Pulse Comes To You 2012

Business Without **LIMITS**

Cloud

Rethink IT and Reinvent Business

with IBM SmartCloud

Pulse Comes to You 2012
Business without **LIMITS**

21 AUG 2012 | BANGKOK, THAILAND

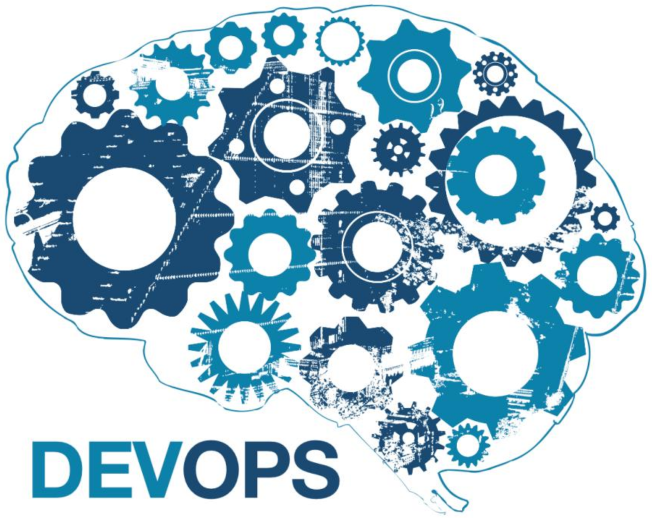
Accelerating Delivery with SmartCloud Continuous Delivery

Bridging the Gaps Between Development and Operations

Desmond Koh
Cloud Computing Architect, Cloud Computing Client Engagement, IBM Software Group, Worldwide &
Sachin Raj
Technical Leader, Security Systems, IBM Software Group, ASEAN

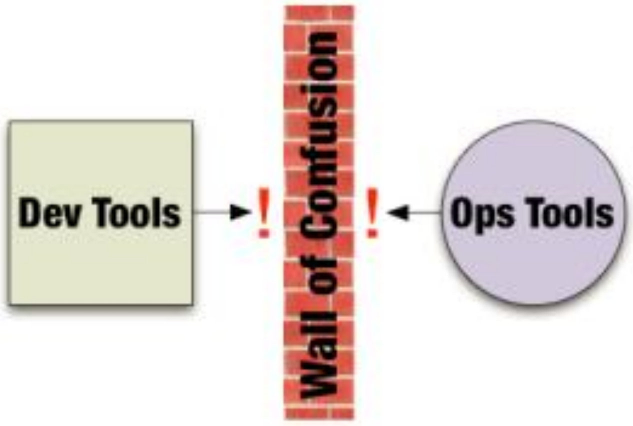
Agenda

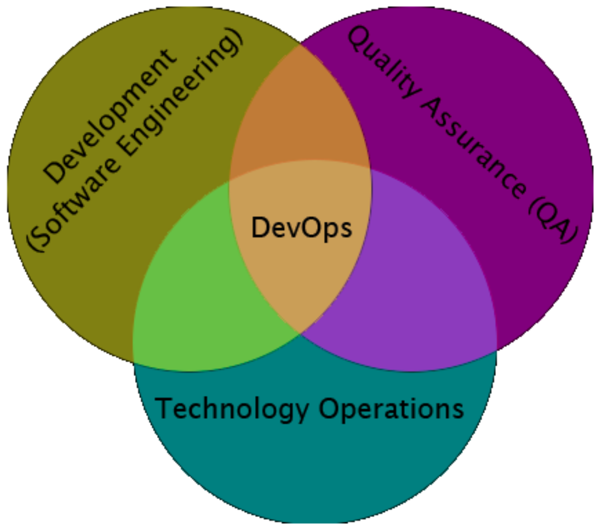
- **Defining “DevOps”**
  - Concepts
  - Development and Operational Team Challenges
- **The “Everything” Factor**
- **IBM Solution**
- **Summary and Q & A**



Defining DevOps

I want change!
I want stability!
Development
Wall of Confusion
Operations





"DevOps" is an emerging set of principles, methods and practices for communication, collaboration and integration between software development (application/software engineering) and IT operations (systems administration/infrastructure) professionals

Source: http://en.wikipedia.org/wiki/DevOps

What's the Challenge?

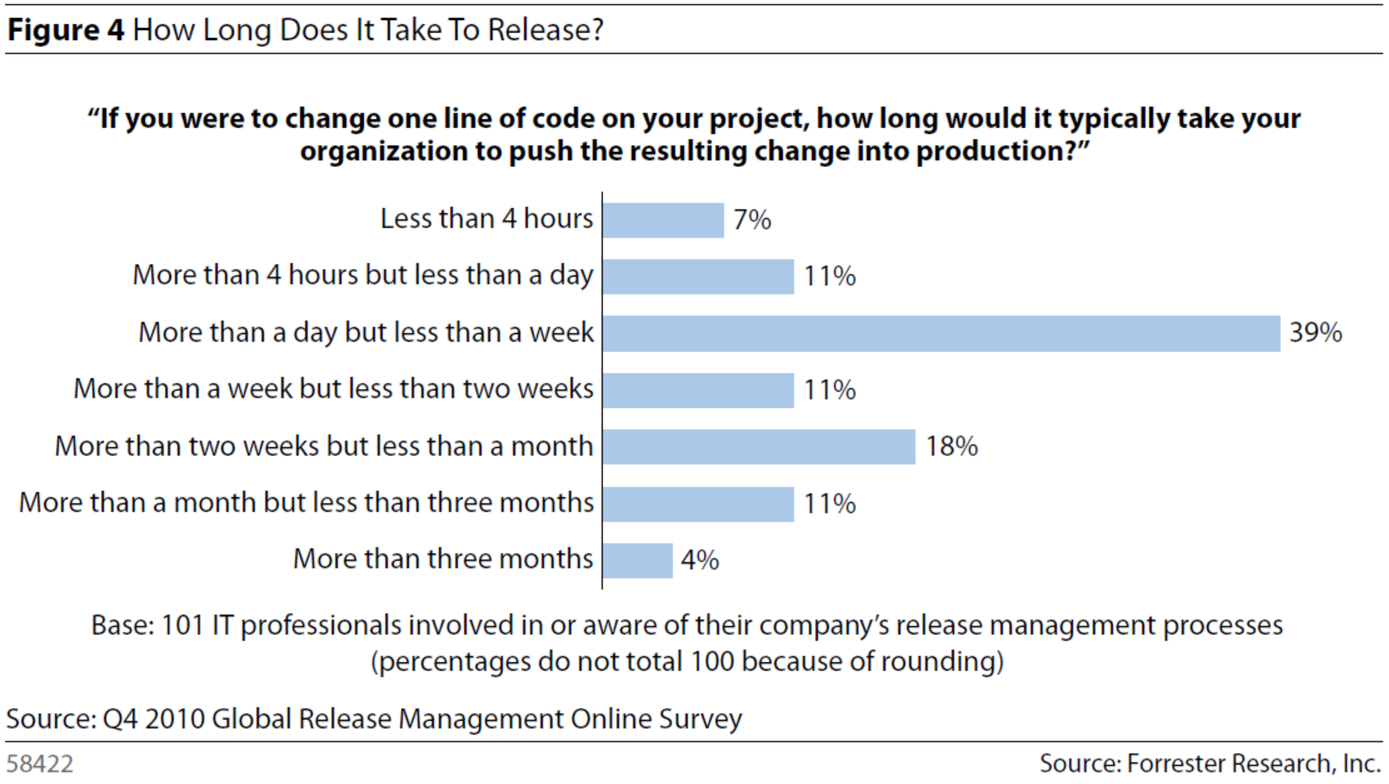


Figure 4 How Long Does It Take To Release?

"If you were to change one line of code on your project, how long would it typically take your organization to push the resulting change into production?"

Base: 101 IT professionals involved in or aware of their company's release management processes (percentages do not total 100 because of rounding)

Source: Q4 2010 Global Release Management Online Survey

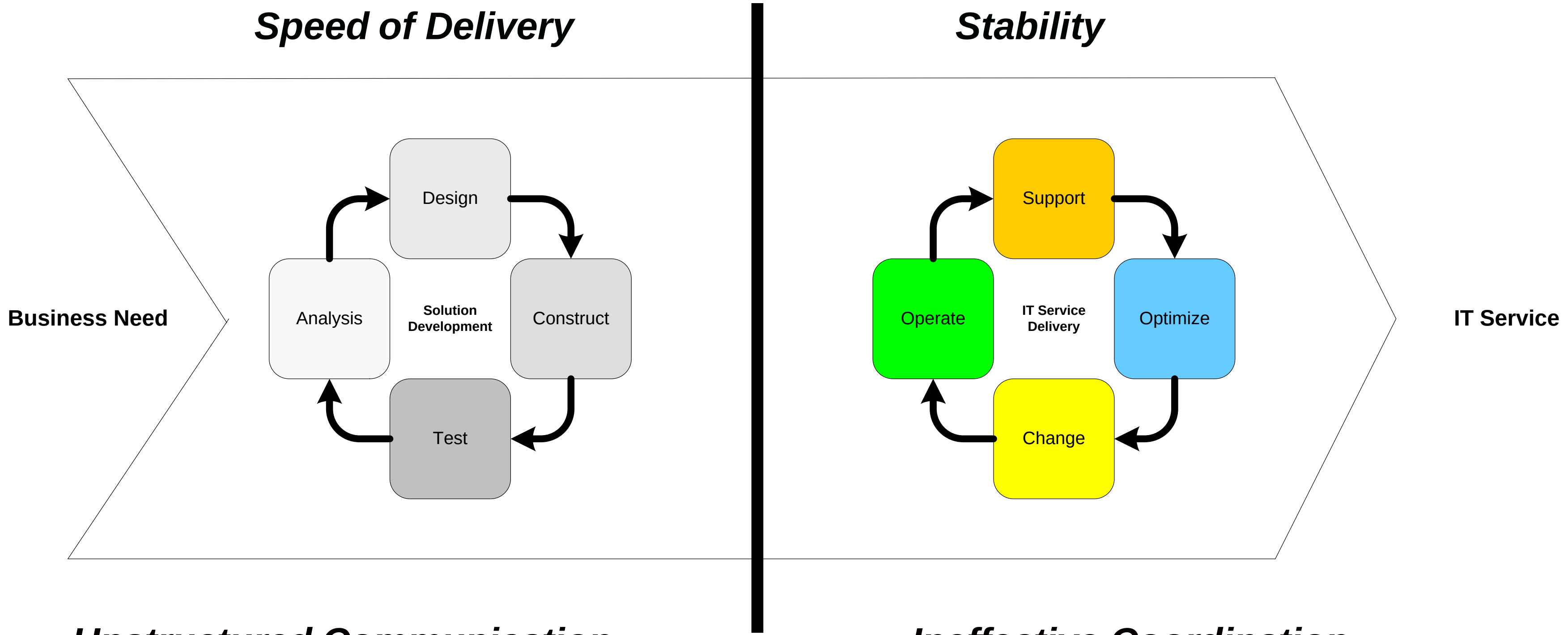
58422 Source: Forrester Research, Inc.

"A twice-a-year update may be fine in slow-moving industries, but it doesn't work so well if your competition is introducing new customer Web self-service features or snazzy new iPad apps every time you turn around"

Dev and Ops – A tale of two Departments

Typical IT Life Cycle

Conflicting Incentives

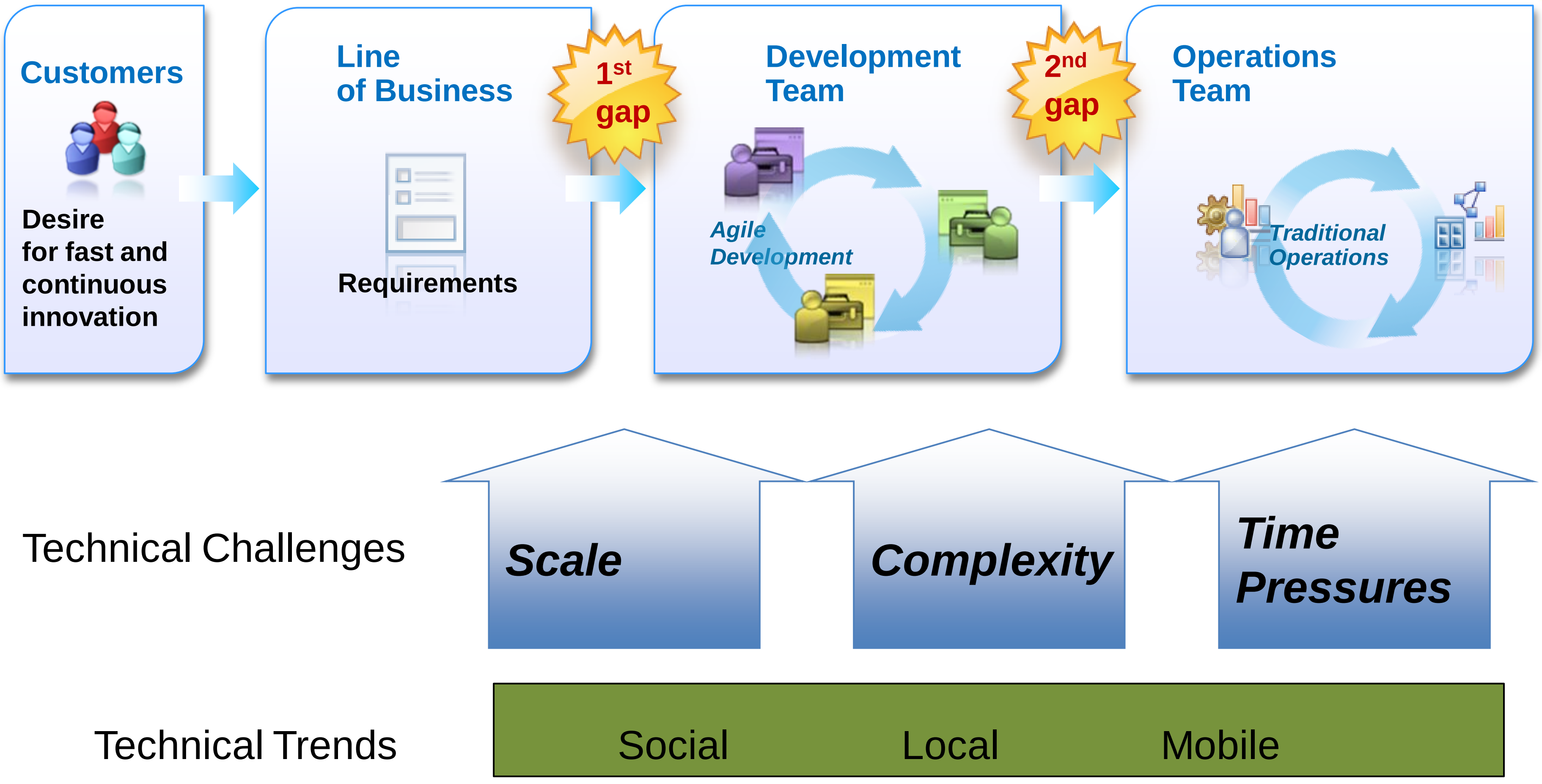


Unstructured Communication ***Ineffective Coordination***

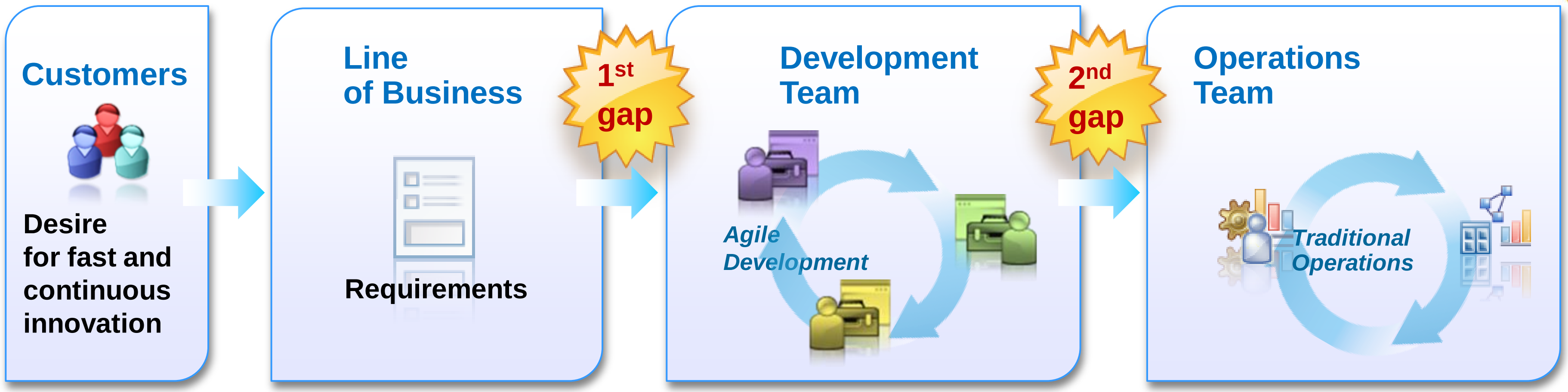
Insufficient Collaboration

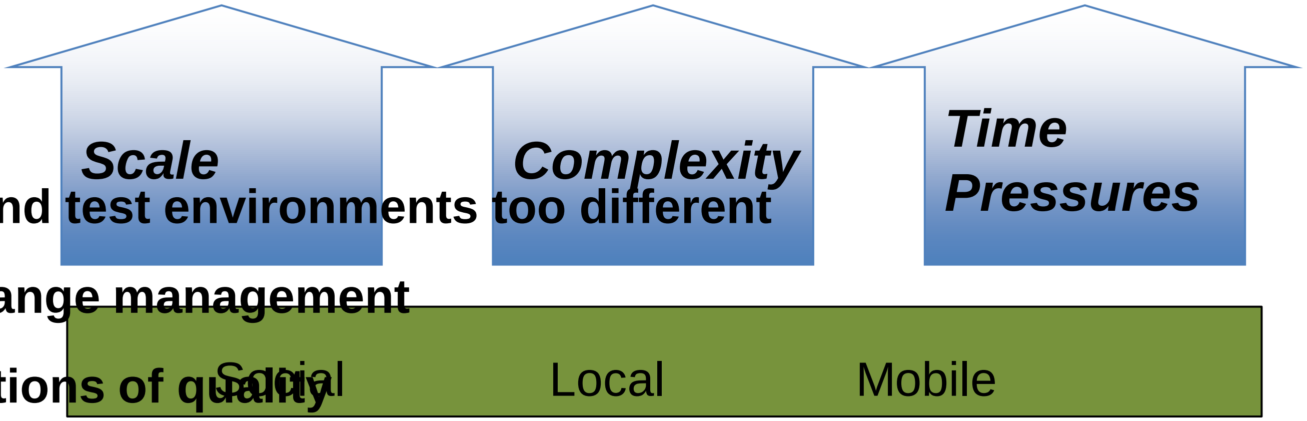
Delivery Challenges

Today's business and technical needs are pushing traditional delivery approaches to the breaking point



Concrete Problems





Technical Challenges

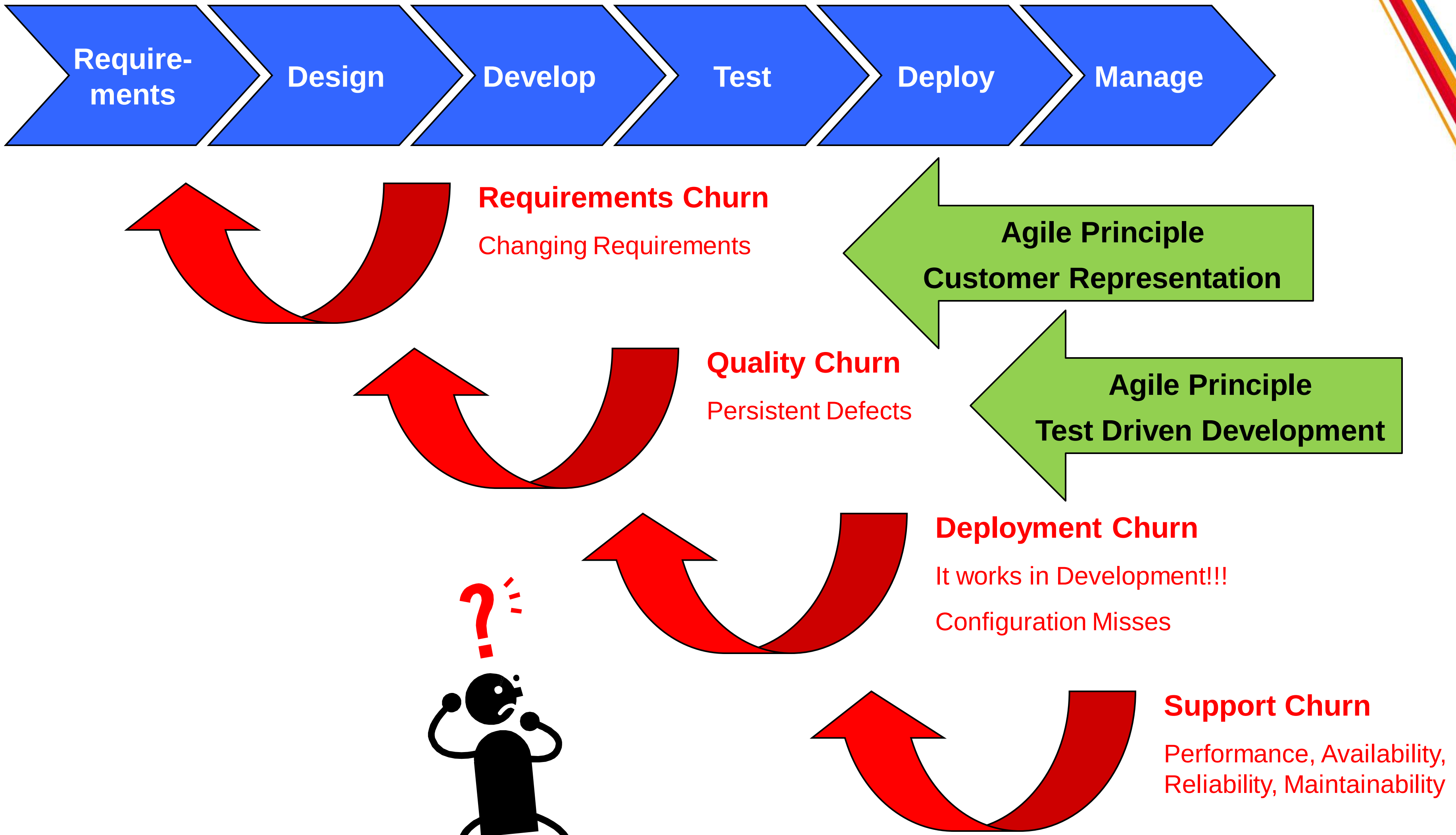
Production and test environments too different

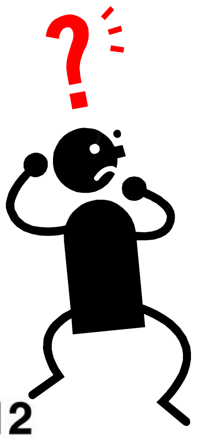
Disparate change management

Disparate notions of quality

Technical Trends

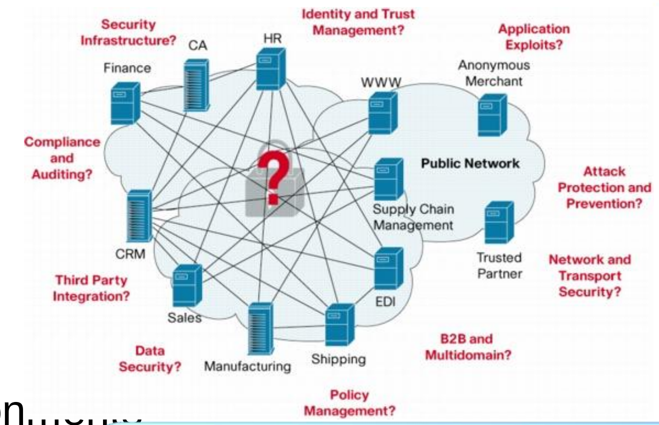
IT - Development Team Challenges

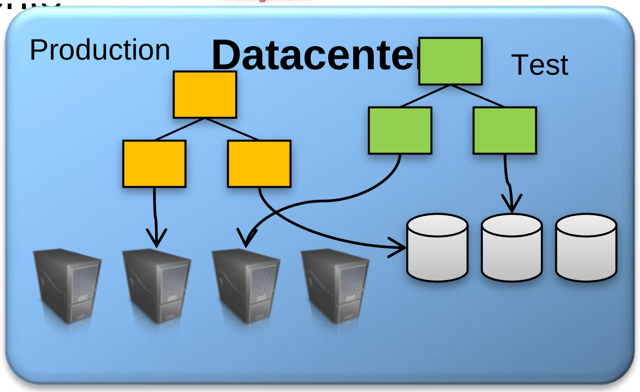


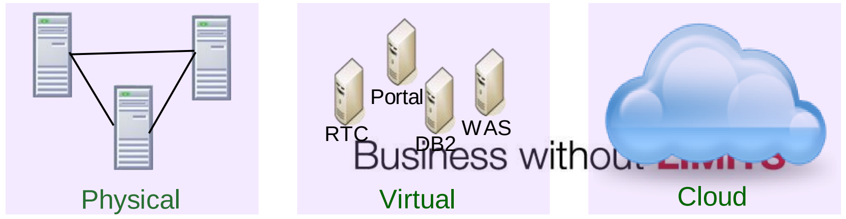


IT - Operational Team Challenges

- **Increased Application Complexity**
  - Systems of Systems
  - Integration with internal, external systems
  - Heterogeneity in application environments
- **New Target Landscapes**
  - Physical, Virtual, Cloud environments
  - Development, Staging, QA, Production, DR environments
- **Organizational Challenges**
  - Out-source, off-shore developments
  - Governance and Security







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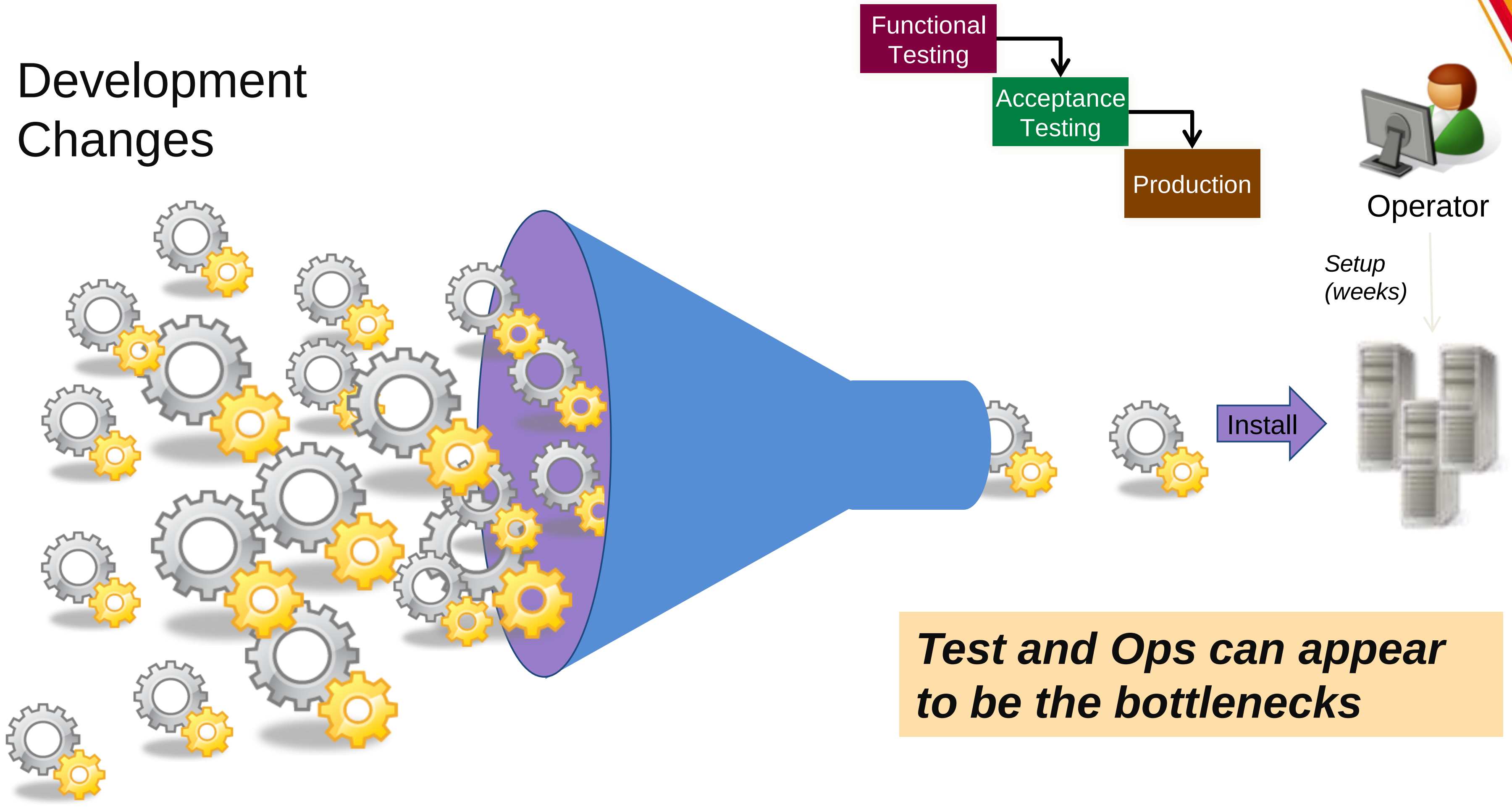
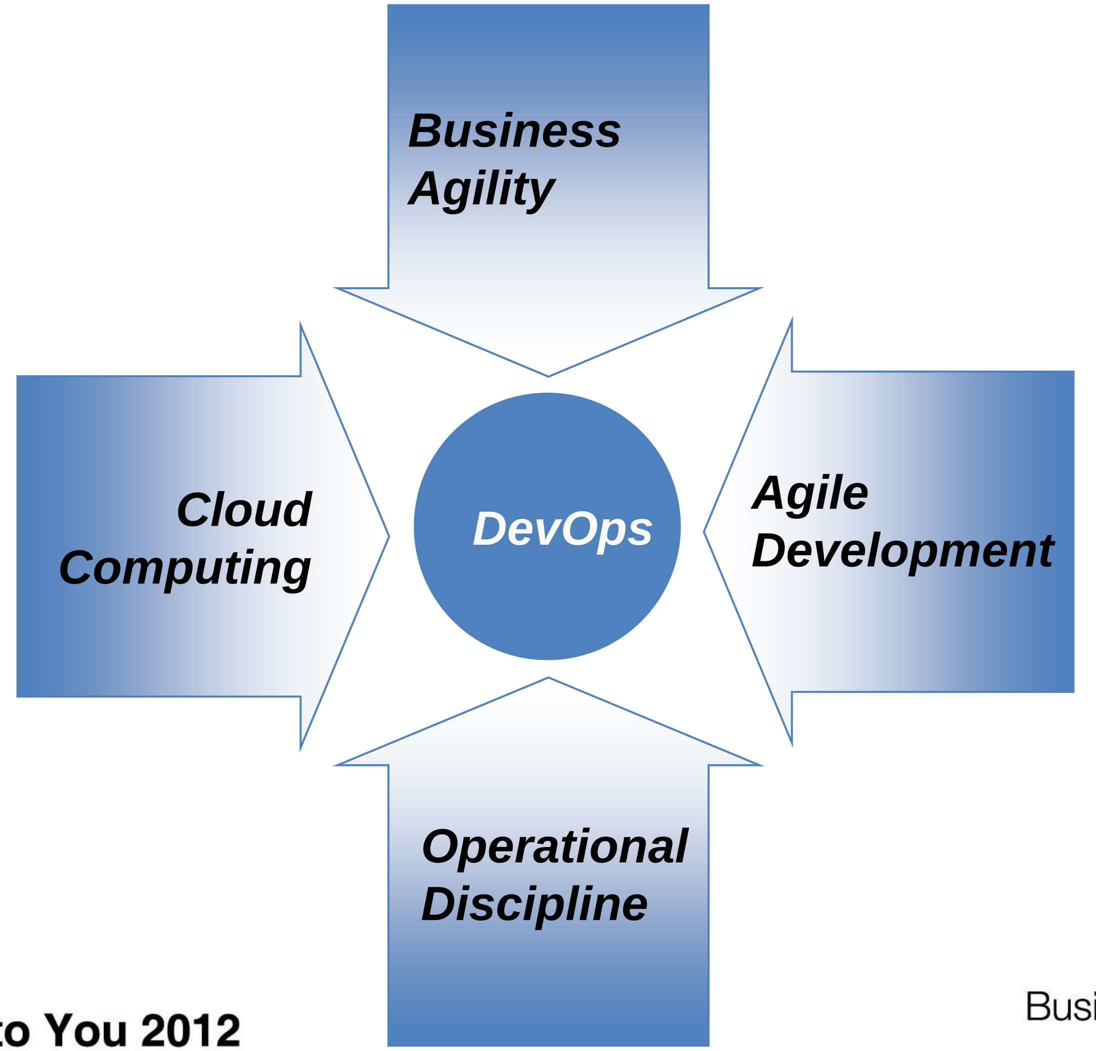
Mismatch in Delivery Speed…. More so with Agile..



Test and Ops can appear to be the bottlenecks

DevOps: The time is now

Four key drivers are making DevOps a 2012 imperative for all organizations.



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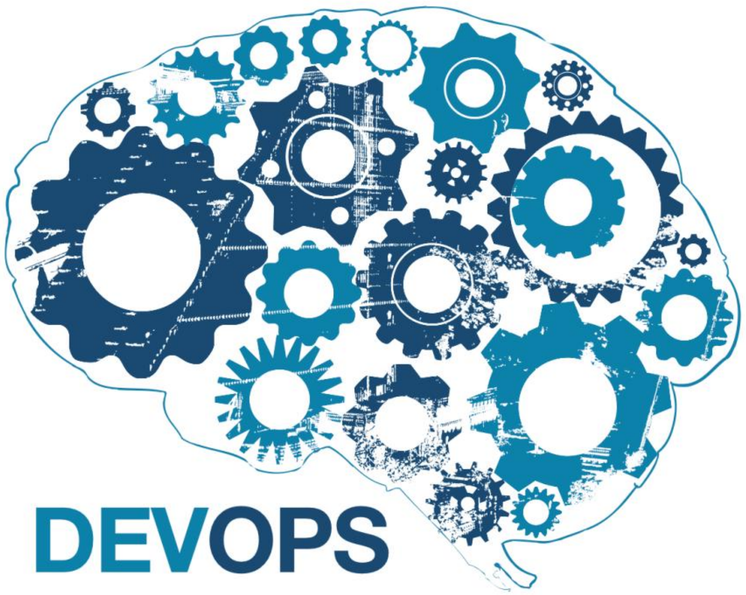


How do we make this happen?

Automate *Everything*

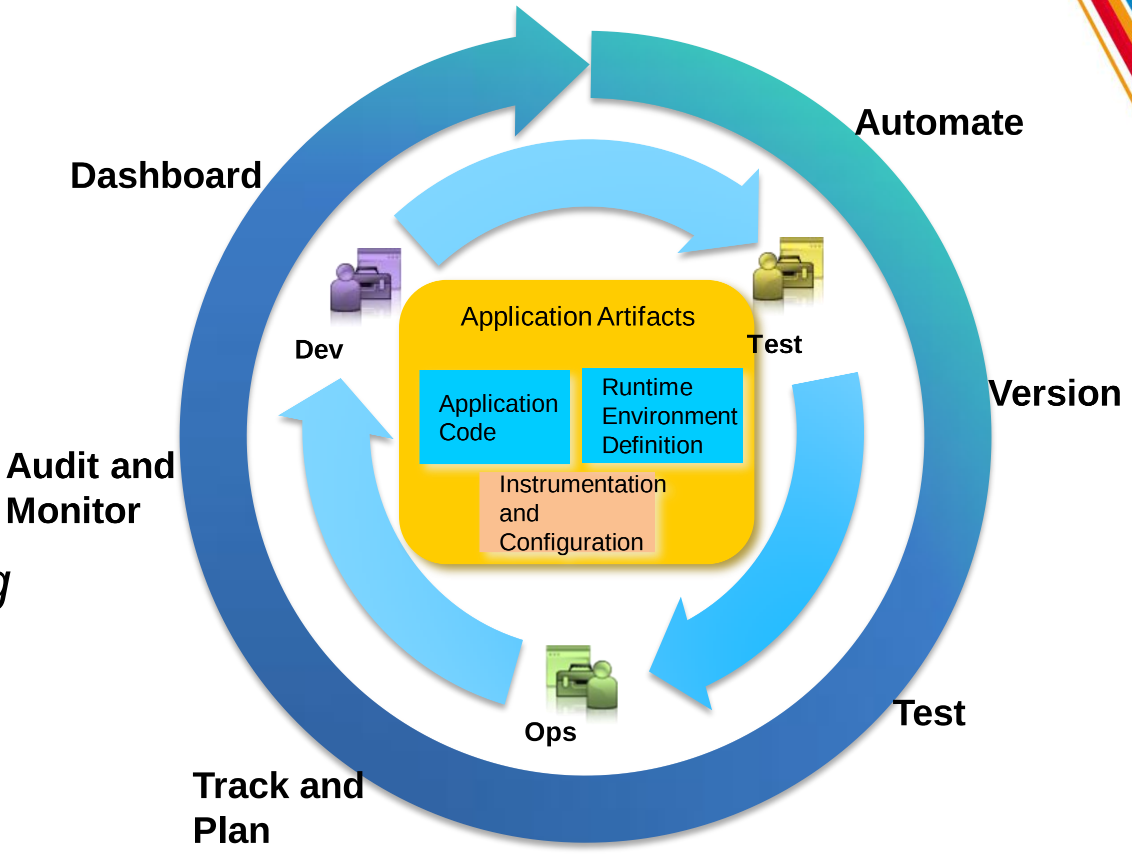
Version *Everything*

Test *Everything*

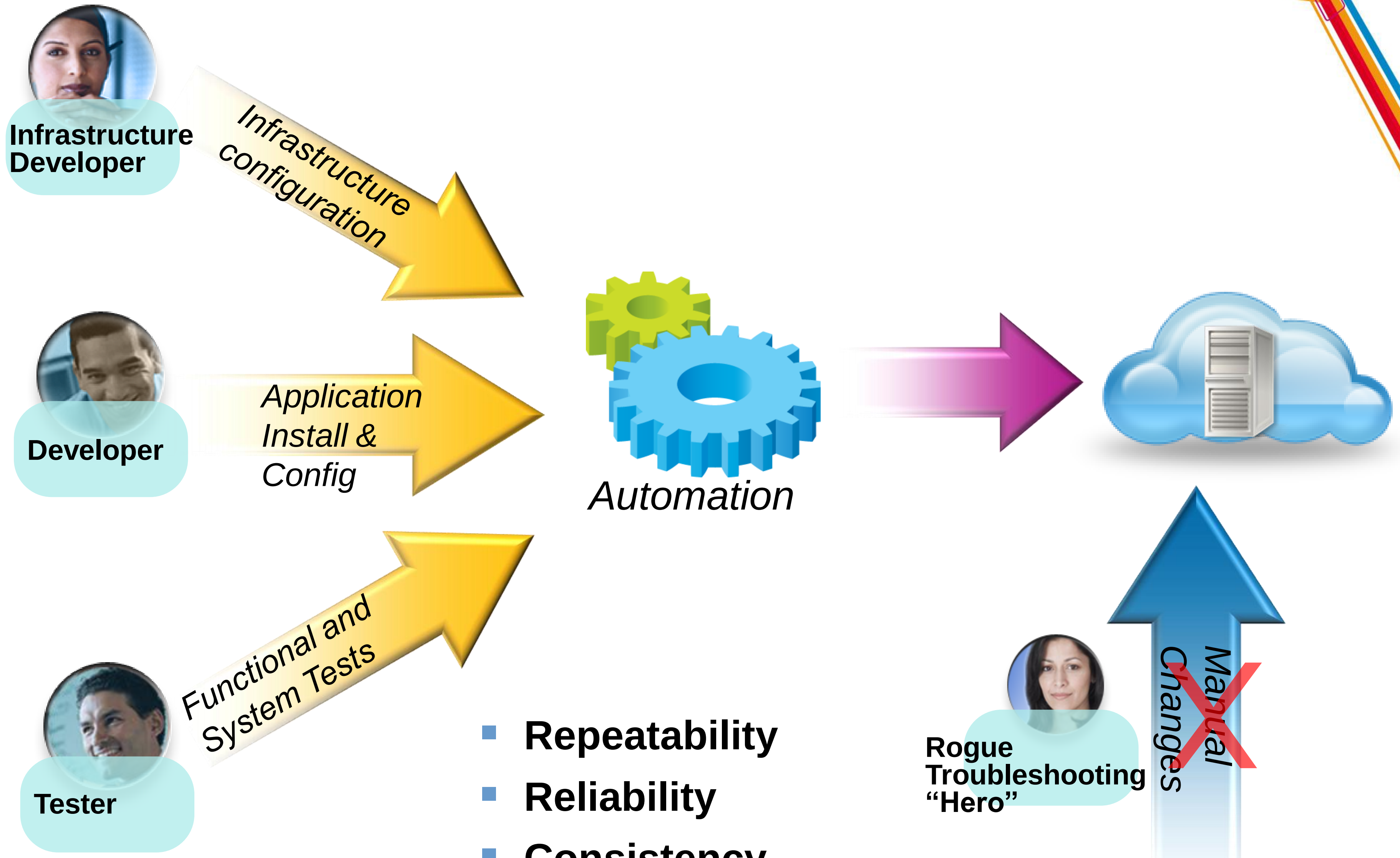
Track and Plan *Everything*

Audit and Monitor *Everything*

Dashboard *Everything*



Automate Everything


Infrastructure Developer
Infrastructure configuration
Developer
Application Install & Config
Tester
Functional and System Tests
Automation
Rogue Troubleshooting "Hero"
Manual Changes

- **Repeatability**
- **Reliability**
- **Consistency**

Manual Configuration

Installation Instructions

RedHat Linux

1. Lorem ipsum dolor sit amet, consectetur adipisicing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat.

2. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum.

Apache Web Server

1. Sed ut perspiciatis unde omnis iste natus error sit voluptatem accusantium doloremque laudantium, totam rem aperiam, eaque ipsa quae ab illo inventore veritatis et quasi architecto beatae vitae dicta sunt explicabo.

2. Nemo enim ipsam voluptatem quia voluptas sit aspernatur aut odit aut fugit, sed quia consequuntur magni dolores eos qui ratione voluptatem sequi nesciunt. Neque porro quisquam est, qui dolorem ipsum quia dolor sit amet, consectetur,

3. adipisci velit, sed quia non numquam eius modi tempora incidunt ut labore et dolore magnam aliquam quaerat voluptatem.

Python

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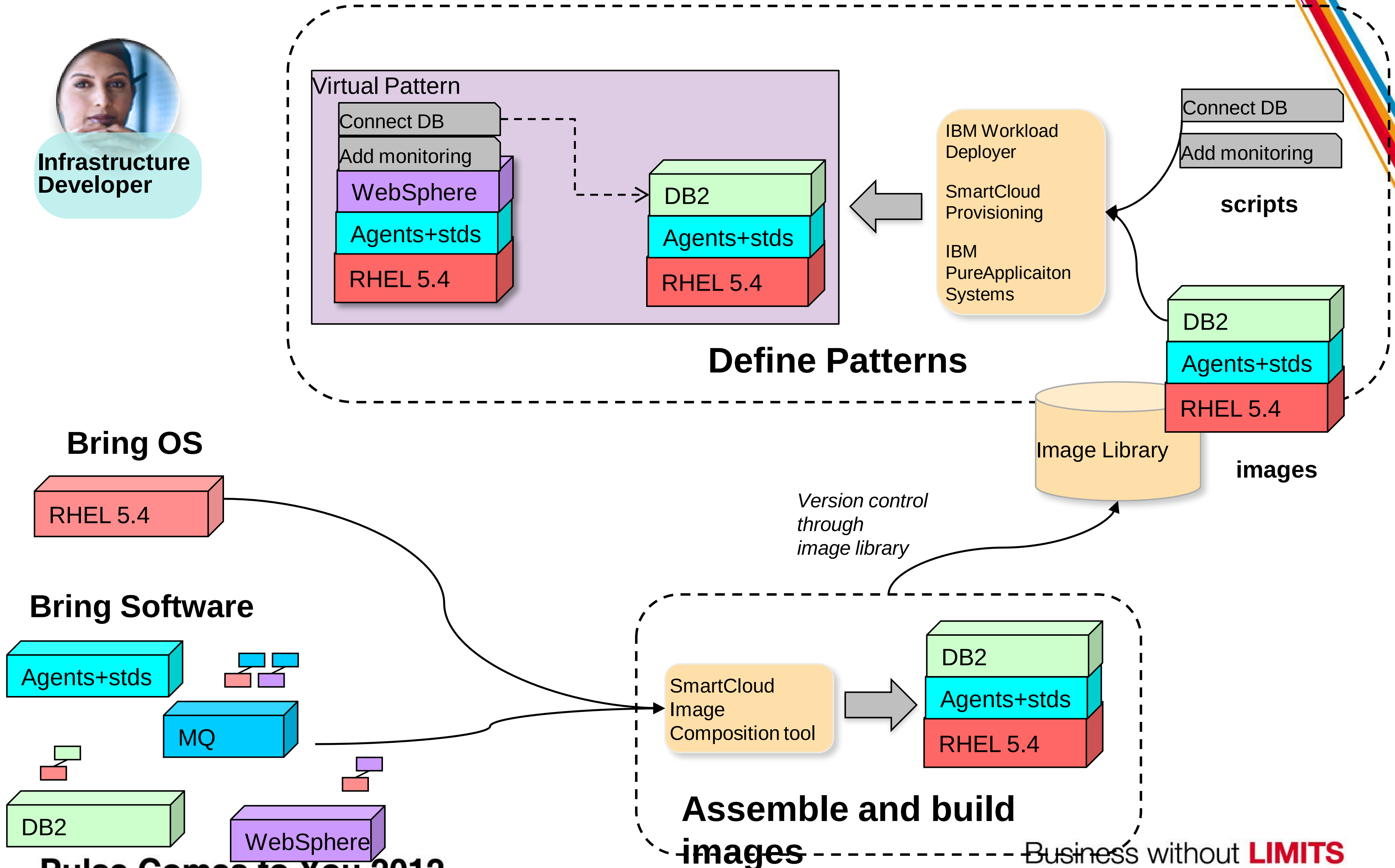
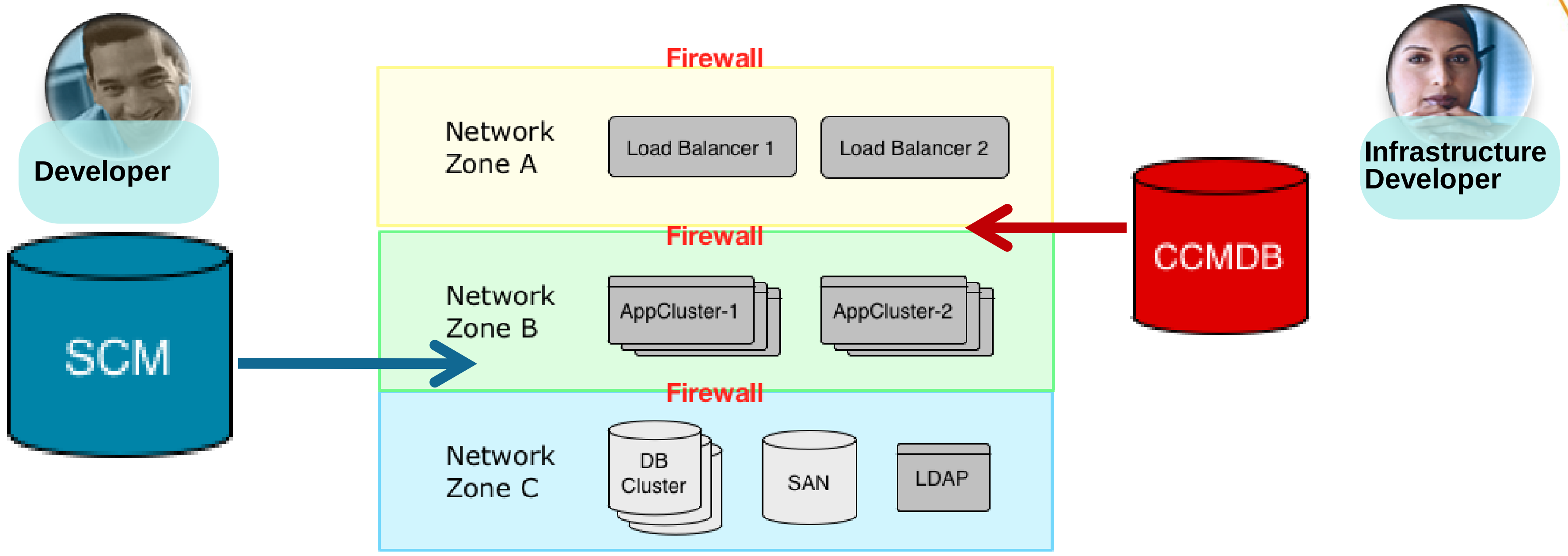
2. Quis autem vel eum iure reprehenderit qui in ea voluptate velit esse quam nihil molestiae consequatur,

3. vel illum qui dolorem eum fugiat quo voluptas nulla pariatur?

Automating Provisioning: Pattern definitions in the cloud



Problem: Disparate Change Management



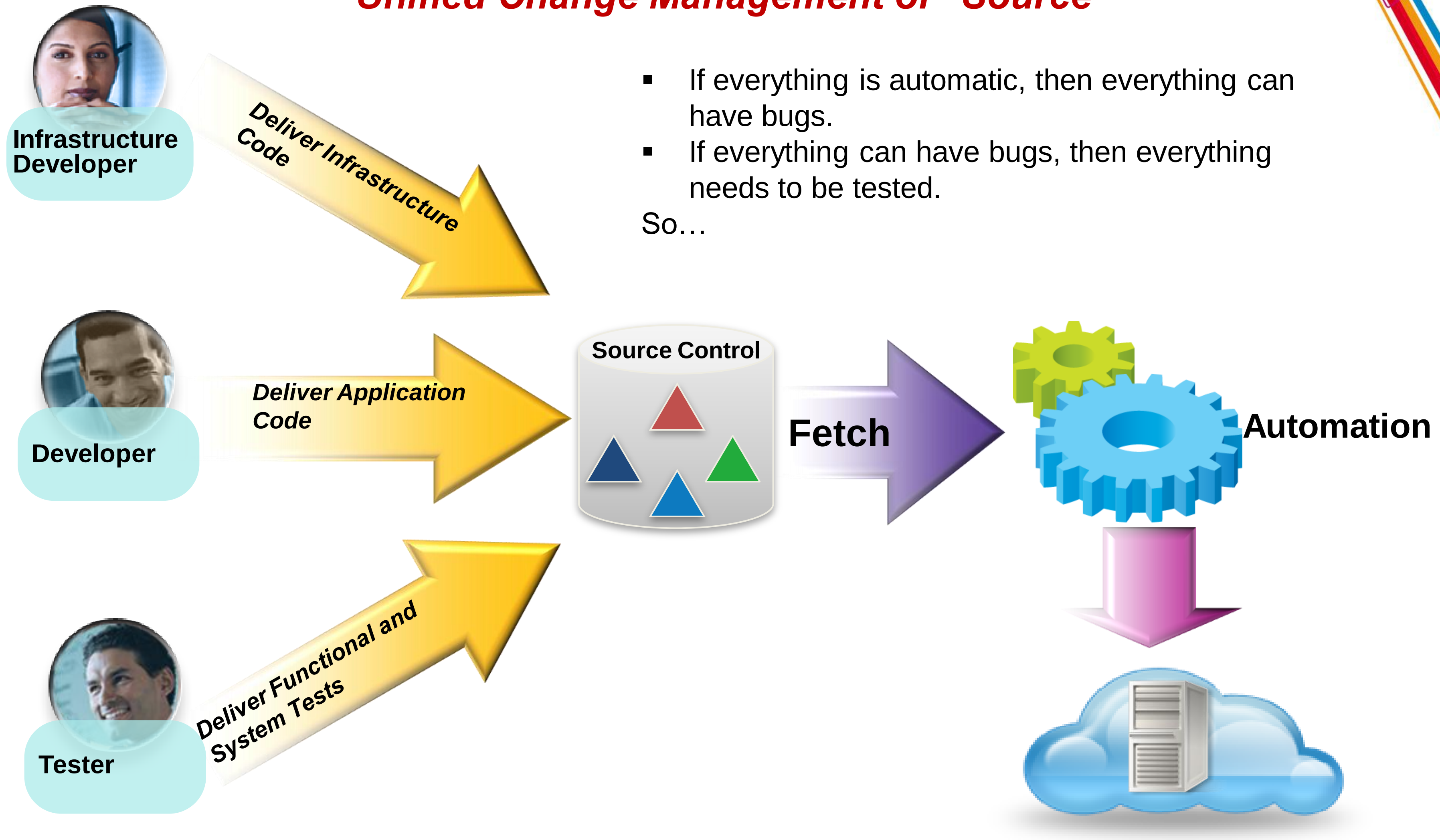
But…

- If everything is code, then everything is editable.
- If everything is editable, then everything is versionable.
- If you want sanity, version everything *together*

Version Everything:
Unified Change Management of "Source"

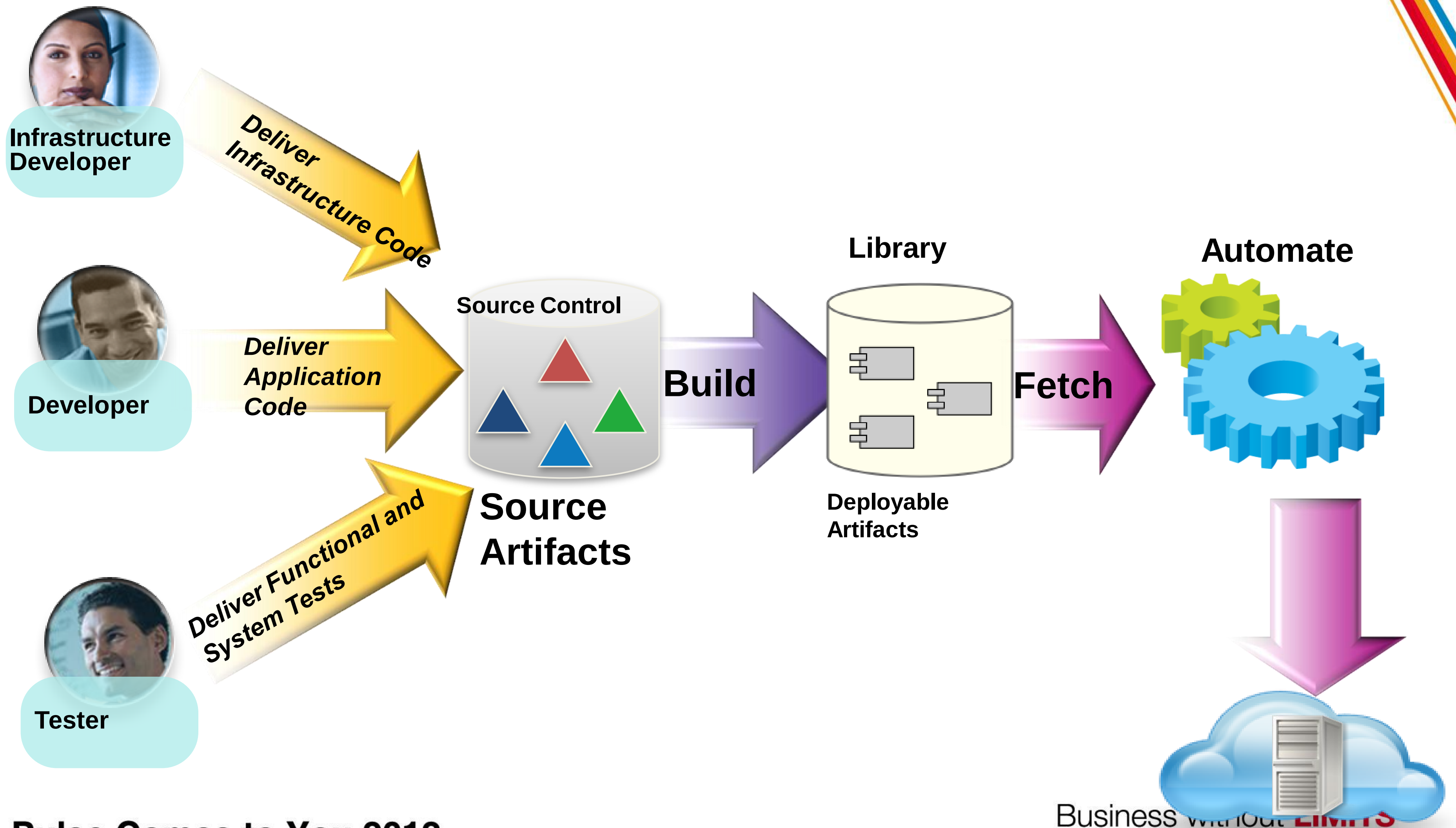
- If everything is automatic, then everything can have bugs.
- If everything can have bugs, then everything needs to be tested.

So…



Version Everything:

Library of Deployable Artifacts

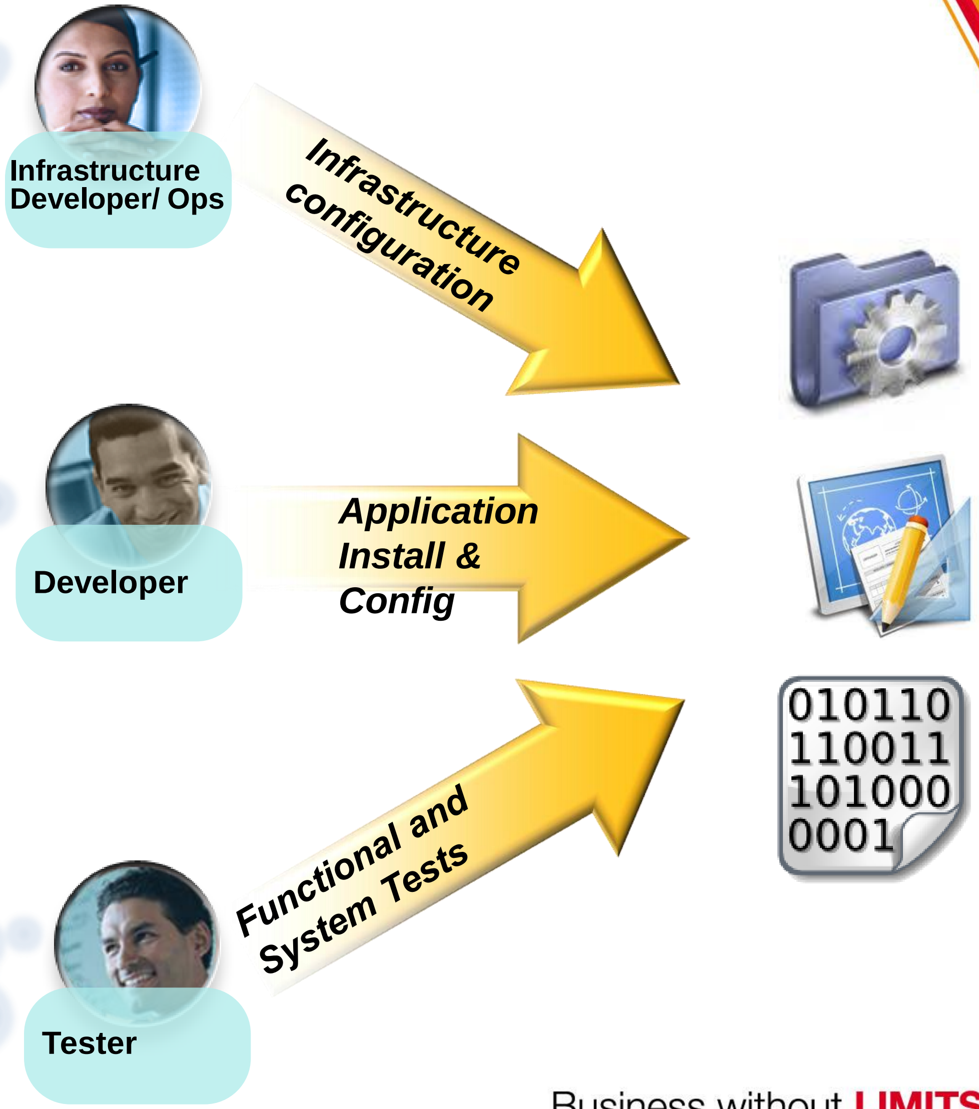


Test Everything

- ✓ Did deployment succeed?
- ✓ Are transactions succeeding?
- ✓ Is performance OK?
- ✓ Any new errors in the logs?

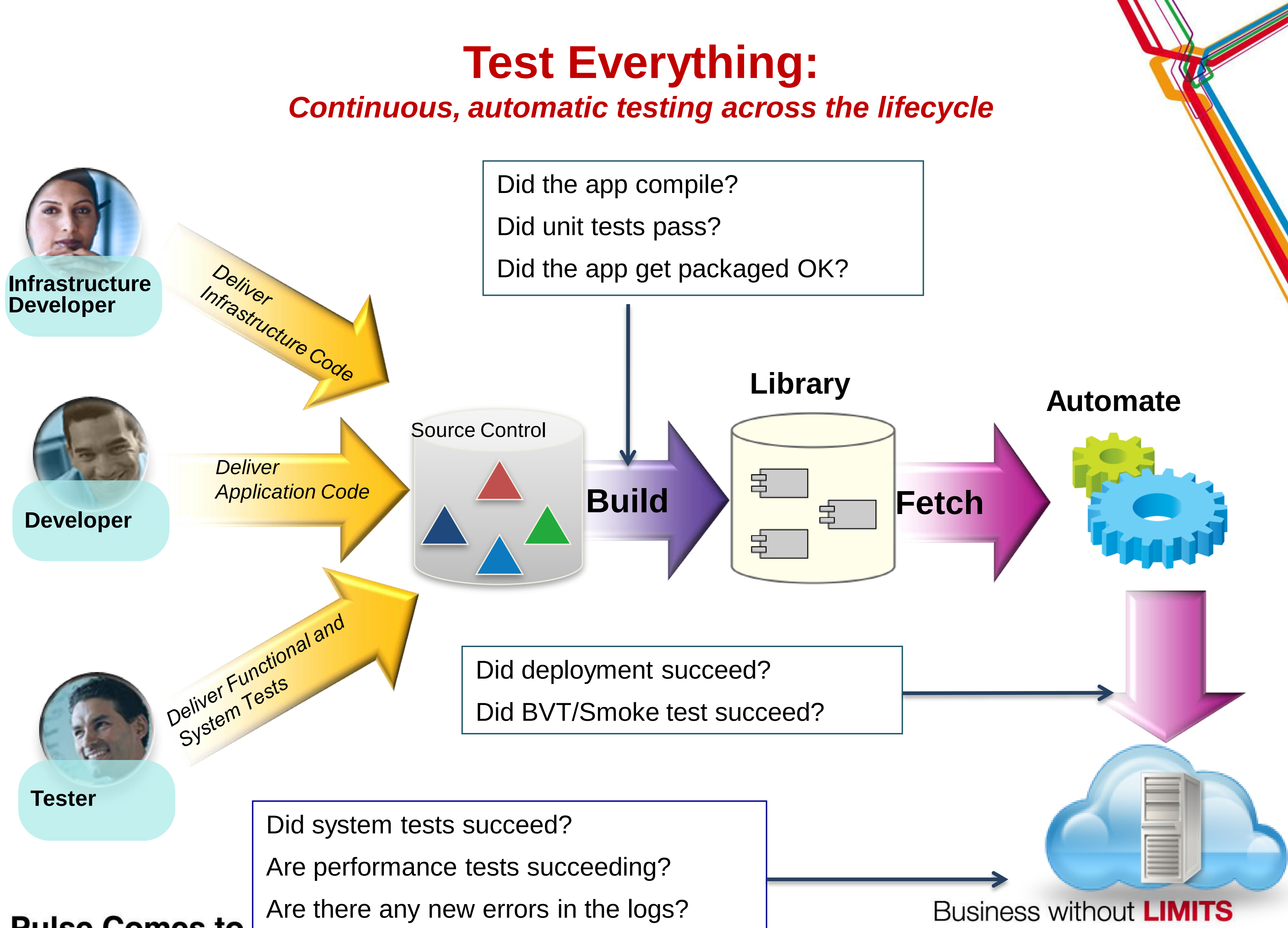
- ✓ Did the application compile?
- ✓ Is the Build OK?
- ✓ Did the Unit Tests Pass?

- ✓ Can I get the build installed?
- ✓ Did my functional tests pass?


Infrastructure Developer/ Ops
Infrastructure configuration
Developer
Application Install & Config
Tester
Functional and System Tests
010110
110011
101000
0001

Test Everything:

Continuous, automatic testing across the lifecycle



Did the app compile?

Did unit tests pass?

Did the app get packaged OK?

Did deployment succeed?

Did BVT/Smoke test succeed?

Did system tests succeed?

Are performance tests succeeding?

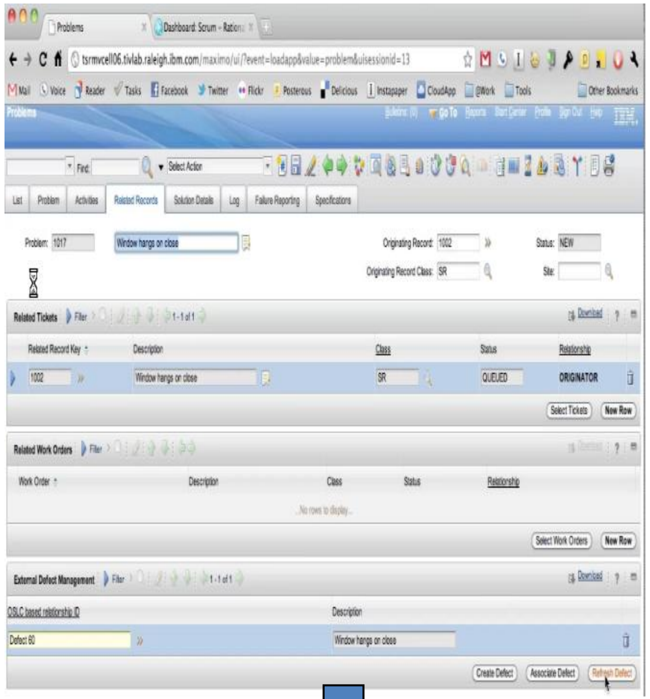
Are there any new errors in the logs?

Are transactions succeeding?

Pulse Comes to

Track and Plan Everything

Bob
(Operator)



Problems | Dashboard: Scrum - Ration

tsrmvcell06.tivlab.raleigh.ibm.com/maximo/ui/?event=loadapp&value=problem&uisessionid=13

List | Problem | Activities | Related Records | Solution Details | Log | Failure Reporting | Specifications

Problem: 1017 — Window hangs on close
Originating Record: 1002
Status: NEW
Originating Record Class: SR
Site:

Related Tickets 1 - 1 of 1

Related Record Key	Description	Class	Status	Relationship
1002	Window hangs on close	SR	QUEUED	ORIGINATOR

Select Tickets | New Row

Related Work Orders

Work Order	Description	Class	Status	Relationship

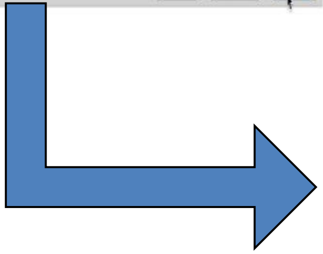
...No rows to display...

Select Work Orders | New Row

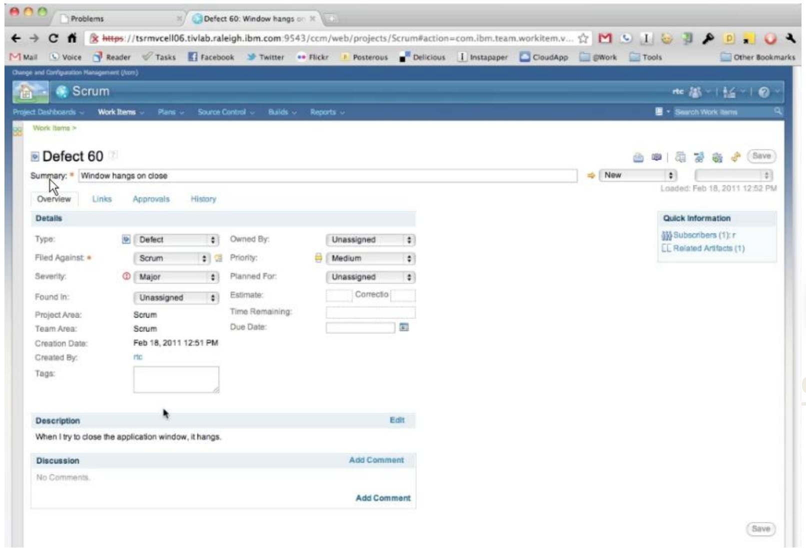
External Defect Management 1 - 1 of 1

OSLC based relationship ID	Description
Defect 60	Window hangs on close

Create Defect | Associate Defect | Refresh Defect



Marco
(Developer)



Problems | Defect 60: Window hangs o

https://tsrmvcell06.tivlab.raleigh.ibm.com:9543/ccm/web/projects/Scrum#action=com.ibm.team.workitem.v...

Change and Configuration Management (/ccm)

Scrum

Project Dashboards | Work Items | Plans | Source Control | Builds | Reports

Work Items >

Defect 60

Summary: * Window hangs on close — New

Loaded: Feb 18, 2011 12:52 PM

Overview | Links | Approvals | History

Details

Type:	Defect	Owned By:	Unassigned
Filed Against: *	Scrum	Priority:	Medium
Severity:	Major	Planned For:	Unassigned
Found In:	Unassigned	Estimate:	Correctio
Project Area:	Scrum	Time Remaining:	
Team Area:	Scrum	Due Date:	
Creation Date:	Feb 18, 2011 12:51 PM		
Created By:	rtc		
Tags:			

Quick Information
Subscribers (1): r
Related Artifacts (1)

Description Edit
When I try to close the application window, it hangs.

Discussion Add Comment
No Comments.
Add Comment

Save

eb
ester)

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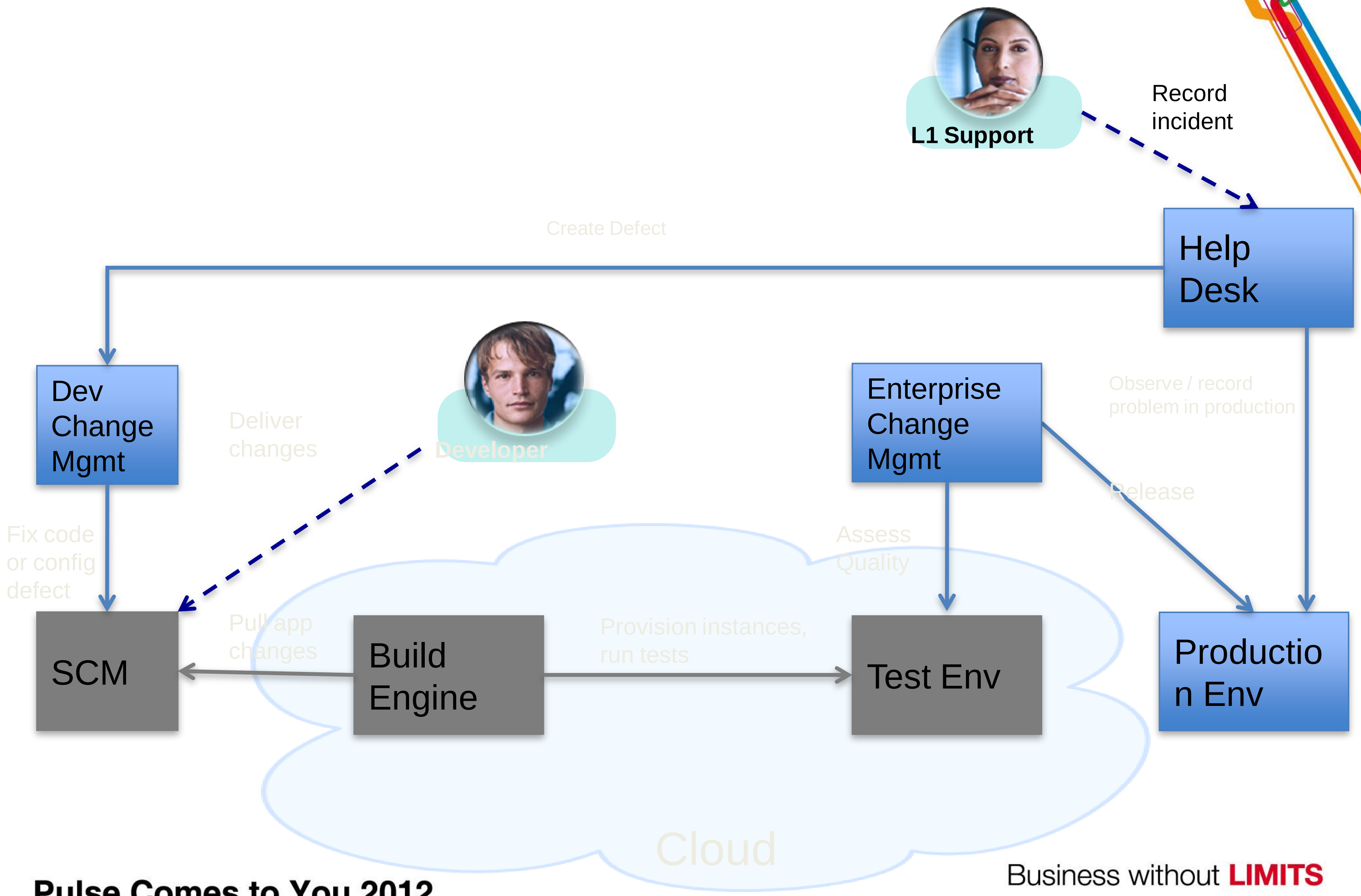
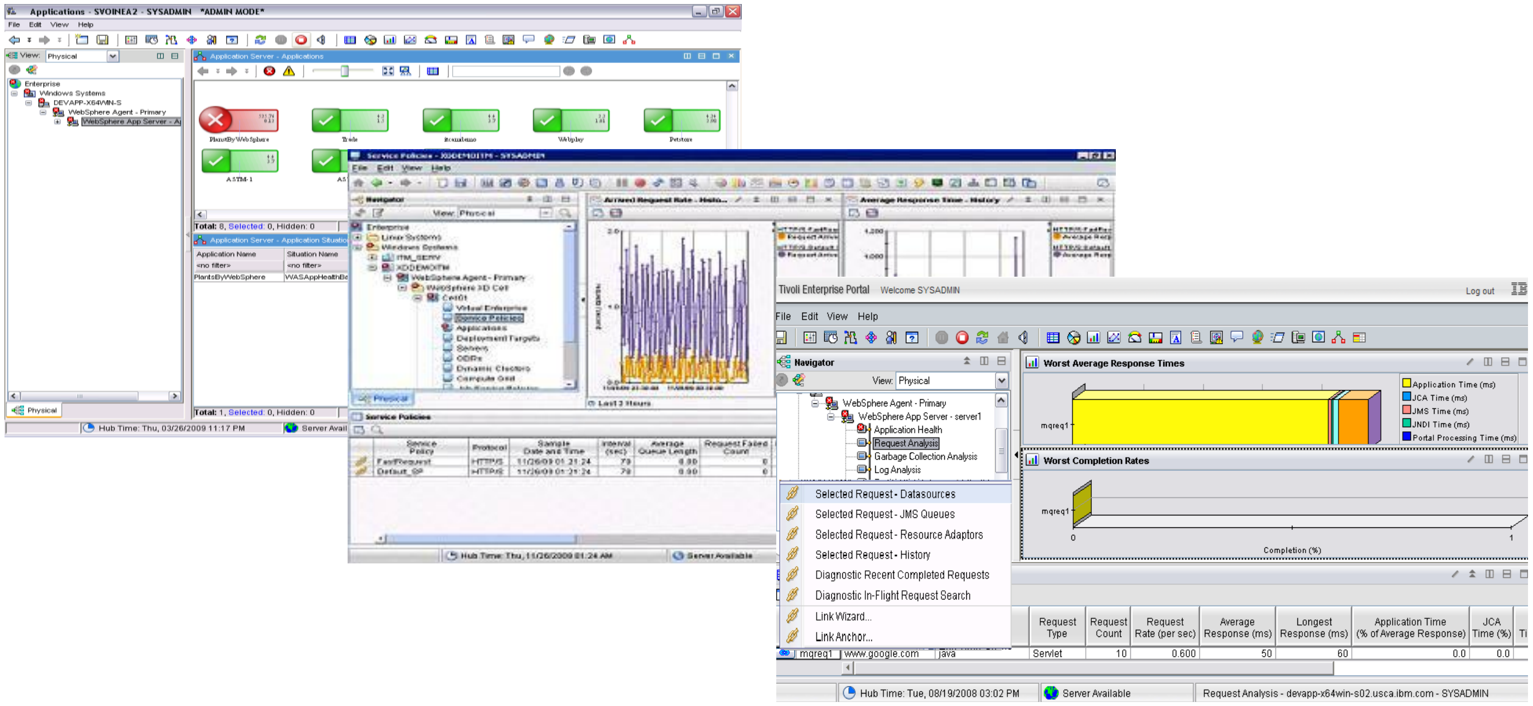
Business without **LIMITS**

Help Desk/Dev Collaboration



Instrument and Audit Everything

- Monitoring agents instrument the application; audit logs capture instrumentation of the deployment actions; work items instrument people’s activities
- This helps us track who did what to whom, and gathers the data that we need so that we can report on everything.

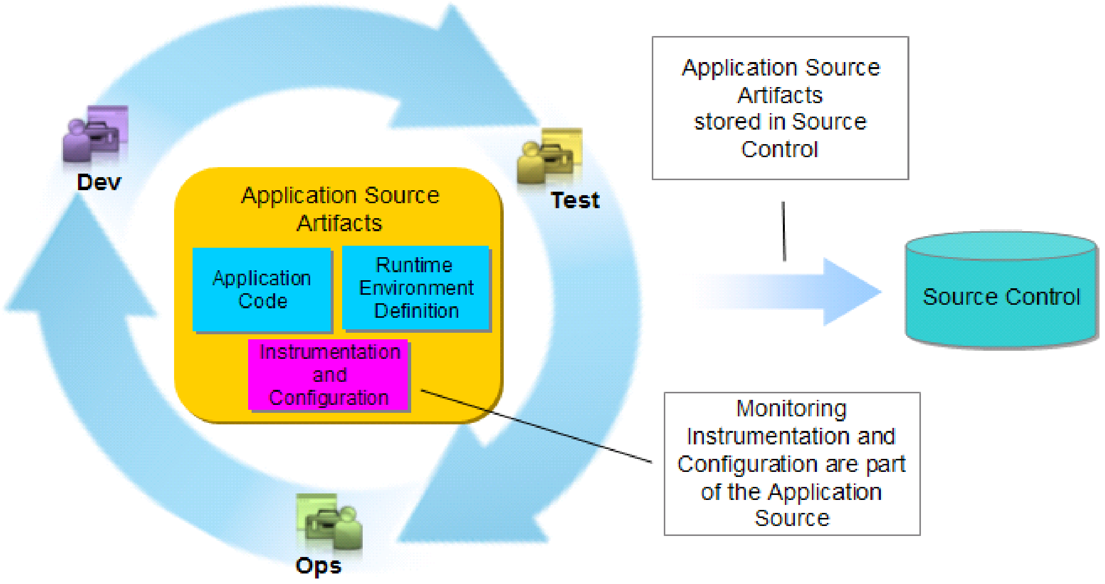

Applications - SVOINEA2 - SYSADMIN *ADMIN MODE*
Application Server - Applications
Enterprise
Windows Systems
WebSphere Agent - Primary
PlantsByWebSphere
Trade
Total: 8, Selected: 0, Hidden: 0
Application Server - Application Situations
Application Name
Situation Name
WASAppHealthBad
Hub Time: Thu, 03/26/2009 11:17 PM
Service Policies
Navigator
Arrived Request Rate - History
Average Response Time - History
Tivoli Enterprise Portal
Welcome SYSADMIN
Log out
File
Edit
View
Help
Navigator
View:
Physical
WebSphere Agent - Primary
WebSphere App Server - server1
Application Health
Request Analysis
Garbage Collection Analysis
Log Analysis
Worst Average Response Times
Application Time (ms)
JCA Time (ms)
JMS Time (ms)
JNDI Time (ms)
Portal Processing Time (ms)
mqreq1
Worst Completion Rates
Completion (%)
Selected Request - Datasources
Selected Request - JMS Queues
Selected Request - Resource Adaptors
Selected Request - History
Diagnostic Recent Completed Requests
Diagnostic In-Flight Request Search
Link Wizard...
Link Anchor...
Hub Time: Tue, 08/19/2008 03:02 PM
Server Available
Request Analysis - devapp-x64win-s02.usca.ibm.com - SYSADMIN

			Request Type	Request Count	Request Rate (per sec)	Average Response (ms)	Longest Response (ms)	Application Time (% of Average Response)	JCA Time (%)
mqreq1	www.google.com	java	Servlet	10	0.600	50	60	0.0	0.0

APM for DevOps Basic Scenario

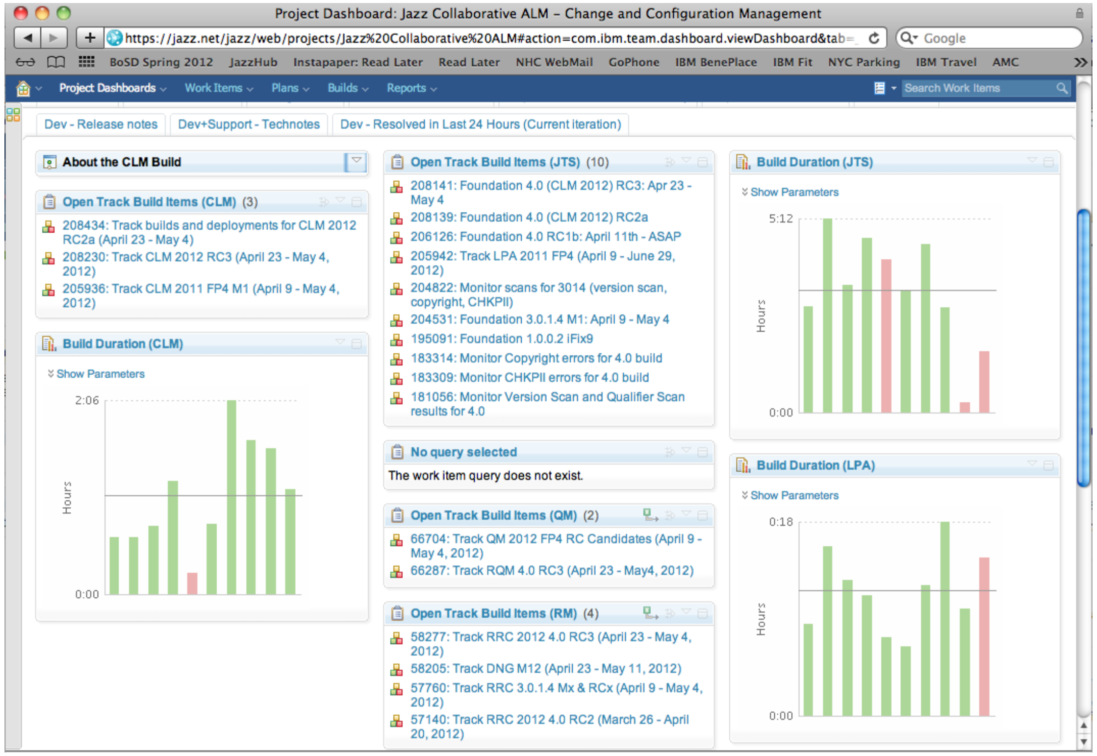
- Monitoring instrumentation and thresholds are defined in the requirements gathering and development cycles and stored in Source Control
- The application is tested using monitoring tools. Instrumentation and metric thresholds are updated based on test results, if needed

- If a production problem occurs, Development is familiar with both the monitoring tools and the production environment, resulting in a much lower Mean Time To Repair.
- At any time during the cycle, instrumentation and/or configuration (metrics) can be updated.
- **Analytics** automatically provide best practice information


Dev
Test
Ops
Application Source Artifacts
Application Code
Runtime Environment Definition
Instrumentation and Configuration
Application Source Artifacts stored in Source Control
Source Control
Monitoring Instrumentation and Configuration are part of the Application Source

Dashboard Everything

- Build quality and status, application performance, production troubles, application status, team efficiency, and bottlenecks should all be visible via dashboards.
- This helps us understand how the applications, infrastructure, and team are doing and how they can improve.


Project Dashboard: Jazz Collaborative ALM – Change and Configuration Management

https://jazz.net/jazz/web/projects/Jazz%20Collaborative%20ALM#action=com.ibm.team.dashboard.viewDashboard&tab=

About the CLM Build

Open Track Build Items (CLM) (3)
- 208434: Track builds and deployments for CLM 2012 RC2a (April 23 - May 4)
- 208230: Track CLM 2012 RC3 (April 23 - May 4, 2012)
- 205936: Track CLM 2011 FP4 M1 (April 9 - May 4, 2012)

Build Duration (CLM)

Open Track Build Items (JTS) (10)
- 208141: Foundation 4.0 (CLM 2012) RC3: Apr 23 - May 4
- 208139: Foundation 4.0 (CLM 2012) RC2a
- 206126: Foundation 4.0 RC1b: April 11th - ASAP
- 205942: Track LPA 2011 FP4 (April 9 - June 29, 2012)
- 204822: Monitor scans for 3014 (version scan, copyright, CHKPII)
- 204531: Foundation 3.0.1.4 M1: April 9 - May 4
- 195091: Foundation 1.0.0.2 iFix9
- 183314: Monitor Copyright errors for 4.0 build
- 183309: Monitor CHKPII errors for 4.0 build
- 181056: Monitor Version Scan and Qualifier Scan results for 4.0

No query selected

The work item query does not exist.

Open Track Build Items (QM) (2)
- 66704: Track QM 2012 FP4 RC Candidates (April 9 - May 4, 2012)
- 66287: Track RQM 4.0 RC3 (April 23 - May4, 2012)

Open Track Build Items (RM) (4)
- 58277: Track RRC 2012 4.0 RC3 (April 23 - May 4, 2012)
- 58205: Track DNG M12 (April 23 - May 11, 2012)
- 57760: Track RRC 3.0.1.4 Mx & RCx (April 9 - May 4, 2012)
- 57140: Track RRC 2012 4.0 RC2 (March 26 - April 20, 2012)

Build Duration (JTS)

Build Duration (LPA)

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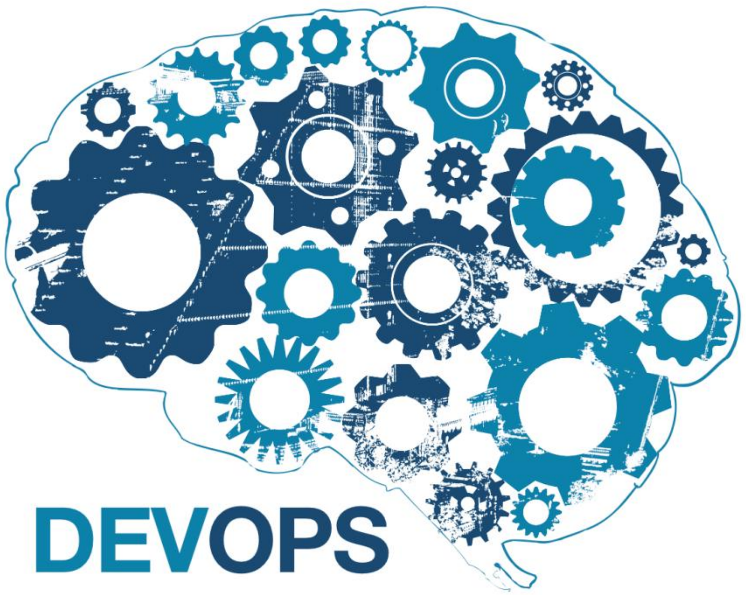


Rational & Tivoli integrations

helping bridge service delivery gaps and enabling innovation

Design and Deployment Planning

Integrate and automate deployment planning processes across development & operations

Ensure asset & configuration details are shared and synchronized across asset stores.

Environment Setup, Testing, Deployment and Monitoring

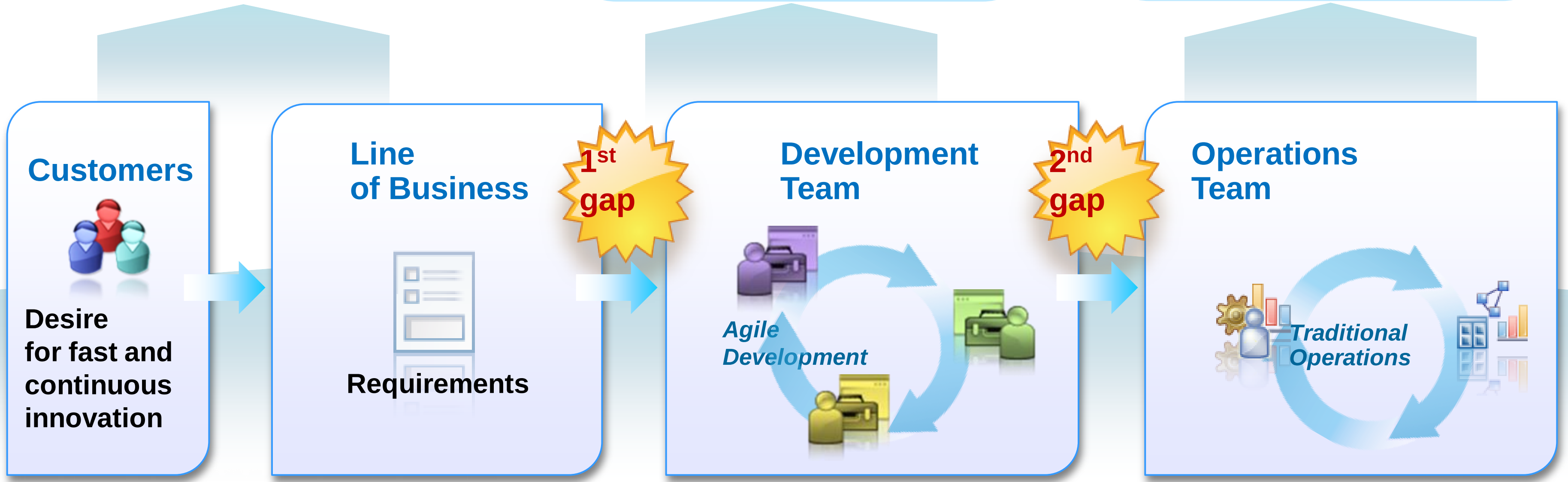
Leverage integrated tools for discovery & accelerating provisioning of test lab & production environments.

Improving app performance by replicating “real world” environments - faster testing & problem resolution

Issue Identification and Resolution Management

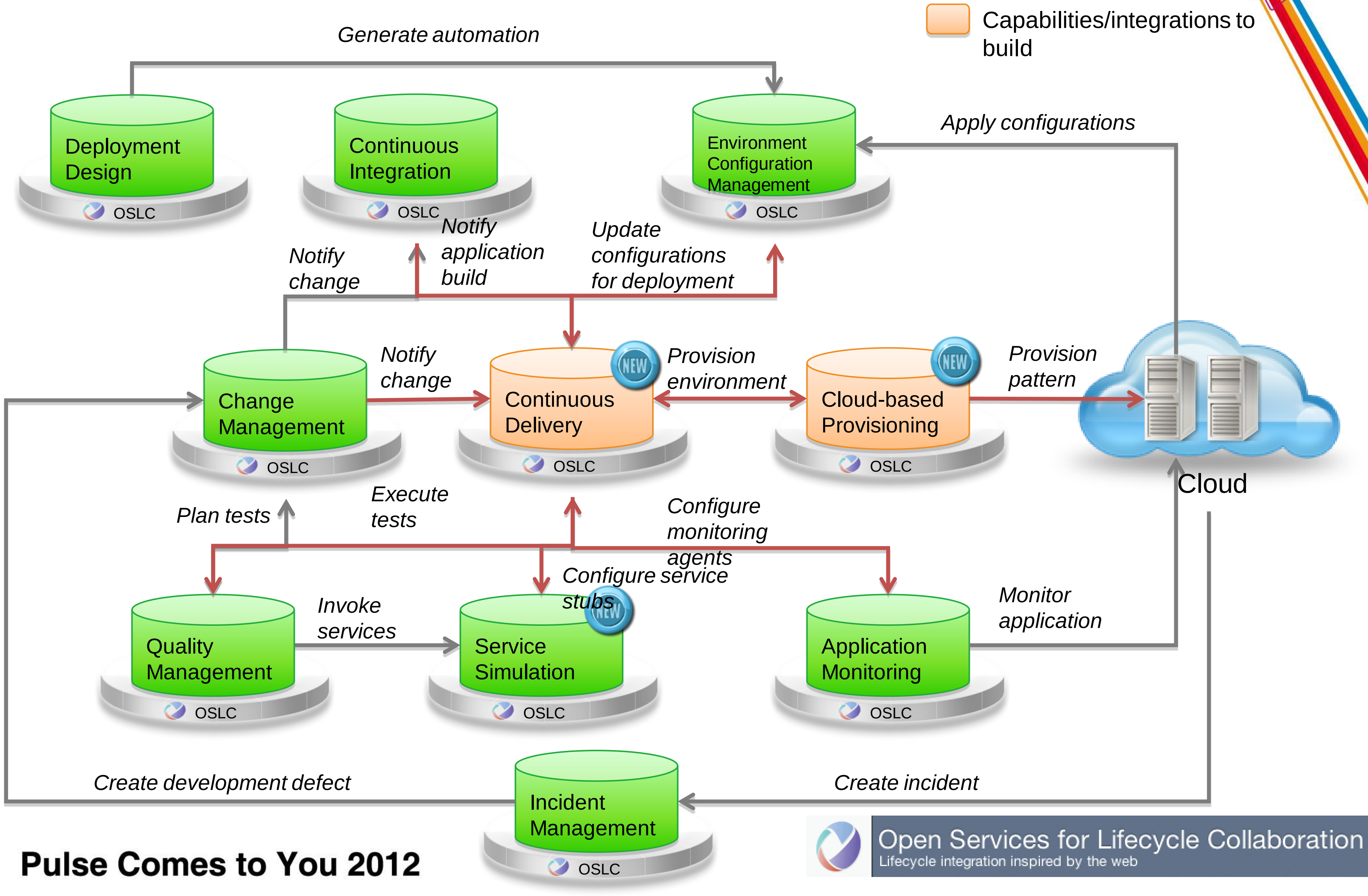
Resolving problems quicker by sharing problem & ticket information

Ensuring tracking tools for production problems and application fixes remain synchronized



Integrated capabilities for DevOps

Using open services to drive continuous lifecycle management



Open Services for Lifecycle Collaboration
Lifecycle integration inspired by the web

DevOps Scenarios

Story 1: Dev and Ops collaborate to develop environment definitions

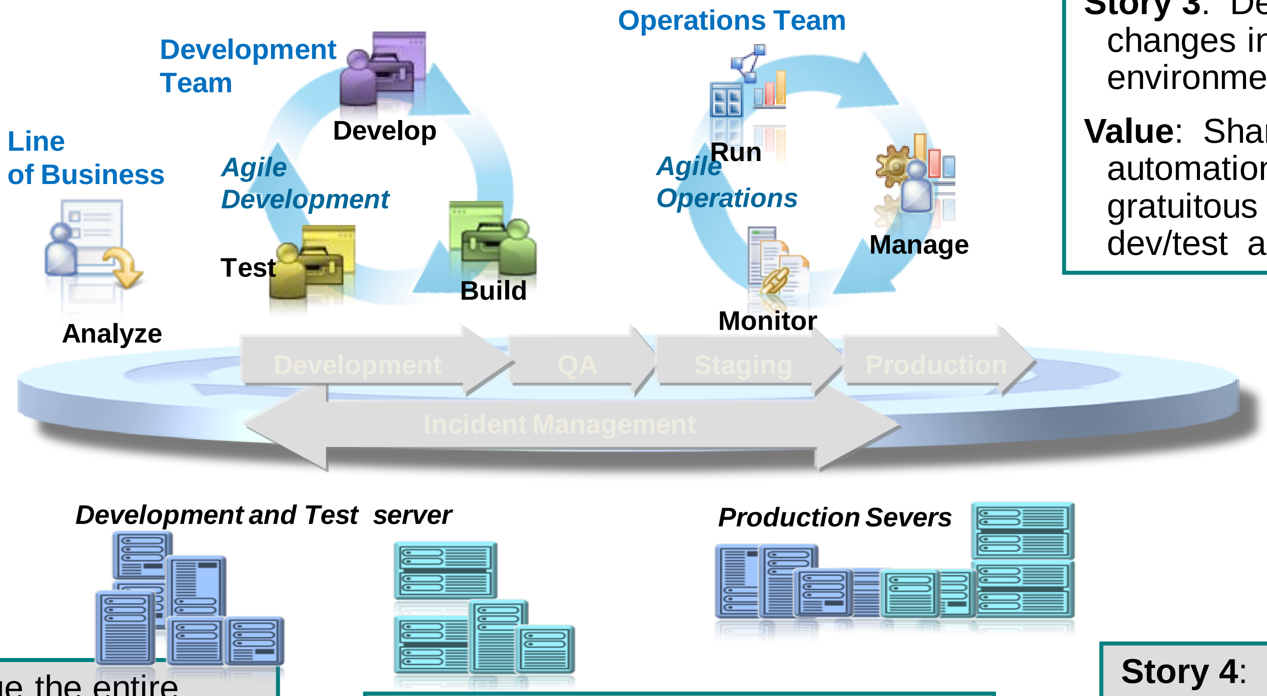
Value: Ensures that Dev understands and deals with production-like environments; avoids architectural miscommunications

Story 2: Testing application changes continuously by Dev and Test teams

Value: Shared technology ensures testable environments and script reuse for repeatable delivery; Test org always has known good builds, properly deployed.

Story 3: Deliver application changes into multiple environments

Value: Shared technology and automation ensures no gratuitous differences between dev/test and prod.



Story 6: Manage the entire delivery pipeline with end-to-end visibility and dashboards

Value: Enables end-to-end delivery metrics and visibility into bottlenecks.

12

Story 5: Dev and Ops use the same analysis and instrumentation in dev, test, and ops (APM designed with app)

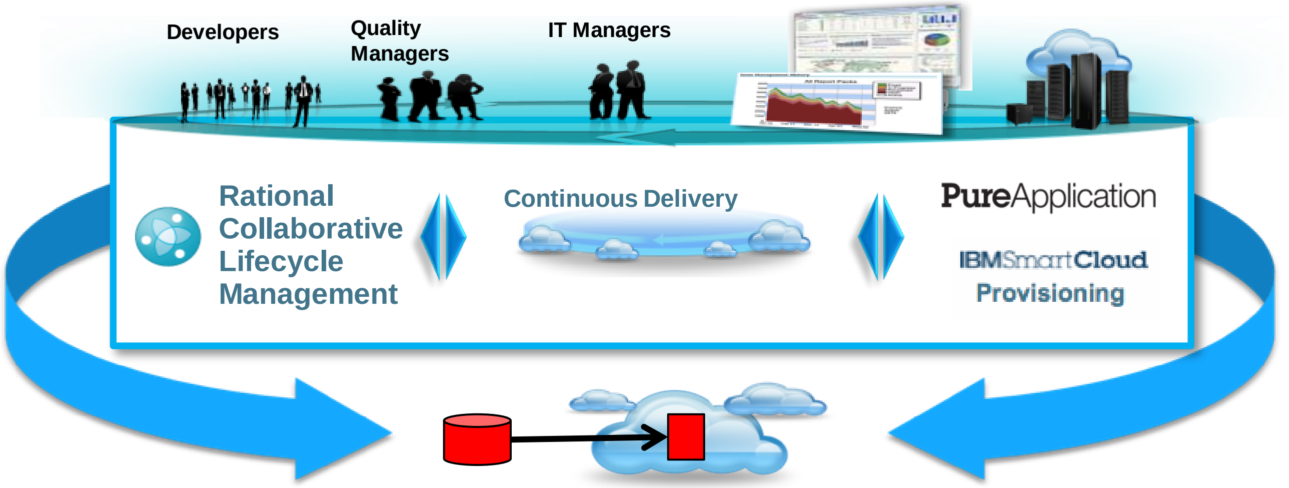
Value: Ensures a common understanding of quality and performance (and no fingerpointing)

Story 4: Collaborative incident management

Value: ensures an integrated process for reproducing and resolving defects and issues between dev, test, and ops.

IBM SmartCloud Continuous Delivery

Extending Agile disciplines through deli



Client Value

- Reduce risk, improve quality; manage change from development to deployment
- Improve efficiency, accelerate delivery; automated handover between processes
- Optimize resources; workload pattern composition delivery

Targeted Entry

•Development team extending Agile into rapid workload deployment in the cloud

•Operation teams delivering scalable, continuous delivery services to the development organization

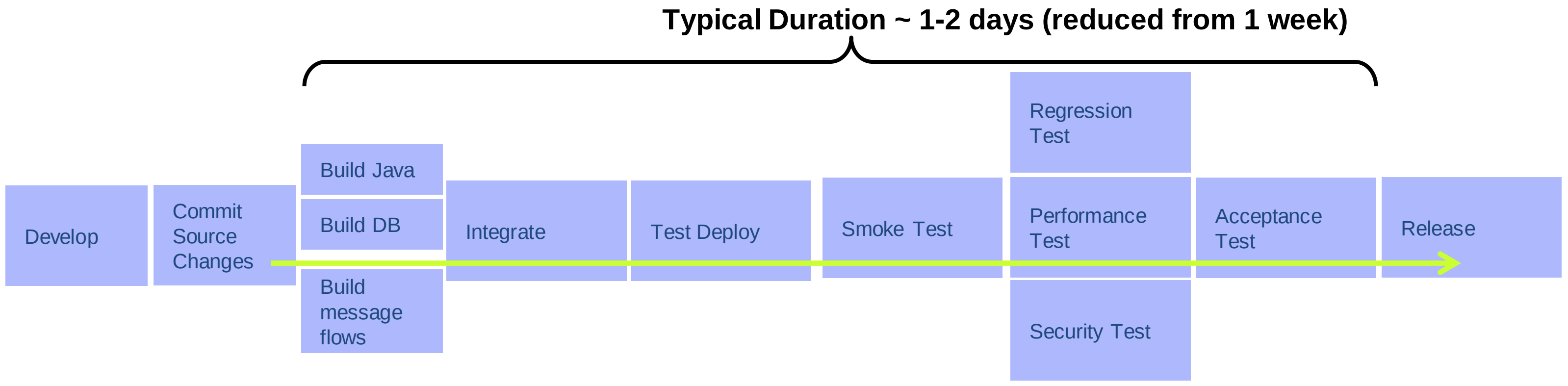
SmartCloud Continuous Delivery ROI

Customer DevOps success Examples:

ANZ: $4M savings; 35% improvement in Test Productivity
SunTrust: 46% improvement in Software delivery frequency

Reduce cycle times and improve delivery throughput

- ✓ Build / Deployment Automation improves cycle times
- ✓ Cloud improves parallelism of testing activities
- ✓ Production-like environments reduces test failure points



Improve Quality

- ✓ Production-like environments for dev-test reduces number of production defects
- ✓ Automated tests within continuous delivery
- ✓ Monitoring reduces problem resolution times (2013)

Delivery simplification

- ✓ Initiate collaboration between Dev/Ops to stimulate cultural change
- ✓ Standardized cloud environments increases testing reliability and supportability
- ✓ Support Agile Development Practices

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Cloud

Rethink IT and Reinvent Business

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