

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



Rosalind Radcliffe

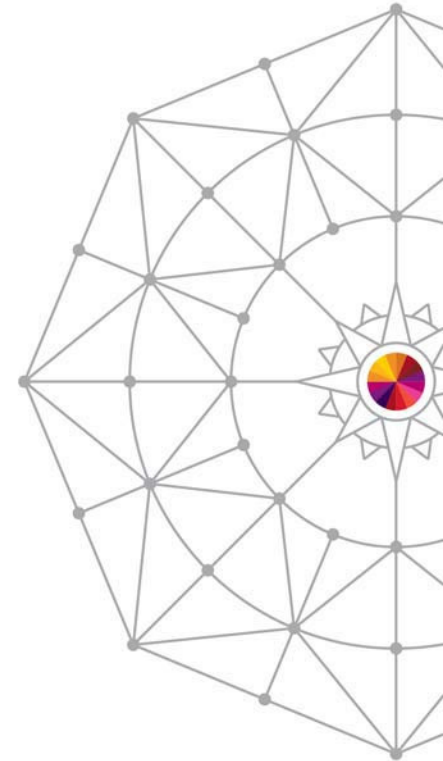
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# Software delivery is at the heart of today's top technology trends

## 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



# Demands on IT have increased dramatically

## Optimization



Next Generation  
of Hybrid  
Architectures

## Innovation



Innovation drives  
need for continuous  
IT **optimization**

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

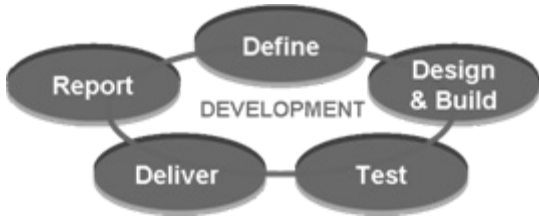
## People



Culture  
Collaboration  
Communication



## Process



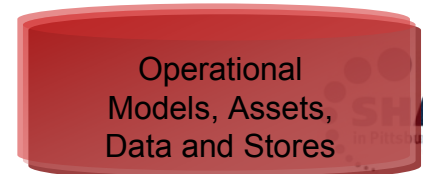
Management  
Accountability  
Integration



## Technology

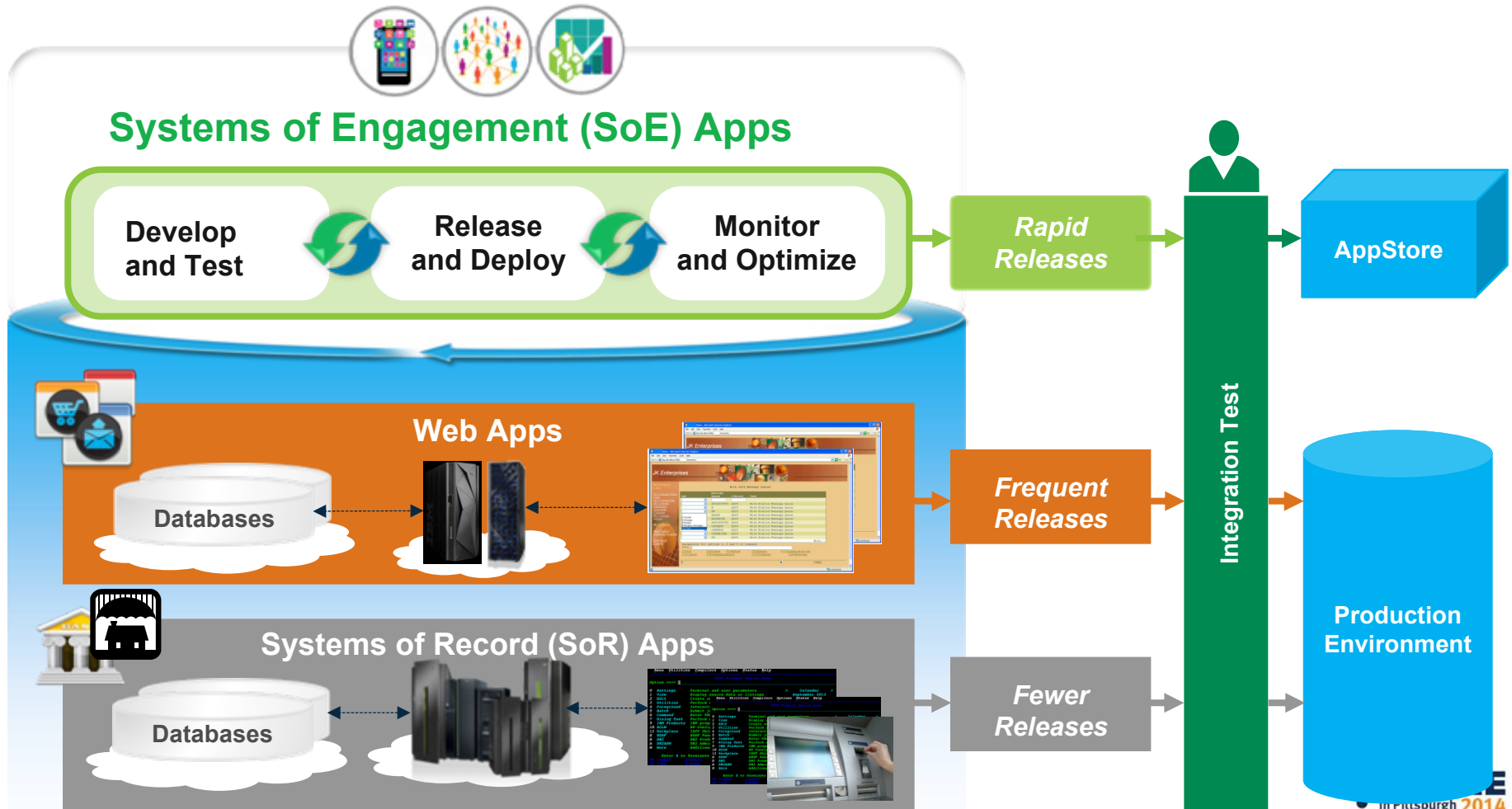


Automation  
Integration  
Visibility



# 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*



# Customer's Release and Deploy challenges impact their entire business

## CHALLENGES

**Costly, error prone** manual processes and efforts to deliver software across an enterprise

**Slow** deployment to development and test environments leave teams **waiting and unproductive**

**Upgrade risk** due to managing multiple application configurations and versions across servers

Customers



Business Owners



Development/  
Test



Operations/  
Production



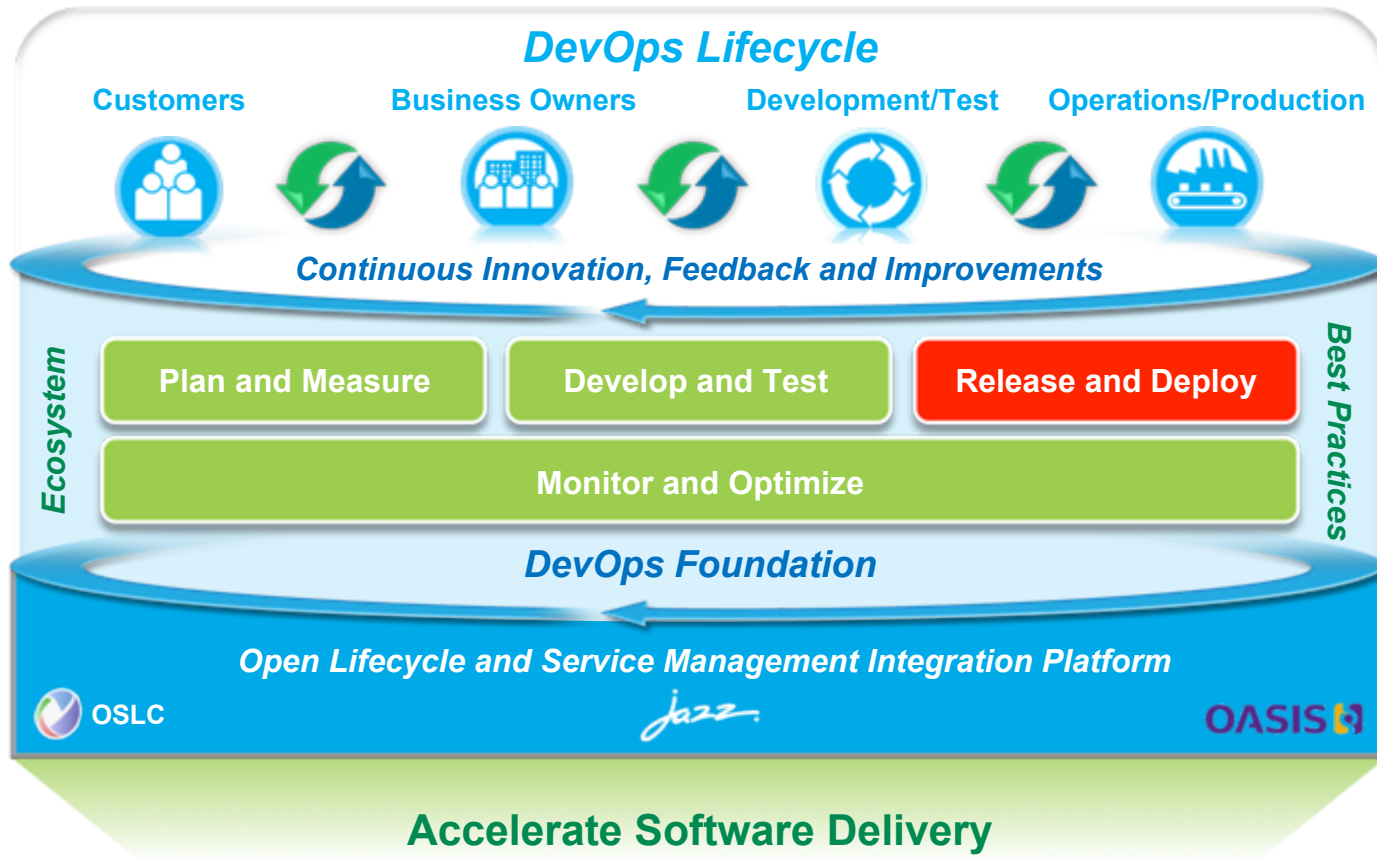
Knight Capital lost **\$440 million in 45 minutes** due to a misconfigured release

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**

# IBM DevOps Solution: The Big Picture

IBM UrbanCode products provide Continuous Release and Deployment capabilities

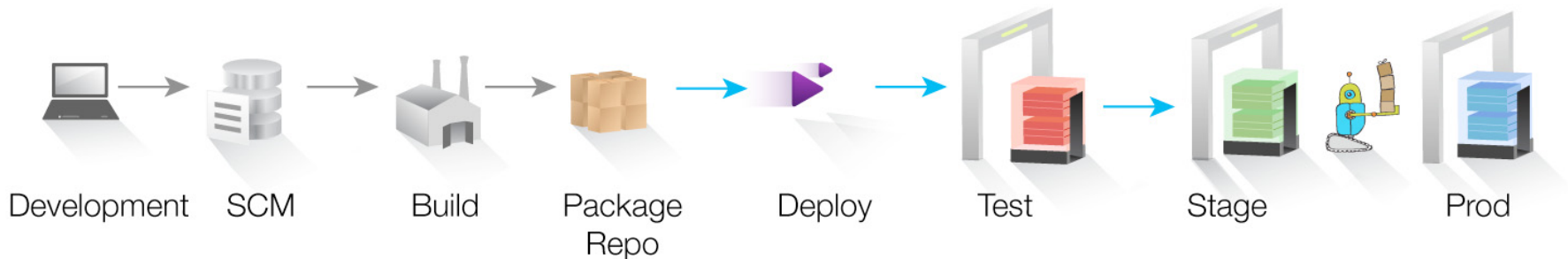


**Accelerate Software Delivery**  
**Balance speed, cost, quality and risk**  
**Reduce time to customer feedback**

# 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.

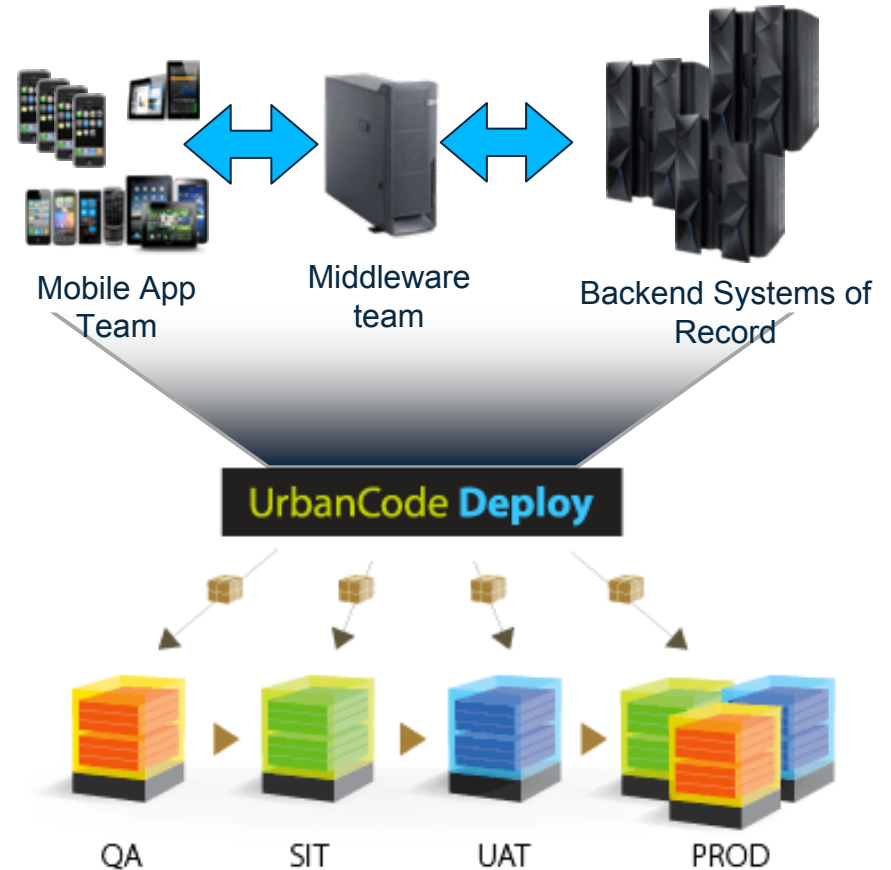
<https://www.ibmmdw.net/urbancode/>



# 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



# Intuitive and Scalable Model Driven Deployment

Composite Applications



The “What”

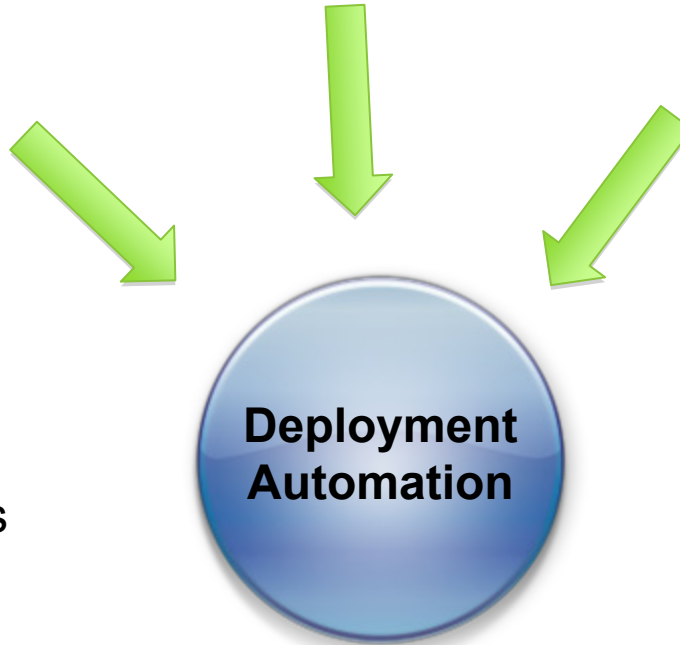


Components

Re-usable Workflows



The “How”



The “Where”

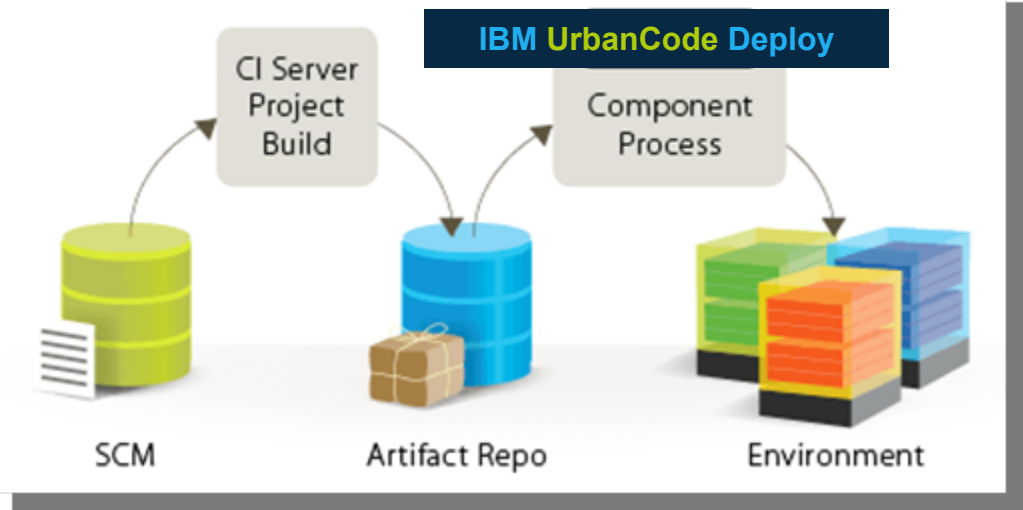
Environment Management



# 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?

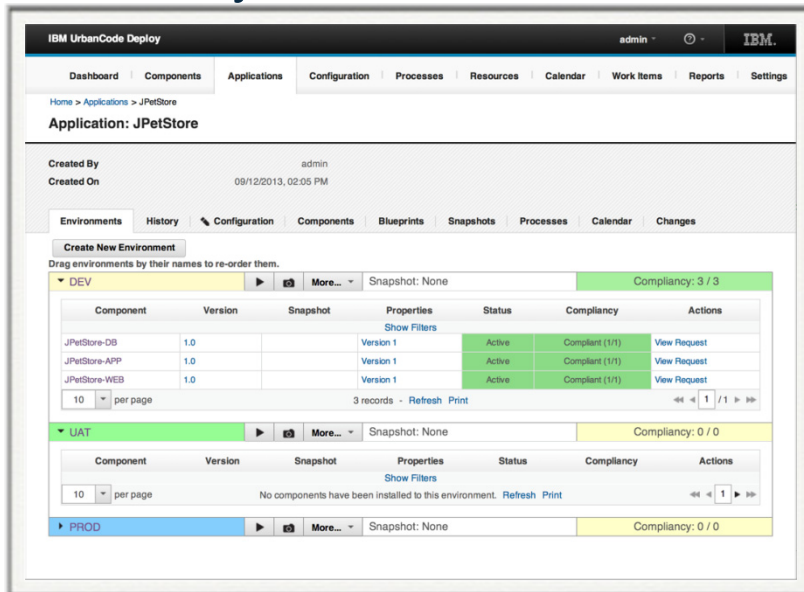


*Enterprise quality and scale*

# 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



Application: JPetStore

Created By: admin  
Created On: 09/12/2013, 02:05 PM

Environments: History Configuration Components Blueprints Snapshots Processes Calendar Changes

Create New Environment

Drag environments by their names to re-order them.

DEV Snapshot: None Compliance: 3 / 3

Component	Version	Snapshot	Properties	Status	Compliance	Actions
JPetStore-DB	1.0		Version 1	Active	Compliant (1/1)	View Request
JPetStore-APP	1.0		Version 1	Active	Compliant (1/1)	View Request
JPetStore-WEB	1.0		Version 1	Active	Compliant (1/1)	View Request

UAT Snapshot: None Compliance: 0 / 0

PROD Snapshot: None Compliance: 0 / 0

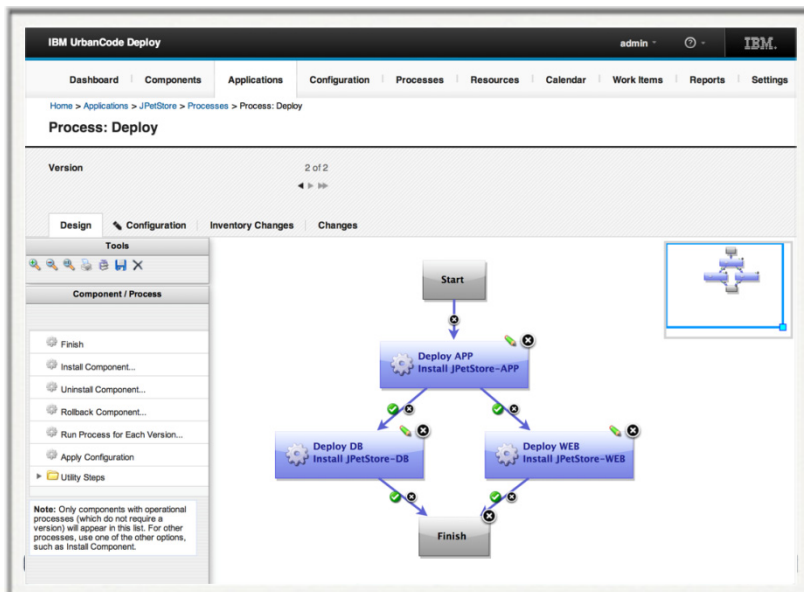
Intuitive Deployment Model

Environment Configuration Management

Rich Drag-and-Drop Workflow Designer

Distributed Deployment Automation

Deployment Inventory



Process: Deploy

Version: 2 of 2

Design Configuration Inventory Changes Changes

Tools

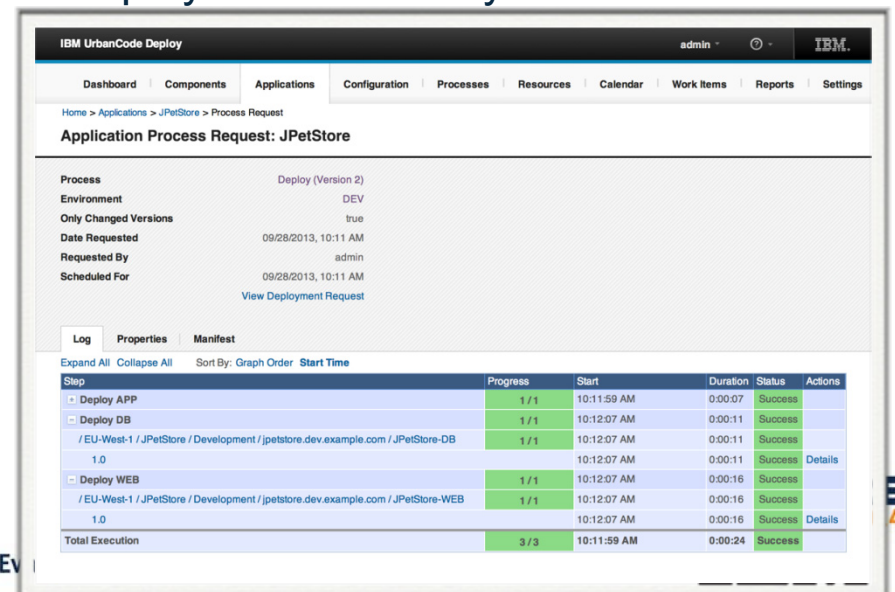
Component / Process

- Finish
- Install Component...
- Uninstall Component...
- Rollback Component...
- Run Process for Each Version...
- Apply Configuration
- Utility Steps

Note: Only components with operational processes (which do not require a version) will appear in this list. For other processes, use one of the other options, such as Install Component.

```

graph TD
    Start --> DeployAPP[Deploy APP  
Install JPetStore-APP]
    DeployAPP --> DeployDB[Deploy DB  
Install JPetStore-DB]
    DeployAPP --> DeployWEB[Deploy WEB  
Install JPetStore-WEB]
    DeployDB --> Finish
    DeployWEB --> Finish
  
```



Application Process Request: JPetStore

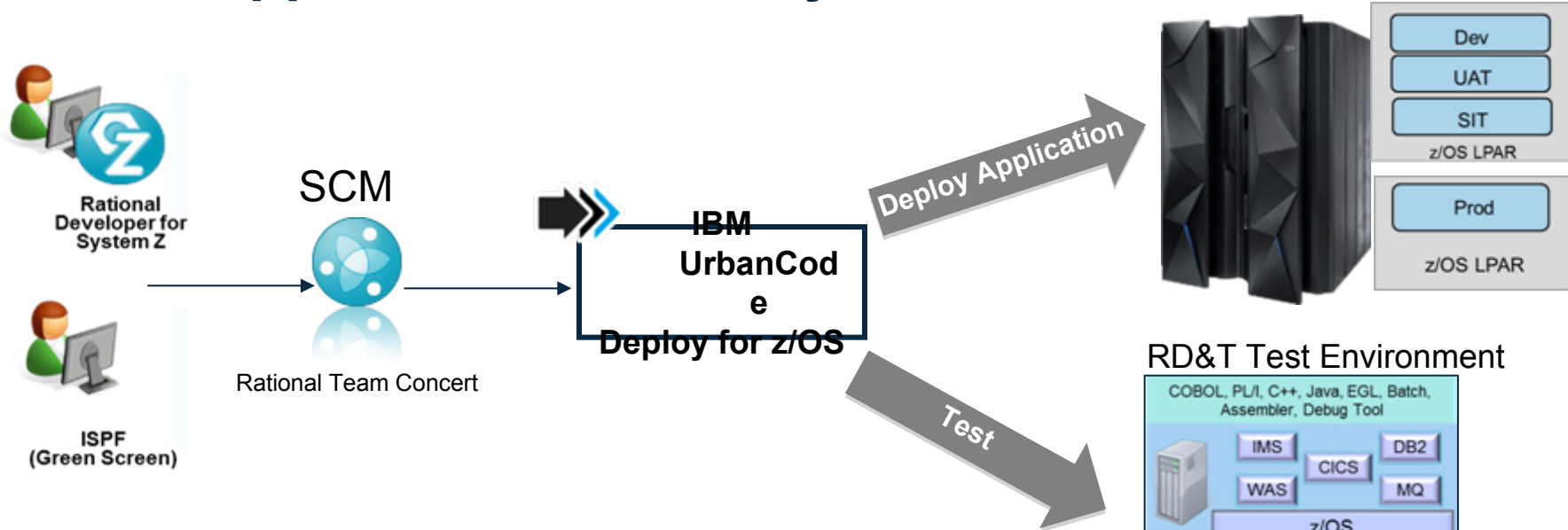
Process: Deploy (Version 2)  
Environment: DEV  
Only Changed Versions: true  
Date Requested: 09/28/2013, 10:11 AM  
Requested By: admin  
Scheduled For: 09/28/2013, 10:11 AM  
[View Deployment Request](#)

Log Properties Manifest

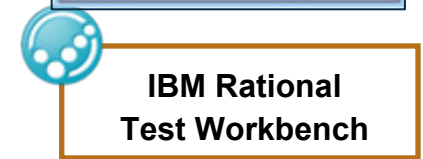
Expand All Collapse All Sort By: Graph Order Start Time

Step	Progress	Start	Duration	Status	Actions
Deploy APP	1 / 1	10:11:59 AM	0:00:07	Success	
Deploy DB	1 / 1	10:12:07 AM	0:00:11	Success	
/EU-West-1 / JPetStore / Development / jpetstore.dev.example.com / JPetStore-DB	1 / 1	10:12:07 AM	0:00:11	Success	
1.0		10:12:07 AM	0:00:11	Success	Details
Deploy WEB	1 / 1	10:12:07 AM	0:00:16	Success	
/EU-West-1 / JPetStore / Development / jpetstore.dev.example.com / JPetStore-WEB	1 / 1	10:12:07 AM	0:00:16	Success	
1.0		10:12:07 AM	0:00:16	Success	Details
Total Execution	3 / 3	10:11:59 AM	0:00:24	Success	

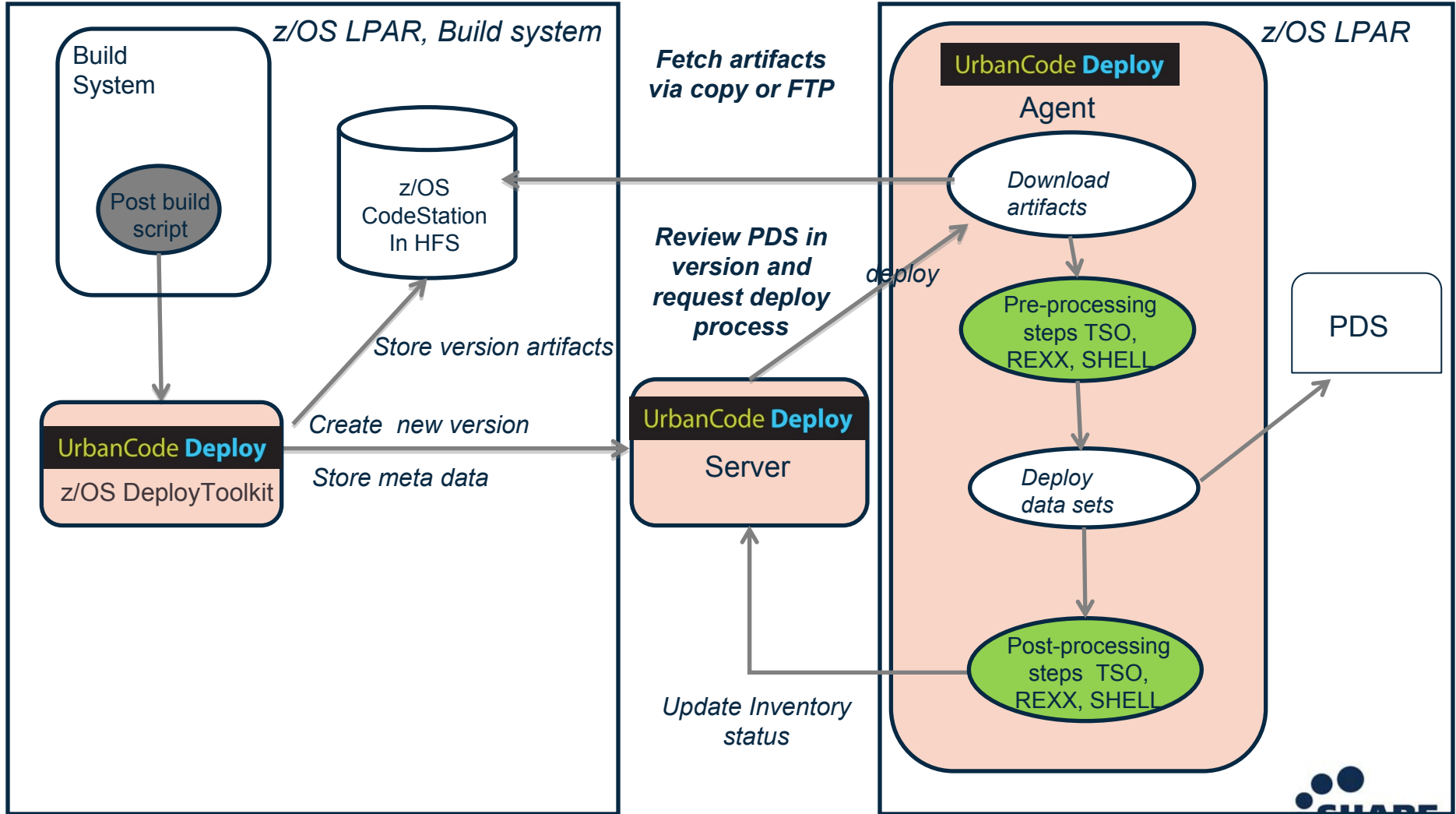
# Extend support to back-end Systems of Record



- **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



# High Level Overview of Deployment Capabilities



*Note: LPARs can be the same or different LPARs*  
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# Continuous Delivery for Enterprise Systems

## Detailed Overview and Roadmap

### 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

### 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

# 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

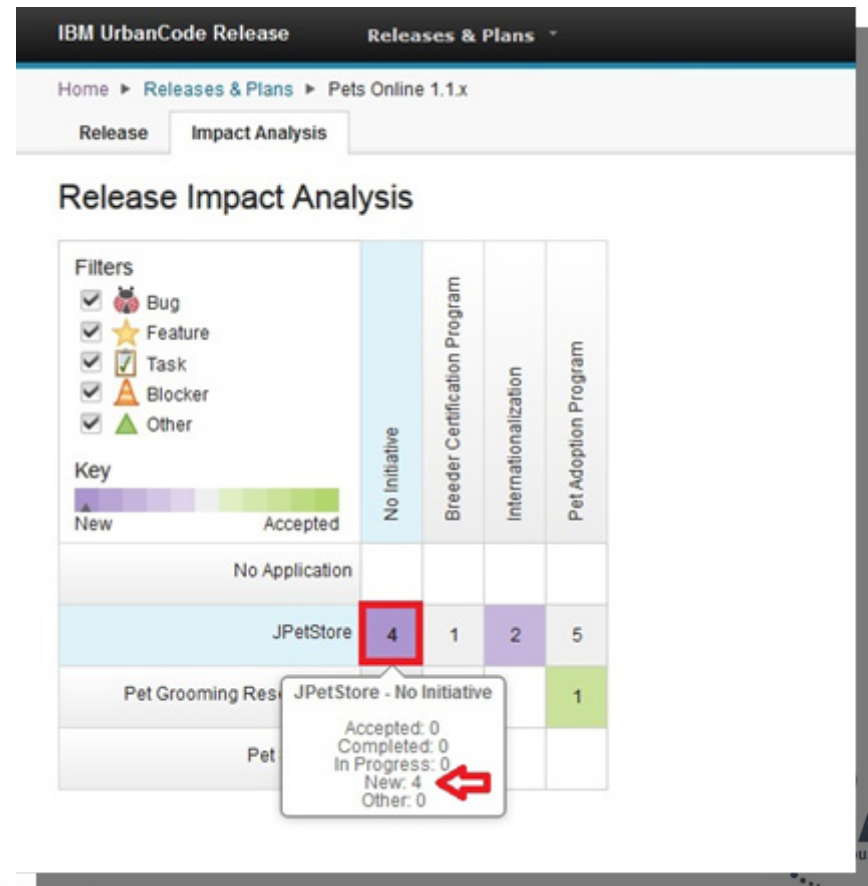


## Impacted Applications

Name
JPetStore
Pet Grooming Reservations
Pet Sourcing

## Scheduled in Releases

Name	Description	Lifecycle	Team
Pets Financials 1.1.x	March Release	Default Lifecycle	Core1 Release Team
Pets Online 1.1.x	March Release for Pets Online Retail	Default Lifecycle	Core1 Release Team



IBM UrbanCode Release Releases & Plans

Home > Releases & Plans > Pets Online 1.1.x

Release Impact Analysis

Filters:

- Bug
- Feature
- Task
- Blocker
- Other

Key:

New (purple) Accepted (green)

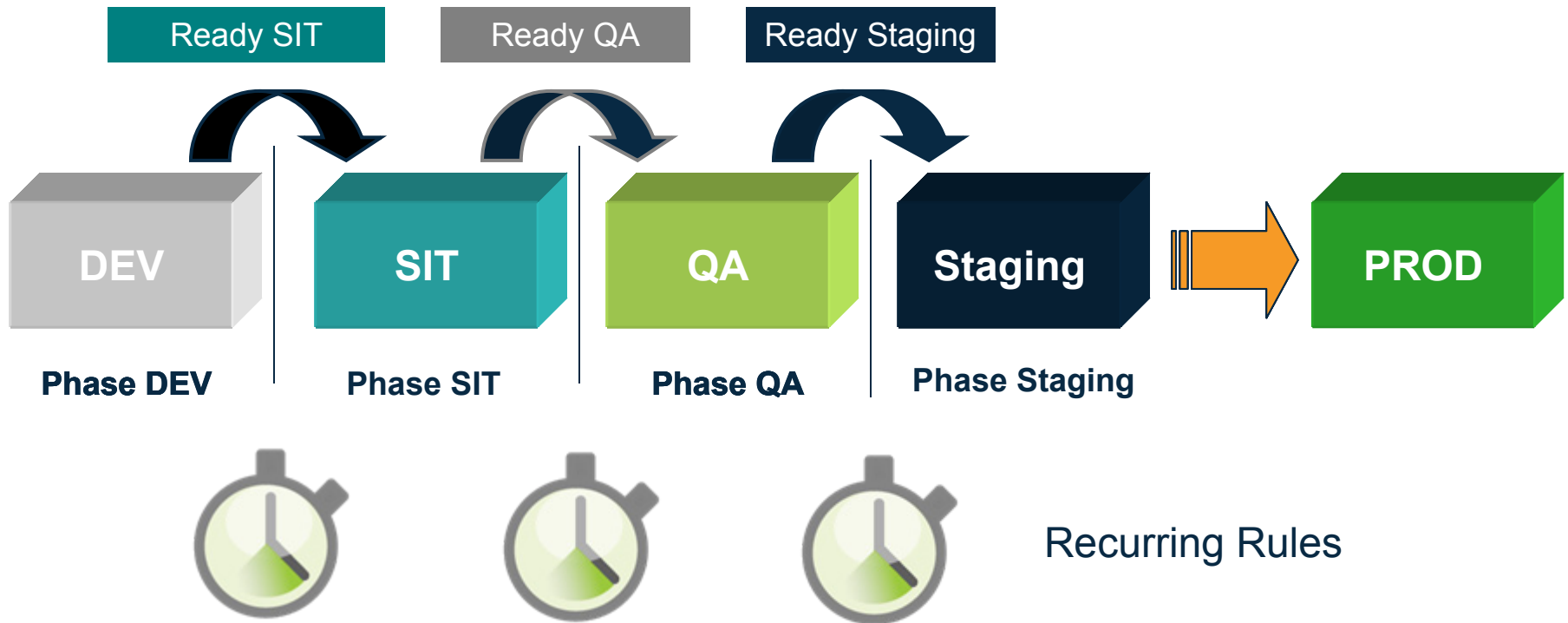
	No Initiative	Breeder Certification Program	Internationalization	Pet Adoption Program
No Application				
JPetStore	4	1	2	5
Pet Grooming Res				1
Pet				

JPetStore - No Initiative

Accepted: 0  
Completed: 0  
In Progress: 0  
New: 4  
Other: 0

# Boost your Release Process with Auto Progression

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

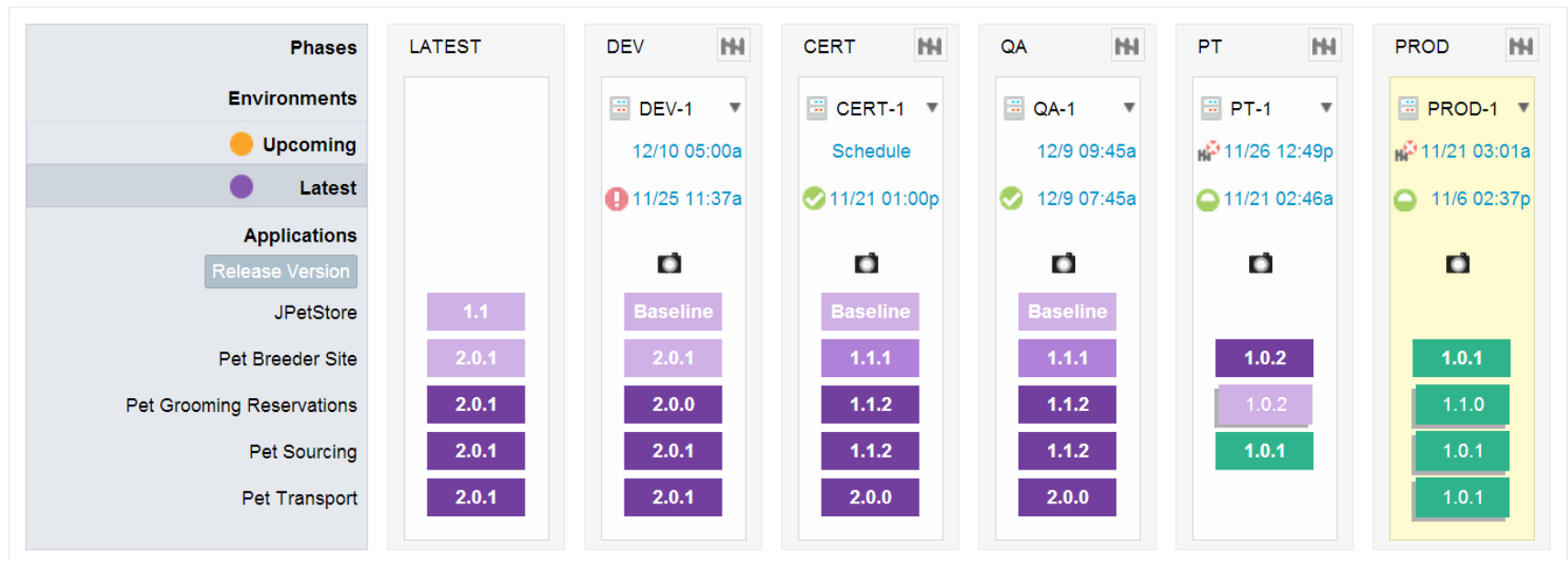


# Increased Visibility and Control - Pipeline View

- 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	LATEST	DEV	CERT	QA	PT	PROD
<b>Environments</b>		DEV-1	CERT-1	QA-1	PT-1	PROD-1
<b>Upcoming</b>		12/10 05:00a	Schedule	12/9 09:45a	11/26 12:49p	11/21 03:01a
<b>Latest</b>		11/25 11:37a	11/21 01:00p	12/9 07:45a	11/21 02:46a	11/6 02:37p
<b>Applications</b>						
<b>Release Version</b>						
JPetStore	1.1	Baseline	Baseline	Baseline		
Pet Breeder Site	2.0.1	2.0.1	1.1.1	1.1.1	1.0.2	1.0.1
Pet Grooming Reservations	2.0.1	2.0.0	1.1.2	1.1.2	1.0.2	1.1.0
Pet Sourcing	2.0.1	2.0.1	1.1.2	1.1.2	1.0.1	1.0.1
Pet Transport	2.0.1	2.0.1	2.0.0	2.0.0		1.0.1

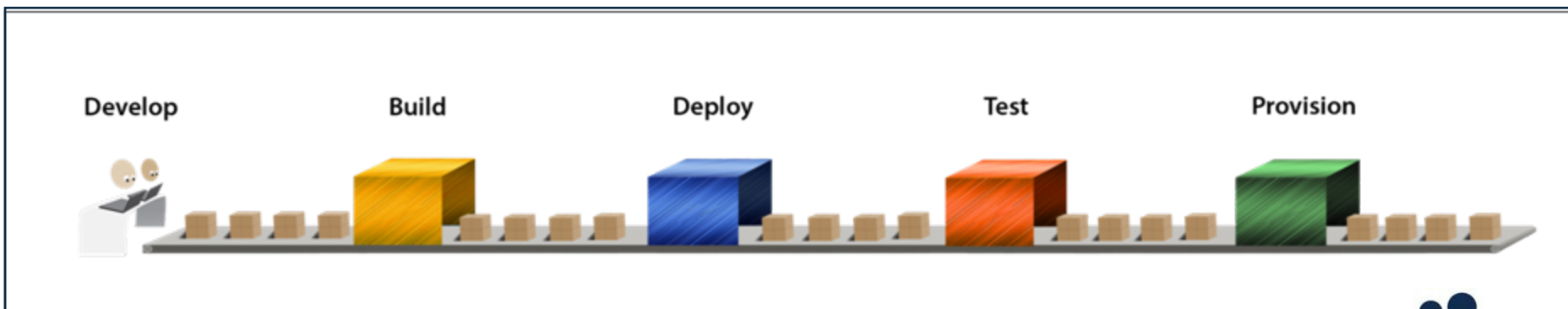
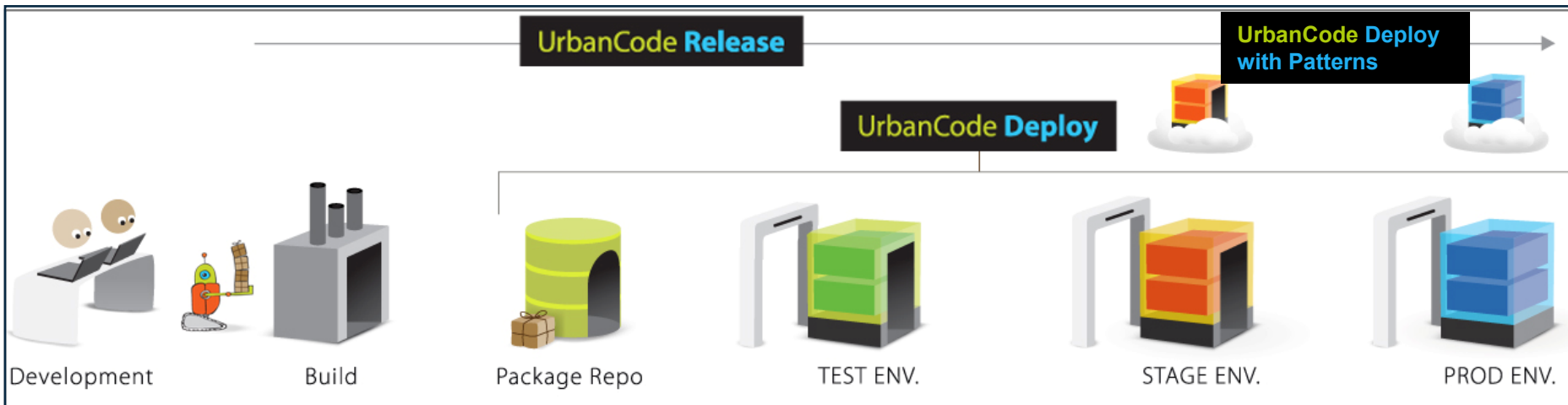
1 to 5 of 5 items, Page:1/1

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# Summary

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



# QUESTIONS

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