Getting to the DevOps Promised Land with Continuous Release and Deployment Across Mainframe Environments

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SHARE is an independent volunteer-run information technology association that provides education, professional networking and industry influence.
Software delivery is at the heart of today’s top technology trends

**Big Data**
Insights on new products by more efficiently interpreting massive quantities of data

**Cloud**
Demand for apps requires fast, scalable environments for dev and test, as well as production

**Social Business**
Broader set of stakeholders collaborates to deliver continuous innovation and value

**Instrumented Products**
Industry requirements demand faster response to regulations and standards, with traceability and quality

**Mobile**
Modern workforce expects constantly updated software to connect to enterprise systems

**Intelligent/Connected Systems**
Software component in smart products driving increased value and differentiation

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Demands on IT have increased dramatically

Optimization

Innovation drives
need for continuous
IT optimization

Next Generation
of Hybrid
Architectures

Innovation

New economics of IT
fuels investments in
innovation

“Don’t be afraid to make mistakes, just be afraid of
not learning from them.” – Thomas Edison

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Lifecycle Integration for DevOps

**People**
- Culture
- Collaboration
- Communication

**Process**
- Management
- Accountability
- Integration

**Technology**
- Automation
- Integration
- Visibility

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The need: Integrate systems of engagement with systems of record

By bringing together the culture, processes, and tools across the entire software delivery lifecycle – spanning mobile to mainframe platforms

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Customer’s Release and Deploy challenges impact their entire business

<table>
<thead>
<tr>
<th>CHALLENGES</th>
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<tr>
<td><strong>Costly, error prone</strong> manual processes and efforts to deliver software</td>
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<td>across an enterprise</td>
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<td><strong>Slow</strong> deployment to development and test environments leave teams</td>
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<tr>
<td>waiting and unproductive</td>
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<td><strong>Upgrade risk</strong> due to managing multiple application configurations and</td>
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<td>versions across servers</td>
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<table>
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<tr>
<th>Customers</th>
<th>Business Owners</th>
<th>Development/ Test</th>
<th>Operations/ Production</th>
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- Knight Capital lost **$440 million in 45 minutes** due to a misconfigured release.
- New Zealand’s biggest phone company, Telecom paid out **$2.7 million** to some **47,000 customers who were overcharged** after a software glitch.
- A bad software upgrade at a Canadian Bank left **millions unable to access money for 4 days**.

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IBM DevOps Solution: The Big Picture
IBM UrbanCode products provide Continuous Release and Deployment capabilities

Accelerate Software Delivery
Balance speed, cost, quality and risk
Reduce time to customer feedback

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UrbanCode for Release and Deployment automation

Enabling clients to more rapidly deliver mobile, cloud, big data and traditional applications with high quality and low risk

Drive down cost
Remove manual effort and wasted resource time with push button deployment processes

Speed time to market
Simple, graphical process designer, with built-in actions to quickly create deployment automation

Reduce risk
Robust configuration management, coordinated release processes, audits, and traceability

IBM UrbanCode Deploy automates the deployment of applications, databases and configurations into development, test and production environments, helping to drive down cost, speed time to market with reduced risk.

IBM UrbanCode Release is an intelligent collaboration release management solution that replaces error-prone manual spreadsheets and streamlines release activities for application and infrastructure changes.

https://www.ibmdw.net/urbancode/

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Multi-Platform Application Deployment Automation

*Visibility and automated control of your application deployment process*

- Manage application components and versions
- Manage configurations across all environments
- Offer secure ‘self-service’ capabilities
- Increase transparency
- Ensure governance and compliancy

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Intuitive and Scalable Model Driven Deployment

Composite Applications

Re-usable Workflows

Environment Management

SIT

PROD

The “Where”

The “What”

Components

The “How”

Deployment Automation

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IBM UrbanCode Deploy

Application deployment automation

- Manage application components and versions
- Manage environment configuration from dev/test through production
  - Ensure compliance
    - Audit history
    - Quality gates
  - Easy to use process designer
    - Automate and reuse deployment processes
  - Automates deployment to existing and new resources
  - Environment Inventory
    - What is deployed where?

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IBM Urban Code Deploy Key Concepts

- IBM UrbanCode Deploy Server
  - Rest-based services for Web UI and CLI client
  - Manage Application, Component, Process, Resource, Security, Environment etc.
  - Workflow engine for Application and Component process
- Component: deployable artifacts with versions
- Application
  - Components need to be deployed together (Snapshot)
  - Environments which components will be deployed on
- Process: series of steps operate on artifacts
- Agent/Resource: Lightweight process runs on target host
Key Features

- Intuitive Deployment Model
- Environment Configuration Management
- Rich Drag-and-Drop Workflow Designer
- Distributed Deployment Automation
- Deployment Inventory
Extend support to back-end Systems of Record

- **Push button deployments** to the mainframe
- **Secure and reliable** deployment and promotion of incremental native file system changes across environments
- **Greater visibility** of “what is where” with the ability rollback to any prior version at ease

**NEW in v6.1!**

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High Level Overview of Deployment Capabilities

Build System

**Post build script**

Fetch artifacts via copy or FTP

**Store version artifacts**

Create new version

**Store meta data**

**UrbanCode Deploy**

z/OS LPAR, Build system

z/OS CodeStation In HFS

**Pre-processing steps TSO, REXX, SHELL**

**Deploy data sets**

**Update Inventory status**

**Download artifacts**

**Review PDS in version and request deploy process**

**UrbanCode Deploy**

Server

**UrbanCode Deploy**

Agent

**PDS**

**Note: LPARs can be the same or different LPARs**

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**Continuous Delivery for Enterprise Systems**

*Detailed Overview and Roadmap*

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**Supported Today**

- Agent platform support - zLinux and z/OS
- Ability to interact with USS file system and deploy Java applications

**Available in 2Q**

- SCM agnostic artifact packaging capability for PDS members
- Artifact repository support directly on z/OS
- Incremental deployment and rollback of versions – native file system support
- Support deployment of load modules to target partitioned data set (PDS) on z/OS
- OOTB plugin to enable copy of load modules between two PDS
- OOTB plugin to execute TSO/ISPF commands on PDS (and members)
- Application deployment and configuration support for Websphere Application Server on z/OS

**Future Roadmap**

- Support to run JCL
- OOTB integrations for key z/OS Middleware (CICS, DB2, IMS)
- Improved usability enhancements to base capabilities
- SMP/E installable
- UCD agent platform support – IBM i
- Ability to interact with file system, deploy Java apps and application components to WAS on IBM i

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**Key Differentiators**

- **Single solution** to automate and orchestrate consistent, reliable multi-platform application deployments
- **Better inventory tracking capabilities** than existing mainframe SCM tools enabling rollback to any prior version
- Optimize across the entire enterprise and remove dependency on rigid, heavily structured processes
- **Streamline enterprise level release planning** across all teams leveraging UrbanCode Release
- Tightly integrated with Rational Test Virtualization Server to **virtualize back-end services** as part of application testing and reduce MIPS usage on enterprise systems
- **Easy to add additional testing LPARS** with Rational Development and Test Environments for System z

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UrbanCode Release

Transform chaotic release planning into streamlined release events

**Planning**

*Prepare Releases for Development*

- Schedule releases
- Release content impacting multiple applications
- Project and release kickoff
- Include: Dev, Vendors, COTs & infrastructure

**Tracking**

*Focus release effort appropriately for successful delivery*

- Development & test efforts are on-track
- Dependencies & impacts of changes are accounted for
- Risks monitored and mitigated
- Release-day planning

**Governance**

*Rapidly move changes through pipeline w/o destabilizing envs*

- Deployments controlled via quality gates & approvals
- Detailed deployment plans
- Audit trail

**Automation**

*Guarantee deploys are identical across envs & reproducible*

- Push-button, standard processes
- All deployment artifacts versioned
- Inventory of artifacts deployed to each environment

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Risk Management – Impact Analysis

- Track your changes and dependencies in the context of a release
- Detect what application is at risk
- Integrate with Rational Team Concert
Boost your Release Process with Auto Progression

- Recurring scheduled deployments
- Fully automated deployments
- Quality status enforced by the gates

Recruiring Rules

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Increased Visibility and Control - Pipeline View

- Keep track of the inventory across the entire life cycle of the release
- Control the entire release lifecycle in an easy to use view

Pets Online 1.1.x  View this release  Default Lifecycle  View this lifecycle

Phases
- Environments
  - Upcoming
  - Latest

Applications
- Release Version
  - JPetStore
  - Pet Breeder Site
  - Pet Grooming Reservations
  - Pet Sourcing
  - Pet Transport

Latest Phase:
- JPetStore: 1.1
- Pet Breeder Site: 2.0.1
- Pet Grooming Reservations: 2.0.1
- Pet Sourcing: 2.0.1
- Pet Transport: 2.0.1

DEV Phase:
- JPetStore: Baseline
- Pet Breeder Site: Baseline
- Pet Grooming Reservations: Baseline
- Pet Sourcing: Baseline
- Pet Transport: Baseline

CERT Phase:
- JPetStore: Baseline
- Pet Breeder Site: Baseline
- Pet Grooming Reservations: Baseline
- Pet Sourcing: Baseline
- Pet Transport: Baseline

QA Phase:
- JPetStore: Baseline
- Pet Breeder Site: Baseline
- Pet Grooming Reservations: Baseline
- Pet Sourcing: Baseline
- Pet Transport: Baseline

PT Phase:
- JPetStore: 1.0.2
- Pet Breeder Site: 1.0.2
- Pet Grooming Reservations: 1.0.2
- Pet Sourcing: 1.0.2
- Pet Transport: 1.0.2

PROD Phase:
- JPetStore: 1.0.1
- Pet Breeder Site: 1.0.1
- Pet Grooming Reservations: 1.0.1
- Pet Sourcing: 1.0.1
- Pet Transport: 1.0.1

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Summary

A balanced software delivery pipeline requires automated release and deploy capabilities supporting DevOps practices.
QUESTIONS

www.ibm.com/devops

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THANK YOU

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