

A decorative graphic in the top-left corner consisting of several overlapping circles of various colors (yellow, orange, red, purple, blue) that are divided into segments, resembling a stylized sun or a cluster of data points.

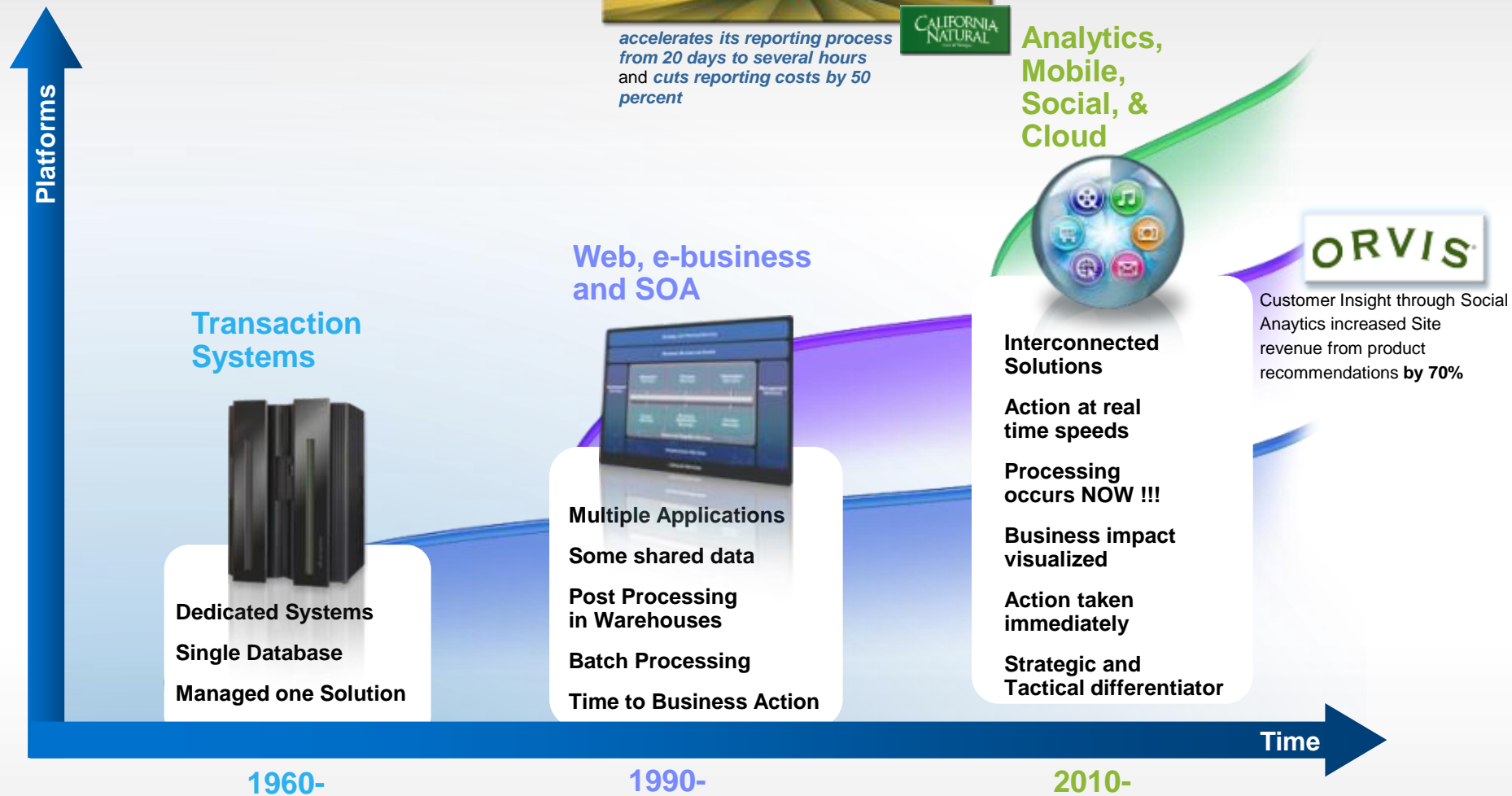
Enterprise DevOps: Trends in Continuous Software Delivery



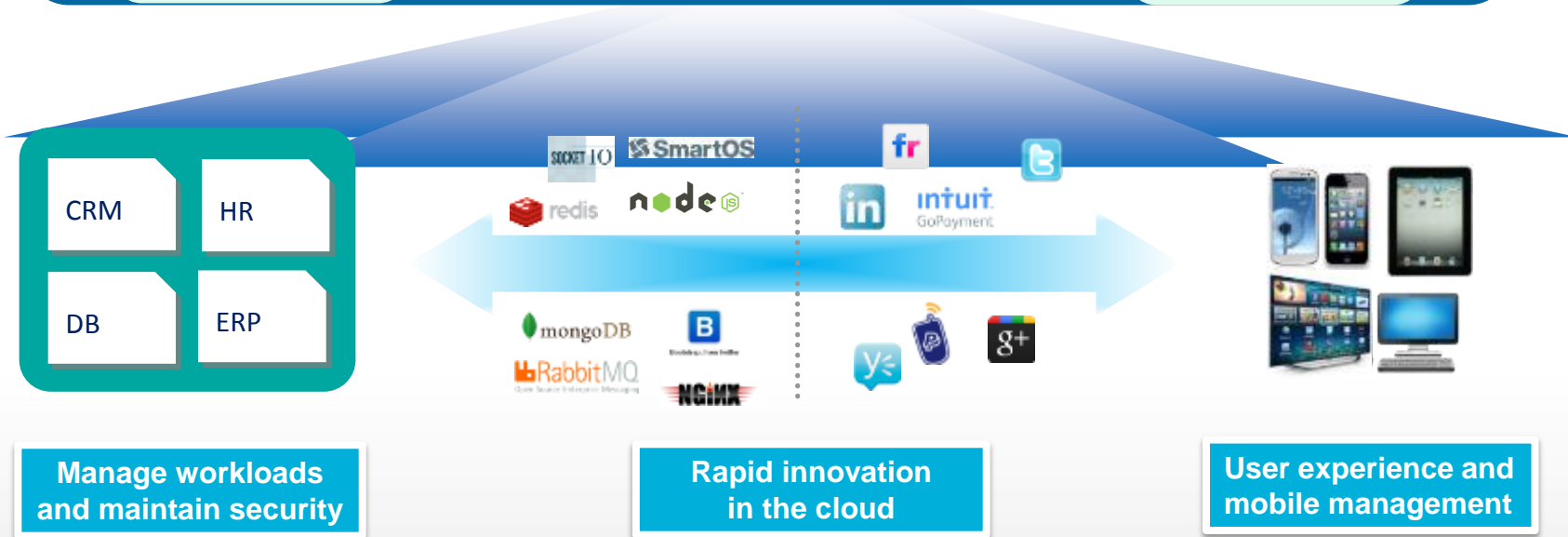
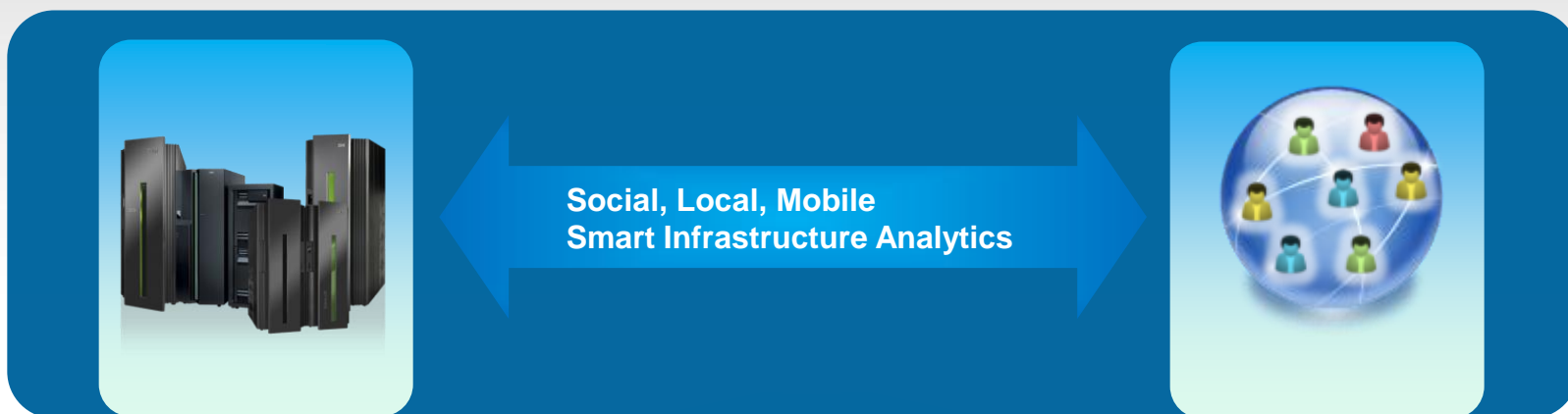
Tim Hahn

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A new wave of business opportunities & IT challenges



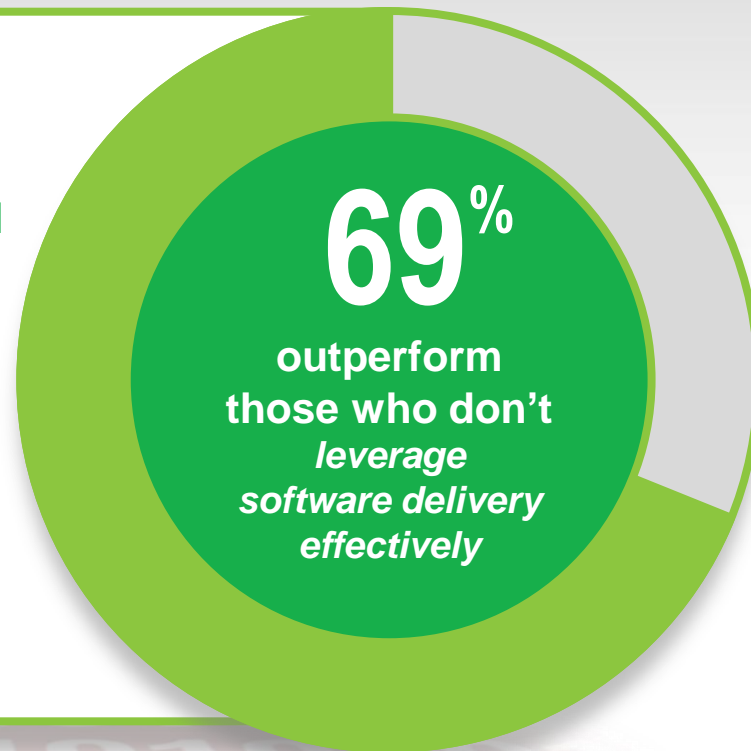
New era systems integrate existing systems of record with new client-facing systems of engagement



Software delivery is critical to success



But only...



Source: "The Software Edge: How effective software development drives competitive advantage," IBM Institute of Business Value, March 2013

And a lack of continuous delivery impacts the 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



Software glitch costs major trading firm **\$440 million in 45 minutes**

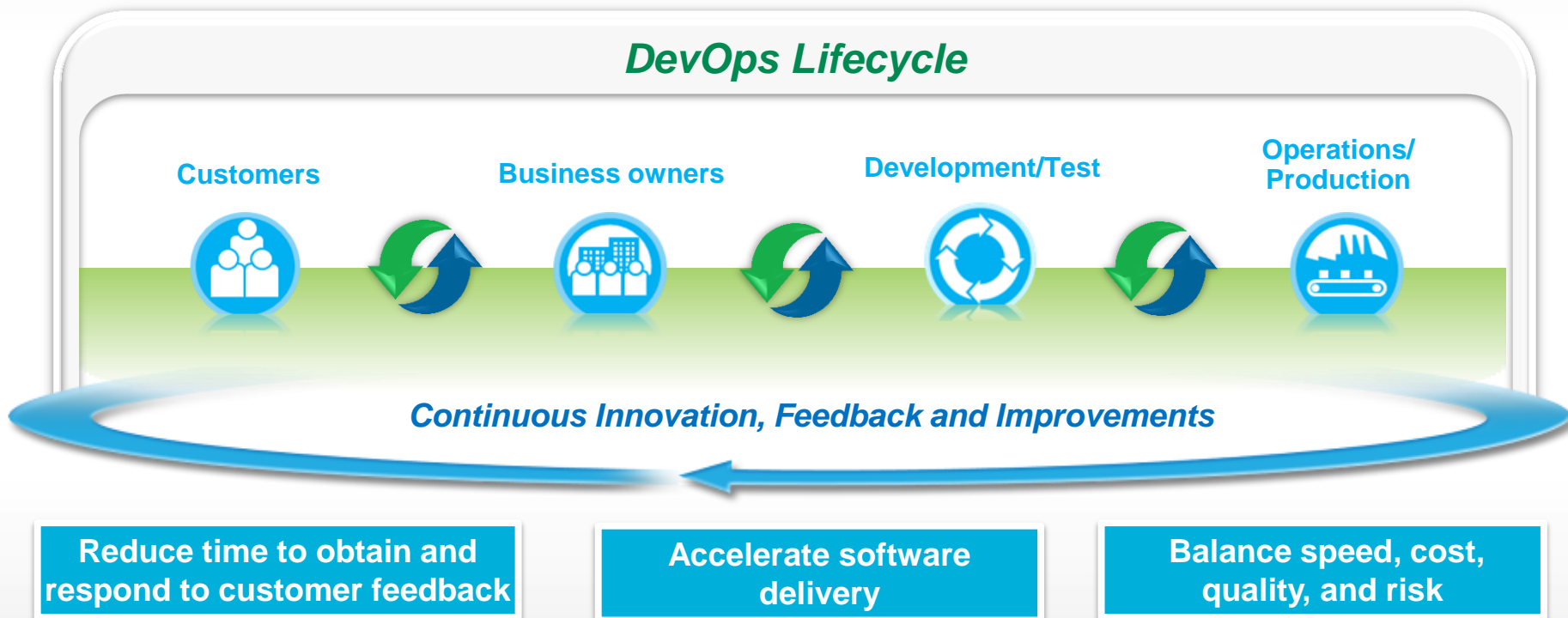
Major telecom provider paid out **\$2.7 million to 47,000 customers** overcharged after a software glitch

A bad software upgrade at a global bank left **millions unable to access money for four days**

An approach for continuous delivery of software-driven innovation

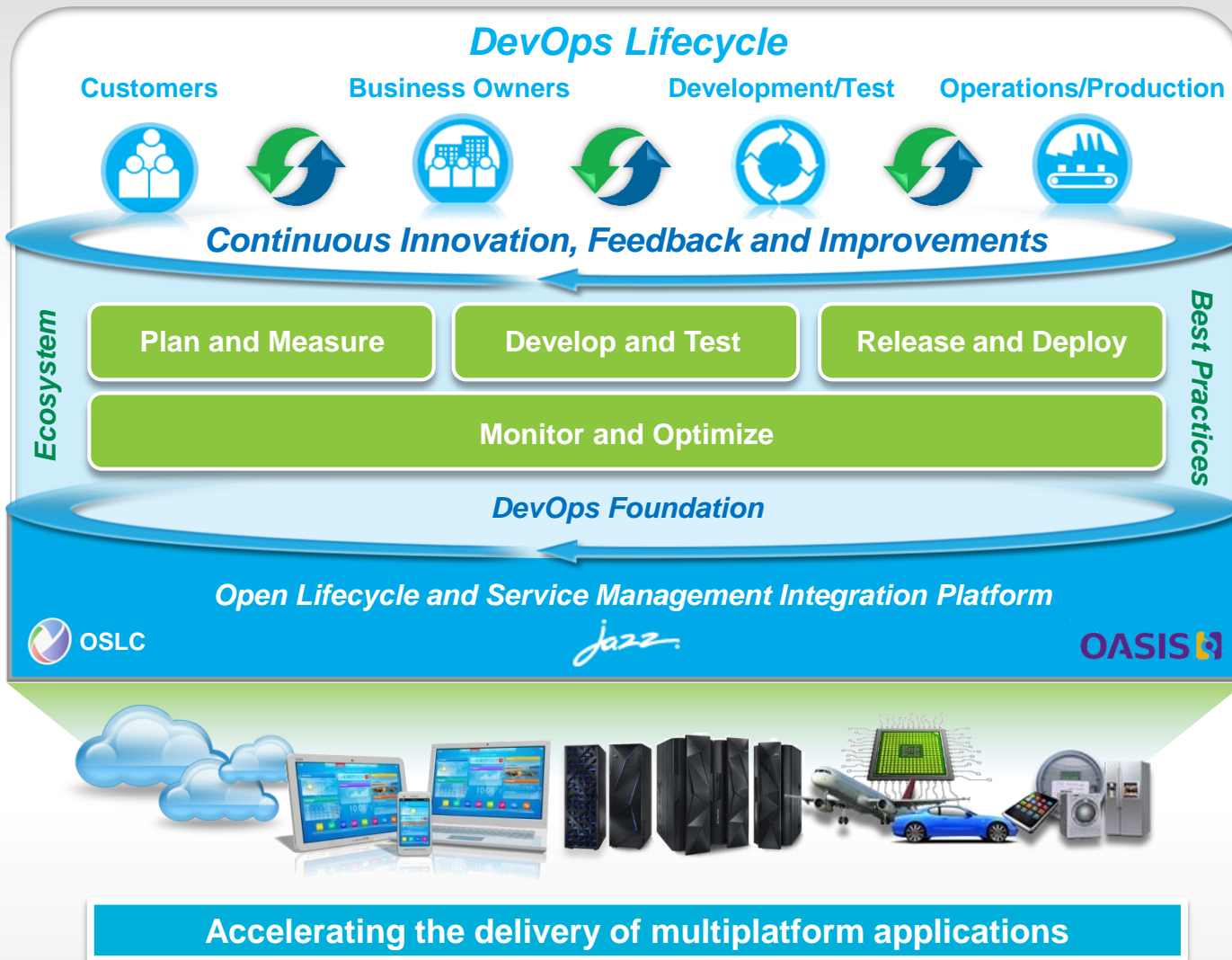
dev-ops *noun* \ˈdev-äps\

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

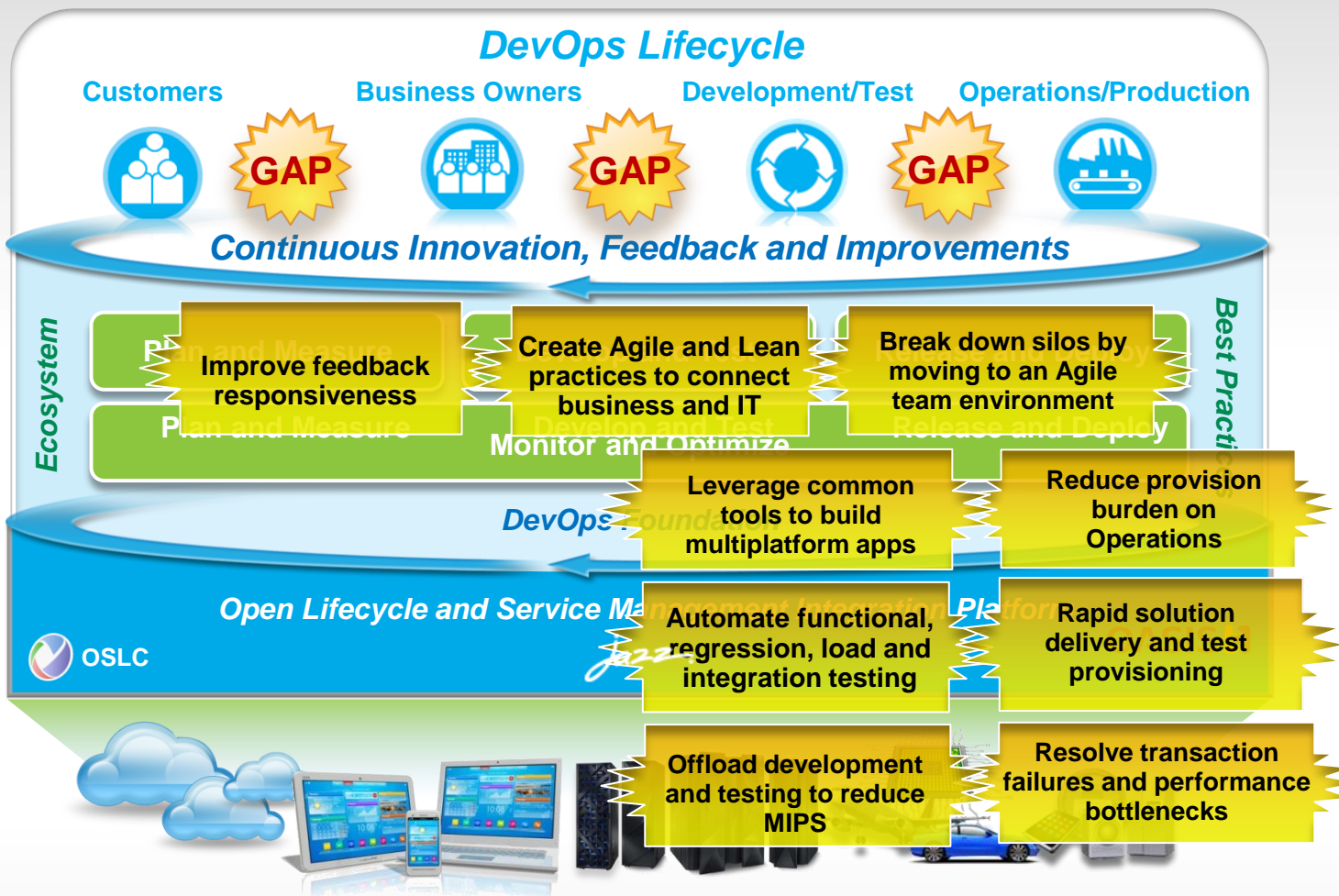




IBM DevOps solution



DevOps in a multiplatform development environment



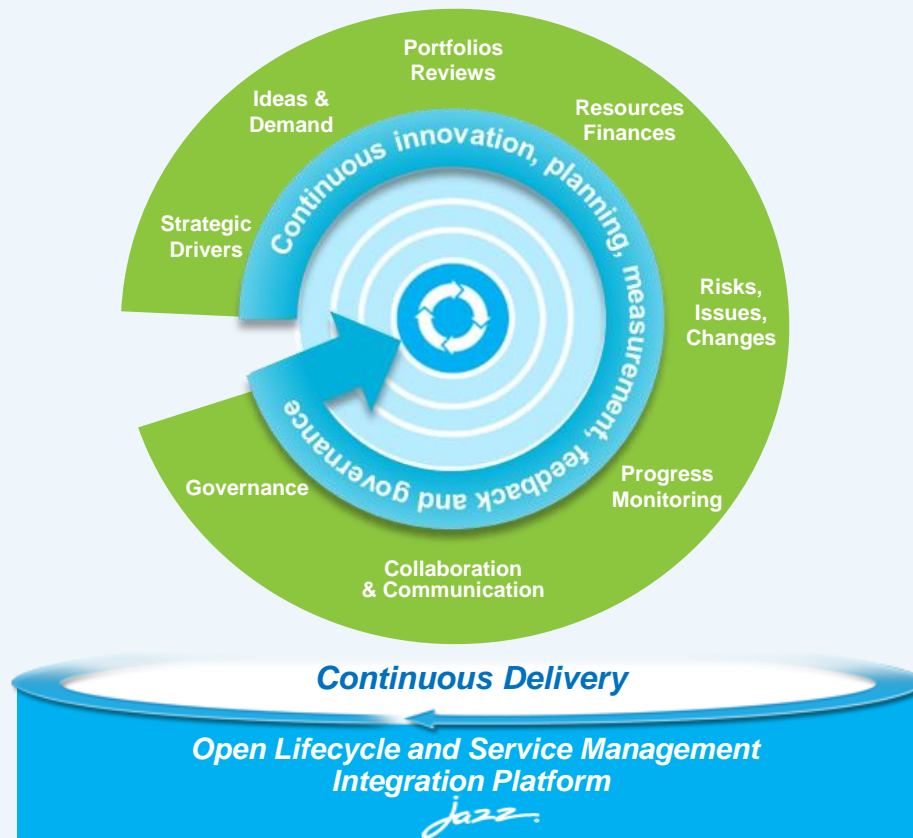
Bottlenecks in software delivery can result in long delays, unnecessary costs, and waste of resources



Create Agile and Lean practices to connect business and IT



Improve visibility and transparency



Rational Focal Point

Enabling you to...

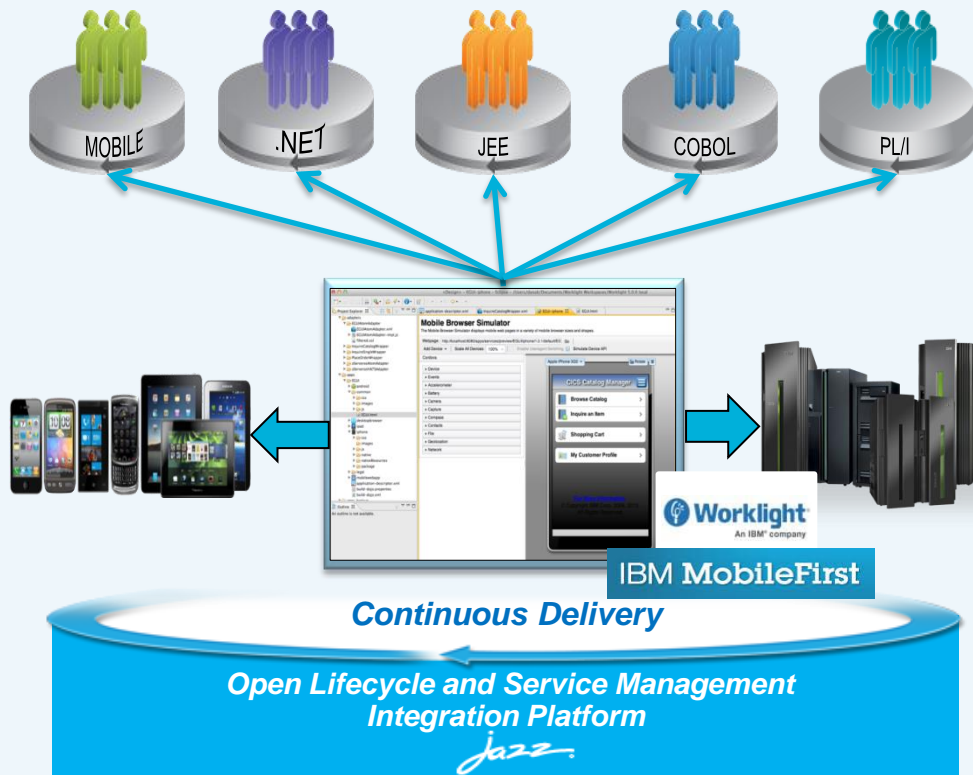
- Better align investment decisions with value and organizational strategies and priorities
- Plan releases predictably driven by the needs of the business
- Gain control of development initiatives by improving visibility and transparency
- Provide proactive portfolio evolution and delivery governance



Leverage common tools to build multiplatform apps



Boost developer productivity



Rational Developer for the Enterprise IBM Worklight for MobileFirst platform

Enabling you to...

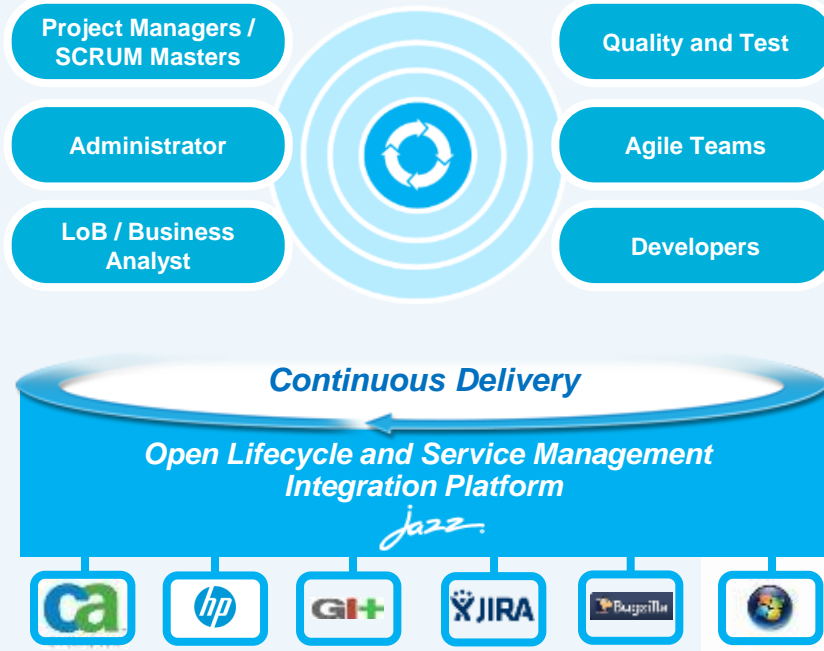
- Leverage common Eclipse-based IDEs for all types of development
- Access broad coverage of runtimes, languages, compilers, and platforms
- Access via cloud-based environments like SmartCloud Enterprise+ (SCE+)
- Create agile services from existing mainframe assets



Break down silos by moving to an Agile team environment



Maximize team productivity



Rational Team Concert
Rational Requirements Composer
Rational Quality Manager

Enabling you to...

- Manage all types of source - JavaScript to COBOL
- Create work items spanning technologies and solutions
- Accelerate agile adoption on the mainframe
- Integrate existing SCMs and deployment tools, e.g. ChangeMan and Endeavor
- Use Lifecycle integration adapters for third-party tools



Automate functional, regression, load, and integration testing



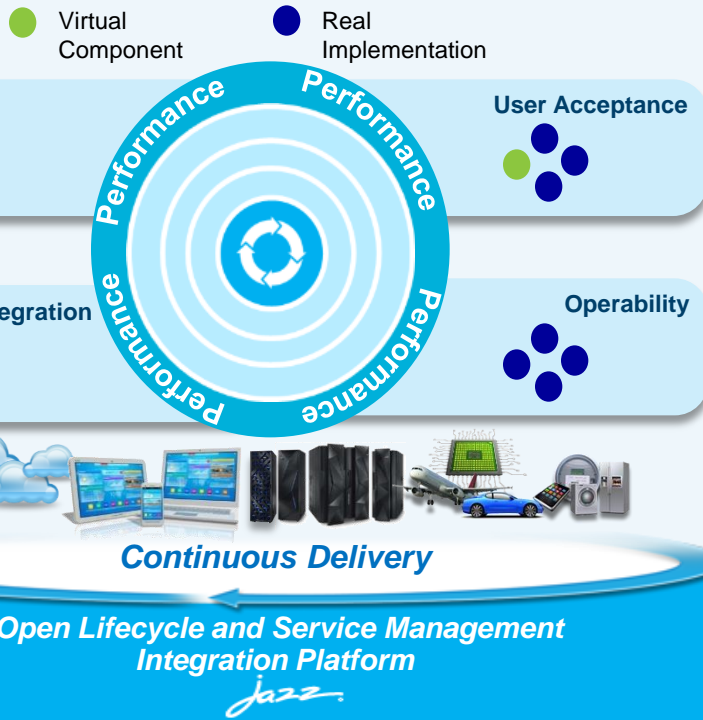
Rational Test Workbench - leveraging Green Hat Technology

Enabling you to...

- Fully embrace automated testing
- Create test automaton of native and hybrid mobile and mainframe applications
- Run automated tests to validate builds
- Take advantage of over 70 technologies and protocols out of the box



Improve application quality

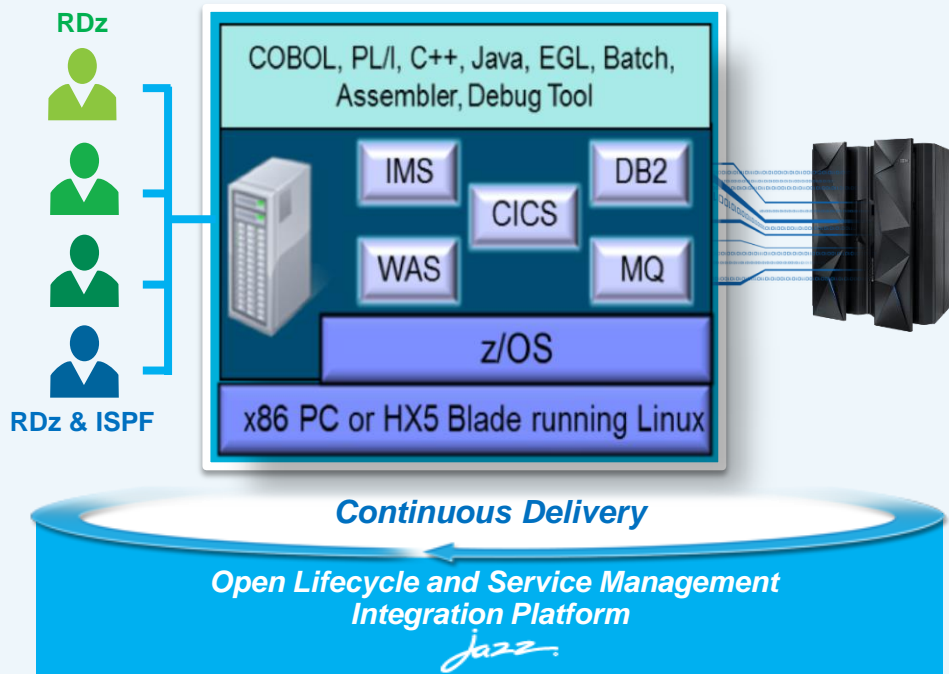




Offload development and testing to reduce MIPS



Improve development flexibility



Rational Development and Test Environment for System z

Enabling you to...

- 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 dependencies on operations staff

New Try latest middleware, including CICS 5.1, IMS 12.1, and WebSphere 8.5

- System z Development and Test Solution

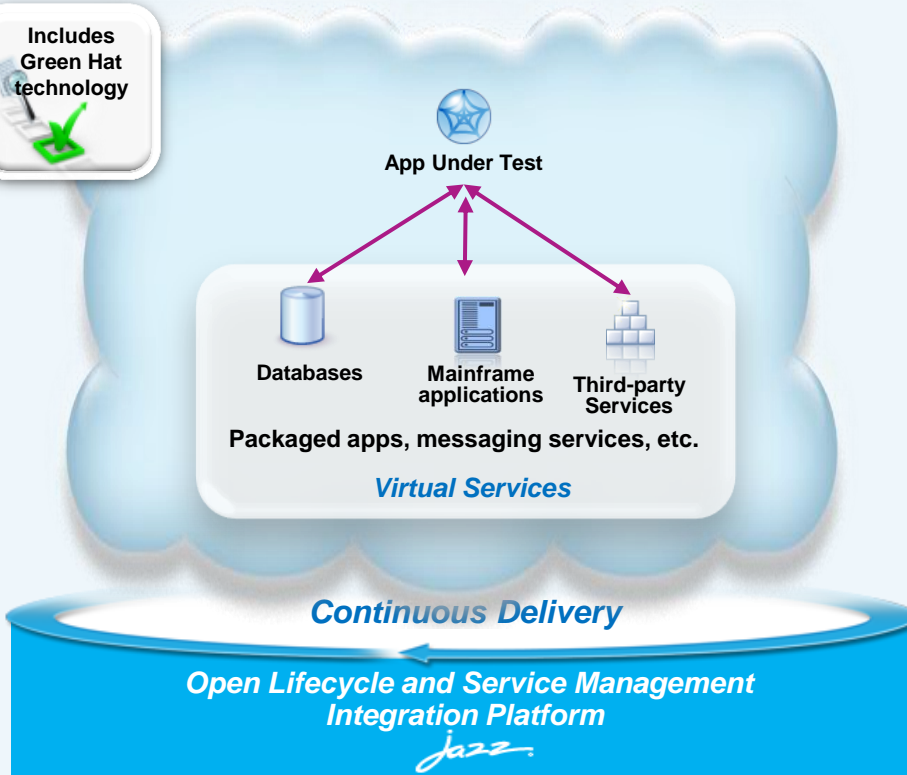


Reduce provisioning burden on Operations



Maintain test LPARs effectively

Includes
Green Hat
technology



Rational Test Virtualization Server - leveraging Green Hat technology

Enabling you to...

- 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



Develop and test capabilities for mobile applications

Accelerate mobile application development



Rational Test Workbench
 IBM Worklight for MobileFirst platform
 Rational Business Developer
 Rational Application Developer
 Rational Developer for the Enterprise

Enabling you to...

- Quickly design, code, build, test, and deploy mobile apps that run on a wide variety of mobile platforms
- Refactor and extend existing back-end services to provide an optimal mobile experience

New Stub out back-ends to simplify test and development

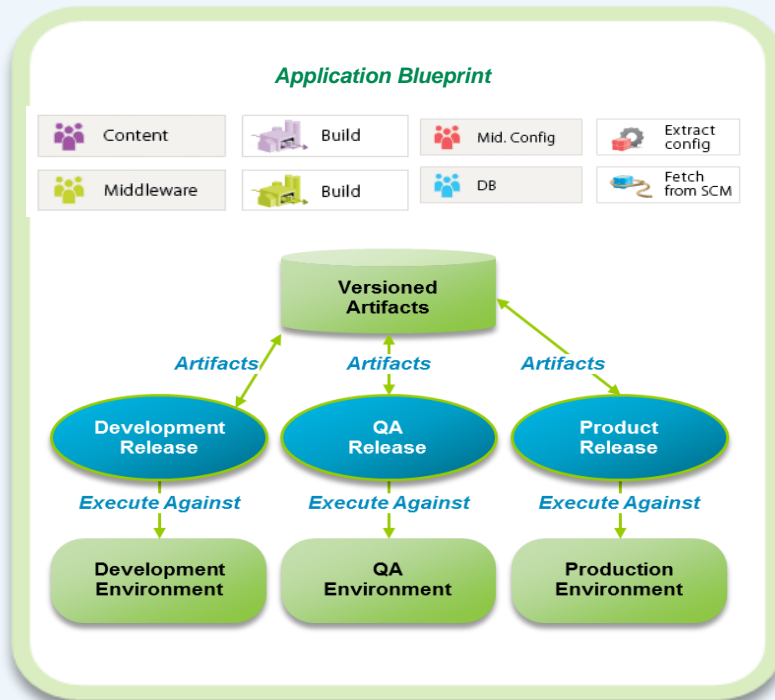
New Automate testing for native and hybrid mobile apps



Rapid solution delivery and test provisioning



Deliver test environments in minutes



urban{code}

An IBM company

IBM UrbanCode Deploy
IBM UrbanCode Release
IBM SmartCloud Orchestrator

Enabling you to...

- Provision consistent images for test environments, reduce rework, and speed redeploy of application changes
- Quickly deploy multiple test instances in minutes versus hours or days

New Support mainframes using zLinux

- Orchestrate and automate the deployment and management of applications, middleware configuration, and databases

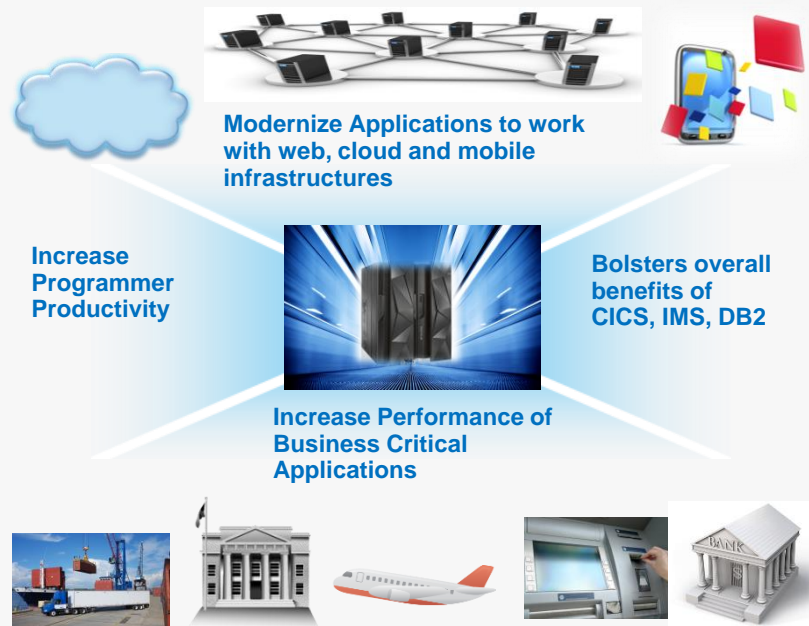


Enterprise COBOL for z/OS v5.1

The key to supercharging IBM System z Applications

- Advanced technology designed to optimize COBOL programs and fully exploit z hardware
 - Delivers greater than 10% performance improvement over Enterprise COBOL v4 for well structured, CPU-intensive batch applications on System z¹
 - Many numerically intensive programs have shown performance increases greater than 20%¹
 - Maintains compatibility with previous COBOL releases
- New programming and application modernization capabilities
 - Enables users to deliver enhancements to business critical applications quicker with less cost and lower risk
- Allows users, who implement sub-capacity tracking, to reduce administrative overhead
- Supports the ecosystem of COBOL development tools supplied by IBM and ISVs

where Tradition Meets Innovation...



"Our testing of COBOL V5 shows a significant performance improvement for math. As a financial services company with a continually narrowing batch window, that improvement is very important to us. It will help us meet our Service Level Agreements and reduce cost driven by CPU utilization."

Michael A Todd, Software Architect

DEVELOPER VALUE



Manage and optimize application and infrastructure performance



Gain actionable insights



IBM SmartCloud Application Performance Management IBM SmartCloud Control Desk

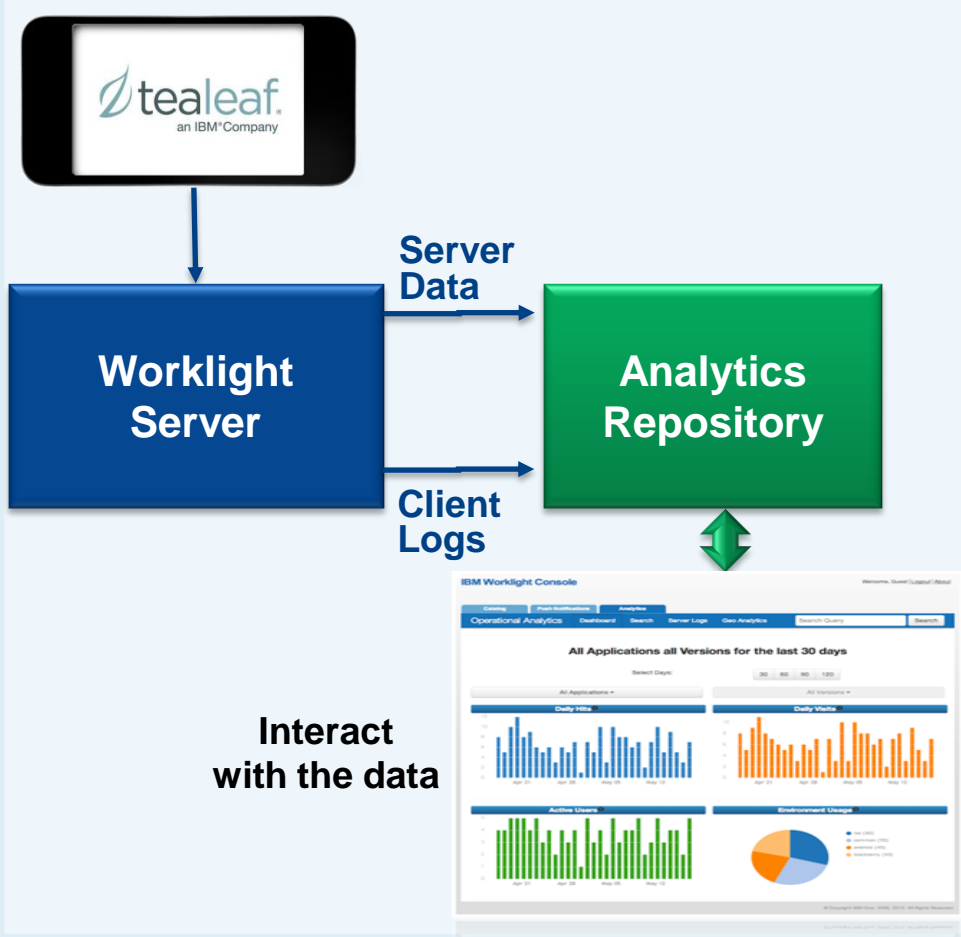
Enabling you to...

- Collaborate between development and operations with centralized incident management and tracking
- Quickly determine the root cause of critical cross-platform applications
- Easily determine application health and quickly isolate the source of any issues



Improve feedback responsiveness

Analyzing the customer experience challenges



Interact with the data

IBM Tealeaf IBM Digital Analytics

Enabling you to...

- Increase visibility into the actual customer experience
- Quickly diagnose and resolve issues
- Easily quantify business impacts
- Perform real-time customer analytics



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 System z as it is for distributed environments



Thank You

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