DIGITAL TRANSFORMATION?

“While its definition is fluid, ‘digital transformation’ is commonly understood as the means to exploit emerging technology to improve the customer experience and enable more adaptive business operations.”

- Carl Lehmann, Principal Analyst, The 451 Group
Digital Transformation with Red Hat

How have we applied emerging technologies for digital transformation?

- 2015 Red Hat Summit: Mobile + Business Process
- 2016 Red Hat Summit: Mobile + Business Process + Business Rules + Cloud
MODERN APPLICATION DEVELOPMENT

Application Modernization
Cost/efficiency
Containerize monolithic apps

Agile Integration
Distributed integration, containers, APIs

Cloud-Native Apps
Microservices
DevOps
Containers

Process-Driven Apps
BPM, rules, optimization, mobile

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RHMAP - 3Scale - RH JBoss
DEMO ARCHITECTURE
Before and After Red Hat 3Scale API Management
DEMO!
PROCESS DRIVEN APPS
PROCESS-DRIVEN APPS
Main Characteristics

Orchestrate
- Between systems of engagement and systems of record
- Collaboration between knowledge workers.

Automate
- Manual Tasks & Decisions

Enable
- Business users to participate in application development
RED HAT JBOSS BRMS

Enables construction of apps that automate business decisions, guided by business rules...

Tools for business experts

Tools for developers

RULES

Business Central

Decision Server

APPS

Decision Services

Client App
RED HAT JBOSS BPM SUITE

Enables construction of apps that automate a business process - using a model to drive work through the process to completion...
PROCESS DRIVEN APP DEVELOPMENT

Supporting role:

RED HAT® JBOSS® FUSE

RED HAT® JBOSS® DATA VIRTUALIZATION

3scale BY RED HAT®

RED HAT® MOBILE
RED HAT SOLUTIONS ARE DIFFERENT

RED HAT
OPENSIBLE
“When combined with OpenShift, BRMS and BPM Suite enable developers to build, deploy and manage truly modern process-driven applications - fully supporting DevOps practices, microservices architectures and modern user experiences.”

- Phil Simpson, March 29 2017
BUILDING PROCESS-DRIVEN APPS

- Git
- Source
- S2I
- Container Image
- Image Stream
- Registry
- Microservice Image
- Deploy
- Dev
- Ops
- Red Hat JBoss BPM Suite
  - Business Central
  - BAM Dashboard

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RUNNING PROCESS-DRIVEN APPS WITH OPENSHIFT AND BPM SUITE

Modern microservices architecture

- Process Application
- Planning Microservice
- Decision Microservice
- Payment Microservice

RED HAT OPENSHIFT

Next-gen user experience

Microsoft Azure
Google Cloud Platform
AWS
BxMS xPaaS Demo!
Mobile with Red Hat
## Mobile Application Platform

### Enterprise Systems
- Cloud Code
- Business Logic
- Integrations
- Microservices
- Data Sync
- Caching
- Storage
- Authentication
- Push Notifications

### Mobile Backend-as-a-Service
- LifeCycle Management
- Analytics & Alerts
- Private App Store
- Git Repositories
- Unified Push Server
- User Management
- Teams
- Collaboration

### Studio
#### Core
- Templates
- Native & Hybrid SDKs
- Forms Builder
- Tutorials
- Documentation
- Credentials Mgmt
- Development Tools
- Command Line (CLI)
OPENSHIFT VIEW OF RHMAP ARCHITECTURE

Complex architecture, same great RHMAP user experience

OpenShift Master Nodes
- Authentication
- Data Store
- Scheduler
- Health/Scaling

OpenShift Infra Nodes
- Routers
- Registry
- etcd

RHMAP Core Infra Nodes
- core management
- Routers
- Registry
- etcd

Mobile App Node
- Mobile App Node
- Mobile App Node

MBaaS Infra
- services

Other App Nodes
- JBoss EAP
- JBoss Fuse
- JBoss BPM

OpenShift Container Platform
MOBILE APPS AND MICROSERVICES IN RHMAP

Multiple services and large payloads, i.e. enterprise system, database, private cloud system, public API from internet

Reduced number of calls to client app
SUMMARY OF MOBILE APPS WITH RHMAP

- Data from multiple sources
- To hundreds and thousands of devices

- Consume APIs
- Enhanced your cloud app
- Build microservices (MBaaS Services)
- All in a container in the MBaaS
- Add more node.js business logic

ENTERPRISE SYSTEMS

PUBLIC CLOUD SERVICES

RED HAT MOBILE APPLICATION PLATFORM

SSL Encryption
AES-256
Full Process Flow to Build a Mobile App

1. CREATE A PROJECT IN THE PLATFORM
   - Platform creates client & cloud apps

2. CODE YOUR CLIENT APP
   - Frontend developer

3. BUILD YOUR APP ON THE BUILD FARM
   - Backend developer

4. ADD SERVICES TO YOUR APP
   - Add services to your app

5. ADD FUNCTIONALITY TO YOUR CLOUD CODE

6. DOWNLOAD AND INSTALL ON DEVICE
   - Deploy your cloud code

flowchart LR
  CREATE A PROJECT IN THE PLATFORM[CREATE A PROJECT IN THE PLATFORM] --> PLATFORM CREATES CLIENT & CLOUD APPS[PLATFORM CREATES CLIENT & CLOUD APPS]
  PLATFORM CREATES CLIENT & CLOUD APPS[PLATFORM CREATES CLIENT & CLOUD APPS] --> CODE YOUR CLIENT APP[CODE YOUR CLIENT APP]
  CODE YOUR CLIENT APP[CODE YOUR CLIENT APP] --> BUILD YOUR APP ON THE BUILD FARM[BUILD YOUR APP ON THE BUILD FARM]
  BUILD YOUR APP ON THE BUILD FARM[BUILD YOUR APP ON THE BUILD FARM] --> ADD SERVICES TO YOUR APP[ADD SERVICES TO YOUR APP]
  ADD SERVICES TO YOUR APP[ADD SERVICES TO YOUR APP] --> ADD FUNCTIONALITY TO YOUR CLOUD CODE[ADD FUNCTIONALITY TO YOUR CLOUD CODE]
  ADD FUNCTIONALITY TO YOUR CLOUD CODE[ADD FUNCTIONALITY TO YOUR CLOUD CODE] --> DOWNLOAD AND INSTALL ON DEVICE[DOWNLOAD AND INSTALL ON DEVICE]
AeroGear Unified Push Server

1. Developer
   - Registers a Push Application
   - Adds iOS, Android and/or (Hybrid) Web variants for the Push Application

2. Installations
   - Installations on devices register themselves using a token

3. Push Networks
   - SimplePush
   - Google Cloud Messaging
   - Apple Push Notification Service
   - Message is delivered via push networks

4. Sender API
   - writes Push Application details...
   - queries details for receiving apps...

5. JBoss AS backend server

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RHMAP Demo!
Red Hat 3scale API Management Platform (RHAMP)
Red Hat 3Scale API Management Approach

➔ Modular & Open-Source API Gateway (Nginx)
➔ Flexible API Security Integration (API Key, OAuth, SSO)
➔ Hybrid Architecture, Multiple Deployment Options
   (Cloud, Hybrid & On-premises)
➔ Highly Scalable, Flexible Infrastructure
   (Standard HW, VM, Container)
➔ High-Availability, Redundancy
Red Hat 3Scale API Management Model

API Consumer

API Gateway

API Management
Policy Configuration
- Access Control
- Usage Policies
- Analytics
- Developer Portals
- Billing

API Provider
Red Hat 3Scale Architecture

API Back-end (MBaaS)

API Gateway

Node # 1
Node # 2
Node # N

Load Balancer

API Manager

Real time Admin Console

API Manager

Branded Developer Portal

Sync / Authorize

Developers

Developer Apps
Mobile Apps
Swagger Doc
3Scale DEMO!
Past Summit Reference

Check out what we did in the past Red Hat Summit sessions:

QUESTIONS?

Maggie Hu
Sr. Middleware Specialist Solution Architect
Red Hat
Email: mhu@redhat.com
Twitter: @HuCMaggie

Ken Spokas
Technical Director
Vizuri
Email: kspokas@vizuri.com
Twitter: @KenSpokas

Yossi Koren
Sr. Solution Architect, 3Scale & API Management
Red Hat
Email: ykoren@redhat.com
Twitter: @yossiko

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