

Deploying IMS Applications with IBM UrbanCode Deploy

Evgeni Liakhovich, IMS Developer
evgueni@us.ibm.com



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DevOps and Continuous Application Deployment

IBM UrbanCode Deploy in a DevOps environment



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



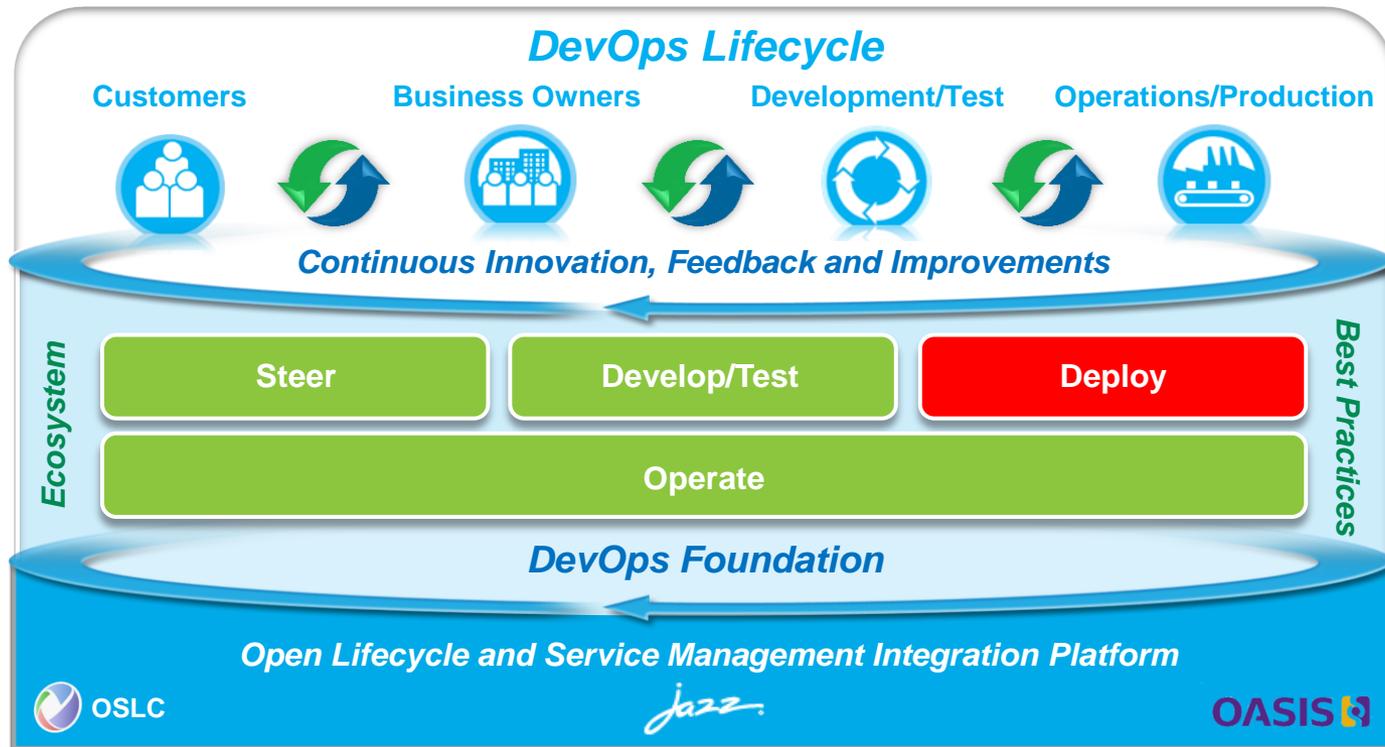
Knight Capital lost **\$440 million in 45 minutes** due to a misconfigured release

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 RBS Bank left **millions unable to access money for 4 days**

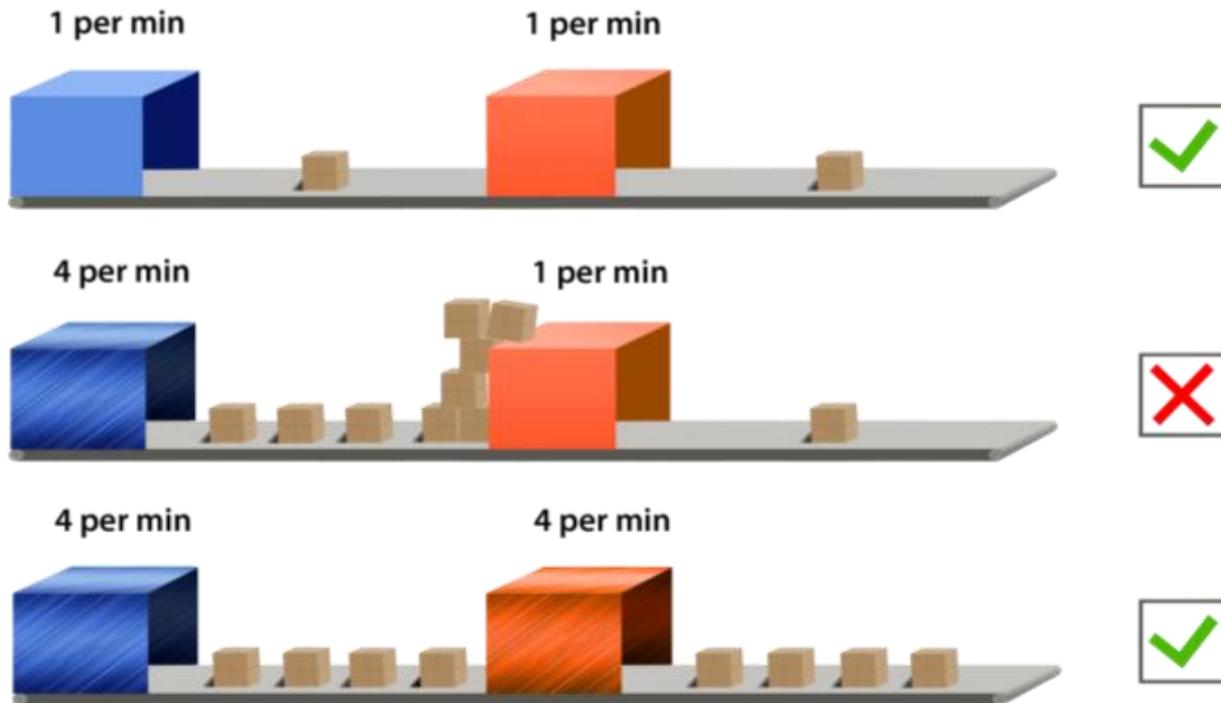
IBM DevOps Solution: The Big Picture

Continuous **delivery pipeline**, from ideas through to delivery **at increasing velocity**

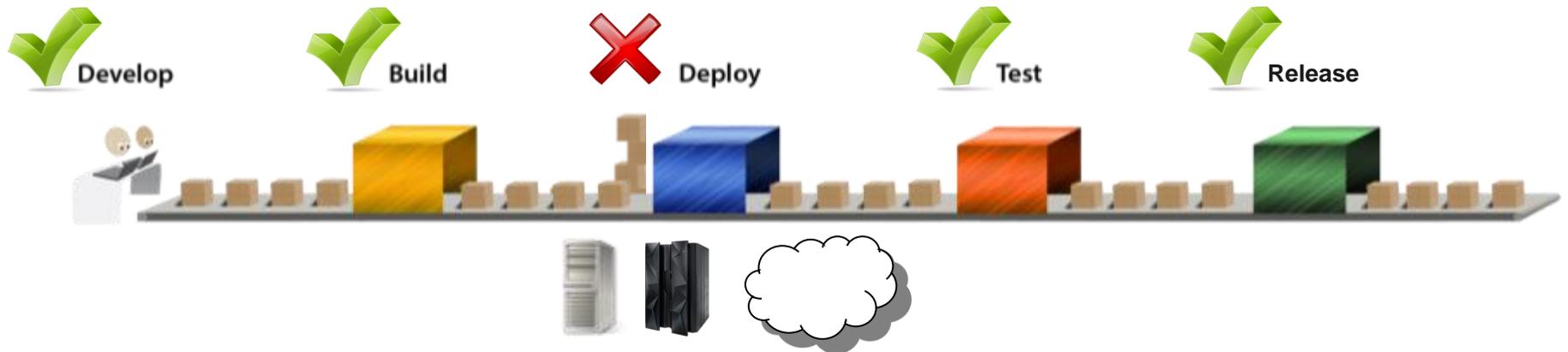


Accelerate Software Delivery
Balance speed, cost, quality and risk
Reduce time to customer feedback

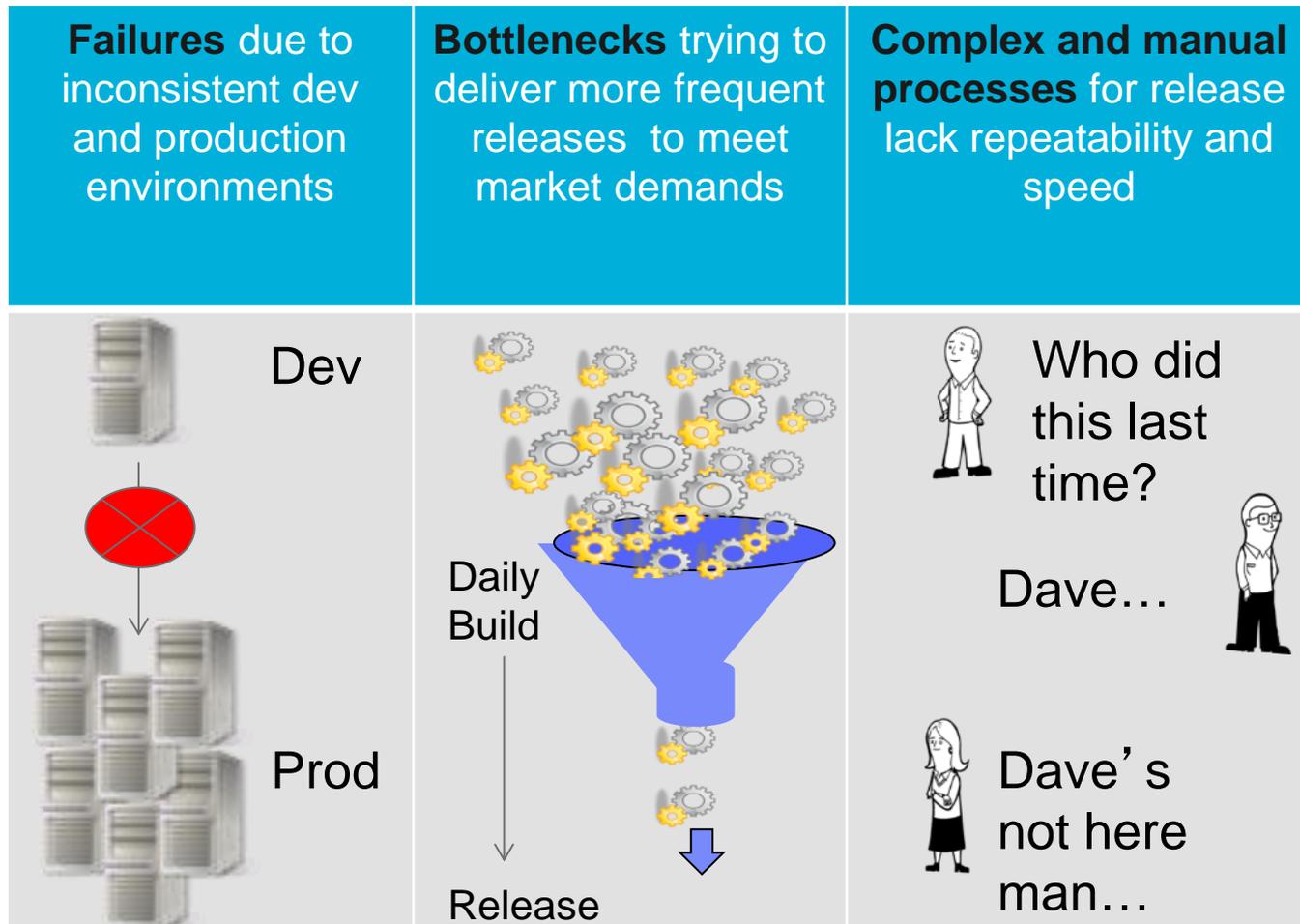
DevOps is to optimize every stage of the software delivery



Deploy is a bottle neck

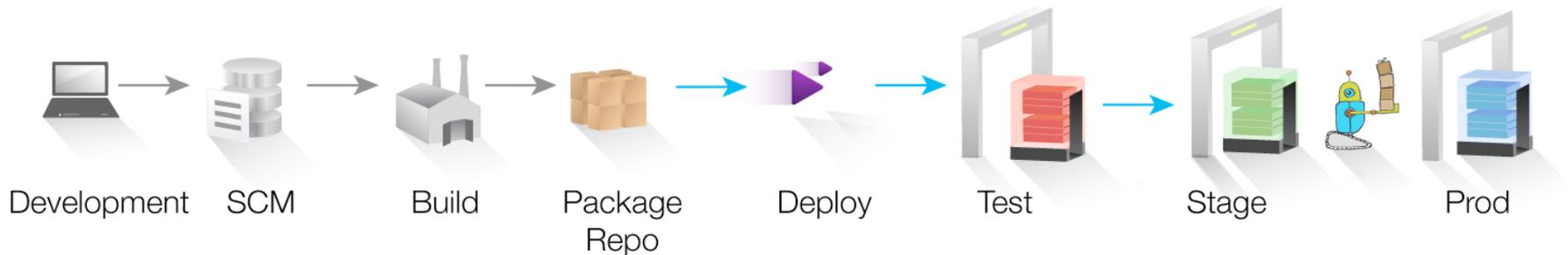


What's going wrong?



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.

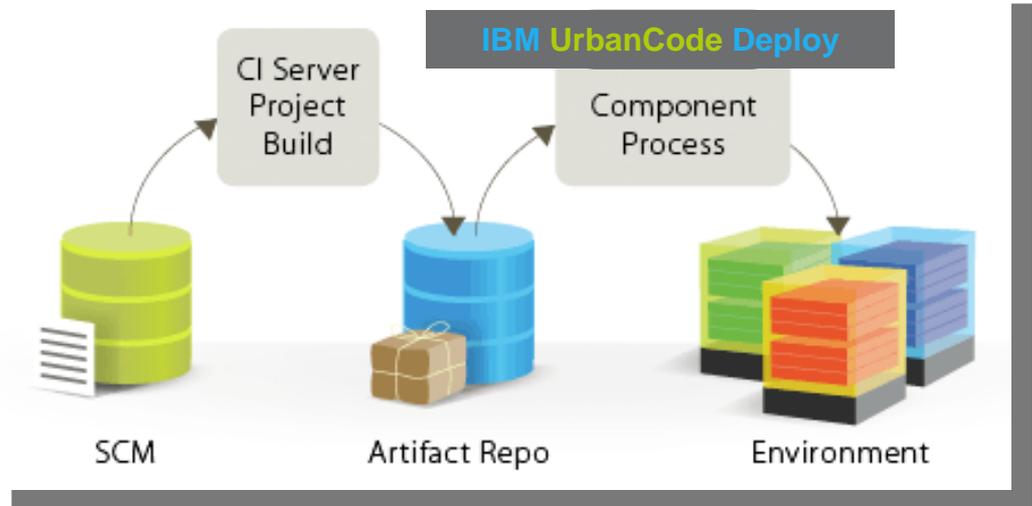
<https://www.ibm.com/ibmdw.net/urbancode/>



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

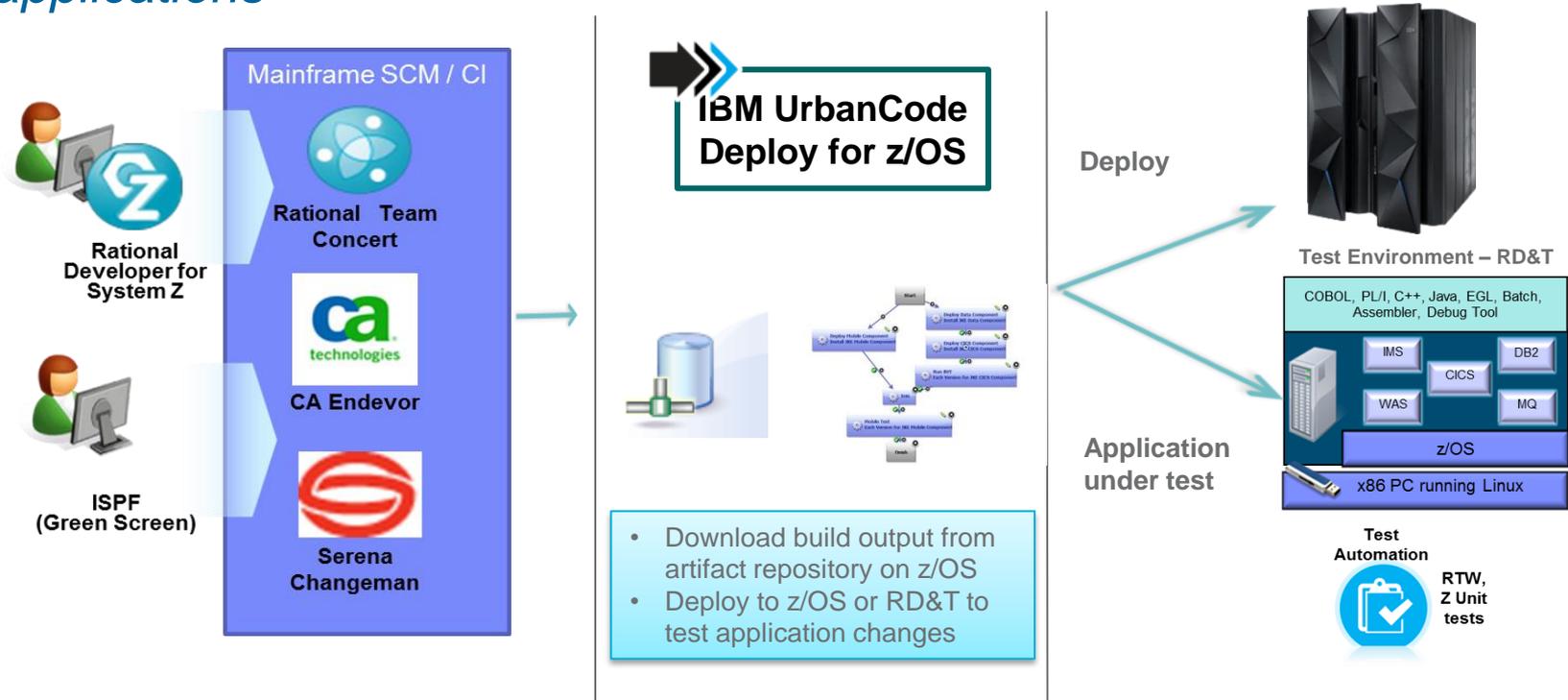
UrbanCode Deploy and z/OS

Using UCD for deployment of applications on z/OS



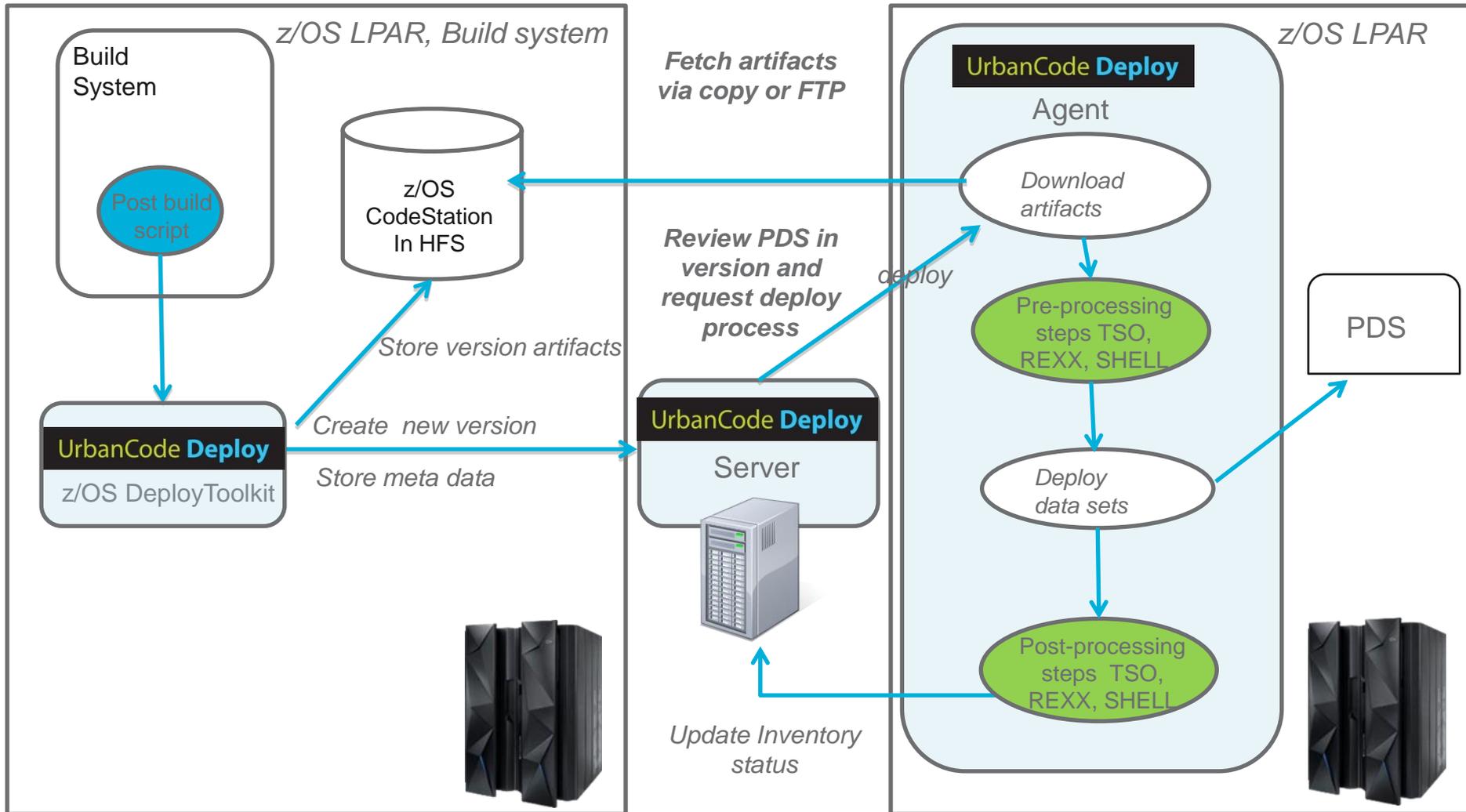
Major Theme for v6.1 - Continuous Delivery for the Mainframe

New 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

High Level Overview of Deployment Capabilities

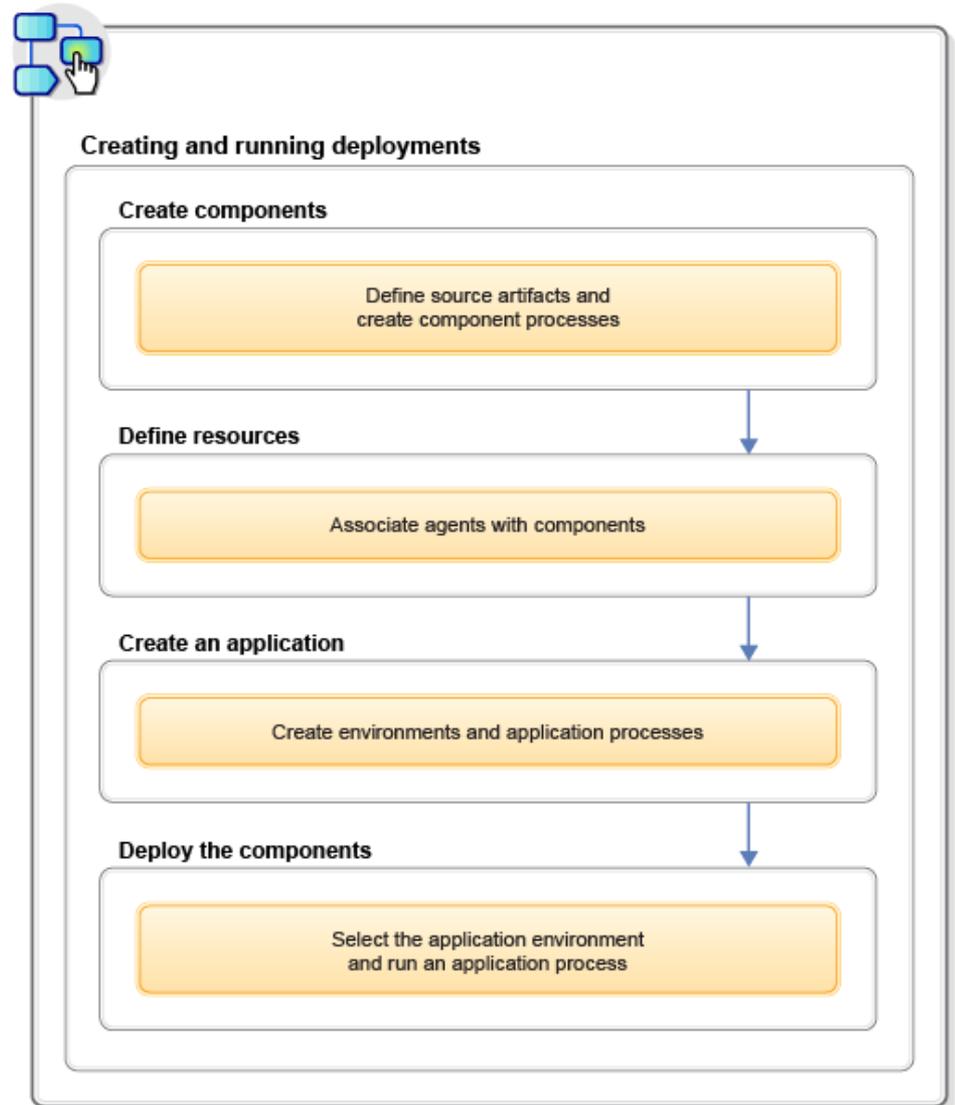


Note: LPARs can be the same or different LPARs



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	None	3 / 3
UAT	None	0 / 0
PROD	None	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

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

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	Details
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	Details
1.0		10:12:07 AM	0:00:16	Success	Details
Total Execution	3 / 3	10:11:59 AM	0:00:24	Success	

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

Deploy CICS application and resource

z/OS Plug-in steps

Submit JCL job, Submit job based on template, Check job status

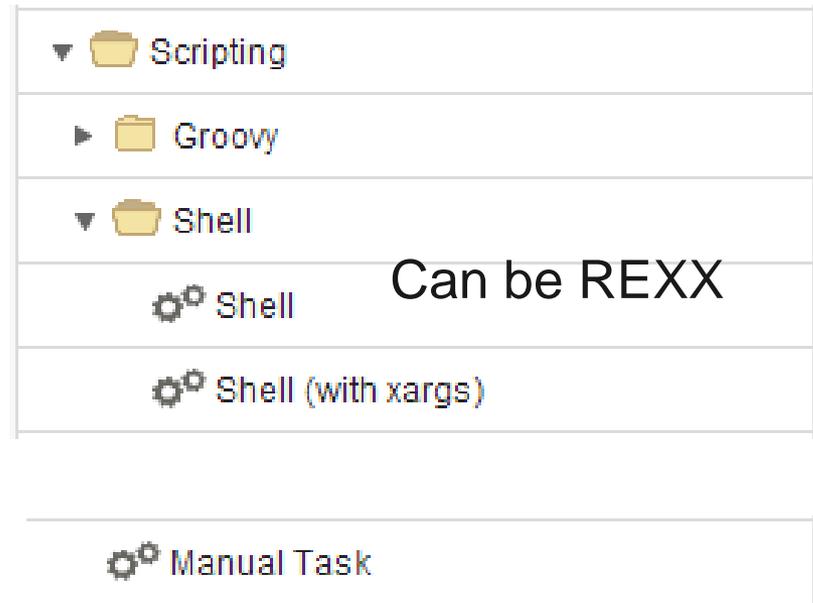
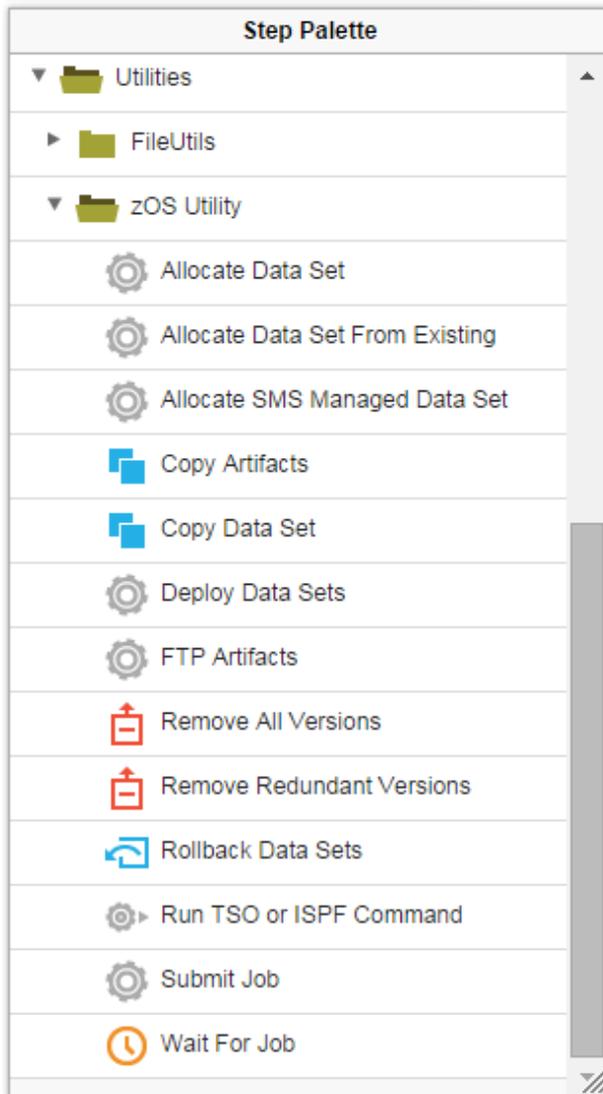
Execute REXX

Run TSO/ISPF Command

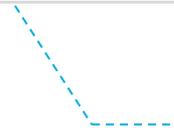
More OOTB steps, Create PDS, Copy PDS, Replace Token MVS ...

Deploy IMS, DB2z, MQz.

z/OS Plug-ins



Manual Task



Review/Approval
Manual operation
Error handling



IBM UrbanCode Deploy and IMS



New in UCD 6.1.1.1 - IMS plug-in

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Plugins & Integrations

Search:

Sort: [A-Z](#) [Z-A](#)  

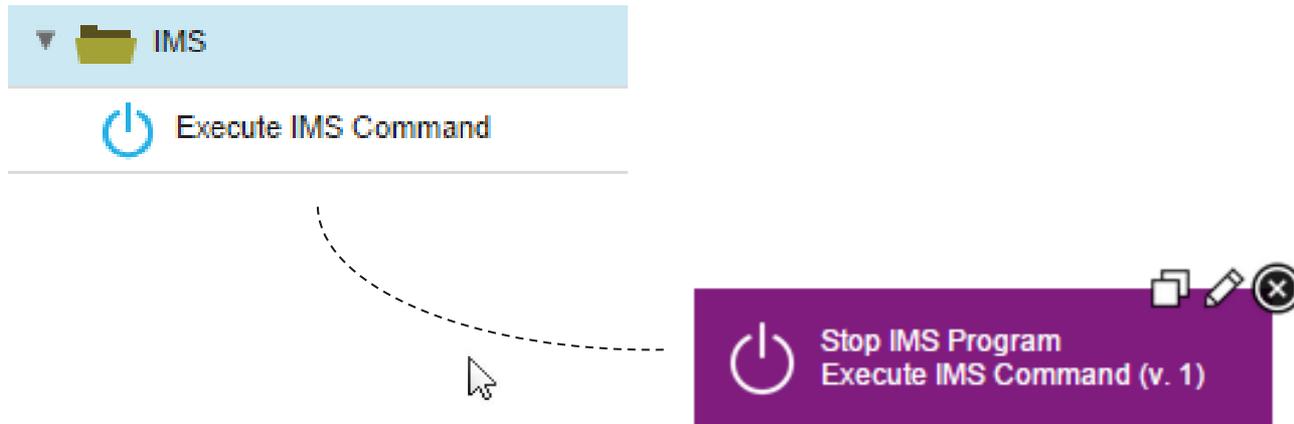
- Categories
- All (122)
- Partner Plugins (10)
- Source Config Plugins (14)
- Community (17)
- Application Server (17)
- Artifact (2)
- Build Systems (5)
- Cloud (4)
- Configuration (2)
- Database (11)
- Deployment (2)
- Functional Testing (3)
- IBM UrbanCode Deploy (6)
- IBM UrbanCode Release

CICS TS *Beta*  6  IBM UrbanCode Deploy	IBM DB2 for zOS  1  IBM UrbanCode Deploy	IBM IMS  1  IBM UrbanCode Deploy	zOS Utility  5  IBM UrbanCode Deploy
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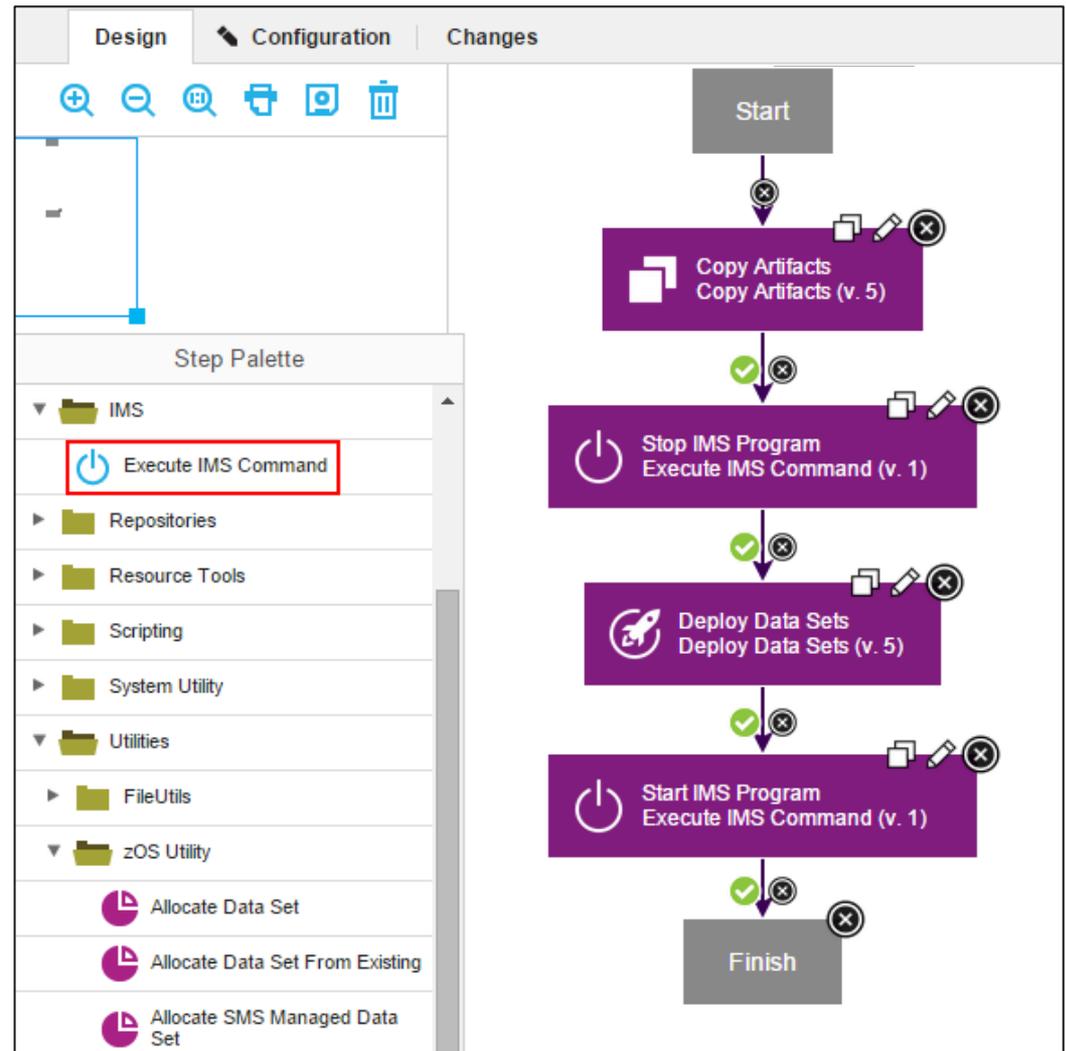
IMS Plug-in for UrbanCode Deploy

- Plug-ins in UCD provide extension points for integration with other software
- **IMS Plug-in** is designed to simplify basic IMS operations by issuing IMS type-1 or type-2 commands and ultimately to facilitate automation of IMS application deployment
- When the IMS plug-in is installed, an **Execute IMS Command** step is added to your design palette in UCD



Process Editor

- Organize the steps of a process, specify their properties, and connect them to each other



Execute IMS Command - Properties

- **IMS Command**
IMS Type 1 or Type 2 command (or sequence of multiple commands) to issue
- **IMS PLEX**
1-to-5 character suffix of the IMSplex name
- **IMS ID**
Used to identify the target IMS system the command is directed to within a given IMSplex
- **IMS RESLIB**
The name of a z/OS library that contains the IMS nucleus and all the action modules necessary to run IMS and its utilities

Edit Properties

Name *

IMS Command

IMS PLEX

IMS ID

IMS RESLIB

Name	Label	Pattern	Required	Default Value	Description	Actions
imsplex	IMS Plex Name		true	PLEX1	IMS Plex Name	Edit Delete
imsid	IMS ID		true	IMS1	IMS ID	Edit Delete
imsreslib	IMS Reslib		true	IMSBLD.I13RTSMM.CRESLIB	IMS Reslib	Edit Delete



This is not a user experience

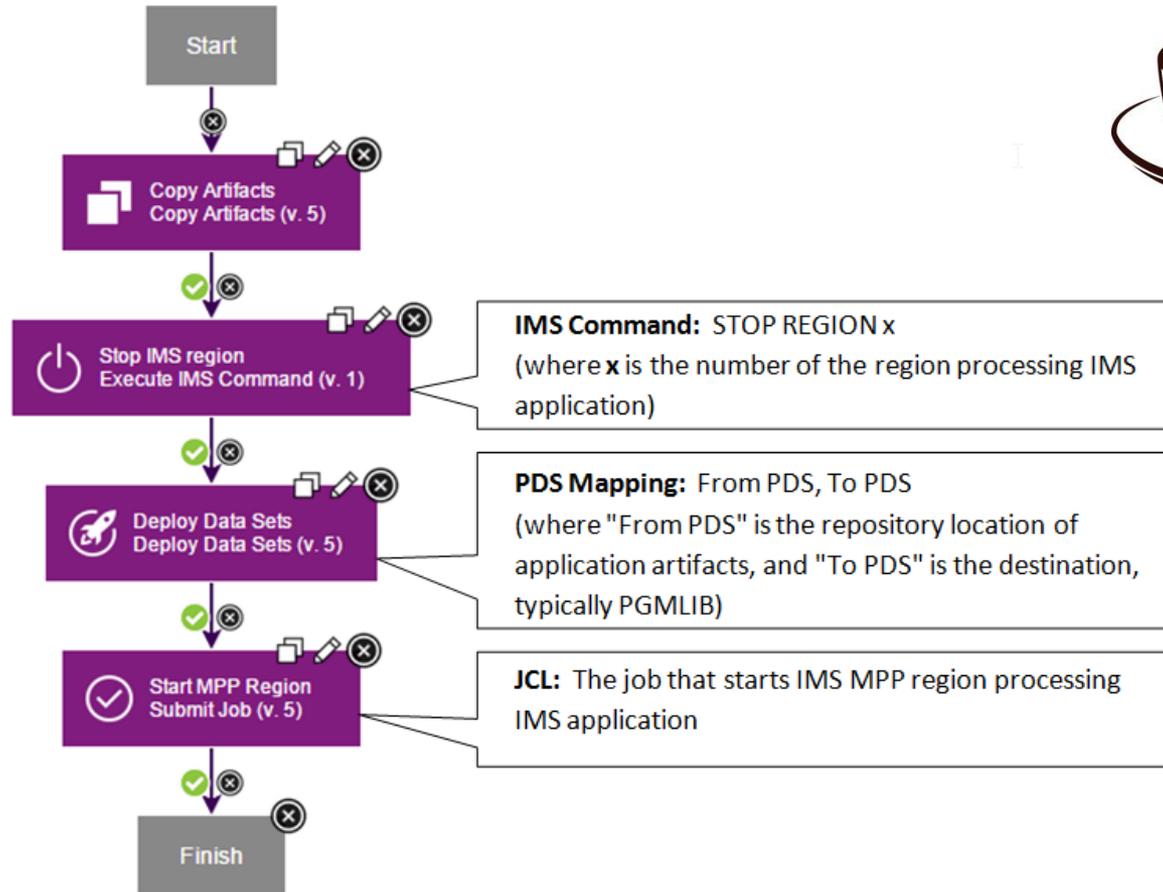


This is a user experience



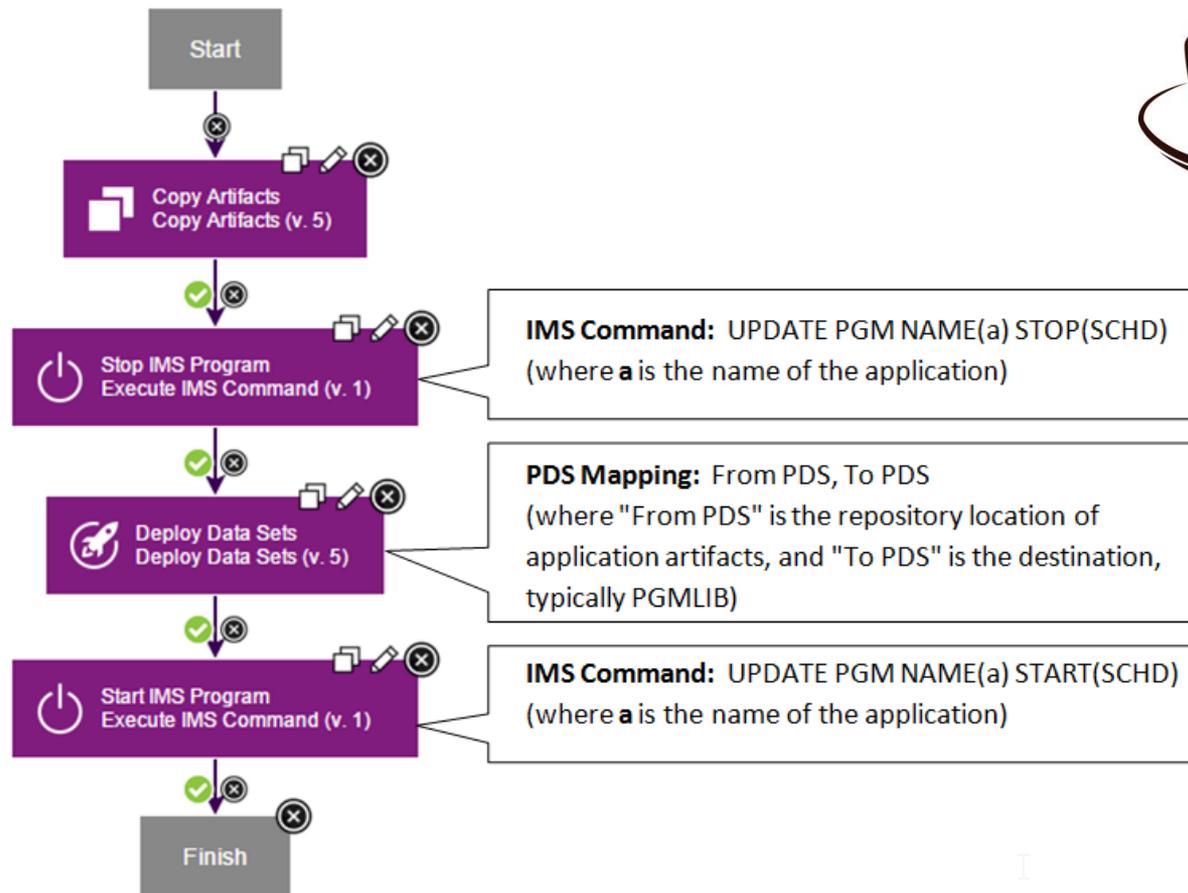
Deployment of IMS COBOL/PLI/Assembler applications

- Recipe 1:
 - IMS Application running in MPP region



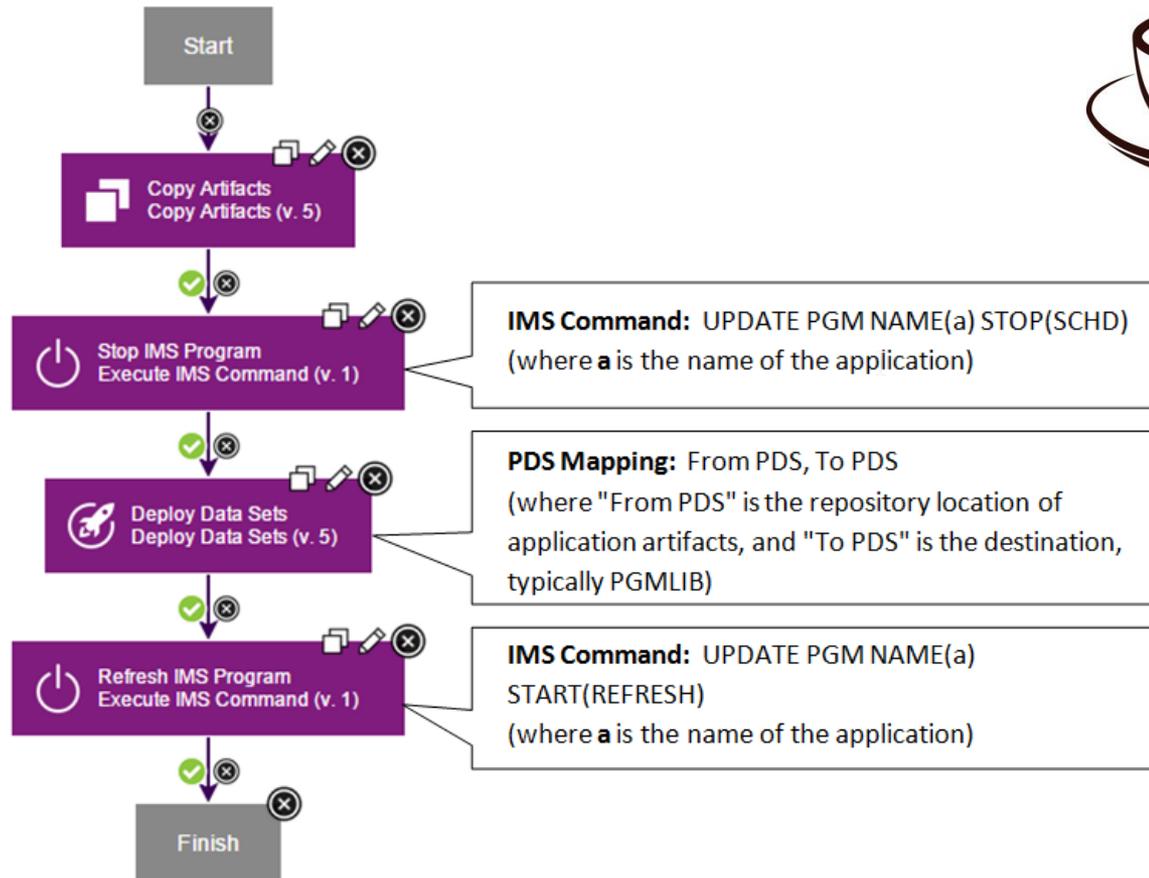
Deployment of IMS COBOL/PLI/Assembler applications

- Recipe 2:
 - IMS Application running in MPP region with DBLDL=0 parameter



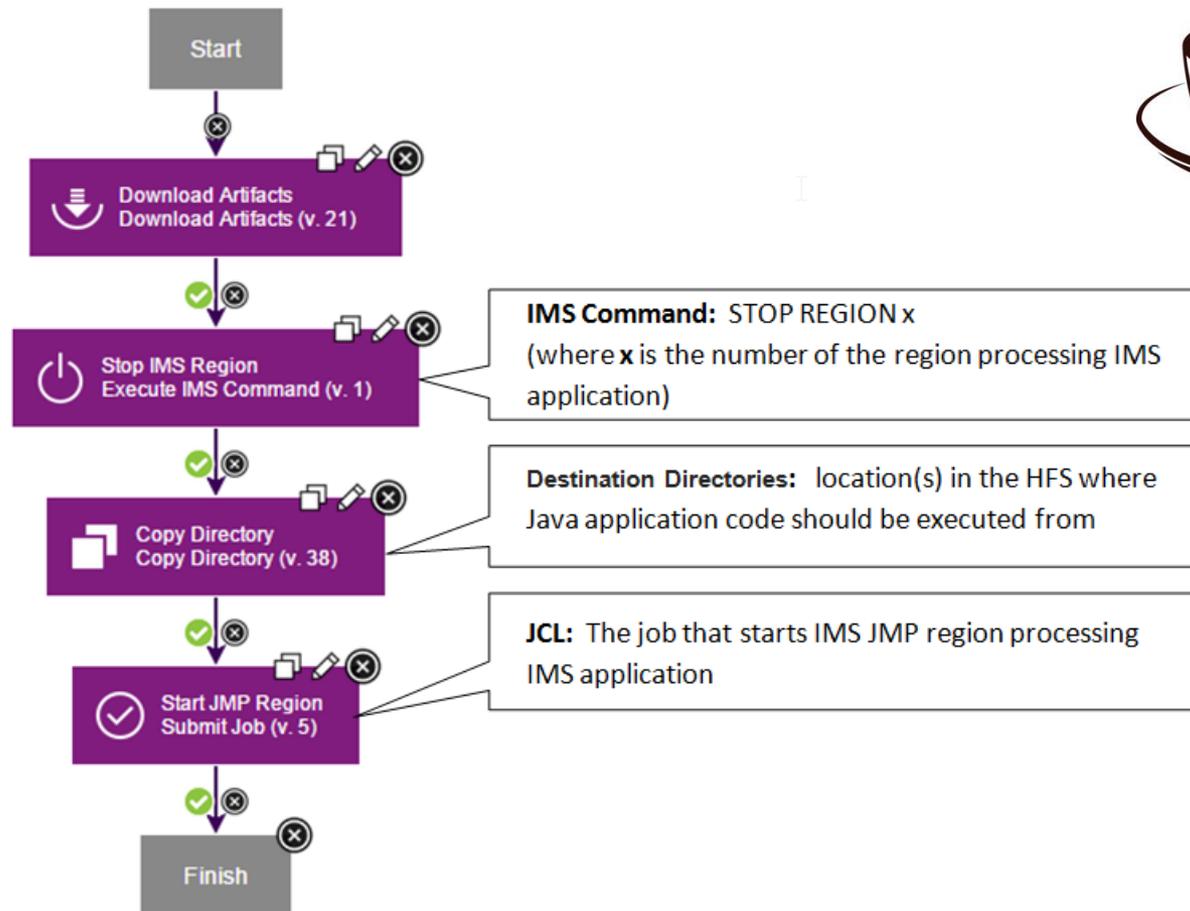
Deployment of IMS COBOL/PLI/Assembler applications

- Recipe 3:
 - IMS Application running in MPP region - IMS v14



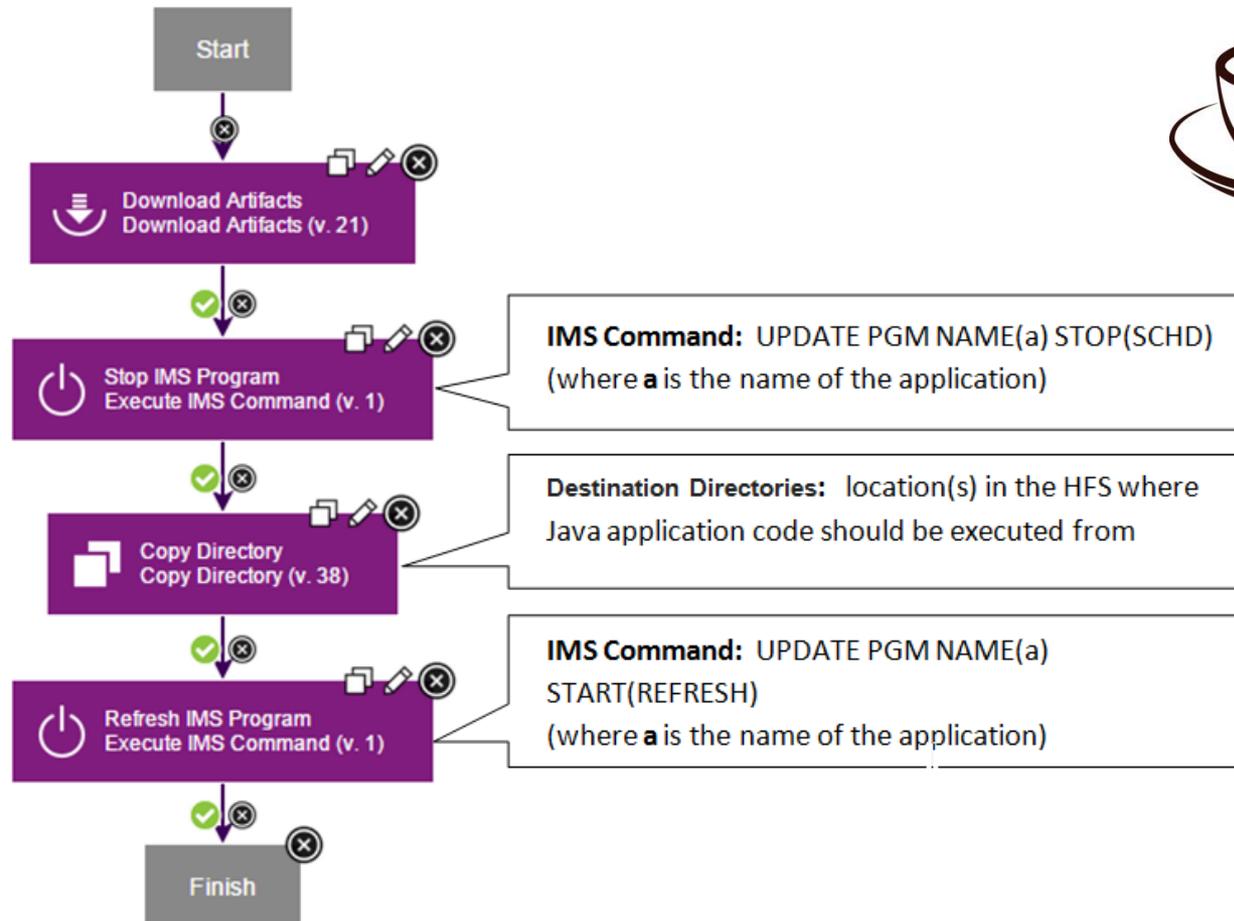
Deployment of IMS Java applications

- Recipe 4:
 - IMS Application running in JMP region



Deployment of IMS Java applications

- Recipe 5:
 - IMS Application running in JMP region - IMS v14



Application Deployment

Application: IMS Contacts - COBOL

Created By: admin
Created On: 1/19/2015, 1:17 PM
Description: Sample IMS application based on DFSIVP34

Environments | History | Configuration | Components | Blueprints | Snapshots | Processes

Create Environment

Search by Name or Search by Blueprint

Test

Run Process on Test

Only Changed Versions

Process * Install DFSIVP34

Select a snapshot, or choose versions for individual components.

Snapshot

Component Versions
1 selected (Choose Versions)

PLEX1

IMS1

IMSBLD.I13RTSMM.CRESLIB

Submit Cancel

Component Versions

Select For All... Show only changed components Allow invalid versions

Component	Current Environment Inventory	Versions to Deploy
DFSIVP34	1.0	1.0 x Add...

1 record

OK

Application Deployment Results

Application Process Request: IMS Contacts - COBOL

Process	Install DFSIVP34 (Version 2)
Environment	Test
Only Changed Versions	true
Date Requested	1/21/2015, 12:39 PM
Requested By	admin
Scheduled For	1/21/2015, 12:39 PM

View Deployment Request
Process Request

Log
Properties
Manifest
Configuration Changes
Inventory Changes

Execution Dock timeline at top

Start	Progress	Status	Duration	End
12:39:55 PM	1 / 1	● Success	0:01:11	12:41:07 PM

[Expand All](#) [Collapse All](#)

Step	Progress	Start Time	Duration	Status
▼ 1. Install DFSIVP34	1 / 1	12:39:55 PM	0:01:11	Success
▼ DFSIVP34	1 / 1	12:39:55 PM	0:01:11	Success
▼ Update IMS Application (DFSIVP34 1.0)	::	12:39:55 PM	0:01:11	Success
1. Copy Artifacts	::	12:39:56 PM	0:00:07	Success
2. Stop IMS Program	::	12:40:03 PM	0:00:09	Success
3. Deploy Data Sets	::	12:40:12 PM	0:00:45	Success
4. Start IMS Program	::	12:40:57 PM	0:00:09	Success
Total Execution	1 / 1	12:39:55 PM	0:01:11	Success



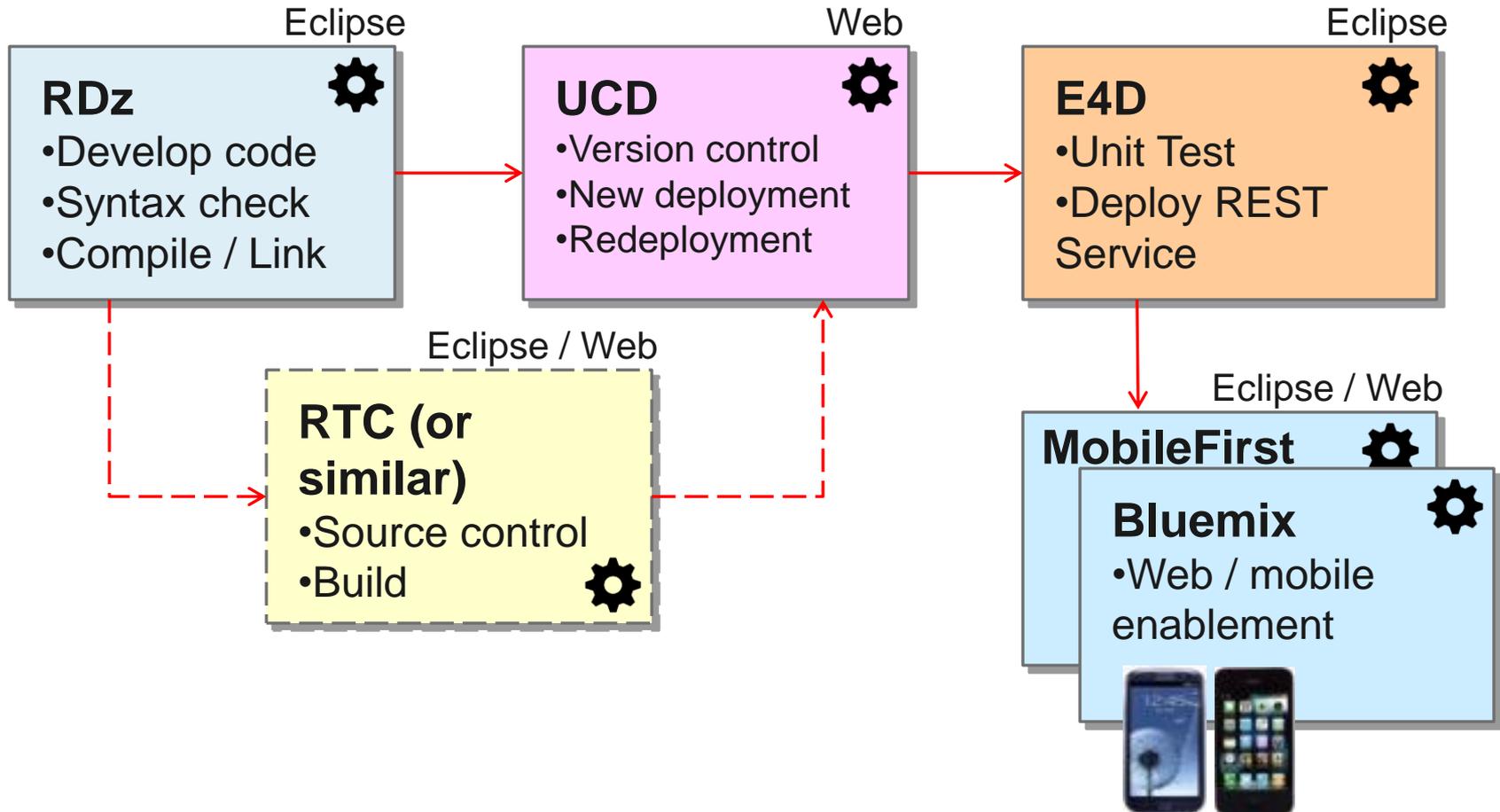
Conclusion

- You can enable continuous deployment of IMS applications in an agile environment in an orchestrated, reliable and secure manner by using IBM UrbanCode Deploy, all through defined steps in a process that is repeatable and traceable



End-to-end DevOps flow for IMS COBOL application

- The following flow can be used to develop / deploy / test / mobile-enable new IMS transaction



Additional Information

- Video about deploying IMS applications using IBM UrbanCode Deploy:
<https://www.youtube.com/watch?v=ICTJaoTO4TI>
- Full paper about IMS application deployment With IBM UrbanCode Deploy, including UrbanCode Deploy installation information:
http://ibm.biz/ims_deployment_ucd
- Download the IMS plug-in for IBM UrbanCode Deploy at:
<https://developer.ibm.com/urbandcode/plugin/ims/>



Thank you!

Your feedback is important to us!

