



redhat®

Cloudy Middleware

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About

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Agenda

1. Why PaaS?
2. The JBoss PaaS
3. OpenShift
4. Demo



WHY PAAS?

Why PaaS?

Development

- ✓ **Focus** on applications
- ✗ **Stop** dealing with the stack

Ease of use



simplify

Operations

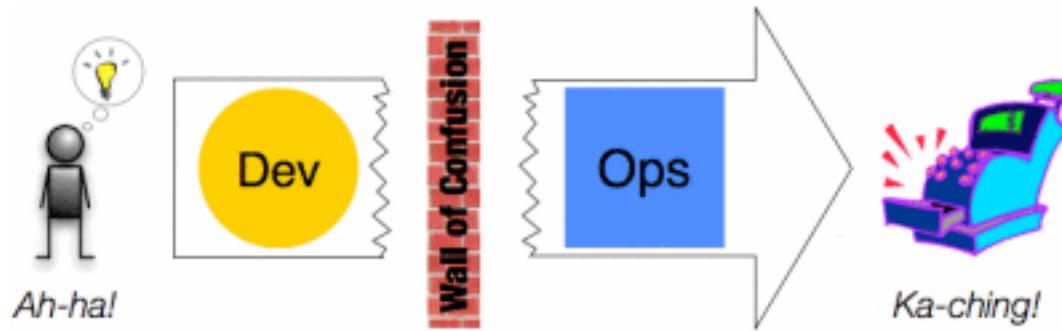
- ✗ **Stop** dealing with the application
- ✓ **Focus** on infrastructure

Efficiency



simplify

PaaS: The “Other” DevOps



PaaS is the smart answer to DevOps' problem statement

Source: <http://dev2ops.org/blog/2010/11/7/devops-is-not-a-technology-problem-devops-is-a-business-prob.html>, accessed 2011-04-29.

Administration is Hard Work

SETUP SERVER

Setup cloud server	5'
Setup user accounts & keys on cloud server	10'
Install stack	10'
Install stack extensions & libraries	10'
Patch Stack	10'

SCALING

Setup/configure load balancer	15'	SET IT UP ONCE	<u>5-8hrs</u>
Setup database & replication	30'		
Clone application stack to additional server	60'	AUTOMATE IT	<u>25-40hrs</u>

SECURITY

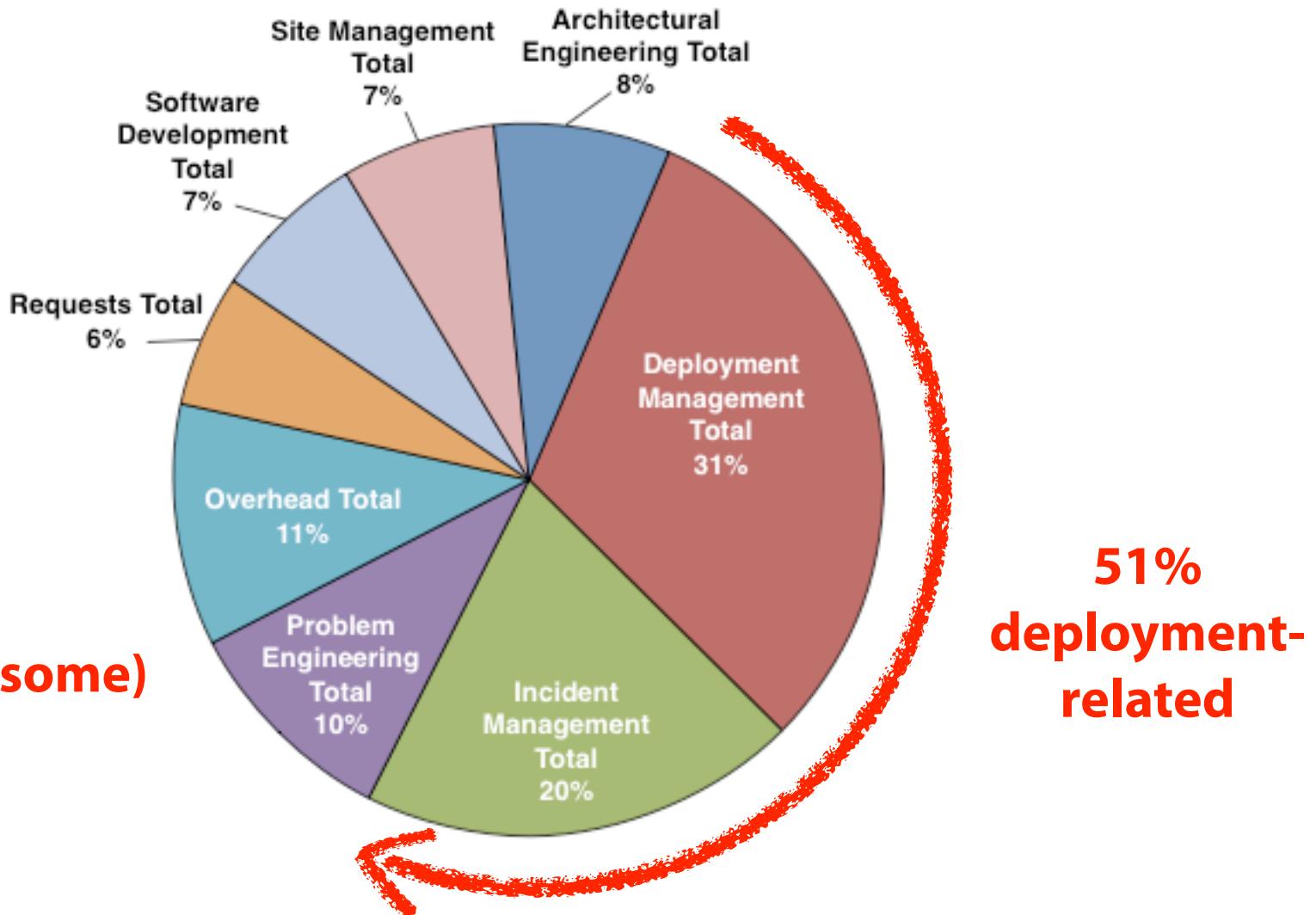
Configure security for stack	30'	ADAPT IT TO CHANGE (diff. release/cloud)	<u>Ugh!</u>
Configure firewall	10'		
Install change audit	30'		

MONITORING

Install system monitoring	30'
Install/configure application monitoring	10'
Install/configure log aggregation	30'
Setup log indexer service for search	30'

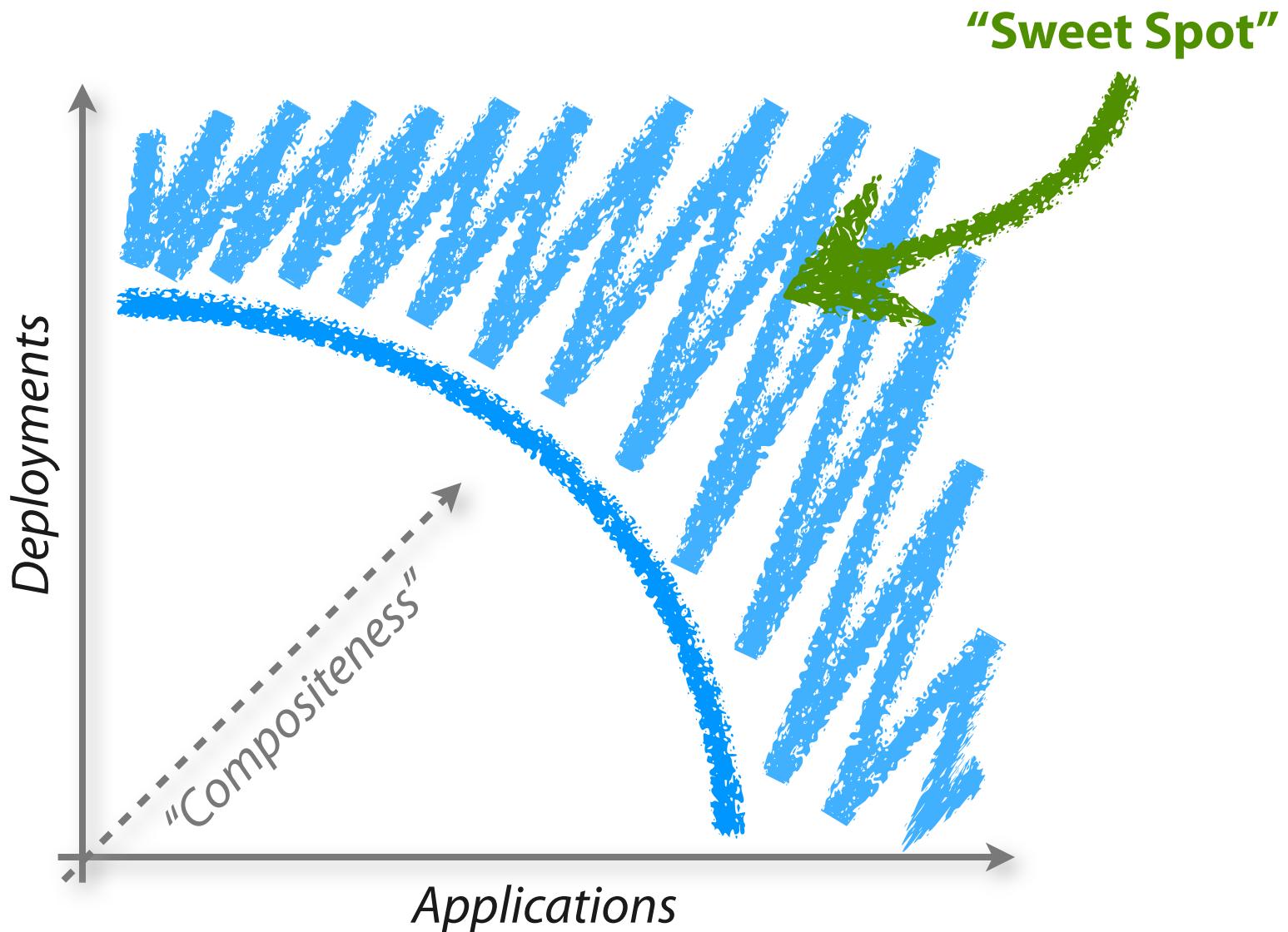
Total: 5-8h

Deployment is Hard Work



Source: Hamilton: "Service Design Best Practices", AWS, 2009, http://www.mvdirona.com/jrh/TalksAndPapers/JamesHamilton_POA20090226.pdf, accessed 2011-04-01.

PaaS Sweet Spot



Which PaaS?

Development

- ✓ **Focus** on applications
- ✗ **Stop** dealing with the stack

Ease of use

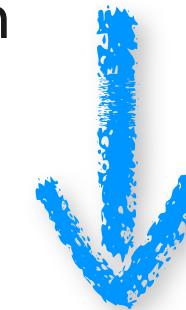


simplify

Operations

- ✗ **Stop** dealing with the application
- ✓ **Focus** on infrastructure

Efficiency



simplify

Which PaaS?

Development

- ✓ **Focus** on applications
- ✗ **Stop** dealing with the stack

Ease of use



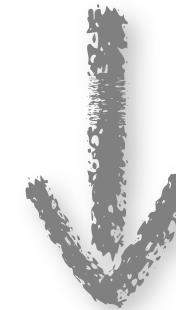
simplify

THE RIGHT ABSTRACTION™

Operations

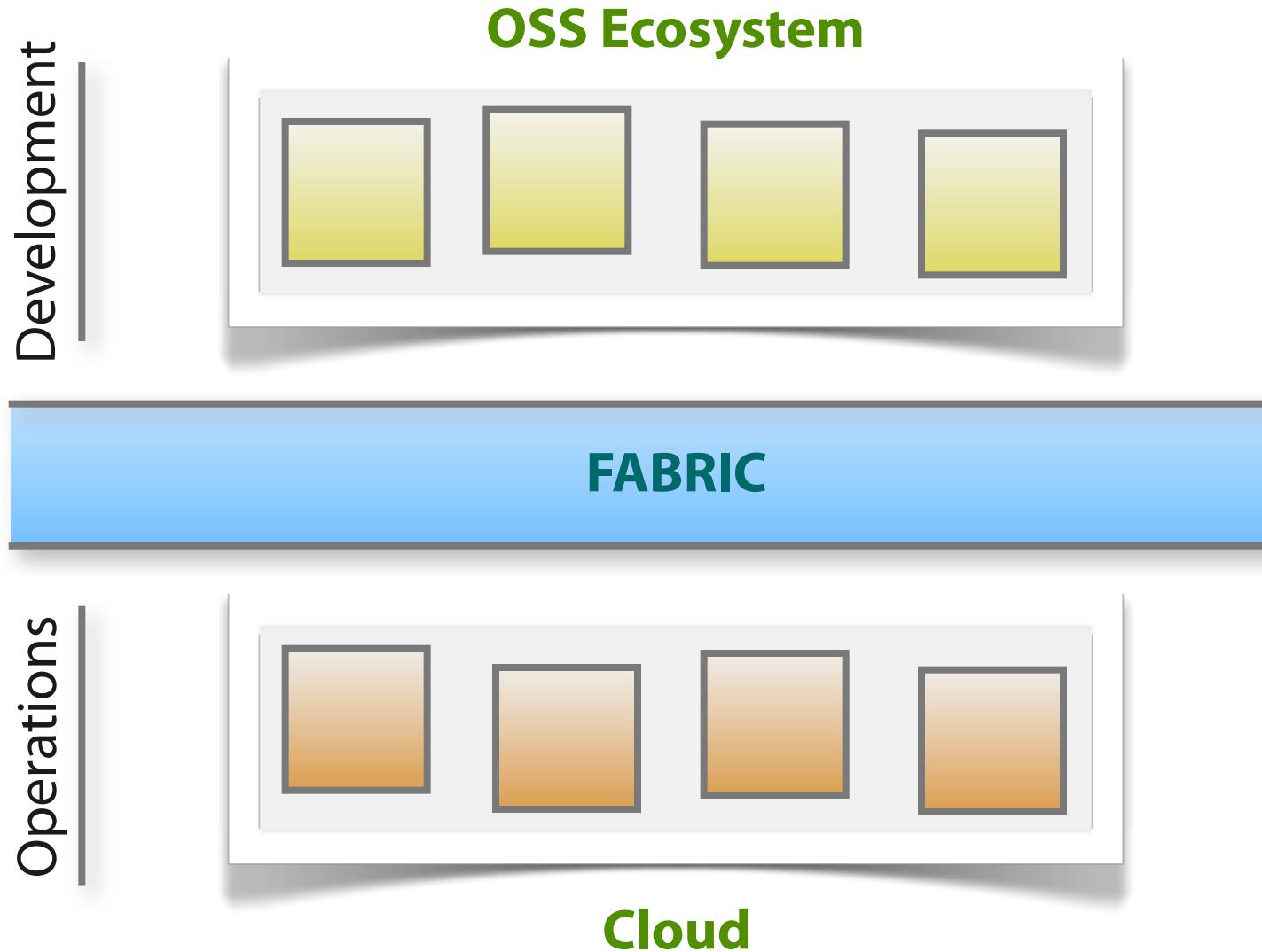
- ✗ **Stop** dealing with the application
- ✓ **Focus** on infrastructure

Efficiency



simplify

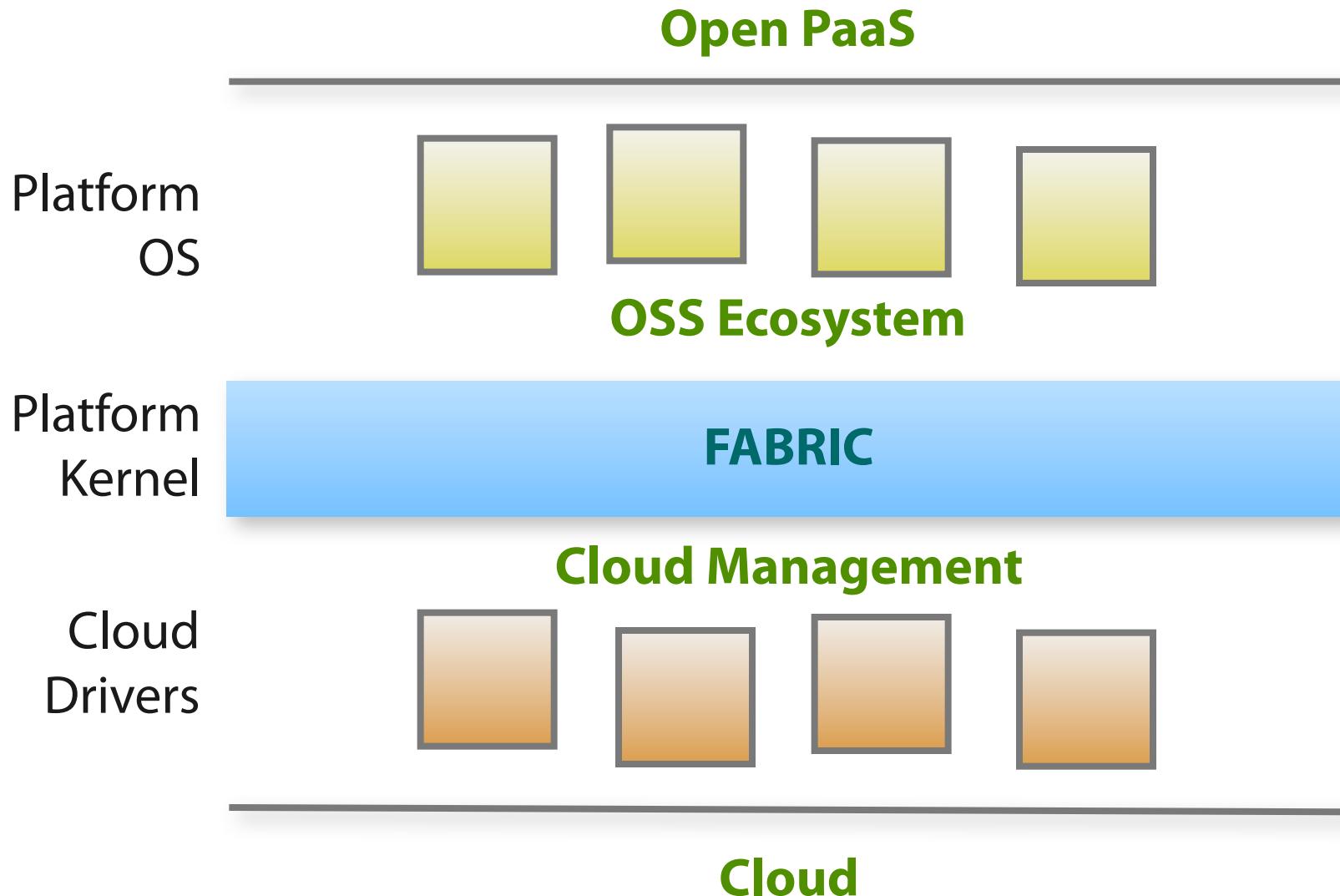
PaaS: The Right Abstraction™



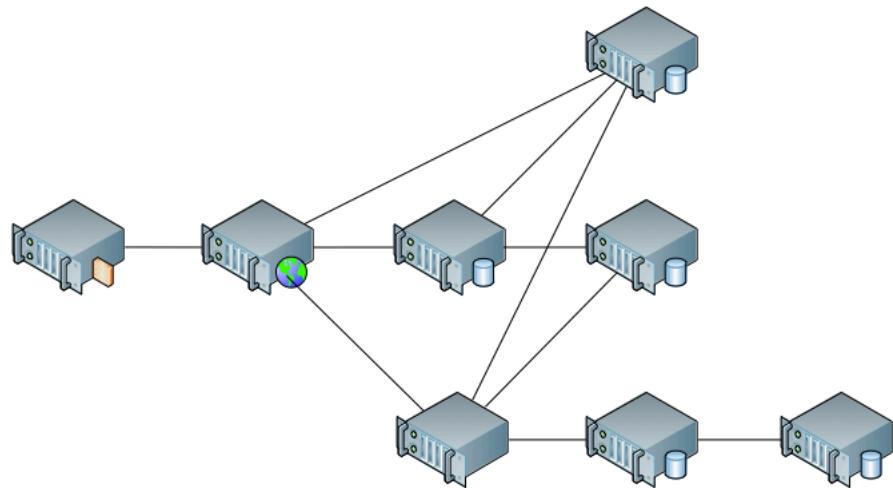
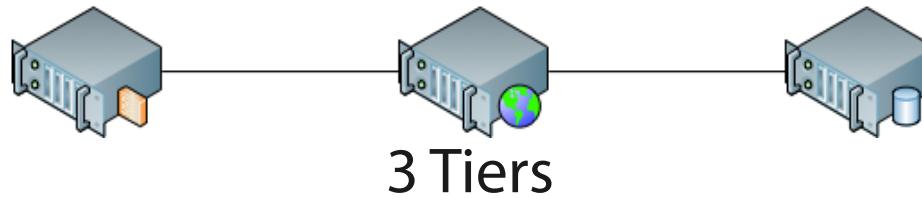
Why Cloud?

1. **Cost:** CAPEX, metered
2. **Convenience:** self-service, on-demand
3. **Allure:** elasticity promises scalability

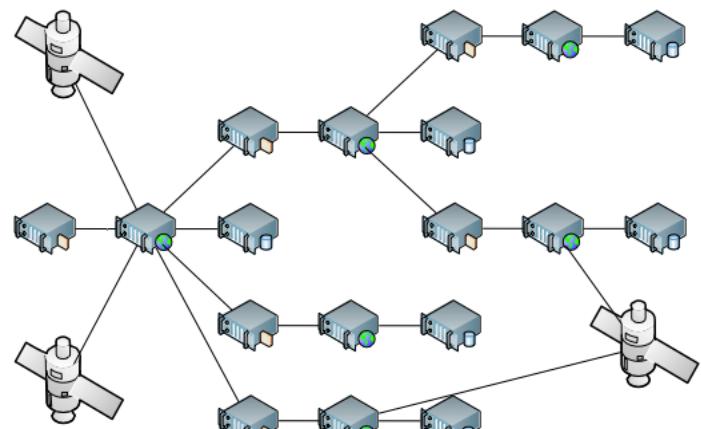
PaaS: The New Linux



Application Architectures

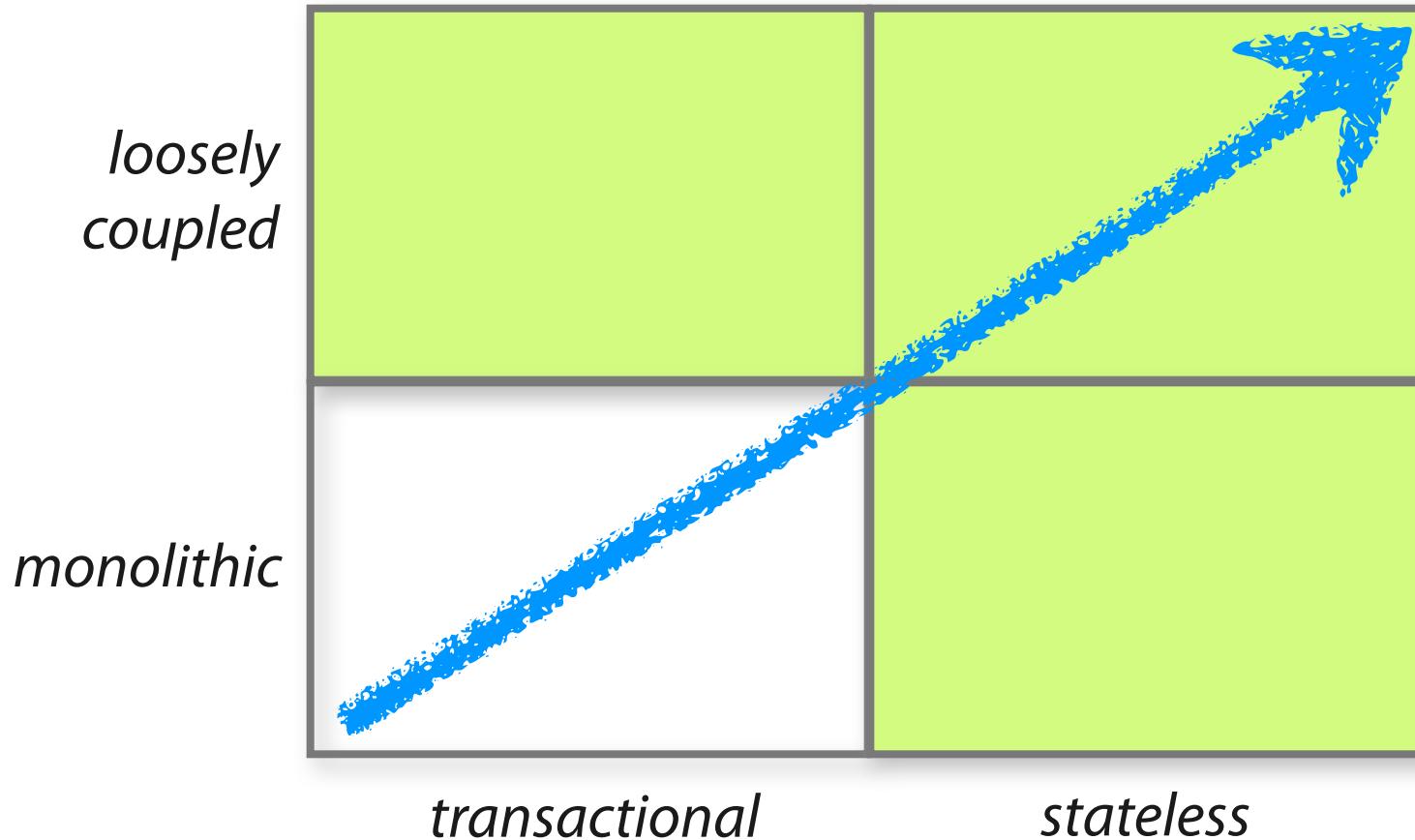


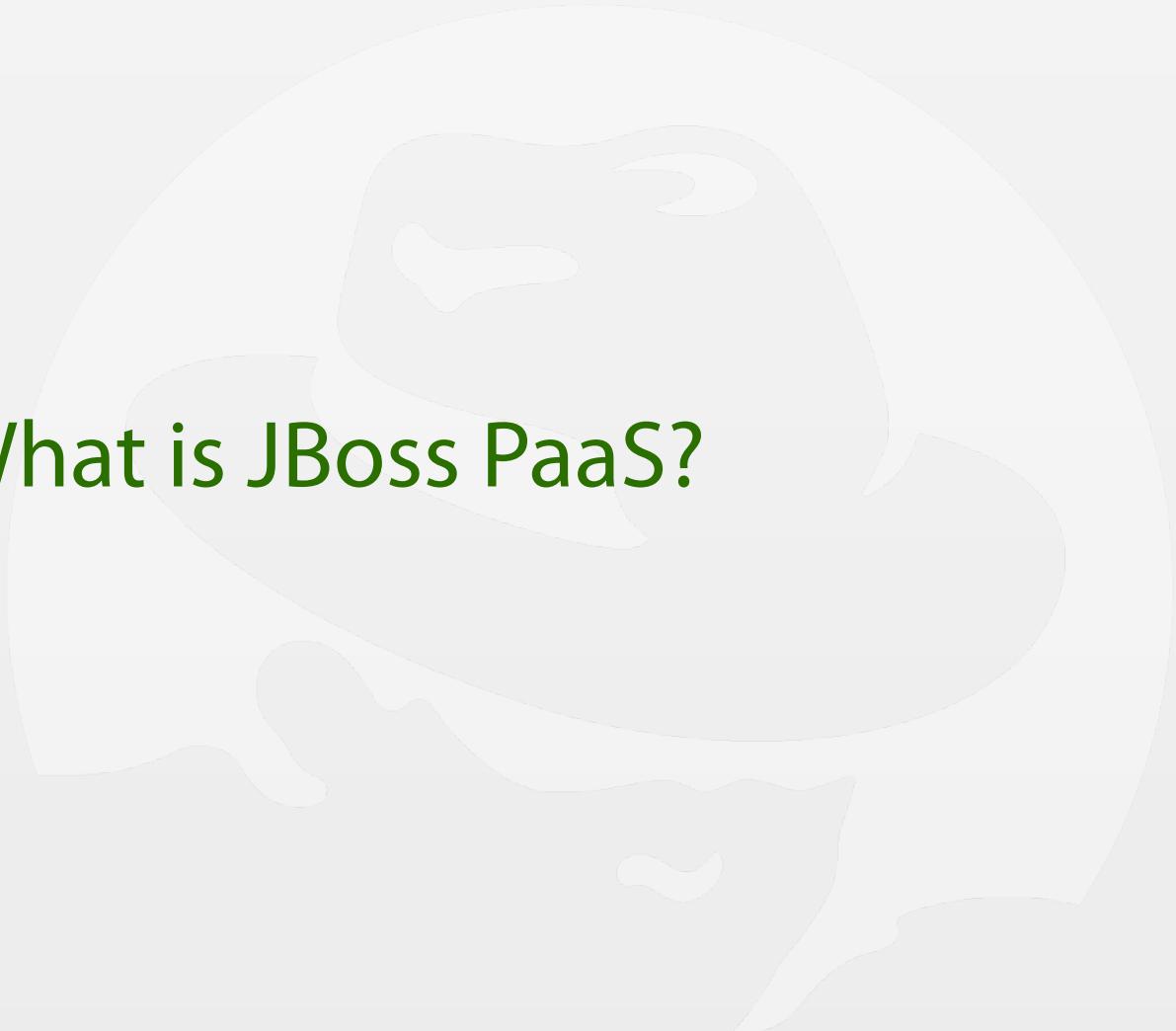
Distributed Apps: NoSQL, KV-Stores



Composite Apps

Architectural Styles





What is JBoss PaaS?

Current PaaS approaches

Far too simplistic

- Not standards based
- Little relevance to existing middleware offerings
- Restricts application capabilities
 - So much for dynamic elasticity
 - Existing s/w investments are irrelevant

Limitations are not based on architectural issues

- Security implications

Vendor lock-in dominates

Present and future directions

Build on our existing implementations

We must provide a natural upgrade path for existing users

- We cannot afford to repeat the DCE/CORBA, DCOM/.NET or CORBA/J(2)EE days

Evolution rather than revolution

If the answer is “Cloud 2010” the question is wrong!

Today “Cloud” means “servers”

- More processors outside of “servers” than inside

JBoss PaaS

Users will want to deploy existing applications more dynamically to cloud environments

- Traditional on-premise, standards-based Java
- Want to be able to use existing programming models to deploy traditionally and within cloud environments
- Interoperability between traditional and cloud

Red Hat will create a PaaS offering that will use standard programming technologies to bridge the worlds of on-premise and cloud deployments

- Support the needs of cloud only PaaS opportunities while protecting customers from programming model and API changes

JBoss PaaS Principles

Address existing JEE/Java deployment plus cloud

Use existing components of the JBoss portfolio – don't reinvent the wheel

Don't invent a closed, proprietary system with new APIs – don't have to change the programming model

Deploy current JEE/Java on-premise plus cloud deployment

- Make them inter-operable (Future proof investment)
- Deployment environment “agnostic” (elastic)

JBoss PaaS Principles

Developer Centric

- PaaS enable from the viewpoint of the developer
 - CDI
- Integrate tooling for cloud D&D with JBDS
- Make easier for developers to use cloud

Standards Based

- Support PaaS and other cloud standards as they exist
- Define or drive standards where they don't exist
 - JSR 347

JBoss PaaS Principles

Optimize for Red Hat IaaS offerings and leverage

Market needs addressed by JBoss PaaS:

- Lower costs – greater utilization of resources on demand
- Make deployment easier and more abstracted
- Elasticity to scale on demand

JBoss PaaS capabilities

Elastic runtime

- Utilize more compute/storage capacity automatically
- JEE services as true services, not co-located within same VM/Container

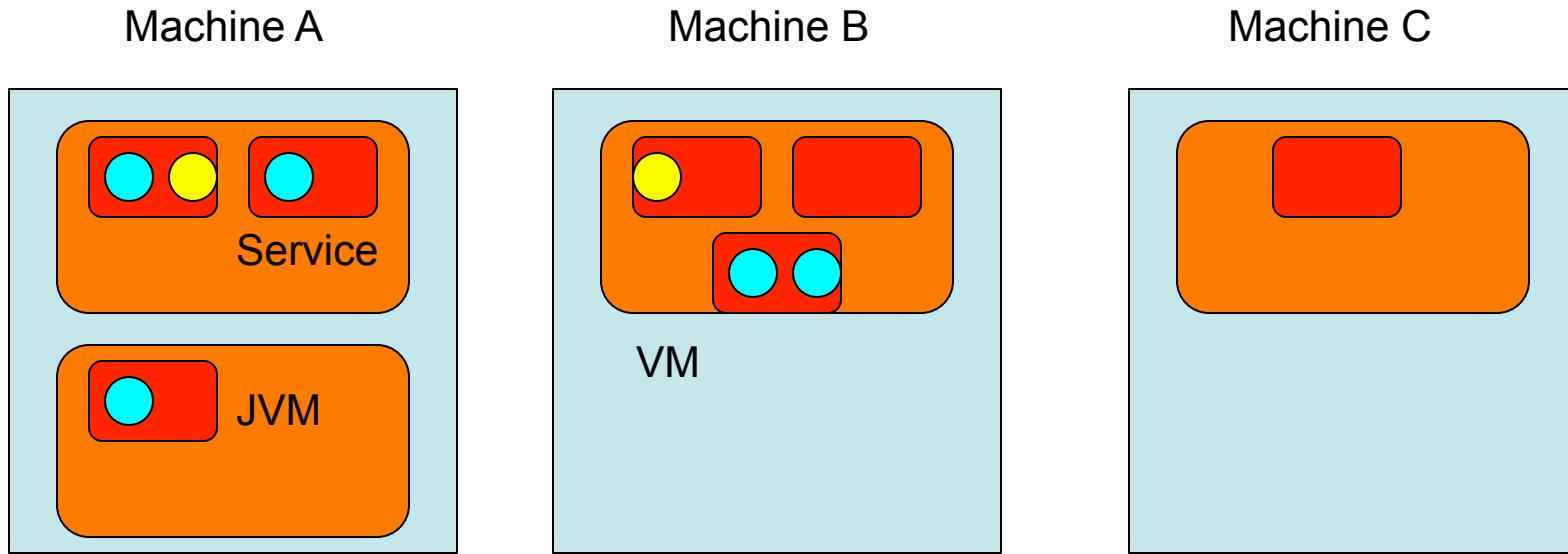
Development

- Runtime hosted as a service in cloud (test deploy)
- Develop (tools) locally – then deploy in Cloud

Abstraction to all configuration considerations

- Data store, clustering, network, security services
- Automatic deployment
- Workflow for deployment

Services, VMs and JVMs



Java EE services (in blue) split across machines, VMs and JVMs

Service instance may abstract more cloud instances

- Hierarchical structure of machines, VMs etc.

Similar deployment structure for applications

JBoss PaaS futures

Lifetime application management (tool chain)

- Works across on-premise & clouds
- Supports heterogeneous deployments
- Build time tools
- Deployment tools
- Ongoing operational & management tools

Developer tools (IDE)

- Expansion of developer tools for easier seamless development

How are we going to do it?

Stage 1

- Begin with JBoss EAP and development tools
- Concentrate on the application platform

Stage 2

- Incorporate other “integration” technology for PaaS enablement – ESB, BPM, presentation technologies
- SOA natural architectural approach for PaaS/SaaS



OPENSIFT

Makara Vision

PROVISION, DEPLOY, MANAGE, MONITOR & SCALE
EXISTING APPLICATIONS
ON CLOUDS

Makara

Built around monitoring

Control, portability, and *visibility*

OpenShift

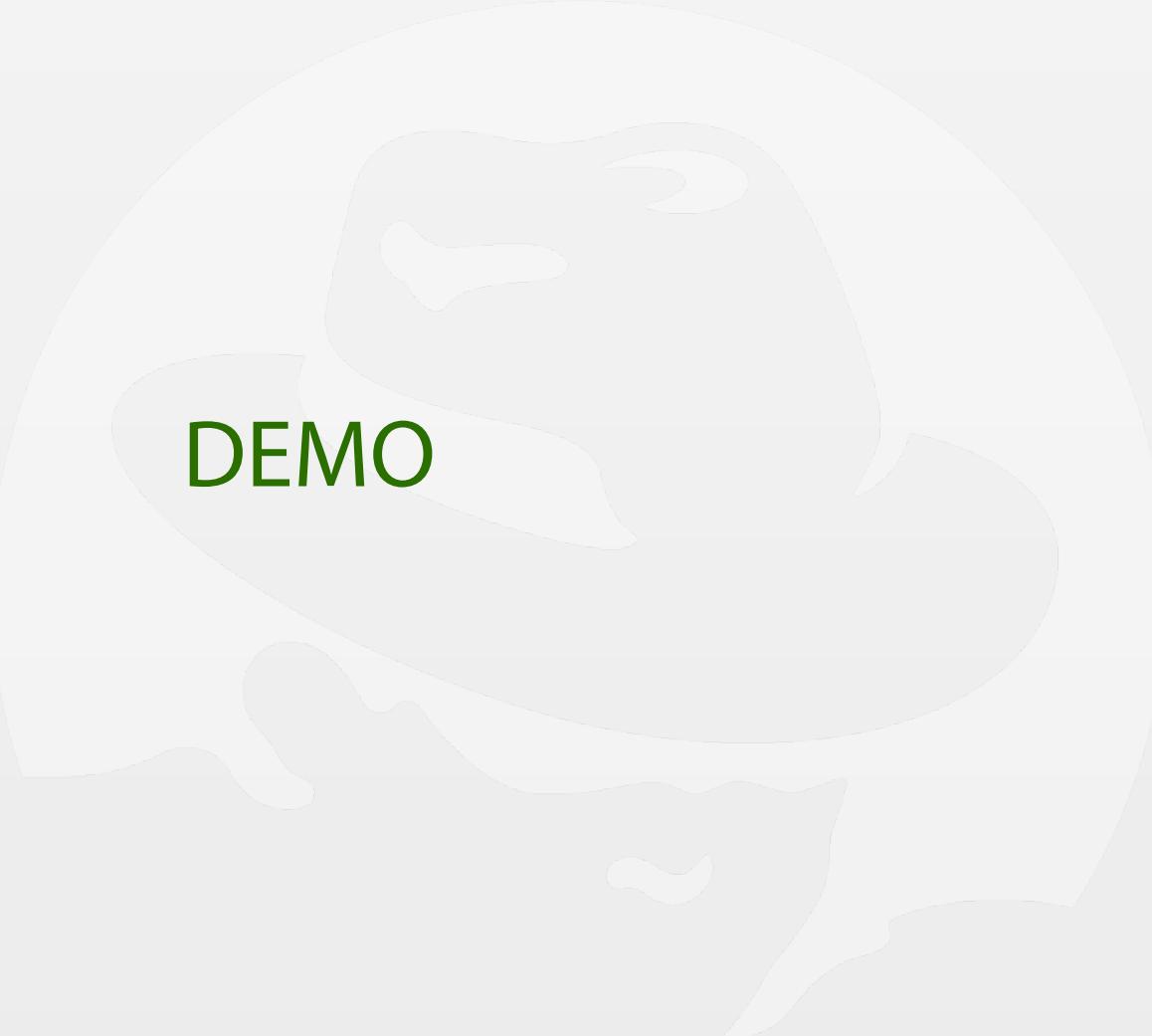
Two interaction models:

1. OpenShift Express

- “Runtime-as-a-Service”: simple, git-based interaction

2. OpenShift Flex

- “Middleware-as-a-Service”
- Optimized for existing models
 - Nodes
 - Middleware, frameworks, services
 - Software ecosystem
- Operations use cases: self-serve, user management



DEMO

Application Overview

The screenshot shows the OpenShift application management interface. At the top, there is a navigation bar with links for INTRO, CLOUDS, CLUSTERS, SERVERS, APPLICATIONS (which is highlighted in blue), PERFORMANCE, LOGS, and EVENTS. The top right corner shows a welcome message for 'videos2@redhat.com' and a LOGOUT link. The main content area displays the 'weld-pastecode' application details. The application name is 'weld-pastecode'. The status is 'Started'. Below the application name, there are buttons for STOP and RESTART. The application has been deployed to a cluster with a DNS name of 'Staging1392187622.stg.rhcloud.com'. A note explains that applications can be reached via `http://<host>[:port]/<context>`, where 'host' is the IP or domain, 'port' is the port (80 by default), and 'context' is the application's context path. Below this note are buttons for START, STOP, RESTART, EXPORT, DELETE, and COPY TO... In the 'DEPLOYMENT HISTORY' section, it says 'Restore a previous deployment to your development work space.' A table lists one deployment entry: '1' (Deployment ID), 'Sun May 1 2011 12:34:44 PM' (Last Modified), 'Onboarded sample app weld-pastecode' (Comments), and a 'RESTORE' button (Actions).

WELCOME videos2@redhat.com LOGOUT

OPENSHIFT PaaS by Red Hat® Cloud

APPLICATION NAME
weld-pastecode

STATUS
Started

STOP RESTART

OVERVIEW COMPONENTS FILES CONFIGURE DEPLOY CHANGES

These are your application's parameters. You can edit the details here, or work with the application itself on the following pages.

CLUSTER DNS
Staging1392187622.stg.rhcloud.com

Running applications can be reached under `http://<host>[:port]/<context>` where:
- 'host' is either a local node IP address, the load balancer address (if any), or a configured domain name,
- 'port' is the port specified in the static web server configuration (default: 80), and
- 'context' is the application's context path (if any).

START STOP RESTART EXPORT DELETE COPY TO...

DEPLOYMENT HISTORY

Restore a previous deployment to your development work space.

DEPLOYMENT	LAST MODIFIED	COMMENTS	ACTIONS
1	Sun May 1 2011 12:34:44 PM	Onboarded sample app weld-pastecode	RESTORE

Component Selection

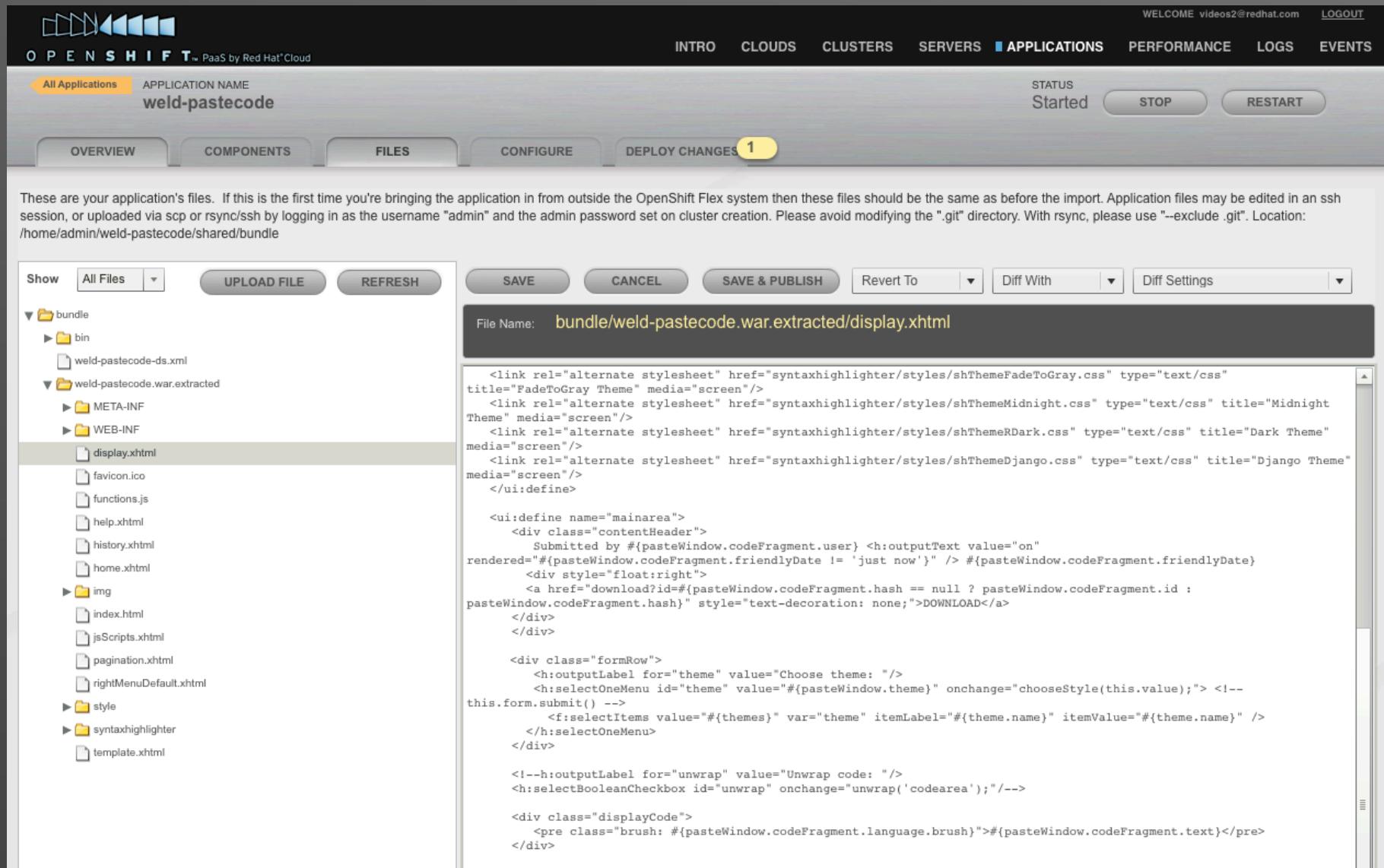
The screenshot shows the OpenShift application management interface for the 'weld-pastecode' application. The top navigation bar includes links for INTRO, CLOUDS, CLUSTERS, SERVERS, APPLICATIONS (which is selected), PERFORMANCE, LOGS, and EVENTS. The top right shows a welcome message for 'videos2@redhat.com' and a LOGOUT link. The application name 'weld-pastecode' is displayed, along with its status as 'Started' with buttons for STOP and RESTART.

The main content area is titled 'APPLICATION COMPONENTS' and displays the following configuration options:

- Application Type:** JBoss
- Web Server:** Apache HTTP Server (Web Tier) (www-static.apache2 2.2.3-45 i686.vpm)
- Application Server Version:** JBoss Application Server 6.1.0 (jboss-6.0.0 6.0.0-15 all.vpm)
- Language Version:** JDK 6.0 (jdk6-1.6.0 1.6.0-11-16 i686.vpm)
- Database:** MySQL Server 5.1.52 (mysql-server 5.1.52-8 amd64.vpm)
- Other Components:** Zend Framework 1.10.8 (zend-framework-1.10.8_1.10.8-2_i686.vpm), Memcached 1.4.5 (memcached-1.4.5_1.4.5-4_i686.vpm), mongoDB-1.6.5 (mongodb_1.6.5-23_amd64.vpm)

At the bottom, there is a checkbox for 'This application sends email (you must use the Settings tab to configure the cluster to send email)' and buttons for CANCEL and SAVE.

File Management



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INTRO CLOUDS CLUSTERS SERVERS APPLICATIONS PERFORMANCE LOGS EVENTS

All Applications APPLICATION NAME weld-pastecode

STATUS Started STOP RESTART

OVERVIEW COMPONENTS FILES CONFIGURE DEPLOY CHANGES 1

These are your application's files. If this is the first time you're bringing the application in from outside the OpenShift Flex system then these files should be the same as before the import. Application files may be edited in an ssh session, or uploaded via scp or rsync/ssh by logging in as the username "admin" and the admin password set on cluster creation. Please avoid modifying the ".git" directory. With rsync, please use "--exclude .git". Location: /home/admin/weld-pastecode/shared/bundle

Show All Files ▾ UPLOAD FILE REFRESH

SAVE CANCEL SAVE & PUBLISH Revert To ▾ Diff With ▾ Diff Settings ▾

File Name: bundle/weld-pastecode.war.extracted/display.xhtml

```
<link rel="alternate stylesheet" href="syntaxhighlighter/styles/shThemeFadeToGray.css" type="text/css" title="FadeToGray Theme" media="screen"/>
<link rel="alternate stylesheet" href="syntaxhighlighter/styles/shThemeMidnight.css" type="text/css" title="Midnight Theme" media="screen"/>
<link rel="alternate stylesheet" href="syntaxhighlighter/styles/shThemeRDark.css" type="text/css" title="Dark Theme" media="screen"/>
<link rel="alternate stylesheet" href="syntaxhighlighter/styles/shThemeDjango.css" type="text/css" title="Django Theme" media="screen"/>
<ui:define name="mainarea">
<div class="contentHeader">
Submitted by #{{pasteWindow.codeFragment.user}} <h:outputText value="on" rendered="#{{pasteWindow.codeFragment.friendlyDate != 'just now'}}" /> #{{pasteWindow.codeFragment.friendlyDate}}
<div style="float:right">
<a href="download?id=#{{pasteWindow.codeFragment.hash == null ? pasteWindow.codeFragment.id : pasteWindow.codeFragment.hash}}" style="text-decoration: none;">>DOWNLOAD</a>
</div>
</div>

<div class="formRow">
<h:outputLabel for="theme" value="Choose theme: "/>
<h:selectOneMenu id="theme" value="#{{pasteWindow.theme}}" onchange="chooseStyle(this.value);> <!--
this.form.submit() -->
<:selectItems value="#{{themes}}" var="theme" itemLabel="#{{theme.name}}" itemValue="#{{theme.name}}" />
<:selectOneMenu>
</div>
<!--h:outputLabel for="unwrap" value="Unwrap code: "/>
<h:selectBooleanCheckbox id="unwrap" onchange="unwrap('codearea');"/>-->

<div class="displayCode">
<pre class="brush: #{{pasteWindow.codeFragment.language.brush}}">#{{pasteWindow.codeFragment.text}}</pre>
</div>
</ui:define>
```

Configuration

The screenshot shows the OpenShift web interface for managing a Java application named 'weld-pastecode'. The top navigation bar includes links for INTRO, CLOUDS, CLUSTERS, SERVERS, APPLICATIONS (which is selected), PERFORMANCE, LOGS, and EVENTS. The top right corner shows a welcome message for 'videos2@redhat.com' and a LOGOUT link. The main content area shows the application's status as 'Started' with 'STOP' and 'RESTART' buttons. Below this, tabs for OVERVIEW, COMPONENTS, FILES, CONFIGURE (which is selected), and DEPLOY CHANGES are visible. A note at the top of the configuration section states: 'These files configure the components that your application uses to run. For direct file access, ssh as "admin" with the admin password configured when the cluster was created. Location: /home/admin/weld-pastecode/shared/info/setup'.

Configuration settings for the 'jboss-6.0.0' component:

Setting	Value
Port offset (unique per application):	0
Naming:	1099
Naming RMI:	1098
Web service:	8083
Unified invoker connector:	4446
Invoker JRMP:	4444
HA-JNDI:	1100
HA-JNDI RMI:	1101
HTTP connector:	8080
HTTPS connector:	8443
AJP connector:	8009
HornetQ Netty:	5445
HornetQ Netty SSL:	5446
HornetQ Netty batch:	5455
JBossTS recovery manager:	4712
JBossTS Transaction Status Manager:	4713

Deployment

The screenshot shows the OpenShift web interface for the 'weld-pastecode' application. The top navigation bar includes links for INTRO, CLOUDS, CLUSTERS, SERVERS, APPLICATIONS (which is selected), PERFORMANCE, LOGS, and EVENTS. The top right shows the user 'videos2@redhat.com' and a LOGOUT link. The application name 'weld-pastecode' is displayed, along with a status of 'Started' and buttons for STOP and RESTART.

The main content area shows the 'DEPLOY CHANGES' tab selected, with a count of 1 file. The deployment summary indicates 1 file was modified in development and 4 cloud servers are involved. A comment box contains the text 'Changed the textbox label'. Below this, a 'ROLLING RESTART' dropdown is set to 'Rolling Restart'.

The 'FILES MODIFIED IN DEVELOPMENT' section shows a single file, 'display.xhtml', which has been modified. The 'Diff Settings' dropdown is open. The diff output shows the following changes:

```
diff --git a/bundle/weld-pastecode.war.extracted/display.xhtml b/bundle/weld-pastecode.war.extracted/display.xhtml
index dc300da..b10a02d 100644
--- a/bundle/weld-pastecode.war.extracted/display.xhtml
+++ b/bundle/weld-pastecode.war.extracted/display.xhtml
@@ -33,7 +33,7 @@
```

```
<ui:define name="mainarea">
  <div class="contentHeader">
-  Posted by #[pasteWindow.codeFragment.user] <h:outputText value="on" rendered="#{pasteWindow.codeFragment.friendlyDate != 'just now'}" /> #[pasteWindow.codeFragment.friendlyDate]
+  Submitted by #[pasteWindow.codeFragment.user] <h:outputText value="on" rendered="#{pasteWindow.codeFragment.friendlyDate != 'just now'}" />
  #[pasteWindow.codeFragment.friendlyDate]
  <div style="float:right">
    <a href="download?id=#{pasteWindow.codeFragment.hash == null ? pasteWindow.codeFragment.id : pasteWindow.codeFragment.hash}" style="text-decoration: none;">DOWNLOAD</a>
  </div>
```

The 'CONFIGURATION FILES MODIFIED' section shows 0 files found.

The 'FILES MODIFIED IN PRODUCTION' section shows 0 files found.

Performance Monitoring

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OPENSHIFT PaaS by Red Hat Cloud

INTRO **CLOUDS** **CLUSTERS** **SERVERS** **APPLICATIONS** **PERFORMANCE** **LOGS** **EVENTS**

LIBRARY CHARTS
Click and drag a chart and drop it in the chart area on the left

Histogram **Activity**
Transactions **Components**
CPU **Memory**
Network TX **Network RX**
Storage

Filter by Clusters
AWS:Staging

Component
Network
Browser Download
Application Server
Application Code
Backend

Application
weld-pastecode

Tag
No Tags

Search

Find Tags

Slowest Transactions
/weld-pastecode/3
/weld-pastecode/6
/weld-pastecode/1
/weld-pastecode/8
/weld-p...code/17
10.32.78.111
10.83.50.238
72.44.52.13
50.16.140.58

Tags
Seconds

Transaction Activity
Requests/sec
12:44 12:46 12:47 12:48 12:50 12:51

Requests/sec
12:40 12:41 12:42 12:43
Time

Transaction Times By Component
500
10.32.77.90
10.32.78.111
50.16.140.58
72.44.52.13
50.17.3.85
10.83.50.238
/weld-p...code/11
/weld-p...code/19

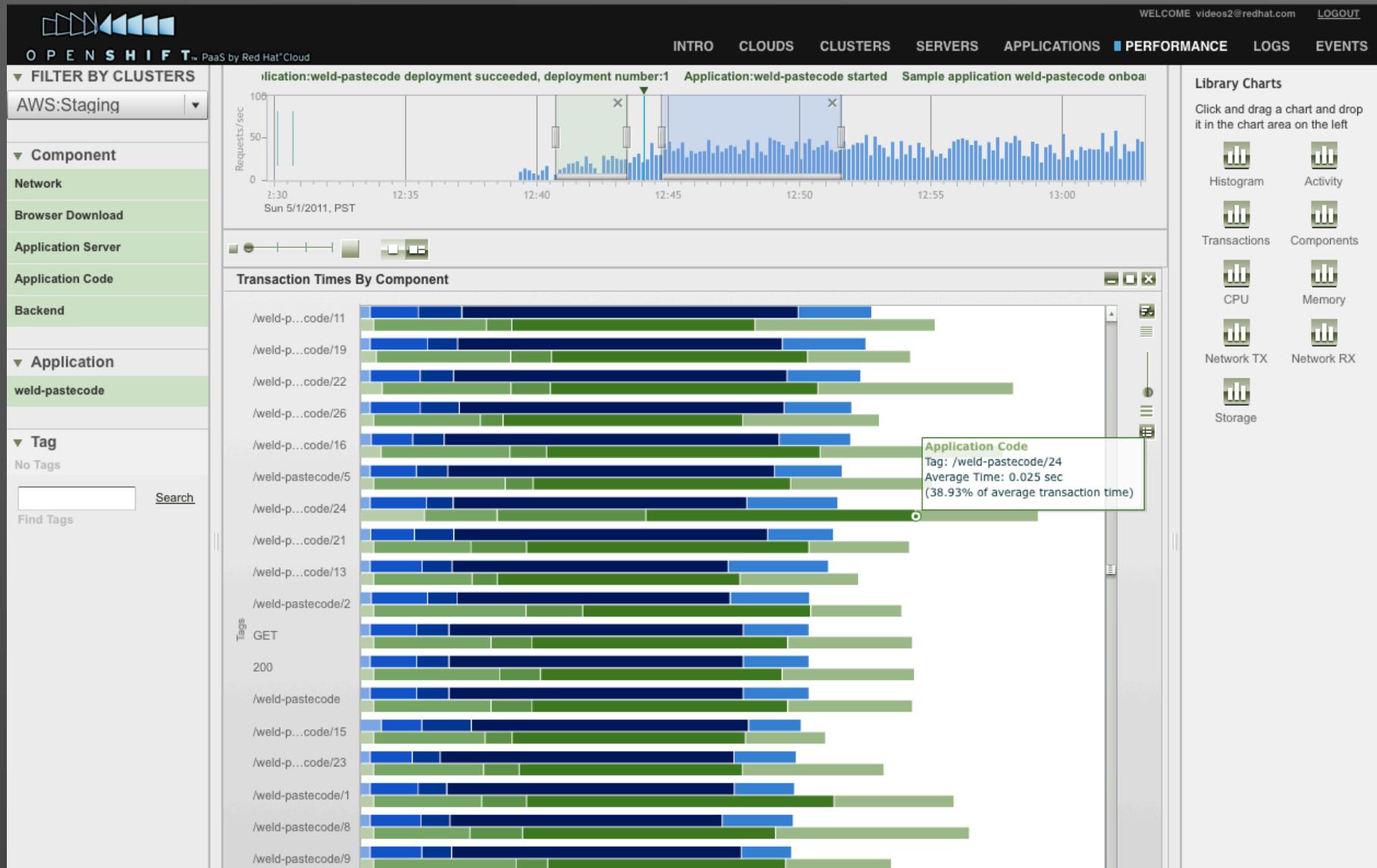
Tags
Seconds

Transaction Histogram
Requests
5000 85%
5000 85%
0.2 0.4 0.6 0.8 1.0 1.2
Seconds

Cluster Resources - CPU
MHz
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
2000
0

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Transaction Monitoring



Log Management

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INTRO CLOUDS CLUSTERS SERVERS APPLICATIONS PERFORMANCE LOGS EVENTS

Search String

Cluster **AWS:Staging**

Application **weld-pastecode**

Severity

- Emergency
- Alert
- Fatal/Critical
- Error
- Warning
- Notice
- Info
- Debug

Component

- Web Server
- Application Server
- Application Code
- Miscellaneous

Cluster Member

- 50.17.133.170
- 50.16.140.58
- 50.17.3.85
- 72.44.52.13

joined Application:weld-pastecode deployment succeeded, deployment number:1 Application:weld-pastecode started Sample application weld-pastecode onboarded

Requests/sec

2:30 12:35 12:40 12:45 12:50 12:55 13:00 13:05 13:10

Collection Time Cloud Server Application Component Detail Select Columns ▾

Collection Time	Cloud Server	Application	Component	Detail	Select Columns ▾
5/1/11 12:49:50	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:50 -0400] "GET /weld-pastecode/16 HTTP/1.1" 200 7653	
5/1/11 12:49:50	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:50 -0400] "GET /weld-pastecode/17 HTTP/1.1" 200 7345	
5/1/11 12:49:50	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:50 -0400] "GET /weld-pastecode/18 HTTP/1.1" 200 7478	
5/1/11 12:49:50	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:50 -0400] "GET /weld-pastecode/19 HTTP/1.1" 200 7404	
5/1/11 12:49:51	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:50 -0400] "GET /weld-pastecode/20 HTTP/1.1" 200 7994	
5/1/11 12:49:51	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:50 -0400] "GET /weld-pastecode/21 HTTP/1.1" 200 8491	
5/1/11 12:49:51	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:49:51 -0400] "GET /weld-pastecode/22 HTTP/1.1" 200 8389	
5/1/11 12:49:55	50.16.140.58	weld-pastecode	Application Server	2011-05-01 15:49:55,224 INFO [org.jboss.weld.examples.pastecode.session.CodeFragmentPrinterImpl] (pool-22-thread-1) No	
5/1/11 12:49:57	72.44.52.13	weld-pastecode	Application Server	2011-05-01 15:49:56,826 INFO [org.jboss.weld.examples.pastecode.session.CodeFragmentPrinterImpl] (pool-22-thread-1) No	
5/1/11 12:50:09	50.17.133.170	weld-pastecode	Application Server	2011-05-01 15:50:08,990 INFO [org.jboss.weld.examples.pastecode.session.CodeFragmentPrinterImpl] (pool-22-thread-1) No	
5/1/11 12:50:24	50.17.3.85	weld-pastecode	Application Server	2011-05-01 15:50:24,249 INFO [org.jboss.weld.examples.pastecode.session.CodeFragmentPrinterImpl] (pool-18-thread-1) No	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/22 HTTP/1.1" 200 8387	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/23 HTTP/1.1" 200 7900	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/24 HTTP/1.1" 200 7747	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/25 HTTP/1.1" 200 8681	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/26 HTTP/1.1" 200 9619	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/5 HTTP/1.1" 200 7402	
5/1/11 12:52:18	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/1 HTTP/1.1" 200 7341	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/2 HTTP/1.1" 200 7366	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:18 -0400] "GET /weld-pastecode/3 HTTP/1.1" 200 7502	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/4 HTTP/1.1" 200 7401	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/5 HTTP/1.1" 200 7403	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/6 HTTP/1.1" 200 7478	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/7 HTTP/1.1" 200 7722	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/8 HTTP/1.1" 200 7532	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/9 HTTP/1.1" 200 7422	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/10 HTTP/1.1" 200 7704	
5/1/11 12:52:19	50.17.3.85	weld-pastecode	Web Server	10.83.50.238 - - [01/May/2011:15:52:19 -0400] "GET /weld-pastecode/11 HTTP/1.1" 200 7661	

Events

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OPENSHIFT™ PaaS by Red Hat® Cloud

INTRO CLOUDS CLUSTERS SERVERS APPLICATIONS PERFORMANCE LOGS **EVENTS**

Status	Name	Start Time	Elapsed time
<u>Completed</u>	Updating load balancer: 'us-east-1/Staging1392187622'	Sun May 01 12:30:40	0 min 6 sec
<u>Completed</u>	Joining cloud server: '72.44.52.13' to cluster: 'Staging'	Sun May 01 12:30:06	0 min 34 sec
<u>Completed</u>	Joining cloud server: '50.17.3.85' to cluster: 'Staging'	Sun May 01 12:29:30	0 min 36 sec
<u>Completed</u>	Joining cloud server: '50.16.140.58' to cluster: 'Staging'	Sun May 01 12:28:48	0 min 42 sec
<u>Completed</u>	Creating 3 cloud server(s) for cluster with tag: 'Staging1392187622'	Sun May 01 12:26:52	1 min 56 sec
<u>Completed</u>	Building cluster: 'Staging' on cloud server: '50.17.133.170'	Sun May 01 12:25:10	1 min 41 sec
<u>Completed</u>	Creating load balancer: 'Staging1392187622'	Sun May 01 12:25:01	0 min 5 sec
<u>Completed</u>	Creating 1 cloud server(s) for cluster with tag: 'Staging1392187622'	Sun May 01 12:24:30	0 min 30 sec
<u>Completed</u>	Creating cluster: 'Staging'	Sun May 01 12:24:30	6 min 16 sec
<u>Completed</u>	Authenticating: 'AWS'	Sun May 01 12:19:48	0 min 6 sec
<u>Completed</u>	Linking to cloud account: 'AWS'	Sun May 01 12:19:48	0 min 7 sec

Auto-Scaling

The screenshot shows the OpenShift web interface with the following details:

- Header:** WELCOME videos2@redhat.com, LOGOUT
- Page Title:** Staging : EDIT
- Navigation:** INTRO, CLOUDS, CLUSTERS (highlighted in blue), SERVERS, APPLICATIONS, PERFORMANCE, LOGS, EVENTS
- Section:** All Clusters
- Sub-Section:** AUTO-SCALING (highlighted in yellow)
- Text:** All servers in the cluster will use the settings configured here.
- Section:** Auto-Scale Settings
- Setting:** Enable Auto-Scaling (checked)
- Setting:** MINIMUM CLOUD SERVERS: 2, MAXIMUM CLOUD SERVERS: 20
- Section:** Scaling Threshold Configuration
- Setting:** SCALING STRATEGY: Requests per Node
- Setting:** Scale up if Requests greater than 100 requests / second for 15 minutes (evaluated every 10 minutes)
- Setting:** Scale down if Requests less than 20 requests / second for 30 minutes (evaluated every 20 minutes)
- Buttons:** CANCEL, SAVE

Server Monitoring

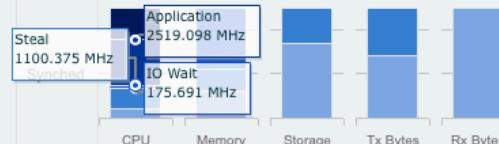
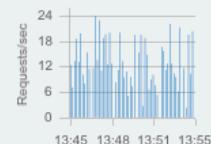
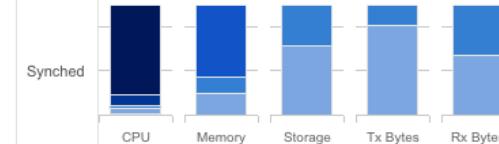
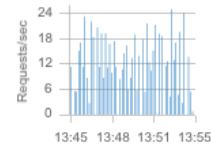
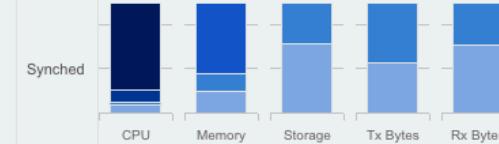
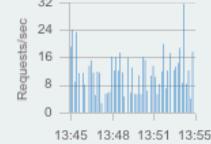
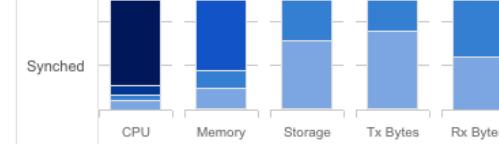
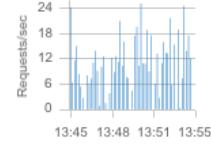
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OPENSHIFT PaaS by Red Hat Cloud

INTRO CLOUDS CLUSTERS SERVERS APPLICATIONS PERFORMANCE LOGS EVENTS

SERVER LIST [ADD SERVER](#)

▼ FILTER BY CLUSTERS [AWS:Staging](#)

NAME	CLOUD	CLUSTER	VIRTUAL IP	ADMIN	SERVING	STATUS	RESOURCES (10 MIN AVERAGE)	ACTIVITY	ACTIONS
50.17.133.170	AWS	Staging		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Steal 1100.375 MHz Synced			UNJOIN RESTART
50.16.140.58	AWS	Staging		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Synched			UNJOIN RESTART
50.17.3.85	AWS	Staging		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Synched			UNJOIN RESTART
72.44.52.13	AWS	Staging		<input type="checkbox"/>	<input checked="" type="checkbox"/>	Synched			UNJOIN RESTART

Help



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[INTRO](#) [CLOUDS](#) [CLUSTERS](#) [SERVERS](#) [APPLICATIONS](#) [PERFORMANCE](#) [LOGS](#) [EVENTS](#)

INTRODUCTION

BEGINNING TASKS

Welcome to OpenShift. During signup, you configured a cloud provider, allocated cloud servers into a server cluster, and deployed a sample application. Here you can re-do those steps but why not move on to other guides? Each guide will start with a few explanatory screenshots and then navigate you to the right page to get started.

[TRY IT](#)

✓ DEFINE A CLOUD ACCOUNT

You already setup your cloud account during signup but if you'd like to use an additional cloud account or re-enter your cloud credentials, start here.

[TRY IT](#)

✓ CREATE A SERVER CLUSTER

During signup, you created a server cluster. Come back here if you've deleted it and want to create one again, or if you want to create additional server clusters. Multiple applications can share a server cluster (and thus a URL space and scaling policies) or you can create a server cluster for each application.

[TRY IT](#)

✓ DEPLOY SAMPLE APPLICATION

During signup, you deployed an application from the library of samples. If you've deleted it, or want to deploy another one, this guide will get you started. Keep in mind that running multiple applications on the same cluster requires more resources... usually RAM is the constraining resource.

[TRY IT](#)

VIEW RUNNING APPLICATION

Find the URL to use to exercise the running application

[TRY IT](#)

RECONFIGURE SAMPLE APPLICATION

Learn a little about application deployment definitions by making a simple change to the application's URL routing configuration

[TRY IT](#)

SCALE SAMPLE APPLICATION

Scale up to handle more load, or scale down to save money

[TRY IT](#)

MONITOR APPLICATION PERFORMANCE

Monitor the performance of your application.

[TRY IT](#)

DEFINE AND DEPLOY YOUR OWN APPLICATION

Now that you've used a sample application, upload your own application to get deployed in the cloud

RESOURCES

HOW-TO GUIDES

- [Getting Started with OpenShift Flex](#)
- [Deploying JBoss with OpenShift Flex](#)
- [Deploying Drupal with OpenShift Flex](#)

Q&A

THANKS!

