The Path to Cloud Native Applications with Red Hat

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MONOLITHIC ARCHITECTURE

Application Server

- HTML
- Javascript
- Web
- Catalogs
- Inventory
- Shopping Cart
- Rating
- Payment
- Review
- Data Access
CLOUD-NATIVE APPS
BUILDING APPLICATIONS FOR THE CLOUD
WHY CLOUD-NATIVE APPS?

FASTER SERVICE DELIVERY
46x more deployments

INCREASE SERVICE QUALITY
5x less failure
96x faster recovery

REDUCE RISK OF DELIVERY

https://puppet.com/resources/whitepaper/state-of-devops-report
MICROSERVICES ARCHITECTURE
CLOUD-NATIVE IS MUCH MORE THAN YOUR APPLICATION ARCHITECTURE
CLOUD-NATIVE APPLICATIONS

Service-based Architecture  API  Containers  DevOps
THE PATH TO CLOUD-NATIVE APPS

A DIGITAL DARWINISM

EMBRACE DEVOPS
SELF-SERVICE ON-DEMAND INFRA
AUTOMATION
CONTINUOUS DELIVERY
ADVANCED DEPLOYMENT TECHNIQUES
MICROSERVICES

AND ONLY THEN!
THE PATH TO CLOUD-NATIVE APPS

A DIGITAL DARWINISM

EMBRACE DEVOPS

SELF-SERVICE ON-DEMAND INFRA

AUTOMATION

CONTINUOUS DELIVERY

ADVANCED DEPLOYMENT TECHNIQUES

MICROSERVICES

FAST MONOLITH
OpenShift Application Runtimes
THE APPSERVER 2000-2014

Framework / APIs

Middleware Services
- Persistence
- Security
- Transaction
- Messaging
- HTTP

Operational Platform
- Deployment
- Management
- Monitoring
- HA
- Logging

Virtual Machine | Operating System
SOFTWARE DEVELOPMENT IS CHANGING

Process
- Waterfall
- Agile
- DevOps

Infrastructure
- Datacenter
- Hosted
- Hybrid

Architecture
- Monolith
- N-Tier
- Microservices
THE APPSERVER 2014-...
DEVELOPERS HAVE MORE CHOICE THAN EVER

50% OF THE ENTERPRISE APP MARKET

- Serverless
  - OpenWhisk
  - Funktion
  - Reactive
    - play
    - VERT.X
    - Scala
    - MICROPROFILE
    - undertow
    - jetty
    - Lightweight
      - Embeddable

- Cloud Native Java
- JavaScript Everywhere

- TOMCAT
- Java EE
- spring
- .NET
- Netflix OSS

-redhat
Modern, cloud-native application runtimes and an opinionated developer experience for organizations that are moving beyond 3-tier architectures and embracing cloud-native application development.
OpenShift Application Runtimes

APM
Metrics

TESTED FRAMEWORKS
(Maven Artifacts)

SPRING BOOT / CLOUD
NETFLIX OSS Ribbon
NETFLIX OSS Hysterix
...

REACTIVE (vert.x)
MICROPROFILE (WildFly Swarm)
JAVA EE (JBoss EAP)
NODEJS
APACHE TOMCAT

RUNTIMEs
(Container images and Maven Artifacts)

Messaging
SSO
IMDG
API Mgmt
Logging
CI/CD
Config.
Health Check
Load Balancing

MANAGEMENT

OPENSHIFT SERVICES

Dev Experience/OpenShift.io

Generators
IDE
etc.
OpenShift Application Runtimes

**RUNTIMES**
(Container images and Maven Artifacts)

**TESTED FRAMEWORKS**
(Maven Artifacts)

- **SPRING BOOT / CLOUD**
- **NETFLIX OSS Ribbon**
- **NETFLIX OSS Hysterix**
- ...

- **REACTIVE** (vert.x)
- **MICROPROFILE** (WildFly Swarm)
- **JAVA EE** (JBoss EAP)
- **NODE.JS**
- **APACHE TOMCAT**
OpenShift Application Runtimes

**Runtimes**
- **Java EE** (JBoss EAP)
- **MicroProfile** (WildFly Swarm)
- **Node.js**
- **Apache Tomcat**

**Tested Frameworks**
- **Spring Boot / Cloud**
- **NETFLIX OSS Ribbon**
- **NETFLIX OSS Hystrix**
- **...**

**OpenShift Services**
- Messaging
- SSO
- IMDG
- API Mgmt
- Logging
- CI/CD
- Service Discovery
- Config.
- Health Check
- Load Balancing
WILDFLY SWARM
Wildfly Swarm

- Microservices offering for Java EE developers
  - Wildfly Swarm components come from wildfly.
- Repackaging exercise
  - Package only what you need
  - Packaging the app server with your app
- Implementation of microprofile
  - Combines Java EE and microservices technologies
- Built from WildFly
  - Trusted and Reliable
What is Spring?

- First release of Rod Johnson’s work - June 2003
- Collection of Frameworks, Patterns & Templates
  - IoC (Beans, Context, Core), ORM, Persistence/Tx, AOP, Web (MVC), Messaging, testing
- Mainly used as replacement of EJB (1.0, 2.0)
What is Spring Boot?

- Path for developers already developing to the Spring Framework
  - Microservices for Developers using Spring Framework
- An opinionated approach to developing Spring-based microservices
- Getting started experience
- Already Red Hat Certified with:
  - OpenShift Java S2I Image
  - JBoss Web Server Embedded Tomcat Container
ECLIPSE VERT.X
Eclipse Vert.x

- Reactive Microservices toolkit to build distributed and reactive systems
- Polyglot - Java, JavaScript, jRuby, Python, Groovy, Scala
- Asynchronous Non-Blocking development model
- Simplified concurrency (event loop)
- Ideal high-volume, low-latency applications

Home - http://www.vertx.io
THANKS