



Trends Reshaping the Future of Enterprise Applications and Systems

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Executive summary

Our enterprise modernization solutions optimize the value of your application portfolios, people, teams and infrastructure investments

-  Cut maintenance costs and project risks by understanding and managing application portfolio
 - Modernize and leverage existing applications to improve IT agility
 - Boost developer productivity with a common IDE and modern business language for multiplatform applications

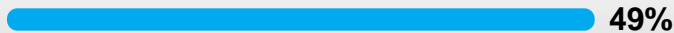
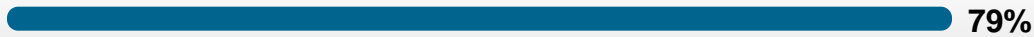
-  Unify teams, enhance communications, and improve quality with a collaborative team infrastructure for all platforms

-  Free up development MIPS for production use by offloading development and test activities

-  Build once, deploy everywhere – leverage the mobile and cloud worlds

Many businesses are challenged by growing complexity

8 in 10 CEOs anticipate significant complexity ahead.



Half Feel prepared to handle it.

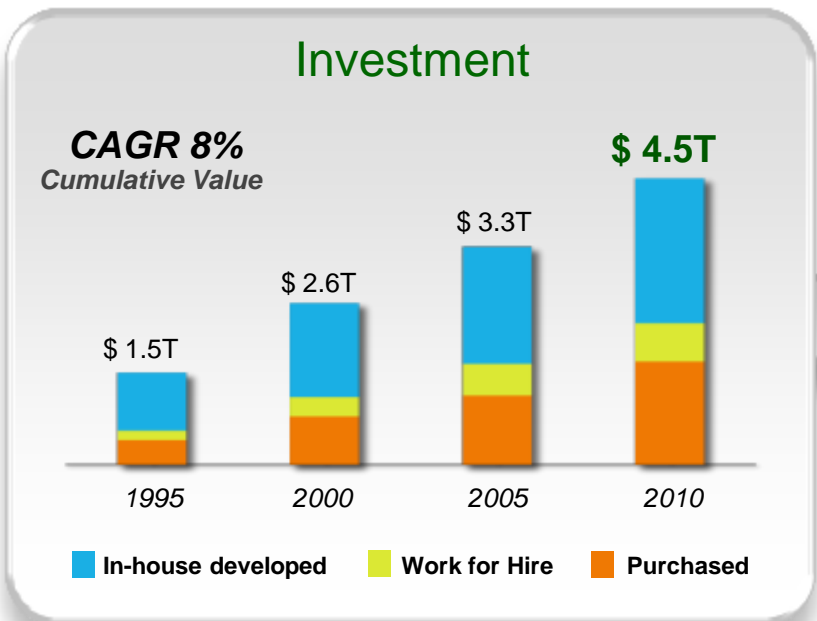
30%
complexity gap

Source: IBM Global CEO Study 2010
"Capitalizing on complexity".

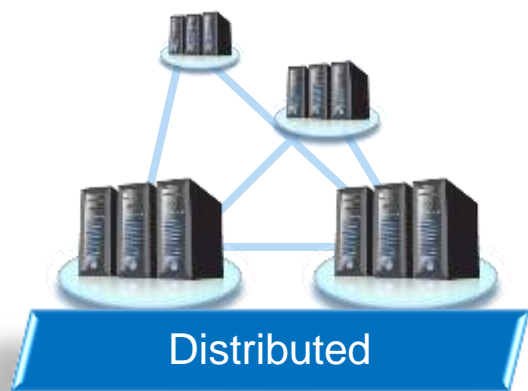


Growing Complexity

...and the numbers can be unpleasant



- ### Challenges
- **70%** budget locked in maintenance
 - **80%** of Mainframers are 50+ years old
 - **50%** IT projects rolled back
 - **85%** of distributed computing capacity is idle



...and IT is often viewed as a root cause



“For IT to regain relevance, it must reinvent itself as an organization that moves beyond its legacy burdens and helps the business take charge of the new IT capabilities available in the market.”

Four key barriers preventing optimal return on IT investments

Decades of application investments



“We don’t understand the effort, risk and impact of modernizing our legacy applications.”

Islands of skills, languages and platforms



“Our skills gap keeps growing. How do we stay current with all the language and technology changes?”

Poorly integrated teams



“We need to enable our teams to collaborate across platforms, languages, and environments.”

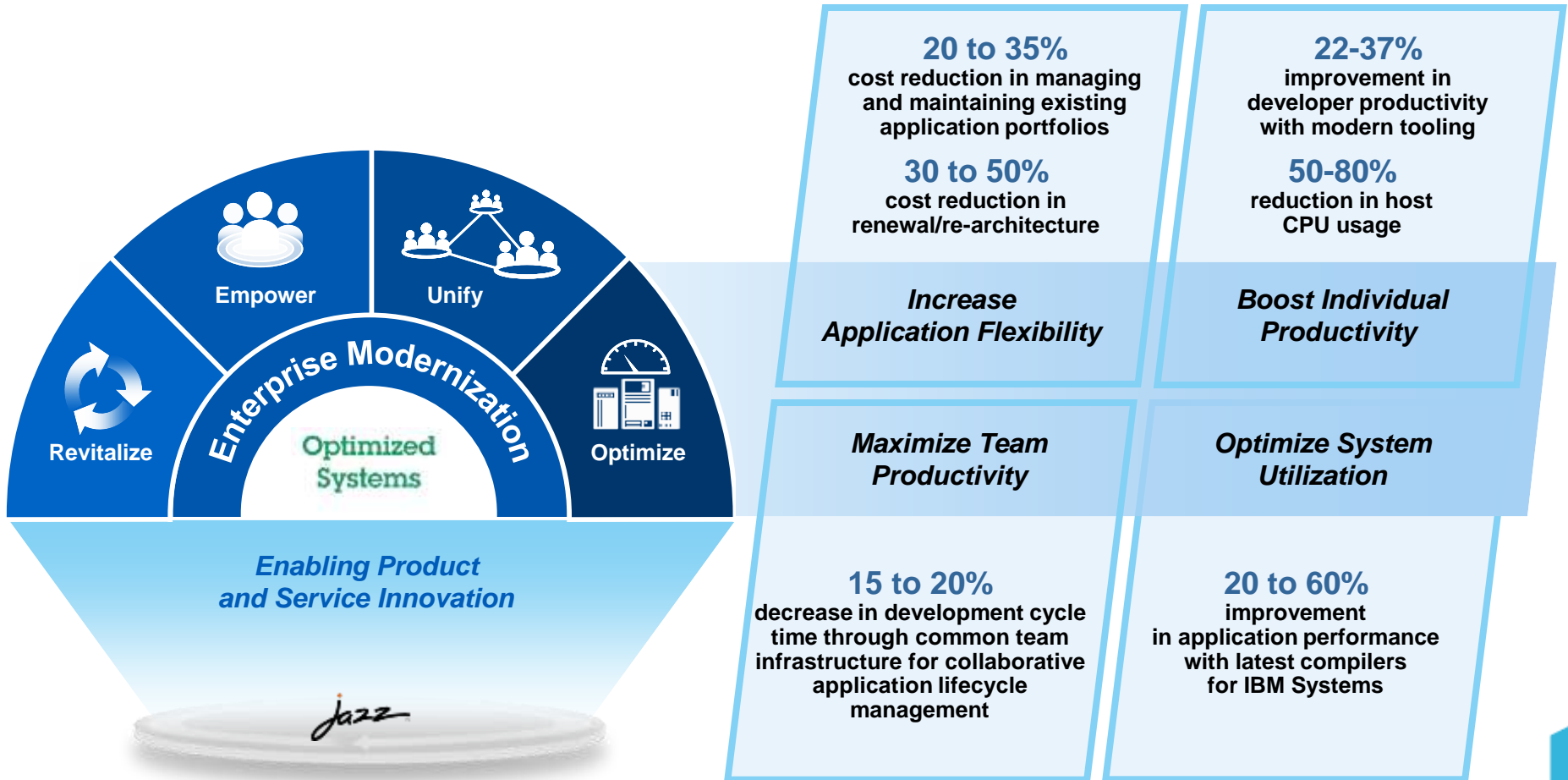
Infrastructure inefficiency



“We need a cost effective way to improve our infrastructure efficiency and free up capacity to handle more workload.”

IBM Enterprise Modernization

An incremental and continuous approach to achieving greater value and performance from your IT investments



Trends in enterprise application management & development



Portfolio Strategy and Management

- “Average amount spent on **ongoing operations and maintenance exceeds 65%** of the IT budget, but many firms report much higher percentages” ¹
- Understanding the application portfolio results in development spend where it can have **the most value.** ²



Continuous Integration ²

- Early and frequent builds and testing provides immediate feedback to developers, resulting in bugs being found earlier when **less costly to fix.**
- This has **rarely been done** in mainframe development where the time to deploy and test changes is measured in weeks not hours, and cost for test automation can be prohibitive.



Mobile Development ³

- **75% respondents** currently working in mobile computing, **growing to 85%** within the next two years
- **31% are focused** on extending existing core applications with mobile capabilities



Cloud Computing ³

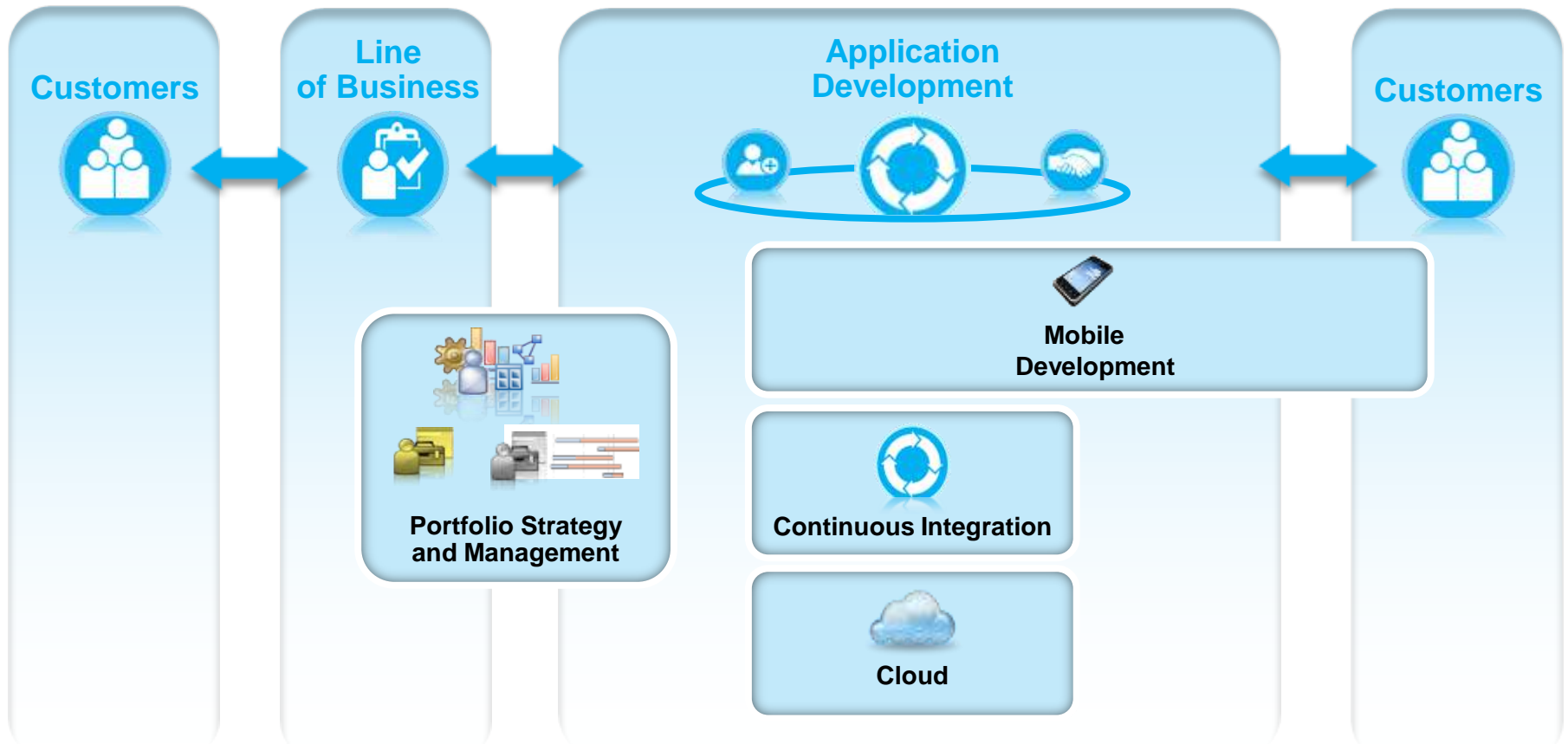
- **75% believe** that over the next two years their organizations will begin to build cloud infrastructure
- **25% of the respondents** indicated that they plan to develop new applications for the cloud

¹The Application Portfolio Management Landscape —Combine Process And Tools To Tame The Beast, Forrester, Phil Murphy , 2nd May 2011

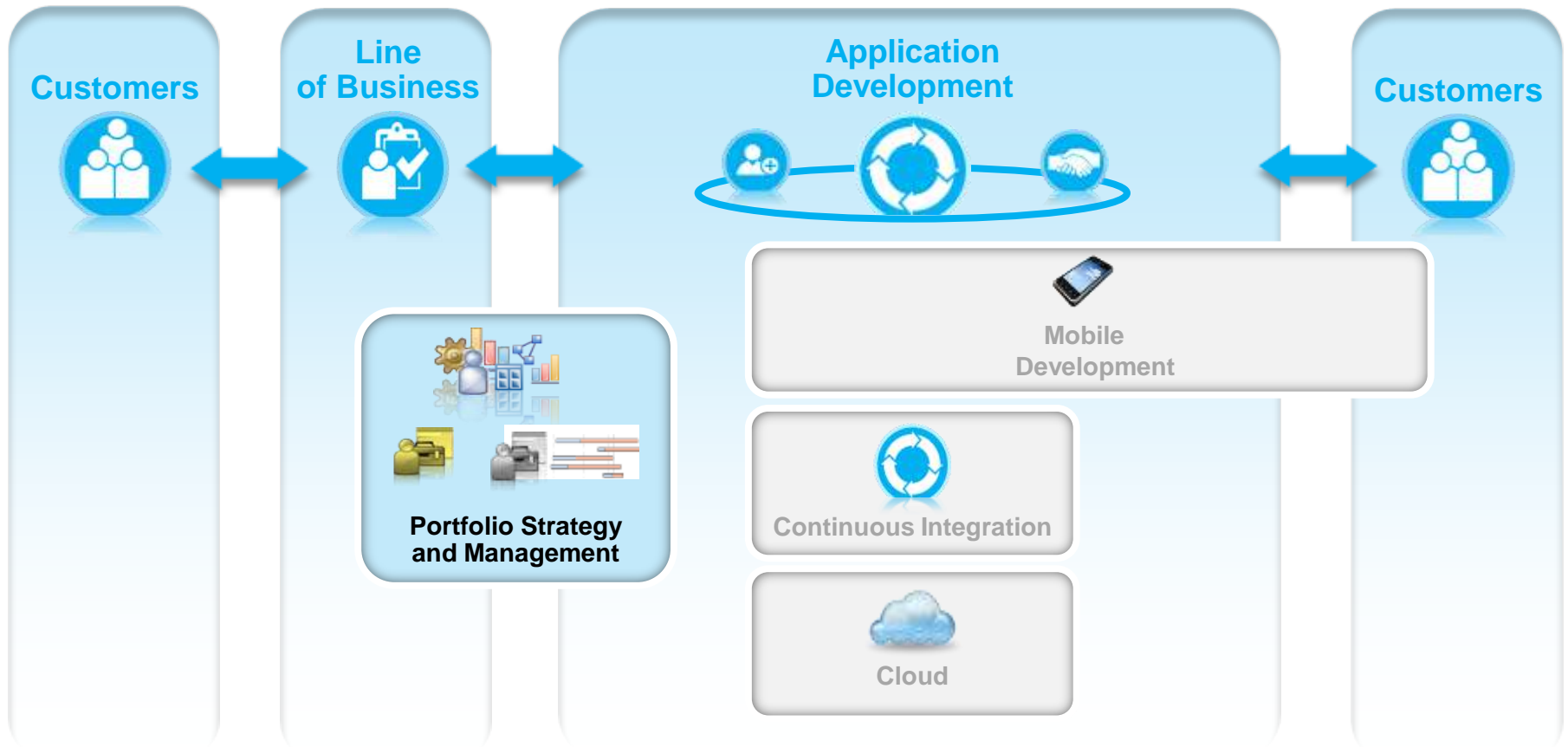
² Statement from IBM, May 2012

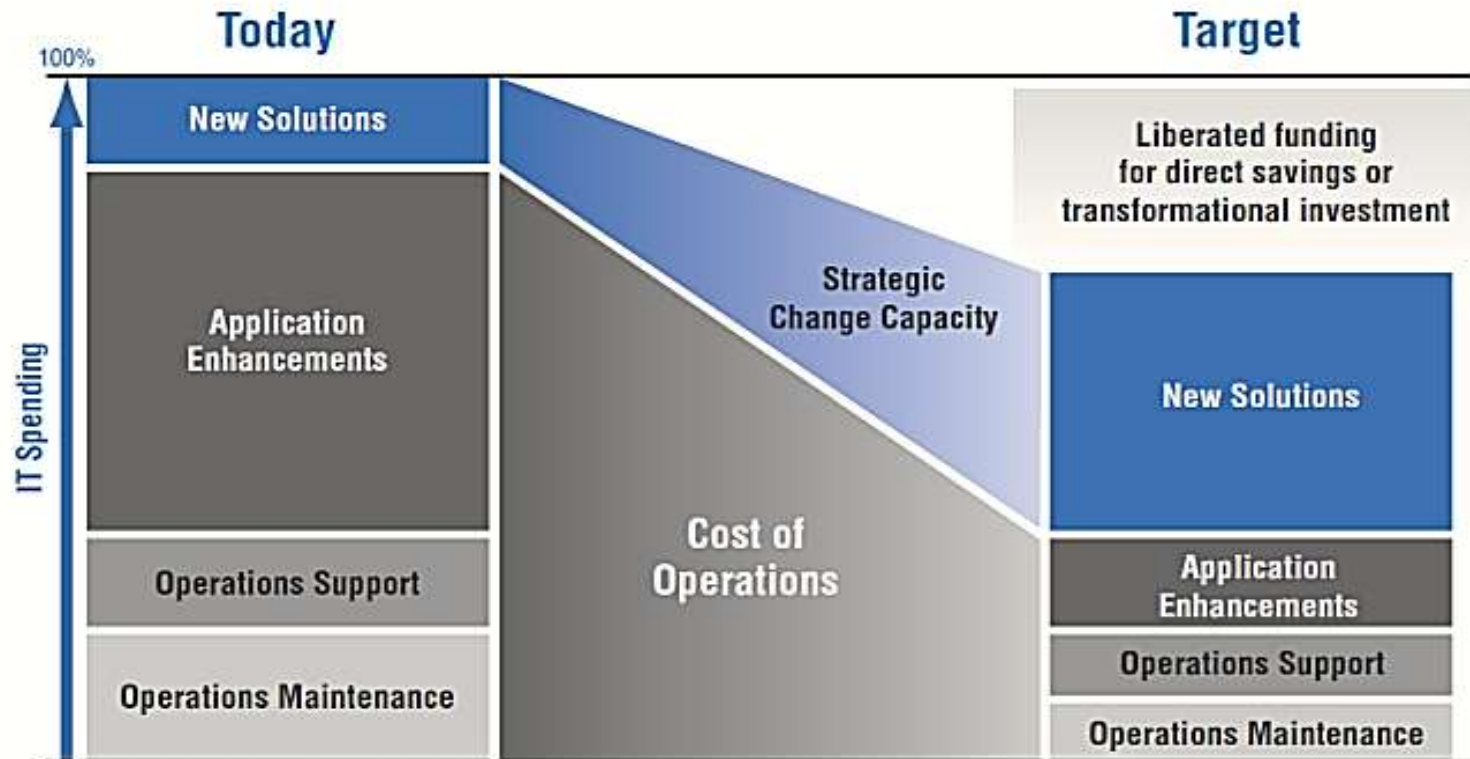
³ The 2011 IBM Tech Trends Report: Tech Trends of today. Skills for tomorrow

Positioning of these trends within application management and development



Positioning of these trends within application management and development



Enterprises want to... *drive business innovation through software*

But...

- 70% of IT budget locked into maintenance and operations rather than enabling innovation
- Business and IT not aligned on how to prioritize work to maximize business value
- More than 75% of projects miss their target delivery dates

Solution: Portfolio Strategy and Management

Increase business value with better LOB and IT alignment, proactive portfolio evolution and delivery governance

**Mobile
Compliance
Consolidation**



**Cloud
Outsourcing
Modernization**

- Application Portfolio Management: Continuous assessment to improve agility and identify savings that can be targeted towards innovation
- Demand Management: Prioritize business needs and proposals, determine sourcing choice, and align with strategy to maximize value
- Delivery Management: Govern project delivery involving the business, development and operations, track status and manage change

“Making IT resource consumption transparent and understandable to business leaders enables healthy business discussions around how to shift resources to where they will do the most good for the whole business.”

– Define “Application” Based On Your Content To Avoid False Starts In Your Rationalization Efforts,
Forrester Research, Inc., January 26, 2011

Solution: Portfolio Strategy and Management

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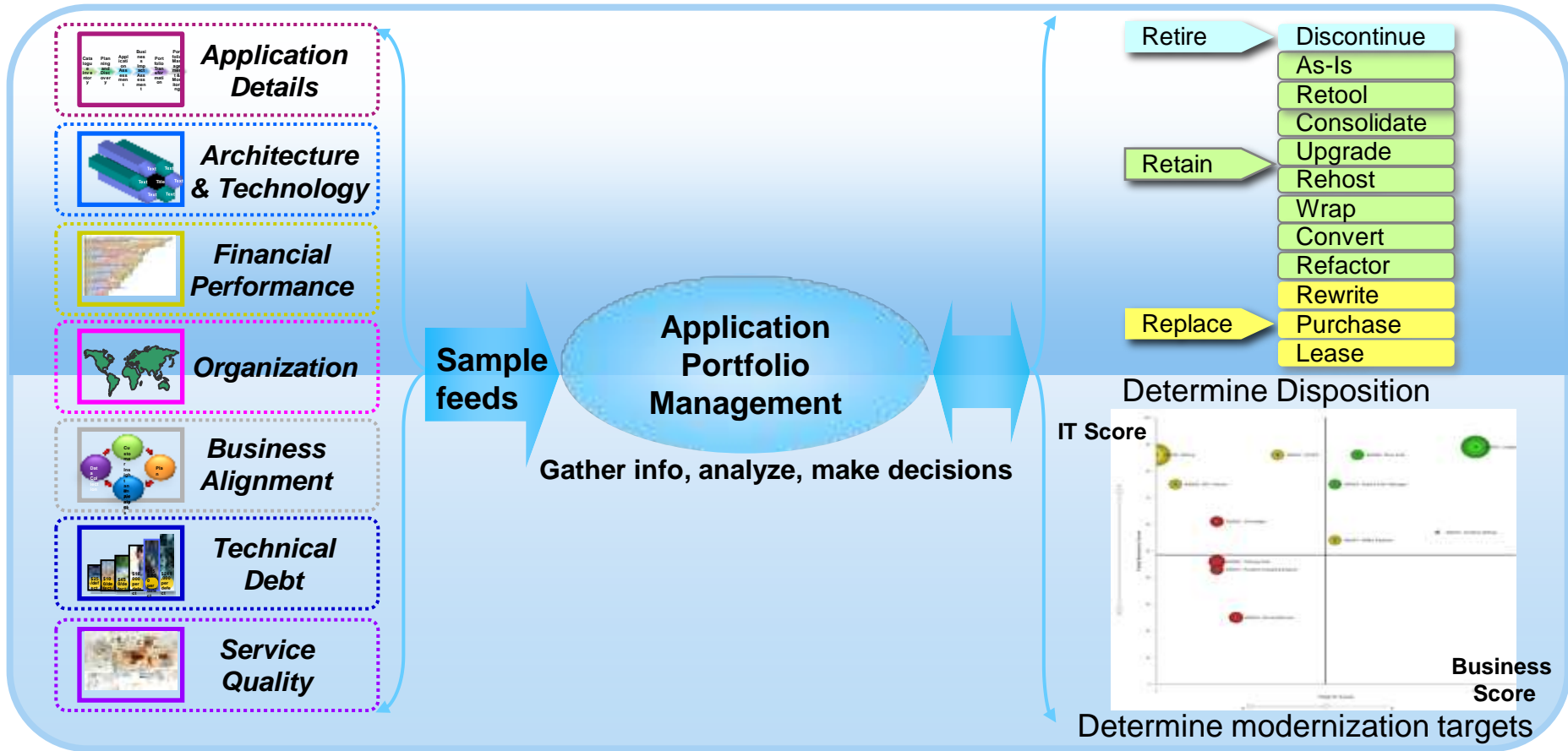
- Rational Focal Point 6.5.1
- Rational System Architect 11.4.1
- Rational Requirements Composer 4.0
- Rational Team Concert 4.0

“IBM raises the level of management information and control within our organization, and this has already made a significant contribution to the successful management of our core banking replacement program.”

– Jan Kühnel, CIO, Bank DnB NORD

Application Portfolio Management

Proactively manage application portfolio evolution



“APM and associated application revitalization has enabled IBM’s IT to cut maintenance costs by 20% and defects by 58%.”

— IBM Corporation



Demand Management

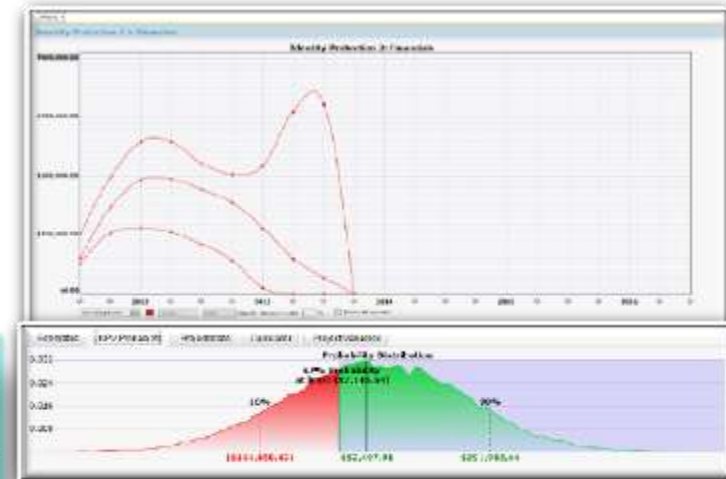
Evaluate and prioritize business needs and projects

Have business drivers determine priorities

The screenshot shows a project management tool with a Gantt chart at the top displaying various project tasks and their timelines. Below the chart, a dialog box titled "Which Project has higher 'Priority'?" is open, comparing two projects:

Project Name	ID	Priority	Description
Migrate applications to EGL/Java	010	0	This opportunity covers migrating applications from Netural / Adabas to EGL.
Consolidate Account Management Applications	004	0	Support arrangements for these applications are unclear - as these have been excluded from the scope of any current / future plans. Tactical reorganisation is required to resolve support issues as it is unclear whether they have adequate support arrangements given their importance to the business. It is recommended that in the longer term they are strategically Replaced by industry standard applications.

At the bottom of the dialog box, there are navigation buttons: "< Back", "OK", and "Number of elements: 3, Comparison: 3".



Assess value and uncertainty

Collaborate to choose between competing projects

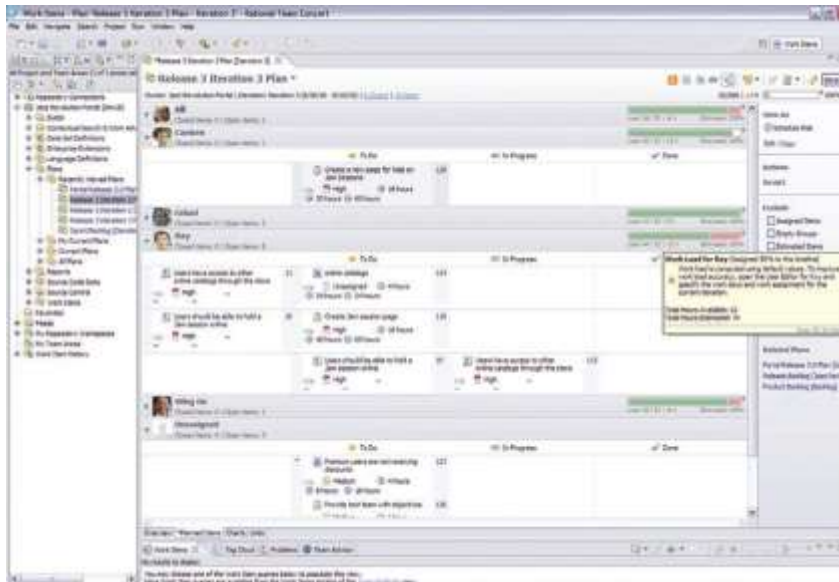
Delivery Management

Govern project execution and make course corrections

- Define and approve business commitments, and link to RTC to enable execution and tracking
- Improve project success rates through milestone reviews with stakeholders from the business, IT and operations
- Manage project change and monitor value delivered

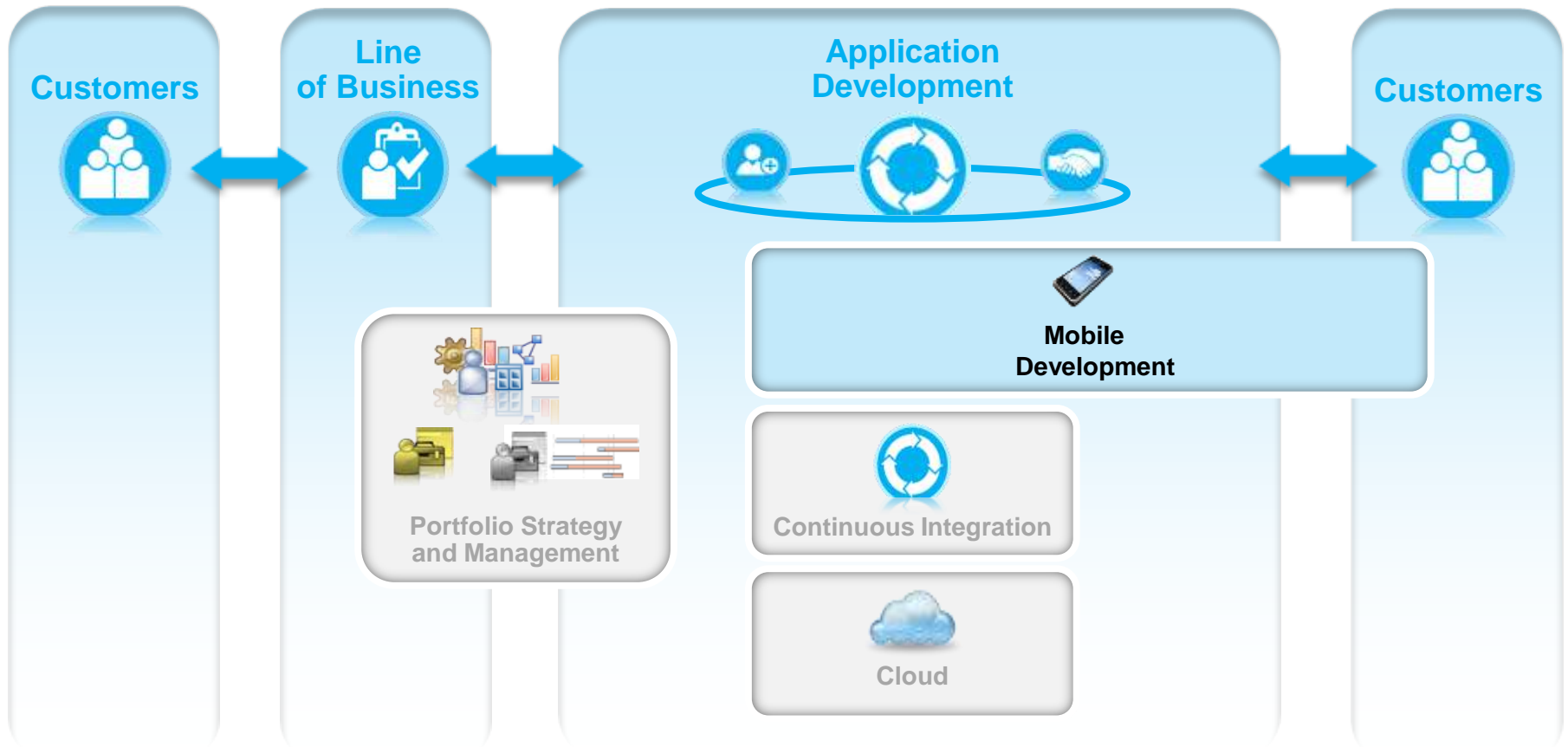


Track project status, and drill down into development artifacts as needed

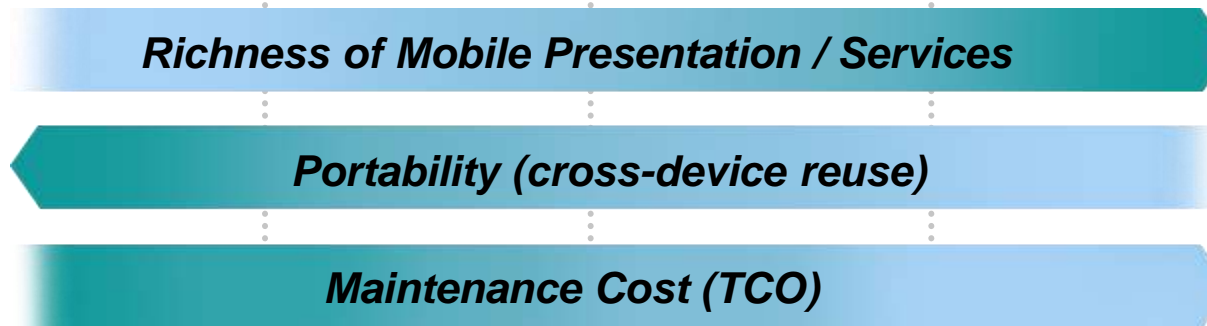


**Drive day-to-day development.
Identify and escalate delivery issues**

Positioning of these trends within application management and development



Enterprises want to... *extend existing services and information to customers and employees on their smart phones and tablets*

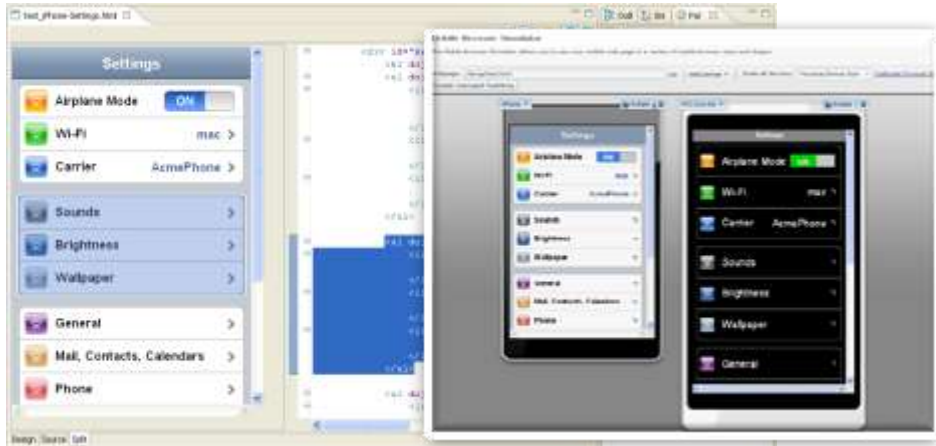


But...
They lack the skills and time to re-write their existing applications, and they cannot afford to develop natively for multiple mobile platforms and devices

Solution: End to end mobile development

*Design, code, build, test, and deploy mobile apps that run on a wide variety of mobile platforms;
Quickly refactor and extend existing back-end services and data to new mobile UIs*

Integrated multi-platform development environments



Construct, debug, and test mobile UIs

- Quickly deliver to the most popular mobile platforms (iOS, Android, Windows Phone, Blackberry) by
 - leveraging portable standards like HTML5 & JavaScript
 - supporting native functions like camera and GPS from a single code base with hybrid approaches
- Refactor and extend existing back-end services to provide an optimal mobile experience



Refactor and extend existing logic as mobile-consumable services

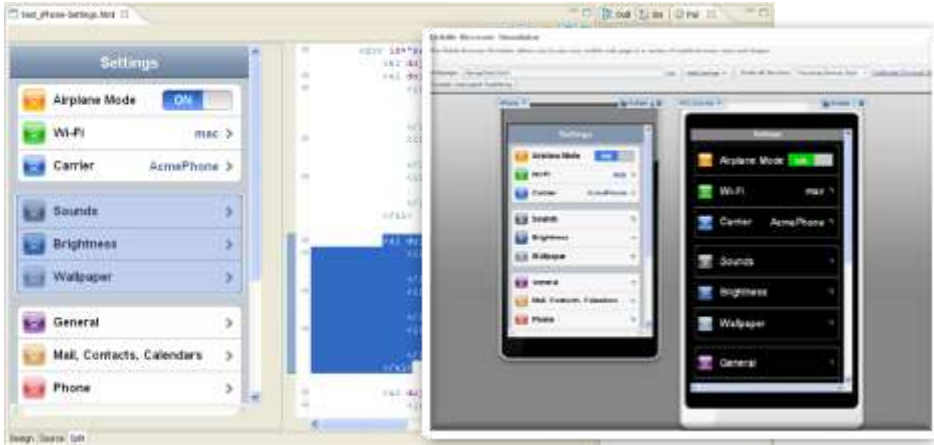
Over 60% of respondents indicate mobility spend in the range of 10–40% of total IT spend and nearly 80% of organizations plan to spend the same or more on mobility in the next 12–18 months
— The State of Mobile Enterprise Software in 2011:
An IDC Survey of Applications, Platforms, Decisions, and Deployments



Solution: Rational IDEs including IBM Worklight NEW!

Design, code, build, test, and deploy mobile apps that run on a wide variety of mobile platforms; Quickly refactor and extend existing back-end services and data to new mobile UIs

Integrated multi-platform development environments



Construct, debug, and test mobile UIs



Refactor and extend existing logic as mobile-consumable services

- Rational Developer for zEnterprise v8.5*
- Rational Developer for Power Systems v8.5*
- Rational Application Developer v8.5*
- Rational Business Developer v8.5

* Includes IBM Worklight

"We chose IBM Worklight because it was the best technology for Lotte to consolidate application development, enhancement and maintenance, while ensuring cost savings and timely delivery to our customers."

— Kang, Chang Nam, IT Planning Director, Lotte Credit Card

Key mobile development and delivery challenges

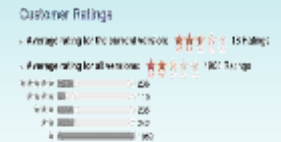
Delivering for multiple platforms

- Highly fragmented set of...
 - Platforms and devices
 - Languages, APIs, and tools
- Native programming models not portable across platforms



Consumerization of IT and need to deliver high quality apps

- High quality user experience is a requirement
- Quality influenced as much by design as it is by function



Accelerated time to market requirements

- Higher frequency of releases and updates
- Added pressure on teams to deliver on time and with quality



Connecting apps and mobile users with existing enterprise systems

- Existing services typically need to be adapted and extended for mobile
- Enterprise wireless networks are running out of bandwidth to accommodate employee devices



Mobile application styles

Web

- HTML, JavaScript, CSS
- Accessed from a mobile web browser
- No device-specific capabilities



Mobile Web

- HTML, JavaScript, CSS
- Accessed from a mobile web browser; mobile-optimized UI
- Limited access to device capabilities



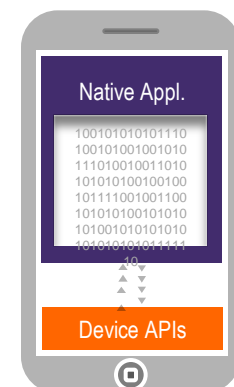
Hybrid Mobile

- HTML, JavaScript, CSS, with optional native code
- Installed and run like a native mobile app; mobile-optimized UI
- Access to device capabilities



Native

- Native code
- Access to full set of device capabilities



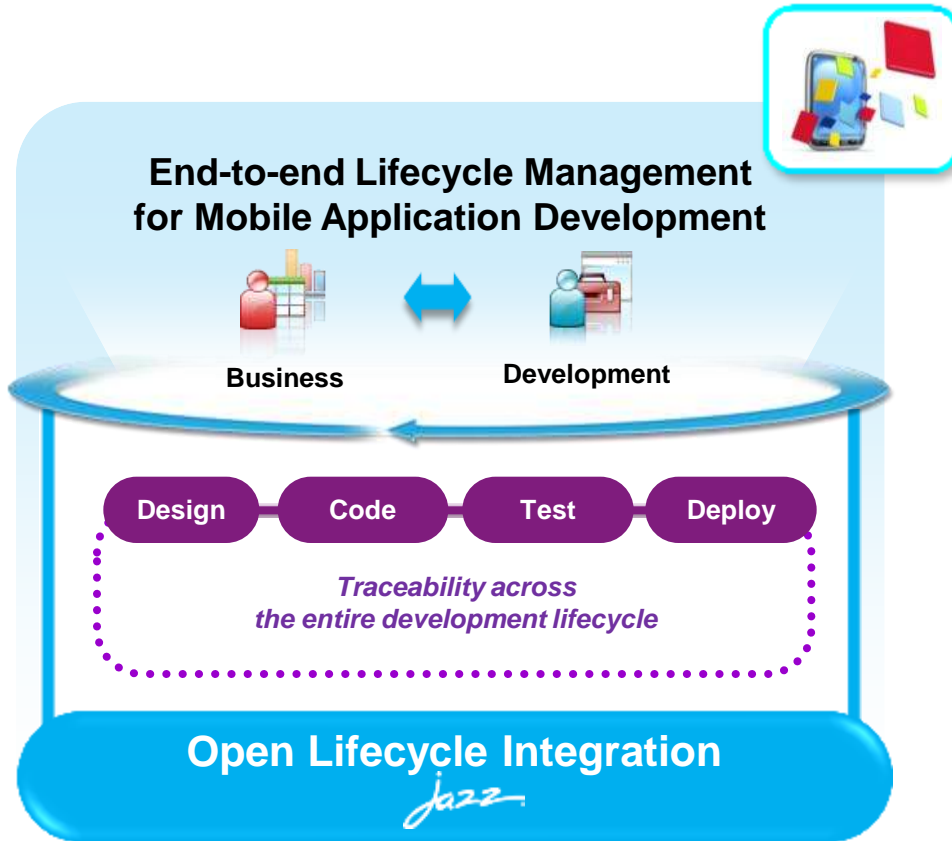
Richness of Mobile Presentation / Services

Portability (cross-device reuse)

Maintenance Cost (TCO)

Aligning teams across the application development lifecycle

IBM Rational Collaborative Lifecycle Management



Client Challenge

Delivering cross-platform mobile applications that align with business goals and are perceived as high quality, both from a user experience and functional point of view.

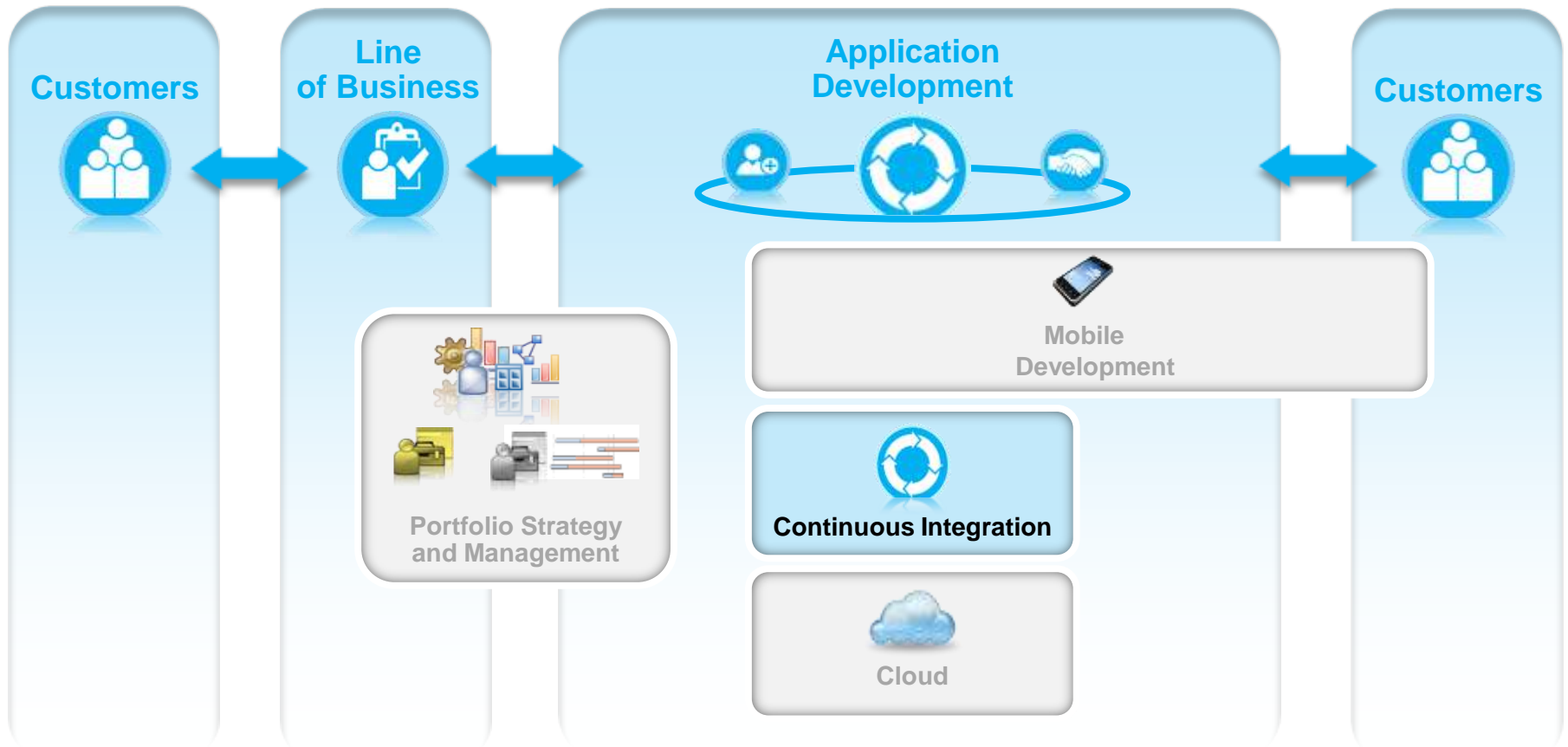
Mobile-relevant Capabilities

- UI sketching and storyboarding with lightweight requirements management
- Test execution management and optimization
- Continuous native mobile app builds

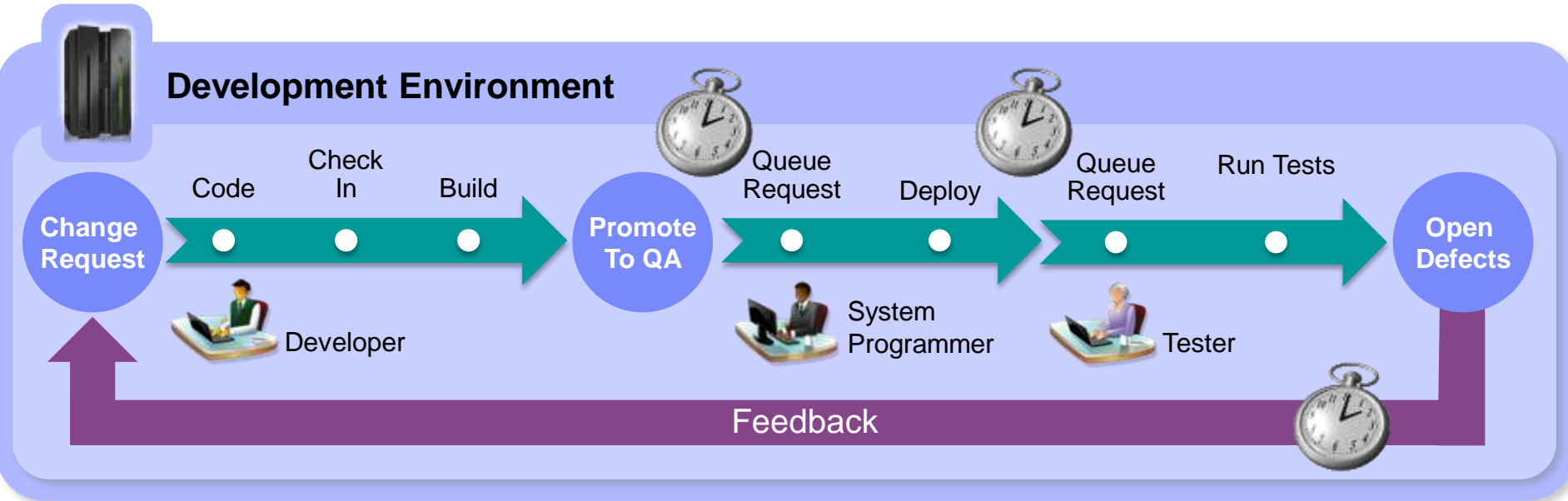
New for Mobile

- RTC Eclipse Client and Build System Toolkit support for Mac OS
 - Extends Worklight Studio with RTC tools for developers on Mac
 - Enables Jazz builds to execute on Mac

Positioning of these trends within application management and development



Enterprises want to... *deliver end-to-end application enhancements quickly to stay competitive, trust that complex enterprise systems can be broadly integrated, and bolster confidence in application quality*

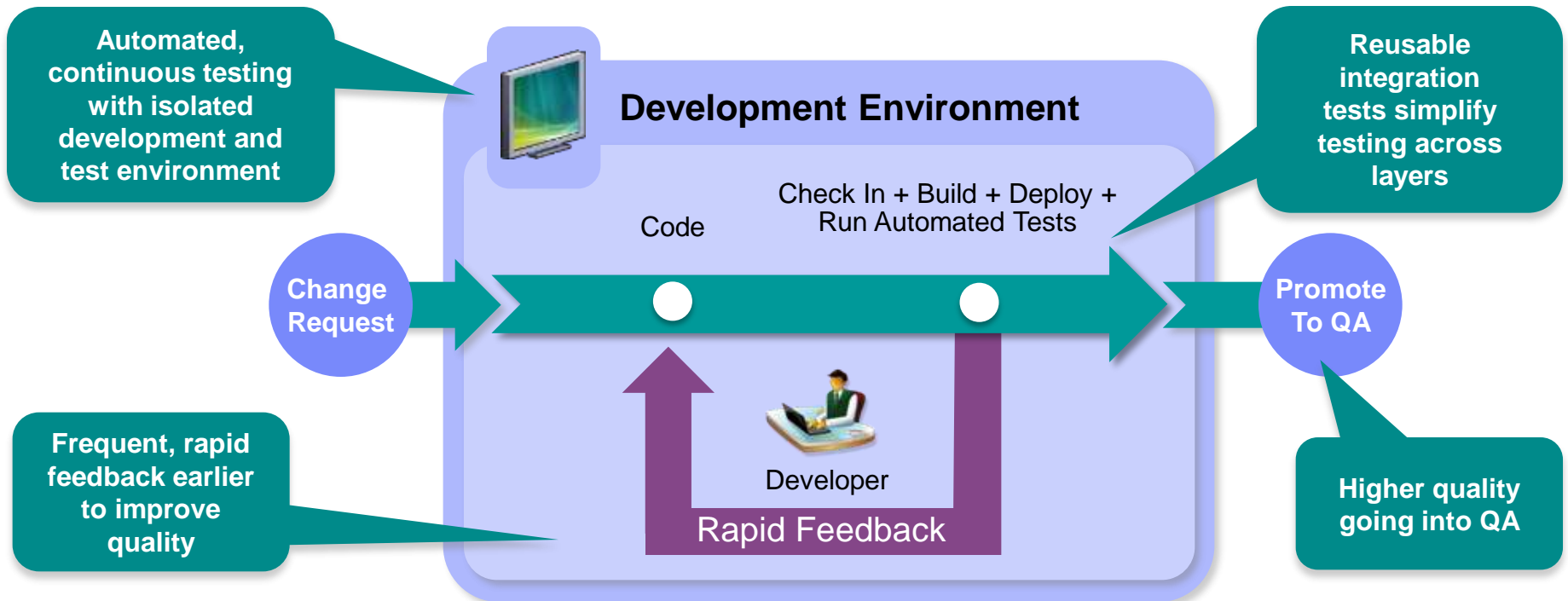


But...

It takes days or even weeks to test and fix changes due to reliance on manual processes and limited access to test resources, and running builds and automated tests frequently can be too costly

Solution: Continuous Integration

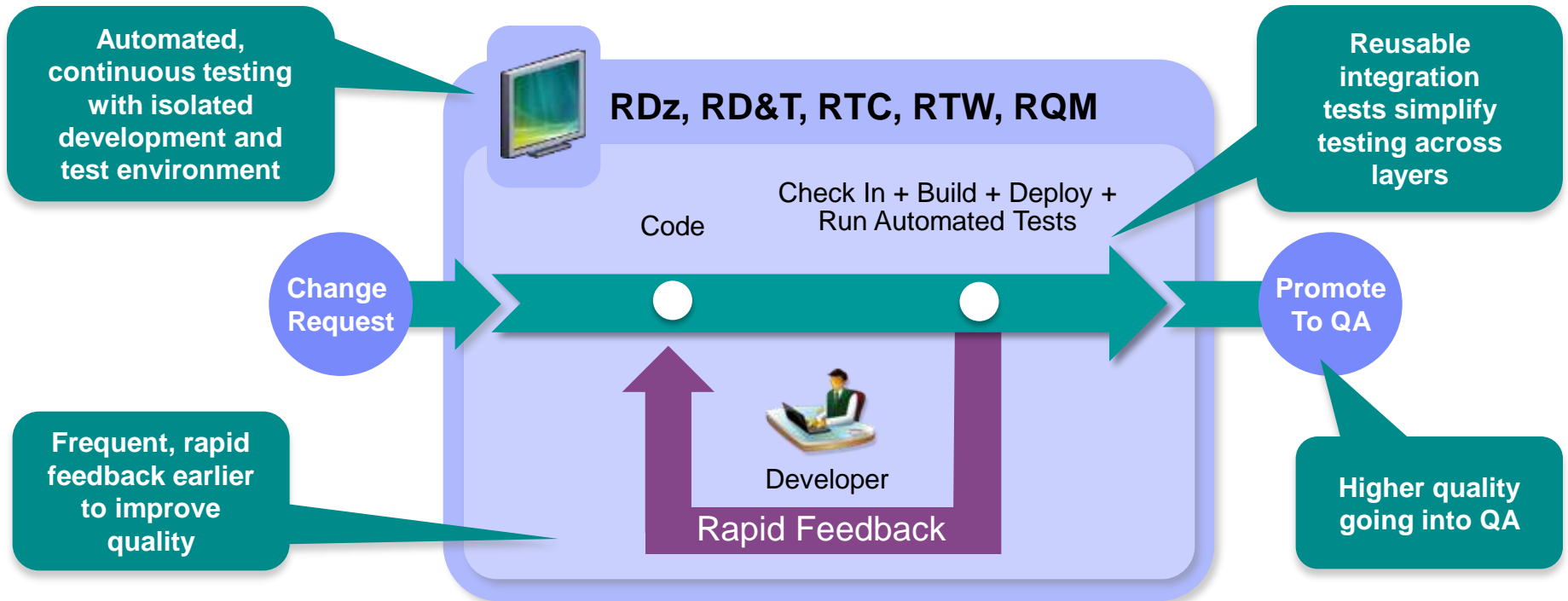
Reduced delivery time, end-to-end visibility of test activities, safer and faster V2V migrations



- Fast, dependable, automatic feedback speeds time to market
- Lower cost of application testing using off-mainframe z/OS test environment
- Enables confidence by automatically tracking and promoting code health

Solution: Continuous Integration

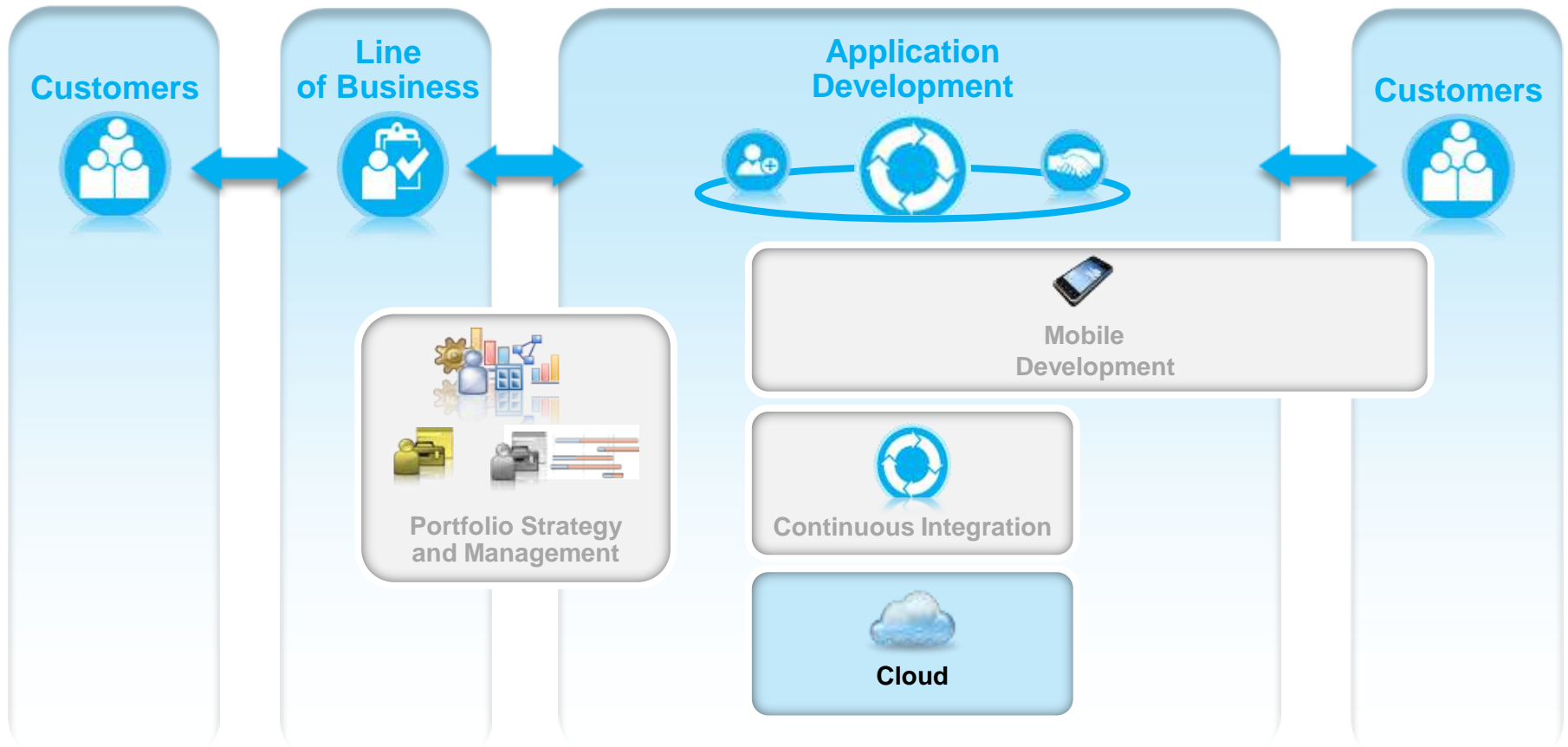
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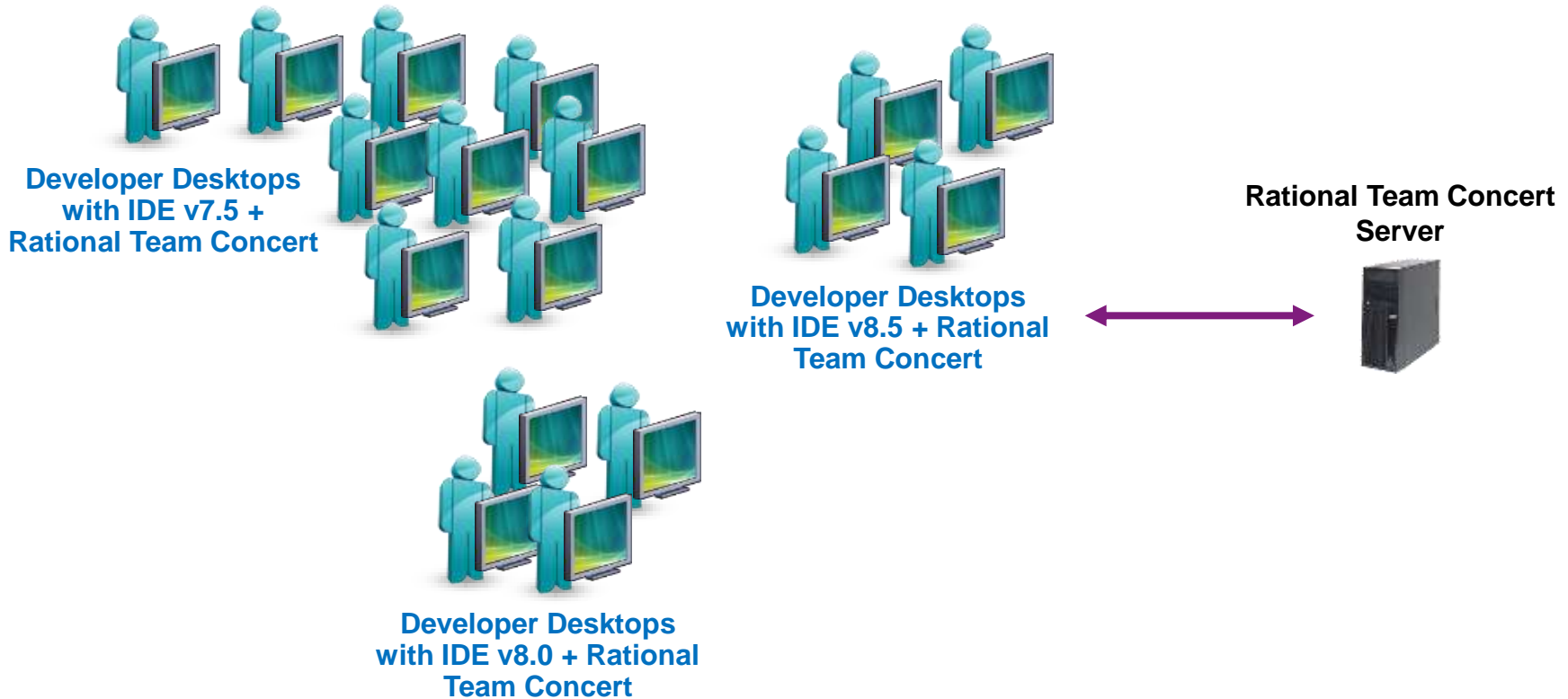
- Rational Developer for System z 8.5
- Rational Development and Test Environment for System z 8.5
- Rational Team Concert 4.0
- Rational Test Workbench powered by Green Hat Technology
- Rational Quality Manager 4.0

NEW!

Positioning of these trends within application management and development



Enterprises want to... *quickly, consistently and affordably equip practitioners with development tooling for entire teams and easily maintain the environment*

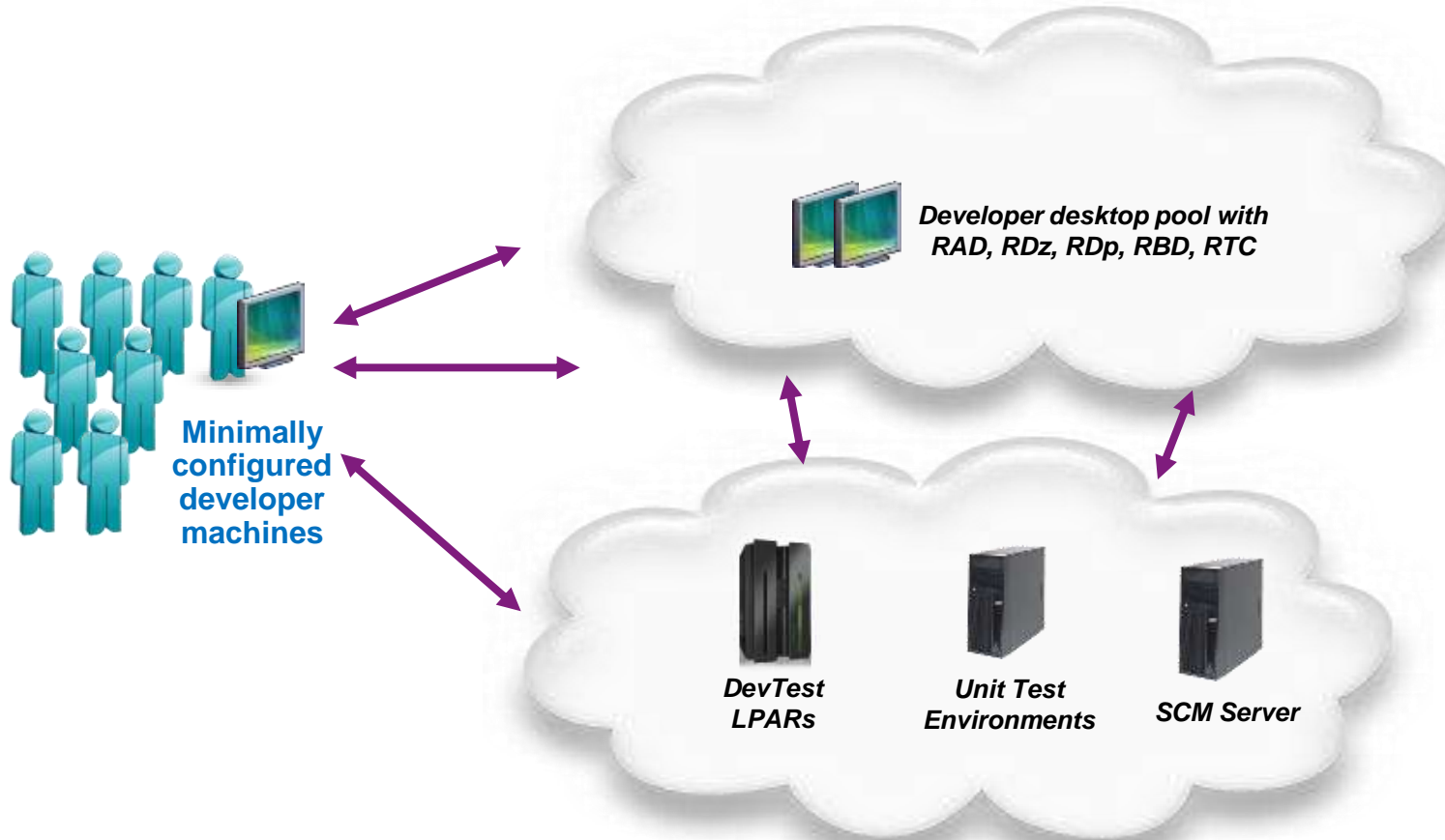


But...

Managing individual desktops is time consuming, costly, and error prone

Solution: Development on the cloud

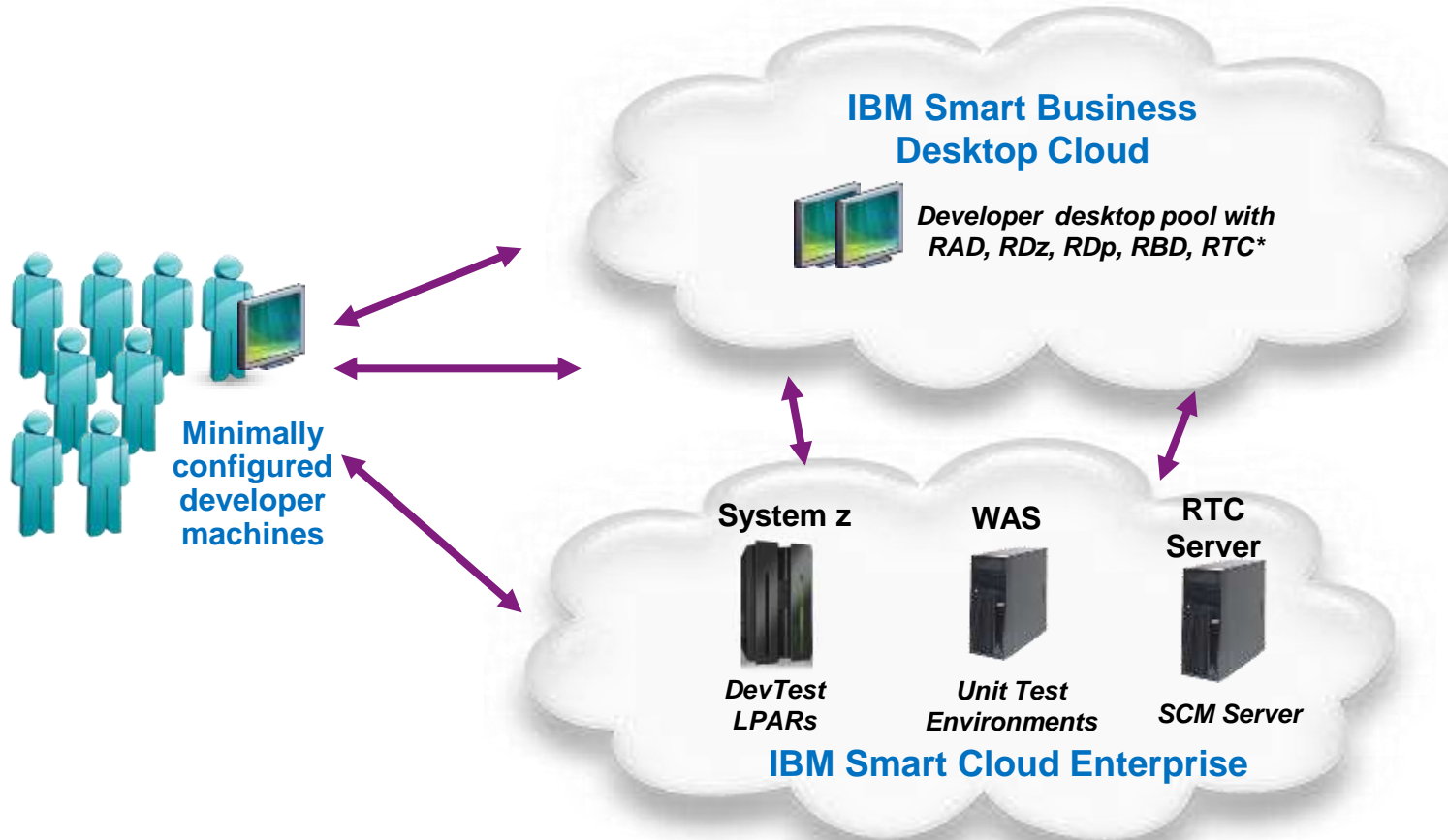
Optimize your development teams by leveraging the cloud



- Save capital expenses by providing your developers with powerful IDEs without high-end machines
- Quickly provision the right tools, in the right configurations for new projects
- Ensure consistent and accurate installs and updates via centralized management

Solution: Development on the cloud

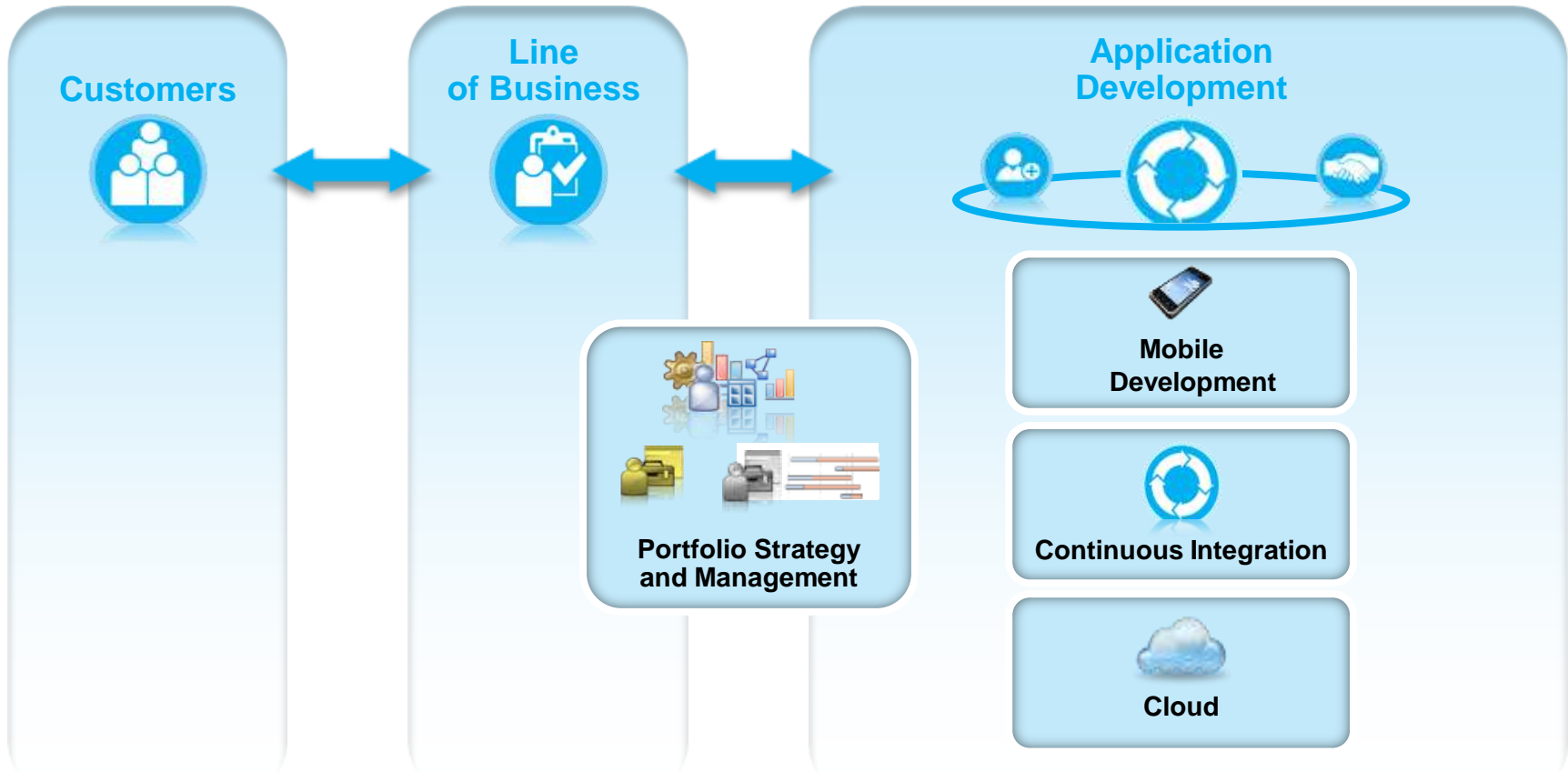
Optimize your development team by leveraging the IBM Smart Cloud



- IBM Smart Business Desktop Cloud – private cloud offering providing custom desktop cloud implementations
- IBM Smart Cloud Enterprise – public cloud offering providing pay per usage infrastructure

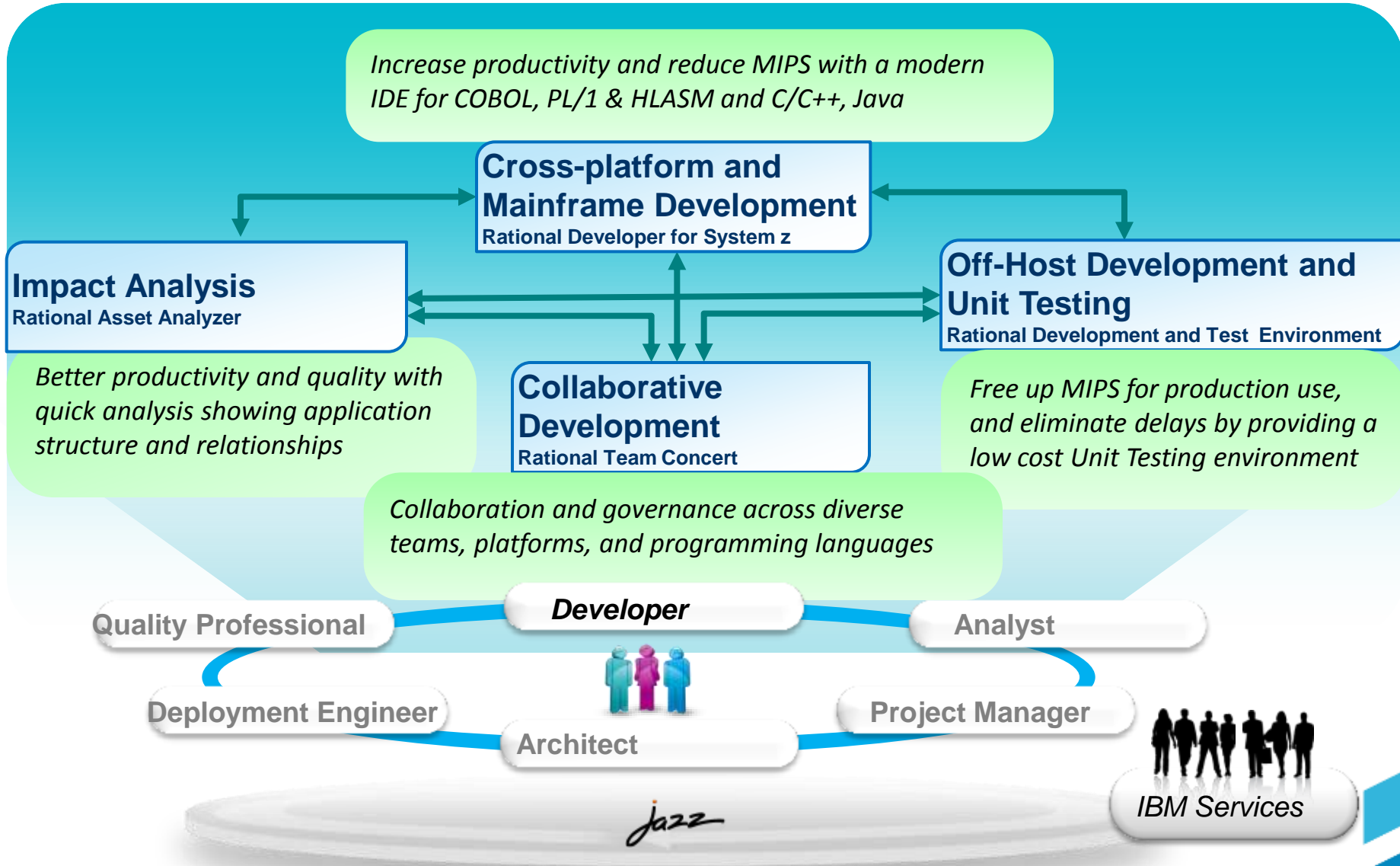
*Requirements for virtualization platform varies by product

Positioning of these trends within application management and development



- **Portfolio strategy and management** for application portfolio, demand and delivery management
- **End-to-end mobile development** to quickly extend existing services and information to mobile devices
- **Continuous integration** to accelerate development and improve visibility into test activities
- **Cloud-based development environment** to reduce cost and speed delivery

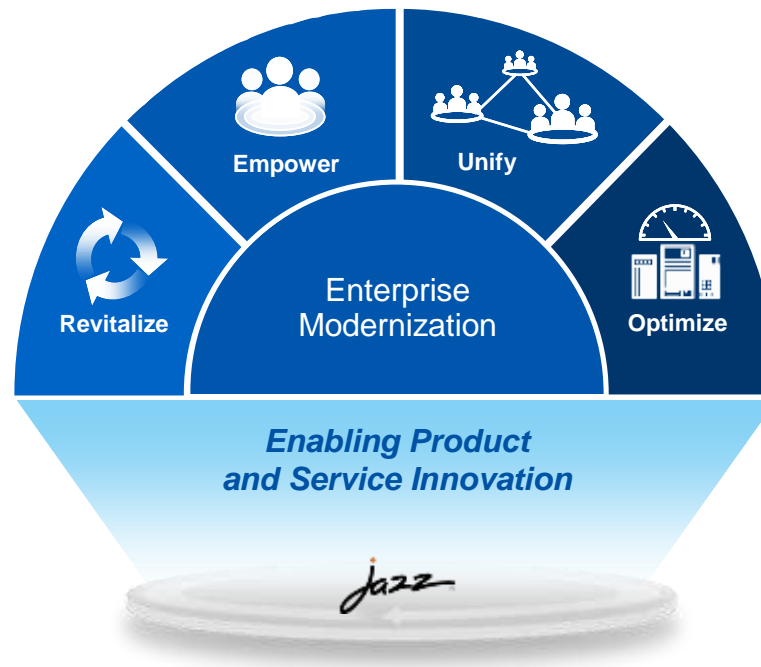
Pulling it All Together: The IBM Integrated Solution for System z Development



Getting started

Next steps to modernize your enterprise applications

www.ibm.com/rational/modernization



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