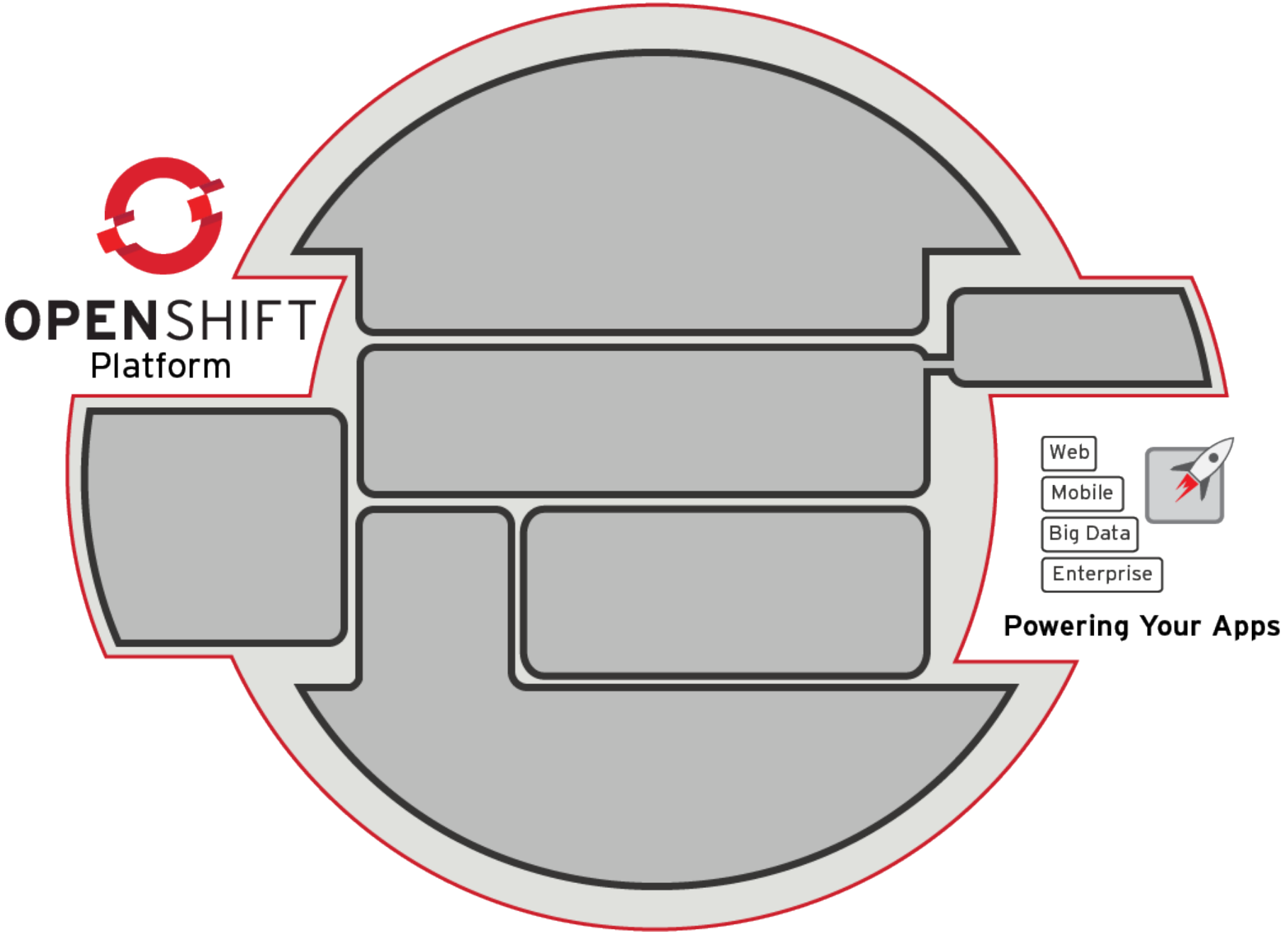
IT Ops Provides

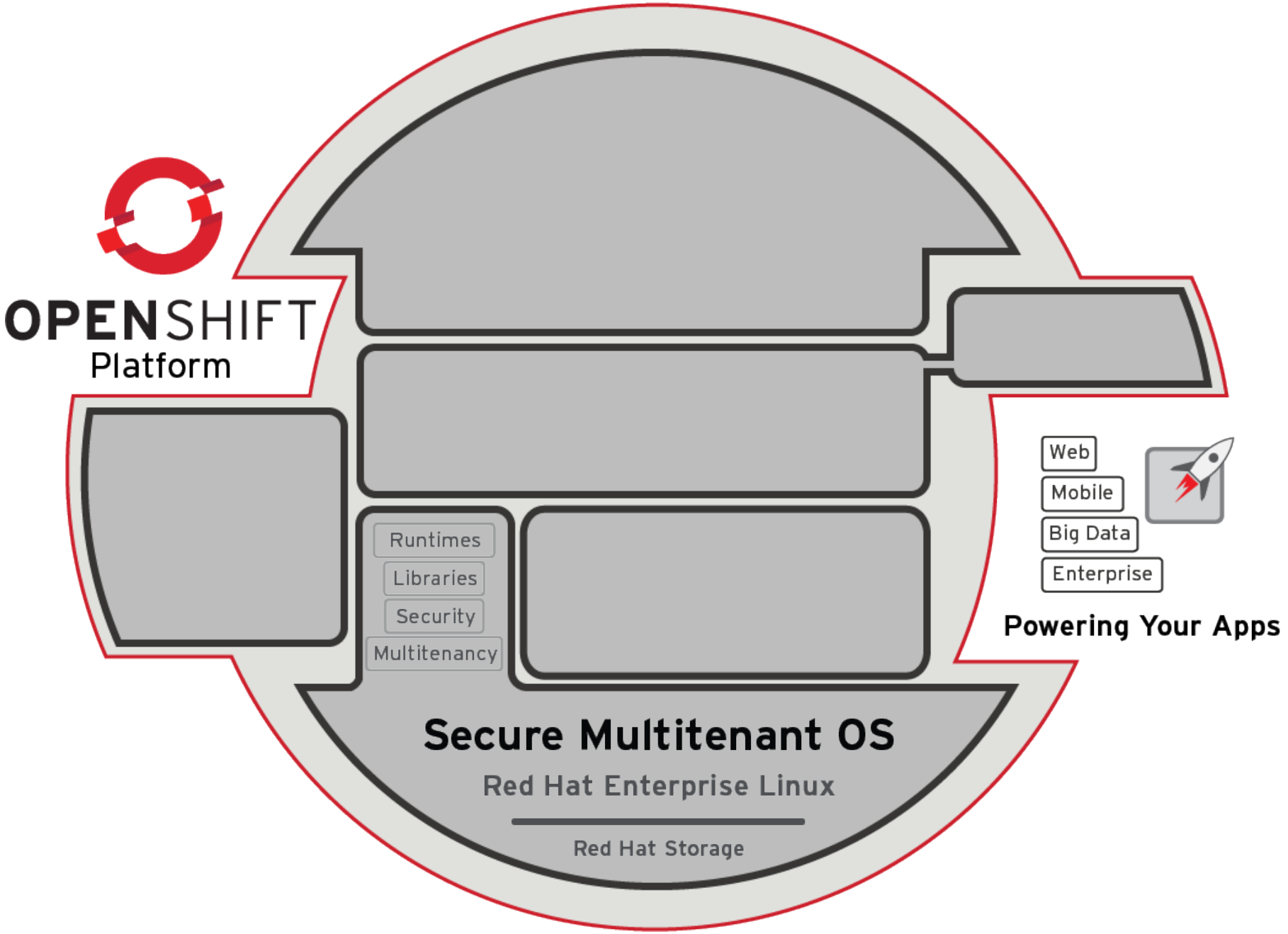
Why OpenShift?

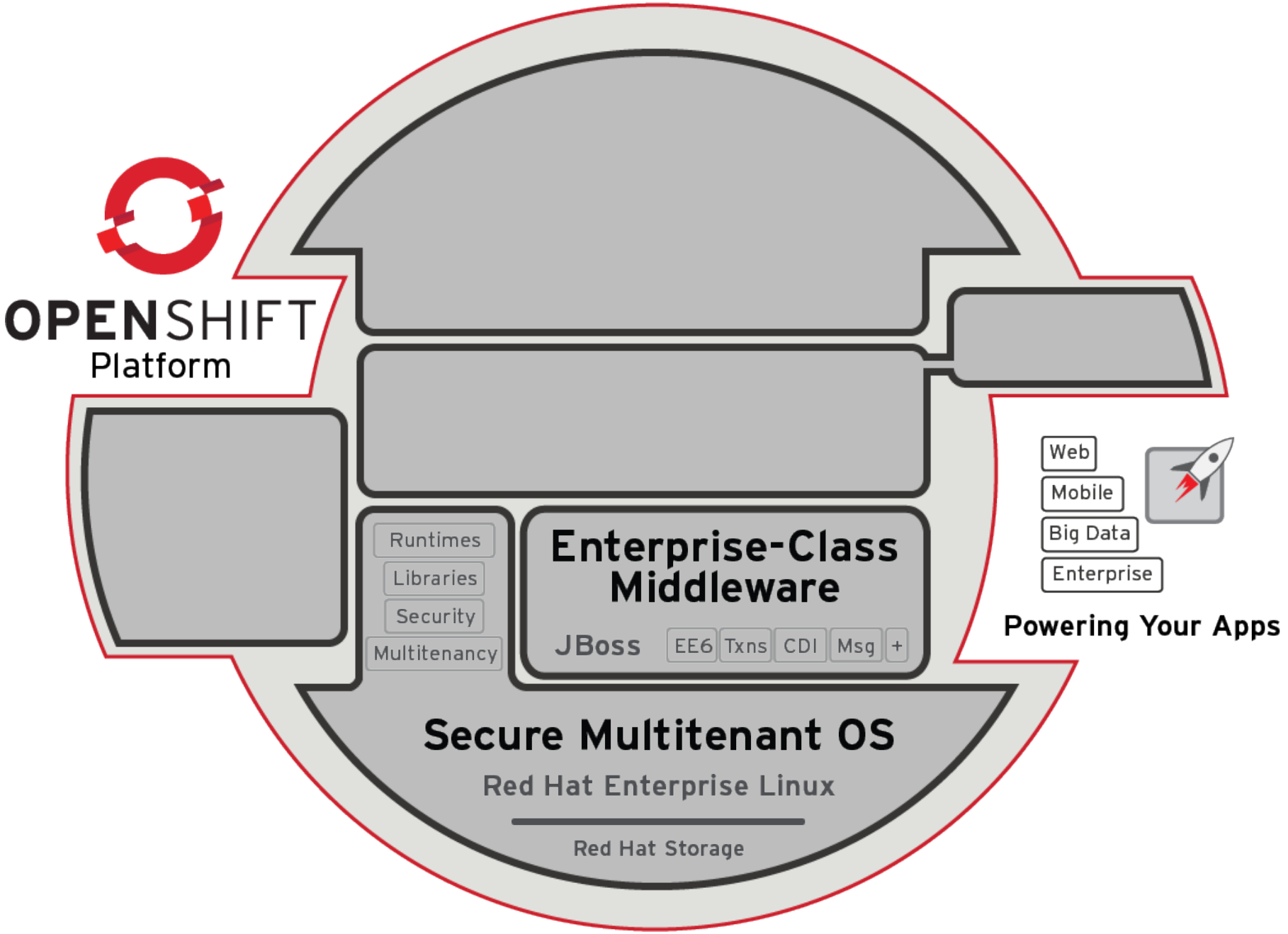
1. **Strength.** OpenShift is built on proven Red Hat technologies.
2. **Freedom.** In OpenShift, work the way you want.
   - Choice of Interface: Web Console, Command-line, or IDE
   - Choice of Middleware: Java(EE6), Ruby, Node.js, PHP, Python, and Perl
   - Choice of Cloud: Public, Private, or Hybrid 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
Runtimes
Libraries
Security
Multitenancy
Web
Mobile
Big Data
Enterprise
Powering Your Apps
Secure Multitenant OS
Red Hat Enterprise Linux
Red Hat Storage


OPENSHIFT
Platform
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Enterprise-Class Middleware
JBoss
EE6
Txns
CDI
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Red Hat Storage
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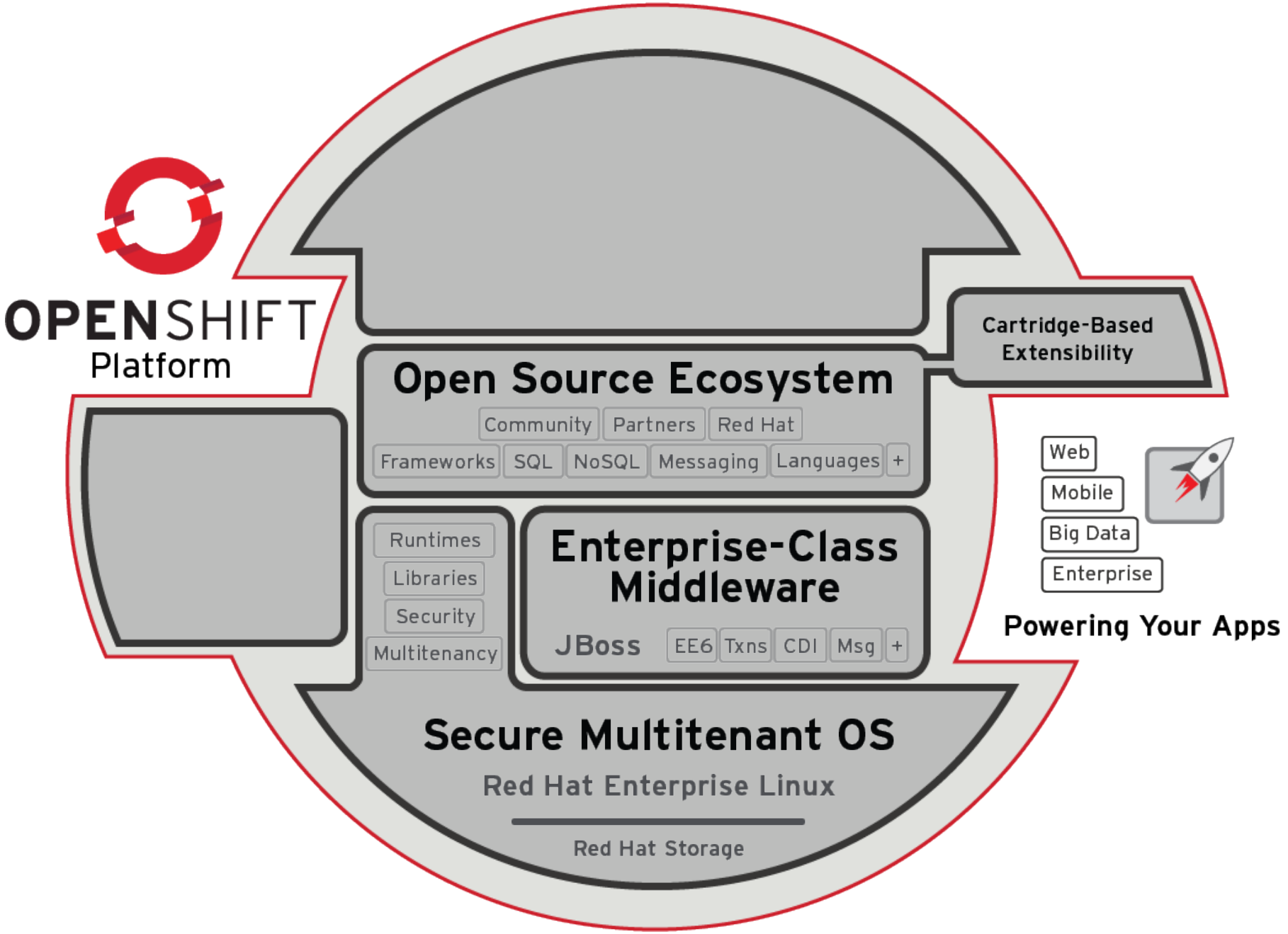
OPENSHIFT
Platform
Cartridge-Based
Extensibility
Open Source Ecosystem
Community
Partners
Red Hat
Frameworks
SQL
NoSQL
Messaging
Languages
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Runtimes
Libraries
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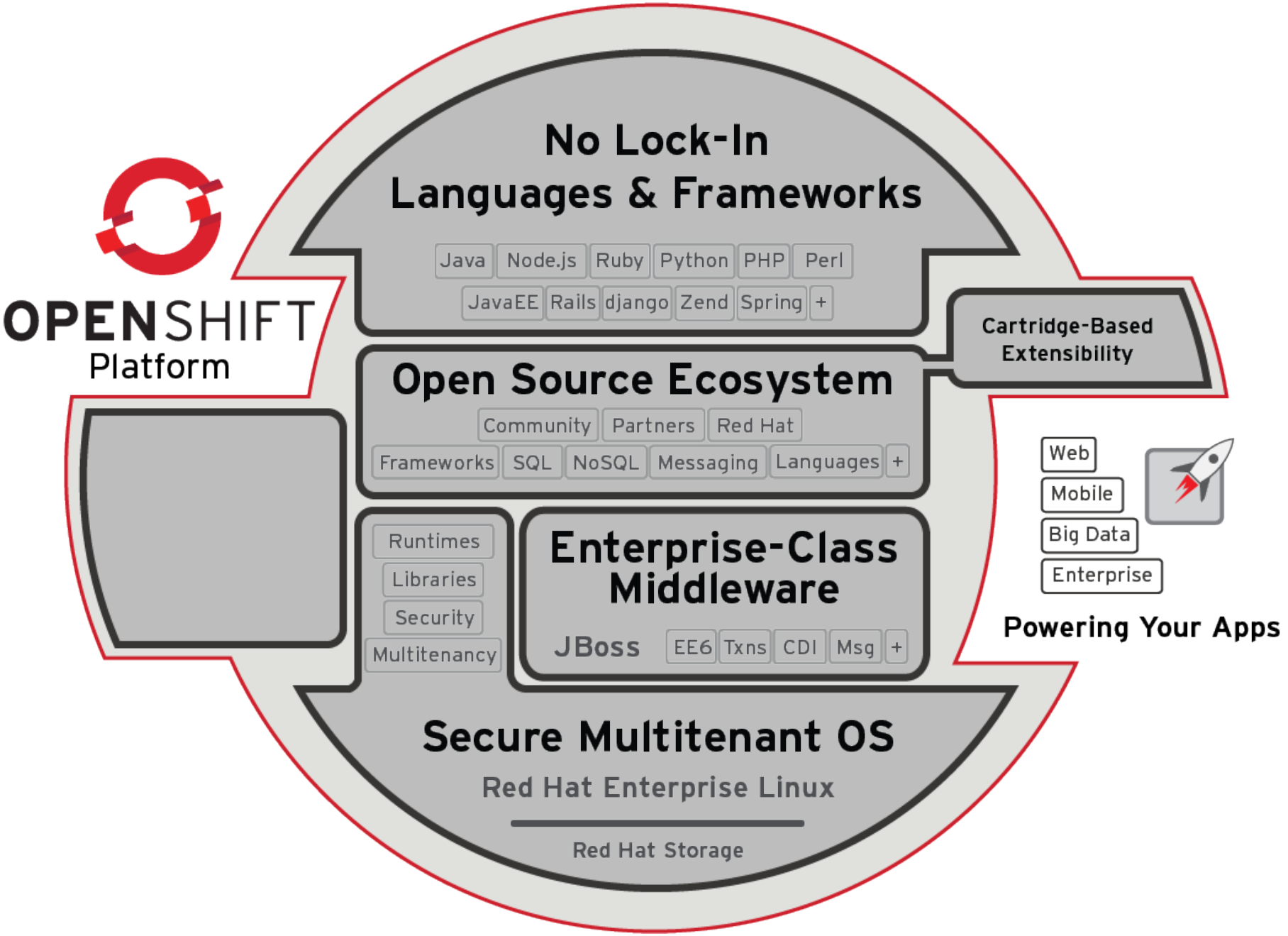
OPENSHIFT
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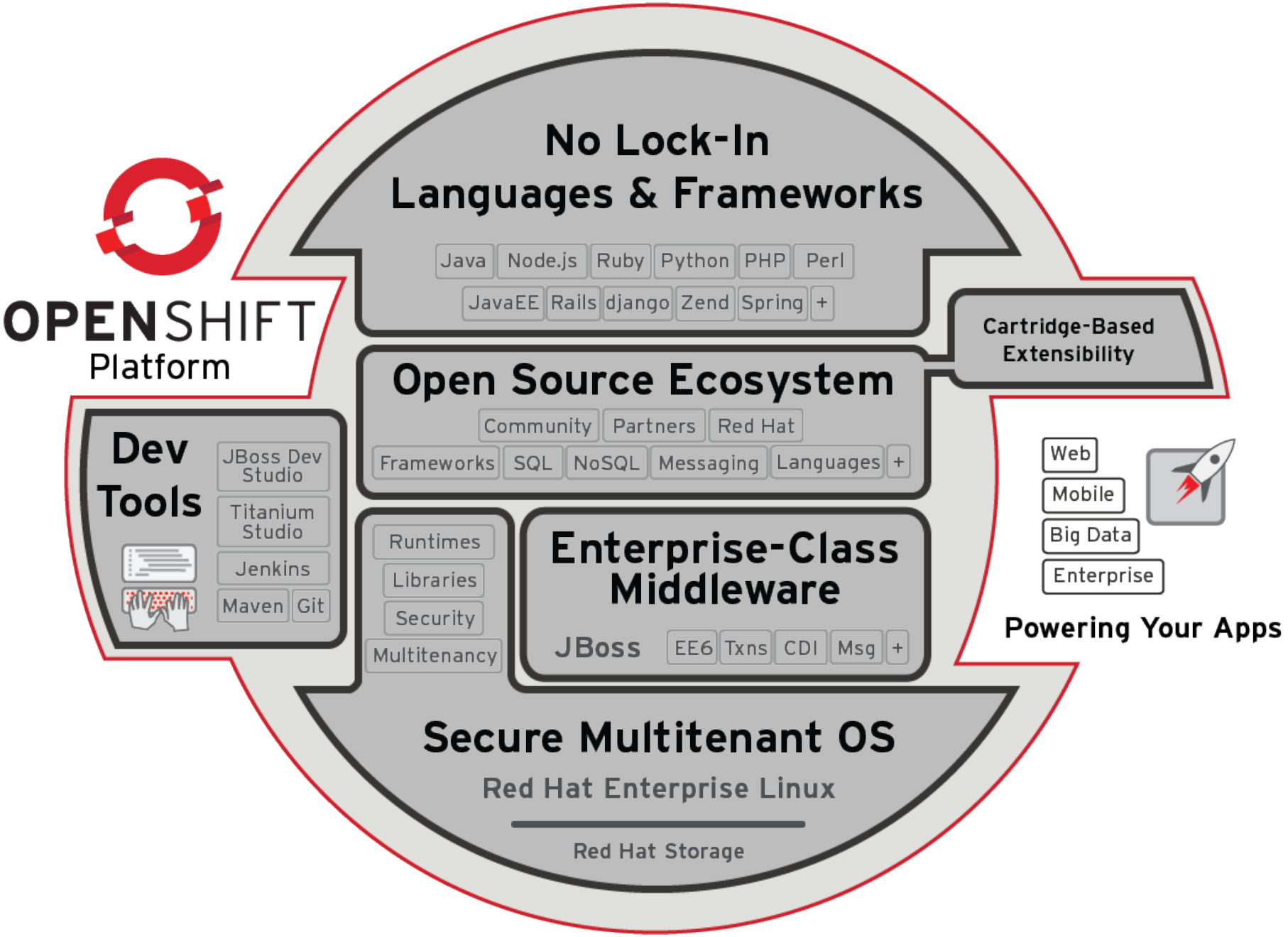
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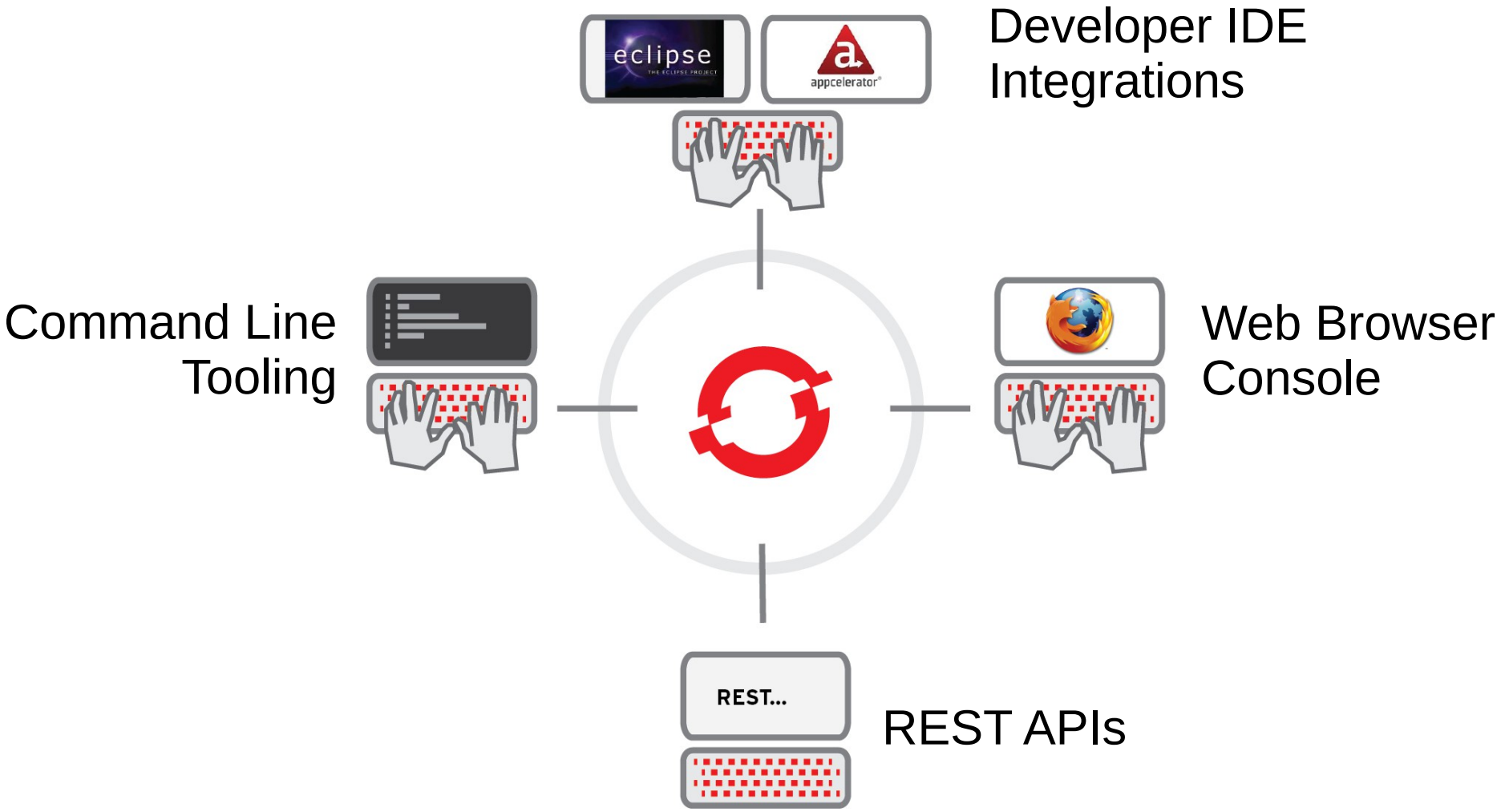
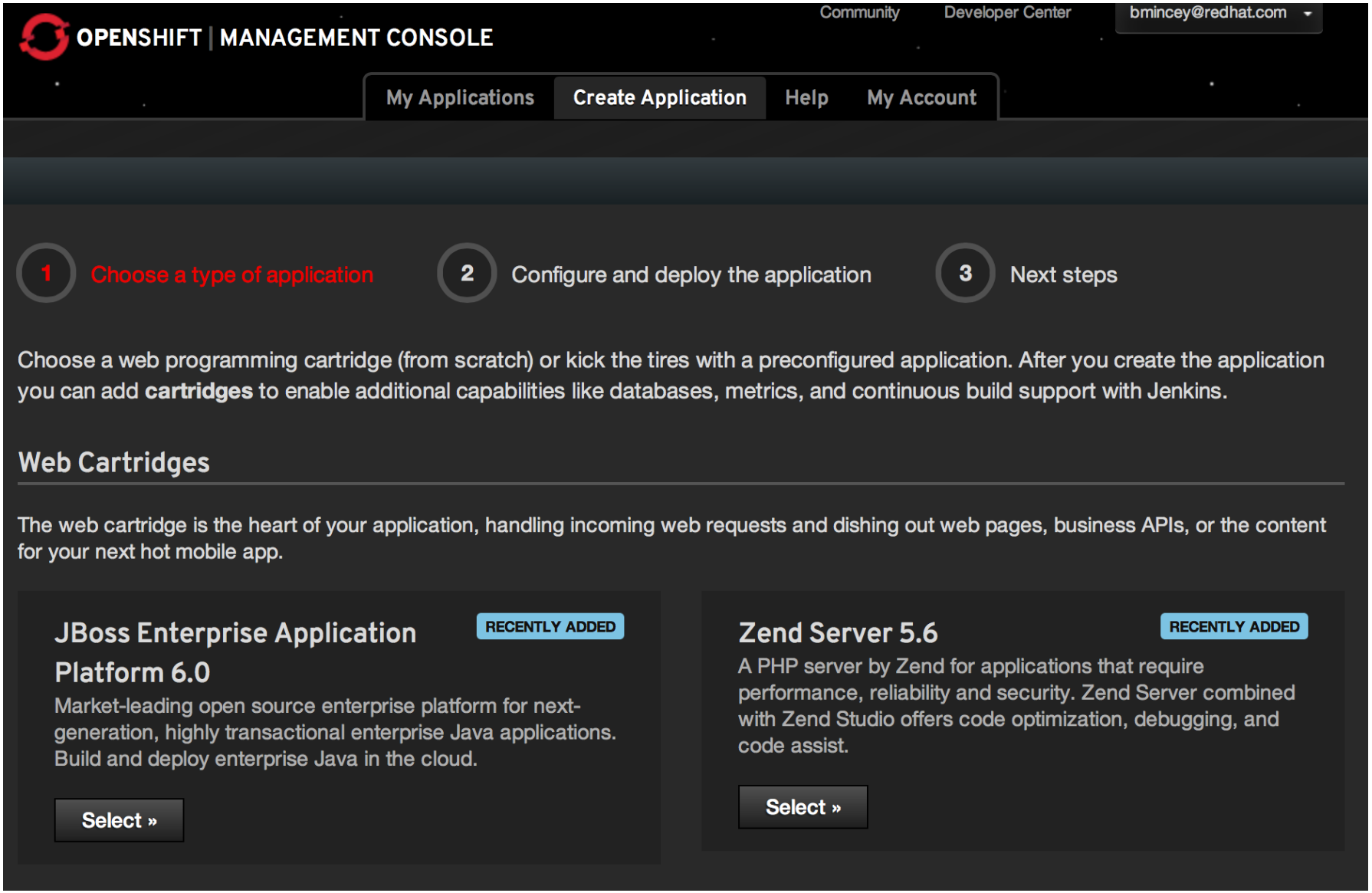
CDI
Msg
+
Web
Mobile
Big Data
Enterprise
Powering Your Apps
Secure Multitenant OS
Red Hat Enterprise Linux
Red Hat Storage

2. Freedom.
To Work The Way You Want To Work

Developers Choose How To Work with OpenShift



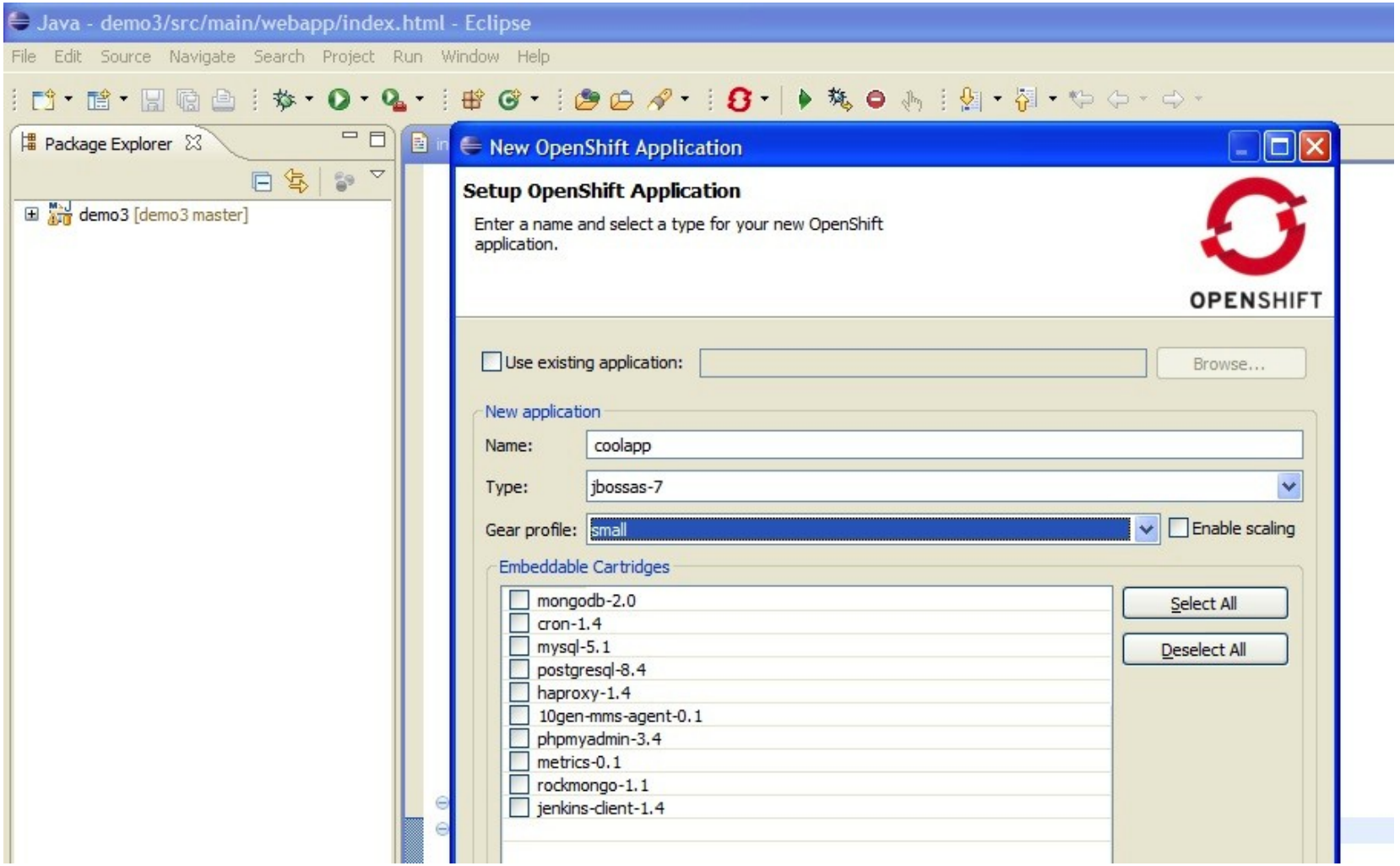
OpenShift's Intuitive and "Responsive" Web Console Runs on Any Device



Are You a Command-Line Fan? OpenShift's RHC CLI Tools

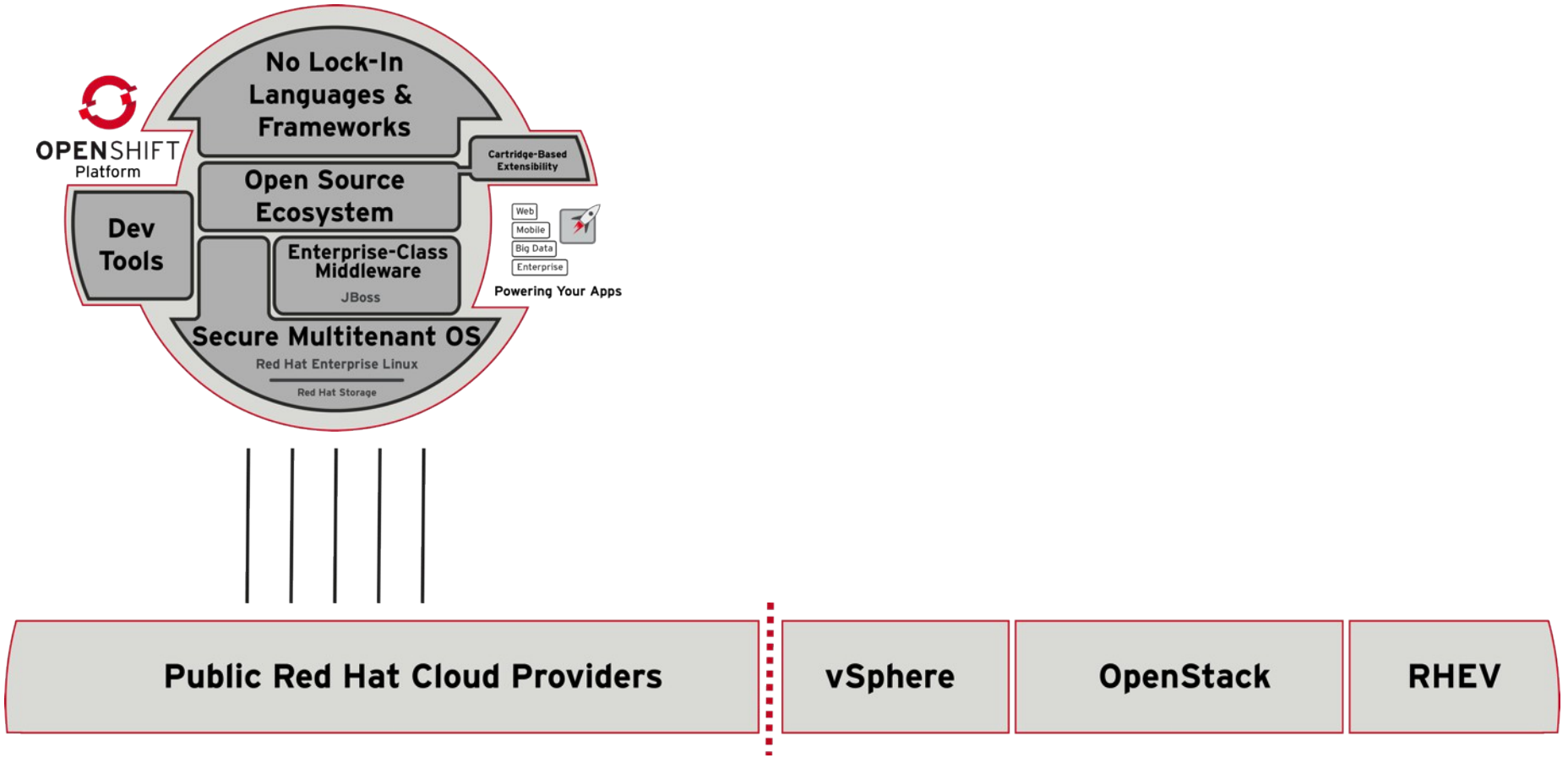
1. Create App
   ```
   rhc app create -a javasample -t jbossas-7
   ```
2. Add MongoDB
   ```
   rhc app cartridge add -a javasample -c mongodb-2.0
   ```
3. Add add EAR file to your deployments directory
   ```
   cd javasample

   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



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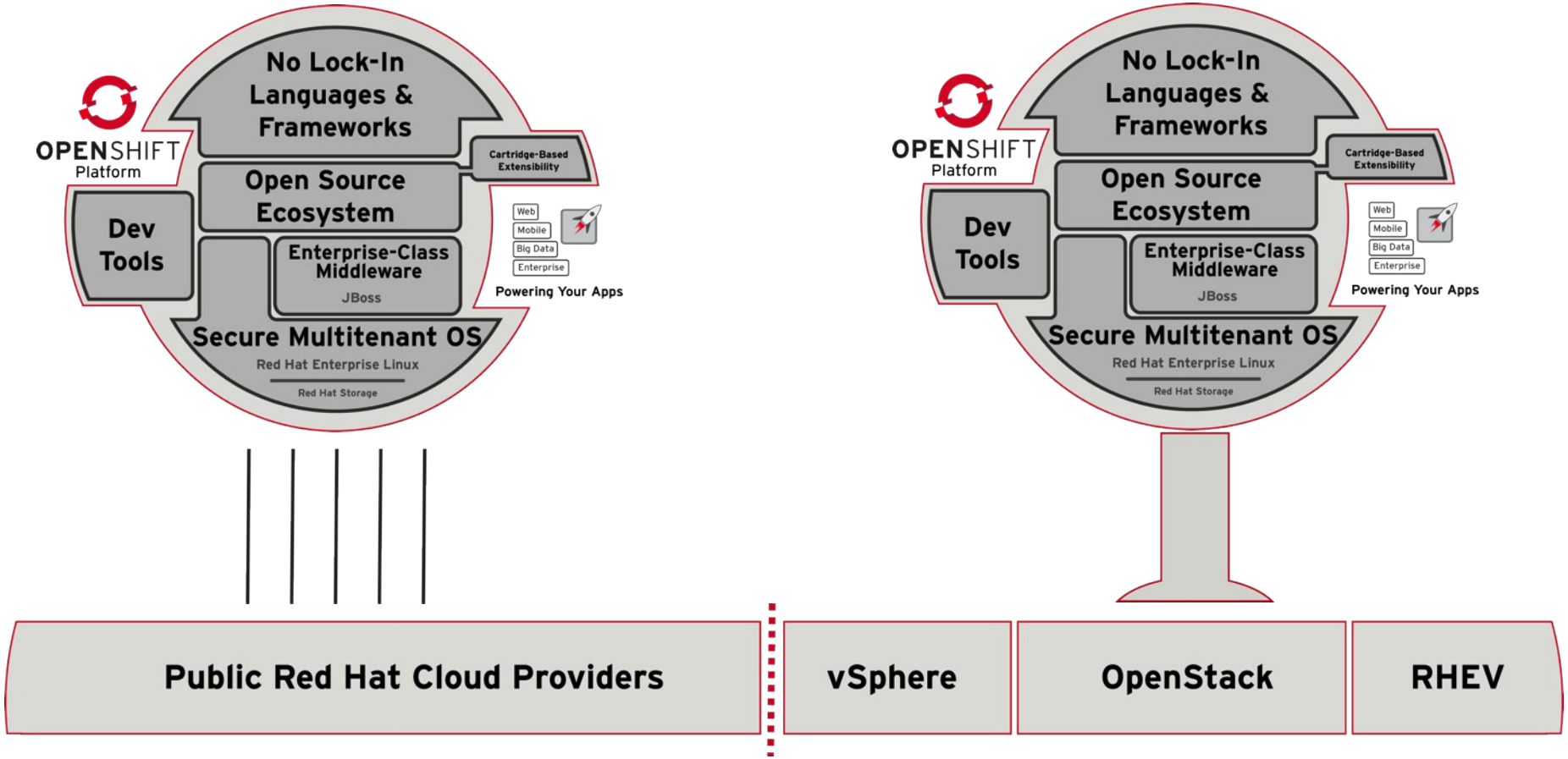
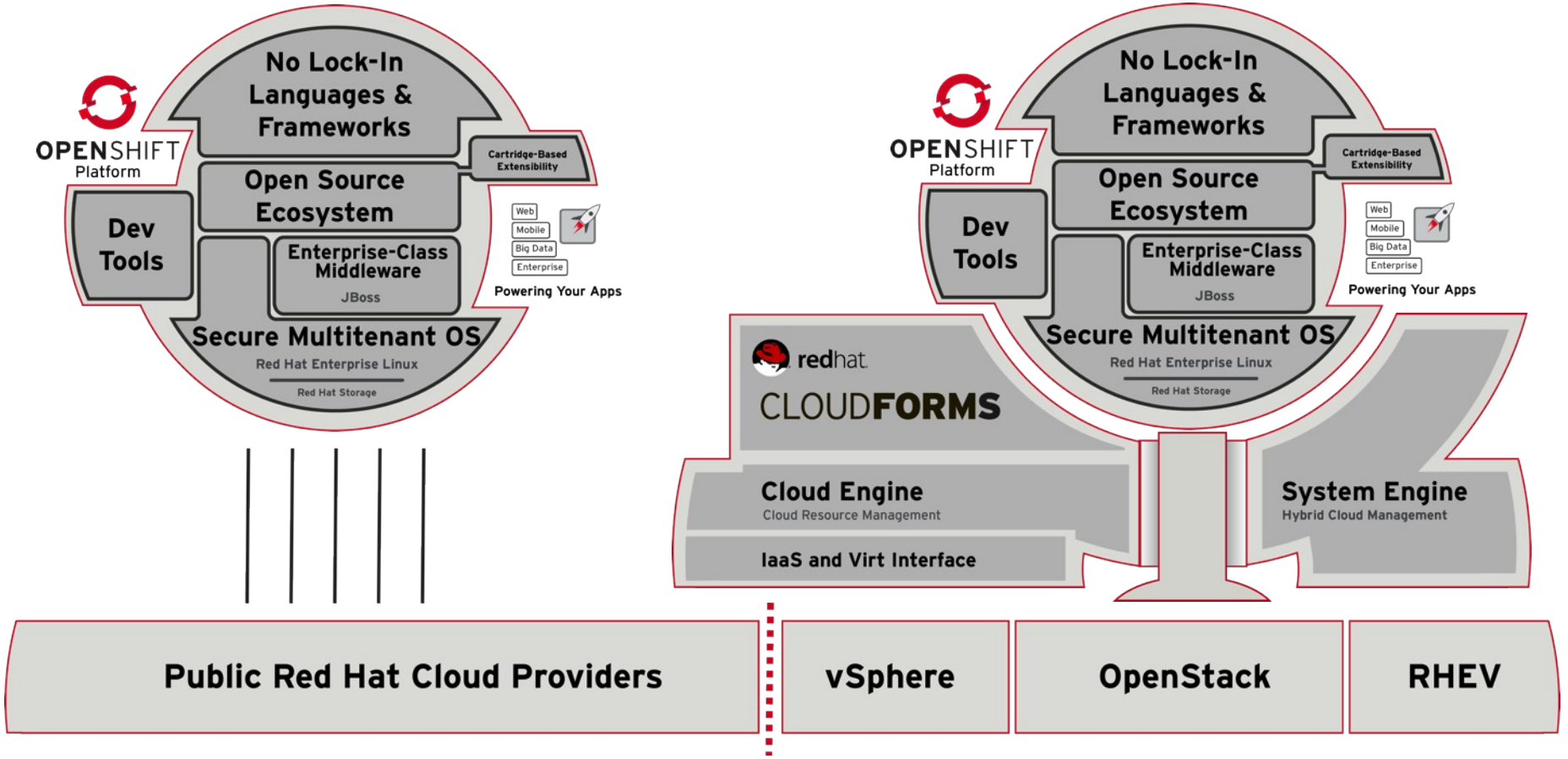
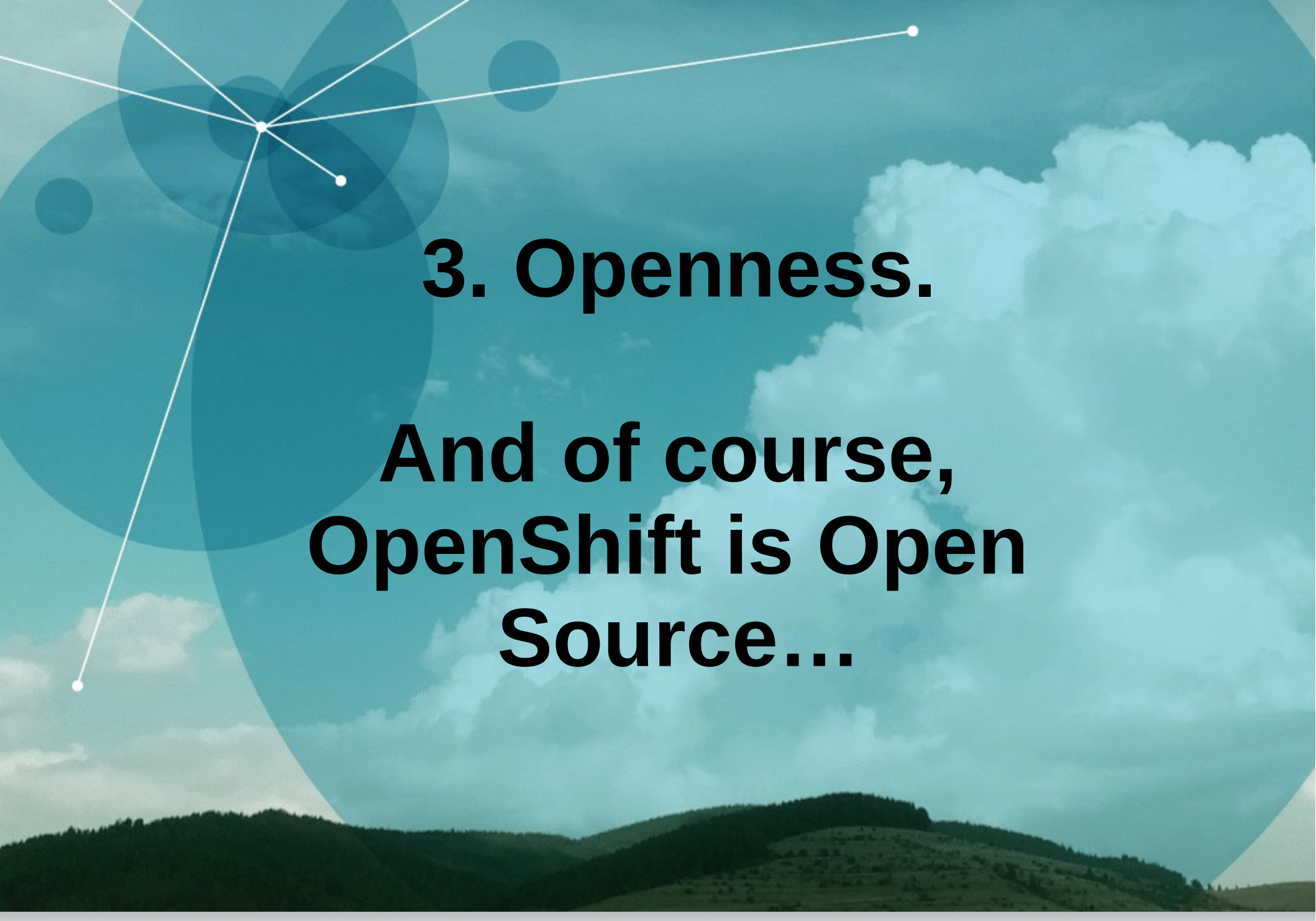


Choice of Public, Private, or Open Hybrid Clouds



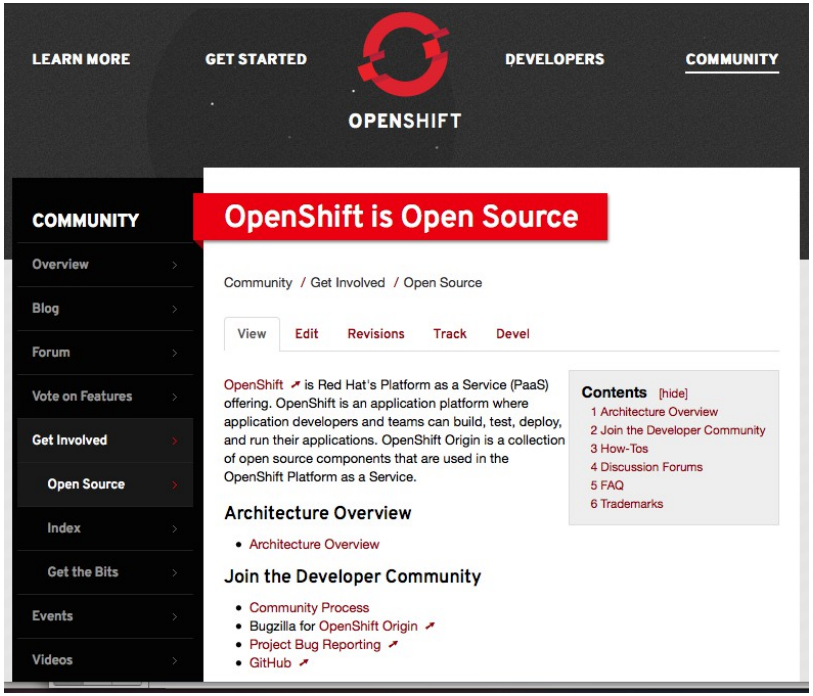

3. Openness.
And of course, OpenShift is Open Source…

OpenShift Origin

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

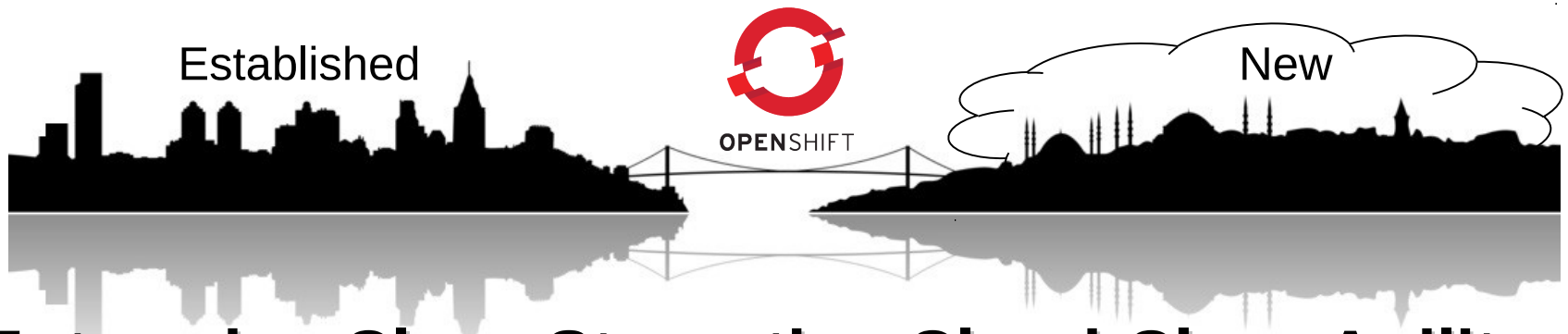
The upstream project for the OpenShift PaaS platform

- 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

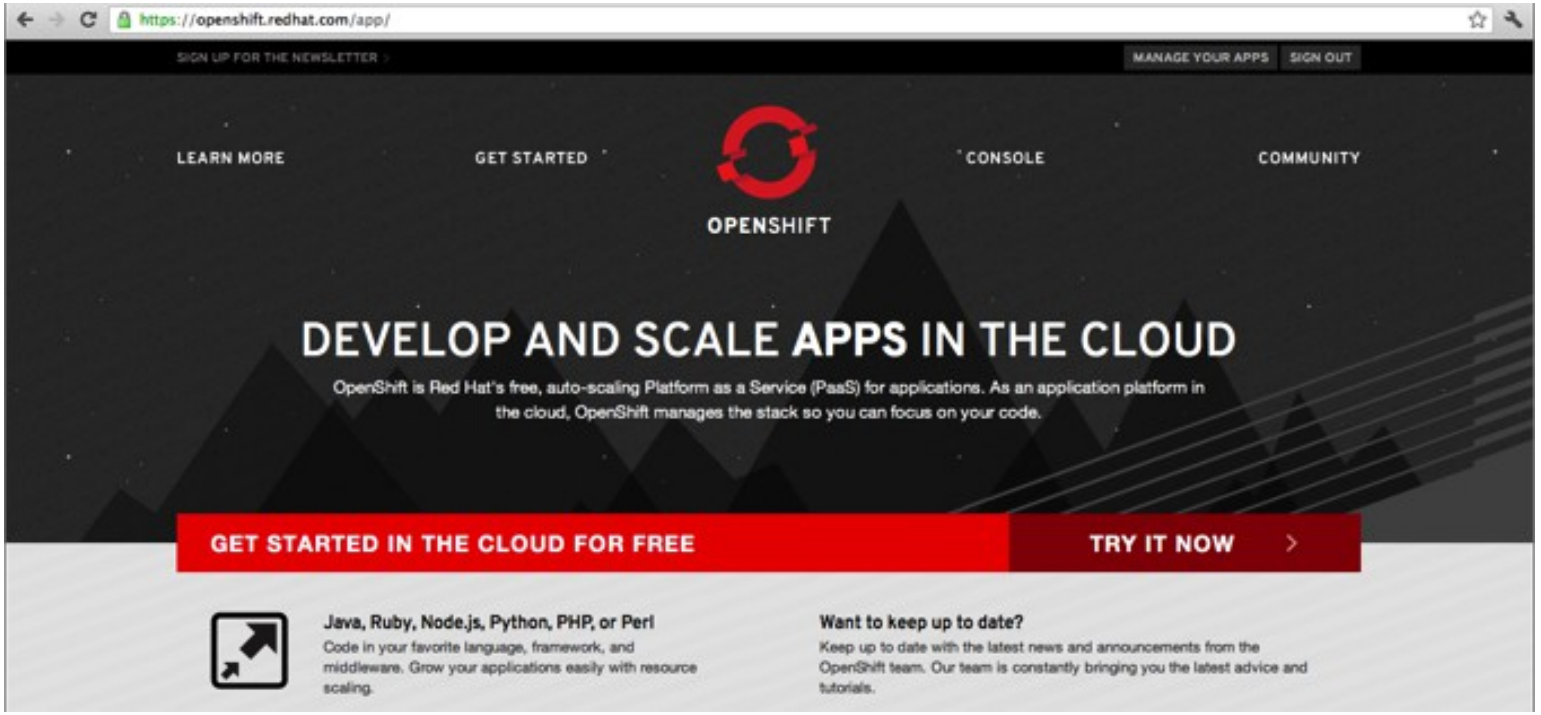
Cloud-Class Agility

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

OpenShift = Open Hybrid PaaS

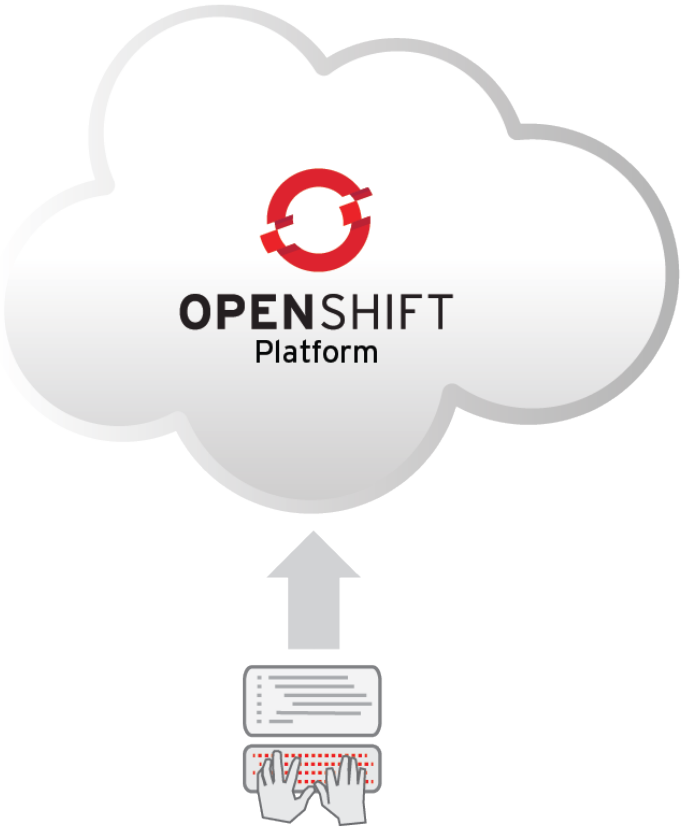
Get Started Today for Free!

- Deploy Apps to the OpenShift OnLine Developer Preview
- Join the OpenShift Origin Open Source Project community

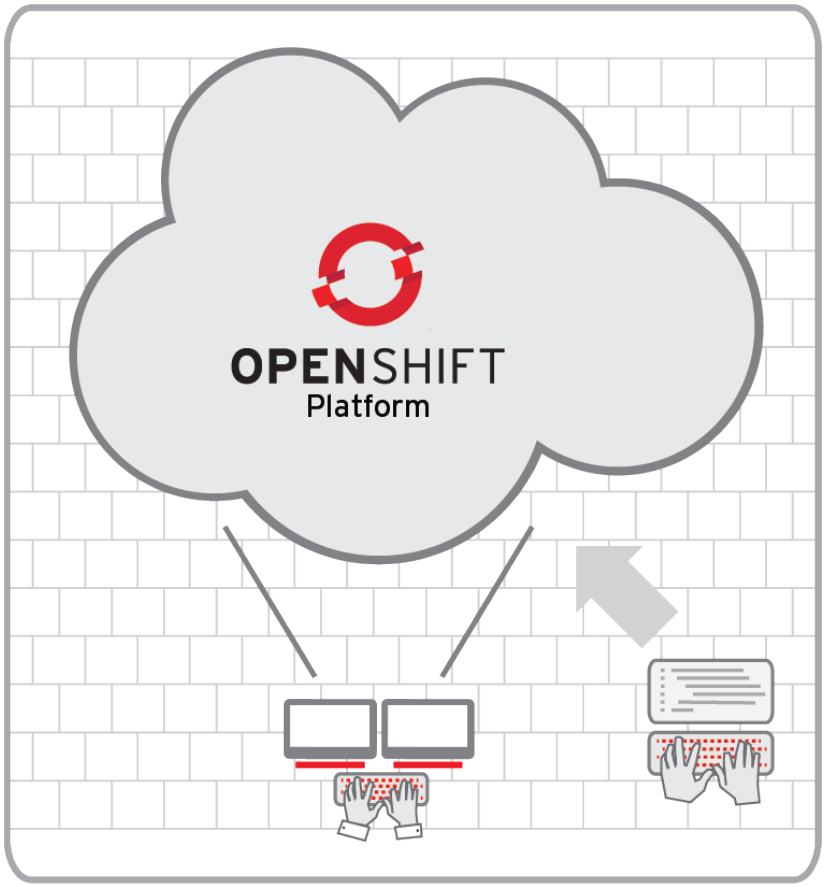


http://openshift.redhat.com

OpenShift Commercial Offerings
- Coming Soon



OpenShift OnLine



OpenShift Enterprise

OPENSHIFT

Thank You

Questions?

redhat.