IBM Technical Summit

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IBM

Title: Mobile DevOps – Challenges & Best Practices

Name: Mehul Mehta, Sr. Engineering Manager, Rational Labs

The Industry's Most Comprehensive Mobile Portfolio

IBM MobileFirst

1 The Broadest Portfolio of Mobile Solutions

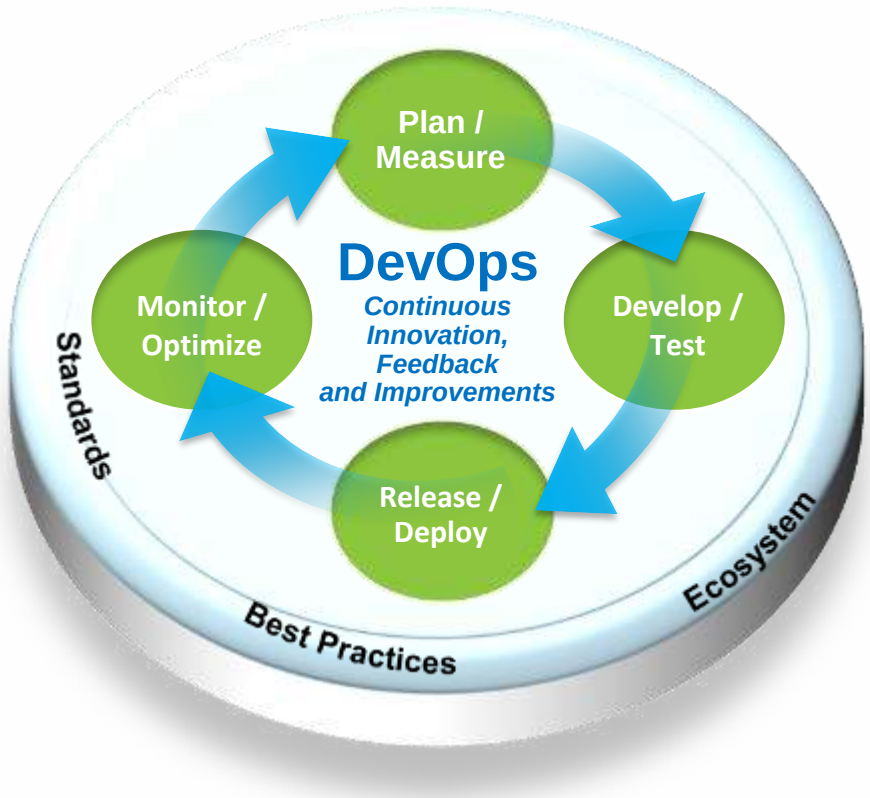
2 The Deepest Set of Services Expertise

3 New Industry Partnerships and Resources for Developers

Agenda

- **What is DevOps?**
- DevOps for Mobile – Challenges
- DevOps for Mobile – Best Practices
- Implementing DevOps for Mobile

DevOps: Continuous delivery of software driven innovation



Enterprise capability for continuous software delivery that enables clients to seize market opportunities and reduce time to customer feedback

Accelerate software delivery - By enabling collaboration across software supply chain
Balance speed, cost, quality & risk- By eliminating waste & automating manual processes
Improve client experience - By speeding the customer feedback loop

DevOps Principles and Values

- Develop and test against a production-like system
- Iterative and frequent deployments using repeatable and reliable processes
- Continuously monitor and validate operational quality characteristics
- Amplify feedback loops

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- What is DevOps?
- **DevOps for Mobile – Challenges**
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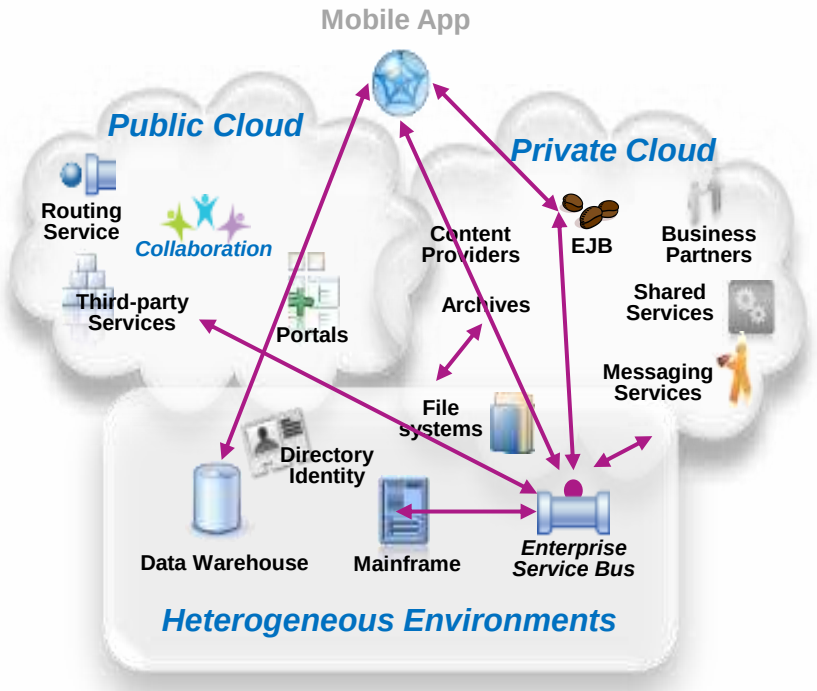
DevOps for Mobile - Challenges

- Mobile Apps are the front-end to a complex (enterprise) back-end system
  - Mobile Apps are rapidly becoming a critical user interface to enterprise systems
  - But they are just one part of a multi-tier, multi-component application “eco-system”
  - Developing and delivering mobile apps requires coordination across that whole eco-system



DevOps for Mobile - Challenges

- Fragmented Platforms
  - Multiple mobile operating systems
  - Multiple devices & form factors
  - Multiple implementation technology choices
- Frequently a mix of technology is involved for mobile app implementation
- App stores add additional asynchronous deployment step

The IBM Mobile Enterprise Development Lifecycle

Agenda

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- **DevOps for Mobile – Best Practices**
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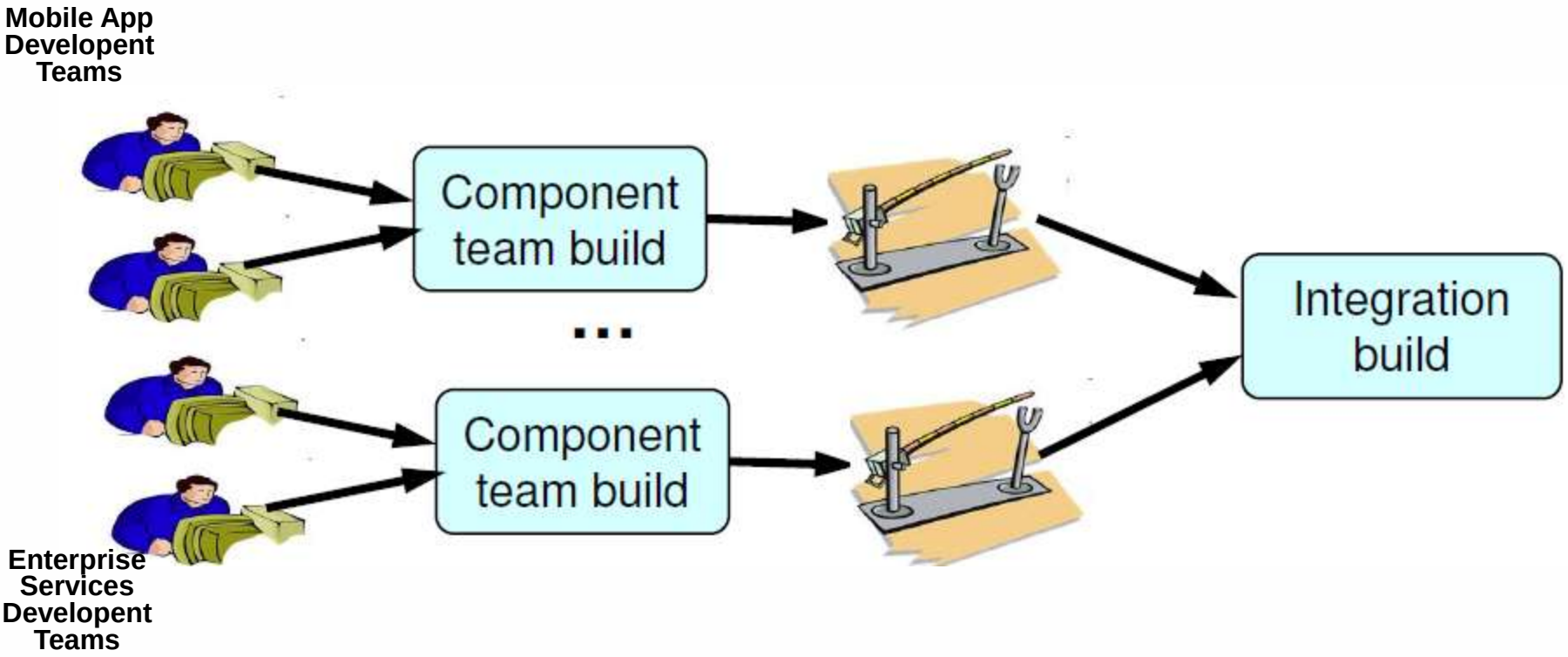
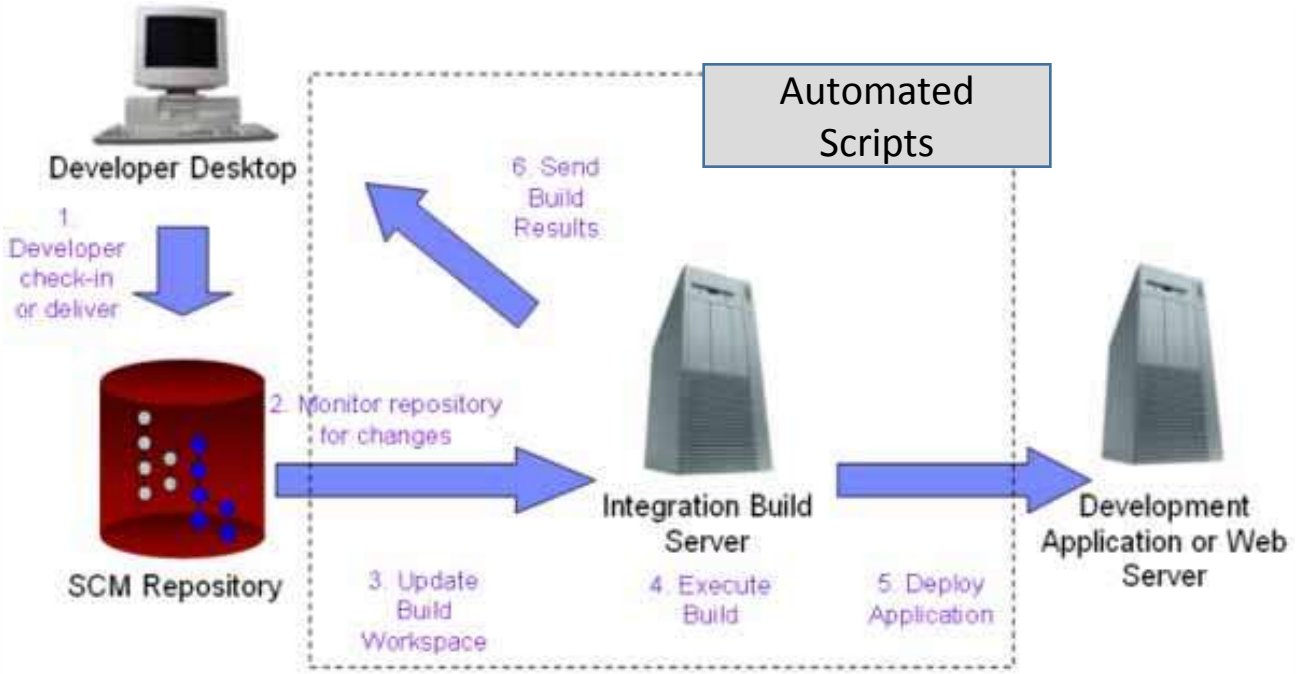
Practice Continuous Integration



Maintain separate build areas for each SDK version

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android" ... >
     <uses-sdk android:minSdkVersion="4" android:targetSdkVersion="15" />
                                        ...
                                    </manifest>
```

Automated Build and Deploy scripts

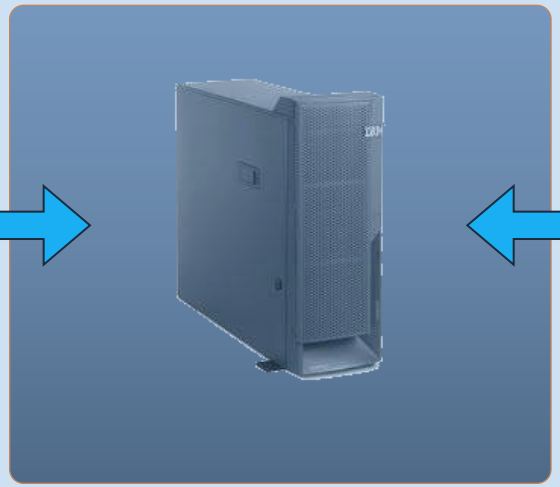


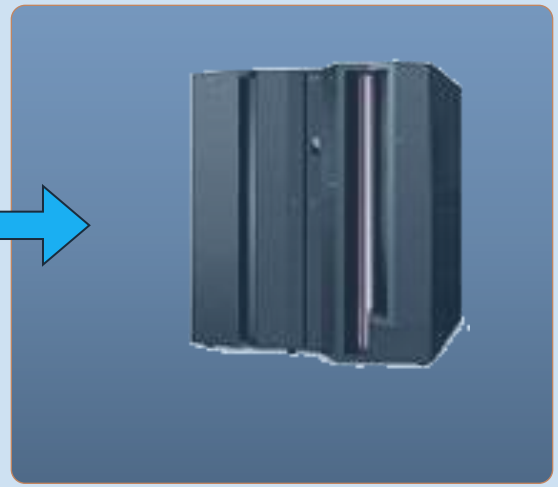
Test each build on real supported devices

Simulate Back-end Services

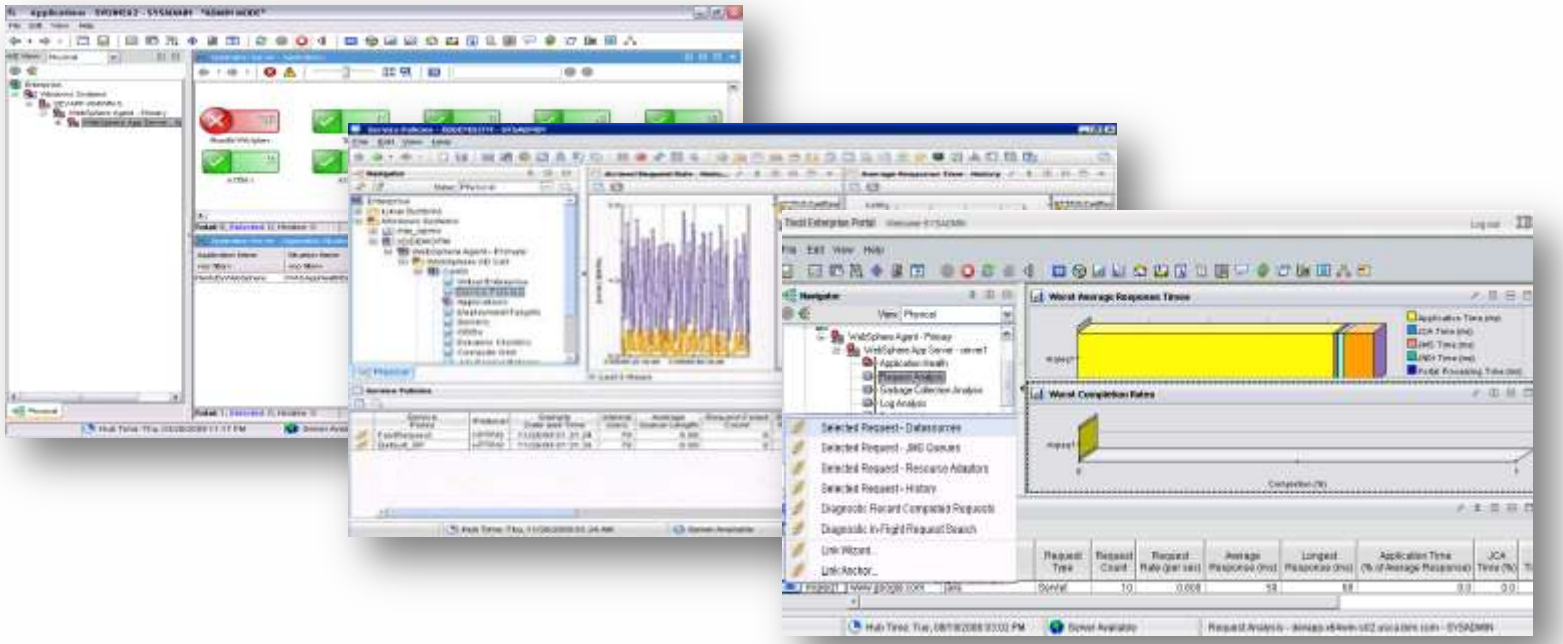
Client Tier Devices
UI Testing

For focused automated mobile client tier functional testing, use Service Virtualization to simulate the mobile middle tier and back office systems.

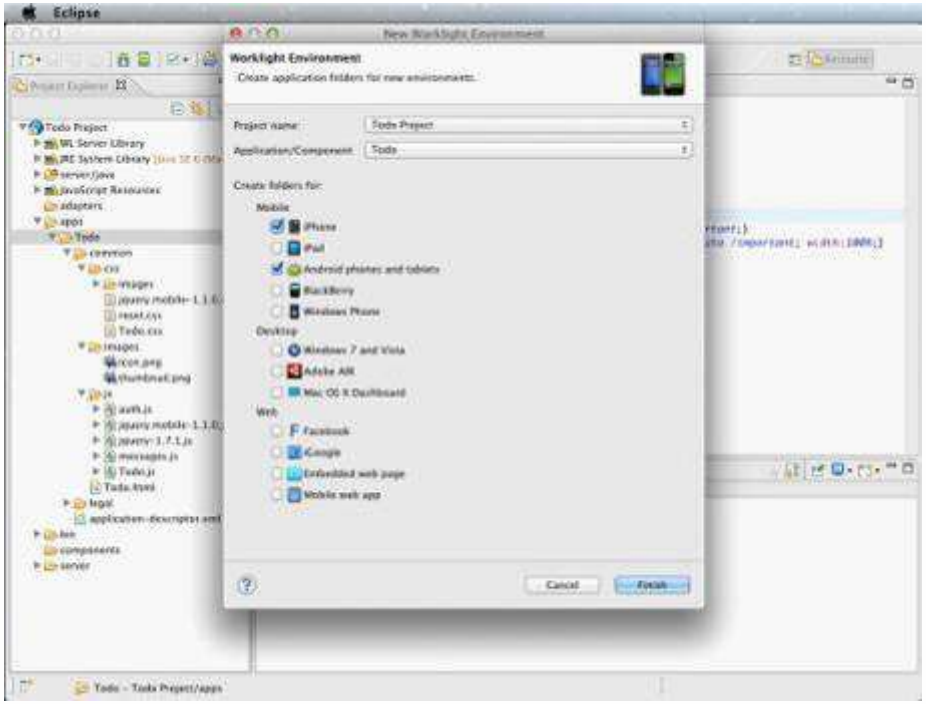




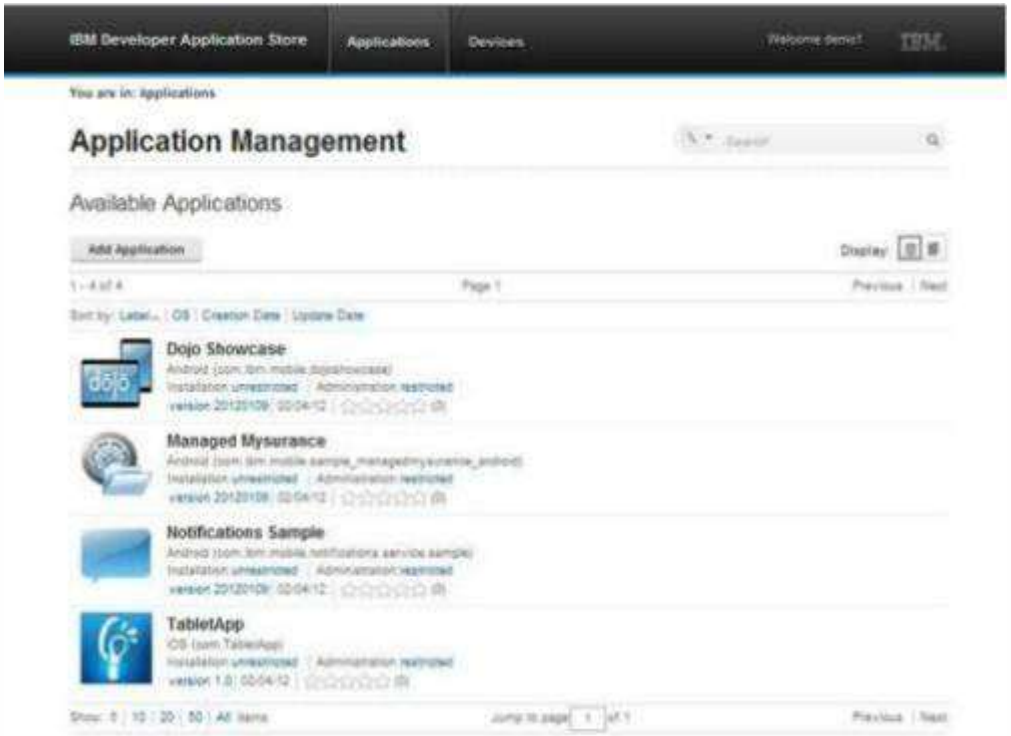
Monitor deployed apps and back end services performance



Governance of provisioning profiles, certificates and API keys



Use a 'Private' App store to test device deployment



Convert App Store feedback into user stories

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- **Implementing DevOps for Mobile**

IBM Worklight: An Overview

Studio

Leading tools for cross platform hybrid development that maximize code reuse and enable per-device optimization

Operational console

Operational management for deployments, concurrent versions, and infrastructure access. Operational analytics provide real-time insight into application usage

Application center

A cross-platform private mobile application store focused on the needs of a development organization or a team

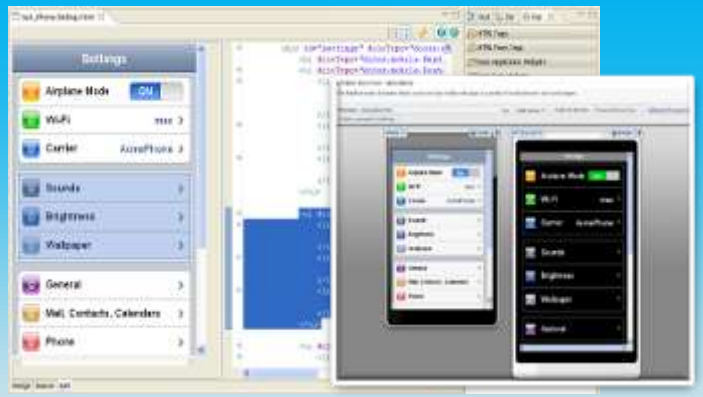
Application runtime

Cross platform services for the mobile channel (client & server componentry). Client APIs are introduced for both pure **native** as well as **hybrid** development

Integrated Mobile Collaborative Development

Enabling collaborative team development on mobile app projects

IBM Worklight

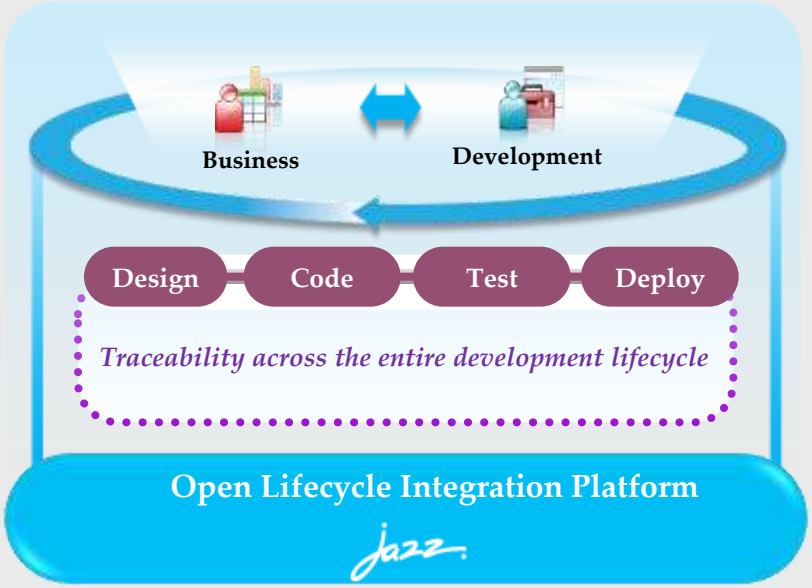


Construct, debug, and test mobile UIs

Mobile Application Platform

+

Collaborative Lifecycle Management



Application Lifecycle Management

IBM provides the only comprehensive mobile development solution currently in the market combining a mobile application platform, construction tools, and lifecycle management all integrated together

IBM Rational Test Workbench v8.5

High quality mobile apps built and tested for a rapidly evolving mobile infrastructure

New!

- **Mobile Test Automation**
  - Support Worklight and native iOS or Android mobile apps
- **Eclipse Client integration**
  - Integration with Rational Quality Manager and IBM Worklight Studio
- **End-to-end mobile testing**
  - Capture and replay of multi-touch events with virtualization of multi-tier systems

"Being agile, we are developing tests as we write our code, so automating the functional tests of our mobile apps and using them for regression on multiple platforms makes our team much more productive!" - Mobile developer

Virtualize back-end services to maintain agility

Client Value: Mobile development team can meet aggressive schedules and reduce MIPS usage on enterprise systems

Rational Test Workbench

Service Virtualization support for isolating mobile client tier

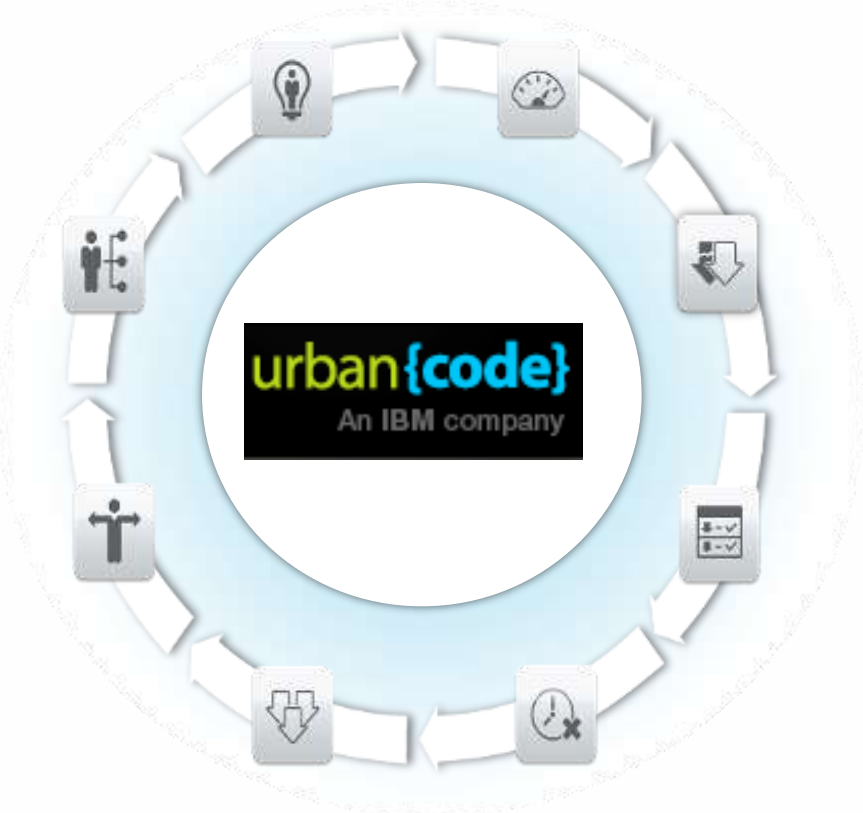
Client Tier Devices
UI Testing

For focused automated mobile client tier functional testing, use Service Virtualization to simulate the mobile middle tier and back office systems.

IBM UrbanCode delivers DevOps

Enabling clients to more rapidly deliver mobile, cloud, big data analytics and traditional applications with complementary DevOps capabilities

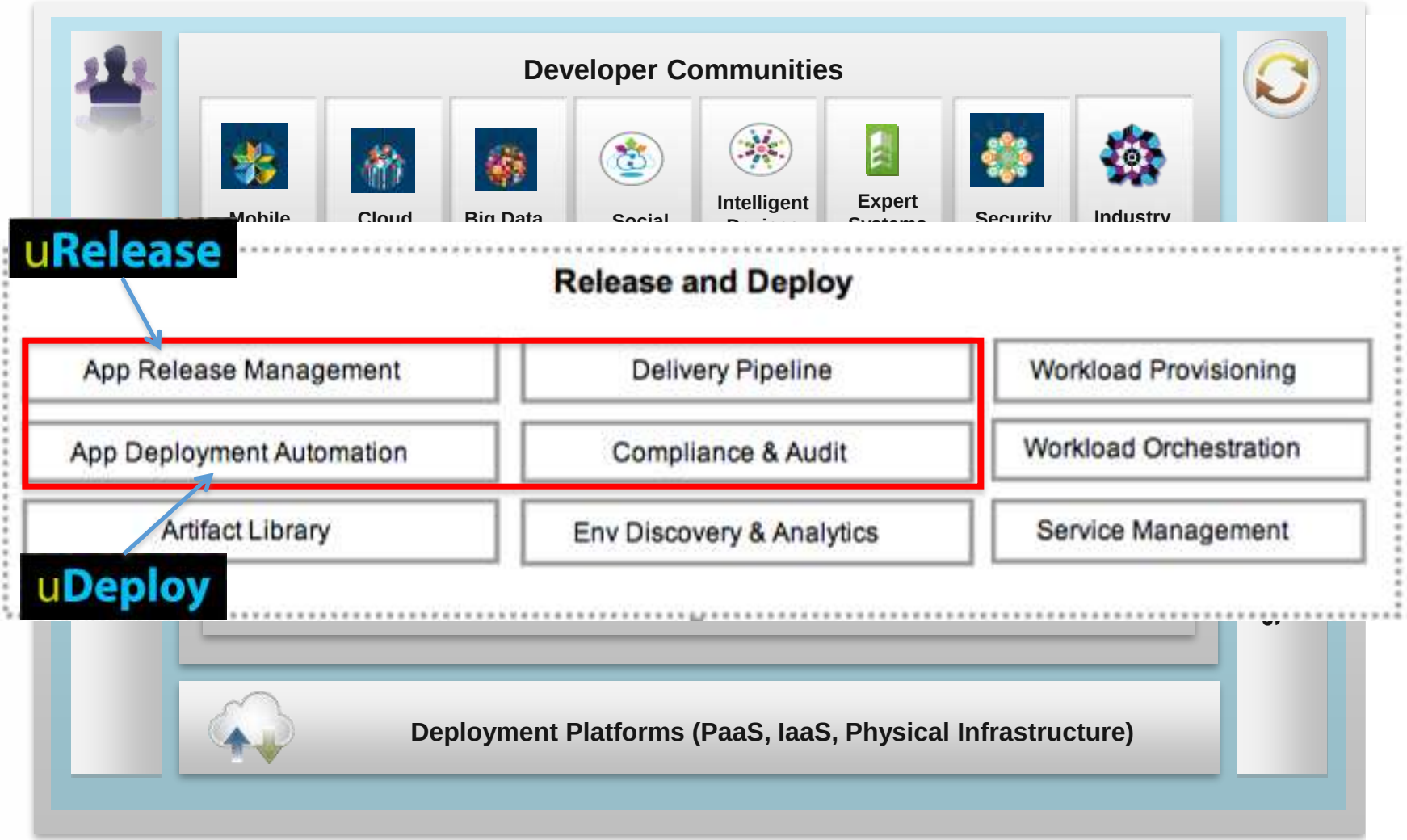
- **Drive down costs**
  - Reduce the amount of manual labor, resource wait-time, and rework
- **Speed time to market**
  - Increase frequency of software delivery
- **Reduce risk**
  - Deliver higher quality application releases with increased compliance



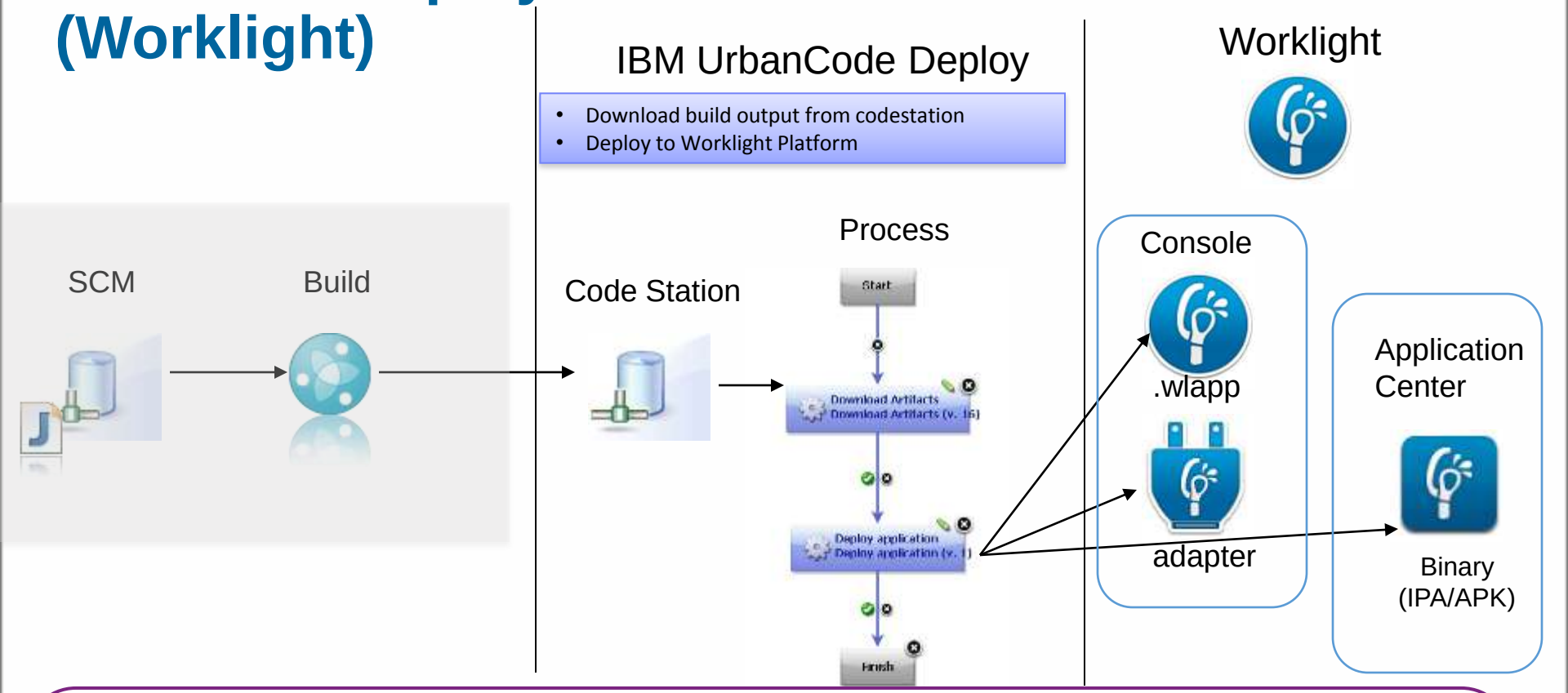
"Mobile development moves more quickly than most enterprises are accustomed to. The coordination required, and the pace being driven by mobile, is a big factor driving DevOps in the enterprise."

- Eric Minick, **UrbanCode**.

UrbanCode capabilities



Automate deployment to IBM MobileFirst Platform (Worklight)



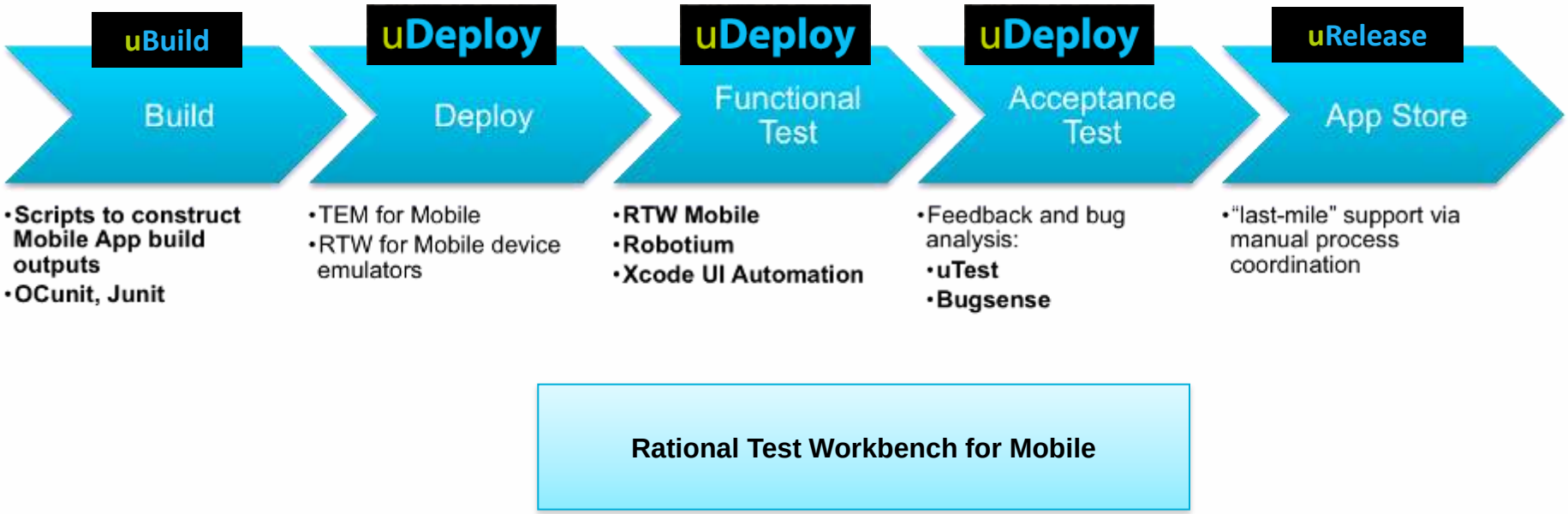
Automatically deploy Worklight applications as part of your deployment process

The plugin supports:

- ✓ deploying Worklight **adapter and application components** to the Worklight Server
- ✓ deploying Worklight **mobile application binaries** to the Worklight Application Center for distribution and management

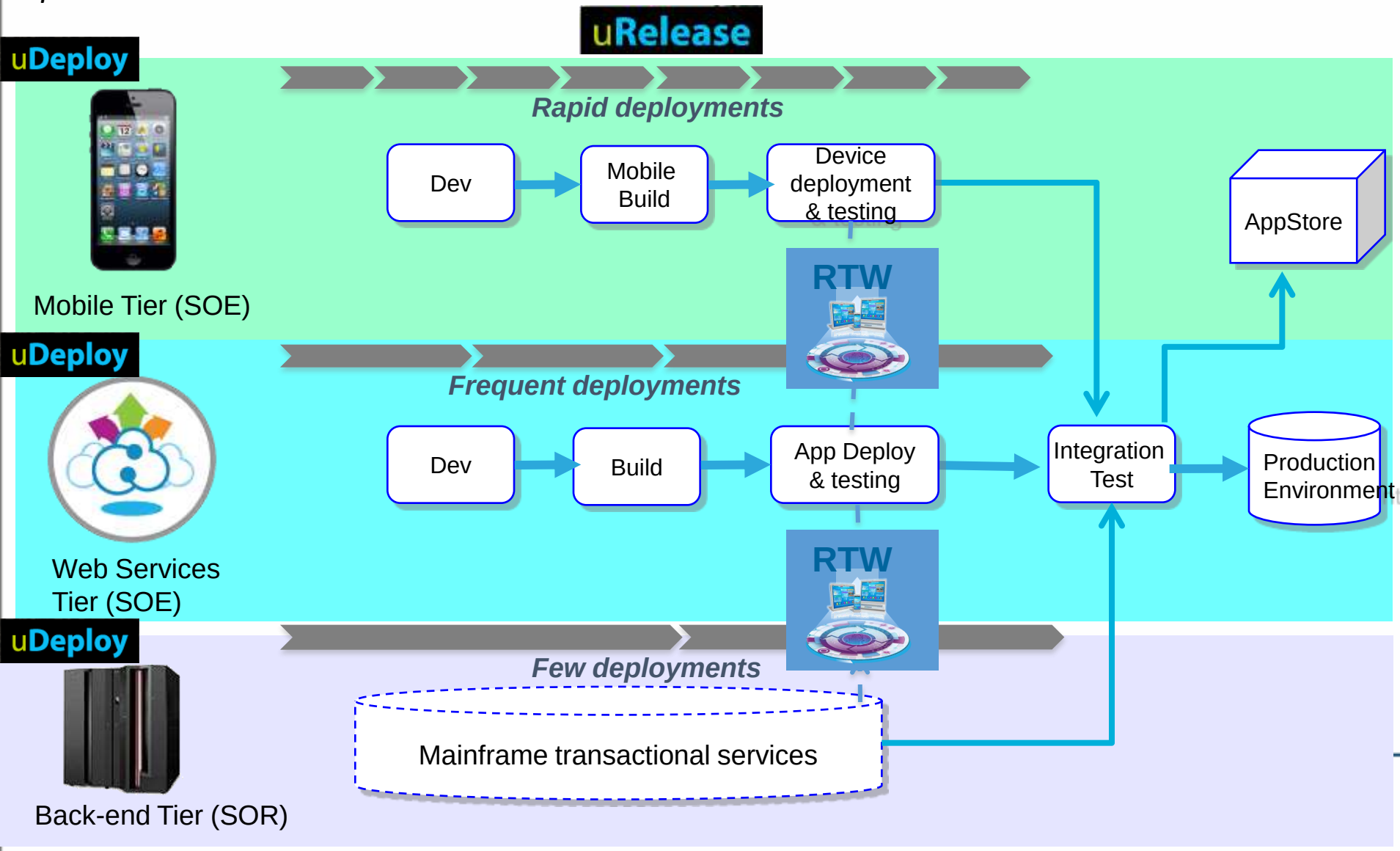
DevOps for Mobile Examples

- Enabling continuous delivery for rapid updates of Mobile Applications



Distributed DevOps Pattern

Mobile apps need to be updated and released rapidly, delays due to wait for operations teams to setup test labs, longer cycles required to integrate with existing apps/services, processes



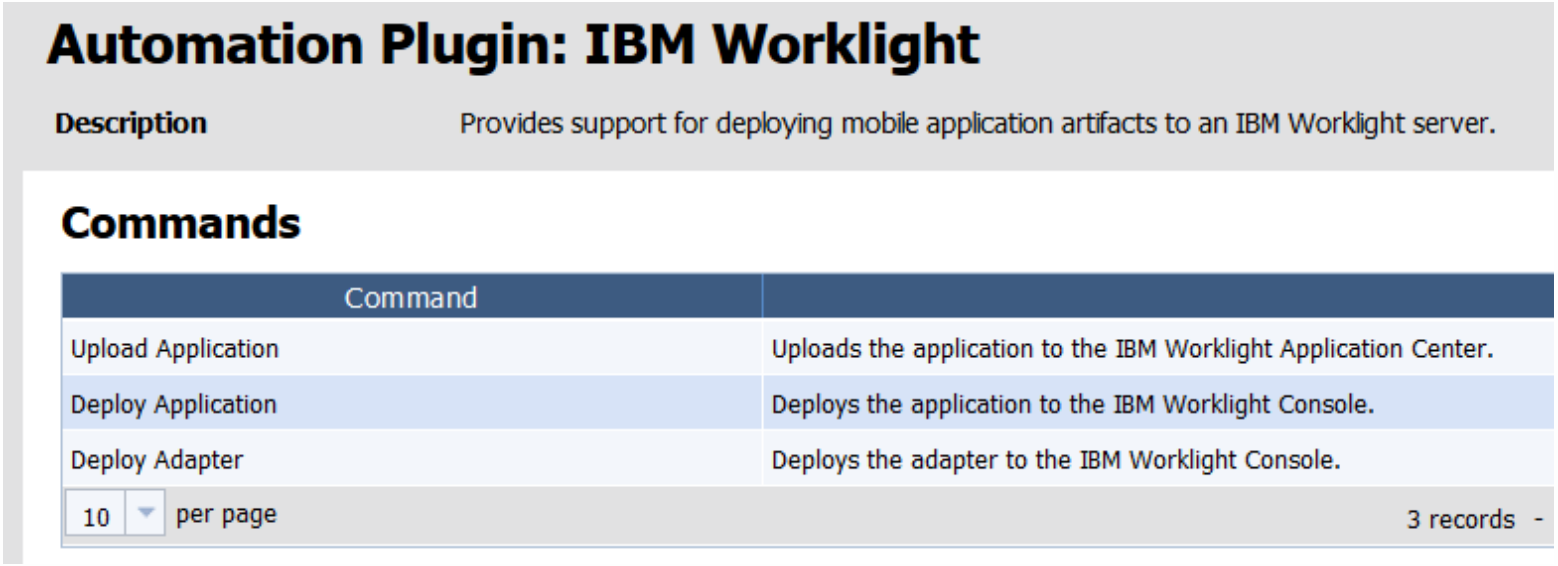
IBM MobileFirst

1	2	3
The Broadest Portfolio of Mobile Solutions	The Deepest Set of Services Expertise	New Industry Partnerships and Resources for Developers

Thank you!

… the plugin must be loaded into the uDeploy server

The plugin supports basic commands to automate deployment to Worklight Console and Worklight Application Center



Automation Plugin: IBM Worklight

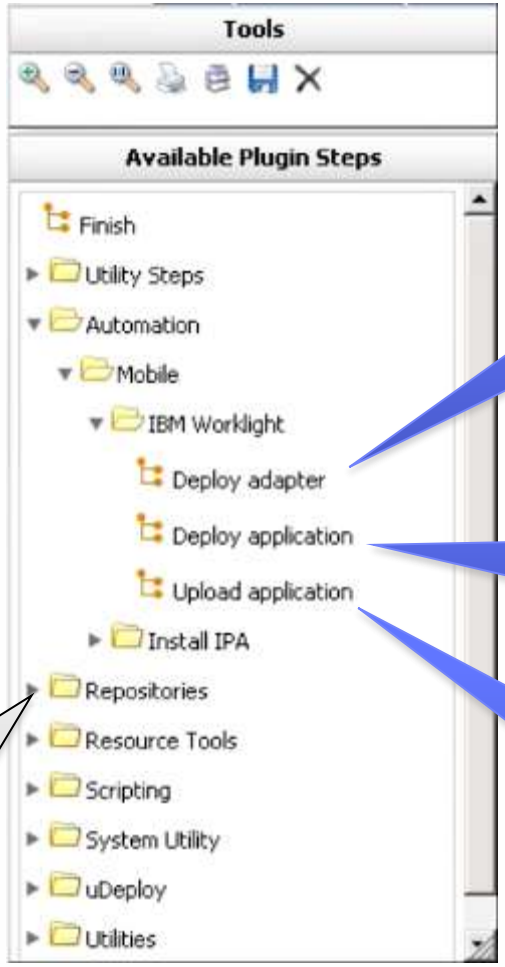
Description Provides support for deploying mobile application artifacts to an IBM Worklight server.

Commands

Command	
Upload Application	Uploads the application to the IBM Worklight Application Center.
Deploy Application	Deploys the application to the IBM Worklight Console.
Deploy Adapter	Deploys the adapter to the IBM Worklight Console.

10 per page 3 records -

... When modeling a deployment process, the plugin provides steps to operate against Worklight Console and Application Center:



Deploy *Adapter* to Worklight Server Console

Deploy Hybrid *App* to Worklight Server Console

Upload *App* to Worklight Application Center

Other plugins provide these steps, which are also usable in the same process model

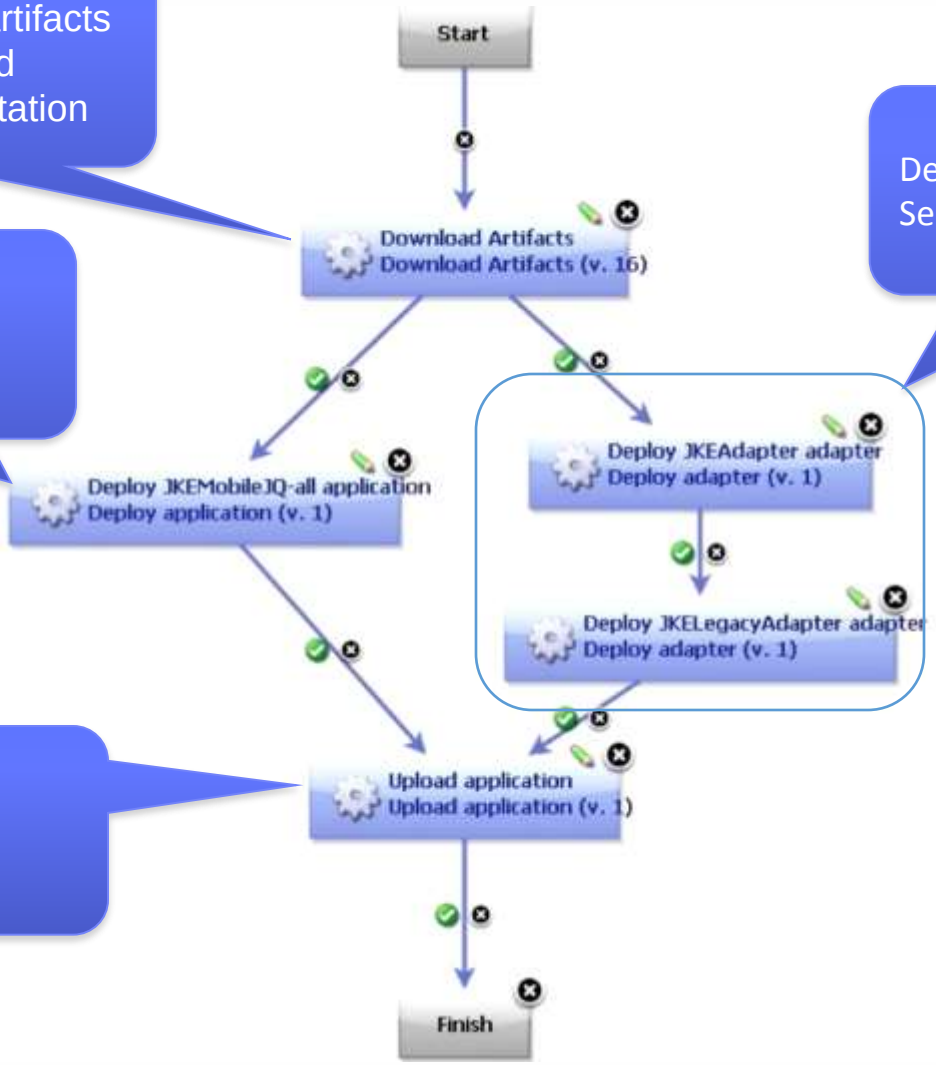
Here's a simple process example for our JKE sample app:

Get the deployable artifacts (created by your build system) from CodeStation

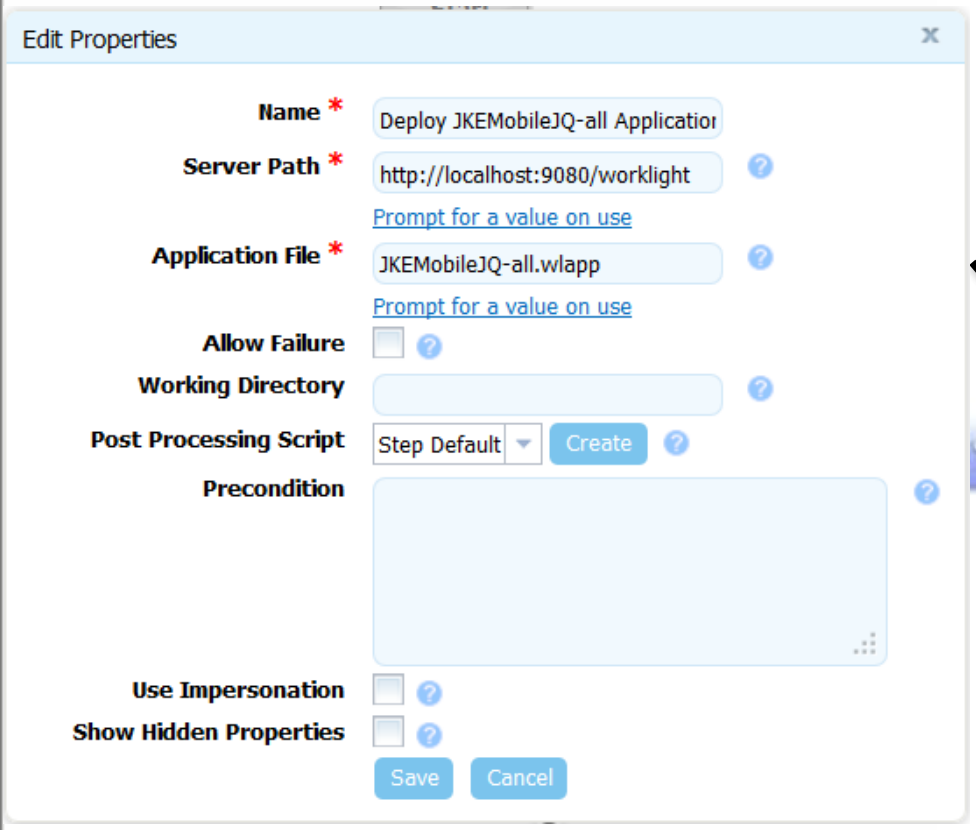
Deploy Hybrid *App* to Worklight Server Console

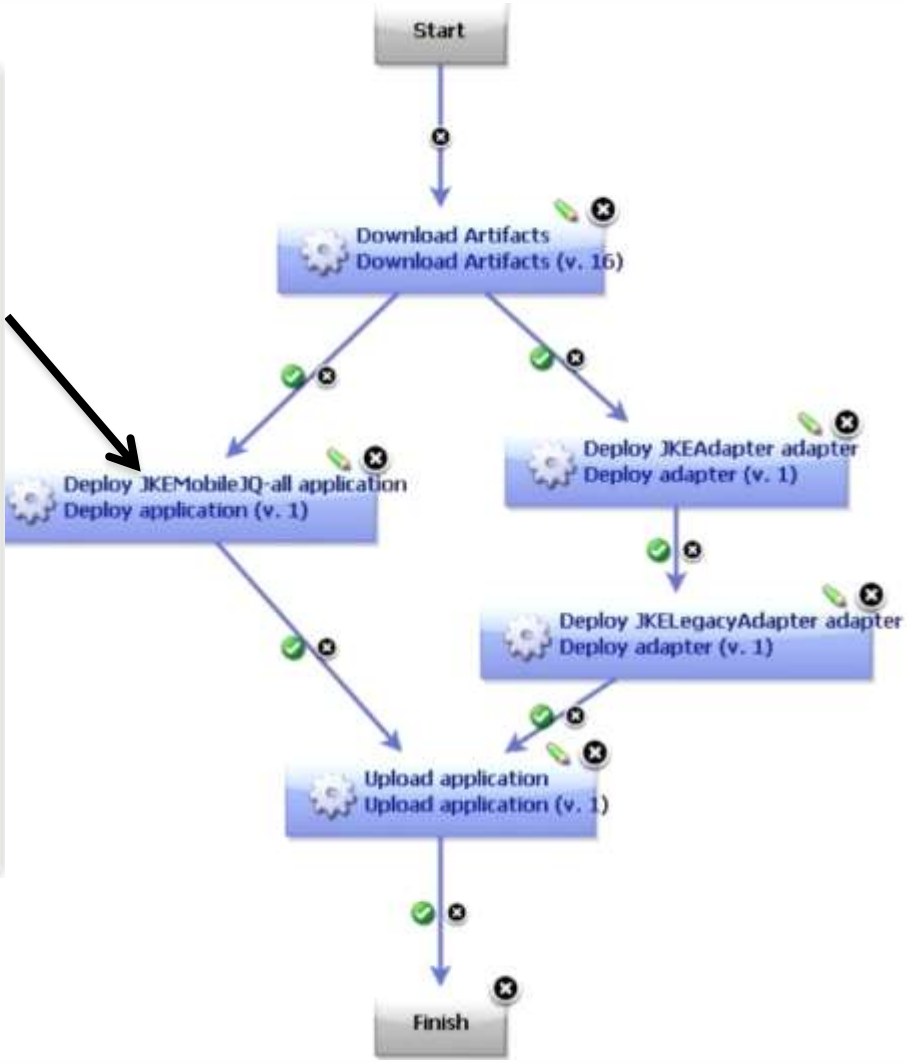
Deploy *Adapters* to Worklight Server Console

Upload *App* to Worklight Application Center



During process modeling, you configure the plugin properties





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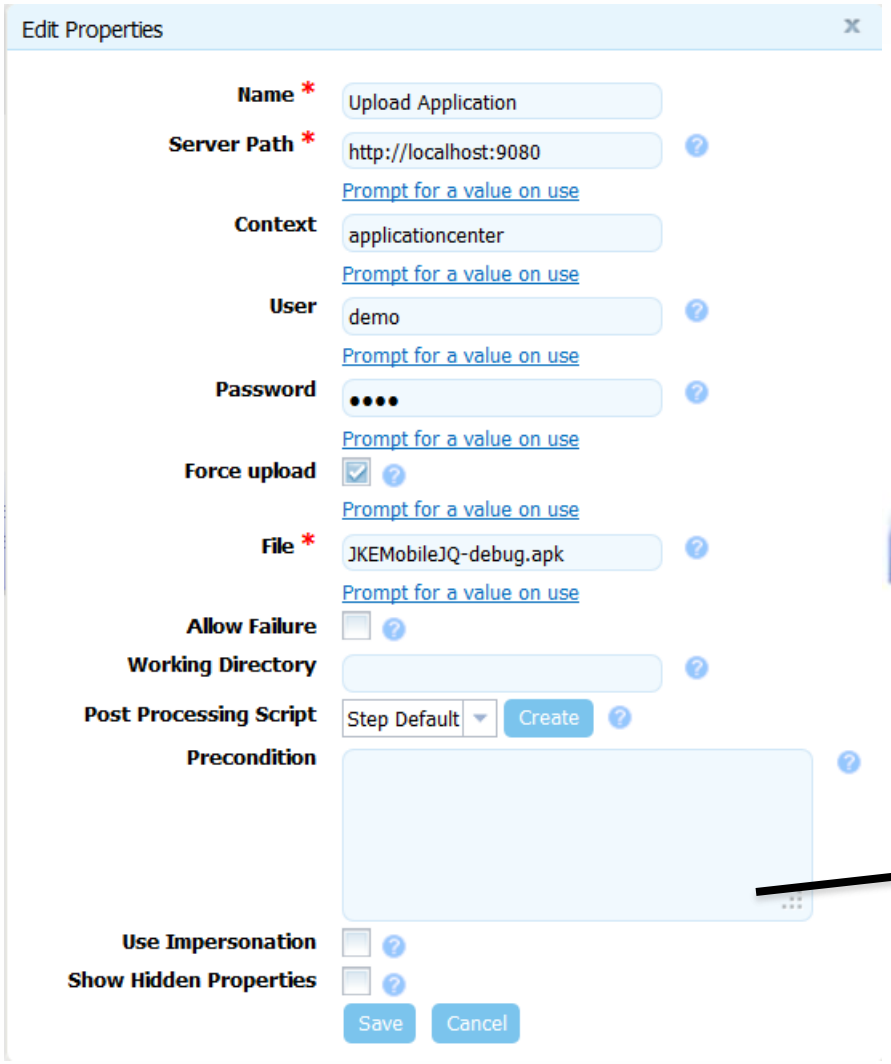
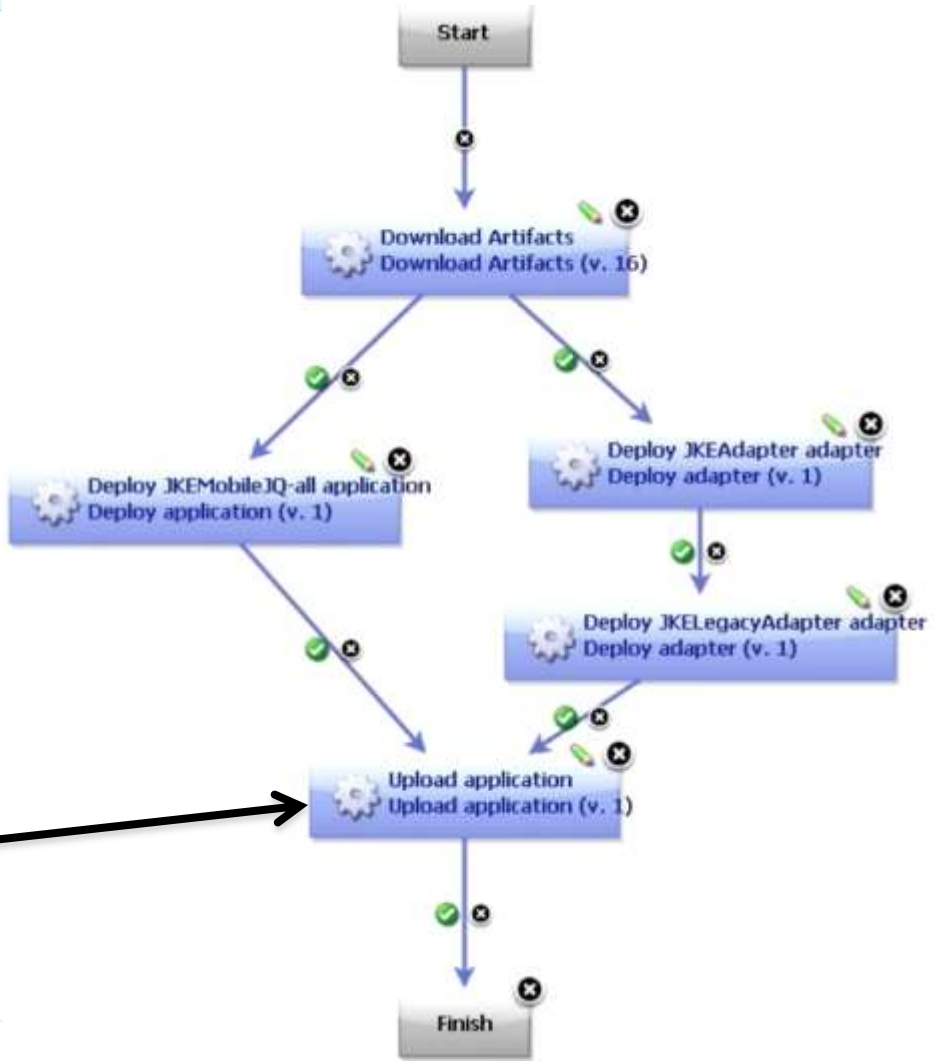
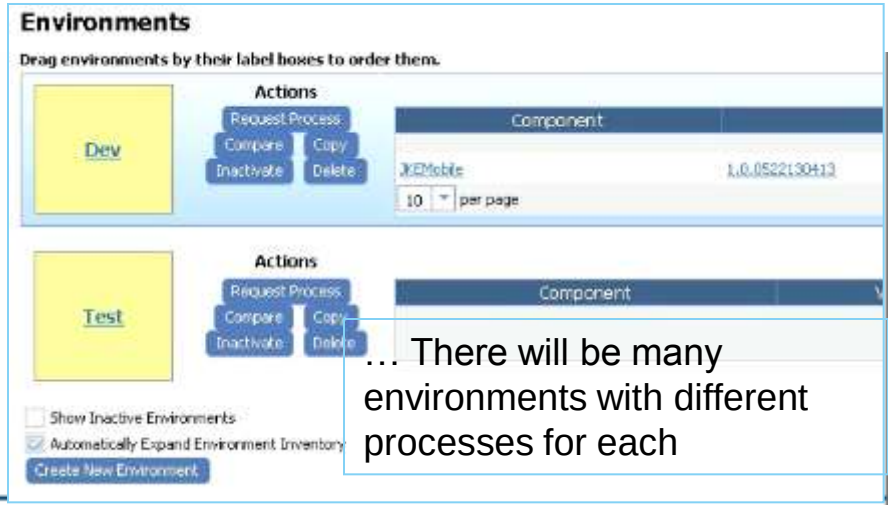




You run (automatically) the process within an Environment definition

Kick off the process, for the DEV environment



… There will be many environments with different processes for each

…. You can see the details of the deployment, and

Deployment of Component: JKEMobile

Process	Upload and Deploy App (Version 6)
Version	1.0.0522130413
Resource	jc-localhost-agent
Agent	jc-localhost-agent
Date	05/23/2013, 10:54 AM
Requested By	admin
	View Application Process Execution

Log | Properties

Sort By: Graph Order **Start Time**

Step	Type
Download Artifacts	UrbanCode Versioned File Storage v. 16.369060
Deploy JKEAdapter adapter	IBM Worklight v. 1.05230946
Deploy JKEMobileJQ-all application	IBM Worklight v. 1.05230946
Deploy JKELegacyAdapter adapter	IBM Worklight v. 1.05230946
Upload application	
Total Execution	

Start	Duration	Status	Actions
10:54:11 AM	0:00:08	Success	
10:54:20 AM	0:00:14	Success	
10:54:20 AM	0:00:14	Success	
10:54:35 AM	0:00:05	Running	
		Not Started	
10:54:11 AM	**0:00:28**	**Running**	

The Mobile App (updated) has been deployed to the Worklight Server Console and Application Center

Adapters and Middleware

Application Center (App Store)