Demo: Automatic deployment to z/OS and other platforms using UrbanCode

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Abstract:

IBM UrbanCode Deploy is a tool for automating Multi-Tier application deployments. With Snapshots, it is easy to ensure that components that were tested together are released together.
In this session we will show an example of deploying an application that has a z/OS and a Mobile component. The z/OS will be running in on a local laptop.
We will demonstrate a composite deploy scenario:
- Under z/OS development environment the developer changes an existing COBOL CICS
- Under Windows another developer changes an existing Mobile application (using IBM Worklight).
- Using UrbanCode the composite application will be deployed to z/OS and Windows platforms

Rational Team Concert (RTC), built on the jazz platform, is used to demonstrate the Build and integration with UrbanCode deploy
Rational Developer for System z (RDz) will be used for COBOL code updates and integration with RTC.

What will attendees learn from this session?

We will demonstrate the value of UrbanCode in Multi-Tier environment, helping the rapid feedback of continuous delivery in agile development while providing the audit trails, versioning and approvals needed in production. How UrbanCode can integrate with existing Software Configuration Management (SCM) products without disrupting the existing deploy process.
We will show Rational Team Concert (RTC), integrated with UrbanCode as an example.
IBM DevOps – Broad set of DevOps capabilities

Address bottlenecks across the application delivery lifecycle

Steer

Develop / Test

Deploy

Operate

Continuous Business Planning
Rational Team Concert

Collaborative Development
Rational Collaborative Lifecycle Management
Rational Developer for System z
Rational Compilers
Worklight Studio

Continuous Release and Deployment
UrbanCode Release
UrbanCode Deploy with Patterns
SmartCloud Orchestrator

Continuous Monitoring
SmartCloud Application Performance Management
SmartCloud Control Desk

Continuous Customer Feedback & Optimization
Tealeaf CX
Digital Analytics
Worklight Quality Assurance

Continuous Testing
Rational Quality Manager
Rational Test Virtualization Server
Rational Test Workbench
Rational Test Workbench – Mobile Test Edition
Rational Development and Test Environment for System z

Worklight Quality Assurance
InfoSphere Optim Test Data Management
Security AppScan

Bluemix DevOps services
Agile planning and tracking
Application auto-scaling
AppScan mobile analyzer
Continuous delivery pipeline
Git hosting

Mobile application security
Mobile data
Mobile quality assurance
Monitor & analytics
Push

RapidApps (beta)
Server-side code
Web IDE
Deploy is a bottle neck

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## What’s going wrong?

<table>
<thead>
<tr>
<th>Failures due to inconsistent <strong>dev</strong> and <strong>production</strong> environments</th>
<th><strong>Bottlenecks</strong> trying to deliver more frequent releases to meet market demands</th>
<th><strong>Complex and manual processes</strong> for release lack repeatability and speed</th>
<th><strong>Costly, inefficient releases</strong> take days, 100 people and are managed by a spreadsheet</th>
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1. **Failures** due to inconsistent **dev** and **production** environments
2. **Bottlenecks** trying to deliver more frequent releases to meet market demands
3. **Complex and manual processes** for release lack repeatability and speed
4. **Costly, inefficient releases** take days, 100 people and are managed by a spreadsheet

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**Daily Build**

- Dev
- Prod

**Release**

Who did this last time?

Dave...

Dave’s not here man...

I’ll order breakfast
UrbanCode, an IBM Company

- 11 Years Build, Release and Deployment Experience
- Global Customers
- Enterprise scalability, security, compliance and automation
- Training, consulting and implementation services
- Based in Cleveland, OH

“One key benefit of UrbanCode is how quickly it can be implemented and used for deployments.”

Gartner

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Continuous Delivery for the Mainframe and Others

Capabilities to speed delivery of interdependent, multi-platform applications

- Provides a **unified solution** for continuous delivery of heterogeneous enterprise applications
- **Accelerate delivery** and reduces cycle time to develop/test multi-tier applications across heterogeneous environments and platforms
- **Reduce costs** and eliminate delays for delivering mainframe applications
- **Minimize risk** and improve productivity across disparate teams with cross-platform release planning

IBM UrbanCode Deploy

- Download build output from artifact repository on z/OS
- Deploy to z/OS or RD&T to test application changes

Mainframe SCM / CI

- Rational Team Concert
- CA Endevor
- Serena Changeman

Any Build Tool

- Windows
- Linux
- z/OS
- IBM BlueMix
- Rational Developer for System Z
- ISPF (Green Screen)

IBM BlueMix

Windows Linux

z/OS
z/OS Deploy Capabilities

- SCM agnostic artifact packaging
- Deploy Partitioned Data Set (PDS)
- Incremental deployment and rollback of versions
- Artifact repository in z/OS
- zLinux
- WAS z/OS

z/OS Plug-in steps

- Submit JCL job, Submit job based on template, Check job status
- Execute REXX
- Run TSO/ISPF Command
- FTP, Create PDS, Copy PDS, Replace Token MVS ...

- CICS TS
- IMS
- DB2
- MQ (Plan)
z/OS Plug-ins

Step Palette

- Utilities
  - FileUtils
  - zOS Utility
    - Allocate Data Set
    - Allocate Data Set From Existing
    - Allocate SMS Managed Data Set
  - Copy Artifacts
  - Copy Data Set
  - Deploy Data Sets
  - FTP Artifacts
  - Remove All Versions
  - Remove Redundant Versions
  - Rollback Data Sets
  - Run TSO or ISPF Command

- Submit Job

Edit Properties

- Name: Submit Job
- JCL Dataset
- JCL File
- JCL
- Replace Tokens
  - Wait For Job: checked
  - Timeout: 50
  - Show Output: ALL
  - Max Lines: 1000
  - Max Return Code: 4
  - Working Directory
  - Post Processing Script: Step Default
  - Precondition
  - Use Impersonation: unchecked
  - Show Hidden Properties: unchecked

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CICS Plug-in

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In Orlando 2019
z/OS Plug-ins
A sample CICS/DB2 process

Copy / FTP the version artifacts for deploy
Deploy data sets

Run CICS Program NEWCOPY

DB2 BIND

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High Level Overview of Deployment Capabilities

Build System

Post build script

z/OS LPAR, Build system

Fetch artifacts via copy or FTP

Store version artifacts

Review PDS in version and request deploy process

Create new version

Store meta data

z/OS CodeStation in HFS

UrbanCode Deploy

Urban Code Toolkit

z/OS LPAR

Agent

Download artifacts

TSO, REXX, SHELL, JCL

Deploy data sets

TSO, REXX, SHELL, JCL

Server

Update Inventory status

Note: LPARs can be the same or different LPARs
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Scenario: Application change is required

z/OS Application Bug

The Only valid length of loan must be 10, 20, 30 or 40 years.

Currently the length could be between 1 and 40 years.

A message should reflect this new enhancement

- Existing COBOL/CICS/BMS application

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Scenario: Application change is required

**z/OS COBOL program Bug**

The Only valid length of loan **must be 10, 20 30 or 40 years.**
Currently the length could be **between 1 and 40 years.**

**Fixes:**
- z/OS: A message should reflect this new enhancement
- Mobile: A drop down should allow only 10, 20, 30, 40
UC Deploy – Demo architecture

**z/OS (RDT)**
- **UrbanCode Deploy Server**
- **RTC Server**
- **RTC Server Repository**
- **Linux**
- **Application Server**
- **PDS (loadlibs, etc)**

**RTC Build Agents**
- **z/OS Deploy Toolkit**

**VMWARE (windows)**
- **RDz Client**
- **RTC Client**
- **Console**
  - .wlapp adapter
- **Application Center**
- **Binary (IPA/APK)**

**Client**
- **WL SERVER under Liberty**
z/OS Developer:
Change existing code and deploy DEV environment

1. Use RTC to load the COBOL source code to RDz

2. Use RDz to make the COBOL changes on JKEMPMT and JKENBRVL.

3. Use RTC to perform a build that creates the z/OS loadlib members and push to UrbanCode Deploy on Windows
z/OS Developer:
Change existing code and deploy DEV environment

1. Use **RTC** to load the COBOL source code to **RDz**

2. Use **RDz** to make the COBOL changes on **JKEMPMT** and **JKENBRVL**.

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z/OS Developer:
Change existing code and deploy DEV environment

1. Use RTC to load the COBOL source code to RDz

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**Worklight Developer:**

*Change existing code and deploy DEV environment*

1. **Use RTC to load the Worklight source code to Worklight Studio**

2. **Use Worklight Studio to make the Worklight changes on HTML and JavaScript.**

3. **Use RTC to perform a Windows build that push to UrbanCode Deploy on Windows**
Worklight Developer:  
Change existing code and deploy DEV environment

1. Use RTC to load the Worklight source code to Worklight Studio

2. Use Worklight Studio to make the Worklight changes on HTML and JavaScript.

3. Use RTC to perform a Windows build that push to UrbanCode Deploy on Windows
Worklight Developer:
Change existing code and deploy DEV environment

Use RTC to load the Worklight source code to Worklight Studio

1. Use Worklight Studio to make the Worklight changes on HTML and JavaScript

2. Use RTC to perform a Windows build that push to UrbanCode Deploy on Windows
Release Engineer:

Deploy z/OS (CICS) and Windows (Worklight Server) components to the DEV environment

1. Go to UrbanCode Deploy Server and run the deploy at DEV level

2. Verify that the change has been made on CICS and Worklight Server
Release Engineer:

Deploy z/OS (CICS) and Windows (Worklight Server) components to the DEV environment

1. Go to UrbanCode Deploy Server and run the deploy at DEV level

2. Verify that the change has been made on CICS and Worklight Server
IBM UrbanCode Deploy Business Advantages

- Automated software release and deployment reduces errors
- Push-button deployments improves productivity for developer and operations
- Built-in best practices provides for faster time-to-market
- Enforced Security and traceability ensures compliance and auditability
Rapid solution delivery and test provisioning

Deliver test environments in minutes

IBM UrbanCode Deploy
IBM UrbanCode Release
IBM SmartCloud Orchestrator

Enabling you to...

- Provision consistent images for test environments, reduce rework, and speed redeploy of application changes
- Quickly deploy multiple test instances in minutes versus hours or days
- Support mainframes using zLinux and z/OS applications
- Orchestrate and automate the deployment and management of applications, middleware configuration, and databases, including Bluemix

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THANK YOU

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