Enterprise Modernization: Revolutionizing the economics of enterprise application development and maintenance

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SHARE in Boston

Businesses are challenged to deliver innovation

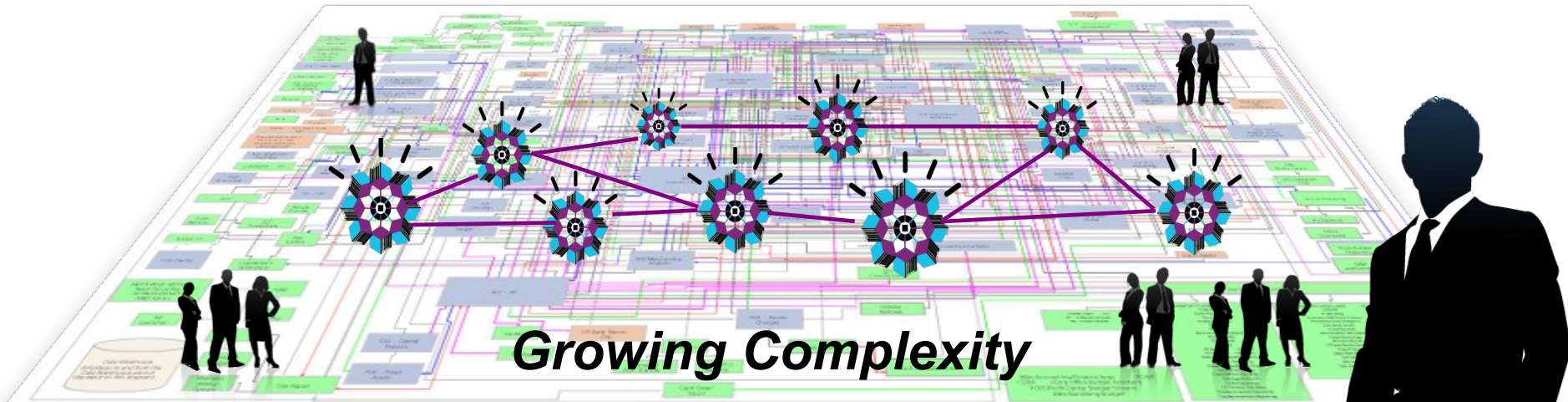**80%** → **64%** → **3x**

CEOs <u>anticipate</u> turbulent change and bold moves.[1]

of CIOs work with senior business executives to drive <u>innovation</u>.[2]

increase in the gap between leaders' need and their ability to <u>deliver</u> it.[1]

Growing Complexity

[1]2008 IBM CEO study. [2]IBM Global CIO Study 2009.

Many companies consider IT an inhibitor to innovation and a source of inflexibility

"The message for IT is clear; business needs and expects greater agility from IT. A new approach to IT delivery models and sourcing options is required that allows IT organizations to be more responsive to the needs of the business."

Gartner, October 14, 2008, "Changing the Cost Structure of IT Will Become a Business Imperative for Most CIOs"

Challenges to achieving greater value from your IT investments

Applications

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

People

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

Teams

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

Infrastructure

"We need a cost effective way to improve our infrastructure efficiency and free up capacity to handle more volume"

IBM Rational Enterprise Modernization solutions can help

Optimize your applications, people, team and infrastructure investments

Increase flexibility

Boost productivity

Maximize business agility

Increase system utilization

Revitalize Applications

Empower People

Unify Teams

Exploit Infrastructure

- **Increase flexibility** by revitalizing existing application portfolios
- **Boost productivity and accelerate innovation** with modern skills
- **Maximize business agility** by bridging organizational silos
- **Increase system utilization** by leveraging hardware capabilities

Rational Software Delivery Platform
Powered by *Jazz*

Increase flexibility by revitalizing existing application portfolios

Increase flexibility

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Business intelligence for applications

Enterprise architecture and portfolio management

SOA tools for all platforms and languages

Operational reuse

User interface modernization

Application transformation tools and services

Quality across the organization

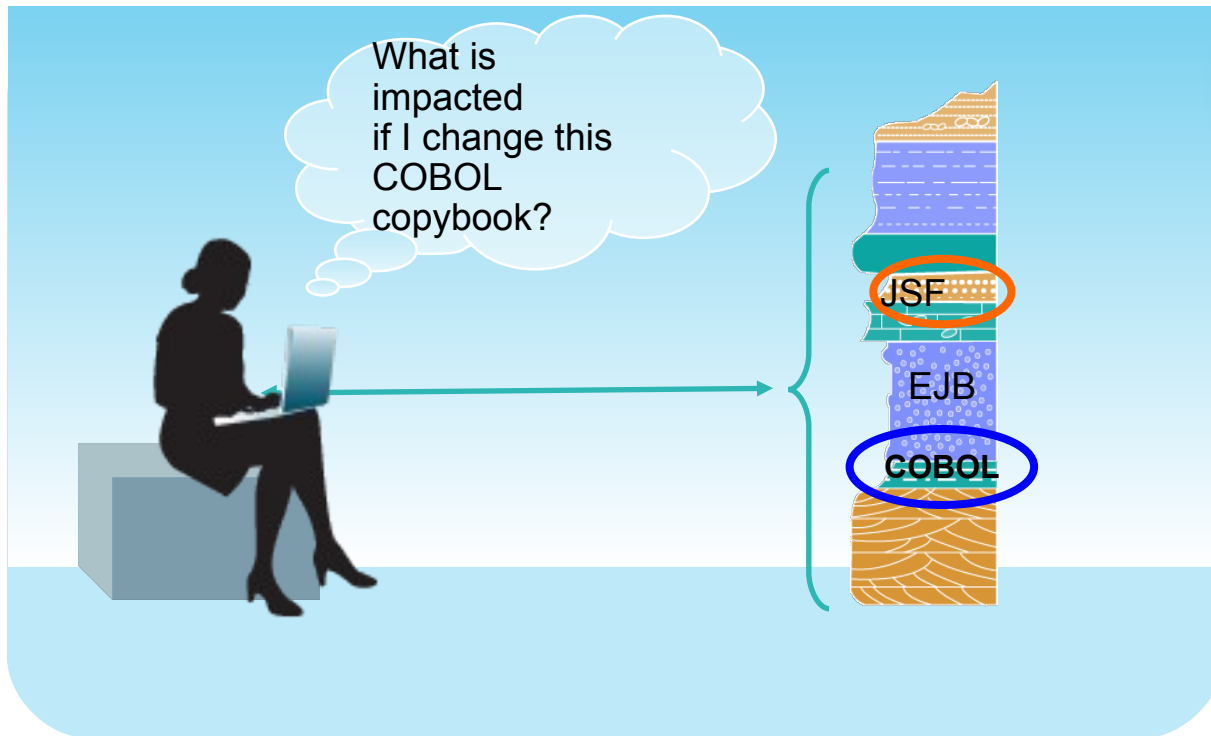Rational Software Delivery Platform

powered by *Jazz*

Enterprises want to…
Understand the impact and cost of change to their IT systems
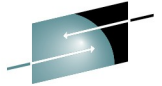
But…
They have no business intelligence inventory of their application assets, relying instead on manual and error-prone processes and incomplete knowledge. They must compensate with more extensive planning and extra testing.

Solution: Business intelligence for applications
*Restore lost application knowledge via technical analysis*

Application Artifacts

Mainframe
- COBOL
- PL/I
- DB2
- IMS/DC
- CICS
- Job Control Language
- High-level Assembler (HLASM)

Distributed
- Java
- WebSphere
- HTML
- WSDL
- Enterprise Archive (EAR)
- Web Archive (WAR)
- C++

Revitalize Applications

Application inventory

Impact analysis

Metadata Repository

Application assessment
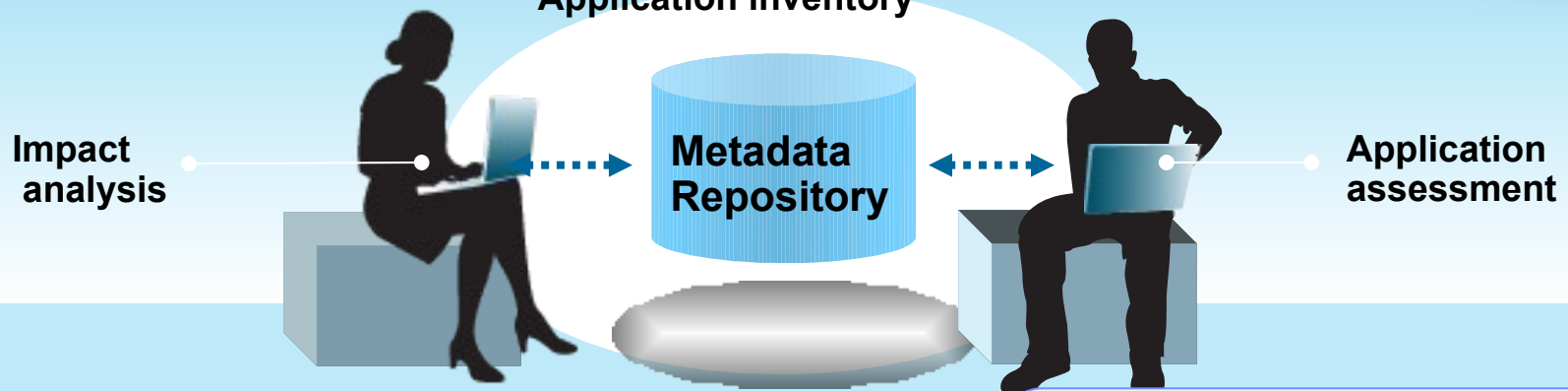
Rational Asset Analyzer
WebSphere Studio Asset Analyzer
Application Health Assessment

Delivering…
Reduced risk by quickly determining the full impact of proposed changes and lowered costs via dead code elimination, optimal planning, focused testing and faster development

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8

Enterprises want to…

Reuse existing assets to reduce duplication and speed time to market
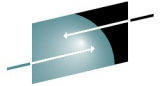
Revitalize Applications

Do we already have code to do this?

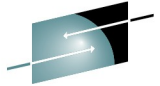## But…
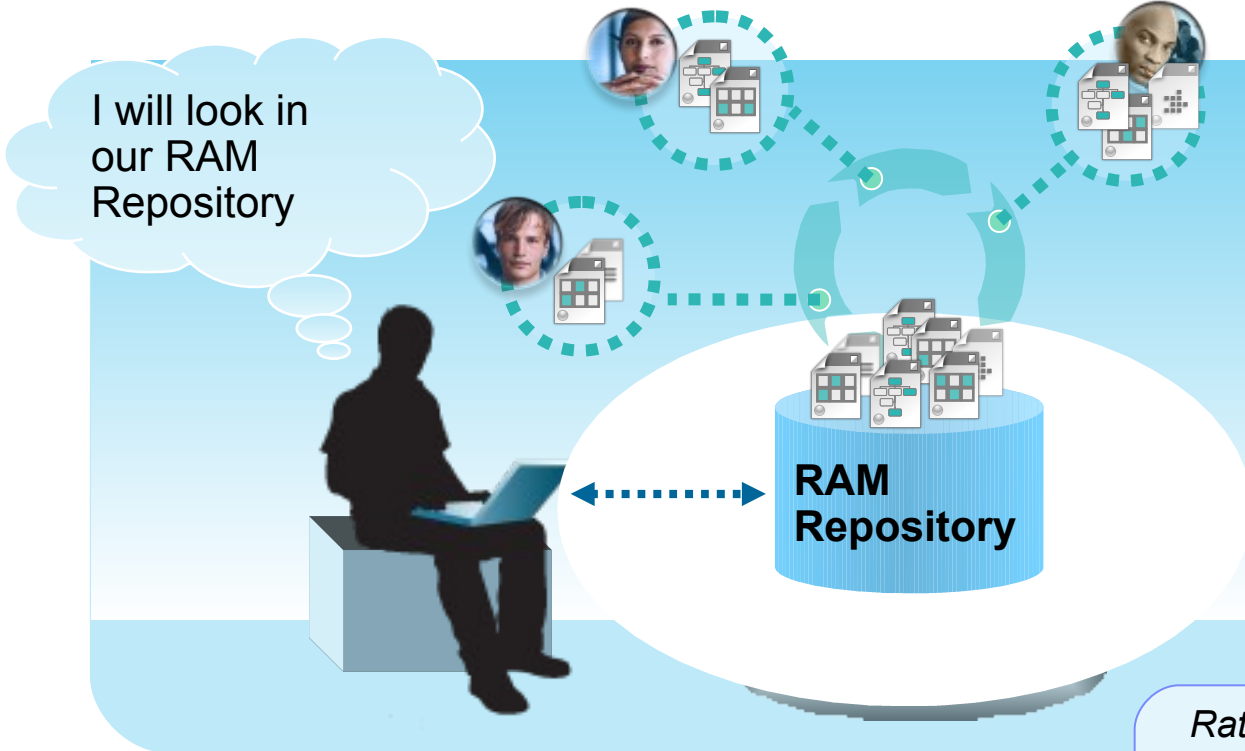
They do not have the infrastructure to establish a reuse culture

Solution: Operational reuse

Instill proactive asset management of all IT artifacts into the organization's processes and culture by deploying a reuse infrastructure

I will look in our RAM Repository

RAM Repository

Revitalize Applications
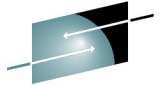
Rational Asset Manager
WebSphere Service Registry and Repository

Delivering…

Greater reuse, development efficiency, faster time-to-market, and higher quality
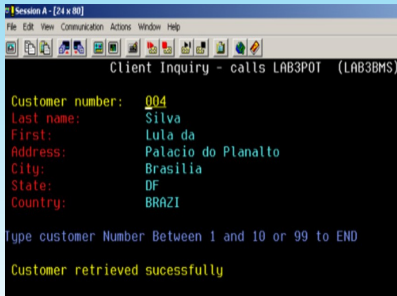
Enterprises want to…

Provide a range of appealing, more intuitive user interfaces
to increase employee productivity and boost customer satisfaction

But…

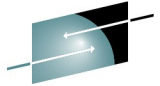*The cost of replacing or re-writing these applications is prohibitive,*
and they may not have the necessary web and UI technology skills

Solution: User interface modernization

Deploy the ideal UI for your application, from quickly creating a modern
Web UI out of an existing green screen application to customizing
a highly interactive, graphical Web 2.0 UI

Rational EGL

Host Access Transformation Services

Rational Developer for System z

Rational Developer for Power Systems **NEW!**

Rational Business Developer

Rational Application Developer

Delivering…

Greater customer satisfaction, lower employee training costs, and fewer errors from more modern and compelling UIs

Enterprises want to…

Reduce tool support costs and move to modern platforms languages, and tools for their multi-platform application development

Revitalize Applications

WEB 2.0

Software AG Natural/Adabas

CA Ideal/Datacom and CoolGen

RPG, COBOL, and Synon

Green screen text UIs

?
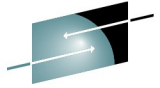
System z – CICS
System z – IMS
System z – Linux*
System z – Batch
System z – WAS*
System z – VSE
IBM i - WAS
IBM i - Native
AIX
HP - UX
Solaris
Linux
Windows

*Eligible to run on IFL and zAAP

But…

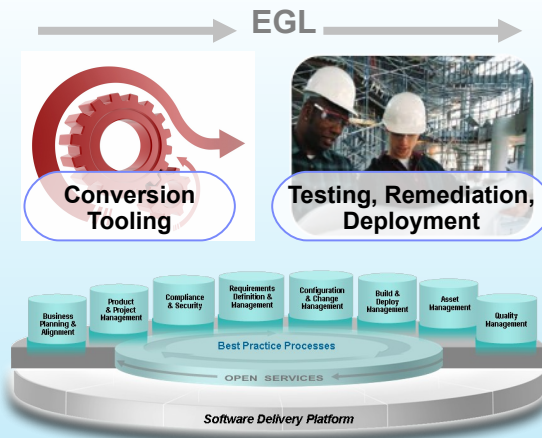*They are stuck on poorly supported, expensive, legacy development platforms*

Solution: Application transformation tools and services

Migrate from older languages and expensive tools to modern development platforms, languages, databases and tools

Revitalize Applications

EGL

Software AG Natural/Adabas

CA Ideal/Datacom and CoolGen

RPG and COBOL

Green screen text UIs

Conversion Tooling

Testing, Remediation, Deployment

Business Planning & Alignment | Product & Project Management | Compliance & Security | Requirements Definition & Management | Configuration & Change Management | Build & Deploy Management | Asset Management | Quality Management

Best Practice Processes

OPEN SERVICES

Software Delivery Platform

System z – CICS
System z – IMS
System z – Linux*
System z – Batch
System z – WAS*
System z – VSE
IBM i - WAS
IBM i - Native
AIX
HP - UX
Solaris
Linux
Windows

*Eligible to run on IFL and zAAP

Delivering…
Greatly reduced development platform support costs, and more flexible, integrated development environment for making future application enhancements

Rational Migration Extension for Natural
Rational Migration Extension for CA
Rational Migration Extension for Rich UI
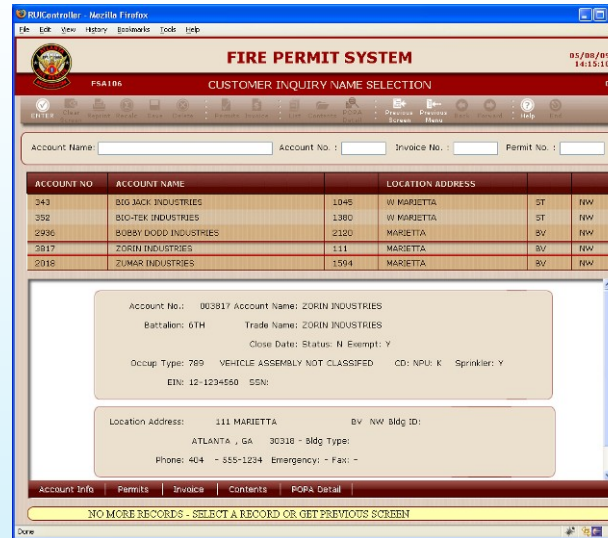*Rational Migration Extension for IBM i*

NEW!
NEW!

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UI Modernization with RME for Rich UI

Revitalize Applications

Original Screens

Standard Transformation

✓ One to one screen to EGL RUI

✓ UI patterns mapping (list, detail, headers, message, etc)

Enhanced Transformation

✓ Combined UIs, improved flow, resizable panels, etc

✓ Combo boxes, radio buttons, date pickers, tabs, etc

✓ Mash-ups and integration with other systems

Boost productivity and accelerate innovation with modern skills

Increase flexibility

Boost productivity

Maximize business agility

Increase system utilization

Revitalize Applications

Empower People

Unify Teams

Exploit Infrastructure
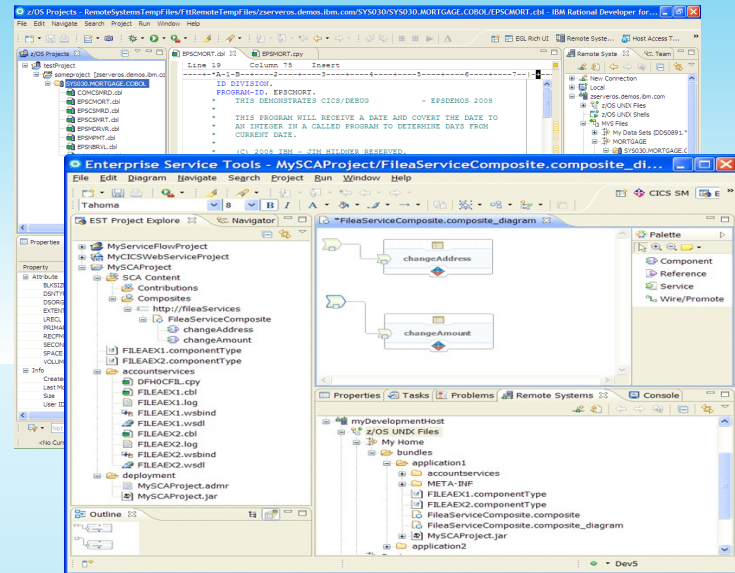
Modern IDEs for all platforms and languages

Modern business language

Enterprise training programs, communities and resources

Rational Software Delivery Platform
powered by *Jazz*

Enterprises want to…

Increase productivity of their "backend" development staff, as well as attract new employees to this work

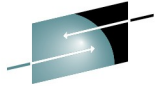## But…

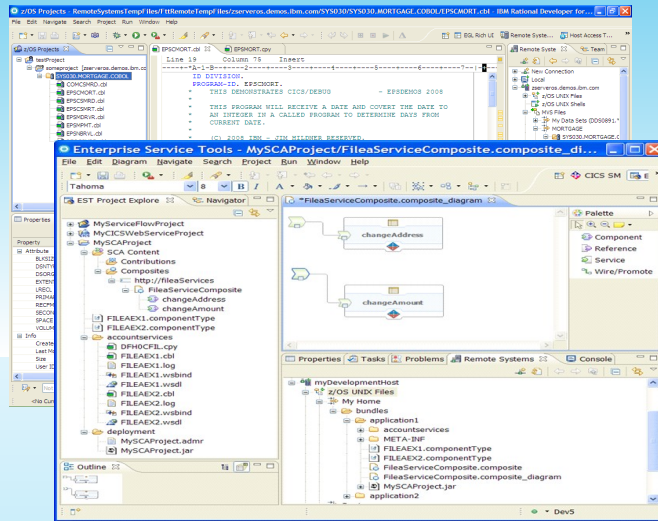*They have antiquated development tools which deliver low productivity and are repulsive to younger staff*

Solution: Comprehensive, multi-platform IDEs

Upgrade to modern Eclipse-based tools to develop and maintain enterprise applications spanning multiple platforms, languages, and technologies

Empower People

Rational Developer for System z

Rational Developer for Power Systems **NEW!**

Rational Application Developer

Rational Business Developer

System z Solution Edition for Application Development

Delivering…

50%-80%[1] reduction in host CPU usage with workstation syntax checking, ~15% improvement in developer productivity[1], and modern tools with which to attract new talent

[1] Aggregation of results from a productivity study conducted by IBM System z customers

The original System z development environment
ISPF has provided consistent tooling for decades…but it is limiting

Challenges…

- Constant connection to mainframe is required
- Development shares processor with production use; gets lower priority
- Inability to create cross platform components
- ISPF green screen UI is unappealing to new hires
- MIPS used for development vs. production

Today's mainframe development environment with a modern IDE (and still some ISPF)

Modern IDEs add value

- Higher productivity; more attractive for new developers
- Ability to offload some development MIPS
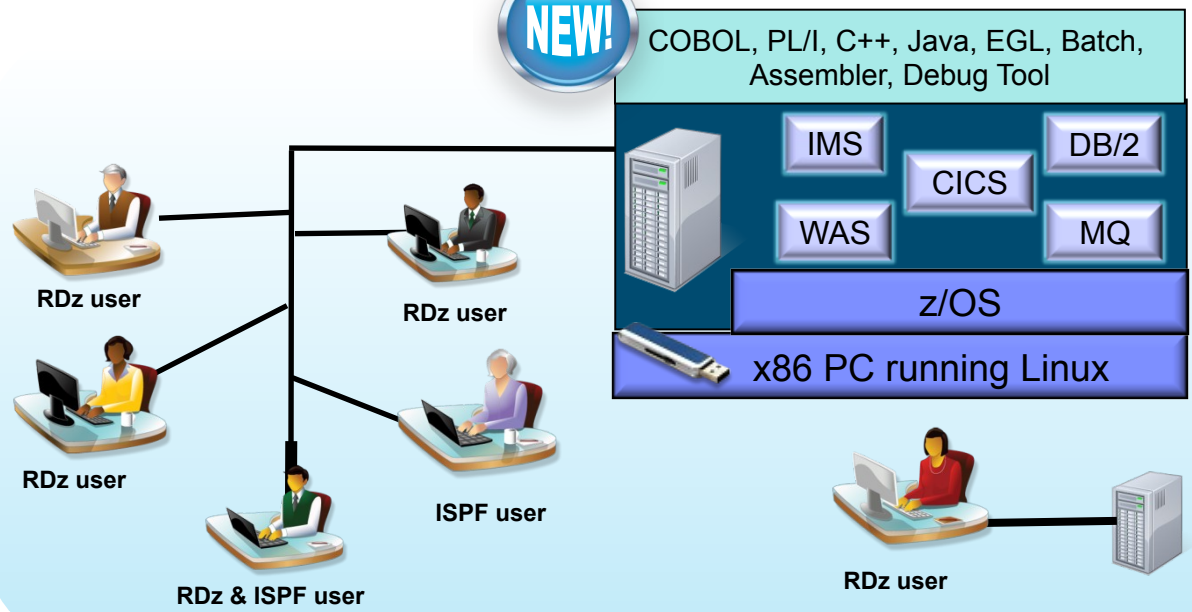- Integration with complete application lifecycle tools

But challenges remain:

- Business pressures to reduce development MIPS further
- Test delays caused by dependencies on operations team, thus hurting productivity

Announcing the RDz Unit Test Feature
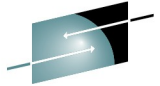## *System z environment for testing on x86 Linux systems*

- Liberate developers to rapidly prototype new applications Develop and test System z applications anywhere, anytime

- Free up mainframe development MIPS for production capacity

- Eliminate costly delays by reducing dependencies on operations staff

Note: This Program is licensed only for development and test of applications that run on IBM z/OS. The Program may not be used to run production workloads of any kind, nor more robust development workloads including without limitation production module builds, pre-production testing, stress testing, or performance testing.

Enterprises want to…

Build modern, multi-platform applications with existing and new staff
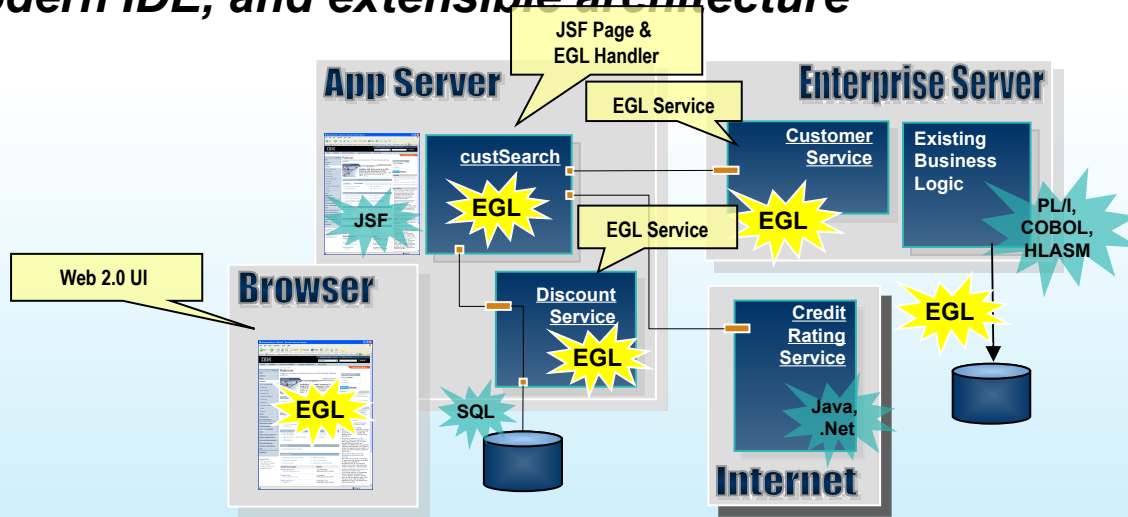

PIM = Platform Independent Model
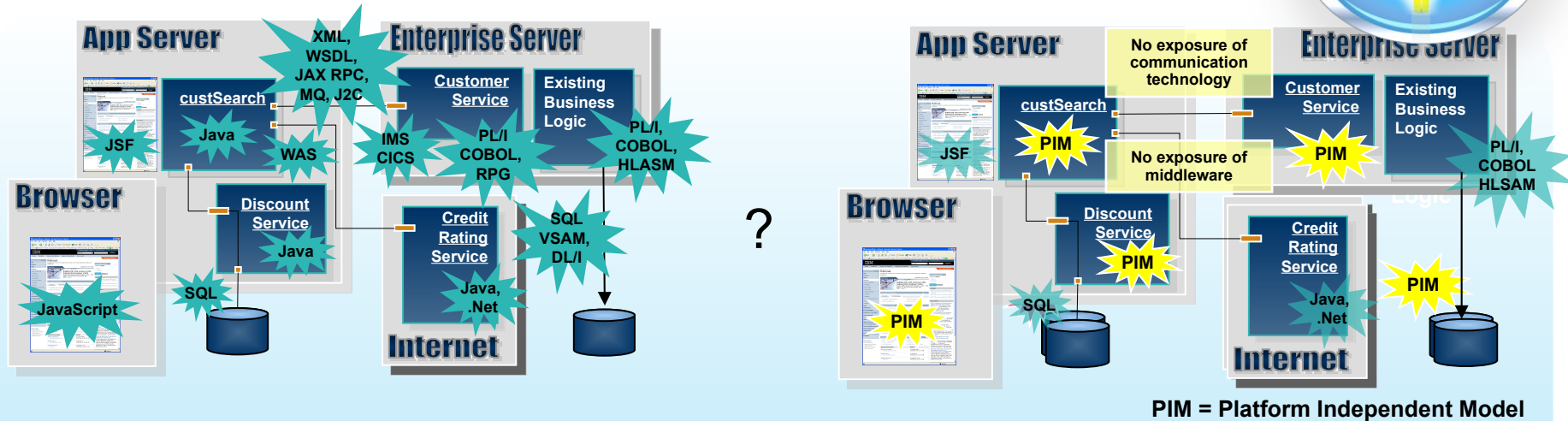
But…

They have different teams of developers for each platform, and re-training them to all the new technologies is costly, time consuming, and often impractical

Solution: EGL – An open, modern business language

Build new or extend existing multi-platform enterprise applications in EGL with its middleware abstractions, high productivity language, modern IDE, and extensible architecture

Empower People

JSF Page & EGL Handler

App Server

EGL Service

Enterprise Server

custSearch

EGL

JSF

Customer Service

Existing Business Logic

EGL

PL/I, COBOL, HLASM

EGL

Web 2.0 UI

Browser

EGL Service

Discount Service

EGL

Credit Rating Service

EGL

EGL

SQL

Java, .Net

Internet

Rational Business Developer
Rational Developer for System z with EGL
Rational Developer for Power Systems **NEW!**

Delivering. . .

High productivity, platform portability, and skills flexibility, for existing and new developers when building all types of modern enterprise applications

Announcing
Eclipse EGL Development Tools Project
An evolution in business application development

- Open source project at Eclipse.org for the EGL language, compiler, source editing tools, debugger, and generators for Java and JavaScript

- Initial contribution based on technology in IBM Rational Business Developer

- Core EGL development by IBM and other participants in the open on Eclipse

- Project launched June 7, 2010

Benefits of an open EGL …

- **Reduces risk**
    - Jointly developed in the open at Eclipse.org
    - Source available under Eclipse Public License (EPL)

- **Accelerates innovation**
    - Gives others (not just IBM) the ability to …
        - Build tools that compliment the tools provided by IBM
        - Extend deployment to new runtime platforms
        - Add language extensions to support new concepts

- **Broadens awareness and community**
    - Opens EGL to new audiences
    - Gives others the opportunity to be involved in the planning and development process

Tools and solutions from IBM

- Rational Business Developer
- Rational Developer for z with EGL
- Rational Developer for i for SOA
- Rational Migration Extensions

IBM tools provide support for WebSphere Application Server, development of EGL JSF and TUI applications, generation of COBOL, and more …

Read the project proposal:

www.eclipse.org/proposals/egl

Maximize organizational agility by unifying development teams

Increase flexibility | Boost productivity | *Maximize business agility* | Increase system utilization
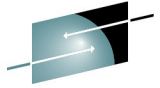
Revitalize Applications | Empower People | **Unify Teams** | Exploit Infrastructure

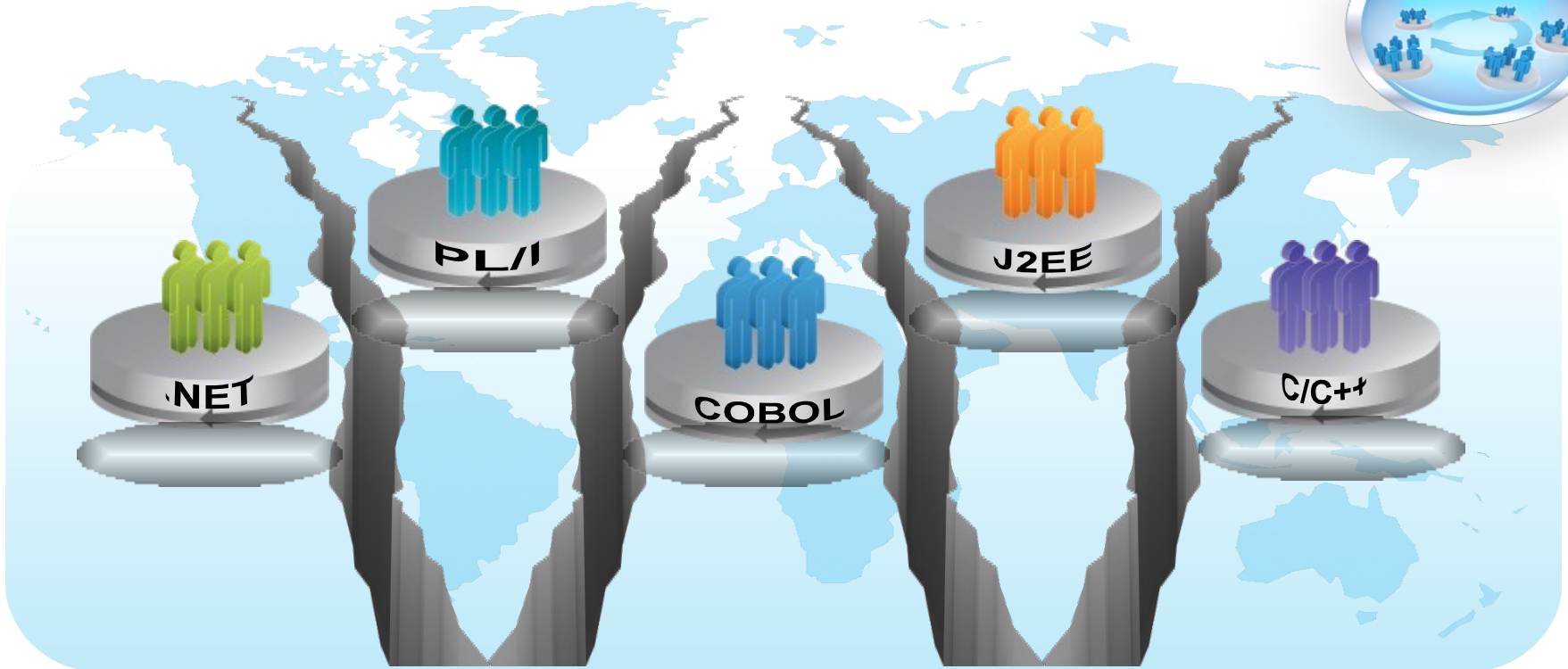**Consolidated team infrastructure**

Agile team infrastructure

Rational Software Delivery Platform
Powered by *Jazz*

Enterprises want to…

Enable agile, multi-platform and cross-geo collaboration and governance while reducing their team infrastructure costs

But…

They have "islands" of development, each with different tools, processes and team infrastructure, and they do not support real-time collaboration or integrated, comprehensive oversight

Solution: Collaborative application lifecycle management

Deploy new, common team infrastructure for source control, change management and build that empowers your team with integrated collaboration, process automation, and reporting

Unify Teams

PL/I

J2EE

.NET

COBOL

C/C++

Rational Software Delivery Platform *powered by jazz*
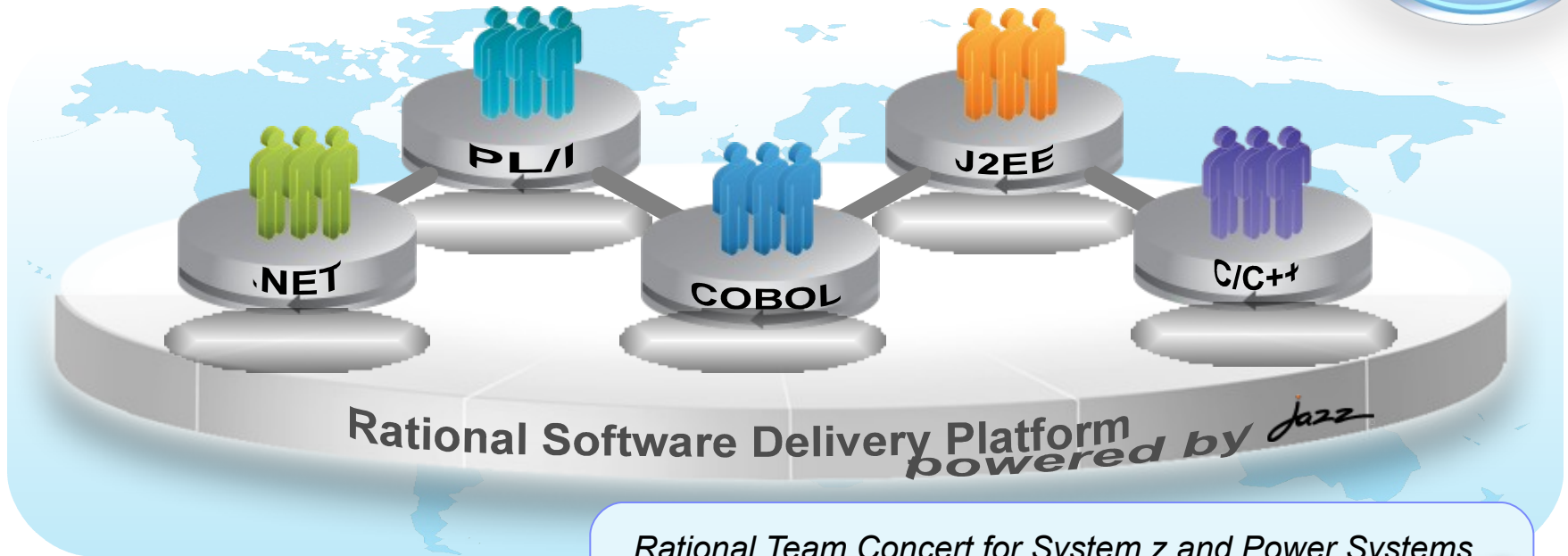
Rational Team Concert for System z and Power Systems
Rational ClearCase / Rational ClearQuest
Rational Buildforge

RTC Version 3 now in Beta!

Delivering…

Improved communication, higher quality, informed decision-making, and more automated, transparent and predictable software development
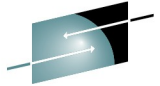
Improve application performance by fully exploiting modern hardware

Increase flexibility

Boost productivity

Maximize business agility

Increase system utilization

Revitalize Applications

Empower People

Unify Teams

Exploit Infrastructure

Exploit new advanced optimization technology in C/C++, Java, COBOL, PL/I and Fortran compilers

Rational Software Delivery Platform
Powered by *Jazz*

Enterprises want to…

Maximize application performance on existing hardware to reduce capital expenses

Exploit Infrastructure
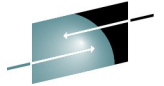
But…

They have back-level compilers or are not fully using optimization

Solution: Advanced compiler technology

Exploit new advanced optimization technology in C/C++, Java, COBOL, PL/I and Fortran compilers

Exploit Infrastructure

Performance

Compiler Version
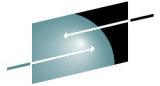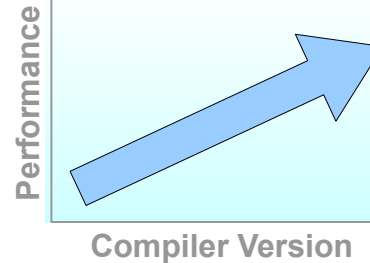
***Same* hardware + *NEW* compiler = *Increased* Performance**

***NEW* hardware + *NEW* compiler = *Maximum* Performance**

- IBM XL C/C++ for AIX and Linux
- IBM XL Fortran for AIX and Linux
- IBM COBOL for z/OS, AIX
- IBM PL/I for z/OS, AIX
- IBM WebSphere® Development Studio (IBM i compilers)

Delivering…

Lower capital outlays by increasing capacity, and improved performance of application suite

Learn more at:

- IBM Rational software
- Rational launch announcements
- Rational Software Delivery Platform
- Accelerate change & delivery
- Deliver enduring quality
- Enable enterprise modernization

- Ensure Web security & compliance
- Improve project success
- Manage architecture
- Manage evolving requirements
- Small & midsized business
- Targeted solutions

- Rational trial downloads
- developerWorks Rational
- Leading Innovation
- IBM Rational TV
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Let's **build** a smarter planet.