



# Continuous Delivery with JBoss Fuse and OpenShift

# Who?



## Christian Posta

Principal Middleware Specialist/Architect

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- Committer on Apache Camel, ActiveMQ, Fabric8, PMC on ActiveMQ
- Author: *Essential Camel Components* DZone Refcard
- Frequent blogger and speaker about open-source technology!



# Agenda

- The cost of change
- JBoss Fuse integration platform
- OpenShift PaaS
- CI/CD
- Demo





# Cost of Change

# Cost of change

- Development
- Operational
- Infrastructure
- Business requirements



<http://blog.christianposta.com/microservices/microservices-and-reducing-the-cost-of-change/>

# BELIEVE



# Hype all around!

- Microservices
- DevOps philosophies
- Cloud (IaaS, PaaS/iPaaS/mBaaS)

# Integration costs!

- Integration is Hard!
- Different system vintages
- Mainframe, EAI Hub, MOM, EJB, Web Services
- Evolving business processes
- Systems must work together
- File exchange, Shared Database, Remote Procedure Call (RPC), Messaging

# Integration costs!

- Platforms
- Protocols
- Data Formats
- Timing
- Organizational mismatch
- Communication





# JBoss Fuse for microservices?

# Red Hat JBoss Fuse

[Technology](#) > [Products](#) > [JBoss Fuse](#)

Overview	>
<a href="#">Get Started</a>	>
<a href="#">Resources</a>	>
<a href="#">Developer Materials</a>	>
<a href="#">Community</a>	>
<a href="#">Download JBoss Fuse</a>	>

## Overview

An open source Enterprise Service Bus (ESB).

JBoss Fuse is an open source Enterprise Service Bus (ESB) with an elastic footprint that supports integration beyond the data center. The ability to deploy JBoss Fuse in several different configurations enables intelligent integration to all facets of your business - on premise or in the Cloud.



### Pattern based integration framework

Leverage Apache Camel to provide a full-featured, easy-to-use and intuitive framework for quicker integration solutions.



### Dynamic configuration and management

Change configuration while container is running. Easily deploy or update services across nodes while the ESB is running.



### Multiple connectivity options

Connect to external applications with connectors for JDBC, FTP/SFTP, HTTP/HTTPS, file, SalesForce.com, SAP, Twitter, and more.

JBoss Fuse for Developers

[DOWNLOAD](#)

Supported Solutions

[Contact Sales](#)

[Consulting Solutions](#)

[Get Support](#)

Training

● [Camel Development with Red Hat JBoss Fuse Online](#)

● [Red Hat JBoss Fuse with Red Hat JBoss A-MQ and Camel](#)

● [Red Hat JBoss Training courses - Development](#)



**ActiveMQ**



**Apache CXF**



**fabric8**

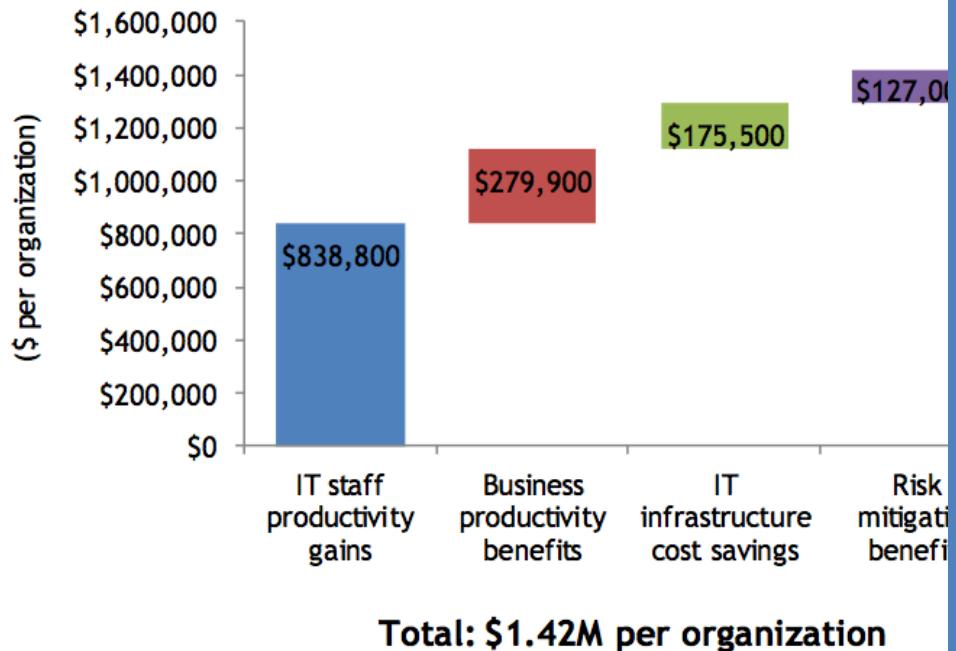
**Qhawtio**

# Business ROI with Fuse

<http://www.redhat.com/en/resources/value-red-hat-integration-products>

FIGURE 2

## Average Annual Benefits



Source: IDC, 2014

## Business Value Highlights

Red Hat JBoss Fuse delivers an average three-year ROI of 488% in a payback time of 8.2 months through the following business value benefits:

- 51.5% more applications integrated per year
- 40.8% fewer FTEs per application integration
- 62.8% less application downtime related to integration
- 18.1% improved middleware integration solution performance
- 34.2% less costly than previous middleware integration solution

# RED HAT JBOSS FUSE

## Development and tooling

Develop, test, debug, refine, deploy

### JBoss Developer Studio

## Web services framework

Web services standards, SOAP, XML/HTTP, RESTful HTTP

### Apache CXF

## Integration framework

Transformation, mediation, enterprise integration patterns

### Apache Camel

## Management and monitoring

System and web services metrics, automated discovery, container status, automatic updates

### JBoss Operations Network + JBoss Fabric Management Console (hawtio)

## Reliable Messaging

JMS/STOMP/NMS/MQTT, publishing-subscribe/point-to-point, store and forward

### Apache ActiveMQ

## Container

Life cycle management, resource management, dynamic deployment, security and provisioning

### Apache Karaf + Fuse Fabric

# RED HAT ENTERPRISE LINUX

Windows, UNIX, and other Linux

# Apache Camel

Apache Camel is an open-source,  
light-weight, integration library.

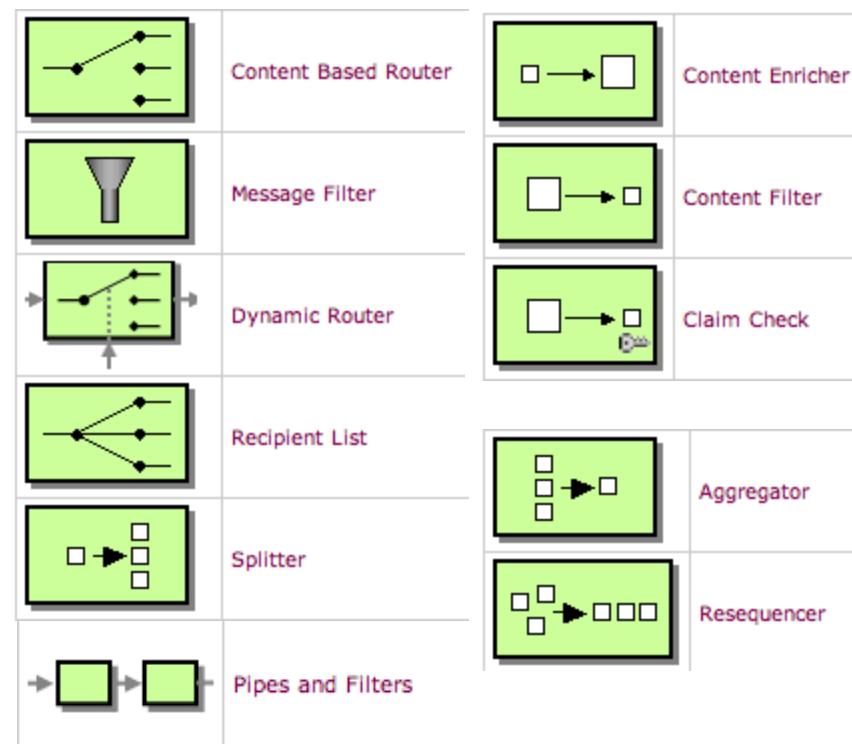
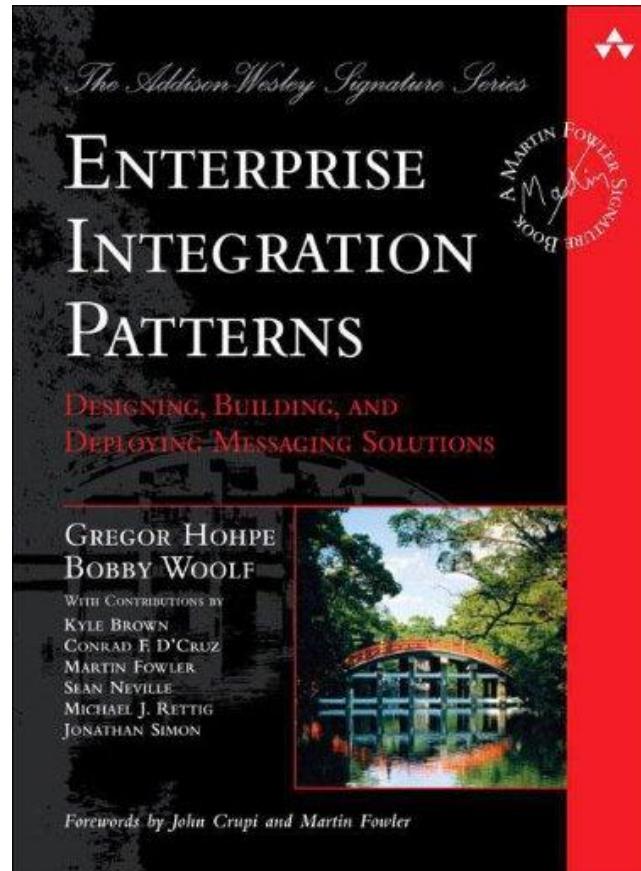


Use Camel to **integrate** disparate systems  
that speak different protocols and data  
formats





# Enterprise Integration Patterns



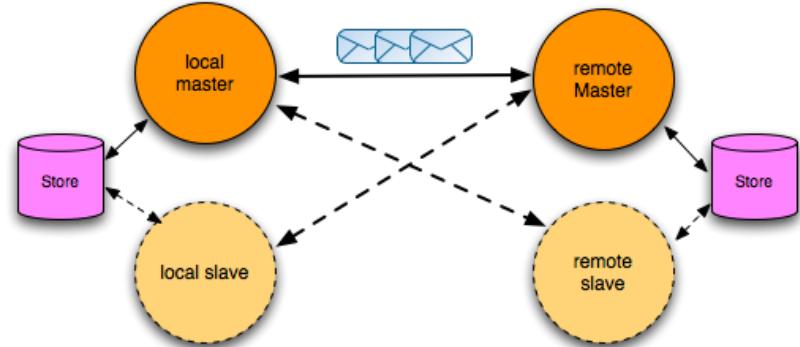


## Features

- Enterprise Integration Patterns (EIPs)
- Domain Specific Language to write “flows” or “routes”
- Large collection of adapters/components for legacy systems, B2B, and SaaS
- Strong Unit test/Integration test framework
- Expression languages
- Data Formats
- Tooling with JBoss Developer Studio

# ActiveMQ

- High performance
- High availability
- Light-weight
- Multi-protocol (AMQP, MQTT, STOMP)
- Multi-transport (TCP,SSL,WS,VM,HTTP)
- JMS compliant
- Supported in production by Red Hat as JBoss A-MQ and with JBoss Fuse!





# fabric8

[Get Started](#)   [Documentation](#)   [Community](#)   [Articles](#)   [github](#)

an open  
source  
integration  
platform



**fabric8**

# <http://fabric8.io>



- Simplifies deployments
- Provides **centralized configuration**
- Versioning
- **Visualization of your middleware**
- Service discovery
- Smart load balancing
- Failover
- Provides cluster capabilities, coordination



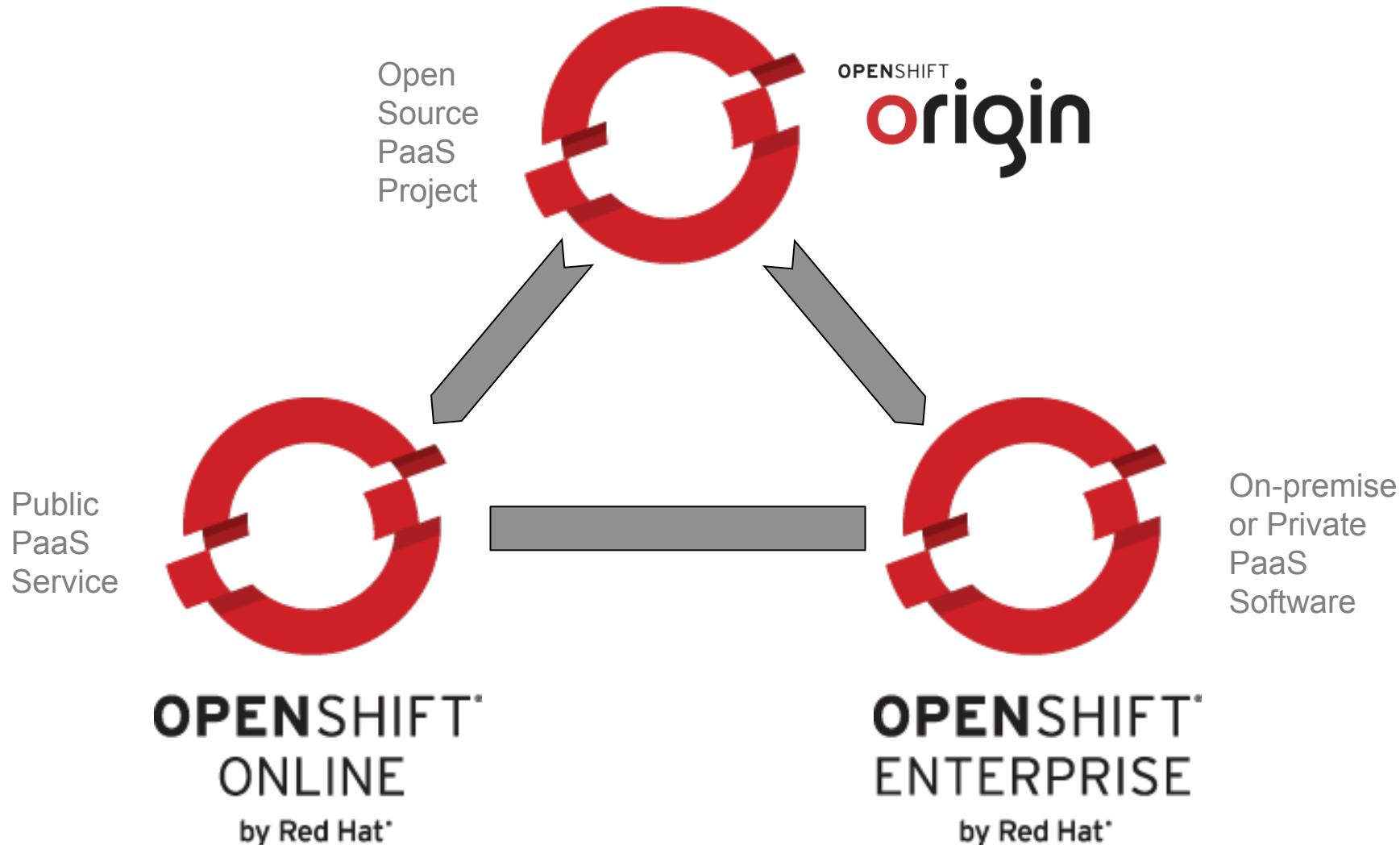
# OpenShift

# Platform as a Service

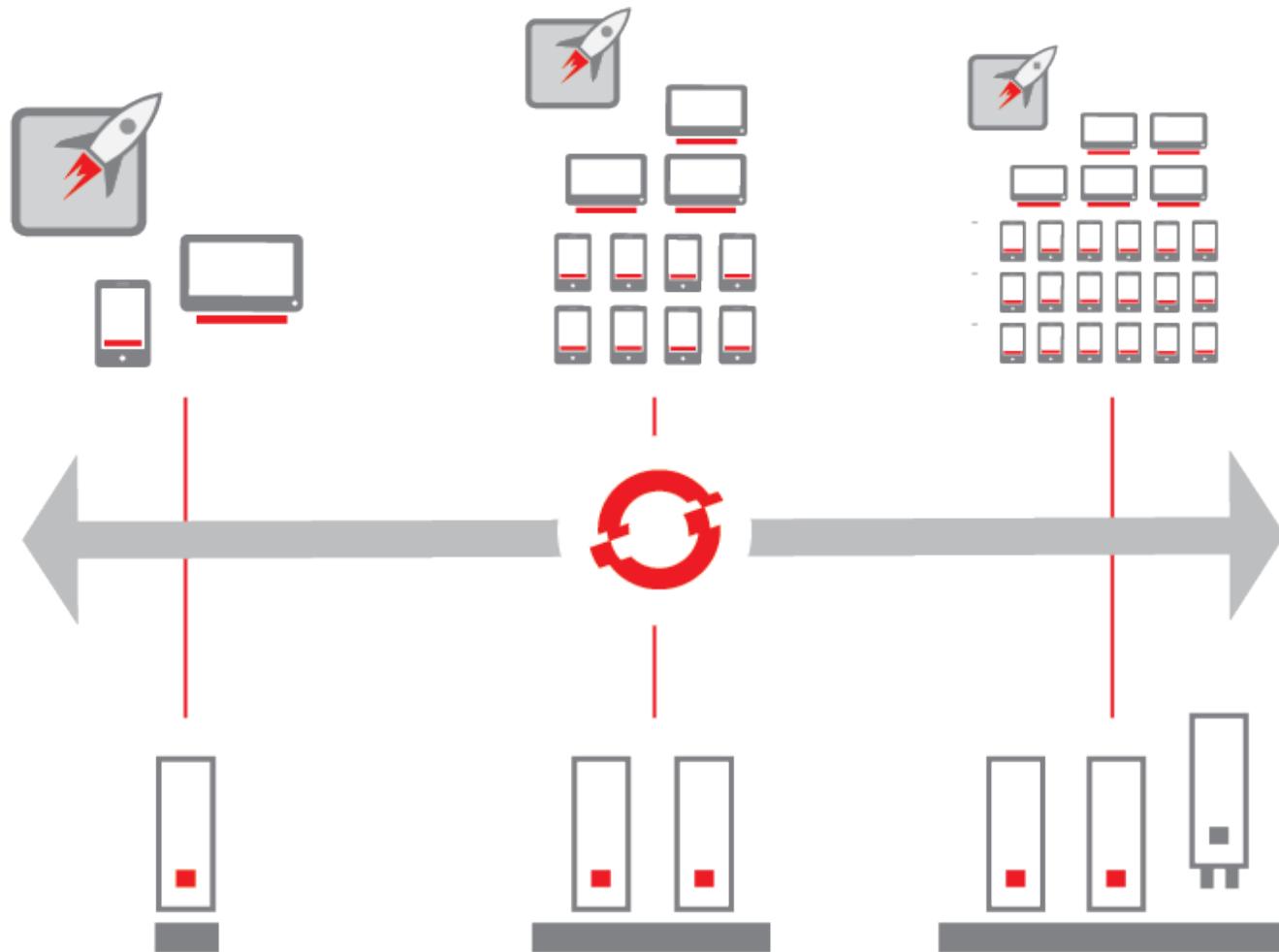
- Flexible technology options
- Developer self service
- Automation, DevOps philosophy
- Decoupling between operations and developers, reduces coordination



# Red Hat's PaaS: OpenShift



# Scale IT Like a Factory with PaaS





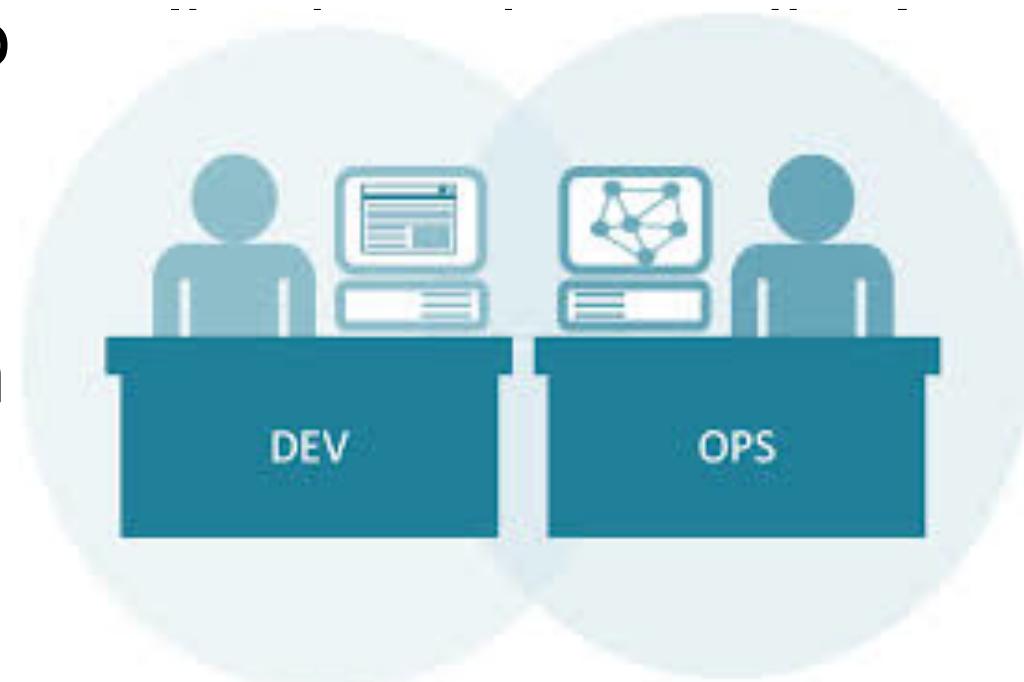
# Bringing this all together

**WORKED FINE IN  
DEV**

**OPS PROBLEM NOW**

# “WTF is DevOps?”

- IT is a core competency
- Set of principles
- There's more to
- Feedback
- Repetition
- Communication
- People!



# Continuous Delivery

- Builds on continuous integration
- Establish a concrete pipeline to production
- Build/Test/Release often!
- Bottlenecks?
- Involves Dev and Ops to be successful
- Every build is a “release candidate”

# Automate everything!

- Developers
  - Unit tests
  - Integration tests
  - Builds
  - Deployments in dev
- Operations
  - VMs
  - Provisioning software
  - Deployments in QA/UAT/PROD

# Tools for a CD pipeline

- Puppet/Chef to provision VMs
- Git for SCM
- Gerrit/Gitlab for code reviews
- Maven
- Jenkins + plugins
- and of course... Fabric8!



# Fabric8 maven plugin

- fabric8:deploy
- fabric8:zip
- fabric8:aggregate-zip
- fabric8:branch
- fabric8:script (for karaf only)
- <http://fabric8.io/gitbook/mavenPlugin.html>

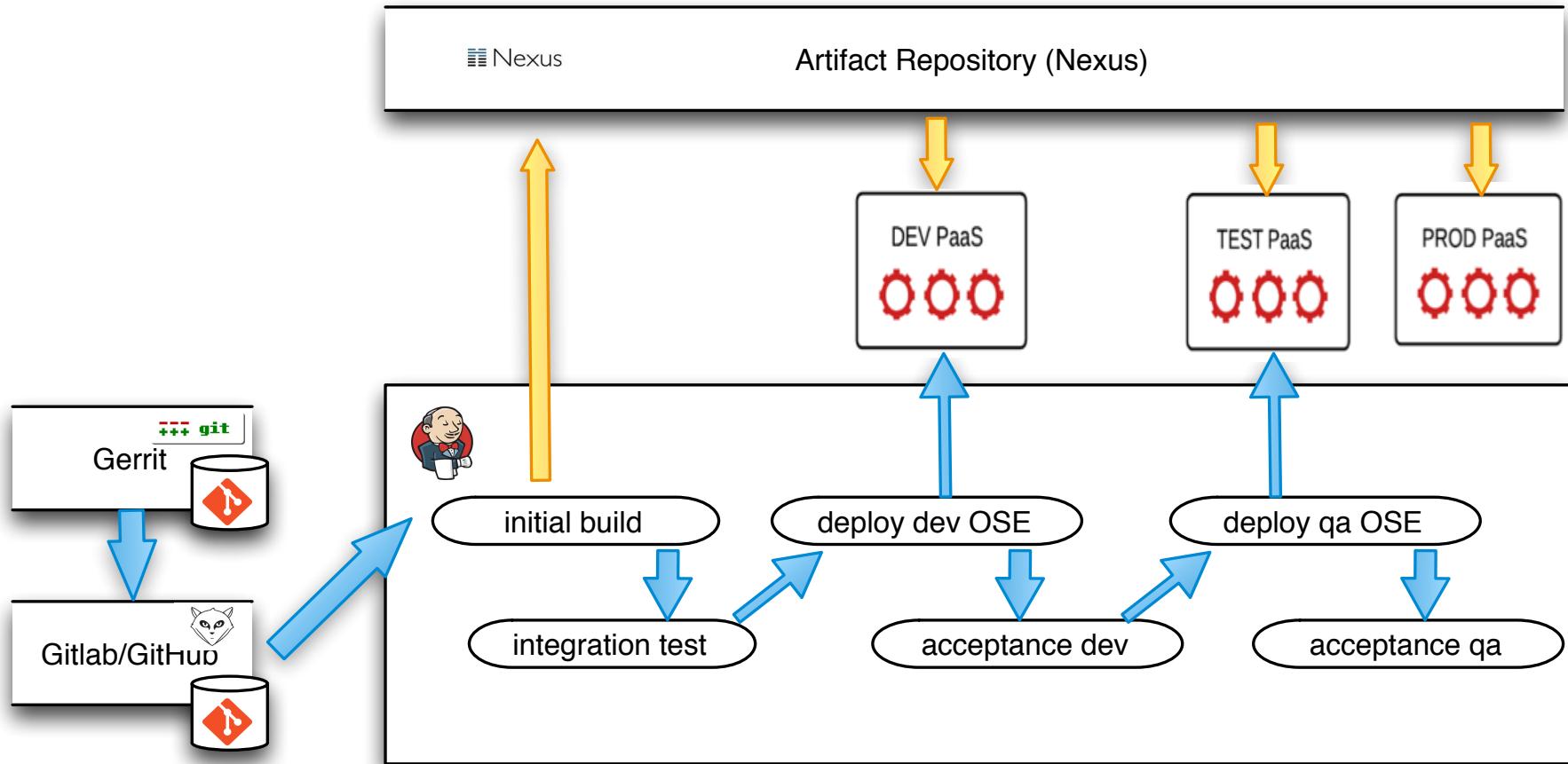
# Sample flow

<http://bit.ly/1ES6YM8>

- Check your code in
- Gerrit for code reviews
- Jenkins for build + CD pipeline
- Use fabric8:zip to deploy profiles to Maven repo
- Use fabric8:branch to automate deploying multiple profiles to QA/UAT/PROD
- Can use profile-import to manually import zips
- Build the binary once!

# Sample flow

<http://bit.ly/1ES6YM8>





# Demo...



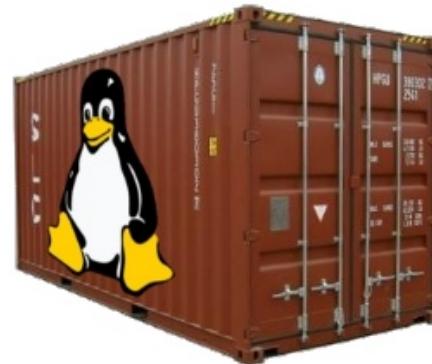
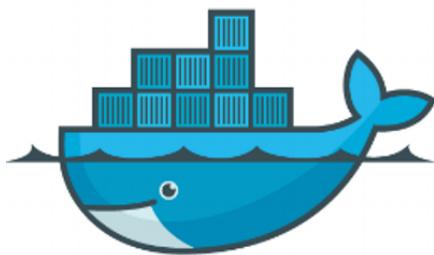
Upcoming shortly...

# Fabric8 v2 + OpenShift v3



- Implemented with Docker and Kubernetes
- Use any JVM (or any technology)
- Docker images, encourage static, well-defined, well-tested deployments
- Provides networking, JVM isolation, orchestration, auto-scaling, health checks, cloud deployments

# Docker / Linux Containers





# Questions?