

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



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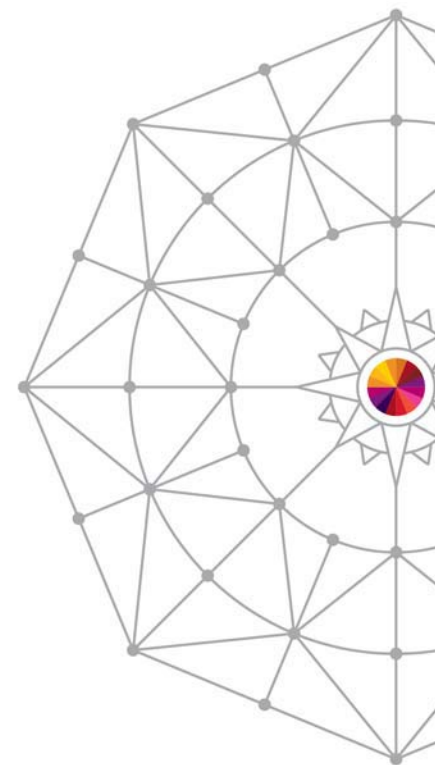
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# Software delivery is at the heart of today's top technology trends

## 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



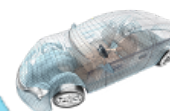
## Social Business

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



Software delivery



# 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

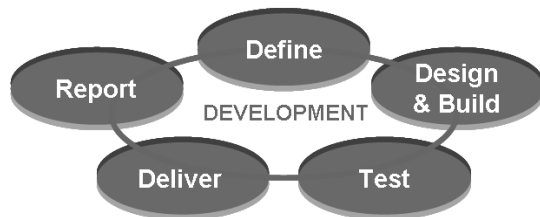
## People



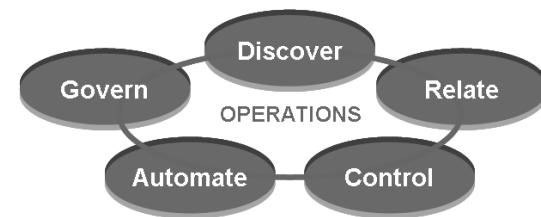
Culture  
Collaboration  
Communication



## Process



Management  
Accountability  
Integration



## Technology

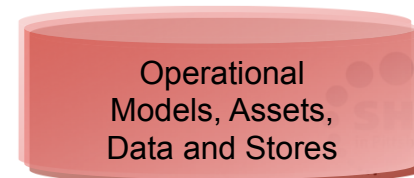


Dev  
Tools



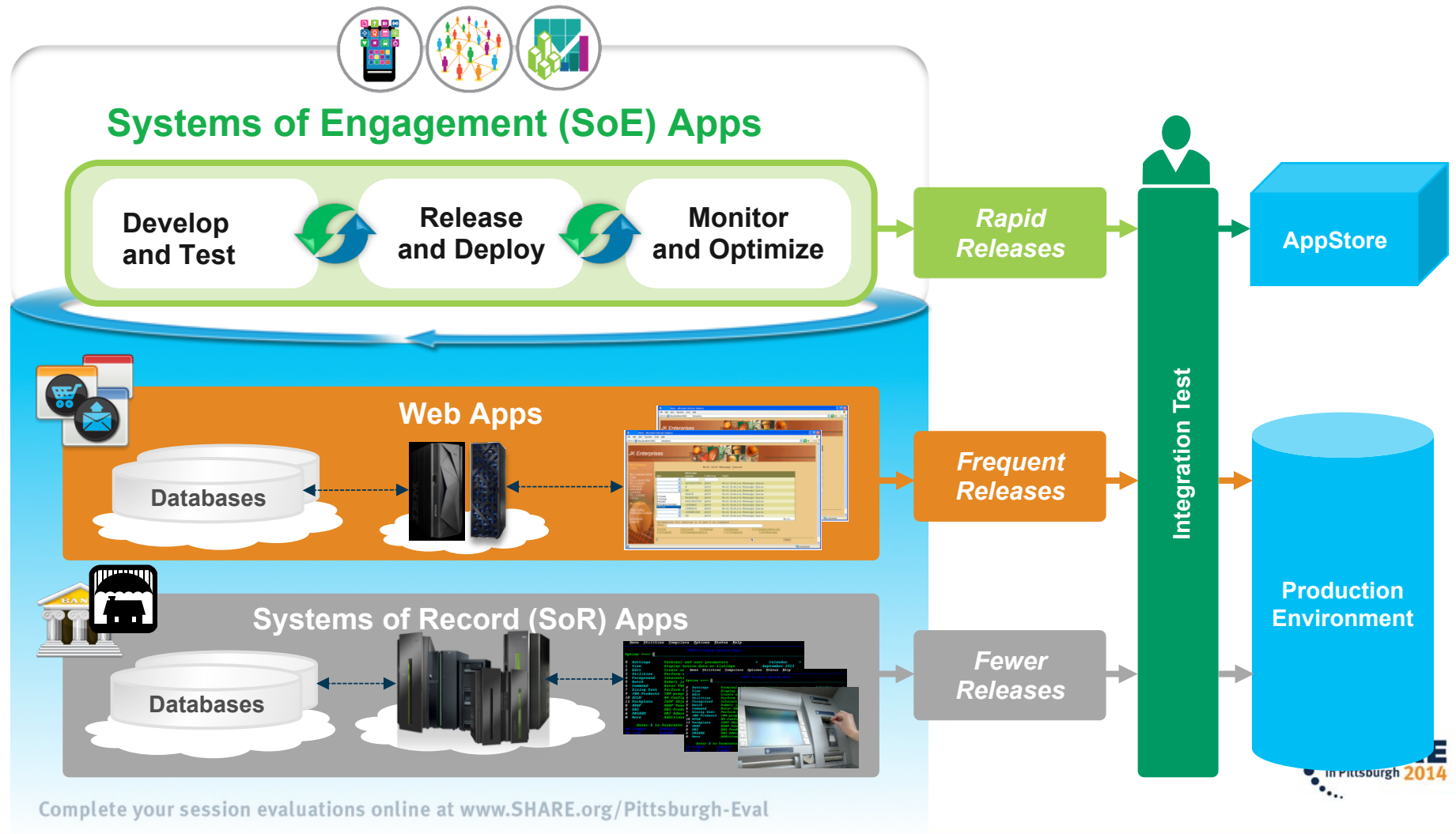
Automation  
Integration  
Visibility

Ops  
Tools



# 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



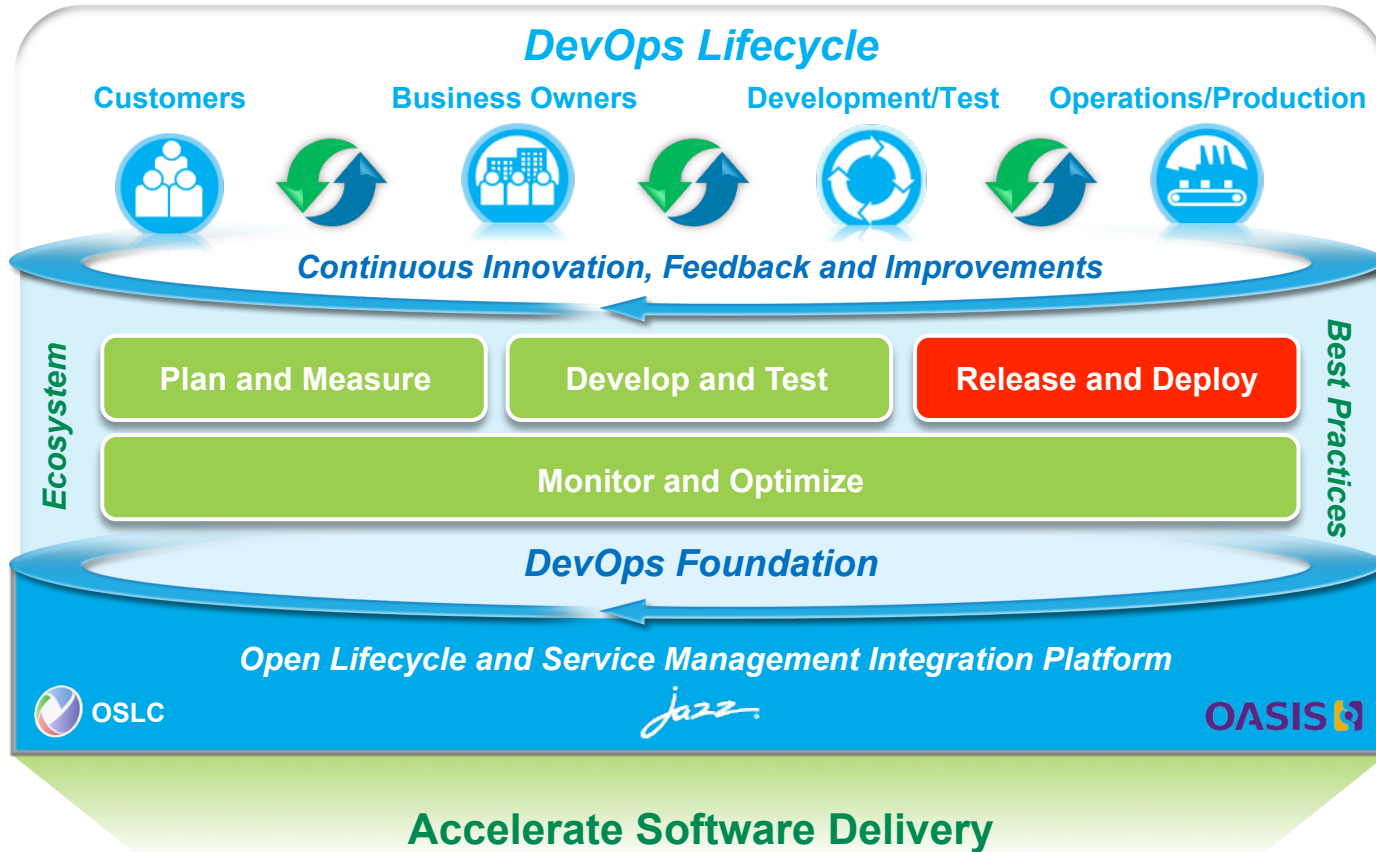
Knight Capital lost **\$440 million in 45 minutes** due to a misconfigured release

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

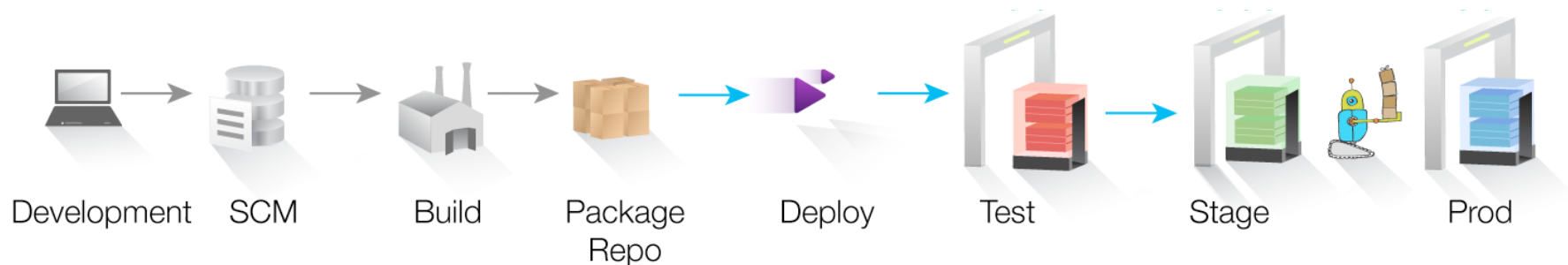


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# UrbanCode for *Release and Deployment* automation



*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.

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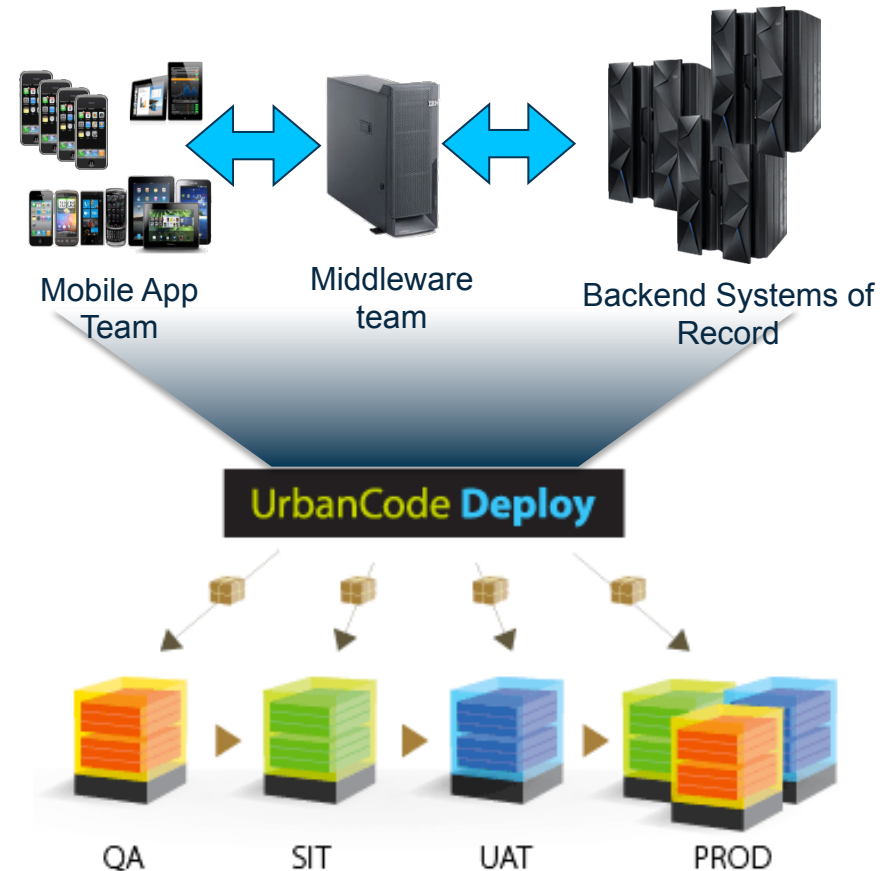




# Multi-Platform Application Deployment Automation

*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



# Intuitive and Scalable Model Driven Deployment



## The "Where"

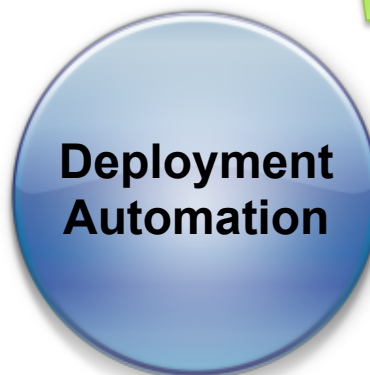
Environment Management



Re-usable Workflows



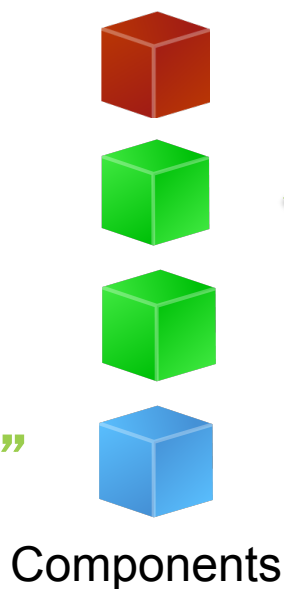
## The "How"



Composite Applications



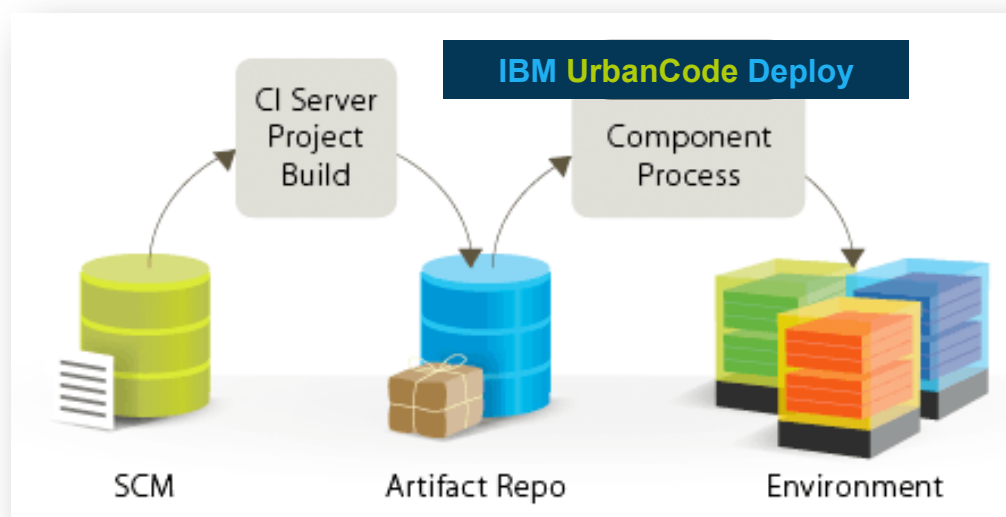
## The "What"



# 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?

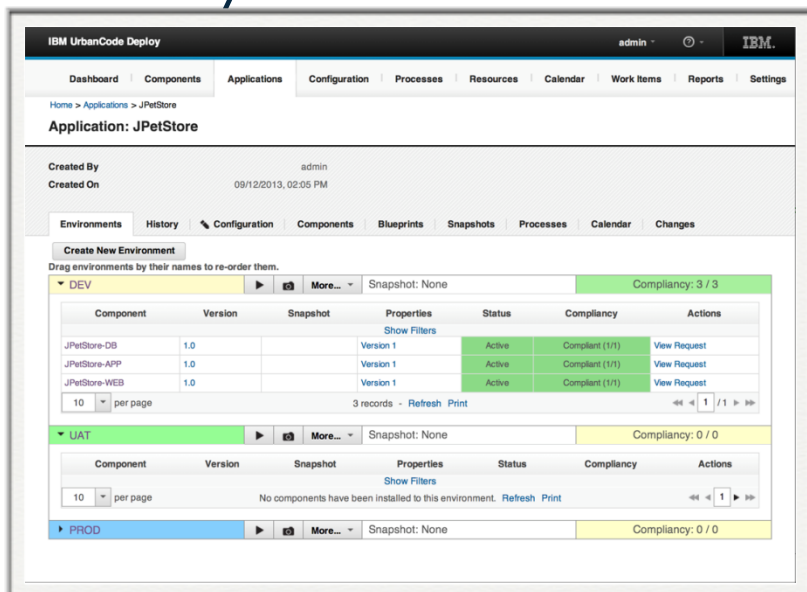


*Enterprise quality and scale*

## 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.

Environment	Snapshot	Compliance
DEV	Snapshot: None	Compliance: 3 / 3
UAT	Snapshot: None	Compliance: 0 / 0
PROD	Snapshot: None	Compliance: 0 / 0

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

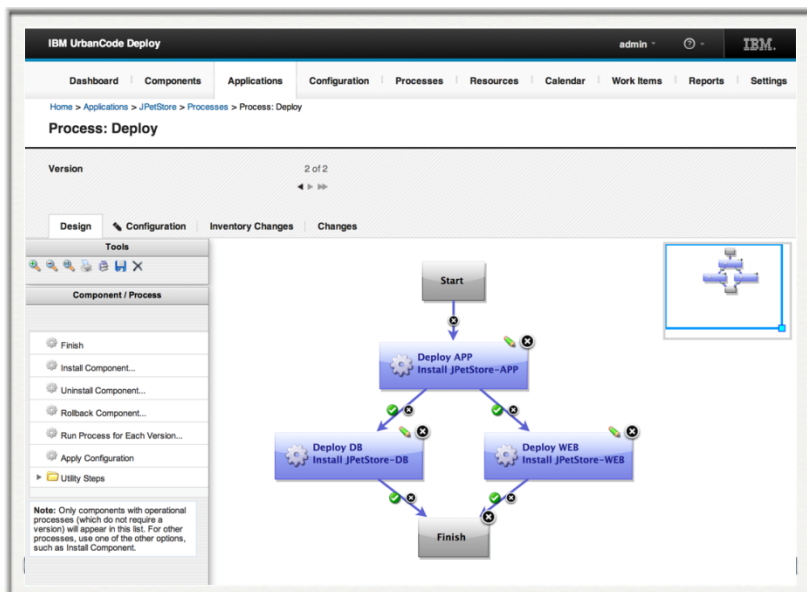
Intuitive Deployment Model

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

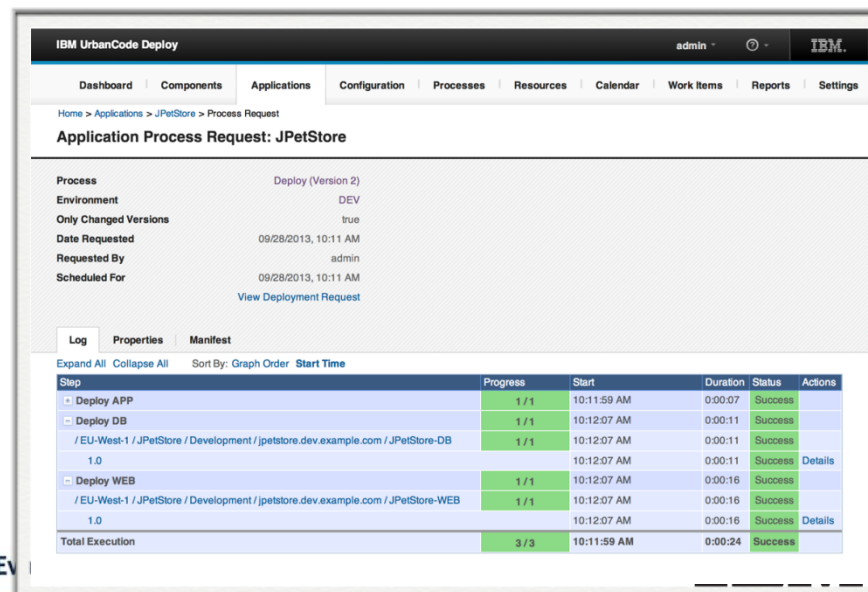
Component / Process

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

```

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
  
```

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.

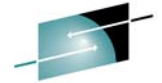


**Application Process Request: JPetStore**

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

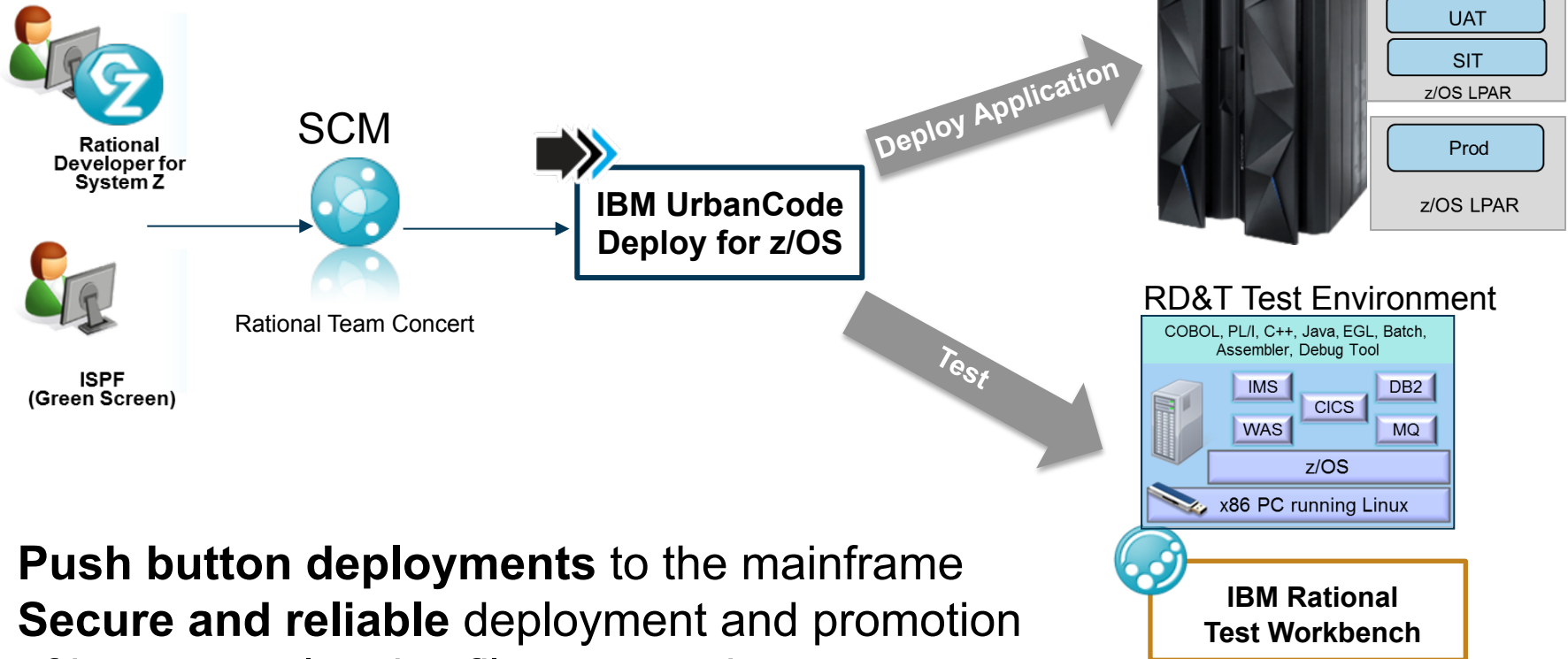
Log Properties Manifest

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
<b>Total Execution</b>	<b>3 / 3</b>	<b>10:11:59 AM</b>	<b>0:00:24</b>	<b>Success</b>	



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# Extend support to back-end Systems of Record

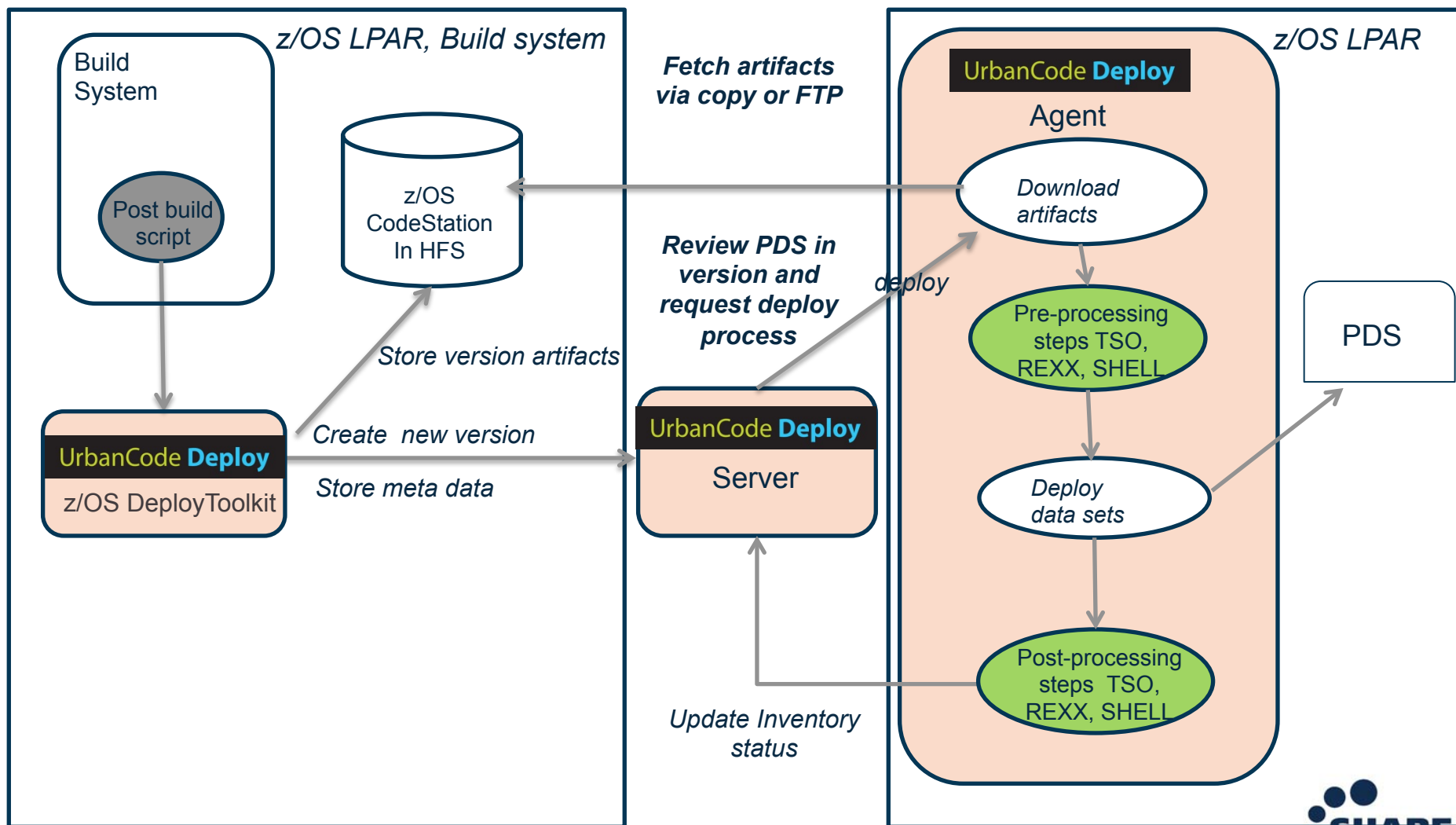


- **Push button deployments** to the mainframe
- **Secure and reliable** deployment and promotion of incremental native file system changes across environments
- **Greater visibility** of “what is where” with the ability rollback to any prior version at ease





# 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
<a href="#">Pets Financials 1.1.x</a>	March Release	Default Lifecycle	<a href="#">Core1 Release Team</a>
<a href="#">Pets Online 1.1.x</a>	March Release for Pets Online Retail	Default Lifecycle	<a href="#">Core1 Release Team</a>

IBM UrbanCode Release Releases & Plans ▾

Home ▶ Releases & Plans ▶ Pets Online 1.1.x

Release Impact Analysis

### Release Impact Analysis

**Filters**

- Bug
- Feature
- Task
- Blocker
- Other

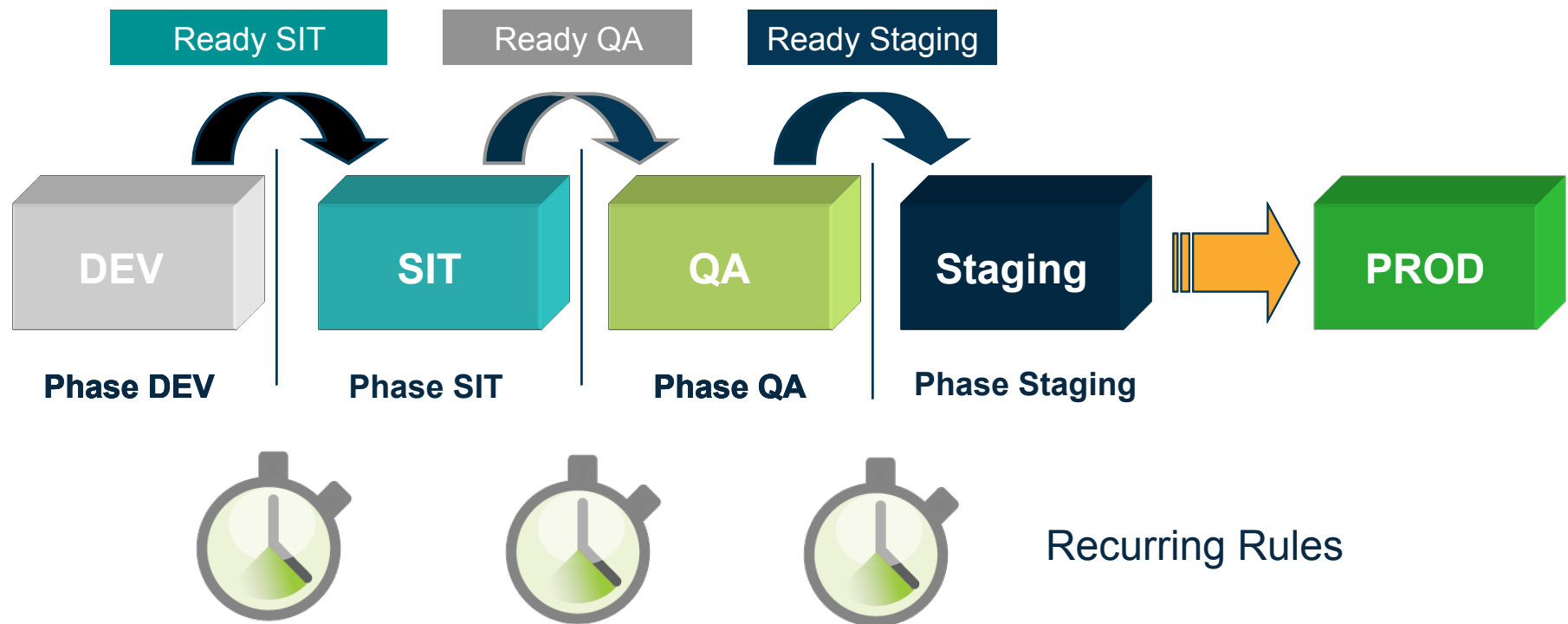
**Key**

No Application  
 No Initiative  
 Breeder Certification Program  
 Internationalization  
 Pet Adoption Program

	No Initiative	Breeder Certification Program	Internationalization	Pet Adoption Program
No Application				
JPetStore	4	1	2	5
Pet Grooming Res	JPetStore - No Initiative			1
Pet	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> <span style="color: orange;">●</span> Upcoming <span style="color: purple;">●</span> Latest		DEV-1	CERT-1	QA-1	PT-1	PROD-1
<b>Applications</b> Release Version JPetStore Pet Breeder Site Pet Grooming Reservations Pet Sourcing Pet Transport		12/10 05:00a <span style="color: red;">!</span> 11/25 11:37a	Schedule <span style="color: green;">✓</span> 11/21 01:00p	12/9 09:45a <span style="color: green;">✓</span> 12/9 07:45a	11/26 12:49p <span style="color: green;">✓</span> 11/21 02:46a	11/21 03:01a <span style="color: green;">✓</span> 11/6 02:37p
	1.1	Baseline	Baseline	Baseline	1.0.2	1.0.1
	2.0.1	2.0.1	1.1.1	1.1.1	1.0.2	1.1.0
	2.0.1	2.0.0	1.1.2	1.1.2	1.0.1	1.0.1
	2.0.1	2.0.1	1.1.2	2.0.0		1.0.1
	2.0.1	2.0.1	2.0.0			

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◀ 1 ▶

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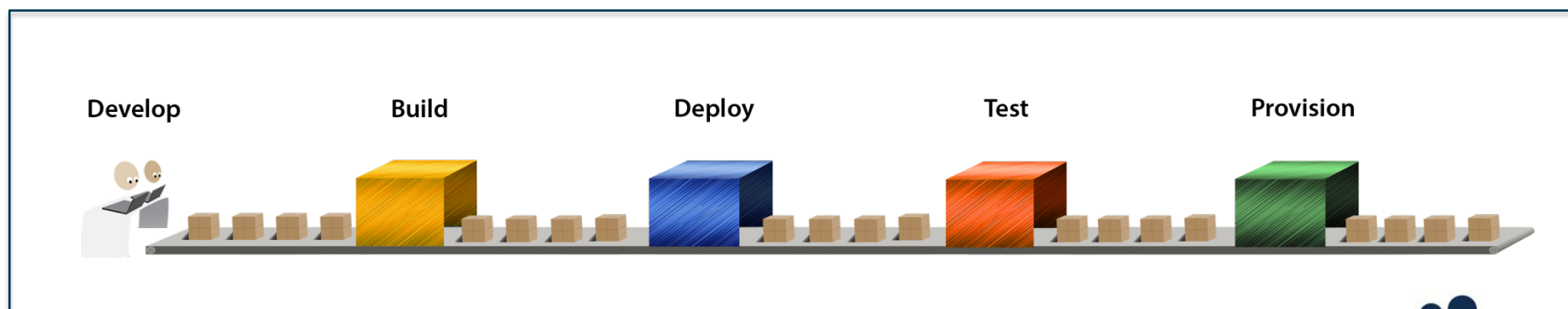
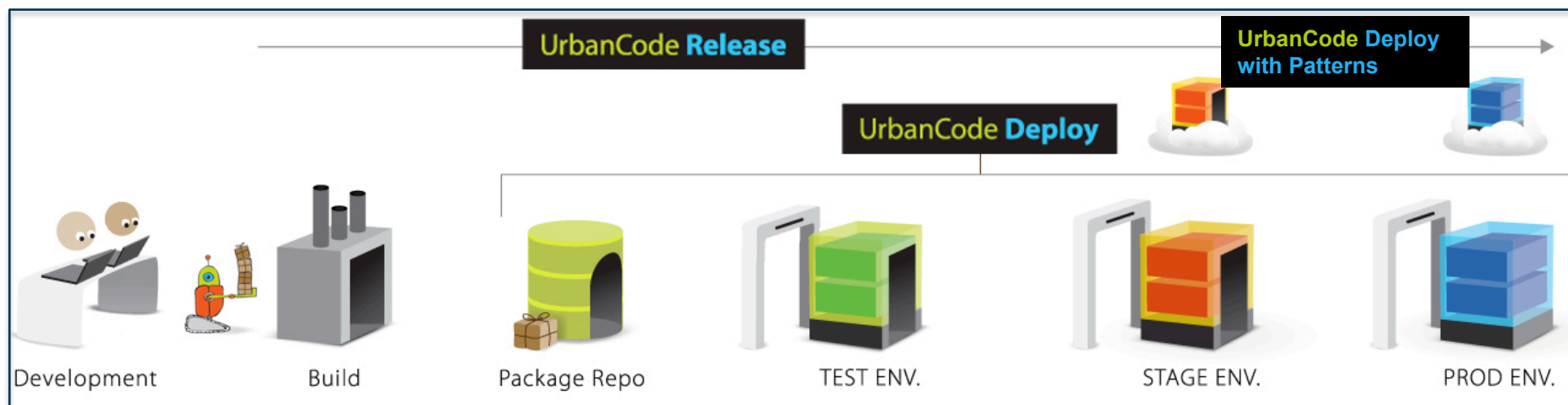


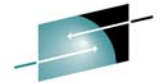
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# Summary

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





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