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Collaborative DevOps – Learn the magic of Continuous Delivery

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Please note

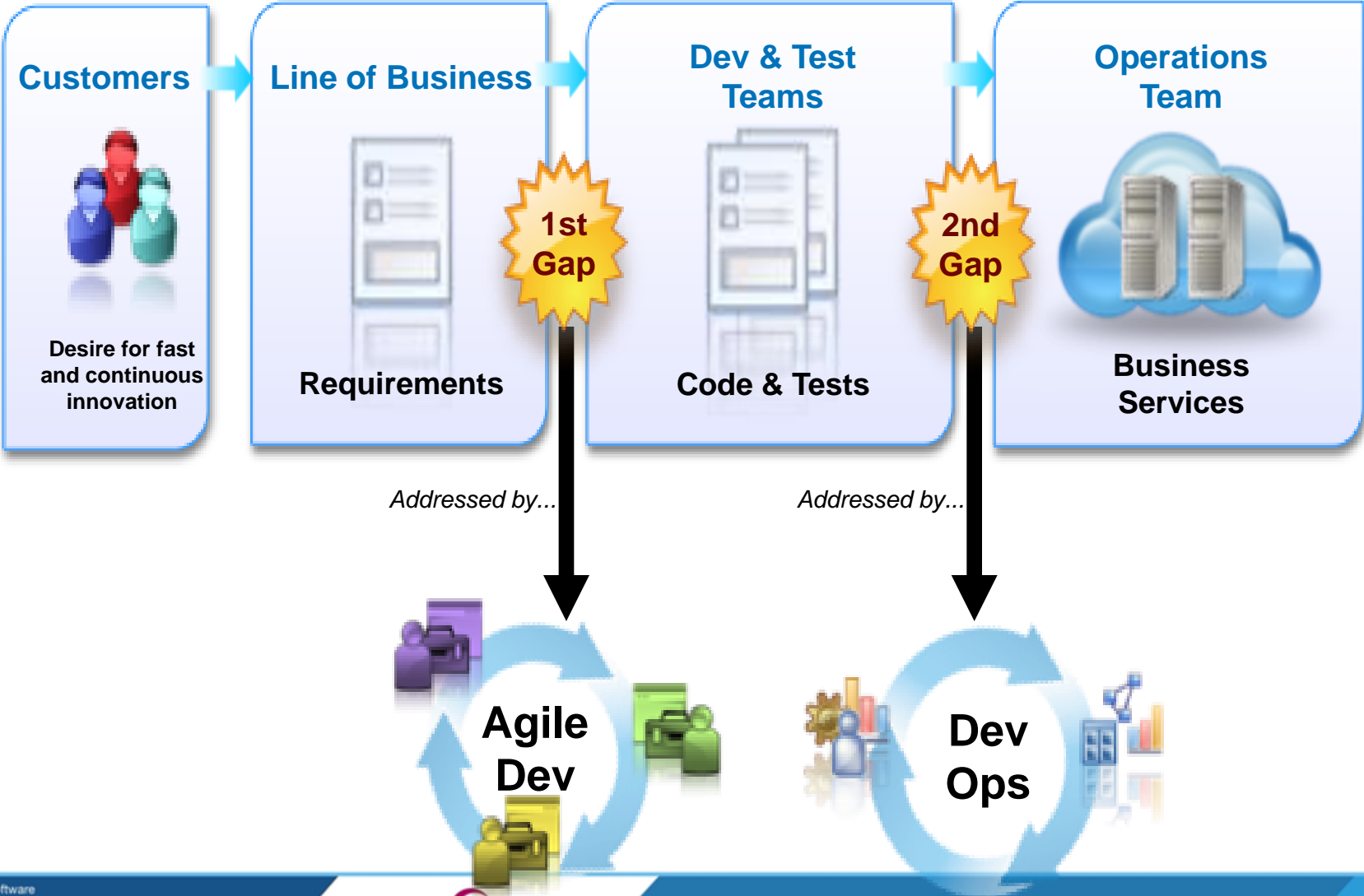
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Addressing Application Lifecycle Management gaps

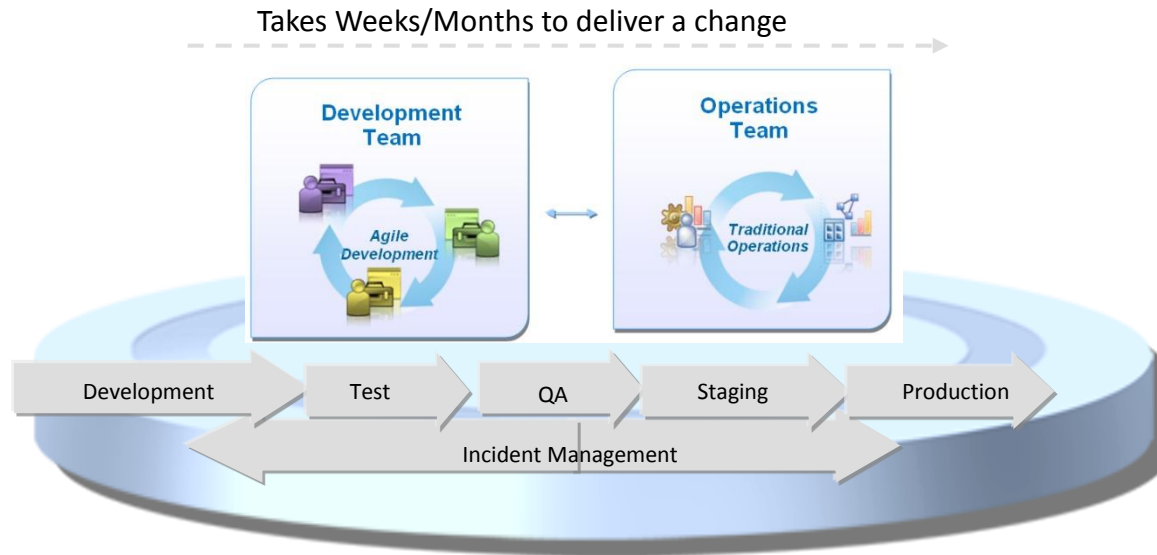


Software Delivery Challenges: what we hear from customers

Needs:

- Reduce cycle time and delays
- Improving software delivery efficiencies with standardization and automation
- Improving Quality of Delivery and reducing roll-backs

Simplified view of a single-release pipeline. In general, there are multiple projects, releases, and technologies at play



Quality Challenges

- Difficulties in reproducing production defects
- Long time to fix defects
- Poor Test coverage

Release Challenges

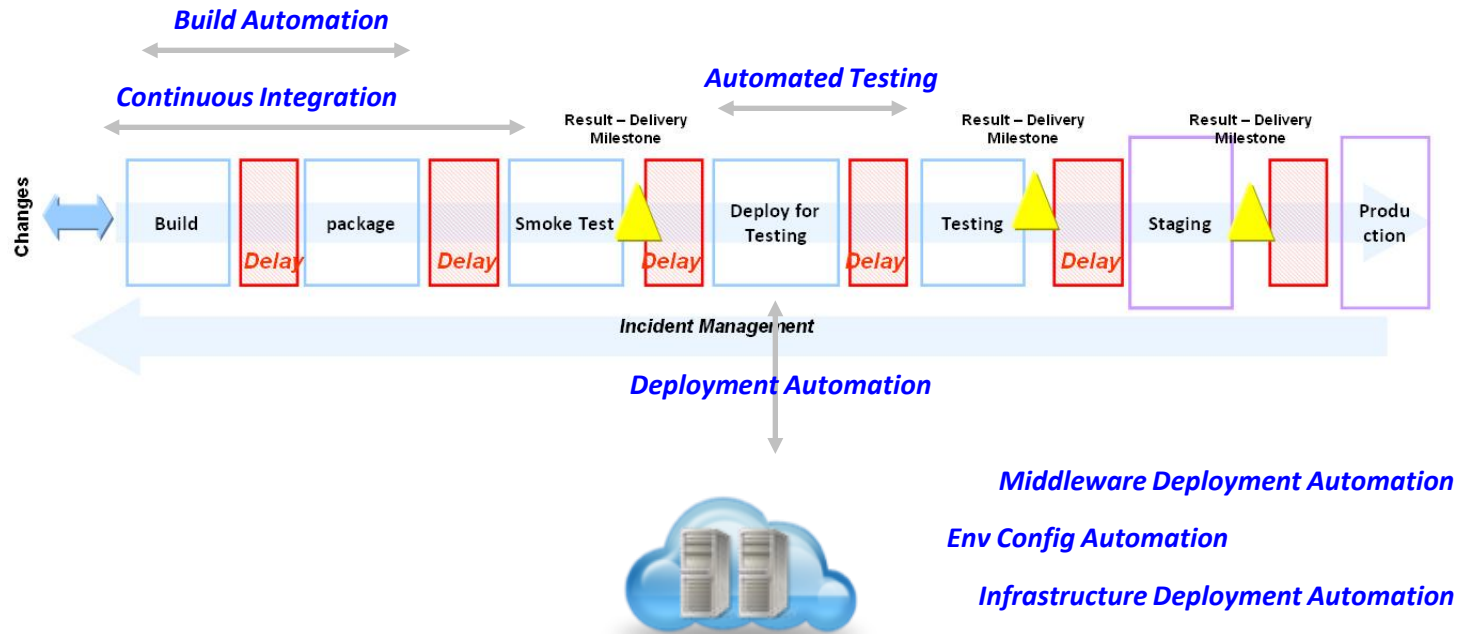
- Differences in Dev/Ops environments
- Siloed / Limited automation
- Long set up time

Process and Cultural challenges

- Point-Point, adhoc and Fragile integration of tools
- Poor visibility, stability and extensibility
- Cultural barriers limiting collaboration

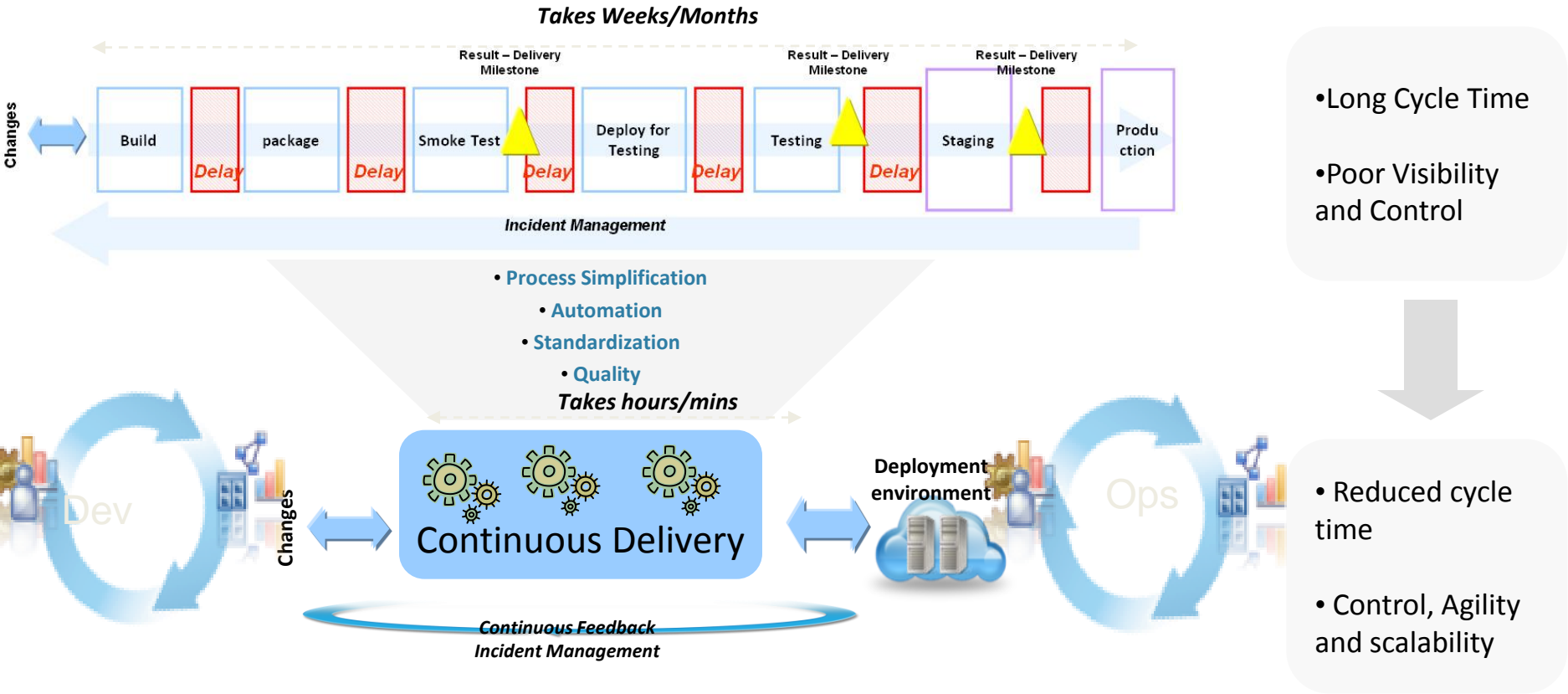
Current Customer approaches addressing these challenges..

- Selective & Siloed automation of the delivery process with limited benefits
- Poor visibility and control impacting cycle time



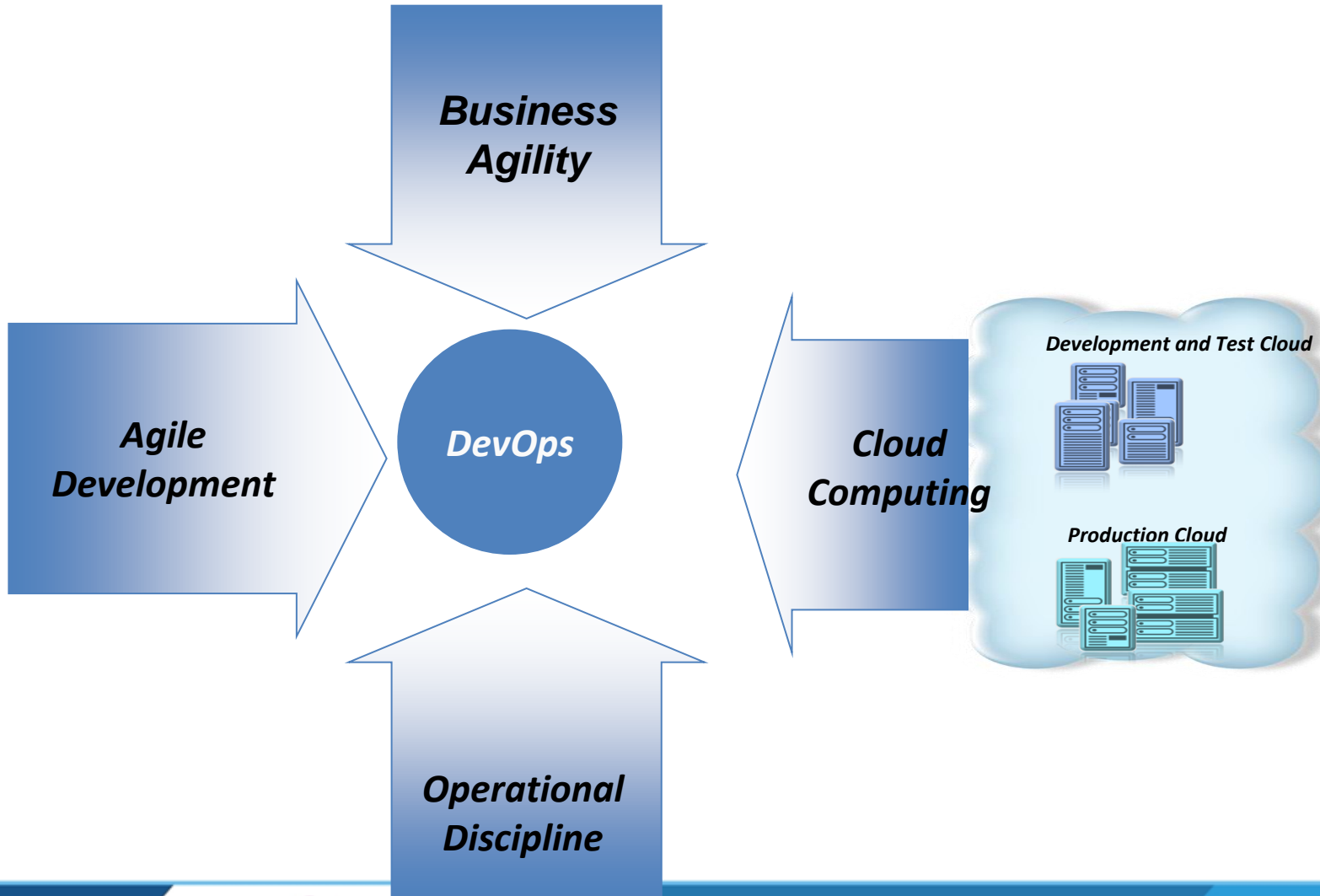
Need for a Simple approach to bringing agility across the lifecycle

Continuous and automated delivery of changes leveraging Cloud



Time is now for DevOps

Trends accelerating the need for Continuous Delivery



DevOps Principles & Values

- Collaborate across disciplines
- Develop and test against a production-like system
- Deploy frequently
- Continuously validate operational quality characteristics

People



Process



Information



How do we make this happen?

Automate Everything

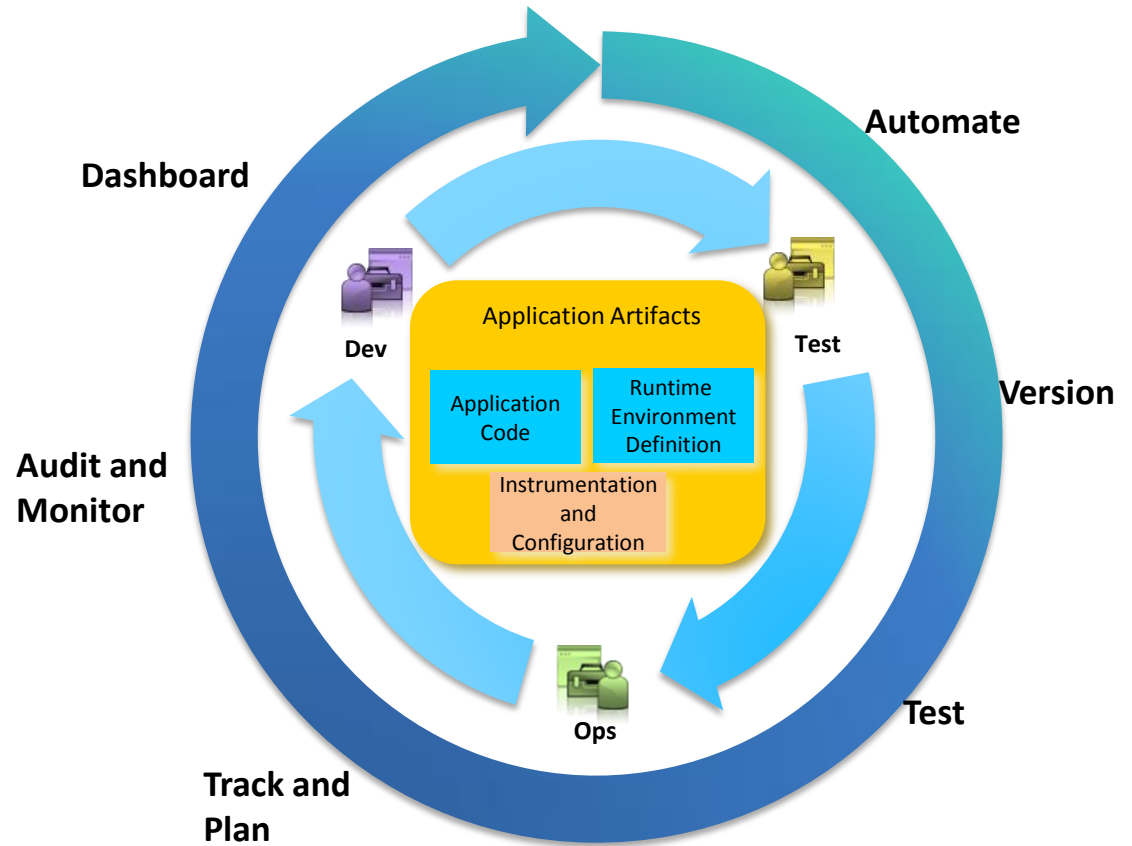
Version Everything

Test Everything

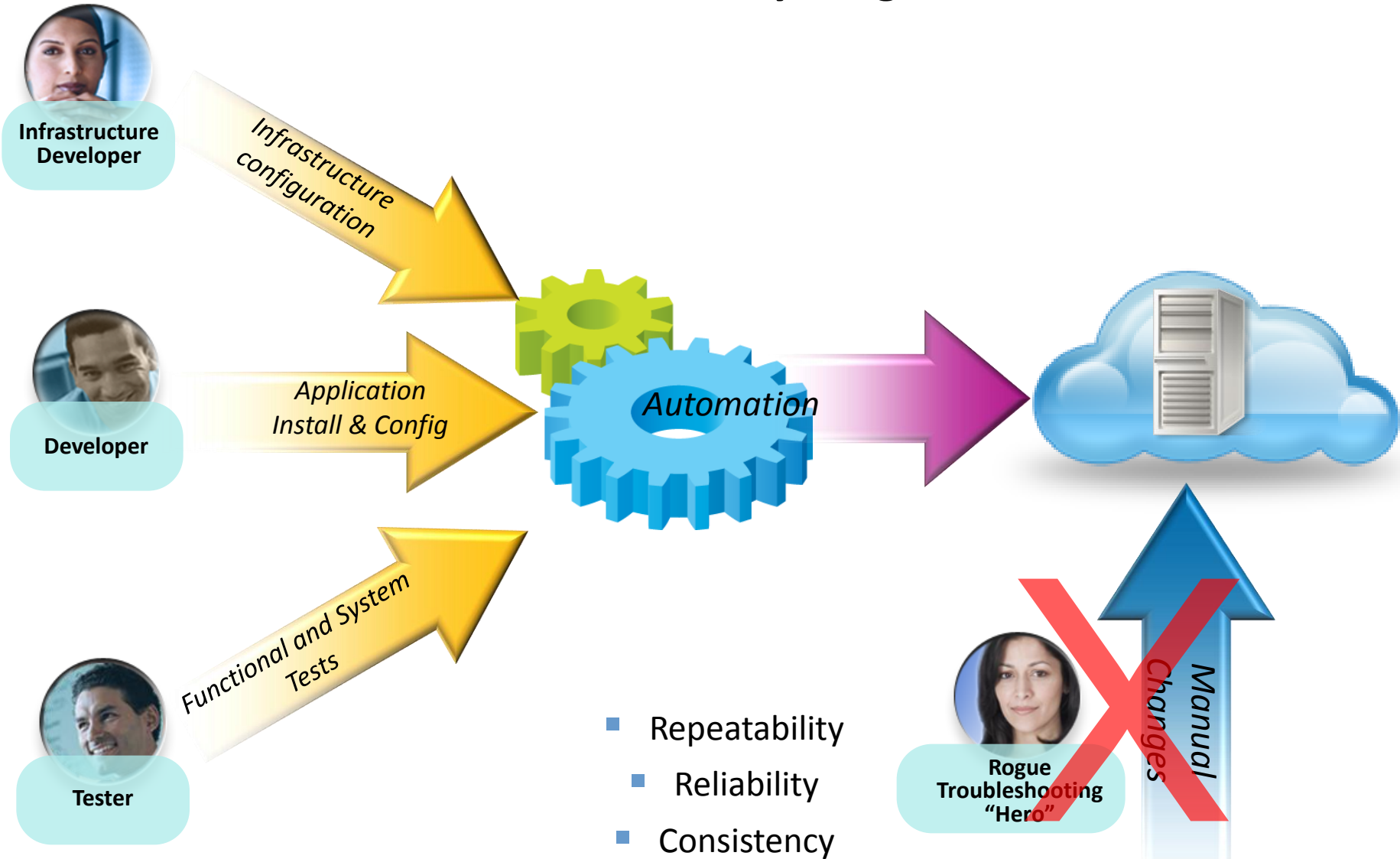
Track and Plan Everything

Audit and Monitor Everything

Dashboard Everything



Automate Everything



- Repeatability
- Reliability
- Consistency

DevOps leverages IBM's Pattern Strategy for Workload-Aware Cloud

- **Workload Awareness**
 - Consistent framework for deploying and managing middleware and applications in cloud environments
 - Standardized patterns capturing best practices
 - Automated, workload aware deployment and management
 - Virtualized middleware content for cloud deployment

- **Deployment Flexibility**
 - Portable across deployment environments
 - Hosted and Managed environments
 - Heterogeneous Enterprise Systems
 - Expert Integrated Systems

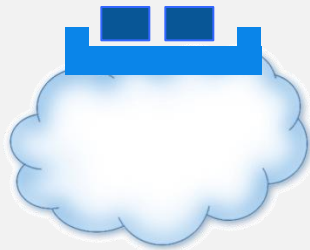
Cloud Enabled Middleware



Pattern based deployment and management

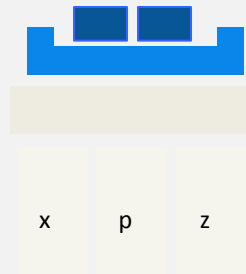


Hosted and Managed Environments



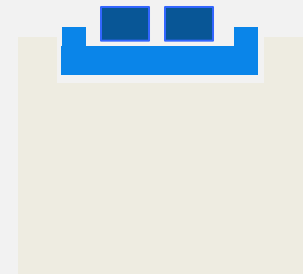
IBM SmartCloud
Application Services

Heterogeneous Enterprise Systems



IBM Workload
Deployer

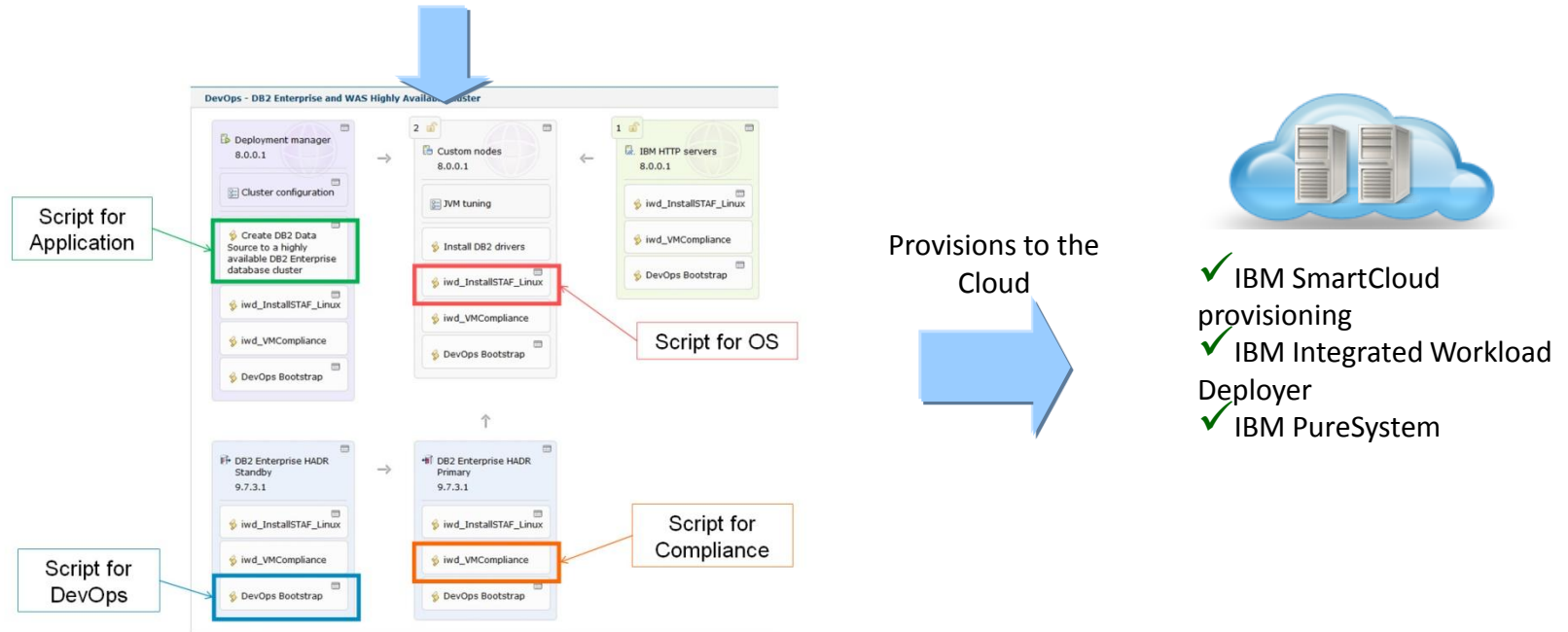
Expert Integrated Systems



IBM PureApplication
System

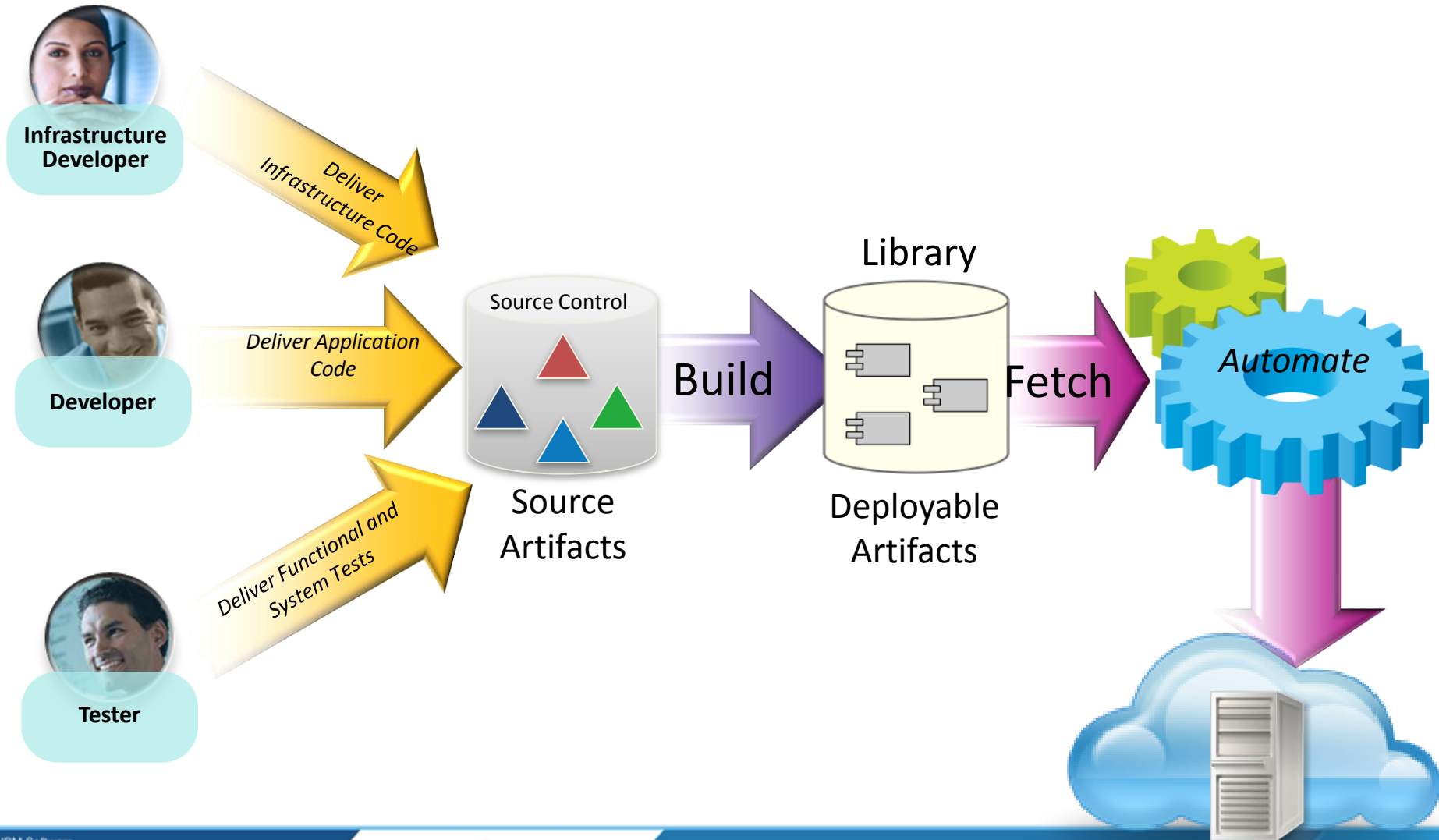
Virtual System Patterns to standardize and automate deployments

Dev & Ops Work together to create patterns



- Consistent framework for deploying and managing middleware and applications in cloud environments
- Standardized patterns capturing best practices
- Portable across deployment environments

Version Everything: Library of Deployable Artifacts



```
#!/usr/bin/env ruby

class DevopsDeployer
  def initialize(build_url, build_id)
    @log = Logger.new(LOG_FILE)
    @log.level = LOG_LEVEL

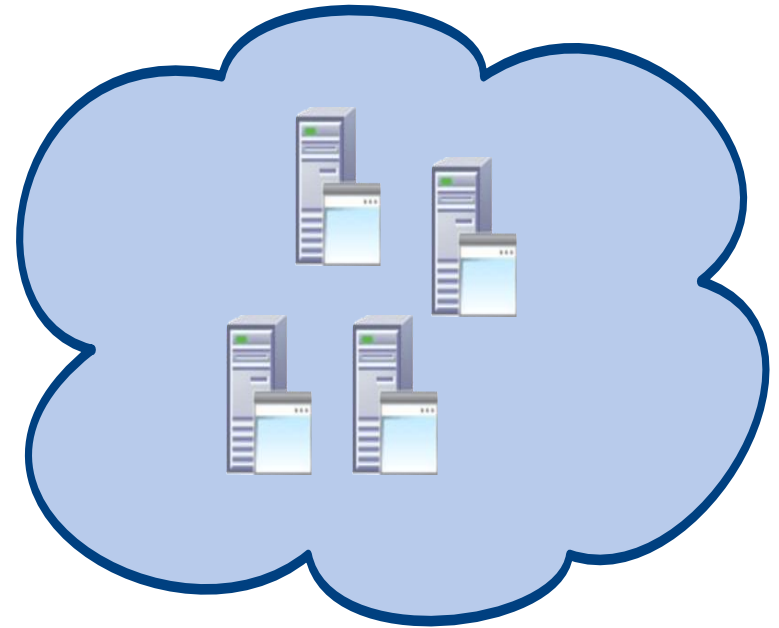
    @iaas_gateway = IaasGateway.new(HsiltProvider.new(),
    LOG_FILE, LOG_LEVEL)
    @server_instance = nil

    rtc_build_system_provider = RtcBuildSystemProvider.new(
    RTC_REPOSITORY_URL, RTC_USER_ID, RTC_PASSWORD_FILE)
    @build = rtc_build_system_provider.resolve_build(
    build_url, ENV['buildResultUUID'], build_id)
    @build_system_gateway = BuildSystemGateway.new(
    rtc_build_system_provider, LOG_FILE, LOG_LEVEL)
  end

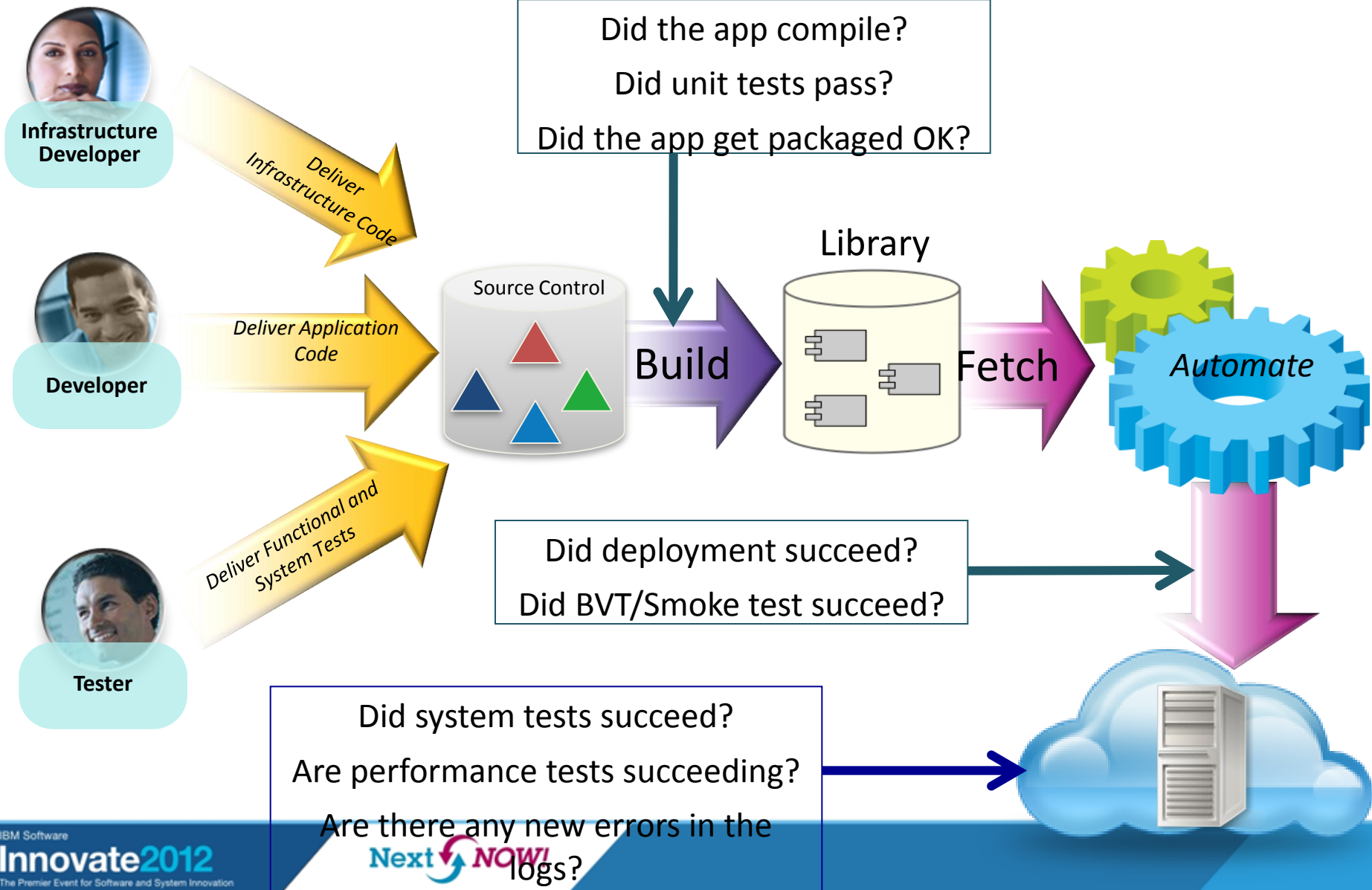
  def add_build_stamp
    template_file = WEB_APP_ROOT +
    "/app/templates/pages/page.html"
    @log.info "Adding build ID stamp #{@build.id} to \
    #{template_file}"

    # Read in the file's contents as a string, replace
    # the build_id, then overwrite the original contents
    # of the file
    text = File.read(template_file)
    new_text = text.gsub(/\{\{ build_id \}\}/,
    "<a href=\"#{@build.uri}\">#{@build.id}</a>")
    File.open(template_file, "w") { |file|
      file.puts new_text
    }
  end

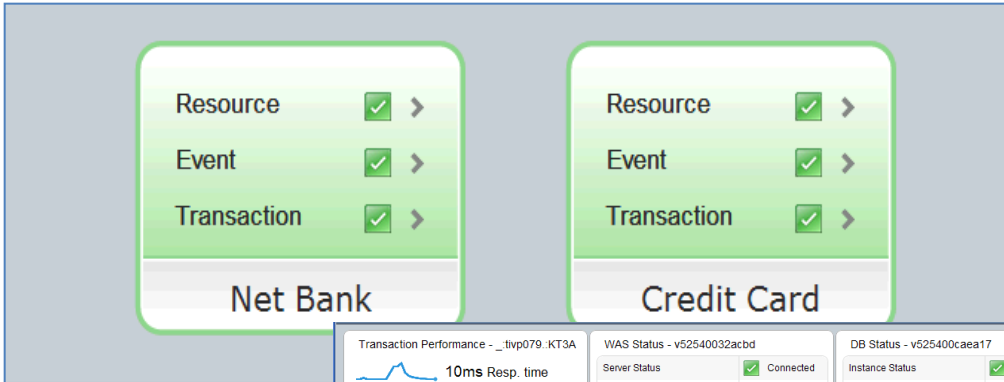
  # ...
end
```



Test *Everything*: Continuous, automatic testing across the lifecycle



Consistent monitoring deployed throughout lifecycle



This block contains several monitoring dashboards:

- Transaction Performance - _tvp079 :KT3A**: Shows a line graph for '10ms Resp. time' and '80 Requests'. Includes progress bars for 'Percent Available', 'Percent Slow', 'Transaction Status' (1), 'Server Status' (1), and 'Client Status' (12).
- WAS Status - v52540032acbd**: Lists 'Server Status' (Connected), 'Hung Threads Total' (0), and 'JVM Memory Used' (172.831Kb). Includes progress bars for 'CPU Used(%)', 'Conn Pool Used(%)', 'Heap Used(%)', and 'Real Time(%)'.
- DB Status - v525400ccea17**: Lists 'Instance Status' (Active), 'Max Table Space Used(%)' (60%), and 'Max Failed SQL Stmt(%)' (59%). Includes progress bars for 'Buffer Used(%)' and 'Conn Entry Used(%)'.
- HTTP Status - webserv1**: Lists 'Server Status' (Running), 'Failed Requests Rate' (0.000), and 'Server Failures Rate' (0.113).
- HTTP Status - webserv2**: Lists 'Server Status' (Running), 'Failed Requests Rate' (0.000), and 'Server Failures Rate' (0.860).
- WAS Status - v52540032ac-1**: Lists 'Server Status' (Connected), 'Hung Threads Total' (0), and 'JVM Memory Used' (233.714Kb). Includes progress bars for 'CPU Used(%)', 'Conn Pool Used(%)', 'Heap Used(%)', and 'Real Time(%)'.
- Queue Manager Status - brkqm1**: Lists 'Queue Manager status' (Running), 'Channel Initiator Status' (Active), and 'Command Server Status' (Active).
- Queue Status - brkqm1**: Lists 'High Depth Queue(Count)' (16), 'Queue Current Depth' (Active), 'DLQ Depth' (38), 'Put Inhabited Queue(Count)' (10), and 'Get Inhabited Queue(Count)' (2).
- Channel Status - brkqm1**: Lists 'Current Channel Connections' (Active), 'Max Channels(%)' (78%), 'Max Active Channels(%)' (66%), 'In doubt Channels' (0), and 'Sever Connections' (34).
- Top 5 XMITQ Depth - brkqm1**: Horizontal bar chart showing depths for Q1, TransQAsia, Q2, TransQeBank, and TransQTest.
- Top 5 Queue Depth - brkqm1**: Horizontal bar chart showing depths for Q1, TransQAsia, Q2, TransQeBank, and TransQTest.
- Top 5 Put Inhabited Queues - brkqm1**: Horizontal bar chart showing counts for Q1, TransQAsia, Q2, TransQeBank, and TransQTest.
- Top 5 Get Inhabited Queues - brkqm1**: Horizontal bar chart showing counts for Q1, TransQAsia, Q2, TransQeBank, and TransQTest.

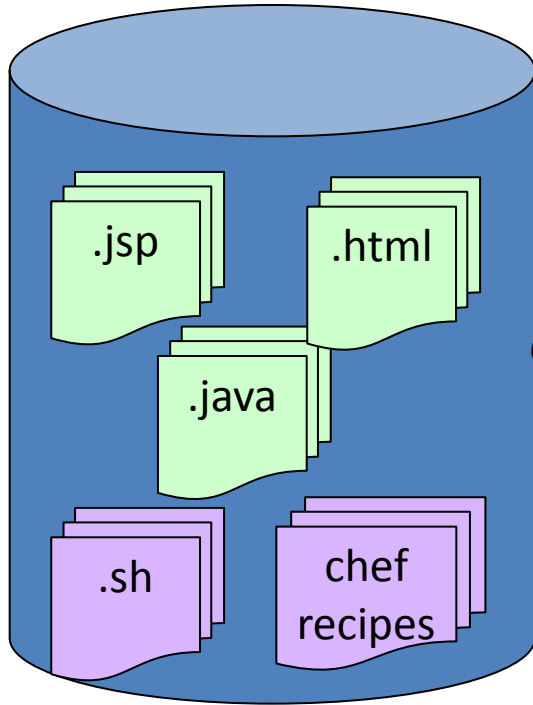
Delivery Pipeline

Integrated Change Management

Automated Delivery Task Execution

Delivery Library

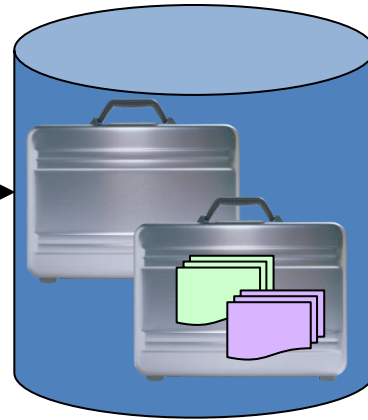
Pattern driven Provisioning of deployment environment



Source Artifacts
Source Control Management

*Build,
Package,
& Unit Test
Application
Binaries &
Platform
Configuratio*

→



Deployable Artifacts
Library

- ✓ IBM SmartCloud Enterprise
- ✓ IBM PureSystem
- ✓ IBM Integrated Workload Deployer

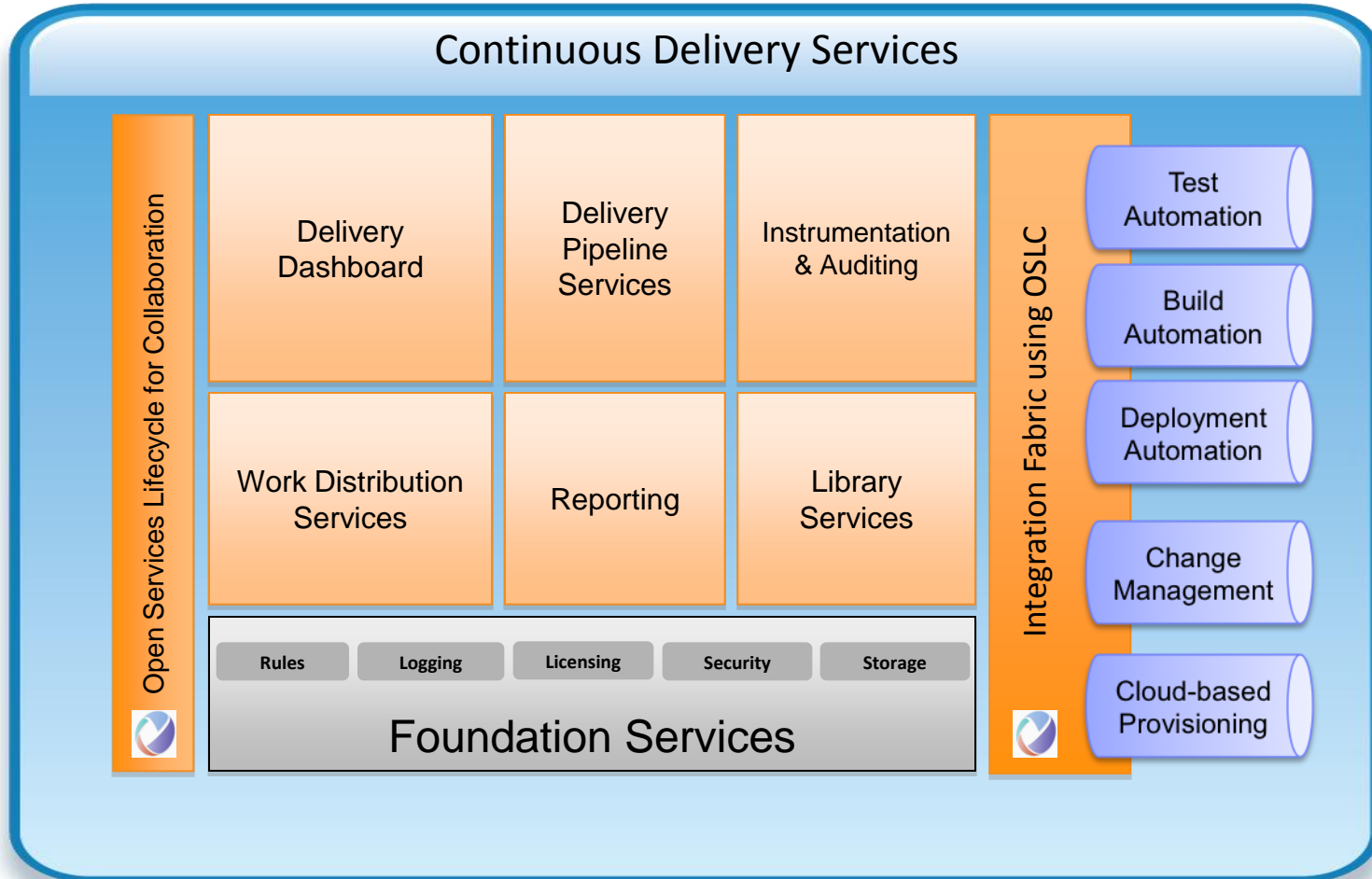


Deployment Environment

Using the same tools and methodologies to manage and deliver software and deployment configuration changes.

DevOps Integrated Architecture

Built on open standards allowing plug-in components from IBM products, open source, and third party





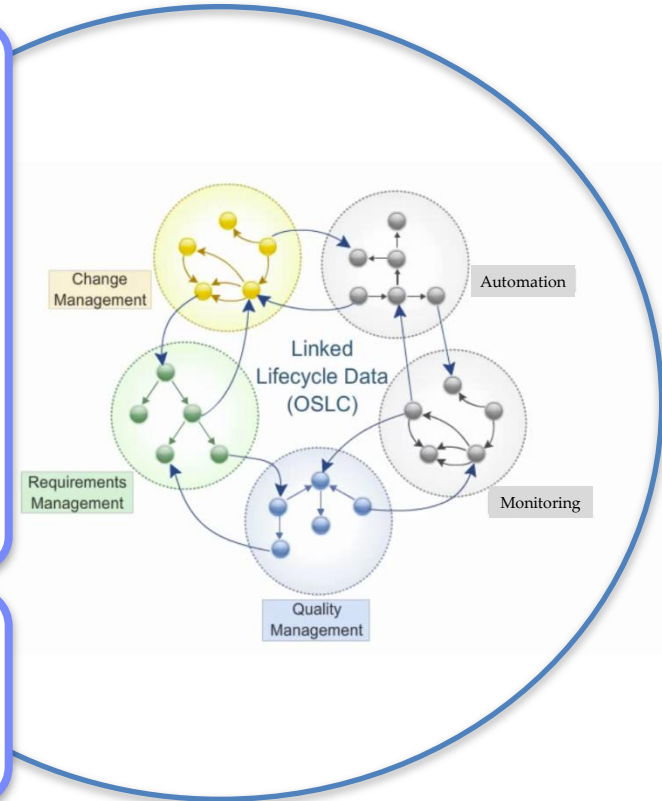
Open Services for Lifecycle Collaboration (OSLC)

Working to standardize the way software lifecycle tools share data



Open Services for Lifecycle Collaboration
Lifecycle integration inspired by the web

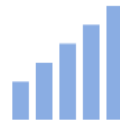
- Community Driven – @ **open-services.net**
- Specifications for numerous disciplines
 - Such as, ALM, PLM and DevOps
 - Defined by scenarios – solution oriented
 - Inspired by Internet architecture
- A different approach to industry-wide proliferation
 - BaW3C[®] n Linked Data



Inspired by the web



Free to use and share



Changing the industry

GET INVOLVED AND CONTRIBUTE!

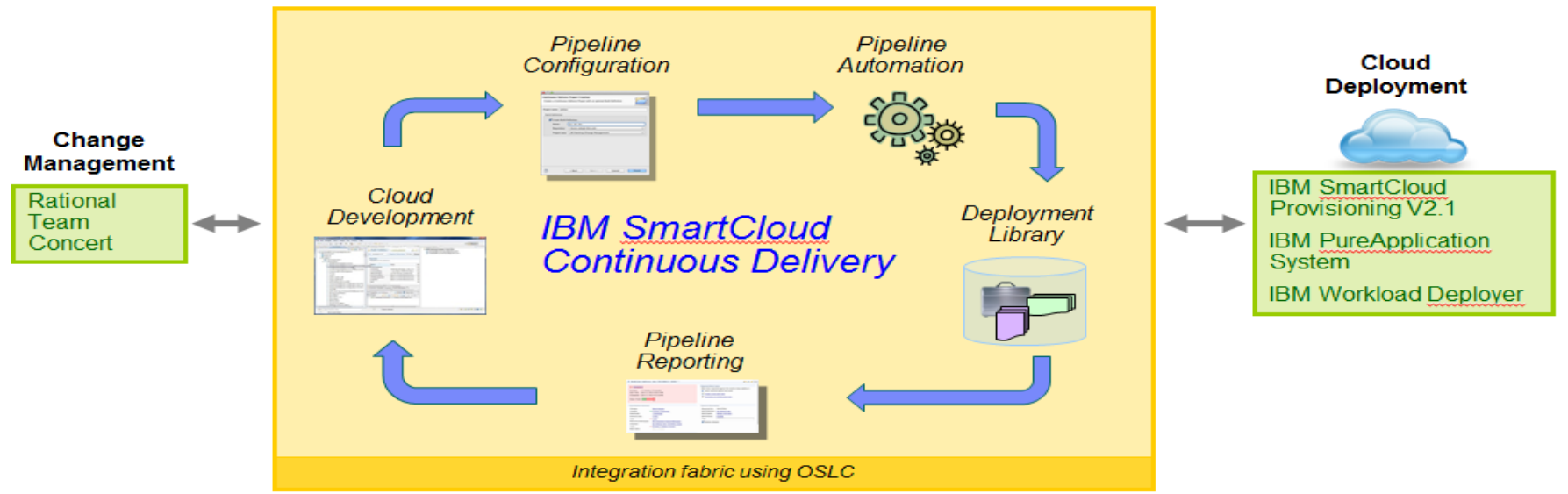


Introducing IBM SmartCloud Continuous Delivery

Collaborate: Dev and Ops co-develop app environment definitions and patterns
 Dev and Ops use the same metrics in Dev/Test/Prod

Integrate: Continuously integrate, test & automate build changes onto standard cloud environments
 Continuously deploy app changes into multiple (distributed and mainframe) environments

Optimize: Measure velocity of change based on agile processes supported by DevOps



Capabilities packaged with SmartCloud Continuous Delivery
 Needed Pre-reqs

Scenario

1

Collaborate

Dev and Ops collaborating together to create deployment patterns

2

Define

Define the DevOps project with tasks for build, deploy, test

3

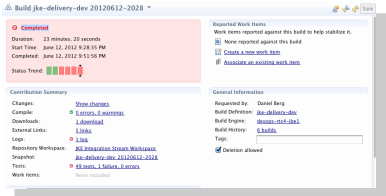
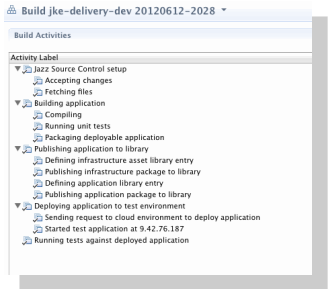
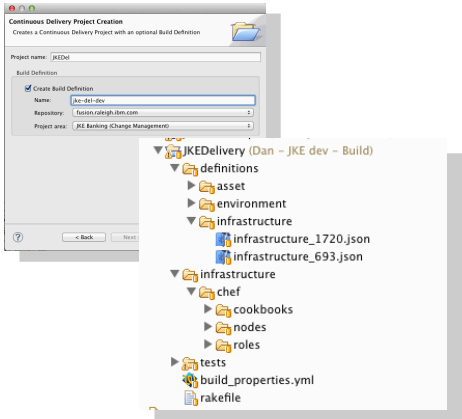
Execute

Changes from dev/test/Ops automatically deploy changes to the Cloud

4

Measure

Measure against desired metrics for continuous improvement



IBM helps ease adoption of DevOps Journey

Assess

- Pains, metrics, culture, technologies for DevOps adoption

Adopt

- Roadmap aligning with business goals, metrics, milestones

Acquire

- Solution capability mapping to Continuous Delivery roadmap driven by IBM SmartCloud Continuous Delivery

Implement

- Install, Integrate, Implement, Skills transfer

Grow


- Grow, Scale with your needs

Creating standard workload patterns

WebSphere advanced cluster (development) Refresh Deploy Edit Clone Lock Delete

Description: Advanced cluster (development) is a WebSphere Application Server Network Deployment topology with some of the Intelligent Management Pack features for small scale development environments.

Created on: May 23, 2011 11:20:09 AM

Current status:  Read-only

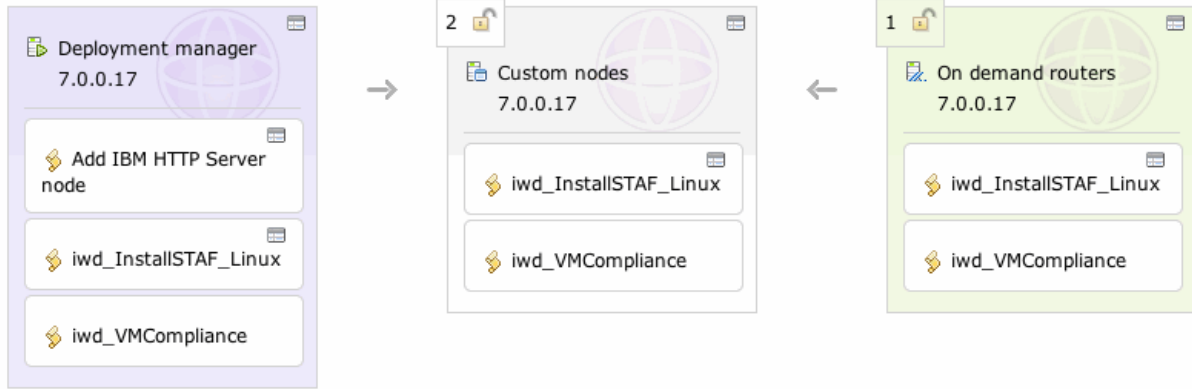
Updated on: Sep 9, 2011 2:27:03 PM

In the cloud now: (none)

Access granted to: Administrator [owner]
Everyone [read]

Topology for this pattern:

Deploys to ESX hypervisors.



The diagram illustrates the deployment topology for the WebSphere advanced cluster. It consists of three main components, each represented by a card with a globe icon and a list of tasks:

- Deployment manager (7.0.0.17):** Contains tasks for adding the IBM HTTP Server node, installing STAF on Linux, and setting up VM compliance.
- Custom nodes (7.0.0.17):** Contains tasks for installing STAF on Linux and setting up VM compliance. It is connected to the Deployment manager by a right-pointing arrow.
- On demand routers (7.0.0.17):** Contains tasks for installing STAF on Linux and setting up VM compliance. It is connected to the Custom nodes by a left-pointing arrow.

Demo: Application



JKE Banking

http://security-test.ibm.com:8080/#state=history&accountType=Checking

Search

JKE

Account Access

Welcome, Julie

Logout

Money That Matters

Dividend Contribution

Services

- Certificates of Deposit
- Open New Account
- Close Account
- Policy Change Request
- Policy Change Status

Financial Services

- Auto Loans
- Vacation Home Finance
- Today's Rates
- Refinancing
- Mortgage Details
- Home Equity Lines
- Amortization

Auto Loans
Rates as low as 4.9%

Transactions

Account:

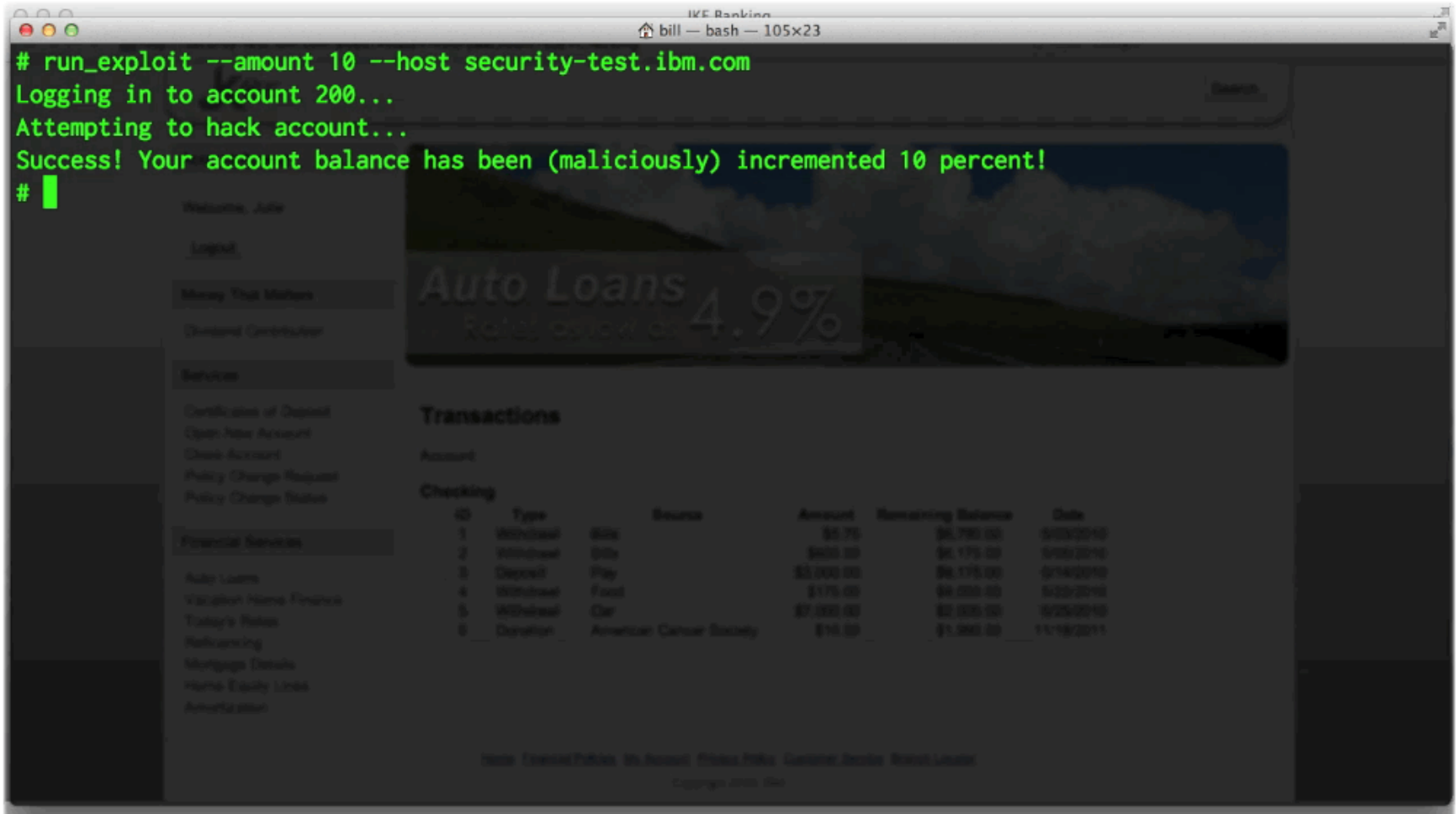
Checking

ID	Type	Source	Amount	Remaining Balance	Date
1	Withdrawal	Bills	\$5.75	\$6,790.00	5/03/2010
2	Withdrawal	Bills	\$600.00	\$6,175.00	5/05/2010
3	Deposit	Pay	\$3,000.00	\$9,175.00	5/14/2010
4	Withdrawal	Food	\$175.00	\$9,000.00	5/22/2010
5	Withdrawal	Car	\$7,000.00	\$2,000.00	5/25/2010
6	Donation	American Cancer Society	\$10.00	\$1,990.00	11/18/2011

[Home](#) [Financial Policies](#) [My Account](#) [Privacy Policy](#) [Customer Service](#) [Branch Locator](#)

Copyright 2010, IBM

Demo: Security Test



```

IKE Rankins
bill — bash — 105x23
# run_exploit --amount 10 --host security-test.ibm.com
Logging in to account 200...
Attempting to hack account...
Success! Your account balance has been (maliciously) incremented 10 percent!
# █
  
```

The screenshot shows a terminal window overlaid on a banking website. The terminal output indicates a successful exploit that increased the account balance by 10%. The website background shows a navigation menu on the left, a search bar at the top right, and a main content area with a banner for 'Auto Loans' at 4.9% and a 'Transactions' table.

ID	Type	Source	Amount	Remaining Balance	Date
1	Withdrawal	ATM	\$1.75	\$6,780.00	5/29/2010
2	Withdrawal	ATM	\$200.00	\$6,579.00	5/29/2010
3	Deposit	Pay	\$2,000.00	\$8,579.00	5/14/2010
4	Withdrawal	Food	\$175.00	\$8,404.00	5/22/2010
5	Withdrawal	Car	\$7,000.00	\$1,404.00	5/26/2010
6	Donation	American Cancer Society	\$10.00	\$1,394.00	11/19/2011

Demo: Defect created



The screenshot shows a web browser window displaying the IBM DevOps interface for a defect. The browser address bar shows the URL: `https://csnext.ibm.com/ccm9/web/projects/DevOps#action=com.ibm.team.workitem.viewWorkItem&id=12975`. The page title is "Defect 12975: Was able to make negative contribution - Change and Configuration Management".

The interface includes a navigation bar with "DevOps" and a user profile for "William P. Higgins". Below the navigation bar, there are tabs for "Overview", "Links", "Approvals", and "History". The "Overview" tab is active.

The main content area is titled "Defect 12975" and contains a summary field with the text "Was able to make negative contribution". To the right of the summary field, there are buttons for "New", "Save", and a "Loaded: Nov 18, 2011 7:43 PM" timestamp.

The "Details" section is divided into two columns of fields:

- Left Column:**
 - Type: Defect
 - Severity: Normal
 - Found In: Unassigned
 - Creation Date: Nov 18, 2011 7:43 PM
 - Created By: William P. Higgins
 - Project Area: DevOps
 - Team Area: Development
 - Filed Against: Engineering
 - Tags: security
- Right Column:**
 - Owner: Unassigned
 - Priority: Unassigned
 - Planned For: Unassigned
 - Estimate: [Empty field]
 - Time Remaining: [Empty field]
 - Due Date: [Empty field]
 - Correction: [Empty field]

On the right side of the page, there is a "Quick Information" section showing "Subscribers (1): WPH" and a "Subscribers" section below it.

The "Description" section contains the text: "Was able to directly hit the web service and submit a negative balance, thus stealing from charity." There is an "Edit" link next to the description.

The "Discussion" section is currently empty, showing "No Comments." and an "Add Comment" link.

Demo: Fix the defect



12975: Was able to make negative contribution ContributionBean.java

Properties

Java Structure Compare

- Compilation Unit
 - ContributionBean
 - validate()

Java Source Compare

ContributionBean.java (after) (read-only)	ContributionBean.java @ Bill's Dev Workspace (before) (read-only)
<pre>Date= date; } public void validate() throws IllegalArgumentException if (accountNumber < 0) { throw new IllegalArgumentException("Invalid a + accountNumber); } else if (percentage < 1) { throw new IllegalArgumentException("Invalid d + accountNumber + " percent"); } }</pre>	<pre>public void setOrganization(String organization) { this.organization= organization; } public void setPercentage(double percentage) { this.percentage= percentage; } public void setDate(String date) {</pre>

Fix

12975: Was able to make negative contribution jke_site.feature

Properties

Text Compare

jke_site.feature (after) (read-only)	jke_site.feature @ Bill's Dev Workspace (before) (read-only)
Feature: JKEFunctionalTests	Feature: JKEFunctionalTests
Scenario: A new JKE website was deployed Given I have a jke web server Then I should be able to visit the homepage	Scenario: A new JKE website was deployed Given I have a jke web server Then I should be able to visit the homepage
Scenario: A user tries to log in to the JKE website Given I have a jke web server And I have a user account Then I should be able to login to the user account	Scenario: A user tries to log in to the JKE website Given I have a jke web server And I have a user account Then I should be able to login to the user account
Scenario: A user tries make a transaction with a negati Given I have a jke web server Then I should not be able to contribute a negative am	

New Test

Demo: Deliver the fix



Tags: security

Owner:

Priority:

Planned For:

Overview Links App

Builds Pending

2 outgoing change sets

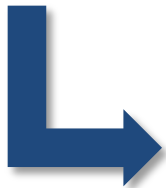
- Bill's Dev Work
 - Build
 - CLM Sample
 - Outgoing
 - 1297
 - 1297
 - CLM Sample
 - Frameworks

Advisor Search

service from accepting negative contributions

New

- Open in Change Explorer
- Deliver**
- Suspend
- Discard...
- Reverse
- Deliver and Resolve Work Item...
- Submit for Review...
- Complete
- Set Current
- Edit Comment



Builds Pending Changes Change Explorer Work Items Team Advisor Search

jke.cloud - Found 16 Builds (1239 ms)

Build	Label	Progress	Estimated Completion	Status
✓ jke.cloud	i20111118-1940	81% (Application is now ready for in 5 minutes)		No
✓ jke.cloud	i20111119-0749	Completed		No
✓ jke.cloud	i20111119-0703	Completed		No
✓ jke.cloud	i20111118-1547	Completed		No
✓ jke.cloud (personal build by Michael D. Elder)	i20111118-1515	Completed		No
✓ jke.cloud	i20111118-0957	Completed		No
✓ jke.cloud (personal build by Michael D. Elder)	i20111118-0350	Completed		No

Demo: Build starts

12975: Was able to make negative contribution I20111118-1940

Build jke.cloud I20111118-1940 Save

✓ In Progress (81%)

Current Activity: Application is now ready for use
 Estimated Completion: in 5 minutes
 Last Updated: less than 1 minute ago
 Duration: 7 minutes, 2 seconds
 Start Time: November 18, 2011 7:45:04 PM

Status Trend:

Reported Work Items
 Work items reported against this build to help stabilize it.

- None reported against this build
- [Create a new work item](#)
- [Associate an existing work item](#)

Contribution Summary

Changes: [Show changes](#)
 Compile: 0 errors, 0 warnings
 Downloads: [1 download](#)
 External Links: [1 link](#)
 Repository Workspace: [Build: Sample App \(IWD\)](#)
 Snapshot: [jke.cloud I20111118-1940](#)

General Information

Requested by: William P. Higgins
 Build Definition: [jke.cloud](#)
 Build Engine: [devops-ibe-cloud1](#)
 Build History: [16 builds](#)
 Tags:
 Deletion allowed

Overview | Activities | Compilation | Tests | Downloads | External Links | Properties

Demo: Deploy, test, and report



12975: Was able to make negative contribution I20111118-1940

Build jke.cloud I20111118-1940

Build Activities

Activity Label	Start Time	Activity Duration
Pre-build setup	00:00:00	22 s
Building application	00:00:32	28 s
Publishing deployable application to software library	00:01:09	17 s
Deploying application to test environment	00:01:26	5 m 50 s
Sent request to cloud environment to deploy application	00:01:34	4 m 28 s
Downloading application	00:06:02	10 s
Installing application	00:06:12	13 s
Application is now ready for use	00:06:26	38 s

Started test application at 9.42.76.92

JUnit Tests

Name	Tests	Failures	Errors	Time Taken	Run Order
com.jke.junit.AllTests	46	0	0	14 s	
JKEFunctionalTests	3	0	0	3 s	
JKEFunctionalTests.A new JKE website was deployed	1	0	0	106 ms	1
JKEFunctionalTests.A user tries to log in to the JKE website	1	0	0	3 s	2
JKEFunctionalTests.A user tries make a transaction with a negative v	1	0	0	12 ms	3

Overview Activities Compilation Tests Downloads Exte

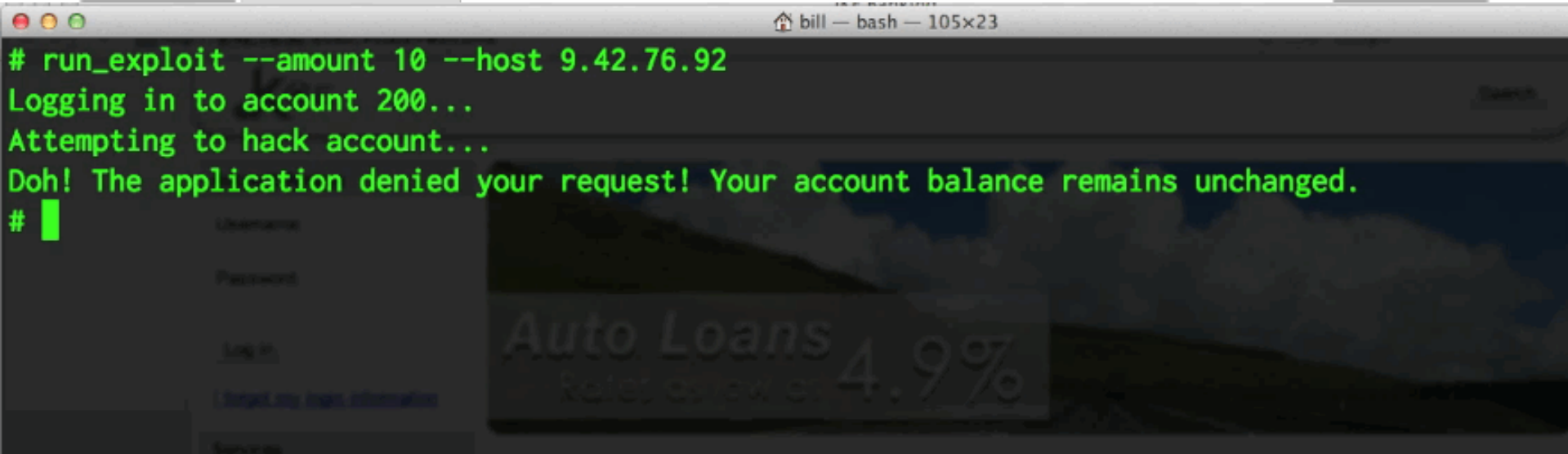
12975: Was able to make negative contribution I20111118-1940

Build jke.cloud I20111118-1940

External Links

- [Deployed Virtual System \(ID: 3947\)](#)
- [Money that Matters Application library entry](#)
- [Money that Matters Infrastructure Deps file URL](#)
- [Money that Matters Infrastructure library entry](#)
- [Money that Matters web application \(build I20120402-1644\)](#)
- [Money that Matters test suite results](#)

Demo: Test with fix



Demo: Resolve the defect

The screenshot displays the IBM Rational Defect Manager interface for defect 12975. The title bar shows the defect ID and name: "12975: Was able to make negative contribution". The main header area includes a "Defect 12975" dropdown and a "Summary" field containing the text "Was able to make negative contribution". To the right of the summary, the defect's status is shown as "Resolved" with a green arrow icon and a checkmark, and the resolution type is "Fixed". A red box highlights this status area. Below the header, the "Details" section lists attributes: Type: Defect, Severity: Normal, Found In: Unassigned, Creation Date: Nov 18, 2011 7:43 PM, Created By: William P. Higgins, Team Area: Development / DevOps, Filed Against: Engineering, and Tags: security. The "Description" section contains the text: "Was able to directly hit the web service and submit a negative balance, thus stealing from charity."

Better Business Outcomes with DevOps



The need

To reduce costs through improved management of its testing environment.

The solution

IBM Rational software to enhance management of its testing environments by providing collaboration and automation capabilities.

The benefit

Enabled costs to remain flat as demand for services has increased 35 percent. Reduce the time required to begin working on a new project from three months to four weeks.

QUESTIONS

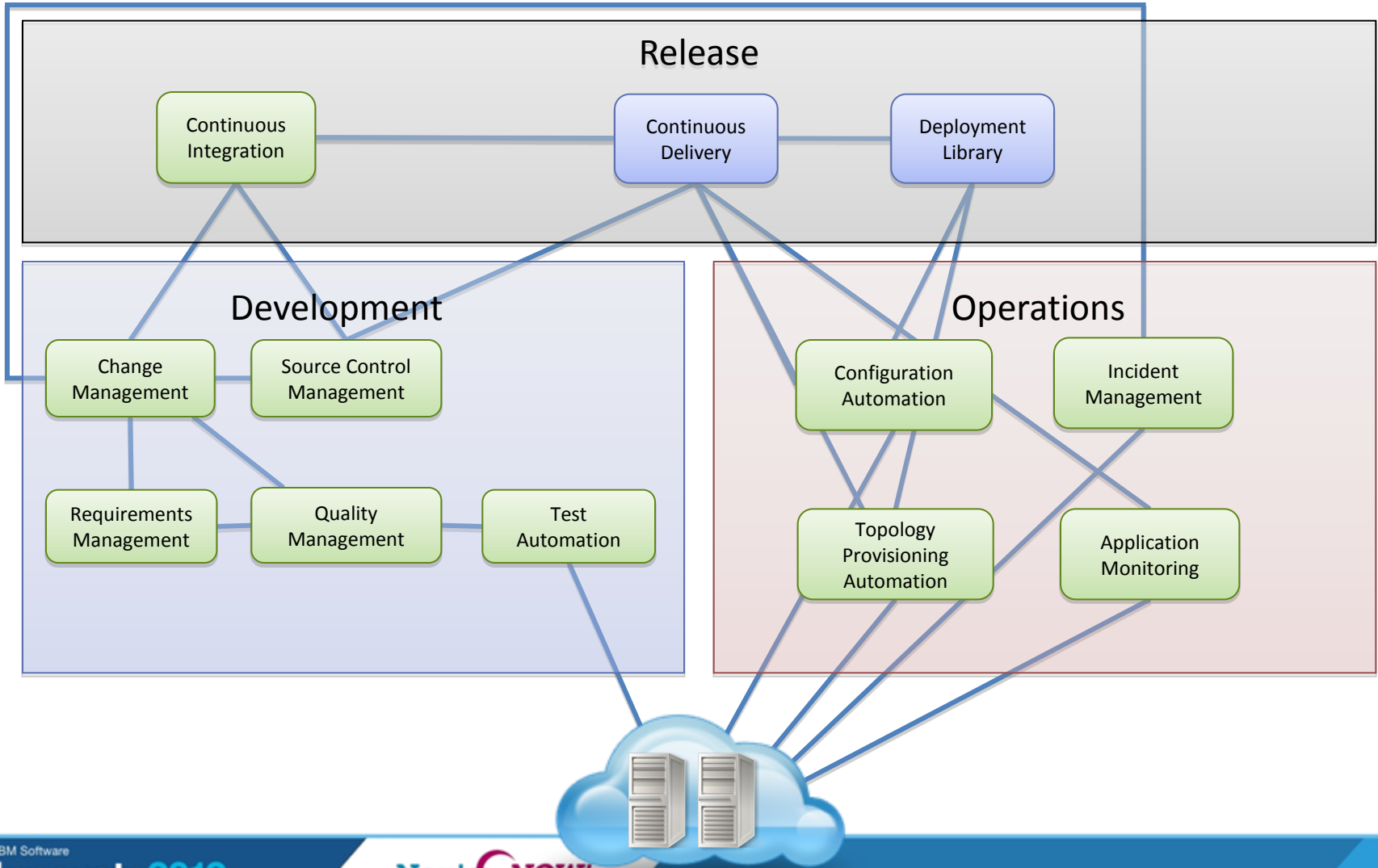
www.ibm.com/software/rational



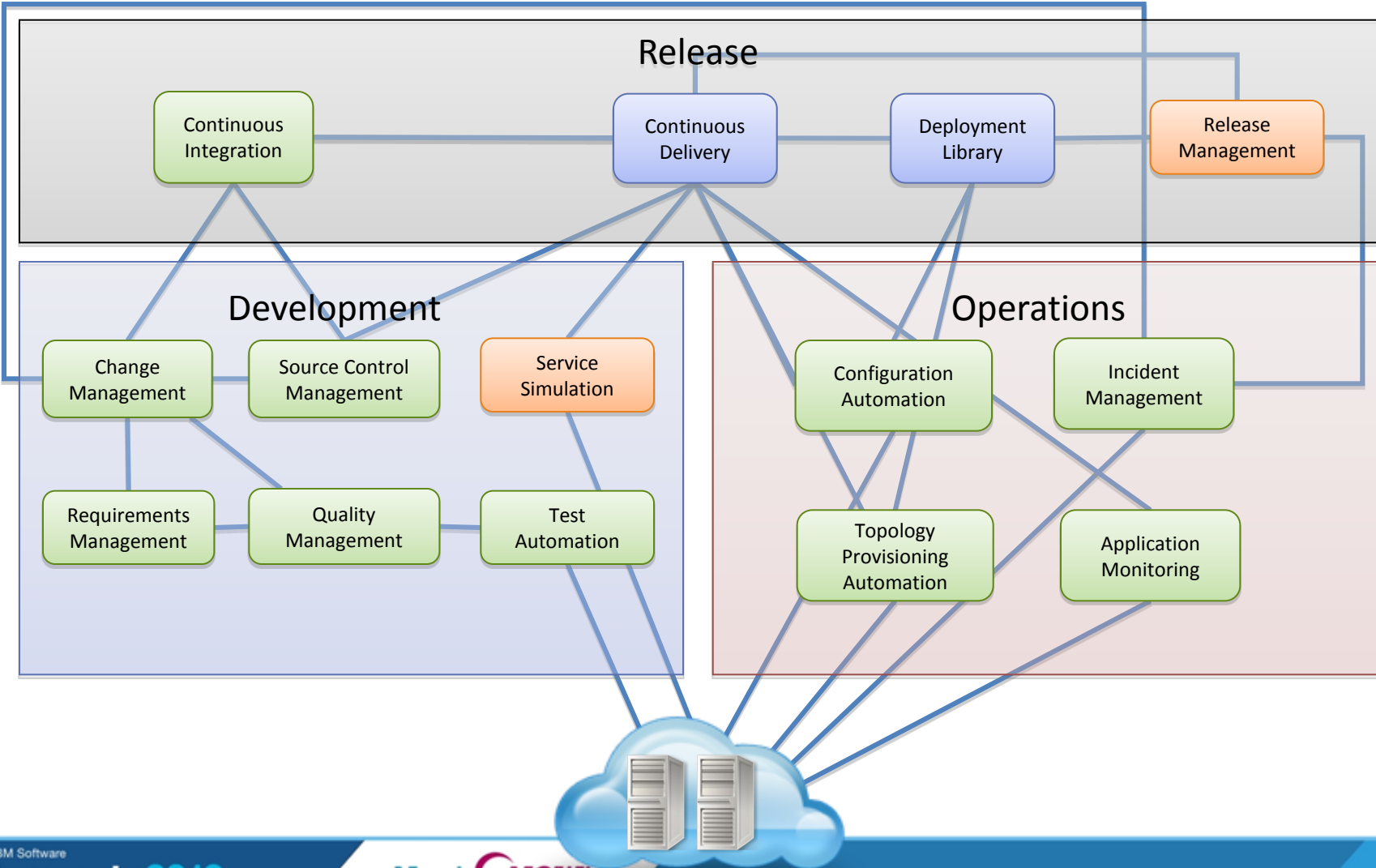
www.ibm.com/software/rational

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DevOps 2012 Capabilities



DevOps 2013 Capabilities



Define Delivery Project

Continuous Delivery Project Creation
Creates a Continuous Delivery Project with an optional Build Definition

Project name:

Build Definition

Create Build Definition

Name:

Repository:

Project area:



- JKE Banking (Change Management) [fusion.raleigh.ibm.com]
 - Builds
 - Build Engines
 - Build Queue
 - devops-rtc4-jbe1 (idle)
 - devops-rtc4-jbe2 (warning)
 - jke-delivery-dev

Build system configurations

- JKEDelivery (Dan - JKE dev - Build)
 - definitions
 - asset
 - environment
 - infrastructure
 - infrastructure_1720.json
 - infrastructure_693.json
 - infrastructure
 - chef
 - cookbooks
 - nodes
 - roles
 - tests
 - build_properties.yml
 - rakefile

Library & pattern configuration files

Infrastructure as Code files

Automation process files

Creating standard workload patterns

WebSphere advanced cluster (development)

 Refresh
 Deploy
 Edit
 Clone
 Lock
 Delete

Description:	Advanced cluster (development) is a WebSphere Application Server Network Deployment topology with some of the Intelligent Management Pack features for small scale development environments.
Created on:	May 23, 2011 11:20:09 AM
Current status:	Read-only
Updated on:	Sep 9, 2011 2:27:03 PM
In the cloud now:	(none)
Access granted to:	Administrator [owner] Everyone [read]

Topology for this pattern:

Deploys to ESX hypervisors.

Deployment manager
7.0.0.17

Add IBM HTTP Server node

iwd_InstallSTAF_Linux

iwd_VMCompliance

→

2
Custom nodes
7.0.0.17

iwd_InstallSTAF_Linux

iwd_VMCompliance

←

1
On demand routers
7.0.0.17

iwd_InstallSTAF_Linux

iwd_VMCompliance

Delivering Changes

Build jke-delivery-dev 20120612-2028

Completed

Duration: 23 minutes, 20 seconds
 Start Time: June 12, 2012 9:28:35 PM
 Completed: June 12, 2012 9:51:56 PM

Status Trend:

Reported Work Items
 Work items reported against this build to help stabilize it.

- None reported against this build
- [Create a new work item](#)
- [Associate an existing work item](#)

Contribution Summary

Changes: [Show changes](#)
 Compile: [0 errors, 0 warnings](#)
 Downloads: [1 download](#)
 External Links: [5 links](#)
 Logs: [1 log](#)
 Repository Workspace: [JKE Integration Stream Workspace](#)
 Snapshot: [jke-delivery-dev 20120612-2028](#)
 Tests: [49 tests, 1 failure, 0 errors](#)
 Work items: None included

General Information

Requested by: Daniel Berg
 Build Definition: [jke-delivery-dev](#)
 Build Engine: [devops-rtc4-ibe1](#)
 Build History: [6 builds](#)
 Tags:
 Deletion allowed

Build jke-delivery-dev 20120612-2028

Build Activities

Activity Label

- Jazz Source Control setup
 - Accepting changes
 - Fetching files
- Building application
 - Compiling
 - Running unit tests
 - Packaging deployable application
- Publishing application to library
 - Defining infrastructure asset library entry
 - Publishing infrastructure package to library
 - Defining application library entry
 - Publishing application package to library
- Deploying application to test environment
 - Sending request to cloud environment to deploy application
 - Started test application at 9.42.76.187
 - Running tests against deployed application

Build jke-delivery-dev 20120612-2028

Test Results

Name
▶ com.jke.junit.AllTests
▼ JKEFunctionalTests
▶ JKEFunctionalTests.A new JKE website was deployed
▶ JKEFunctionalTests.A user tries to log in to the JKE website
▶ JKEFunctionalTests.A user tries make a transaction with a negative

Details

Build jke-delivery-dev 20120612-2028

External Links

- [Deployed Virtual System \(ID: 5744\)](#)
- [JKE Sample Application library entry](#)
- [JKE Sample configuration data Deps file URL](#)
- [JKE Sample configuration data library entry](#)
- [Money that Matters web application \(build 20120612-2028\)](#)

DevOps Adoption Strategy

1. **Acquire** a cloud platform that supports PaaS (ideally support for virtual patterns)
2. **Define** standard, production-like virtual patterns that will be used for dev/test (and possibly production)
3. **Identify** a well contained project for adoption
4. **Define** infrastructure code for platforms and the project application
5. **Define** automated configuration for middleware services
6. **Define** automated tests for the infrastructure and application
7. **Adopt** a single-stage continuous delivery process to support continuous build, deploy, and test for dev and test virtual environments

Growth

- Inject monitoring as part of the standard pattern and use the data in the delivery process to improve feedback
- Adopt a multi-stage delivery process that supports promotion of changes from one stage to the next (e.g., Dev to QAT)
- Adopt a delivery process with promotion to production
- Track and manage incidents in production linked to work/tasks in development

Better Business Outcomes with DevOps

Large Insurance Company

The need

Continuous delivery to support demand to deliver business value rapidly at **lower cost** while **improving quality**

US\$0

The solution

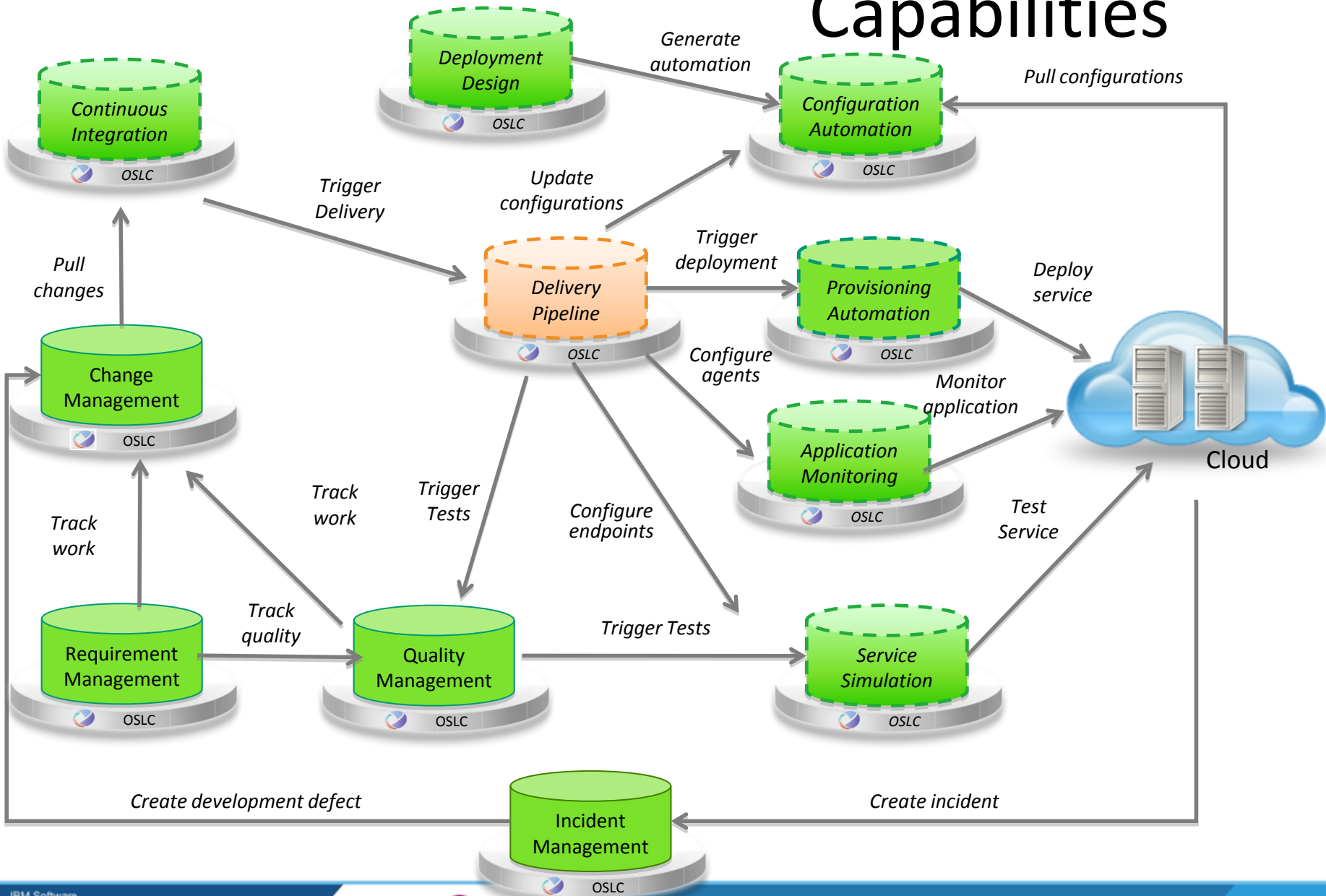
- **Collaboration** between Operations and Development
- **Infrastructure as Code** to maximize automation
- **Governance:** Monitoring, Metrics, Optimization

2018/01/11

The benefit

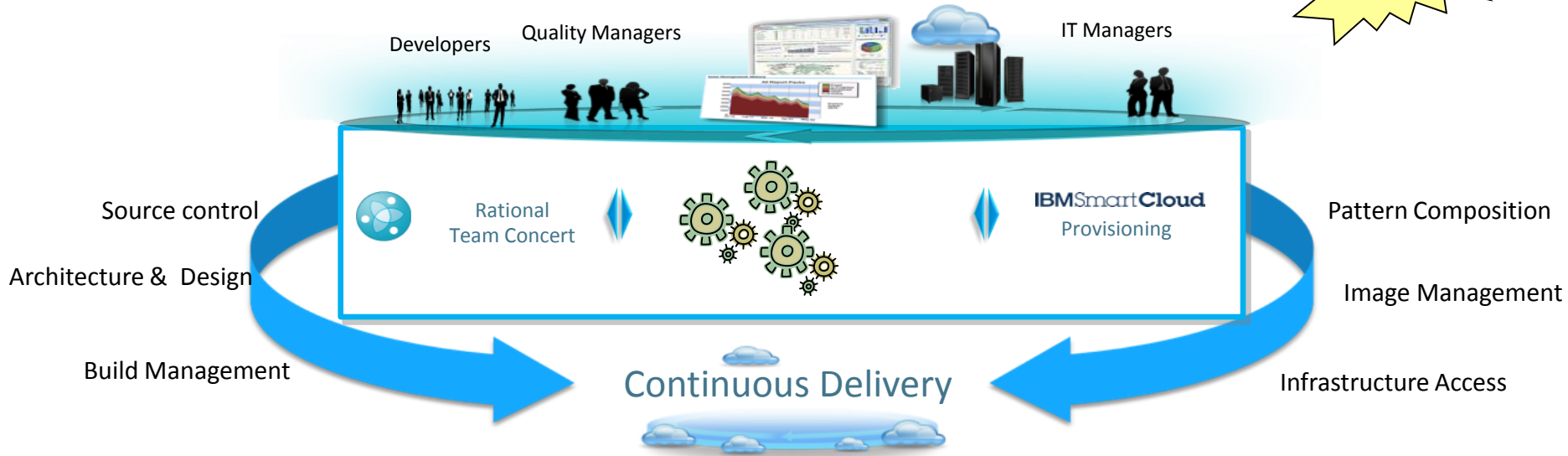
- Upwards of **1000 deploys per week** to be performed without requiring additional Operations personnel
- Provides an **average turn-around time** to the developer of under **5 minutes**

Integrated Capabilities



Introducing IBM SmartCloud Continuous Delivery

A simple approach to bringing agility across the lifecycle



Improved **Cycle Time**:

- Improved efficiency, accelerated delivery; automated hand-off between processes

Improved **Quality**:

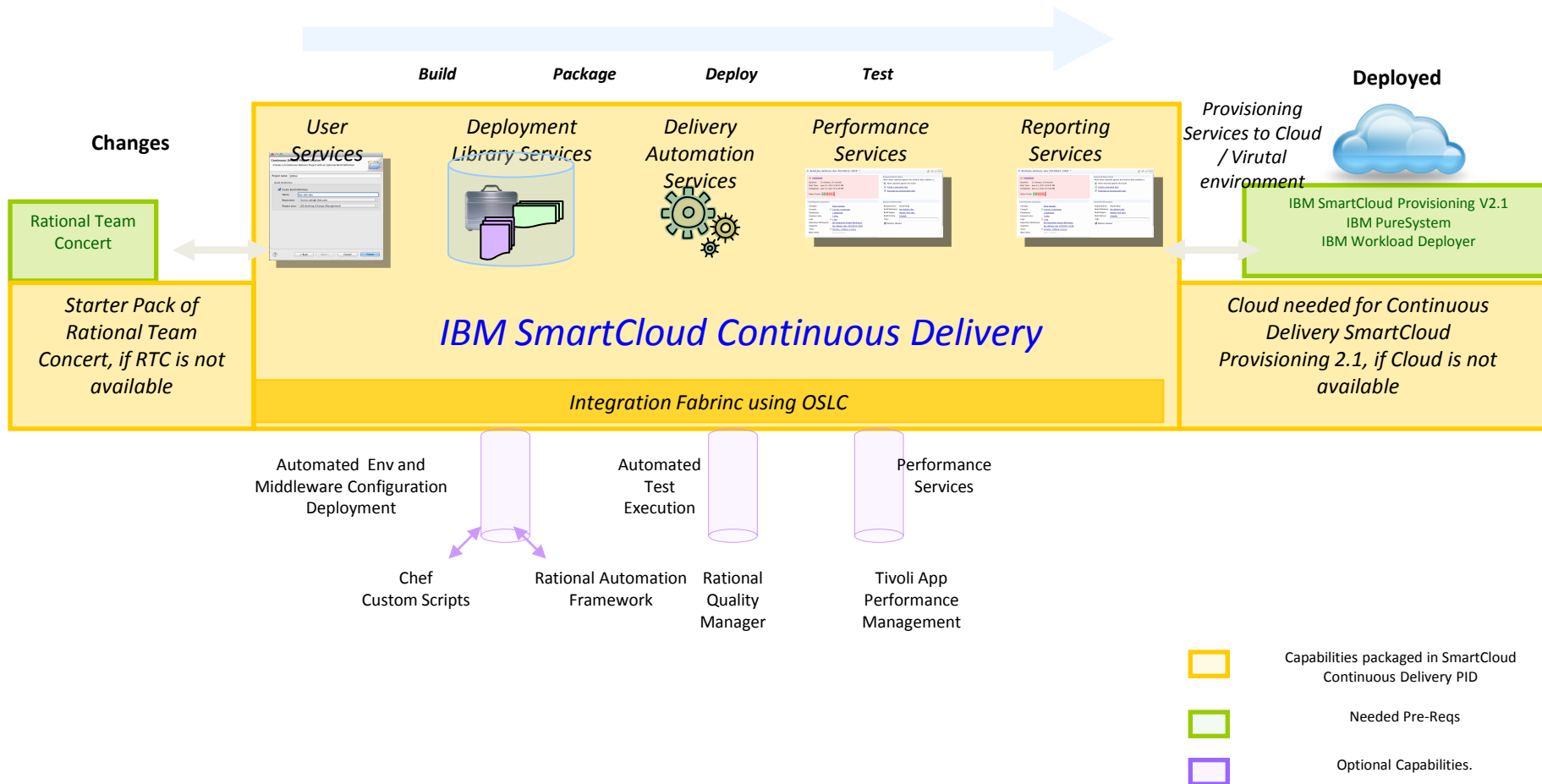
- Reduced risk, improved quality; Managed change from development to deployment

Improved **Control**:

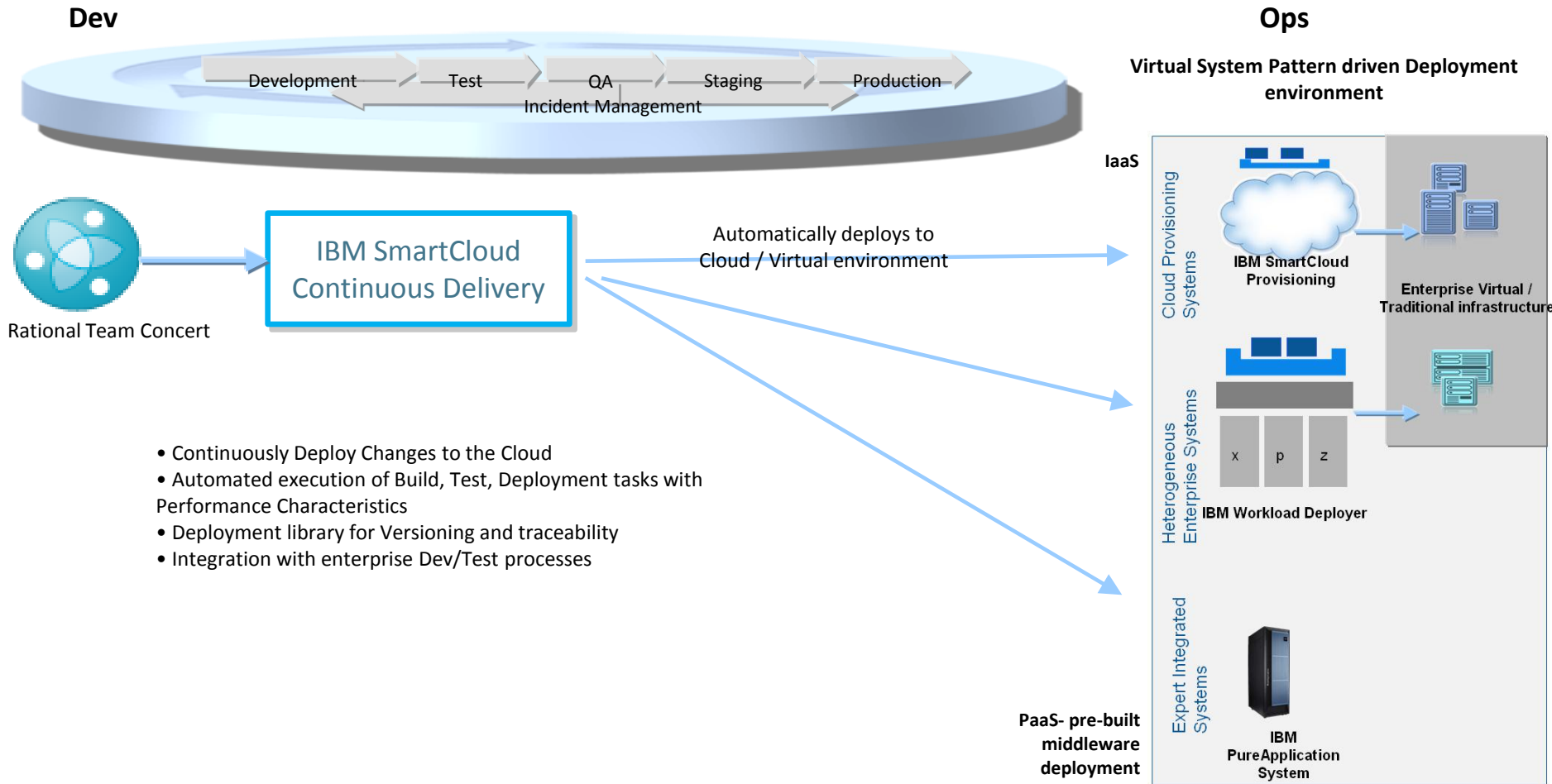
- Standardization, Visibility and Governance

Capabilities Offered

- Self-sufficient, Ready-to-deploy solution with plug-in capabilities
- Leverages virtual environment and cloud



Extending ALM to Cloud and virtual environments – Bridging the Gap



Applying Continuous Delivery – Select scenarios

Scenario	Value
<p>Dev/Test teams continuous Delivery of changes with automated testing in production-like environments</p>	<ul style="list-style-type: none"> ▪ Improved Cycle Time with automated tasks ▪ Consistency and Quality of deliverables ▪ Savings from automated test, deployments, labor, improved efficiencies, and leveraging existing tools and processes
<p>Operations teams delivering scalable, continuous services to the development organization, and ultimately to the business</p>	<ul style="list-style-type: none"> ▪ Improved Quality from automation and standardized deployments ▪ Faster time and low cost to fix defects
<p>Enterprise Incubators/ Depts/Teams developing new business/growth market Apps using a self-contained environments</p>	<ul style="list-style-type: none"> ▪ Faster time-to-market with reduce cost ▪ Self-Service, easy-to-manage integrated Continuous Delivery Environment in the Cloud

Continuous Delivery architecture flow

