

BusinessConnect
A New Era of Smart

zDevOps: Optimized Development and Test Strategies for System z



Agenda

- The DevOps Approach: Development and Test
 - IBM Integrated Solution for System z Development
 - IBM Continuous Integration Solution for System z Development
- Success Story
- Questions

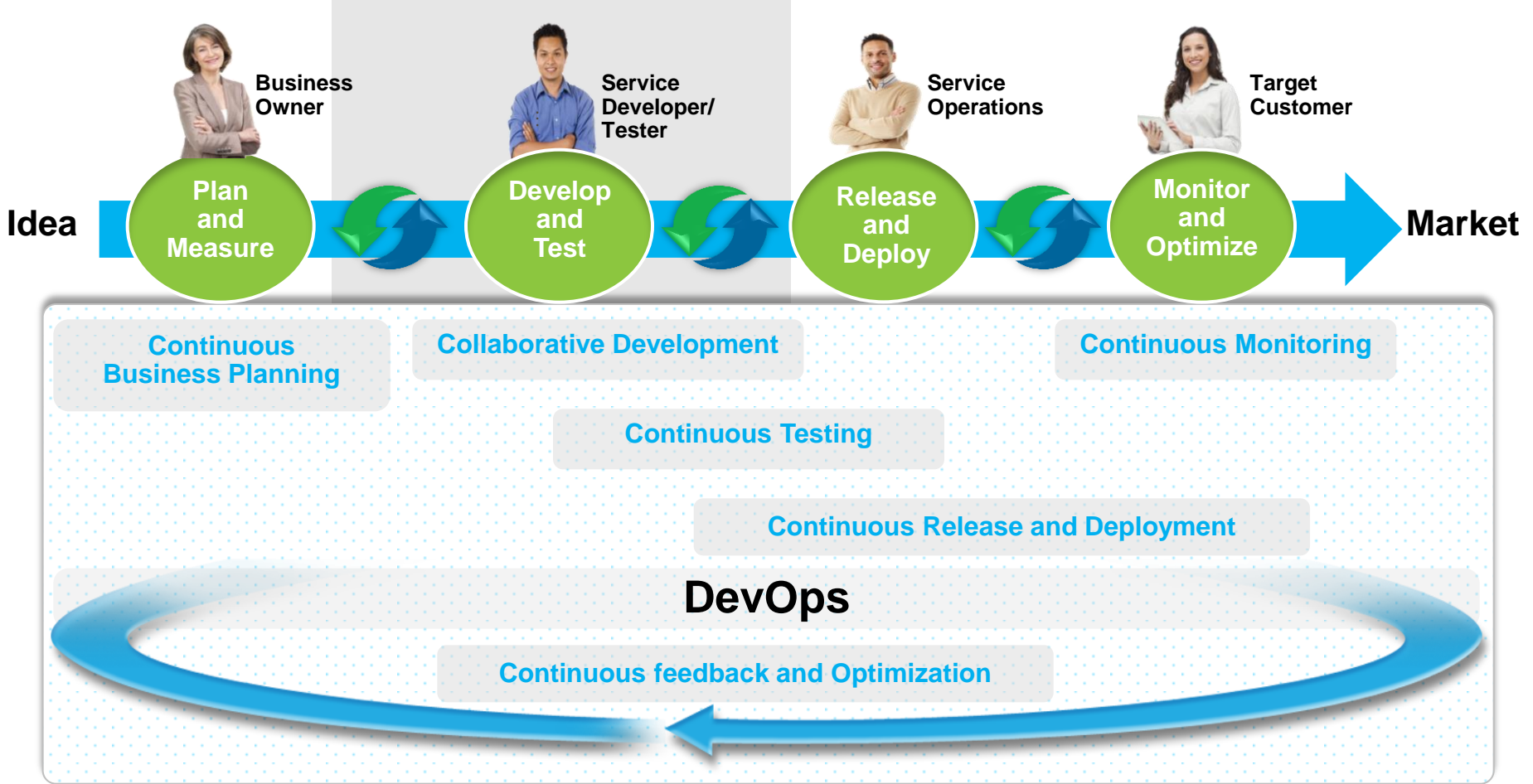


From Mobile to Mainframe



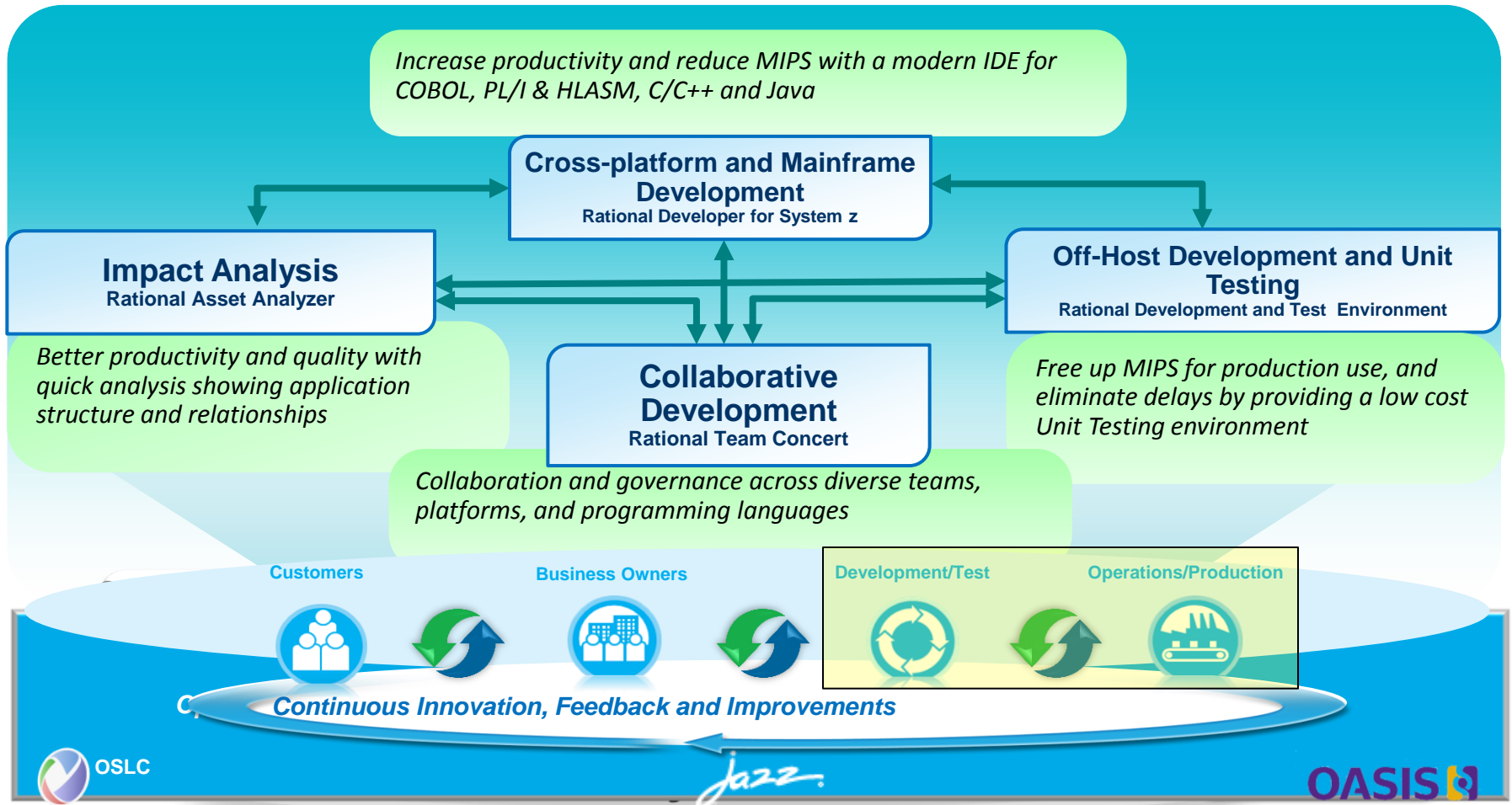
FOCUS: Develop and Test

Extending Lean and Agile practices across the entire software value chain



IBM Integrated Solution for System z Development

Leveraging the principles of DevOps to deliver high-quality applications



Adopt common tools to build multiplatform apps



Boost developer productivity



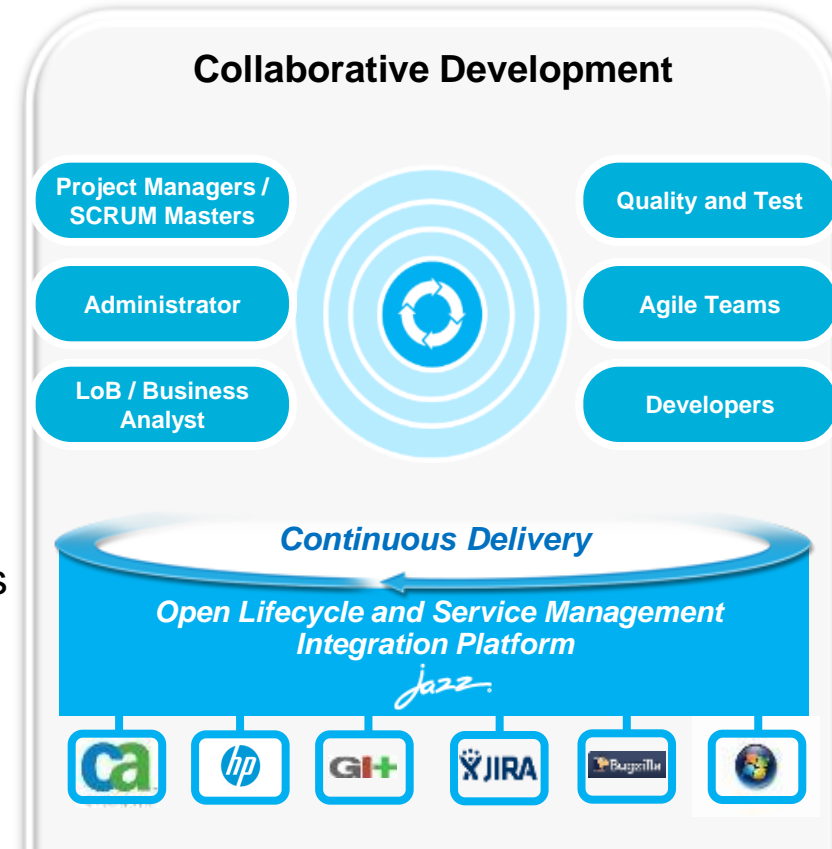
- Leverage common Eclipse-based IDEs for all types of development
- **Refactor and extend existing back-end services to provide an optimal mobile experience**
- Integrated code coverage, code governance and unit test support
- Rich program understanding and control flow analysis capabilities
- New** • A fully integrated source level debugger
- Integrates with IBM PD Tools Suite

Rational Developer for System z
 Rational Developer for IBM i
 Rational Developer for AIX and Linux
 Rational Application Developer
 Rational Business Developer

Collaborative Development

Integrated Application Lifecycle Management for all platforms

- Accelerate **time to delivery** with real-time planning
 - Improve **quality** with lifecycle traceability
 - Maximize **time to value** with in-context collaboration
 - Refine **predictability** with development intelligence
 - Reduce **costs** with continuous improvement
- ✓ Manage many sources - JavaScript to COBOL
 - ✓ Single work item can span technologies & solutions
 - ✓ Quickens agile adoption on the mainframe
 - ✓ Integrates existing SCMs and deployment tools, e.g. ChangeMan and Endeavor

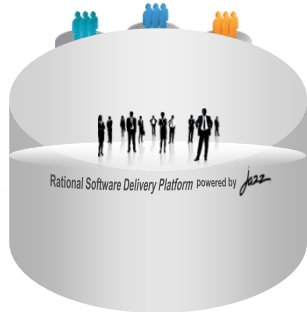


- Rational Software Architect
- Rational Software Architect Design Manager

- Rational Requirements Composer
- Rational Team Concert
- Rational Quality Manager

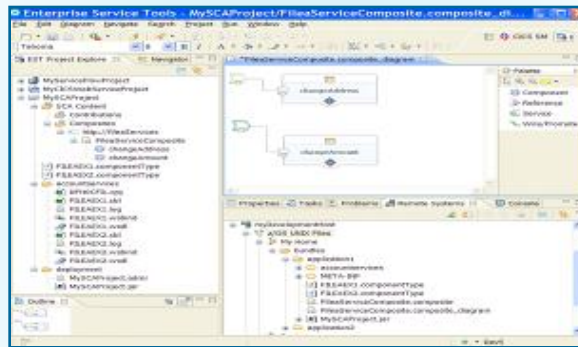
Rational Developer for System z: THE Premier Integrated Development Environment for System z and Multi-Platform Development

Integration with Team Concert for Lifecycle and Source Management



Rational Developer for System z

A modern IDE for productive development of cross-platform applications written in COBOL, PL/I, ASM, Java, EGL or C/C++ in System z CICS, IMS, DB2, Batch applications, with a powerful state of the art integrated debugger



Access to typical System z sub-system functionality in z/OS, CICS, IMS, DB2, WAS



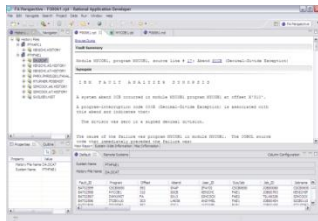
Integration with RD&T for flexible access to System z environment



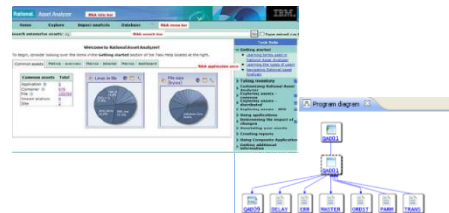
Robust Mobile Development in conjunction with Worklight



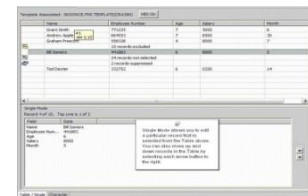
Integration with Fault Analyzer for ABEND Analysis



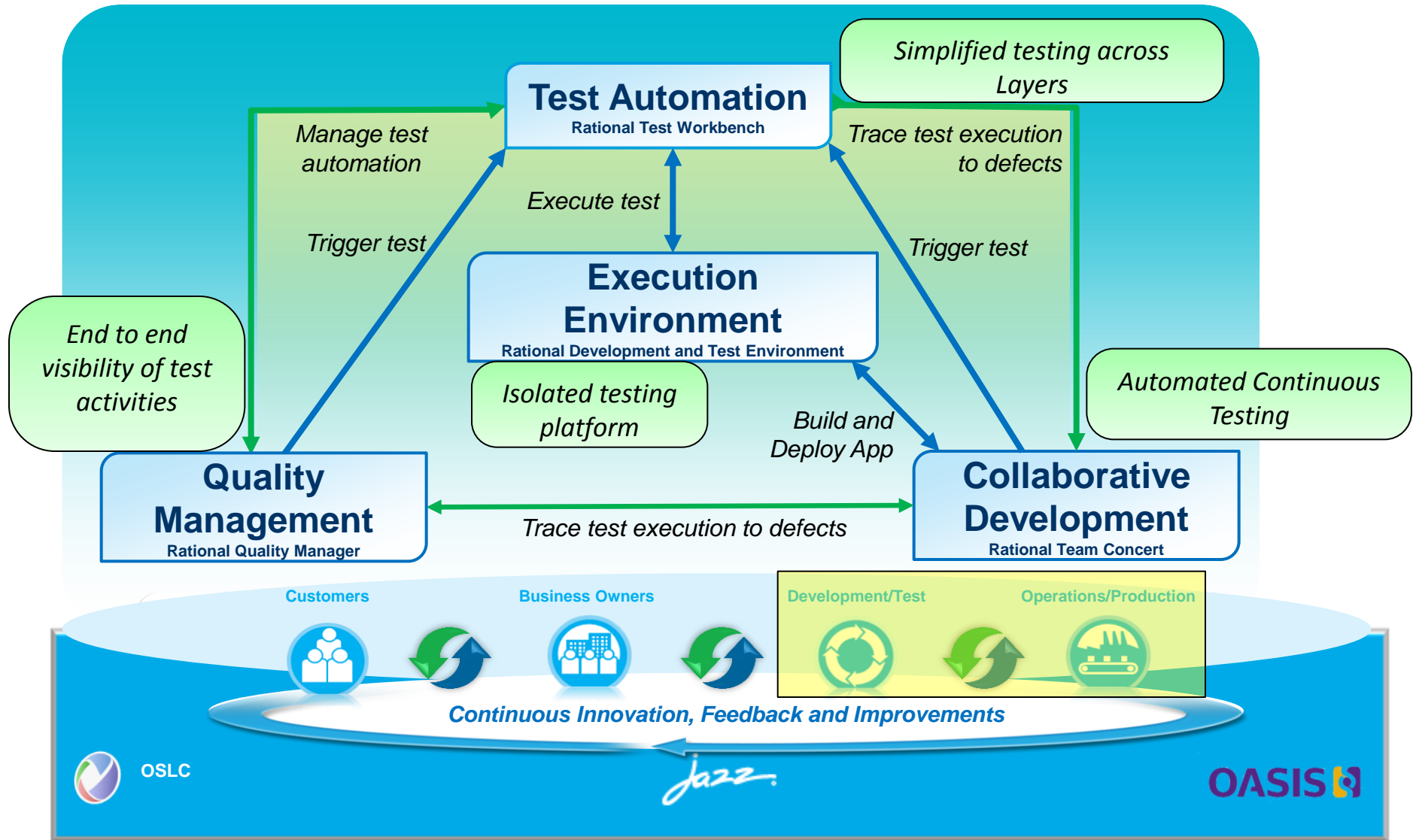
Integration with Asset Analyzer for Application Understanding and Impact Analysis



Integration with File Manager for file and test data handling



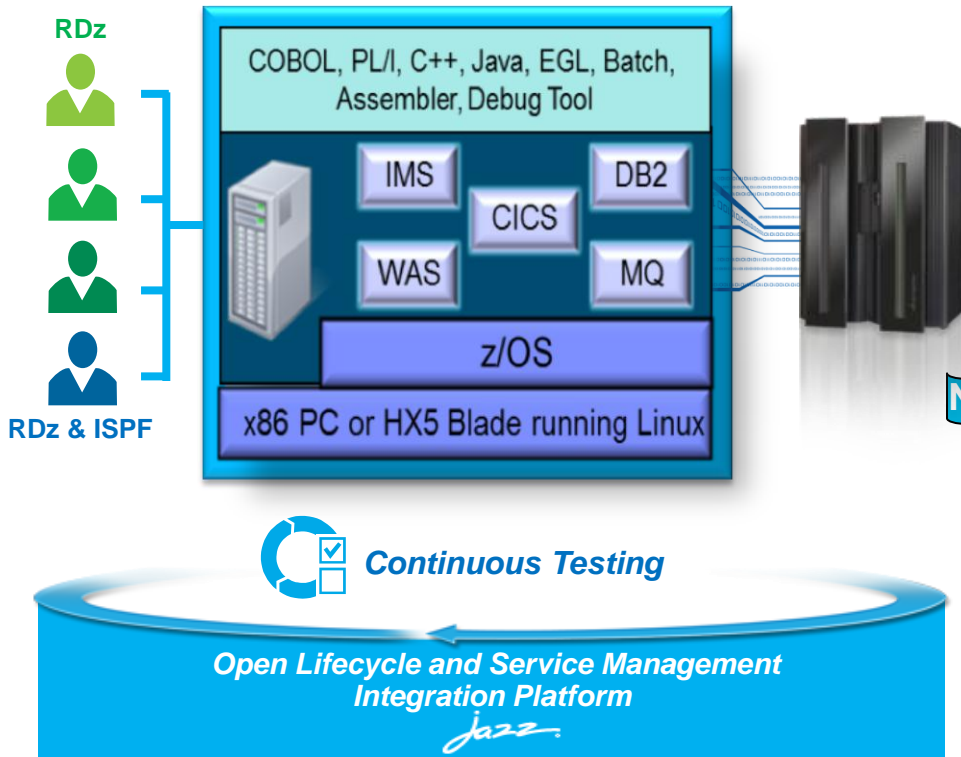
IBM Continuous Integration Solution for System z



Offload development and testing to reduce MIPS



Improve development flexibility



- Liberate developers to rapidly prototype new applications
- Develop and test System z applications anywhere, anytime
- Free up mainframe development MIPS for production workload
- Eliminate costly delays by reducing burden on existing IT operation staff
- New** • Try latest middleware, including CICS 5.1, IMS 12.1, and WebSphere 8.5

Rational Development and Test Environment for System z

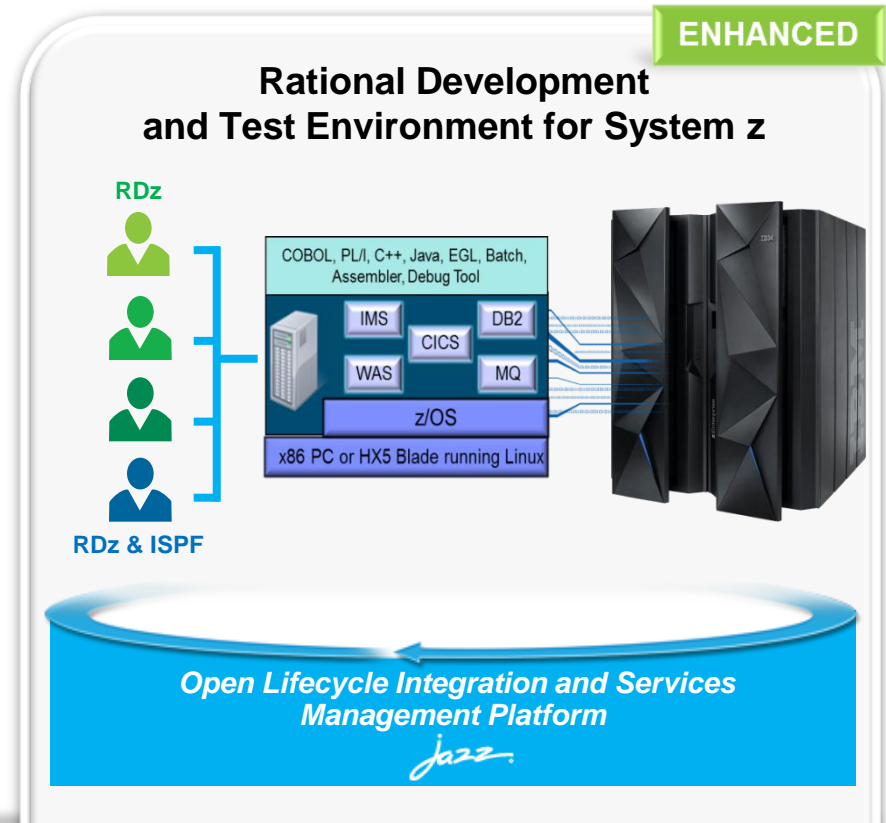
Rational Development and Test Environment (RD&T) for IBM System z v9

Reduce System z development costs with off host development and test

- Exploit added zEnterprise capability for increased mainframe compatibility
 - **New** Parallel Sysplex support via the latest System z coupling facility
 - **New** zEnterprise EC12 platform support
 - Better development and test coverage early in the cycle for higher quality applications delivered more quickly

- Improve hardware utilization and simplify management
 - **New** support for virtualization technologies, including VMWare vSphere and IBM zEnterprise BladeCenter Extension

- **New**, flexible licensing to support automated testing and variable usage patterns



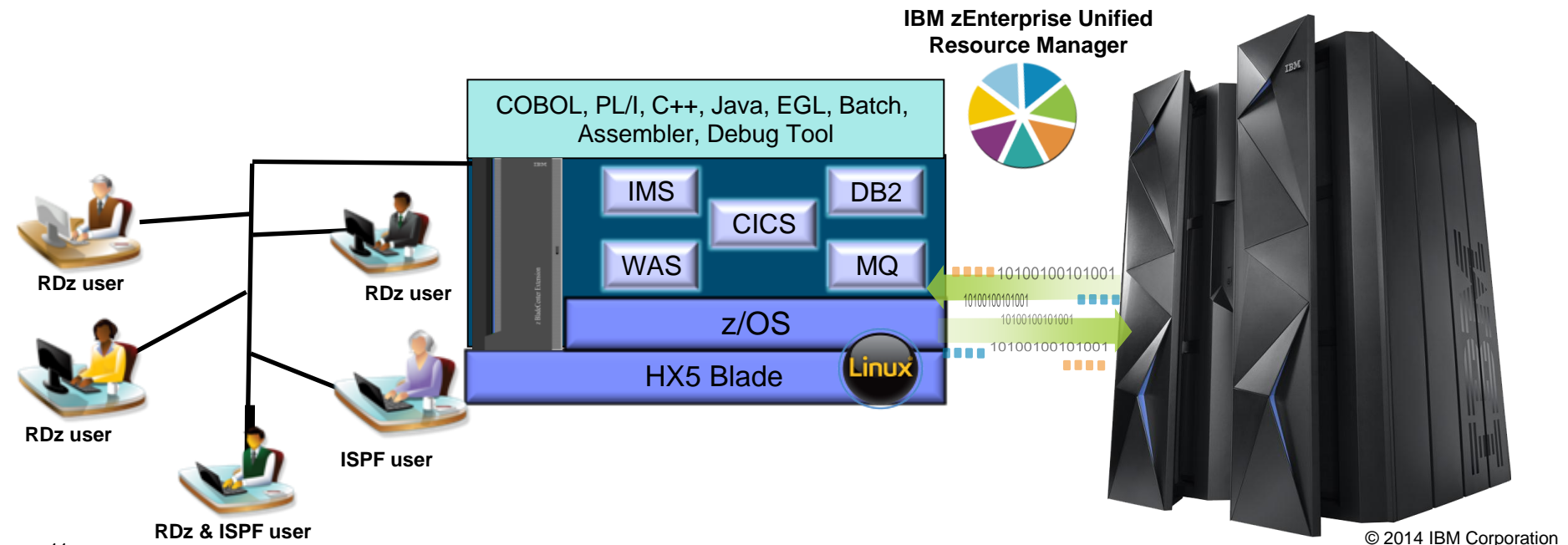
"RD&T provides us with the ability to try development approaches that may introduce instability to our normal environment with none of the associated risks. It provides an environment where we can quickly start a new project without waiting for setup delays inherent in our day-to-day processes."

Development Team Lead

DEVELOPER VALUE

RD&T zEnterprise BladeCenter Extension (zBX) Support

- Provision RD&T onto HX5 blades integrated into zBX Model 3 using the IBM zEnterprise Unified Resource Manager
- Benefits:
 - Extend existing zEnterprise System management capabilities, automated provisioning, and skills to handle your off host System z development and test environments
 - Efficient System z data access via TCP/IP for mainframe application development and testing activities using intraensemble data network (IEDN) connectivity



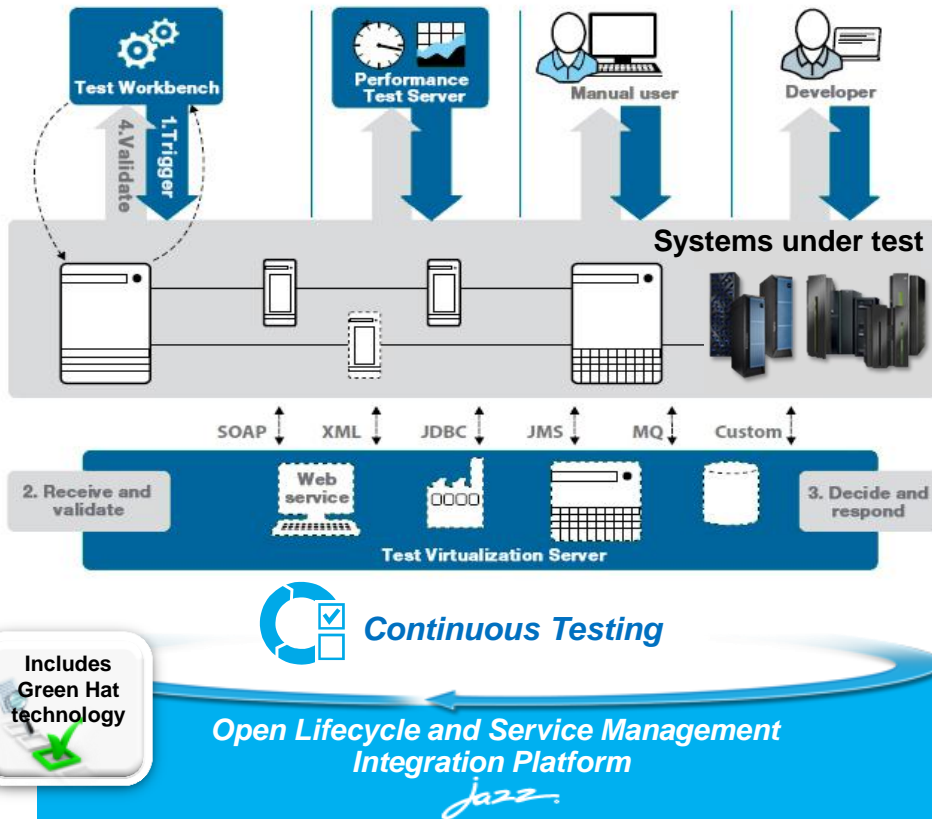
RD&T Virtualization support

- With Rational Development and Test Environment for System z V9, you can install the product directly on the operating system used by the supported hardware platform selected (native installations) or you can use a supported virtualization technology to install virtual instances of the product on supported hardware platforms (virtual installations).
- Operating System requirements for native installations:
 - Red Hat Enterprise Linux (RHEL) 6.0-6.3
 - SUSE Linux Enterprise Server (SLES) 11 SP2
 - OpenSUSE 11.3, 11.4, 12.1
- Operating System platforms supported for virtual installations:
 - Red Hat Enterprise Linux (RHEL) 6.3
 - SUSE Linux Enterprise Server (SLES) 11 SP2
- Virtualization Technologies supported:
 - VMWare vSphere 5
 - Red Hat Enterprise Virtualization (RHEV) 6.1: Provisioned on IBM HX5 blades by **IBM zEnterprise Unified Resource Manager** for use with the zEnterprise BladeCenter Extension (zBX) Model 003.

Automate functional, regression, load, and integration testing



Improve application quality



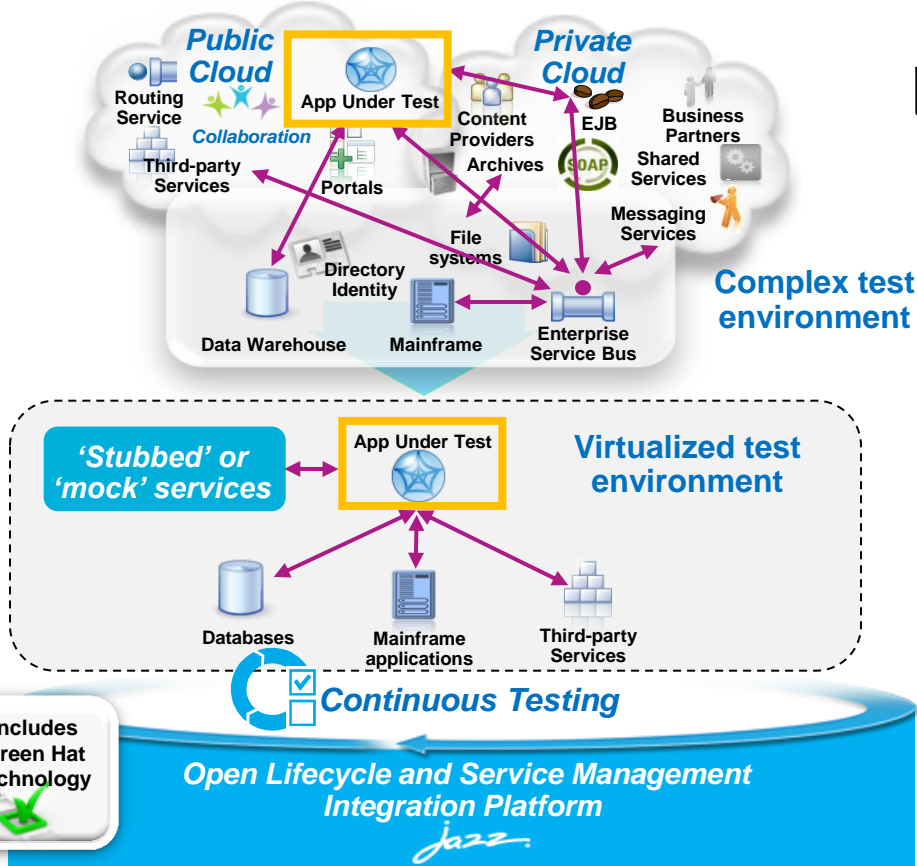
- Fully embrace automated testing
- Create test automaton of native and hybrid mobile and mainframe applications
- Run automated tests to validate builds
- Create virtual components to simulate unavailable software or system dependencies
- New** • Mobile Quality Assurance offering to engage users in app testing with feedback and metrics

Rational Test Workbench
 IBM Mobile Quality Assurance (open beta)

Reduce provisioning burden on Operations



Maintain test environments effectively



- Test in isolation with 'stubbed' or 'mock' services
- New** • Virtualize CICS applications inside the mainframe and Java applications in the JVM
- Reduce development dependency on operations
- Minimize subsystem dependency during testing
- Reduce infrastructure costs and free up MIPS for production use

Rational Test Virtualization Server

Leverage advanced compiler and optimization technologies



Increase application performance



Increase Programmer Productivity



Bolsters overall benefits of CICS, IMS, DB2

Increase Performance of Business Critical Applications



Collaborative Development

Open Lifecycle and Service Management Integration Platform

Jazz

- Leverage advanced technology to optimize COBOL programs and fully exploit z hardware

New • Deliver greater than 10% performance improvement over Enterprise COBOL v4

New • Gain 20% performance for numerically intensive programs

- Maintain compatibility with previous COBOL releases

- Implement sub-capacity tracking, to reduce administrative overhead

IBM Enterprise COBOL for z/OS
 IBM Enterprise PL/I for z/OS
 IBM z/OS XL C/C++

Nationwide embraces DevOps to drive continuous delivery across platforms and improve speed to market

50% increase

in software **quality** over the last three years

90% on-time delivery

vs. 60% previously

70% decrease

in user downtime

58% of developers moved to industry top quartile in **productivity measures**

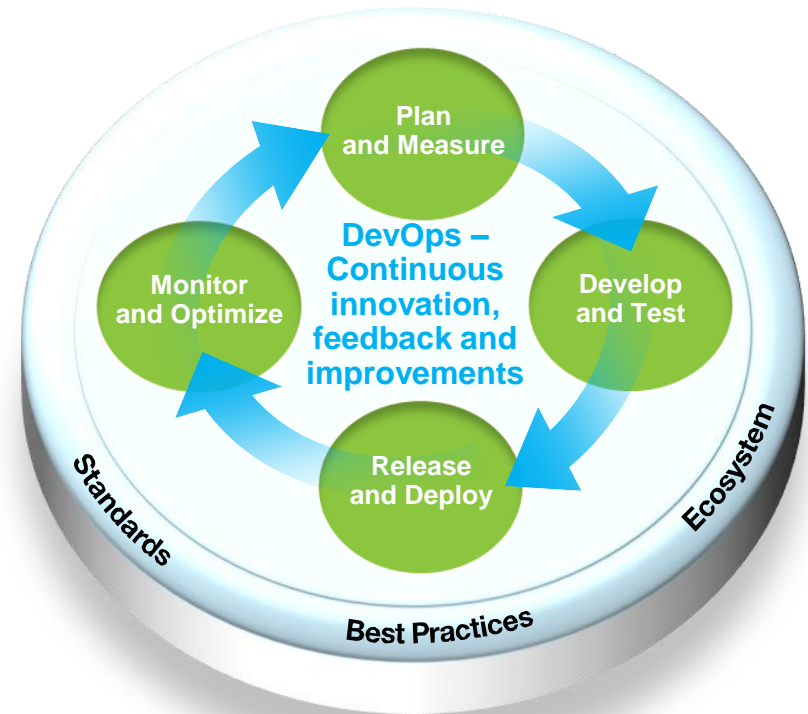


“We’re more agile as a business and more responsive to our customers. Collaboration has become an expected part of our culture.”

— **Steve Farley**, Vice President,
Application Development Center, Nationwide

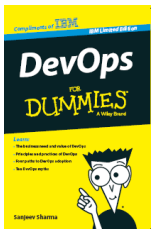
Summary

- There are challenges to delivering software-driven innovation
- Disruptive technologies are driving greater need to innovate
- DevOps is critical to your success
- IBM has first class DevOps solutions and is continuing to invest and improve upon these solutions
- DevOps is just as relevant, if not more so, for the Mainframe as it is for mobile, cloud, and distributed platforms



Take Action Now!

- Develop an end-to-end DevOps strategy
- Adopt mobile-first design thinking, and cloud-centric architectures
- Start incrementally on business-critical projects
- Measure and reduce overhead, rework and duplication
- Innovate! It's a great time to be in the technology business
- Get your free guide to faster, continuous software delivery with DevOps



<http://ibm.co/devopsfordummies>

It is not a typo....use .co not .com



QUESTIONS



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