OPENSHEFT
ACCÉLÉREZ LE DÉVELOPPEMENT
AVEC UN PAAS

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BUSINESS DEMANDS DRIVE I.T. TRANSFORMATION

- Business wants agility, lower cost, new capabilities
- IT struggling with existing legacy infrastructure architecture and cost model
- Cloud providers are using next-generation IT built on open source technologies
- IT needs to adopt cloud architectures and technologies to close innovation gap
WHAT IS DEVOPS?

A methodology to deliver software more efficiently by emphasizing on collaboration, communication and integration between development and I.T. operations.
TYPICAL DEVELOPMENT LIFECYCLE

**PHYSICAL**

1. Have Idea
2. Get Budget
3. Submit Hardware Request
4. Wait...
5. Get Hardware
6. Rack and Stack Hardware
7. Install Operating System
8. Install Operating System Patches
9. Create User Accounts
10. Deploy Application Server
11. Deploy Framework/Tools
12. Code
13. Test
14. Buy and Configure Prod Servers
15. Push to Prod
16. Launch
17. Order More Servers to Meet Demand
18. Wait...
19. Deploy New Servers
20. Etc.

**VIRTUAL**

1. Have Idea
2. Get Budget
3. Submit VM Request
4. Wait...
5. Deploy Application Server
6. Deploy Framework/Tools
7. Code
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WHAT IF...

We could automate environment provisioning?
We could standardize technology stacks and platforms?
We could consolidate our resources and pool usage?
CLOUD CLOSES THE INNOVATION GAP

Business Demand for Innovation

I.T. Innovation Gap

Capability for Innovation on Traditional Infrastructure

Cloud Computing
CLOUD SERVICE MODELS

IAAS

APPLICATION

OPERATING SYSTEM

VIRTUAL GUEST IMAGES

COMPUTE RESOURCES
(CPU, RAM, Network, Disk)

Provided and Controlled by
the Cloud Consumer

Automated and Managed by
the Cloud Provider

PAAS

APPLICATION PLATFORM
(App Server, Middleware, Languages, Frameworks)

DEVELOPER TOOLING
(Source Control, Build Tools, CI)

SAAS

APPLICATION

INCREASED AUTOMATION

INCREASED CONTROL
IMPLEMENTING A PAAS

“...The use of Platform-as-a-Service technologies will enable IT organizations to become more agile and more responsive to the business needs.” —GARTNER
OPENSSHIFT IS PAAS BY RED HAT

- Multi-Language
- Auto-Scaling
- Self-Service
- Open Source
- Enterprise-Grade
- Secure
- Built on Red Hat

Powering Your Apps

[Images and logos indicating awards and certifications]
RED HAT'S PAAAS STRATEGY

Open Source PaaS Project

Public PaaS Service

On-premise or Private PaaS Software

OPENSHIFT
ONLINE
by Red Hat®

OPENSHIFT
ENTERPRISE
by Red Hat®
You're one shell command away from deploying your own Platform as a Service.

http://install.openshift.com
OPENSSHIFT PAAS ON YOUR CHOICE OF CLOUD OR INFRASTRUCTURE...
THE FOUNDATION OF OPENSSHIFT IS RED HAT ENTERPRISE LINUX

- OpenShift is built on instances of Red Hat Enterprise Linux (RHEL)
- OpenShift can run anywhere RHEL can run
AN OPENSSHIFT BROKER MANAGES MULTIPLE OPENSSHIFT NODES

OpenShift Broker
Management and Orchestration Engine

OpenShift Nodes
Application Hosting Infrastructure

Public - Hybrid - Private - Virtualization - Bare Metal
A NODE IS AN INSTANCE OF RHEL

Public - Hybrid - Private - Virtualization - Bare Metal
OPENSSHIFT USER APPLICATIONS RUNS IN CONTAINERS CALLED GEARS

Public - Hybrid - Private - Virtualization - Bare Metal
GEARS USE SELINUX FOR PRE-CONFIGURED, NSA-GRADE SECURITY

SELinux Security
• “Jail” around Gear
• MAC instead of DAC
• Process/memory protection
• Pre-configured for you
GEARS USE LINUX CGROUPS FOR RESOURCE MANAGEMENT

CGroups Resource Mgmt
- Sets upper bounds
- CPU
- Memory
- Disk

Red Hat Enterprise Linux

Node

My App

GEAR

Broker (RHEL)

Node (RHEL)

Node (RHEL)

Public - Hybrid - Private - Virtualization - Bare Metal
IDLE GEARS CAN BE “DE-HYDRATED” BY THE OPENSHIFT BROKER

Public - Hybrid - Private - Virtualization - Bare Metal
OPENShift Multi-Tenancy Provides Density, Efficiency, and Security

Broker (RHEL)

Node (RHEL)

Node (RHEL)

Red Hat Enterprise Linux

Public - Hybrid - Private - Virtualization - Bare Metal
The use of Platform-as-a-Service technologies will enable IT organizations to become more agile and more responsive to the business needs.

—GARTNER
TYPICAL DEVELOPMENT LIFECYCLE

**Physical**

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A developer has a new idea for an application. First, they need to create a new gear in OpenShift...
GEAR CREATION (WEB, CLI, ECLIPSE)

REST
Web Console
Eclipse IDE
Cmd Line

DEVELOPER

Broker (RHEL)
Node (RHEL)
Node (RHEL)

Red Hat Enterprise Linux
Node

MY GEAR

cron
logs
sshd

Public - Hybrid - Private - Virtualization - Bare Metal
OPENSHIFT AUTOMATES GEAR CONFIGURATION VIA CARTRIDGES

Cartridges are how OpenShift installs languages and middleware

Red Hat Enterprise Linux

Public - Hybrid - Private - Virtualization - Bare Metal
CARTRIDGE TYPES

Broker (RHEL)
Node (RHEL)
Node (RHEL)

Red Hat Enterprise Linux
Node

Public - Hybrid - Private - Virtualization - Bare Metal

REST
Web Console
Eclipse IDE
Cmd Line

DEVELOPER

CUSTOM
Java
MySQL
Python
Postgres
Ruby
Etc.

JBoss EWS
JBoss EAP

Etc.

cron
logs
sshd
OPENSHIFT AUTOMATES GEAR CONFIGURATION VIA CARTRIDGES

Broker (RHEL)
Node (RHEL)
Node (RHEL)

Red Hat Enterprise Linux Node

Public - Hybrid - Private - Virtualization - Bare Metal

DEVELOPER

REST
Web Console
Eclipse IDE
Cmd Line

MY GEAR

JBoss
MySQL

cron
logs
sshd
NOW, CODE AND PUSH

Developer pushes application code via GIT source code management system.
OPENSIFTH CAN AUTOMATED BUILD AND TEST WITH MAVEN AND JENKINS FOR CI

**MY GEAR**
- **Code**
- **Git Repo**
- **JBoss**
- **MySQL**
- **Maven**
- **Jenkins**

**Broker (RHEL)**
**Node (RHEL)**

**REST**
**GIT/SSH**

**DEVELOPER**

**Public - Hybrid - Private - Virtualization - Bare Metal**
HTTP(S) SERVED FROM GEARS

PUBLIC - HYBRID - PRIVATE - VIRTUALIZATION - BARE METAL

Red Hat Enterprise Linux

Node

Broker (RHEL)

Node (RHEL)

Node (RHEL)

User

MY GEAR

Code

Git Repo

JBoss

jenkins

cron

logs

sshd

MySQL

Maven

Jenkins

HTTP(S)

REST

Web Console

Eclipse IDE

Cmd Line

DEVOPPER

GIT/SSH

My Gear (RHEL)

Node (RHEL)

Node (RHEL)

HTTP(S) SERVED FROM GEARS

RED HAT CONFIDENTIAL
OPENSIGHT AUTOMATES APPLICATION SCALING

Red Hat Enterprise Linux

Broker (RHEL)
Node (RHEL)
Node (RHEL)

HTTP/S

MANY USERS

Public - Hybrid - Private - Virtualization - Bare Metal
STREAMLINING DEVELOPMENT WITH PAAS

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WITH PAAS

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

CRAFTWORK

ASSEMBLY LINE
JOURNEY TO THE CLOUD

- Deliver more, quicker, and with less
- Improved resource utilization with deployment density
- Self-service provisioning
- Automated scaling
- Accelerated development
- Enterprise-grade security
- Improve consistency and quality of solutions

BUSINESS
DEVELOPMENT
I.T. OPERATIONS
"Our motto is enable and get out of the way"

"With OpenShift we've built a push-button developer stack"

"In minutes we have you up and running in a fully connected container and you are developing"
OPENSSHIFT 3 – COMING IN 2015
THANK YOU.

Red Hat Videos on YouTube
youtube.com/RedHatVideos

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facebook.com/RedHatInc

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linkedin.com/company/3545

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