



IBM Software Group

Enterprise Modernization

Lowering TCO for Multi-platform Applications

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Change is the new norm

Soon there will be over **2 billion people** on the web

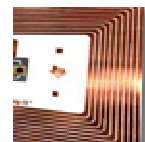
IDC Lowers IT Spending Forecast for 2009



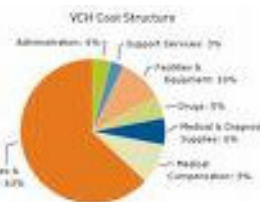
IBM Roadrunner Super Computer...
It would take the **entire population of the earth**, about six billion, each of us working a handheld calculator at the rate of one second per calculation, **more than 46 years** to do what Roadrunner can do in one day.

“The gap between expected change and the ability to manage it has almost tripled since 2006.”
– 2008 IBM CEO study

The **internet of people** is over one billion strong. The **internet of things** is almost one trillion.



By 2010, there will be **30 billion RFID tags** in circulation



Changing the Cost Structure of IT Will Become a Business Imperative



Signs of a growing crisis

'Relentless flow' of bad economic news suggests there's no easy way out



Change is disruptive when not properly managed

All software systems crashed due to software when F-22 flew international dateline



Only **34%** of software projects are deemed successful costing over **\$300B** annually

IT skills shortage reaches **highest level** in 10 years

“IT investments made 10 to 20 years ago are ... constraining the speed with which these businesses can change and respond to industry threats.”

– Gartner’s Top Predictions for Industry Leaders, 2007 and Beyond

Products and systems are becoming more **instrumented, interconnected** and **intelligent**



50% of outsourced projects are expected to **under perform**



COBOL thwarts California's “Governator”

Only **42%** of users are satisfied with project **quality**

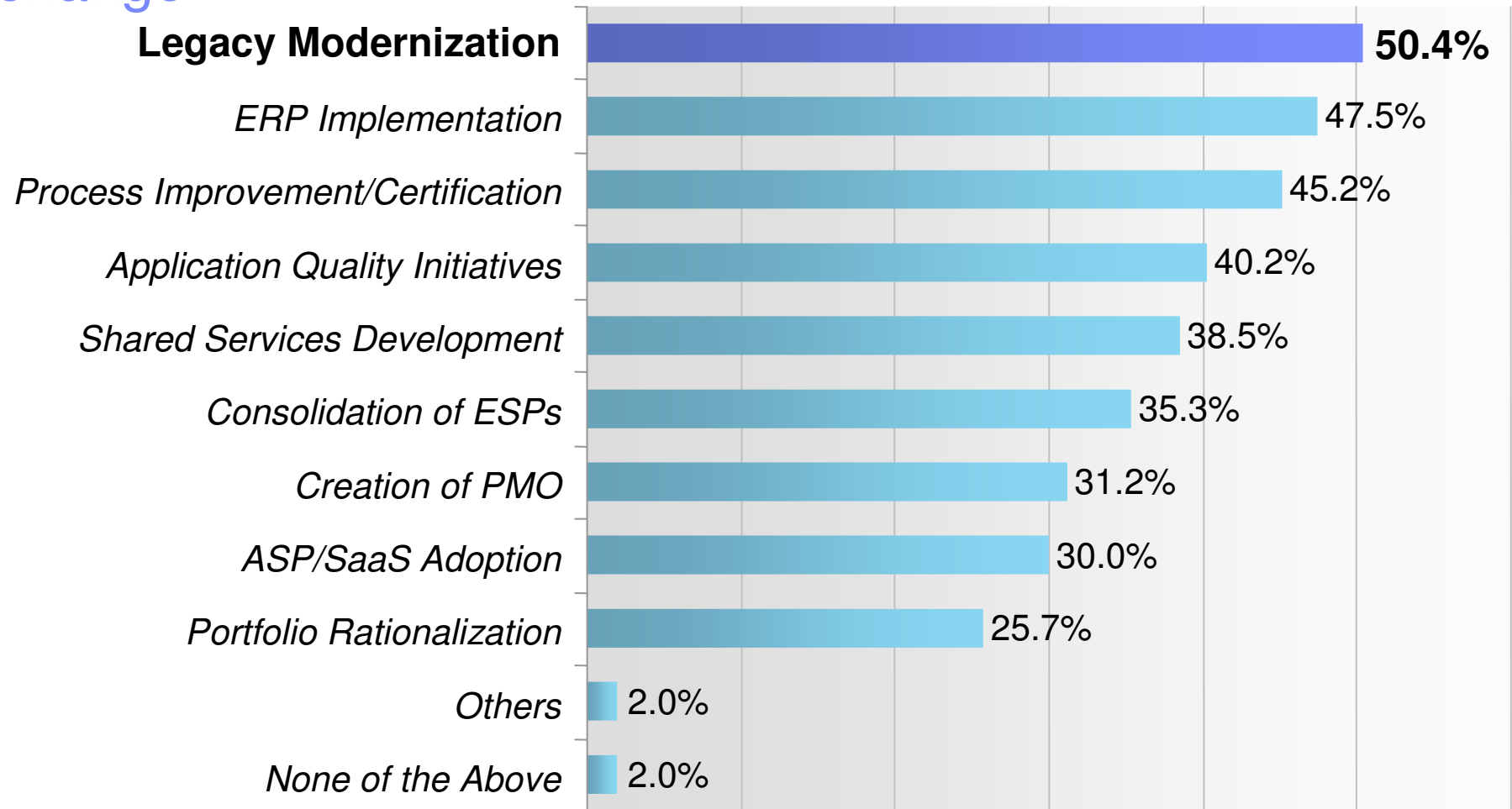
North Carolina Jobless Claims **Crash** State's Web Site



Ohio election web site shut down after being **hacked**



Modernizing IT systems can be key enabler to manage change



**User Priorities for Application Initiatives
for the Next Two Years N = 343**

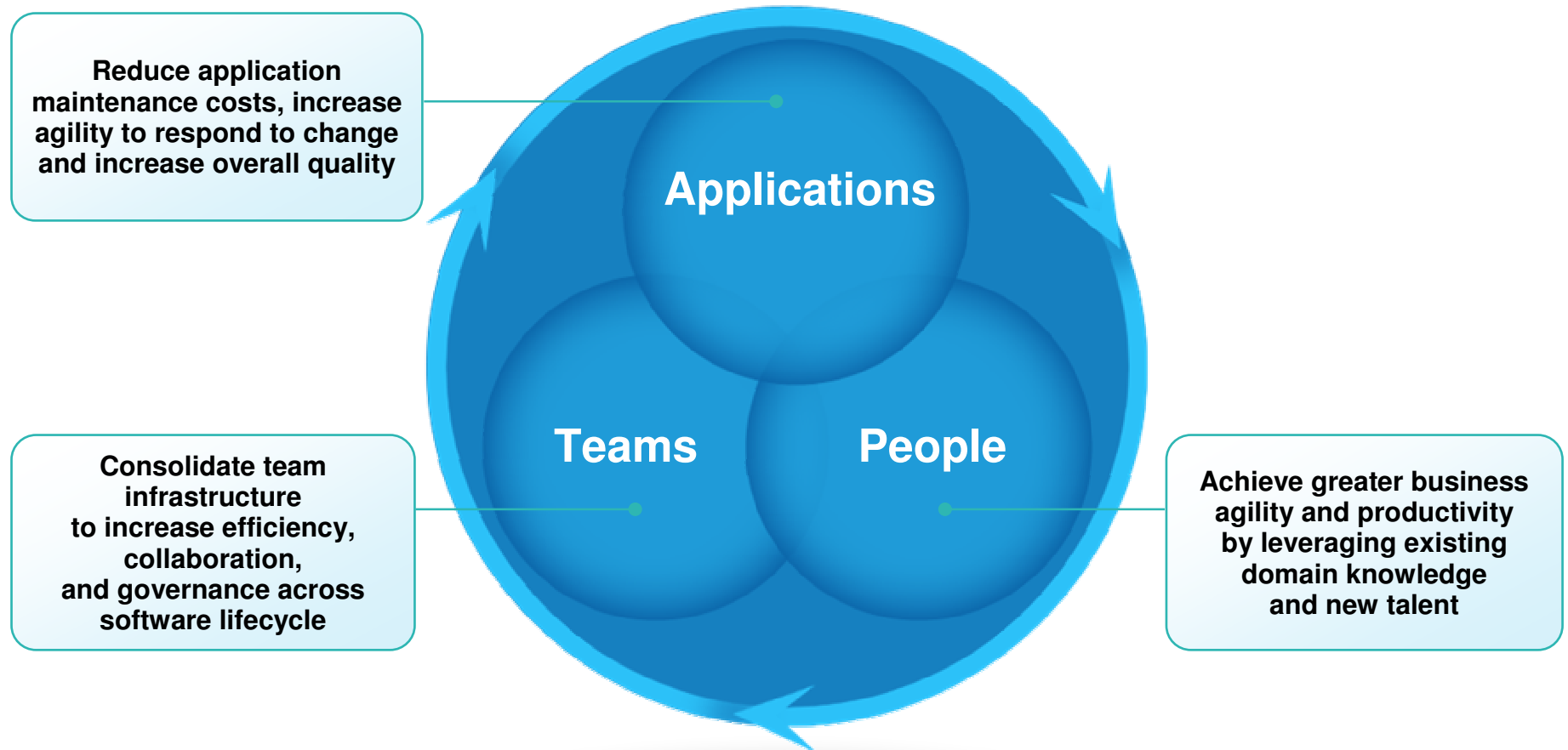
Gartner®

Source: "Application Services Scenario: Future Trends and Directions,"
Gartner, April 2007



Enterprise Modernization solutions

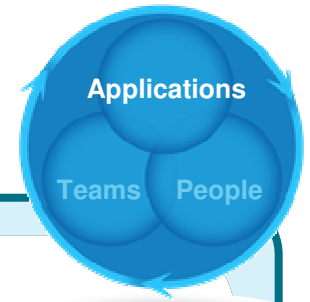
A smarter way to maximize the value of your applications, people and teams



For more information, visit:
www.ibm.com/rational/modernization



Application challenges



CIO



"I need to reduce my annual IT budget by 10 to 35 percent. Which applications can I sunset?"

Architect



"Our architecture has evolved to be too complex and convoluted – we need to be flexible and agile"

Development Lead



"Our distributed applications increasingly rely on access to mainframe data and applications. How can we determine the impact of all the changes we need to make?"

Developer



"We're using a XML to define shared data across multiple applications. Can I use XML with my older COBOL and PL/I applications?"

Tester

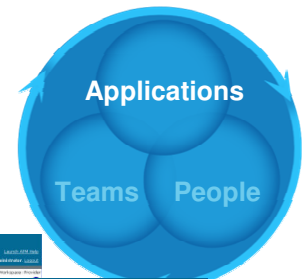


"Changes to applications have been patched together for so many years that we now have many challenges with the quality and performance of our legacy applications"



Understand the value of and risks in your application portfolio

- Save time and money by restoring lost application knowledge
 - ▶ Quickly determine full impact of proposed changes
 - ▶ Identify and eliminate dead code and code defects
 - ▶ Discover business rules and potential services
 - ▶ Re-factor existing assets for reuse
- Evaluate and make smarter investment choices
 - ▶ Understand entire application portfolio and any dependencies
 - ▶ Speed the efficiency of decision-making with real-time dashboards
 - ▶ Understand your enterprise architecture
 - Link applications, deployed systems, organizations, business processes



- ✓ Understand business process and IT system mapping
- ✓ Refactor existing assets for reuse or migration
 - ▶ WebSphere Studio Asset Analyzer
 - ▶ Rational Asset Analyzer
 - ▶ Rational Transformation Workbench
 - ▶ ILOG Rules for COBOL
 - ▶ Rational Asset Manager
 - ▶ Telelogic System Architect



HighMark, a major health care payer, accelerates claims analysis by 70% by using business rule management.

HIGHMARK®



Reduce cost and improve flexibility by leveraging modern architectures

- Cut application development time by reusing proven assets
 - ▶ Achieve fast ROI by enabling your green screen applications for a Service Oriented Architecture
 - ▶ Quickly create web services from existing CICS, IMS, COBOL, PL/I, RPG and Java applications
- Accelerate deployment of new services and user interfaces
 - ▶ Model, build, deploy and debug new platform independent services
 - ▶ Rapidly build modern Web 2.0 interfaces without extensive knowledge of underlying technologies



✓ **Create web services to extend your 3270 and 5250 applications to the web and SOA**

- ▶ Host Access Transformation Services

✓ **Develop new web services and create services from traditional RPG, COBOL, C, C++, Java, PL/I, EGL applications**

- ▶ Rational Developer for System z
- ▶ z/OS Problem Determination Tools
- ▶ Rational Developer for i
- ▶ Rational Business Developer
- ▶ IBM Data Studio

✓ **Create architectural model from business process model. Manage reuse**

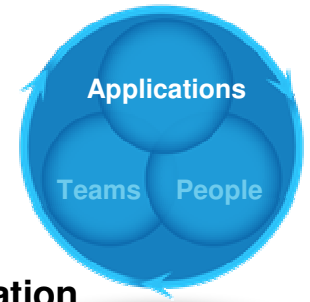
- ▶ Rational System Architect
- ▶ WebSphere Business Modeler
- ▶ Rational Asset Manager
- ▶ WebSphere Integration Developer
- ▶ WebSphere Service Registry and Repository

“HVB IS adopted IBM Rational® Developer for System z software to accelerate mainframe development, improve the efficiency of its COBOL development teams, and move to a similar environment for mainframe and Web development” - Almut Geiger, Product Specialist at HVB IS

 **HVB Information Services**
UniCredit Group



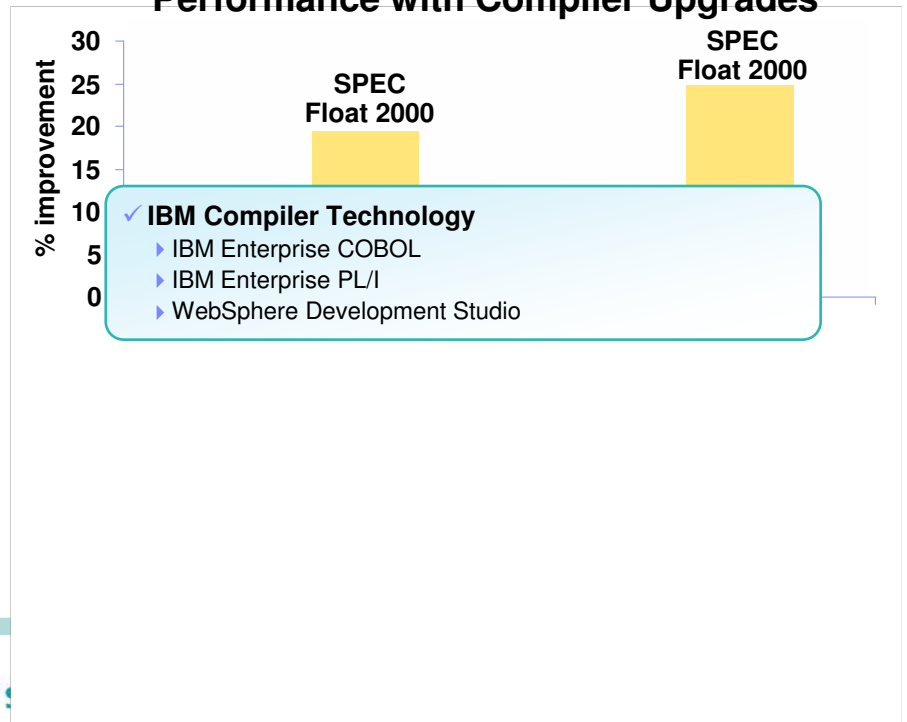
Leverage compilation technology to optimize return on investment



- Increase capacity and performance without hardware upgrades
 - ▶ Improve performance of applications by up to 24% on AIX and 9% on z/OS
 - ▶ Improve COBOL and PL/I XML parsing performance by offloading to zAAP specialty engine
 - ▶ Maximize application performance on new z10 and Power6 servers without code change

- Simplify legacy integration
 - ▶ Create XML interfaces in COBOL and PL/I applications

Increase Application Performance with Compiler Upgrades



Execute enduring quality with reduced risk and cost in the processes that run your business



- **Coordinate end-to-end quality across all tools and platforms**
 - ▶ Track requirements from creation through delivery
 - ▶ Identify and resolve coding errors automatically, early in the development cycle
 - ▶ Manage quality and test plans in a consistent manner
- **Guarantee repeatability with automated testing**
 - ▶ Validate application scalability
 - ▶ Identify and fix application performance bottlenecks
 - ▶ Expose vulnerabilities, privacy issues, quality concerns and violations in web applications
 - ▶ Generate timely audit and compliance reports

✓ **Elicit, capture, elaborate, discuss, and review requirements**

▶ Rational Requirements Composer

✓ **Coordinate quality assurance plans, processes, and resources across the lifecycle**

▶ Rational Quality Manager

✓ **Conduct software code reviews and policy enforcement very early in the development cycle**

▶ Rational Software Analyzer

Regression testing

✓ **Reduce time, guarantee repeatability, and ensure scalability with automated testing**

▶ Rational Functional Tester

▶ Rational Performance Tester

✓ **Identify vulnerabilities, privacy issues, quality exposures, and standards non-compliance**

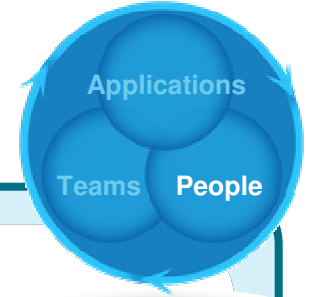
▶ Rational AppScan

"AppScan has increased our team's productivity by enabling us to automate very complex and time-consuming activities as well as help substantially increase our level of quality, security and regulatory assurance."

- André Hiotis, technology security officer, NAV CANADA



People challenges



CIO



"My budgets keep getting reduced. How can we do more work with fewer people?"

IT Manager



"How we do we keep this application running when the developer who has worked on it for years retires?"

Project Manager



"My host programmers don't seem to communicate with my web developers. It's like they speak different languages."

Architect



"How can I architect solutions that shield developers from technical interfaces of platform and middleware technologies?"

Developer



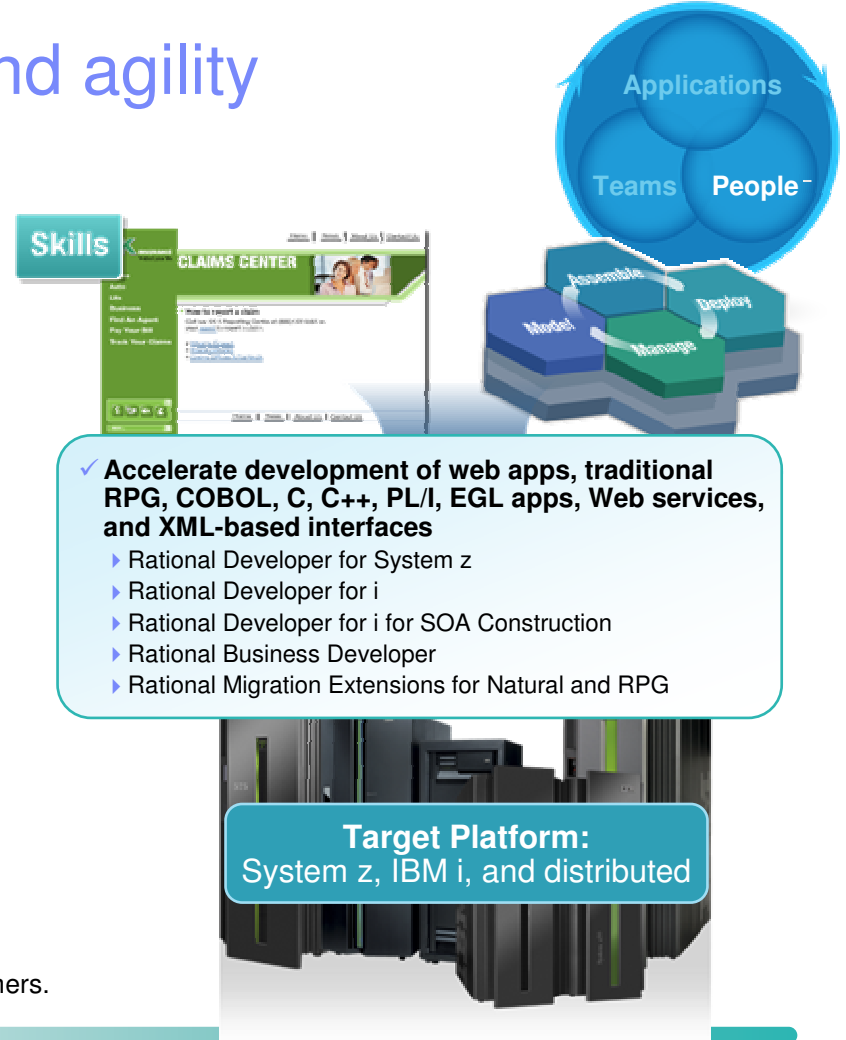
"How can I keep pace with technology changes and keep my skills relevant to the industry?"



Improve workforce productivity and agility by eliminating skill silos

- Use common Eclipse-based tooling across multiple platforms and languages
 - ▶ Achieve ~15% improvement in mainframe developer productivity¹
 - ▶ Reduce mainframe development MIPS by 50%-80% with local compilation, debug and test cycle¹
 - ▶ Attract new staff with familiar IDEs and capabilities
- Enable existing and new IT staff to deliver multiplatform solutions
 - ▶ Simplify development of Web 2.0 and SOA applications
 - ▶ Deploy target applications to any platform including J2EE™, System z and IBM i
 - ▶ Start migrating from older and proprietary languages

¹ Aggregation of results from a productivity study conducted by IBM mainframe customers.



“Currently we have one set of developers for web applications, and another for batch systems. With EGL, the same developers can do both, and we can offer our clients a choice of deployment platforms,”
- Mauricio Alvarenga, IT manager at Montreal Informática

M.I. MONTREAL INFORMÁTICA
Integrando Tecnologia aos Negócios



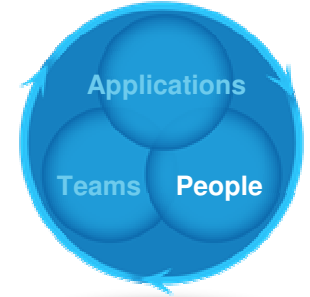
Achieve faster ROI by modernizing host applications

■ Use your existing staff to quickly Web-enable green screen applications

- ▶ Provide your end users with flexible, secure Web access to business applications
- ▶ Dramatically reduce end user training and improve IT staff productivity
- ▶ Deploy with no source code modification or application downtime

■ Build modern Web 2.0 user interfaces without being a technology expert

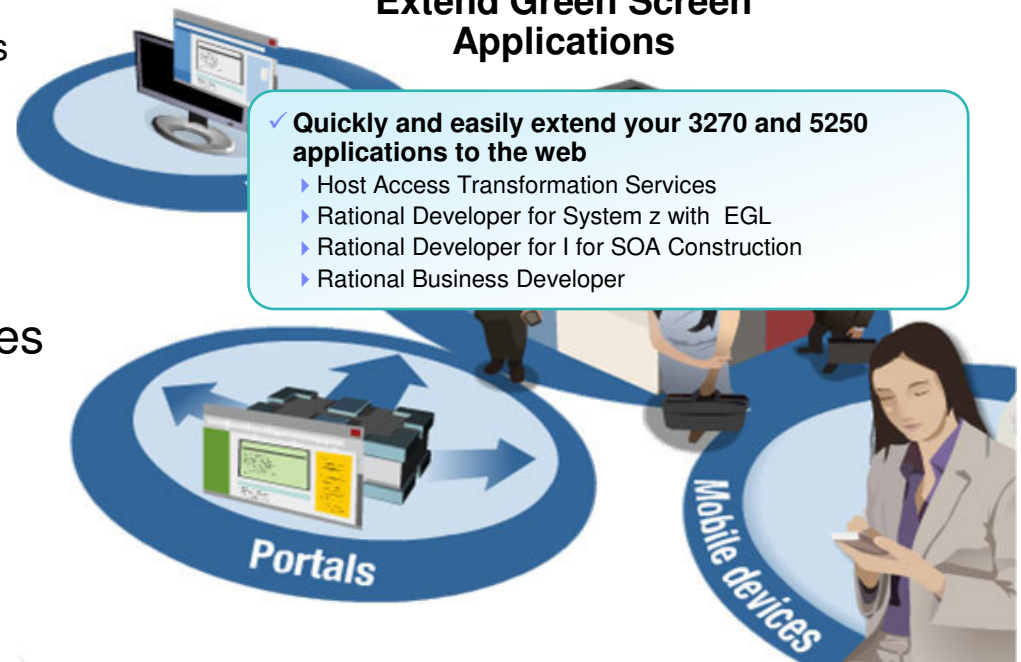
- ▶ Empower existing developers to build Rich Internet Applications (RIA)
- ▶ Eliminate need to have skills in JavaScript, Ajax, JSON, HTML and CSS, etc.



Extend Green Screen Applications

✓ Quickly and easily extend your 3270 and 5250 applications to the web

- ▶ Host Access Transformation Services
- ▶ Rational Developer for System z with EGL
- ▶ Rational Developer for I for SOA Construction
- ▶ Rational Business Developer

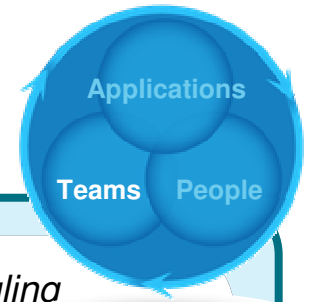


“Rational Host Access Transformation Services (HATS) makes legacy modernization a relatively easy and fast process. I estimate that HATS cut 75% of the man-hour requirements from other approaches we have used”

- Alan Jack, director of technology, Oxford International



Team challenges



CIO



"Our global software teams working on different platforms are struggling to communicate. How do we collaborate in the context of our work?"

IT Manager



"My line of business needs better access to information about the ongoing projects"

Project Manager



"I need a dashboard that lets me easily see if my project is on track and identify any bottlenecks."

Team Leader



"Why are some developers not following the agreed upon processes?"

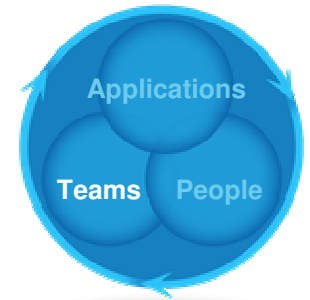
Developer



"Why and when was this changed? Is this the latest version that I should be using?"



Reduce cost and improve efficiency by unifying disparate software teams

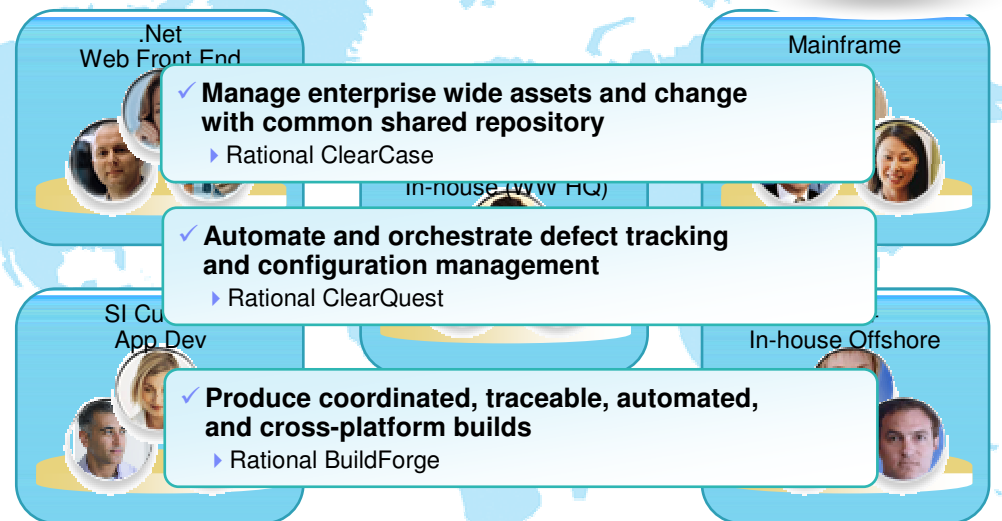


■ Consolidate team infrastructure

- ▶ Eliminate redundant and duplicate tools and processes
- ▶ Unified change management for all platforms, languages, roles, and locations
- ▶ Ensure accurate global software delivery with a single point of control

■ Automate multi-platform builds

- ▶ Avoid costly manual rework
- ▶ Ensure asset reuse, assess impact of asset change and receive automatic updates



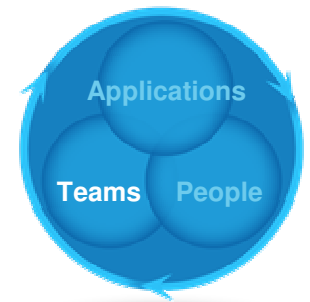
"Rational ClearCase in conjunction with Rational Developer for System z allowed us to completely centralize our software configuration and release management"
- Juergen Dimmler, Product Specialist, Kreditwerk

kreditwerk



Improve collaboration across team silos

- Remove development obstacles
 - ▶ Collaborate seamlessly across geographically distributed teams on any platform
 - ▶ Make software development more automated, transparent and predictable
- Seamlessly share information
 - ▶ Access development assets anywhere, anytime utilizing web 2.0 technology
 - ▶ Communicate real time, in context
- Maximize visibility of project status
 - ▶ Use single web interface to provide a global view of project health
 - ▶ Improve governance with project management and reporting that spans all platforms



- ✓ **Collaborate across all teams, customize processes, obtain status painlessly**
 - ▶ Rational Team Concert for System z
 - ▶ Rational Team Concert for i
 - ▶ Rational Team Concert
 - ▶ Rational Method Composer
 - ▶ Telelogic Focal Point

“By providing our development teams with a common platform from which to analyze, design, develop, and test, IBM Rational solutions have created opportunities to improve the quality of our software as well as our organization”

- Douglas Cook, [Verizon Business](#)



Key modernization challenges IT organizations must address



"We don't understand the effort, risk and impact of modernizing our legacy software portfolio"



"Our skills gap just seems to keep growing. How do we stay current with all the language and technology changes?"



"Our architecture has evolved to be too complex and convoluted— we need to be flexible and agile."

"Our development teams working on different platforms are struggling to communicate. How do we collaborate in the context of our work?"



Application Challenges

- Lost application knowledge
- Architectural complexity
- Poor quality and performance
- Regulatory and compliance risks

People Challenges

- Skills lock-in
- Plethora of new technologies
- Unattractive, low productivity IDEs
- Steep learning curve due to platform/language-unique tools

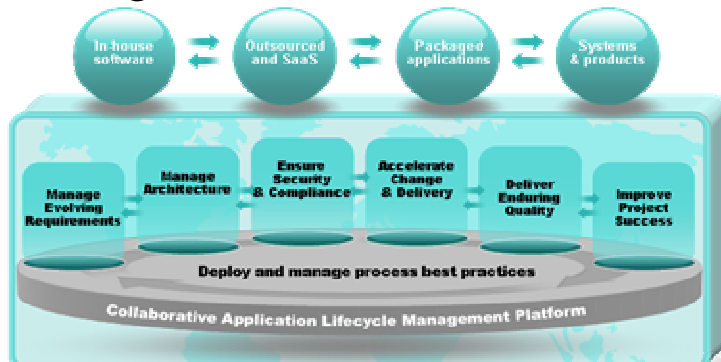
Team Challenges

- Poor communication
- Incompatible tools & processes across platforms
- Weak project oversight
- Lack of traceability across lifecycle



The Rational Software Delivery Platform

Accelerating software innovation for the entire enterprise



Manage enterprise wide assets and change with common shared repository

- Rational ClearCase

Collaborate across all teams, customize processes, painless status

- Rational Team Concert for System z
- Rational Team Concert for i
- Rational Team Concert
- Rational Method Composer
- Telelogic Focal Point

Automate and orchestrate defect tracking and configuration management

- Rational ClearQuest

Produce coordinated, traceable, automated, and cross-platform builds

- Rational Build Forge

Ensure scalability of applications which expose existing assets in new ways (e.g. services, web)

- Rational Performance Tester

Reduce time and guarantee repeatability with automated testing including 3270 and 5250

- Rational Functional Tester

Identify vulnerabilities, privacy issues, quality exposures, and standards non-compliance

- Rational AppScan

Coordinate quality assurance plans, processes and resources

- Rational Quality Manager

Elicit, capture, elaborate, discuss manage, and review requirements

- Rational Requirements Composer
- Rational RequisitePro
- Telelogic DOORS

Develop common and integrated processes across developer islands

- Rational Method Composer

Reduce risk of project failure by managing shared common requirements

- Rational Requisite Pro

Understand business process and IT system mapping. Refactor existing assets for reuse or migration

- Rational Transformation Workbench
- WebSphere Studio Asset Analyzer
- Rational Asset Analyzer
- ILOG Rules for COBOL
- Telelogic System Architect

Create architectural model from business process model. Manage reuse.

- Rational Software Architect
- Rational Asset Manager

Accelerate development of web apps, traditional RPG, COBOL, C, C++, PL/I, EGL apps, web services, and XML-based interfaces

- Rational Developer for z
- Rational Developer for i
- Rational Business Developer

Improve overall code quality and predictability by identifying and resolving potential coding errors

- Rational Software Analyzer

Quickly and easily extend your 3270 and 5250 applications to the web

- Host Access Transformation Services



Leverage IBM Services to get started today

■ Executive Services

- ▶ Schedule an Enterprise Modernization Executive Planning Session to define modernization strategies

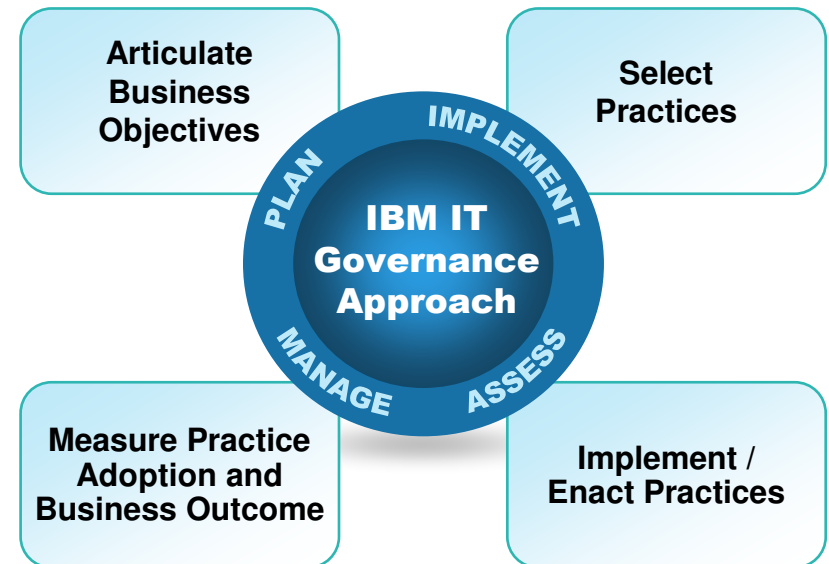
■ Application Modernization Services

- ▶ Application Assessments to:
 - ▶ Develop Modernization roadmaps to resolve specific business issues
 - ▶ Improve Application Quality & Performance
 - ▶ Identify opportunities for business software delivery improvements

■ People and Team Modernization Services

- ▶ Provide Implementation Services for Rational Enterprise Modernization tools
- ▶ Provide SCM migration assistance
- ▶ SDLC Assessments to:
 - ▶ Improve Software Delivery performance
 - ▶ Implement Software Delivery Metrics to more effectively manage the software development environment

Rational Professional Services



More ways to get started

System z and IBM i Sandboxes

Example assets and best practices providing low-risk, practical, hands-on path to leveraging IBM solutions

- ▶ Full version software trials
- ▶ 'Try online' hosted System z and IBM i environments
- ▶ Hands-on-exercises

Community Cafés

Harness a growing community of business partners, customers, and IBM employees

- ▶ C/C++ Café
- ▶ EGL Café
- ▶ RPG Café

*Jump-start
your
modernization
projects!*

Education Series

Modern Application Architecture for COBOL Developers

Learn how to design and integrate composite applications across CICS and WebSphere – leveraging existing COBOL processes

EGL Distance Learning

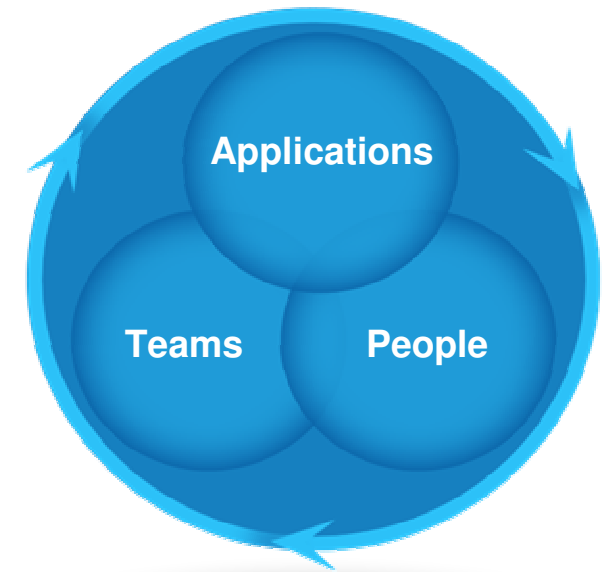
Eight days of training free electronically - lectures, labs, and electronic support

Learn more at:
www.ibm.com/rational/modernization



Summary

- ✓ Change is the new norm – turn it into opportunities
- ✓ IT flexibility is a key enabler for managing change
- ✓ To be flexible, you **must** mature and modernize your applications, skills, and software delivery processes
- ✓ Rational Enterprise Modernization solutions provide this flexibility, while helping you:
 - ▶ Reduce costs
 - ▶ Minimize risk
 - ▶ Improve time to market
- ✓ Get started today. We can help!



Learn more at: www.ibm.com/rational/modernization

Rational. software

Solutions to assist customers in achieving greater value and performance from their investments in software





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- [Accelerate change & delivery](#)
- [Deliver enduring quality](#)
- [Enable enterprise modernization](#)
- [Ensure Web security & compliance](#)
- [Improve project success](#)
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