

# Enterprise Modernization

*Improving the economics of mainframe  
and multiplatform application development*



**Enabling Product and Service Innovation | Rational**

## Executive summary

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

**NEW!** 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

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

**NEW!** Free up development MIPS for production use by offloading development and test activities

# Drought fears drive down India's growth forecast

## NEW DELHI

INDIA'S economic growth could slip to near 6 per cent this year, with the country facing the spectre of its third widespread drought in a decade, said a top government policymaker.

In the last few months, the outlook for once-booming India has worsened with high inflation, steep interest rates, a ballooning deficit, nosediving business confidence, a falling currency and, now, growing worry of a drought.

Planning Commission deputy chairman Montek Singh Ahluwalia said to reporters here that "if we factor in that agriculture will not be strong... (Growth) will be closer to 6 per cent" for the fiscal year to March next year.

His forecast, delivered last Friday, is down from the 6.5 per cent expansion that India notched up last year, and far below the close to 10 per cent expansion seen during a good part of the past decade.

It comes as private economists also pare their growth estimates for Asia's third-largest economy, citing concern about "deficient" monsoon rains that sweep India from June to September.

Results of a survey of economists and industry leaders by the Associated Chambers of Commerce and Industry of India, released last Saturday, said that the weak monsoon period and a deteriorating global situation were expected to cut growth to between 6 per cent and 6.3 per cent.

In a client's note, Goldman Sachs economist Tushar Poddar forecast an even lower expansion of 5.7 per cent.

The various projections are far below the 7.6 per cent expansion initially seen in the Congress-led government's March budget and the 6.5 per cent growth forecast by India's central bank earlier last week.

While around 6 per cent growth is still much faster than most other nations, the left-leaning government said that much more rapid expansion is needed to lift hundreds of millions of Indians out of crushing poverty.

The weather office has forecast the rains will be "15 per cent deficient" during the monsoon period, which would spell a drought.

A countrywide drought is declared if rainfall drops below 90 per cent of average annual levels. In 2002 and 2009, India was hit by drought, bringing misery to farmers and driving up food prices.

Rural Development Minister Jairam Ramesh said that, already, "the drought in Maharashtra (state) is the worst in the last 20 years, the Gujarat drought is the worst in the last 25 years and the Karnataka drought is the worst in the last 40 years".

Farming's contribution to gross domestic product has fallen from 50 per cent in the 1950s to some 15 per cent, but remains key by supporting 700 million rural Indians.

Wary of a voter backlash in general elections that are due in 2014, the government has promised to spend more to help people in "drought-affected" areas - making it far tougher to curb its swollen fiscal deficit.

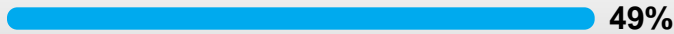
Ms Shubhada Rao, chief economist at India's Yes Bank, predicted that the need for stimulus "on the back of persistent deficiency in the monsoon period will turn the government's fiscal arithmetic awry".

AFP



# 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".

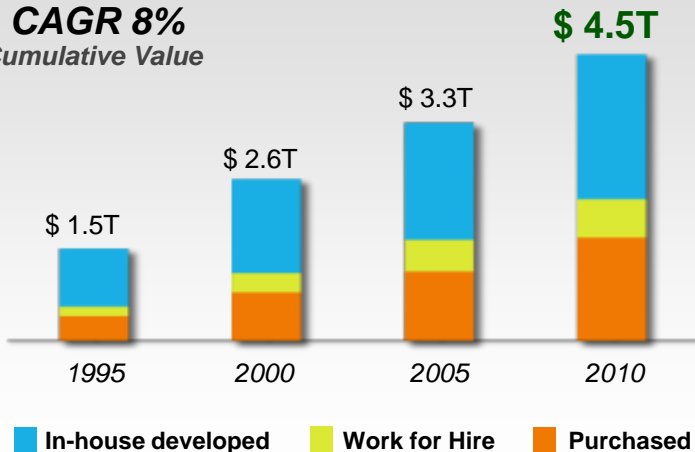


**Growing Complexity**

...and the numbers can be unpleasant

### Investment

**CAGR 8%**  
Cumulative Value



### 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



Mainframe



Distributed

# 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 solutions

*Achieving greater value and performance from your IT investments*

## Revitalize Applications

- ✓ Cut maintenance costs and project risks by understanding and managing application portfolios
- ✓ Increase flexibility by modernizing and reusing existing application assets

## Empower People

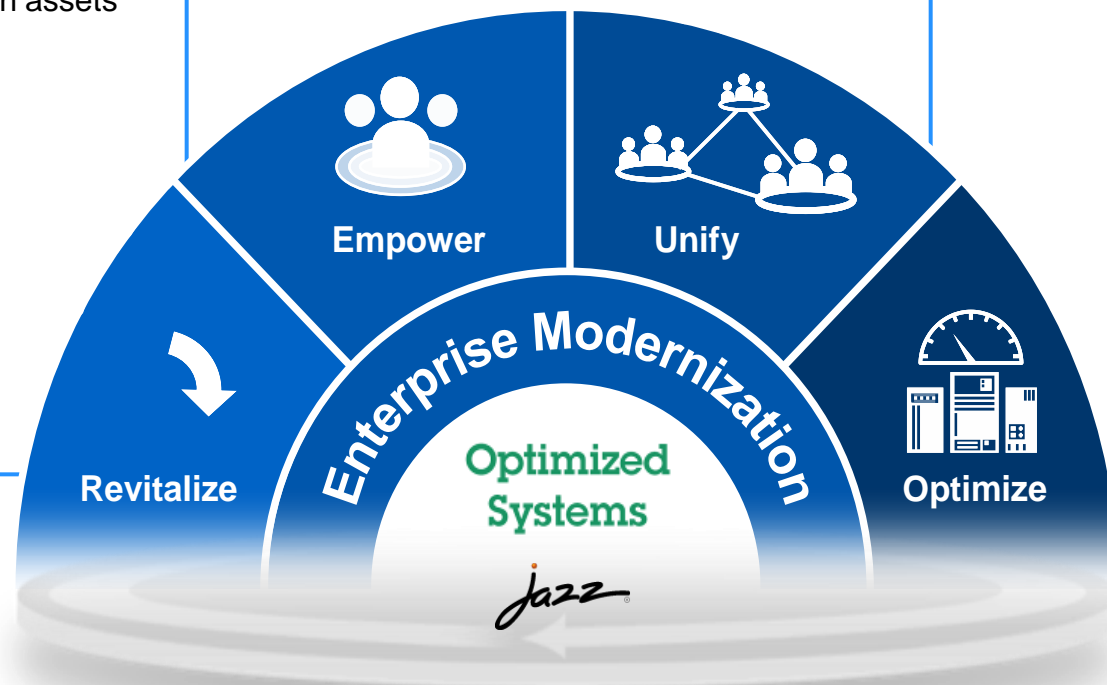
- ✓ Boost developer productivity with a common IDE and modern business language for multiplatform applications

## Unify teams

- ✓ Increase organization agility by unifying teams with a collaborative team infrastructure for all platforms

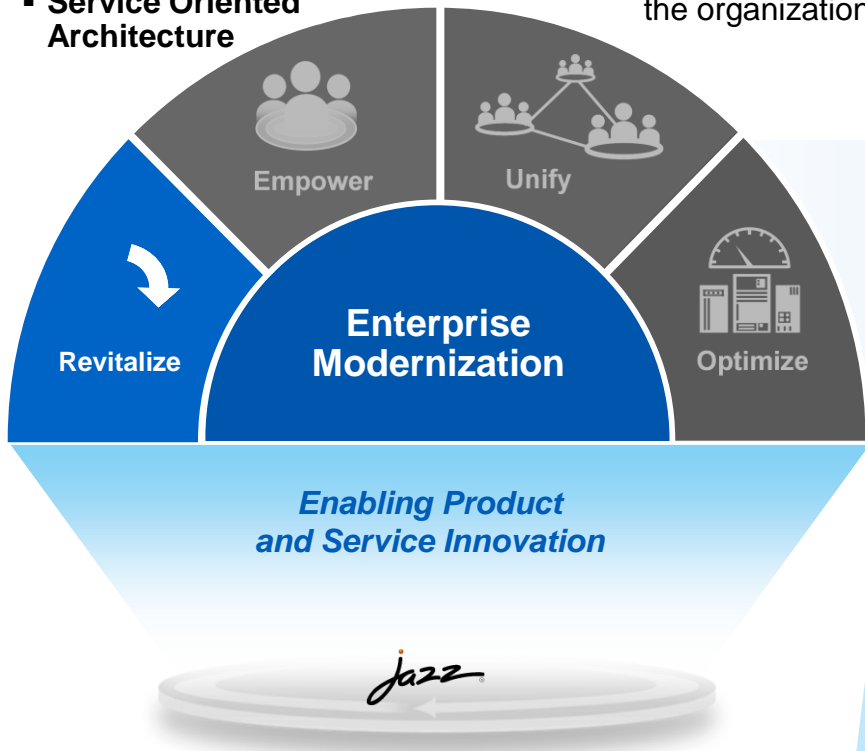
## Optimize Infrastructure

- ✓ Free up development MIPS for production use by offloading development and test activities
- ✓ Reduce capital expenses by maximizing application performance on existing hardware



# Increase flexibility by revitalizing existing application portfolios

- **Application portfolio management**
- Business intelligence for applications
- Application security
- **Operational reuse**
- **Service Oriented Architecture**
- **User interface modernization**
- **Application transformation tools and services**
- Quality across the organization



**20 to 35%**  
cost reduction in managing  
and maintaining existing  
application portfolios

**30 to 50%**  
cost reduction in  
renewal/re-architecture

**Increase  
Application Flexibility**

**22-37%**  
improvement in  
developer productivity  
with modern tooling

**50-80%**  
reduction in host  
CPU usage

**Boost Individual  
Productivity**

**Maximize Team  
Productivity**

**15 to 20%**  
decrease in development cycle  
time through common team  
infrastructure for collaborative  
application lifecycle  
management

**Optimize System  
Utilization**

**20 to 60%**  
improvement  
in application performance  
with latest compilers  
for IBM Systems



# Enterprises want to...

*Align their application portfolio to the business' overall strategy*



## Increasing Business Pressures

Minimize costs for maintaining and operating existing systems

Enable new business opportunities through new and innovative systems



Minimize risk exposure (compliance, schedules, security, ...)

Drive business process optimization through technology

Aging population possessing key domain, business and technology knowledge

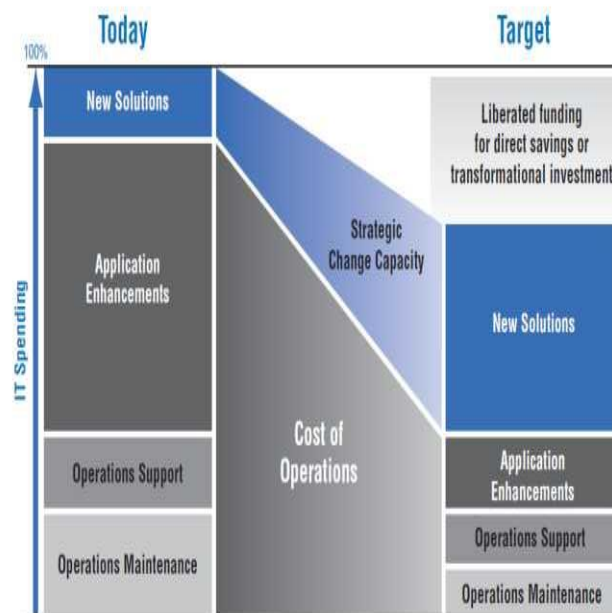
Complexity driven by continued expansion of technology options

Duplicated and competing capabilities and technologies

Degrading maintainability as a result of aging technology and brittle architectures

## Increasing IT Constraints

## Insufficient Strategic Spend

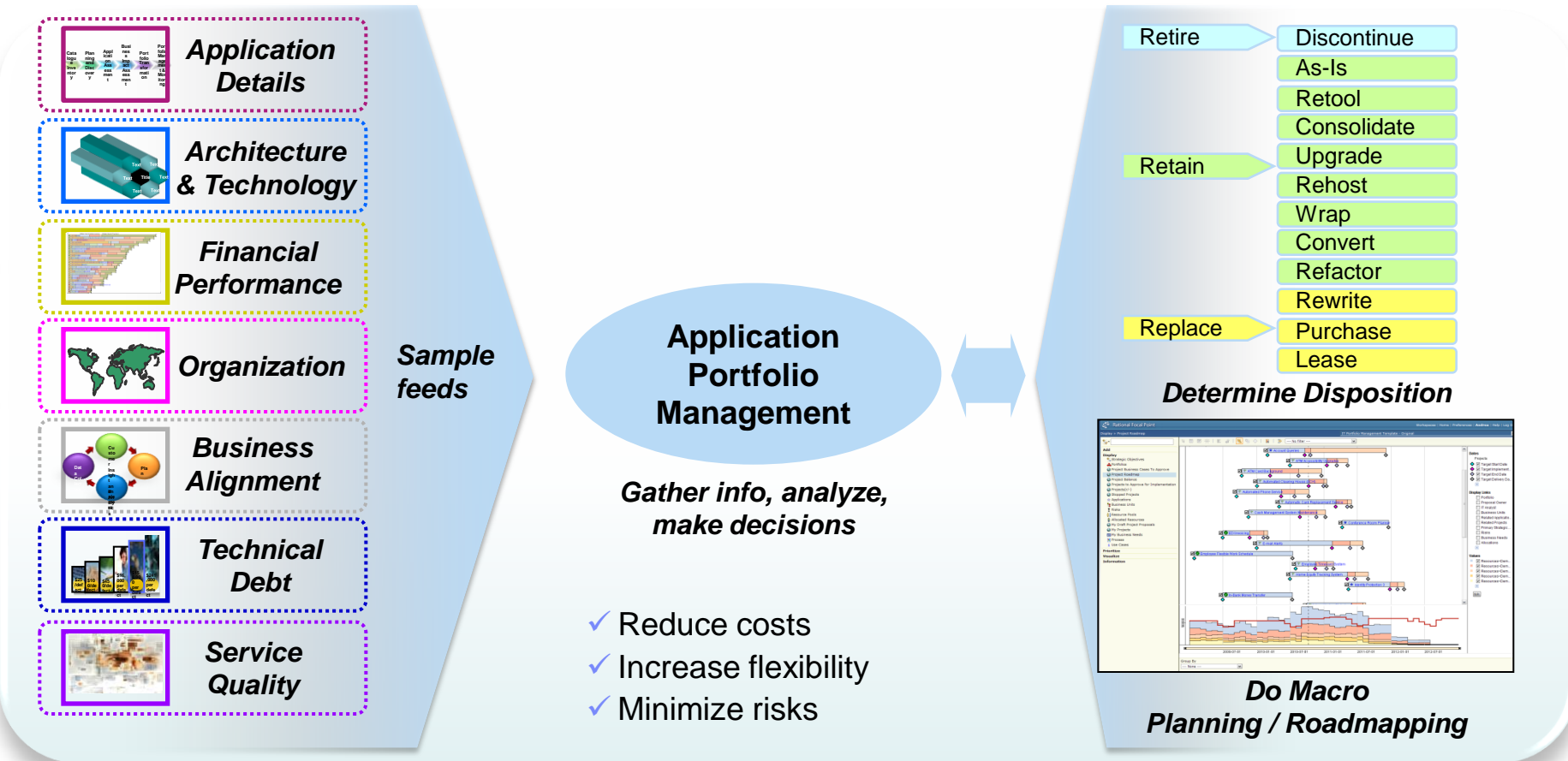


## But...

*Lack of business and IT information makes decision making ad-hoc, error prone and politically driven versus analytical and fact-based. Limited awareness of applications (usage, design, relationship to business requirements, etc.) increases cost, slows development delivery and reduces quality.*

# Solution: Comprehensive application portfolio management

*Helps organizations proactively make faster and better-informed decisions*



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

— IBM Corporation



# Solution: Comprehensive application portfolio management

*Helps organizations proactively make faster and better-informed decisions*



**Application Details**

**Architecture & Technology**

**Financial Performance**

**Organization**

**Business Alignment**

**Technical Debt**

**Service Quality**

Sample feeds

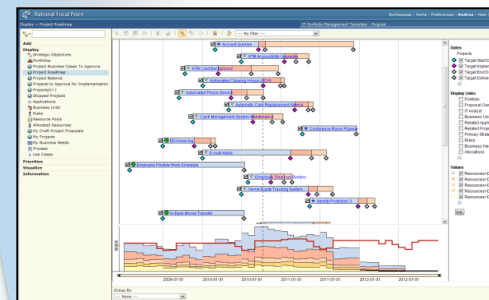
**Application Portfolio Management**

*Gather info, analyze, make decisions*

- Rational Focal Point
- Rational Asset Analyzer
- Rational System Architect

- Retire → Discontinue
- As-Is
- Retool
- Consolidate
- Retain → Upgrade
- Rehost
- Wrap
- Convert
- Refactor
- Rewrite
- Replace → Purchase
- Lease

**Determine Disposition**



**Do Macro Planning / Roadmapping**

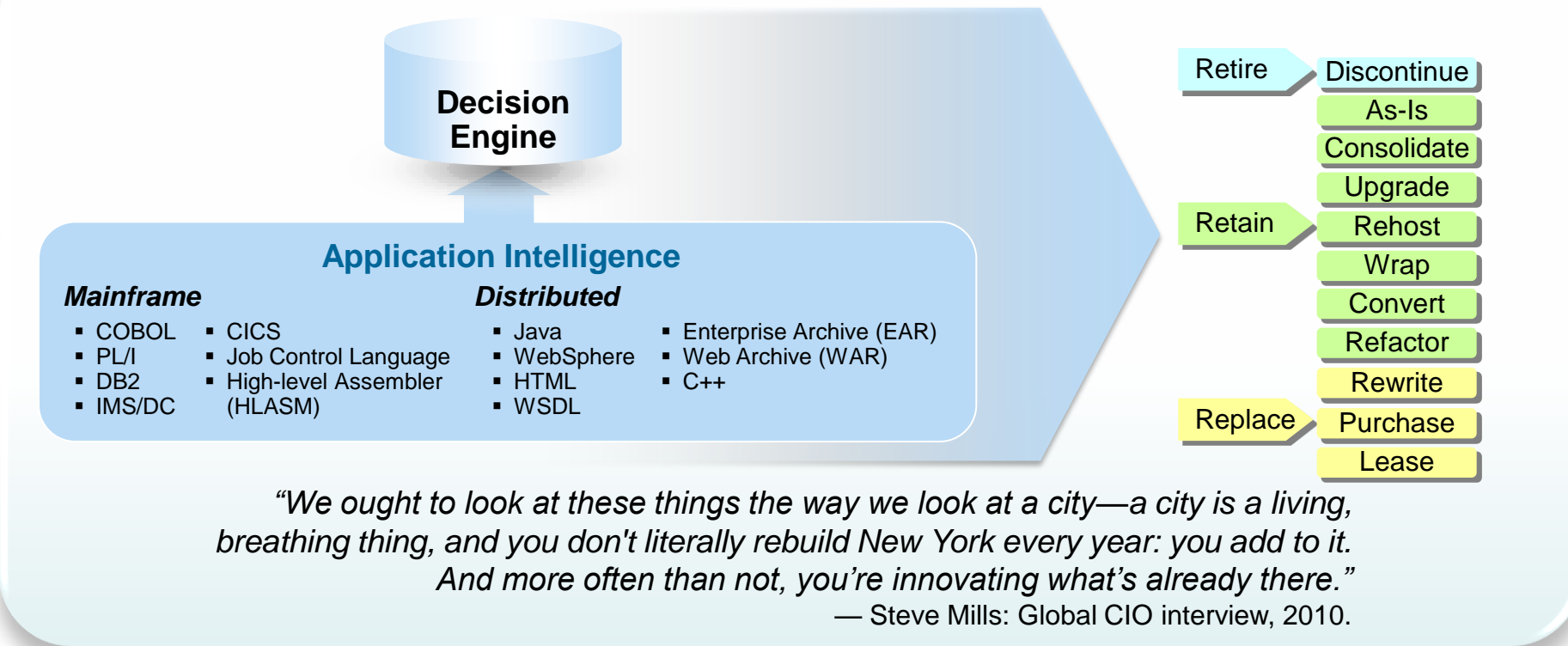
*“Making IT resource consumption transparent and understandable to business leaders enables healthy business discussions around how to shift resources to where they will do the most good for the whole business.”*

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



# Rational Asset Analyzer v6

Determine modernization strategy through application intelligence



## Delivering...

- Insight into relationships within and among mainframe and composite applications
- Analytics showcasing impact of potential changes, reducing risk and improving predictability in change efforts



## Enterprises want to...

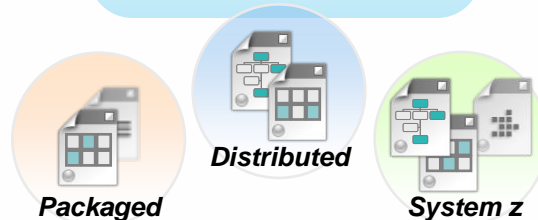
*Have a nimble IT organization that leverages services to respond more quickly to the needs of the business*



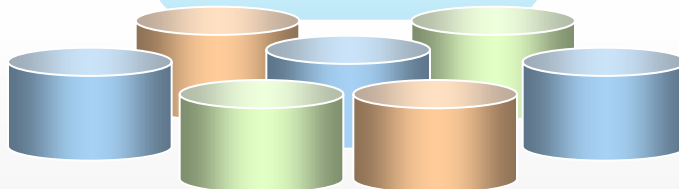
*I need a way to reuse our existing assets from all our disparate environments*



### Business Logic



### Databases



### Screen Logic



## But...

*They have application architectures that were built incrementally over the last 20-30 years and are no longer flexible or agile*

# Solution: Modernize, extend and reuse existing assets

*5x lower costs and reduced risk through SOA*



- ✓ Speed development and delivery of applications
- ✓ Reduce risk and ensuring high quality

*“The Service Flow modeling in Rational Developer for System z enabled us to convert our CICS screens to the web without any reprogramming. This reduced our risk, lowered cost, saved months of work and allowed us to complete the project on time.”*

— Paul Williams, Director of IT, Trustmark National Bank



# Solution: Modernize, extend and reuse existing assets

*5x lower costs and reduced risk through SOA*



- Rational Application Developer
- Rational Developer for System z
- Rational Developer for zEnterprise
- Rational Developer for Power Systems
- Rational Business Developer
- Host Access Transformation Services

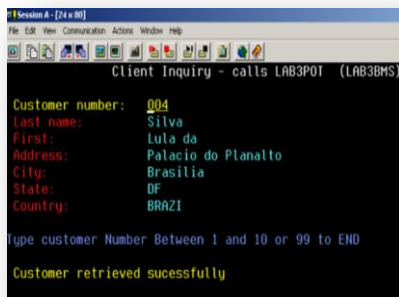
*“The Service Flow modeling in Rational Developer for System z enabled us to convert our CICS screens to the web without any reprogramming. This reduced our risk, lowered cost, saved months of work and allowed us to complete the project on time.”*



— Paul Williams, Director of IT, Trustmark National Bank

## 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



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

*“IBM Rational HATS enables us to create a one-stop shop online where our dealers can find anything they need, print any reports they need, and submit warranty registrations much more quickly and easily than they could before.”*

— Sonja Muhm, Programmer Analyst, Winnebago Industries



## 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 zEnterprise
- Rational Developer for Power Systems
- Rational Business Developer
- Rational Application Developer

*“IBM Rational HATS enables us to create a one-stop shop online where our dealers can find anything they need, print any reports they need, and submit warranty registrations much more quickly and easily than they could before.”*

— Sonja Muhm, Programmer Analyst, Winnebago Industries



## Enterprises want to...

*Reduce tool support costs and move to modern platforms, languages, and tools for their multiplatform application development*



**Software AG Natural/Adabas**  
**CA Ideal/Datacom and CoolGen**  
**RPG and COBOL**  
**Green screen text UIs**



System z – CICS
System z – Linux <sup>1</sup>
System z – Batch
System z – WAS <sup>2</sup>
System z – VSE
IBM i - WAS
IBM i - Native
AIX
HP - UX
Solaris
Linux
Windows

<sup>1</sup> Eligible to run on IFL

<sup>2</sup> Eligible to run on zIIP and zAAP

## But...

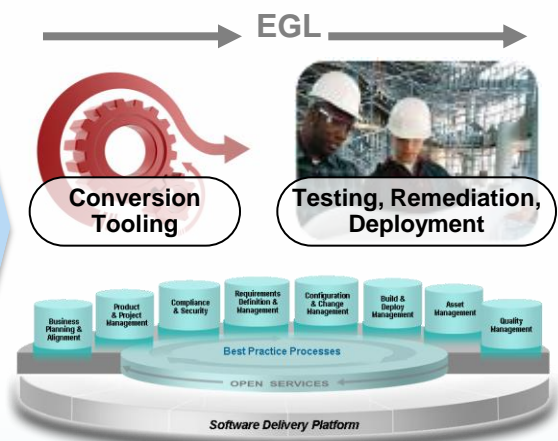
*They are using older languages and/or are stuck on poorly supported, expensive, legacy development platforms*

# Solution: Application transformation tools and services

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



**Software AG Natural/Adabas**  
**CA Ideal/Datacom and CoolGen**  
**RPG and COBOL**  
**Green screen text UIs**



- System z – CICS
- System z – Linux<sup>1</sup>
- System z – Batch
- System z – WAS<sup>2</sup>
- System z – VSE
- IBM i - WAS
- IBM i - Native
- AIX
- HP - UX
- Solaris
- Linux
- Windows

- ✓ Greatly reduced development platform support costs
- ✓ More flexible, integrated development environment

<sup>1</sup> Eligible to run on IFL  
<sup>2</sup> Eligible to run on zIIP and zAAP

Operating costs were reduced 55 percent by migrating from the VAGen legacy application to Java. *“The migration to EGL combines the best of both worlds: The stability of IBM System z and the flexibility of Java.”* Massive cost savings are also included!

— Frank Landewee, project manager, Atos Origin GmbH, Essen



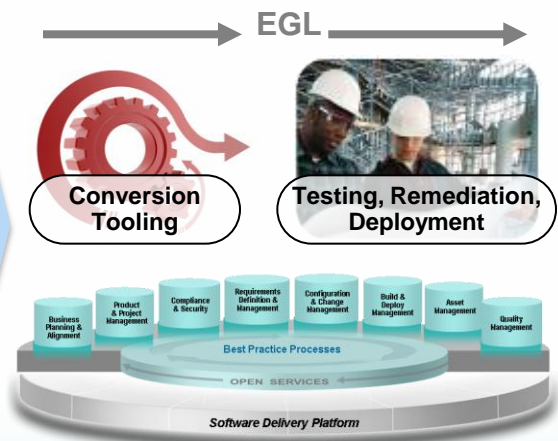


# Solution: Application transformation tools and services

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



**Software AG Natural/Adabas**  
**CA Ideal/Datacom and CoolGen**  
**RPG and COBOL**  
**Green screen text UIs**



- System z – CICS
- System z – Linux<sup>1</sup>
- System z – Batch
- System z – WAS<sup>2</sup>
- System z – VSE
- IBM i - WAS
- IBM i - Native
- AIX
- HP - UX
- Solaris
- Linux
- Windows

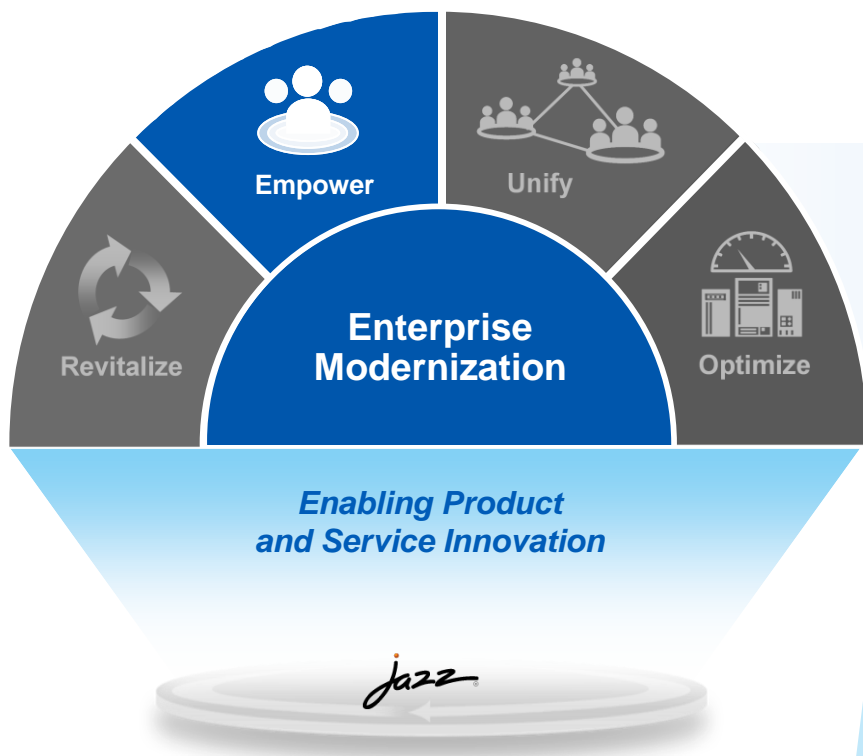
- Rational Migration Extension for Natural
- Rational Migration Extension for CA
- Rational Migration Extension for Rich UI
- Rational Migration Extension for IBM i

Operating costs were reduced 55 percent by migrating from the VAGen legacy application to Java. *“The migration to EGL combines the best of both worlds: The stability of IBM System z and the flexibility of Java.”* Massive cost savings are also included!  
 — Frank Landewee, project manager, Atos Origin GmbH, Essen



# Boost productivity and accelerate innovation with modern skills

- **Modern IDEs for all platforms and languages**
- **Modern business languages**
- Enterprise training programs, communities and resources



**20 to 35%**  
cost reduction in managing  
and maintaining existing  
application portfolio

**30 to 50%**  
cost reduction in  
renewal/re-architecture

*Increase  
Application Flexibility*

**22-37%**  
improvement in  
developer productivity  
with modern tooling

**50-80%**  
reduction in host  
CPU usage

*Boost Individual  
Productivity*

*Maximize Team  
Productivity*

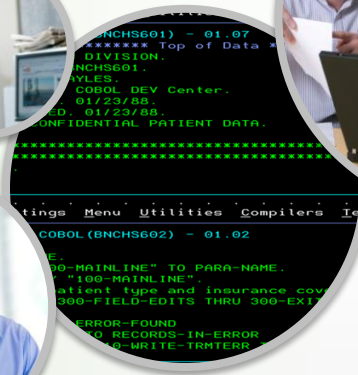
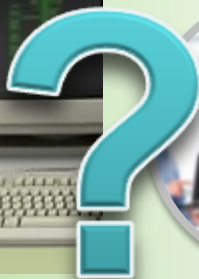
**15 to 20%**  
decrease in development cycle  
time through common team  
infrastructure for collaborative  
application lifecycle  
management

*Optimize System  
Utilization*

**20 to 60%**  
improvement  
in application performance  
with latest compilers  
for IBM Systems

## Enterprises want to...

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

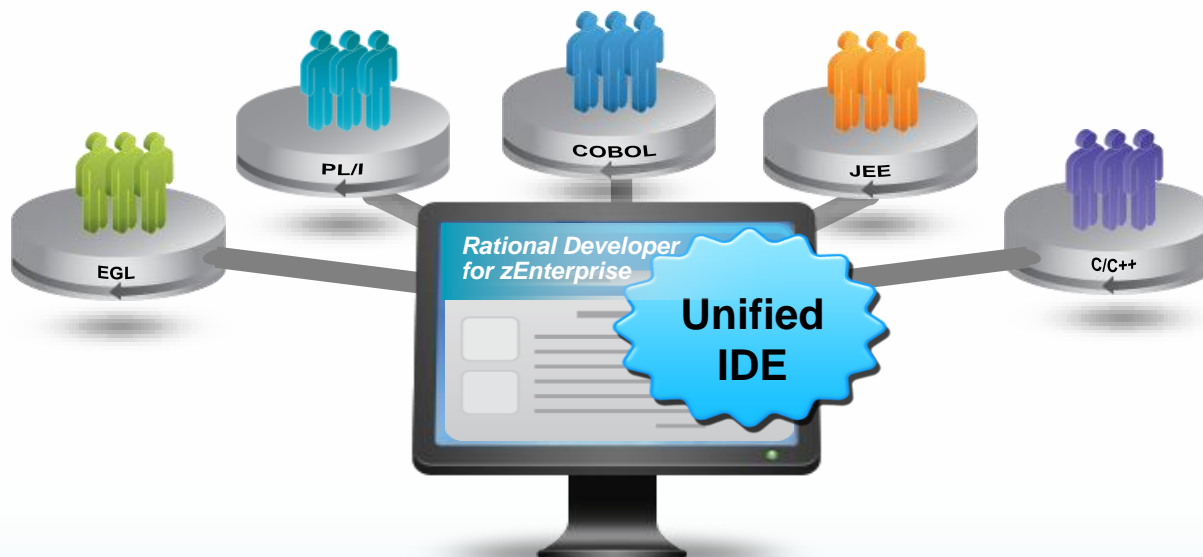


## But...

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

## Solution: Comprehensive, multiplatform IDEs

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



- ✓ Modern tools with which to attract new talent
- ✓ 22-37% improvement in developer productivity<sup>1</sup>
- ✓ 50-80%<sup>1</sup> reduction in host CPU usage

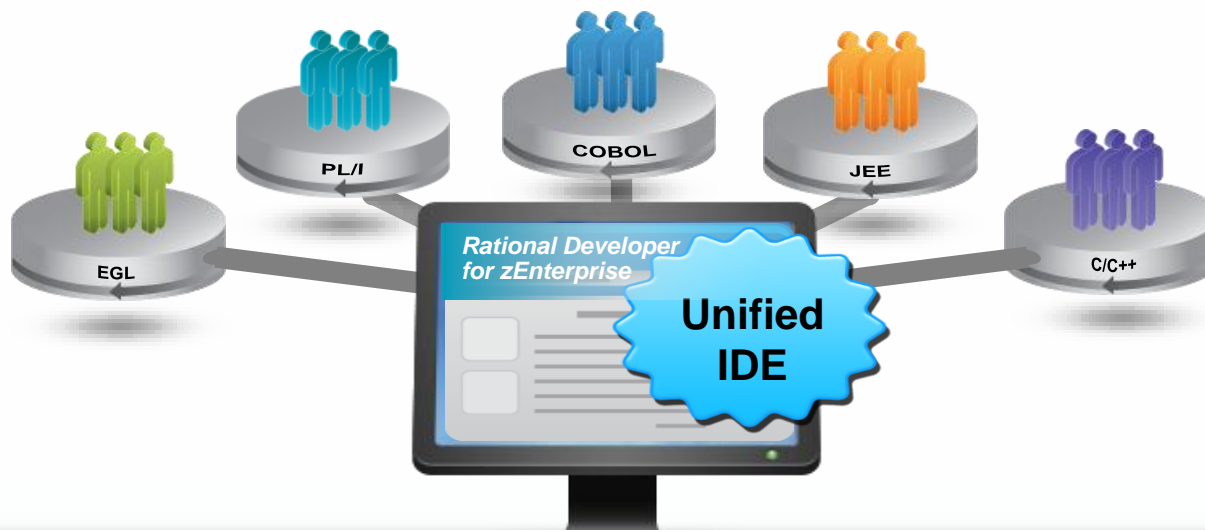
*“Our team now develops, debugs and tests with more confidence, and it is clear that more and more people here will be using Rational Developer for System z.”*

— Almut Geiger, product specialist at HVB IS



## Solution: Comprehensive, multiplatform IDEs

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



- Rational Developer for System z
- Rational Developer for zEnterprise
- Rational Developer for Power Systems
- Rational Application Developer
- Rational Business Developer
- Rational Programming Patterns for System z

*“Our team now develops, debugs and tests with more confidence, and it is clear that more and more people here will be using Rational Developer for System z.”*

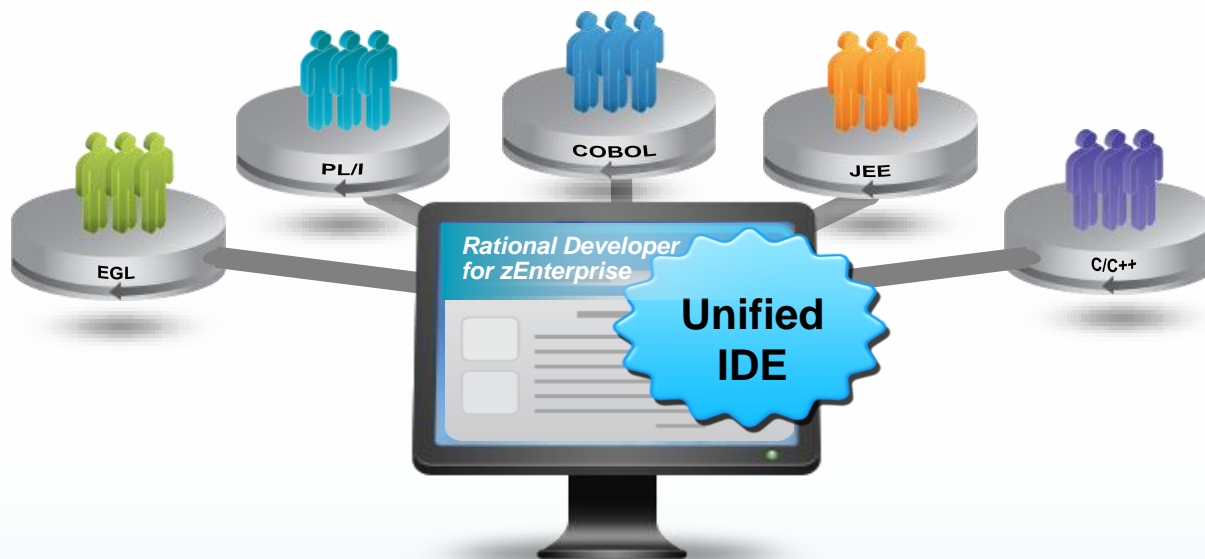
— Almut Geiger, product specialist at HVB IS





# Rational Developer for zEnterprise v8.5

*Gain productivity and efficiency through a multiplatform IDE*



- ✓ Lower your enterprise development and maintenance costs
- ✓ Enhance your developer productivity and flexibility

## Delivering...

- Cross-platform debugging including z/OS, Linux for System z, Power Systems, WAS, etc.
- Multiplatform development across Java, COBOL, PL/I, HLASM, C/C++, EGL, etc.
- Increased usability for typical development operations cuts development time

# Rational Developer for System z v8.5

*Improve mainframe skills and attract new development and support staff*



- ✓ Lower development cost
- ✓ Faster time-to-market
- ✓ Enhanced productivity
- ✓ Increased application quality

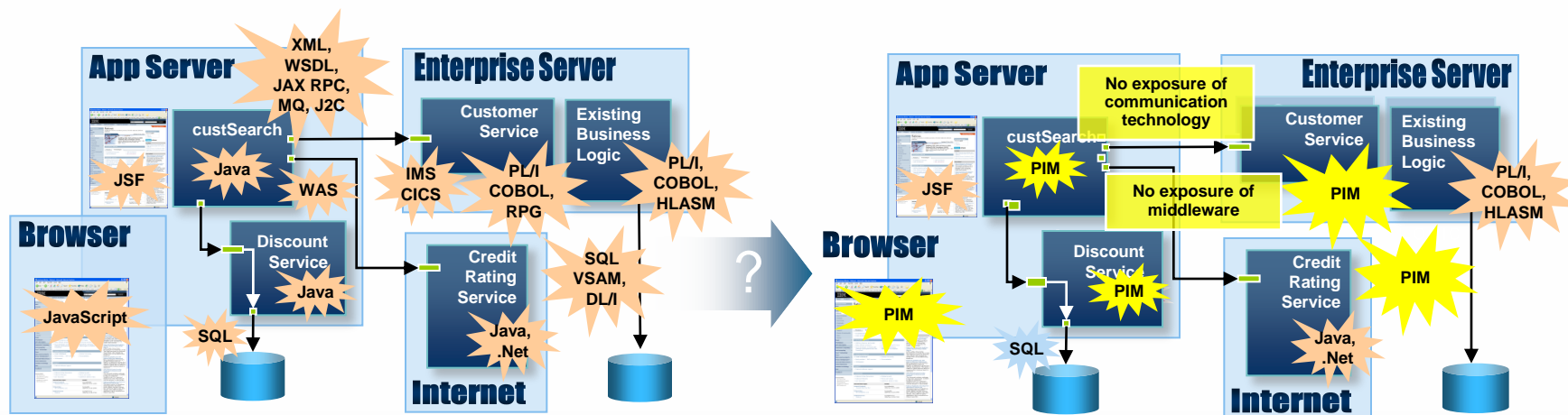


## Delivering...

- Enhanced productivity for code restructuring, refactoring and batch modernization
- Faster, broader, real-time source code validation in real-time
- Centralized IDE customization to reduce administration costs and ensure consistency

# Enterprises want to...

*Build modern, multiplatform applications with existing and new staff*



**Programmers must build or develop all technical interfaces**

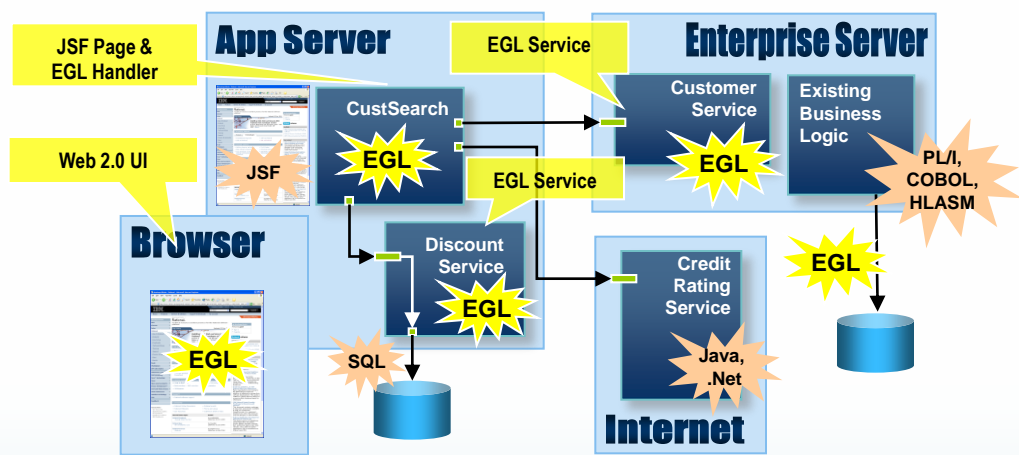
**Platform Independent Model - abstractions shield programmers from the technical interfaces**

# 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 multiplatform enterprise applications in EGL with its middleware abstractions, high productivity language, modern IDE, and extensible architecture*



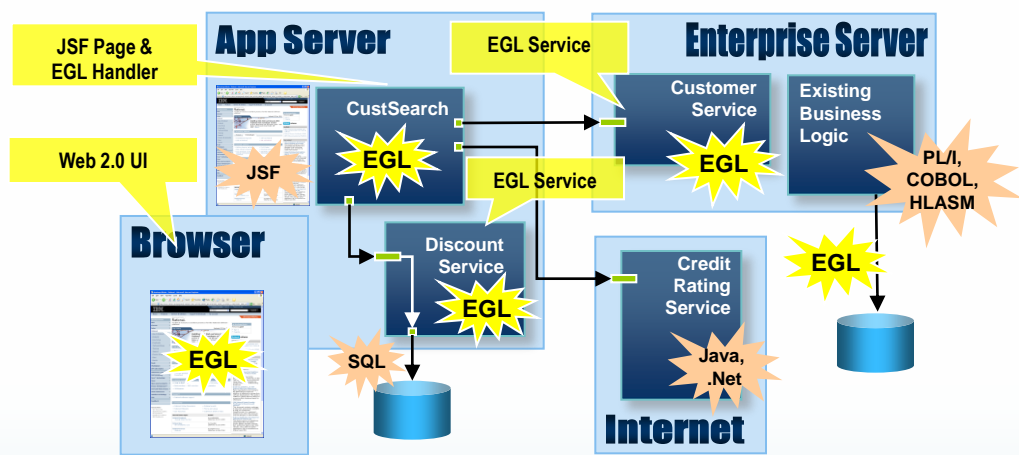
- ✓ Increased productivity, platform portability, and skills flexibility
- ✓ For existing and new developers when building all types of modern enterprise applications

*“... We want to avoid the ‘skill silos,’ what we really need is a large group of general developers who should not worry about target platforms and focus on developing business components, and only a small number of technology specialists, so that we can swiftly allocate general developers to upcoming business needs... EGL is helping us achieve this goal...”*  
 — Lieven Gouwy, IT Architect, KBC, Redmonk Podcast



## Solution: EGL – An open, modern business language

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



- Rational Business Developer
- Rational Developer for System z with EGL
- Rational Developer for zEnterprise
- Rational Developer for Power Systems

*“... We want to avoid the ‘skill silos,’ what we really need is a large group of general developers who should not worry about target platforms and focus on developing business components, and only a small number of technology specialists, so that we can swiftly allocate general developers to upcoming business needs...”*

*EGL is helping us achieve this goal...”*

— Lieven Gouwy, IT Architect, KBC, Redmonk Podcast





# Rational Business Developer v8.5

*Multiplatform business language for modern application development*



- ✓ Faster time to market
- ✓ Improved productivity
- ✓ Leverage traditional programming skills
- ✓ Ultimate platform flexibility

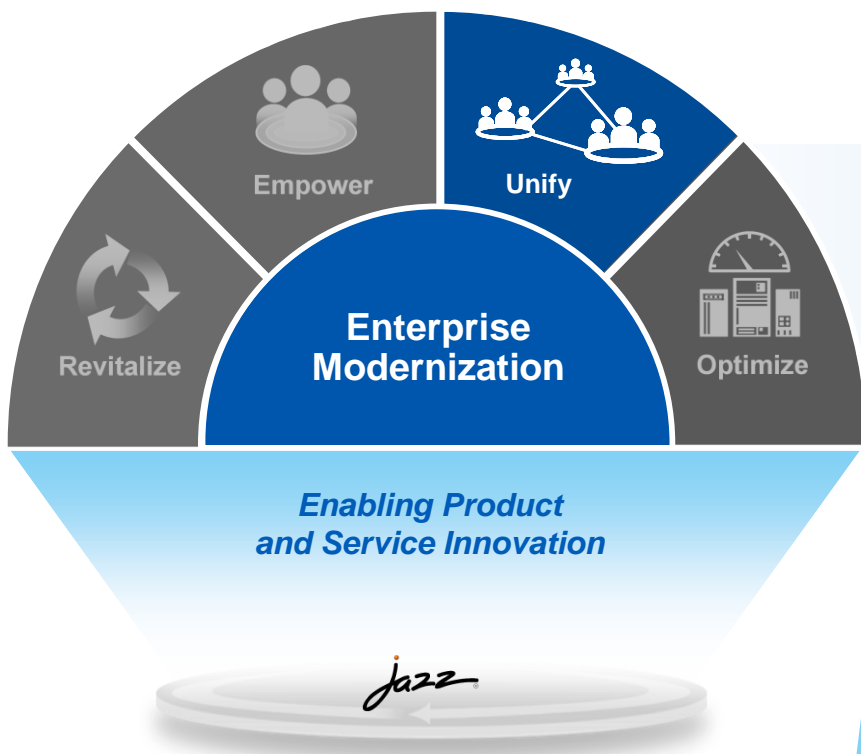


## Delivering...

- New support for creating rich web UI business applications using open technologies (Dojo)
- Improved visual editing, debug and integrated test capabilities
- Open Source EGL Development Tools Project live at <http://www.eclipse.org/edt/>

# Maximize organizational agility by unifying development teams

- Consolidated team infrastructure
- Agile team infrastructure



**20 to 35%**  
cost reduction in managing  
and maintaining existing  
application portfolio

**30 to 50%**  
cost reduction in  
renewal/re-architecture

*Increase  
Application Flexibility*

**22-37%**  
improvement in  
developer productivity  
with modern tooling

**50-80%**  
reduction in host  
CPU usage

*Boost Individual  
Productivity*

**Maximize Team  
Productivity**

**15 to 20%**  
decrease in development cycle  
time through common team  
infrastructure for collaborative  
application lifecycle  
management

**Optimize System  
Utilization**

**20 to 60%**  
improvement  
in application performance  
with latest compilers  
for IBM Systems

## Enterprises want to...

*Deliver to market faster and cheaper by exploiting agile and test-driven development practices, effectively tracking end-to-end requirements, reducing team infrastructure costs and increasing cross-geo collaboration and governance*



### Project/Planning

- Business Drivers
- Iterations
- Contract
- Risk Assess
- User Involvement

### Requirements

- Use Cases
- Contract
- Risk Assess
- Threat Model
- Test Requirements

### Development

- Test Driven Development
- Build Management
- Static Analysis
- Source Management
- Pair Programming/Code Review

### Testing

- Scenario-Driven Automation
- Fill Cracks
- User Involvement
- Contract Validation

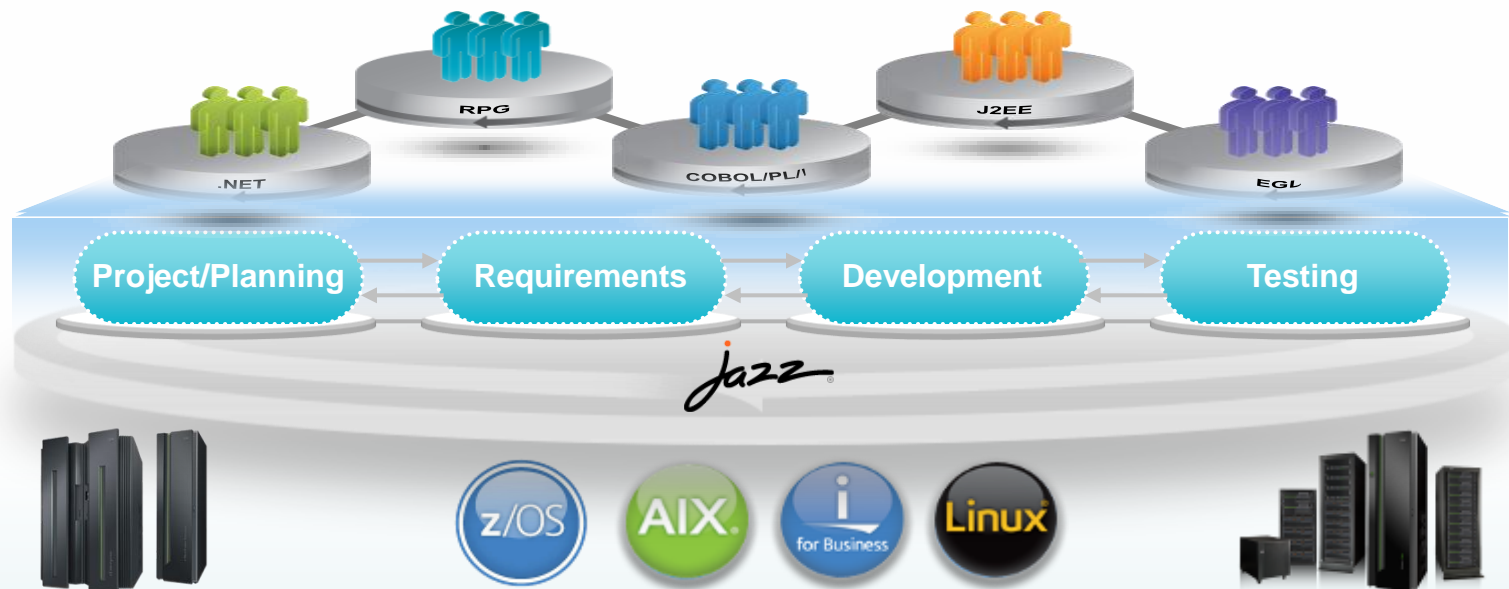
**Application Lifecycle Management**

## But...

*They have “islands” of development, each with different tools and processes that do not support real-time collaboration, integration, comprehensive oversight, or lifecycle traceability, all of which results in reduced quality and slower time to market*

## 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*



✓ Decreases development time by 15 to 20 percent

*“Building an agile development team requires a multiplatform approach, and Sodifrance uses Rational Developer for System z and Rational Team Concert for System z to help application teams synchronize their efforts and improve collaboration.*

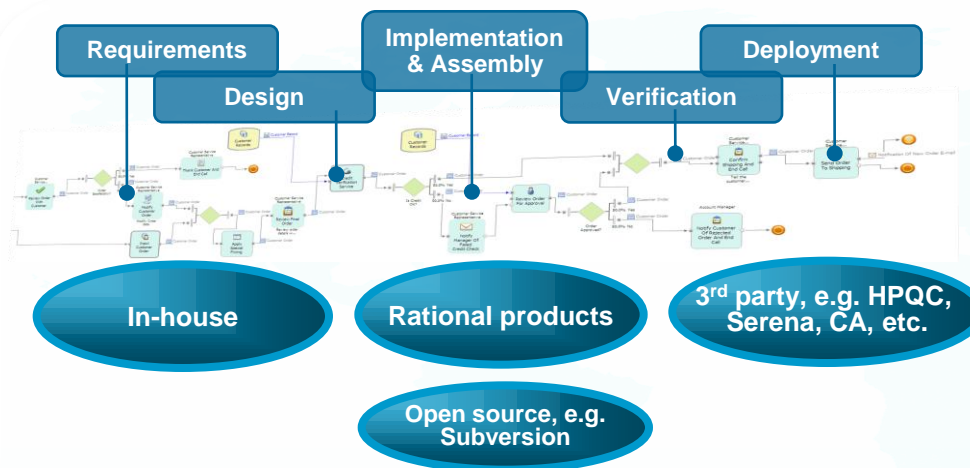
*Rational on System z offers a powerful and valuable combination for any company that wants to boost its development team’s productivity.”*

— Hugh Smith, Project Manager, Sodifrance



# 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*



## Delivering...

- Single integrated platform for managing delivery of multiplatform projects
- New support for advanced dependency analysis and build capabilities for z/OS
- New integrated ISPF client for z/OS source edit, compile and debug

**All your tools tightly linked and working for you on one platform:** *jazz*

- Rational Team Concert **NEW!**
- Rational Requirements Composer
- Rational Software Architect Design Manager
- Rational Quality Manager
- Rational Build Forge

*“Building an agile development team requires a multiplatform approach, and Sodifrance uses Rational Developer for System z and Rational Team Concert for System z to help application teams synchronize their efforts and improve collaboration.*

*Rational on System z offers a powerful and valuable combination for any company that wants to boost its development team’s productivity.”*

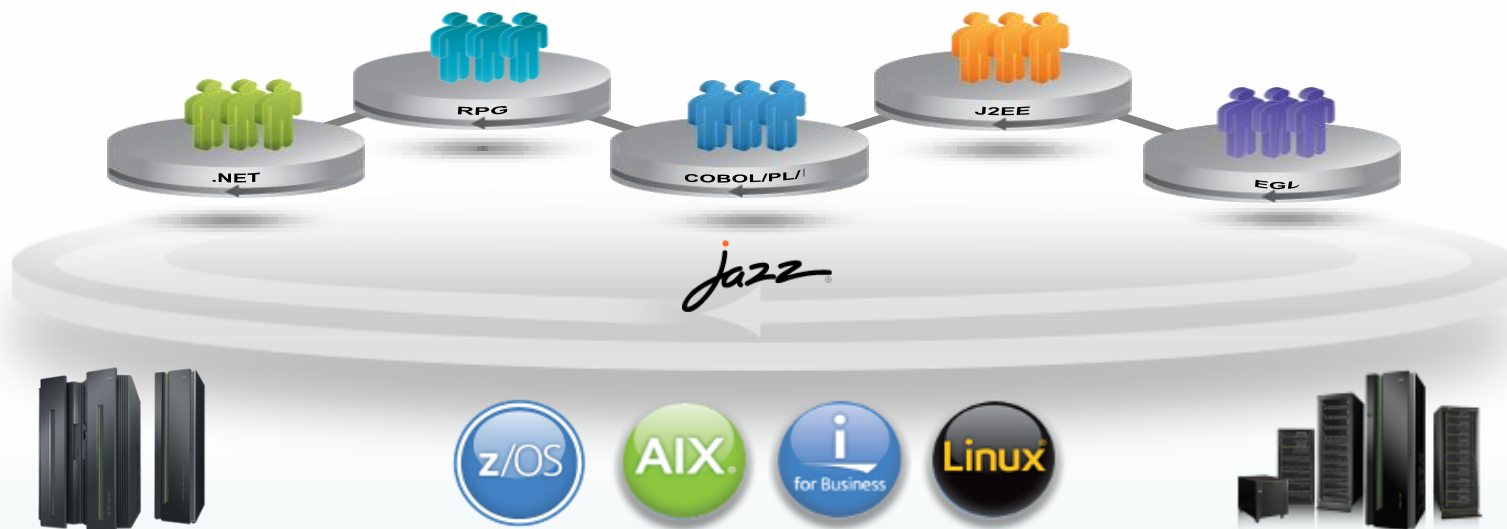
— Hugh Smith, Project Manager, Sodifrance





# Rational Team Concert v4.0

*Unify dispersed teams, gain efficiency and productivity*



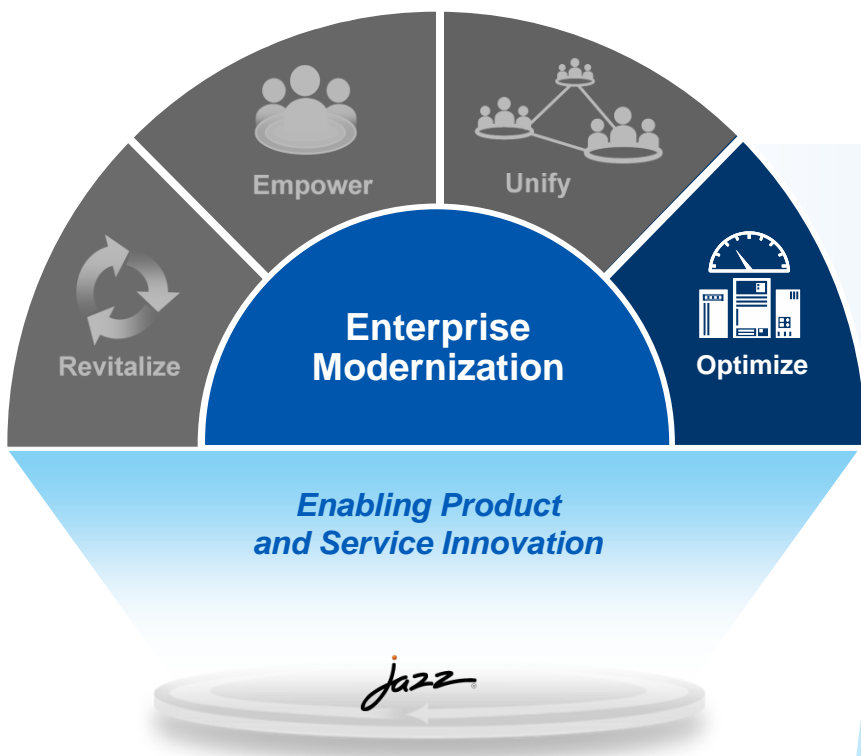
- ✓ Common team infrastructure for collaborative software delivery
- ✓ Streamline development by coexisting or replacing Endeavor or ChangeMan

## Delivering...

- Single integrated platform for managing delivery of multiplatform projects
- New support for advanced dependency analysis and build capabilities for z/OS
- New integrated ISPF client for z/OS source edit, compile and debug

# Improve application performance by fully exploiting latest hardware

- Free up production MIPS
- Exploit new advanced optimization technology in C/C++, Java, COBOL, PL/I, Fortran and RPG compilers



**20 to 35%**  
cost reduction in managing  
and maintaining existing  
application portfolio

**30 to 50%**  
cost reduction in  
renewal/re-architecture

*Increase  
Application Flexibility*

**22-37%**  
improvement in  
developer productivity  
with modern tooling

**50-80%**  
reduction in host  
CPU usage

*Boost Individual  
Productivity*

*Maximize Team  
Productivity*

**15 to 20%**  
decrease in development cycle  
time through common team  
infrastructure for collaborative  
application lifecycle  
management

*Optimize System  
Utilization*

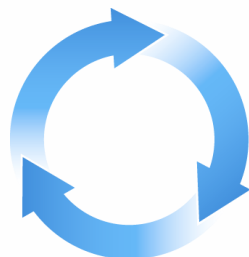
**20 to 60%**  
improvement  
in application performance  
with latest compilers  
for IBM Systems

## Enterprises want to...

*Reduce application development MIPs usage and increase development autonomy*



### Application Development



### Operations



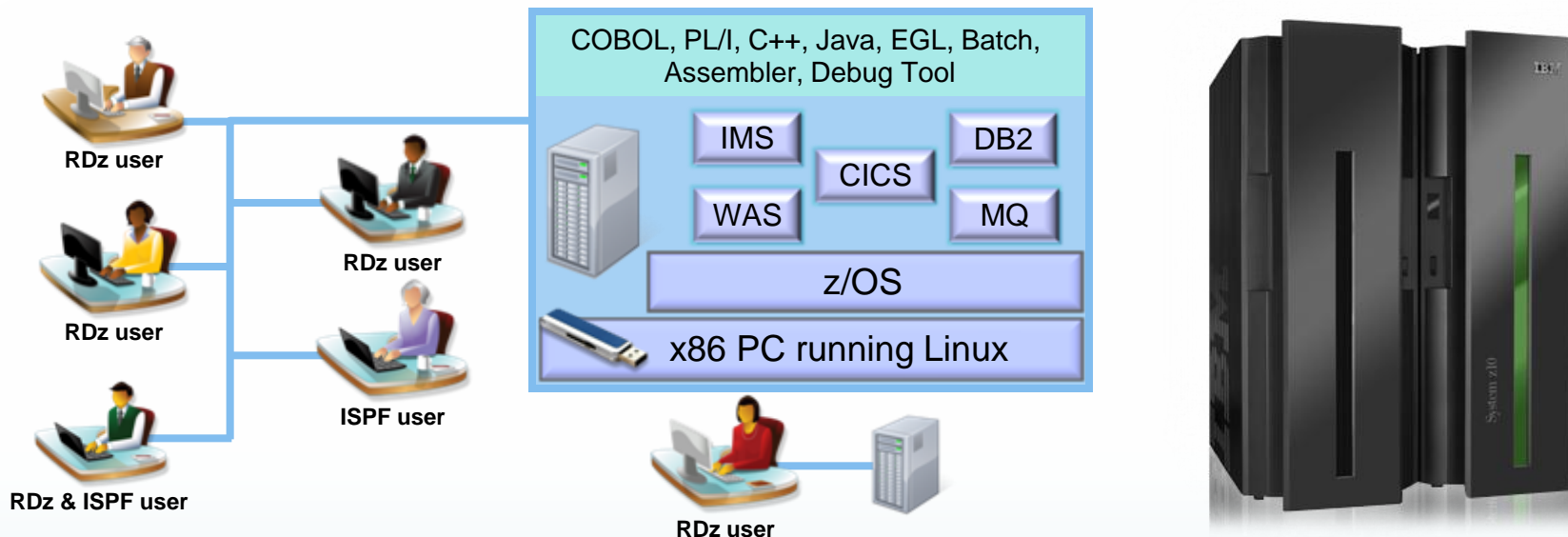
### Cost



## But...

*Testing requires System z MIPs and negotiation for time with the production team*

# Solution: Test mainframe applications on x86 Linux server



- ✓ Liberate developers to rapidly prototype new applications
- ✓ Free up mainframe development MIPS for production capacity
- ✓ Reduce costs by improving new and existing developer productivity

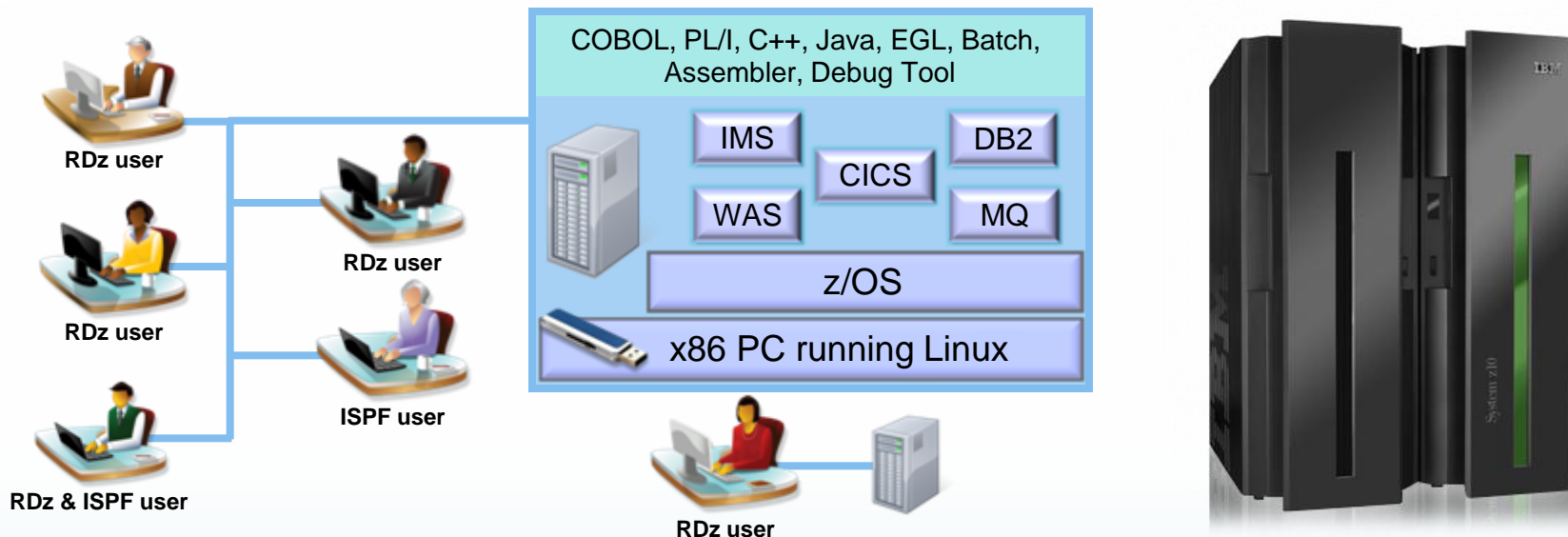
*“RDz Unit Test gives our developers the ability to have their own z/OS environment to prototype, compile, debug and test while our customers make the necessary changes to their test, QA and production environments... This shortens our time to delivery, shortens our project cycles, makes our customers happy and increases our margins...”*

*At the price... it's a no brainer.”*

— Eric Simone, CEO, ClearBlade



# Solution: Test mainframe applications on x86 Linux server



- Rational Development and Test Environment for System z

*“RDz Unit Test gives our developers the ability to have their own z/OS environment to prototype, compile, debug and test while our customers make the necessary changes to their test, QA and production environments... This shortens our time to delivery, shortens our project cycles, makes our customers happy and increases our margins...”*

*At the price... it's a no brainer.”*

— Eric Simone, CEO, ClearBlade



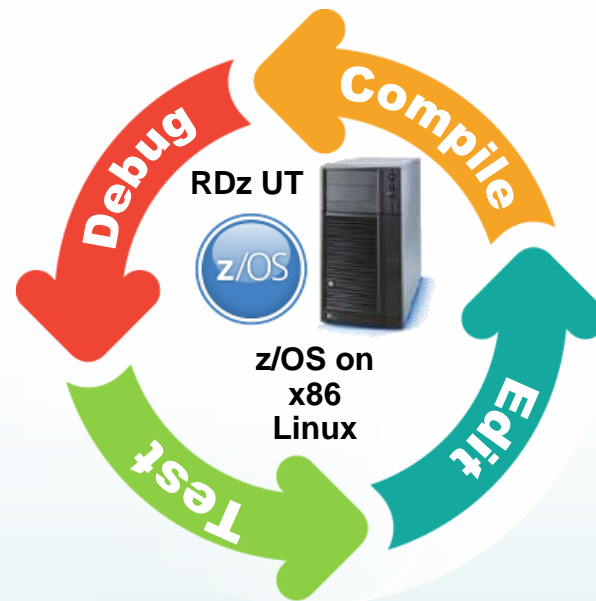


# Rational Development and Test Environment for System z v8.5

*Increase flexibility, portability and free-up production capacity*



- ✓ Easy access to z/OS
- ✓ Free up production MIPS
- ✓ Enable quick, agile approach
- ✓ Portable z/OS development



## Delivering...

- Updated Middleware, now available for use in Education
- Develop and test z/OS applications on a dedicated x86 Linux machine
- Facilitates quick system changes to test configurations during development

## Enterprises want to...

*Maximize application performance on existing hardware to reduce capital expenses*

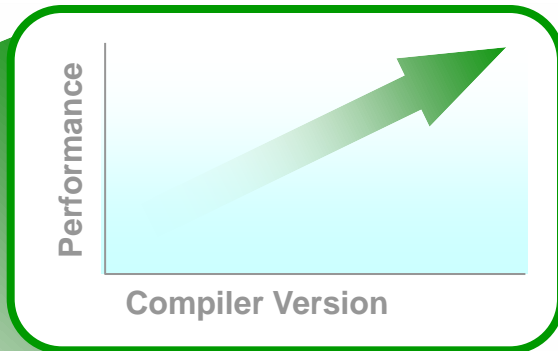


## But...

*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



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

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

- z/OS XL C/C++ v1.12 on zEnterprise\* delivers up to 60% performance improvement
- Enterprise PL/I V4.1 on zEnterprise\* delivers up to 27% performance improvement
- XL C/C++ v11, XL Fortran v13 delivers *industry leading* SPEC® CPU2006 performance\*

✓ Lowers capital outlays by increasing capacity and improving performance of application suite

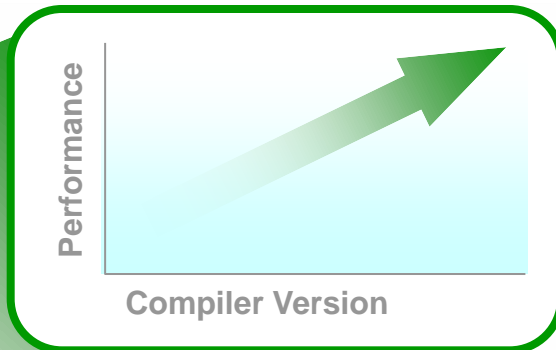
*“... the Metal C optimization levels are just incredible. We’re really impressed, there is no way that any of us assembler programmers can write code as efficient and keep it readable and do it in a reasonable amount of time..”*

— Gregg Willhoit is the Chief Architect at DataDirect Technologies

**PROGRESS**  
SOFTWARE

## Solution: Advanced compiler technology

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



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

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

- z/OS XL C/C++ v1.12 on zEnterprise\* delivers up to 60% performance improvement
- Enterprise PL/I V4.1 on zEnterprise\* delivers up to 27% performance improvement
- XL C/C++ v11, XL Fortran v13 delivers *industry leading* SPEC® CPU2006 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

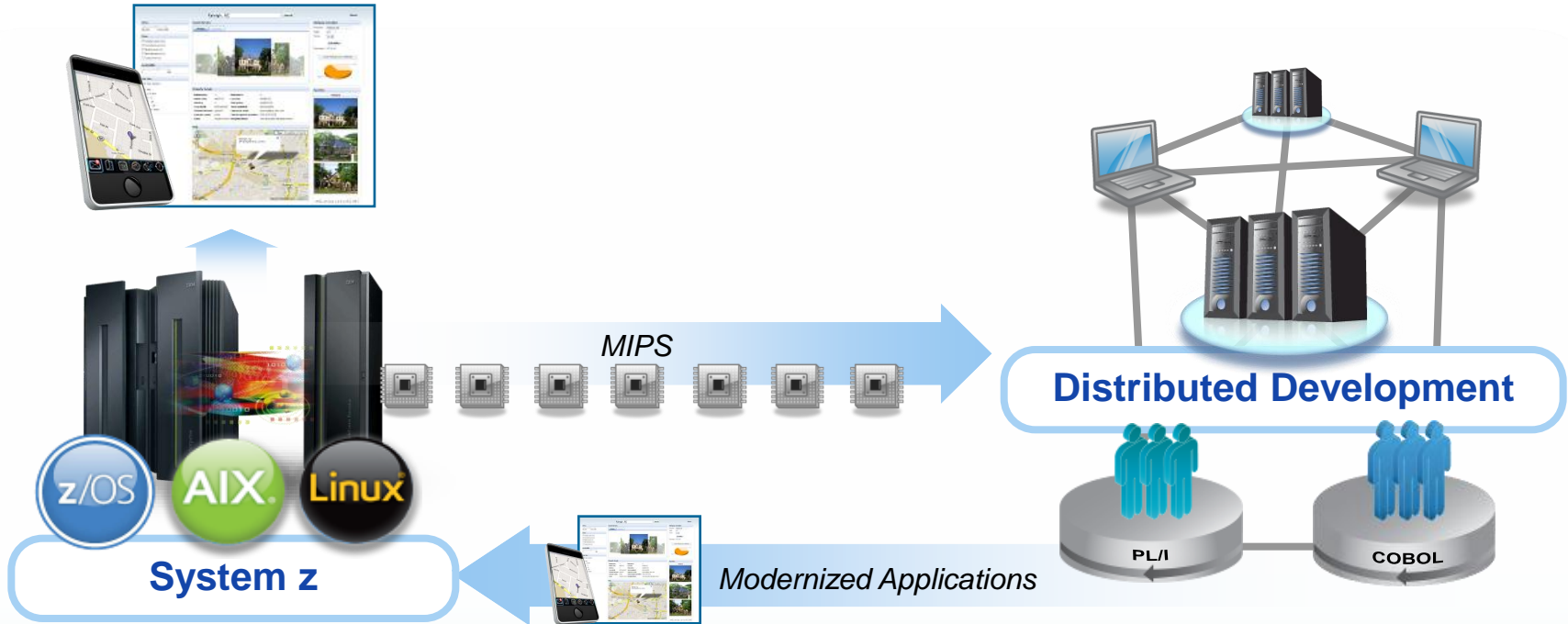
- IBM WebSphere® Development Studio (IBM compilers)

*“... the Metal C optimization levels are just incredible. We’re really impressed, there is no way that any of us assembler programmers can write code as efficient and keep it readable and do it in a reasonable amount of time..”*

— Gregg Willhoit is the Chief Architect at DataDirect Technologies

**PROGRESS**  
SOFTWARE

# Breaking down the barriers



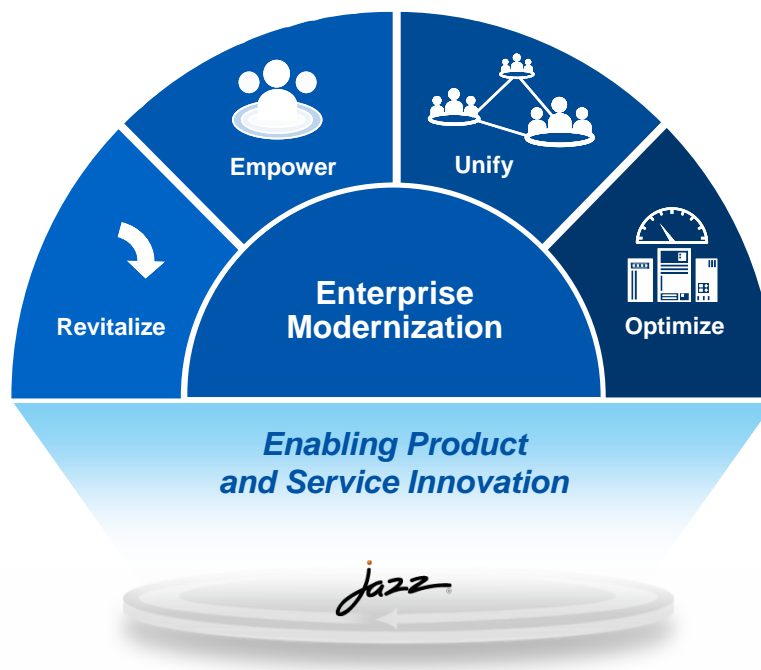
- ✓ Increase productivity with modern tools
- ✓ Unify teams regardless of technology or deployment platform
- ✓ Free up MIPS for production use
- ✓ Maximize your flexibility across the lifecycle while decreasing cost and risk



## Getting started

*Next steps to modernize your enterprise applications*

[www.ibm.com/rational/modernization](http://www.ibm.com/rational/modernization)



- [Try latest System z software for free](#)
- [Sign up for free web-based training](#)
- [Join IBM Rational Cafe Communities](#)
- [Get prescriptive service solutions](#)
- [Success stories](#)
- [Latest news on System z twitter](#)
- [Latest customer videos](#)
- [Latest skills: System z job board](#)



[www.ibm/software/rational](http://www.ibm/software/rational)

© Copyright IBM Corporation 2011. All rights reserved. The information contained in these materials is provided for informational purposes only, and is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, these materials. Nothing contained in these materials is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software. References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. IBM, the IBM logo, Rational, the Rational logo, Telelogic, the Telelogic logo, and other IBM products and services are trademarks of the International Business Machines Corporation, in the United States, other countries or both. Other company, product, or service names may be trademarks or service marks of others.

## Customers are adopting IBM solutions for enterprise modernization

### Improved productivity by 15%

**UniCredit modernizes mainframe development and testing with IBM Rational Developer for System z software**

More than 200 developers at HVB IS began using IBM Rational Developer for System z software to develop mainframe applications for IBM System z servers.

### Increased developer productivity by 15%

**Wipro and its customer chose IBM Rational Business Developer and EGL technology to transform the application**

The new system accesses the customer's existing IBM DB2 information management system running on an IBM System i platform, and now includes IBM WebSphere Application Server software to support a modern, three-tier architecture.

### Reduced development time by 15-20%

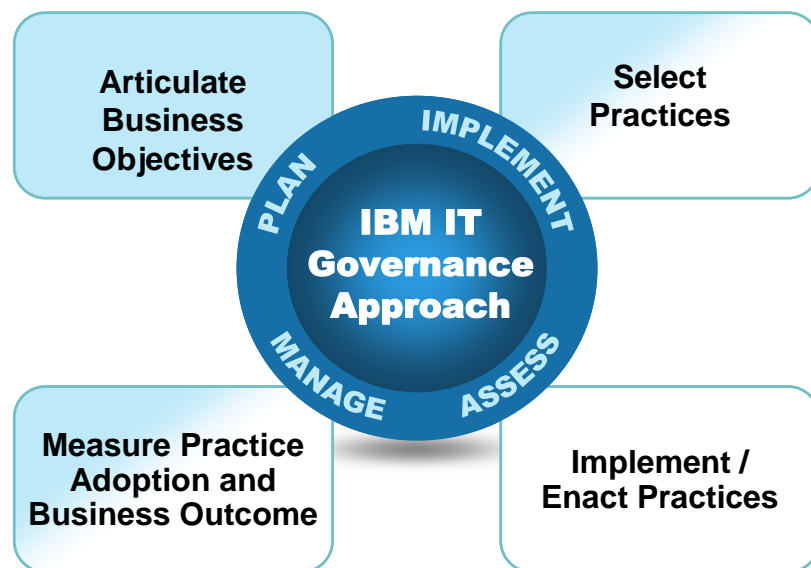
**SoforTe improves productivity with IBM Rational software on System z and Rational Team Concert for System z**

SoforTe chose to implement RDz and RTCz on an IBM System z10 Business Class server running z/OS and clients running Microsoft® Windows® clients to provide a modern powerful development environment for its customers.

## Leverage IBM Services to get started today

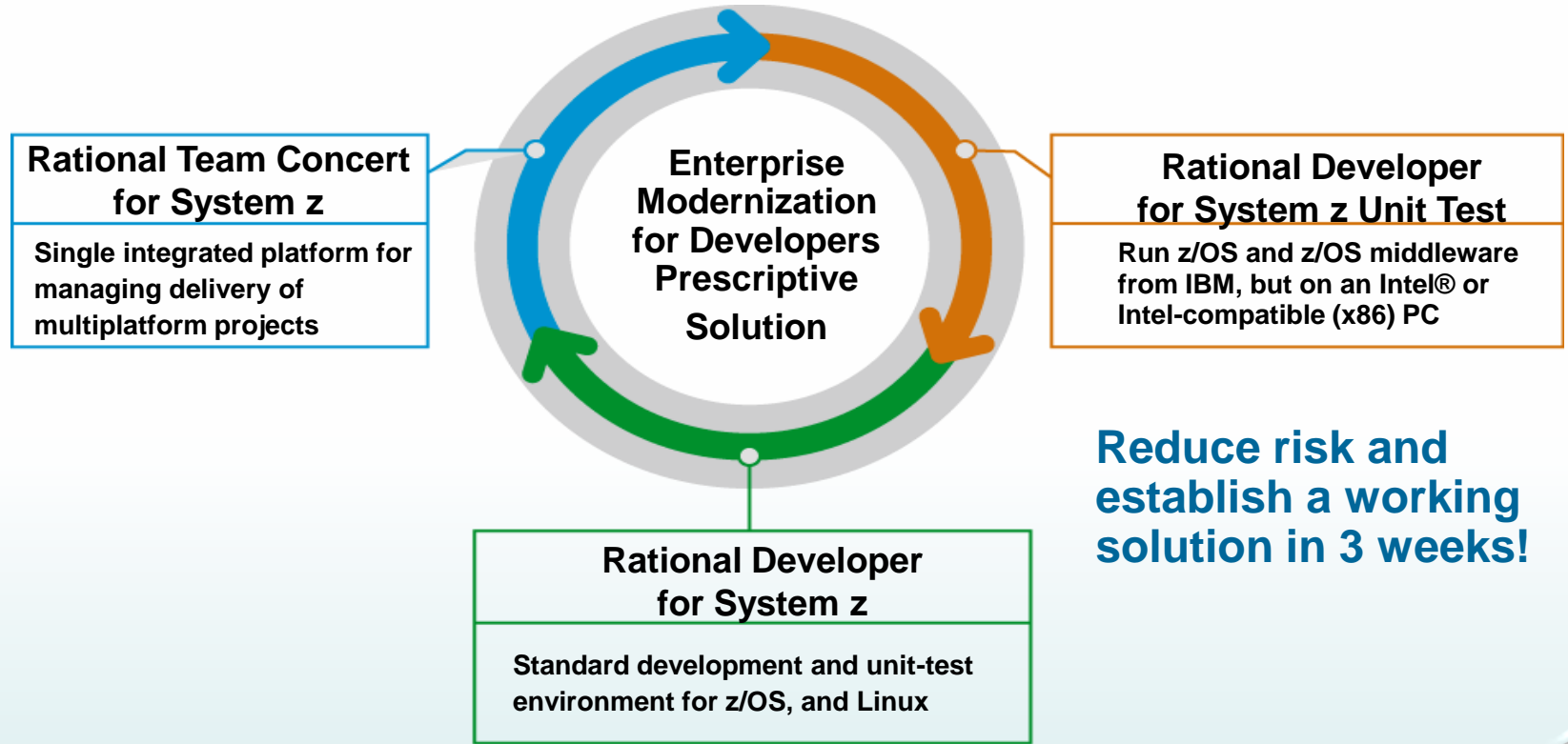
- **Executive Services**
  - Schedule an Enterprise Modernization Executive Planning Session to define modernization strategies
  
- **Application Modernization Services**
  - Application Assessments to:
    - Develop Modernization roadmaps to resolve specific business issues
    - Improve Application Quality and 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



# Enterprise Modernization for Developers Prescriptive Solution Service Offering

*Modern, integrated, and collaborative application lifecycle management infrastructure*



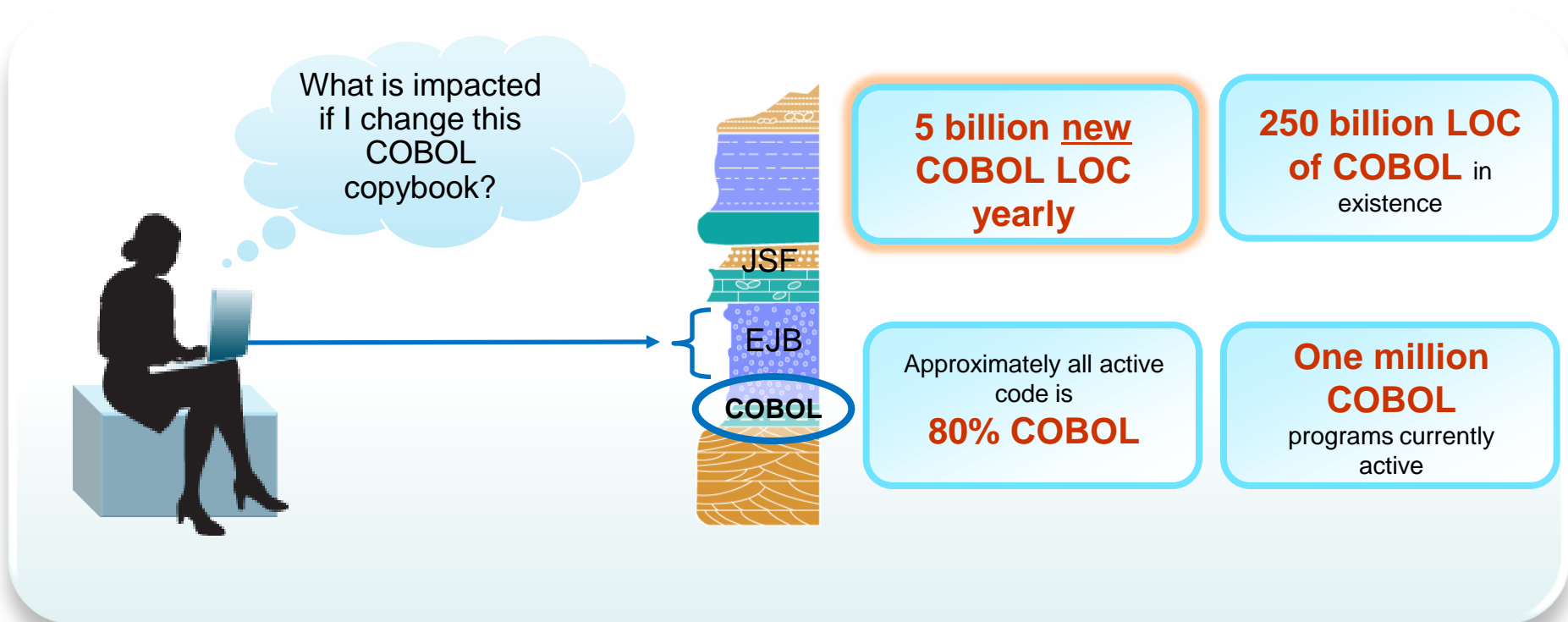
## Delivering...

- Establish a modern, high-productivity development platform
- Simplify initial install and configuration via specific project plan and check lists
- Common use case scenarios and integrations
- Implements a field-tested usage model, targeting a small, focused team of developers to ensure successful deployment



## Enterprises want to...

*Understand the impact and cost of changes to their IT systems, harvest and manage business rules from existing applications, analyze these rules and minimize rework and points of failure*



## But...

*They have no business intelligence inventory of their application assets, relying instead on manual, error-prone processes and incomplete knowledge. They must compensate with more extensive planning and extra testing and by manually 'searching' for code affected by business decisions.*

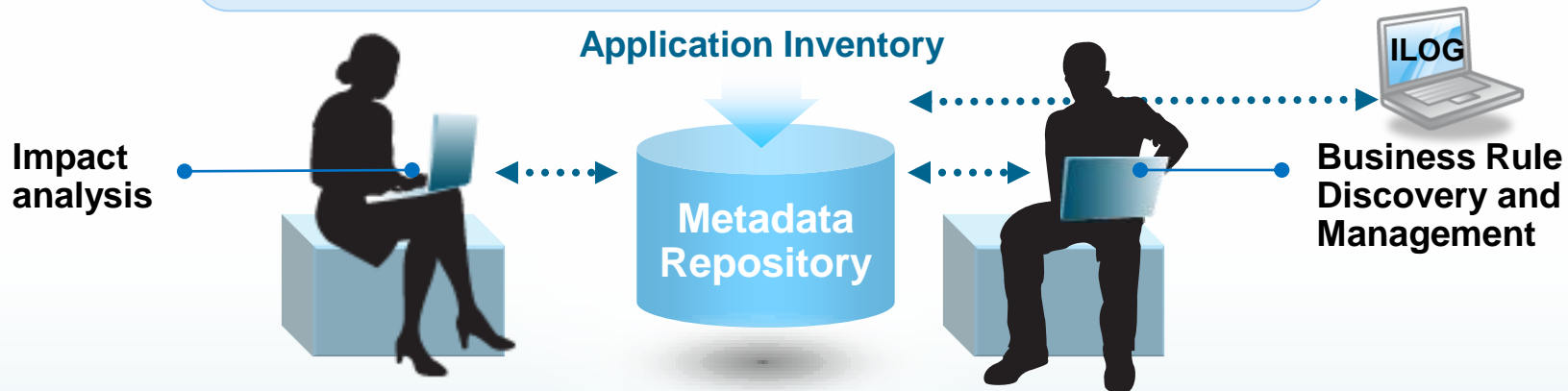
# Solution: Business intelligence for applications

## Restore lost application knowledge via technical analysis



**Application Artifacts**

<p><b>Mainframe</b></p> <ul style="list-style-type: none"> <li>▪ COBOL</li> <li>▪ PL/I</li> <li>▪ DB2</li> <li>▪ IMS/DC</li> </ul>	<ul style="list-style-type: none"> <li>▪ CICS</li> <li>▪ Job Control Language</li> <li>▪ High-level Assembler (HLASM)</li> </ul>	<p><b>Distributed</b></p> <ul style="list-style-type: none"> <li>▪ Java</li> <li>▪ WebSphere</li> <li>▪ HTML</li> <li>▪ WSDL</li> </ul>	<ul style="list-style-type: none"> <li>▪ Enterprise Archive (EAR)</li> <li>▪ Web Archive (WAR)</li> <li>▪ C++</li> </ul>
--	--	---	--



- ✓ Reduce risk by quickly assessing change impacts
- ✓ Lower cost by eliminating dead code
- ✓ Optimize planning, focusing testing and speeding development

*“IBM Rational Asset Analyzer software is a robust and reliable tool that supports portfolio analysis of large applications in a short period of time, delivering accurate reports that give a clear understanding of the application at the business, architecture and program levels.”*

— Sihab Kolaparambil, Practice Manager, Wipro IT Business



# Solution: Business intelligence for applications

## Restore lost application knowledge via technical analysis



→ Improving maintenance quality

**IDENTIFICATION**  
**Rational Asset Analyzer**

- What decisions
- Using which rules
- Where in the source

**VALIDATION & MANAGEMENT**  
**WebSphere® ILOG® BRMS**

- Align rules with business goals
- Manage business rules life cycle
- Test and validate rules

→ Speeding up maintenance

→ Increasing business agility

**REMEDIATION**  
**Rational Developer for System z®**

- Adjust the source to match the rule
- Extract the rule to a callable element
- Extract the rule to a rule server

**Application Artifacts**

<b>Mainframe</b>	<b>Distributed</b>
<ul style="list-style-type: none"> <li>▪ COBOL</li> <li>▪ PL/I</li> <li>▪ DB2</li> <li>▪ IMS/DC</li> </ul>	<ul style="list-style-type: none"> <li>▪ CICS</li> <li>▪ Job Control Language</li> <li>▪ High-level Assembler (HLASM)</li> <li>▪ Java</li> <li>▪ WebSphere</li> <li>▪ HTML</li> <li>▪ Enterprise Archive (EAR)</li> <li>▪ WSDL</li> <li>▪ Web Archive (WAR)</li> <li>▪ C++</li> </ul>

- Rational Asset Analyzer
- Rational Asset Analyzer for System z
- Application Health Assessment

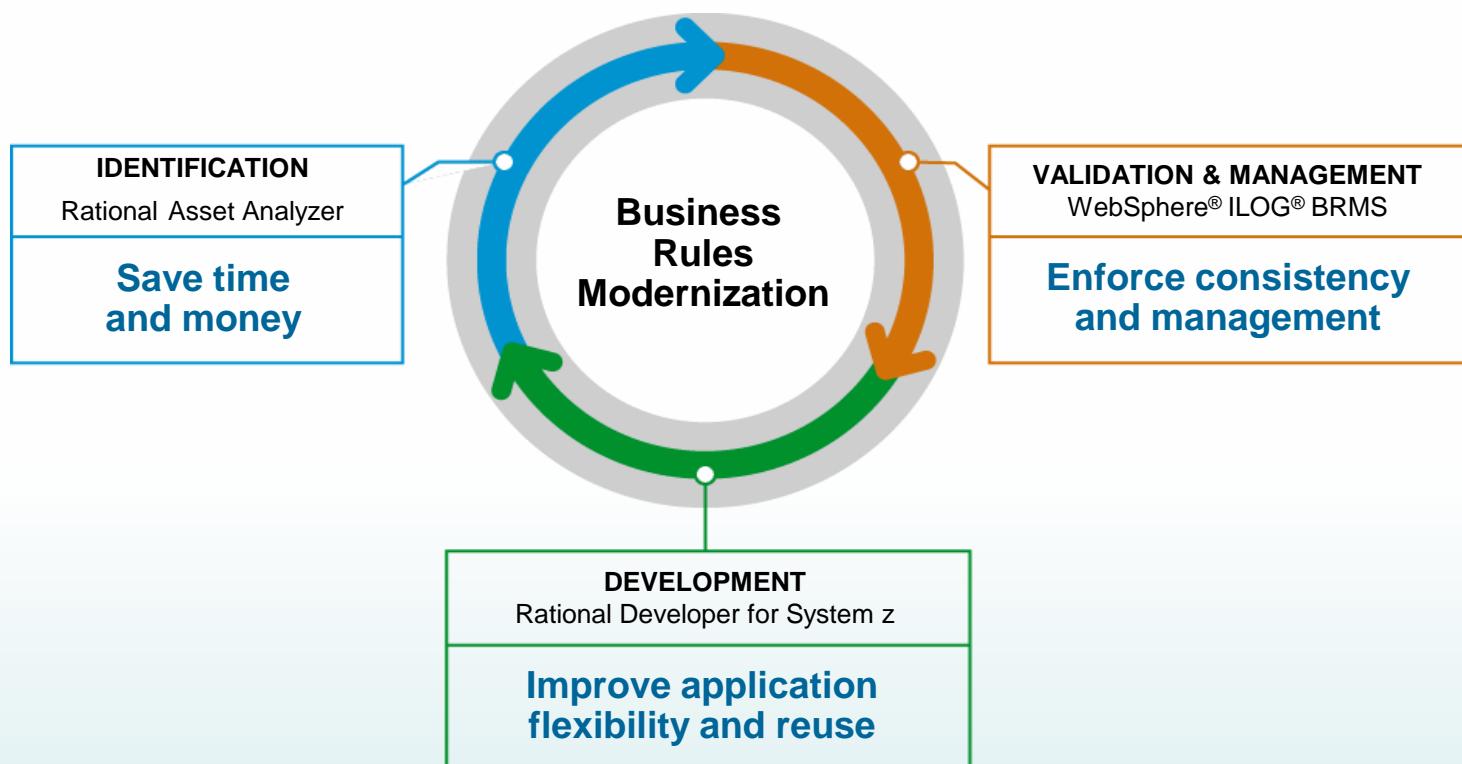
*“IBM Rational Asset Analyzer software is a robust and reliable tool that supports portfolio analysis of large applications in a short period of time, delivering accurate reports that give a clear understanding of the application at the business, architecture and program levels.”*

— Sihab Kolaparambil, Practice Manager, Wipro IT Business



# Rational Asset Analyzer for System z v6

*Reduce the risk and cost of your application modernization projects*



## Delivering...

- New integration with WebSphere ILOG for business rule mining
- Centralized management, validation and testing of business rules
- Integrated development, maintenance and modernization of business rules

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

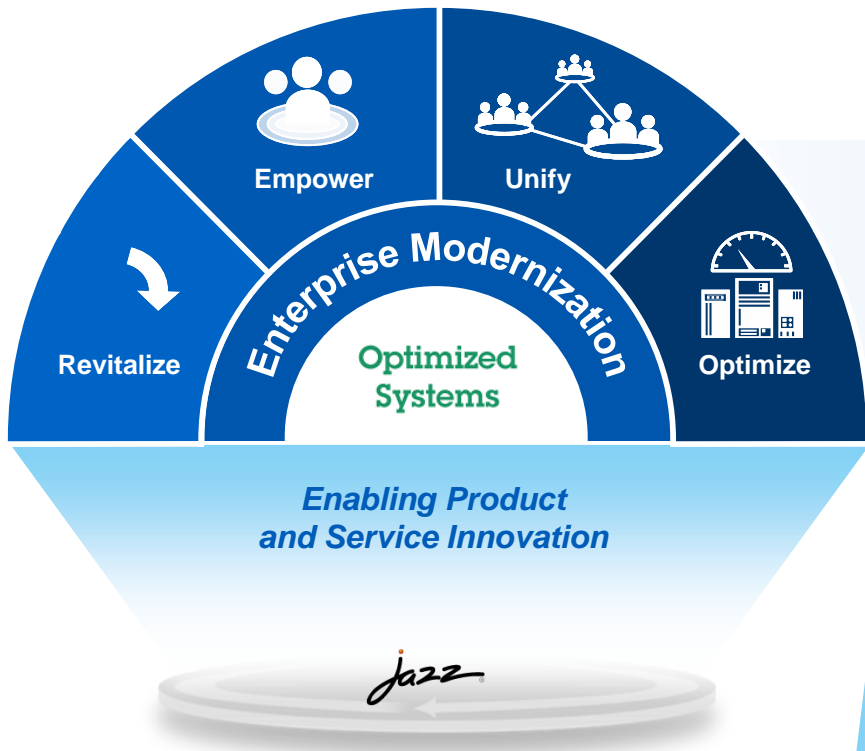


*“For IT to regain relevance, it must reinvent itself as an organization that moves beyond its legacy burdens and helps the business take charge of the new IT capabilities available in the market.”*



# IBM Enterprise Modernization

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



**20 to 35%**  
cost reduction in managing  
and maintaining existing  
application portfolios

**30 to 50%**  
cost reduction in  
renewal/re-architecture

**Increase  
Application Flexibility**

**22-37%**  
improvement in  
developer productivity  
with modern tooling

**50-80%**  
reduction in host  
CPU usage

**Boost Individual  
Productivity**

**Maximize Team  
Productivity**

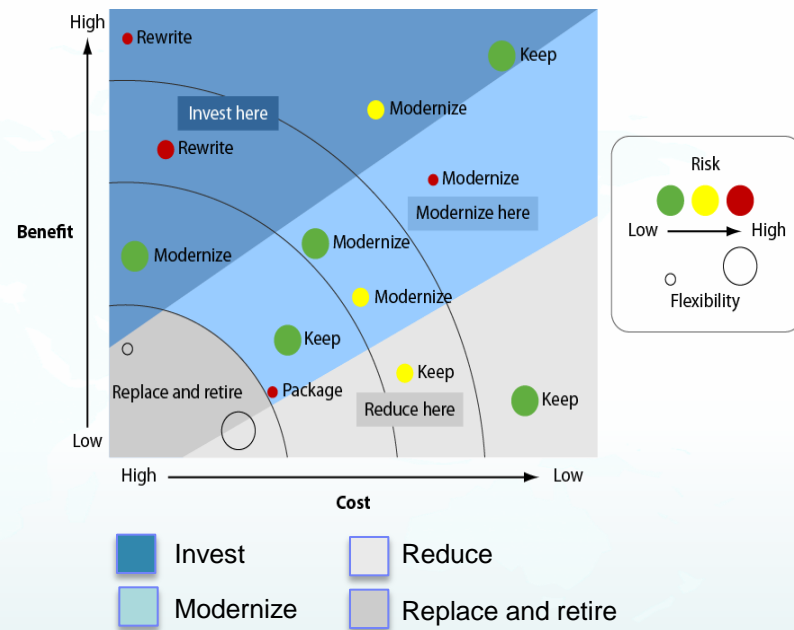
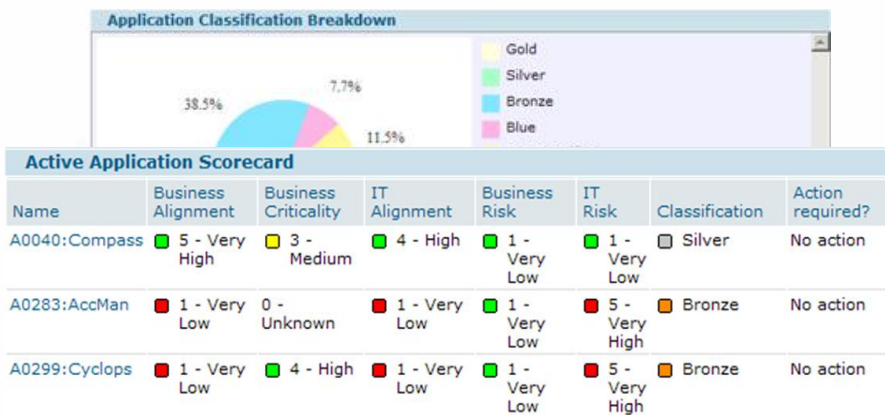
**15 to 20%**  
decrease in development cycle  
time through common team  
infrastructure for collaborative  
application lifecycle  
management

**Optimize System  
Utilization**

**20 to 60%**  
improvement  
in application performance  
with latest compilers  
for IBM Systems

# Rational Focal Point 6.5.1

*Balance business value with cost and risk*



**Which applications are:**

- ✓ The most valuable to the business?
- ✓ The most costly to maintain and operate?
- ✓ Misaligned with target enterprise architecture?
- ✓ Causing the most incidents?

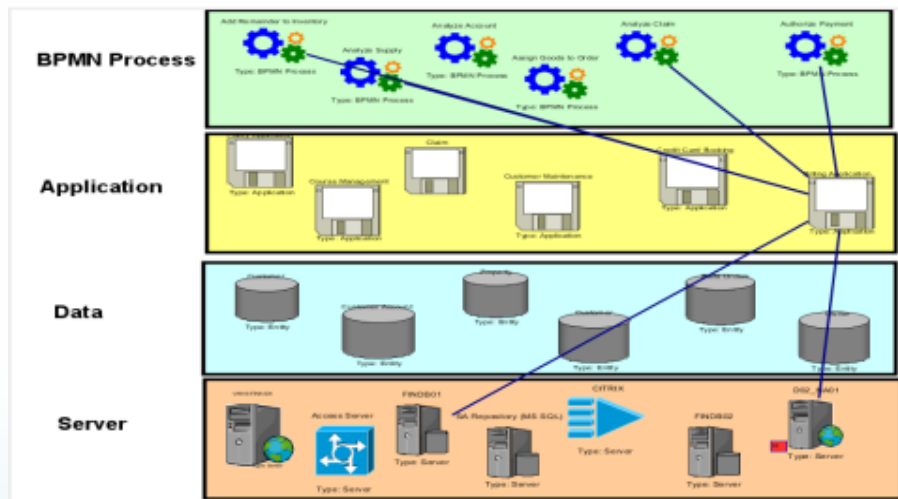
Source: What Comes Next After Application Assessment, Forrester Research, Inc., January 26, 2011

## Delivering...

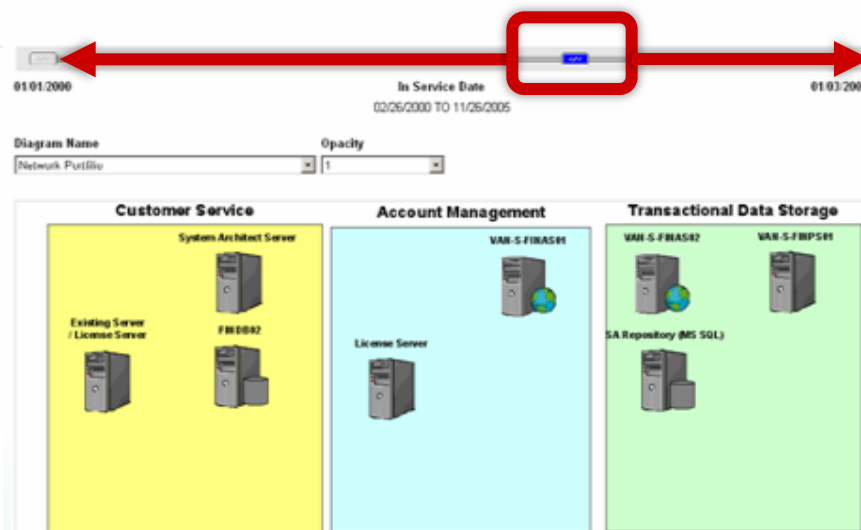
- Centralized information key to decision-making, status reporting and portfolio reviews
- Collaborative information gathering, visualization, prioritization, road mapping, and planning capabilities to determine strategy and linking to execution
- Open interfaces, including integration with EA and project execution environments

# Rational System Architect 11.4.1

*Do impact analysis and future state visioning*



**Model dependences across business processes and technology layers to enable impact analysis**



**Slide the scale to see how your enterprise architecture evolves from as-is to future state visioning**

## Delivering...

- Understanding of current state and impact analysis
- Visualization of architectural roadmaps and options for future state
- Actionable architecture through integration with delivery management, application lifecycle environments, and enterprise modernization environments

## Enterprises want to...

*Get more value from the assets created by each team*



*An asset strategy addresses enterprise-wide challenges*

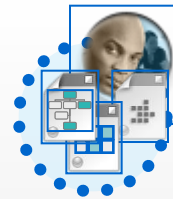
### **Strategic reuse**

Teams solve the same or similar problems, duplicating effort



### **Information library**

The relationship between outputs are all in someone's head or invisible



### **Governed broker**

Formal hand-off between teams is manual and poorly managed

**But...**

*They do not have the infrastructure or culture to establish a software asset strategy*

## Solution: Re-usable, high value assets

*Transform software artifacts into meaningful software assets to be shared or referenced throughout the organization*



**Catalog assets:**  
Quickly find the assets you need



**Govern usage:**  
Automate reviews and policy enforcement



**Share assets:**  
Easily publish and consume assets

*jazz*

- ✓ High availability clustering plus jazz integration and workflows
- ✓ Greater reuse, development efficiency, faster time-to-market and higher quality
- ✓ Track dependencies and notify users of changes and upgrades

*“In the past, our personnel were forced to use a multitude of interfaces to find the information they required. With Rational Asset Manager, they now have a single point of entry. As a result, they have faster access to information.”*

— Edwin Freekenhorst, IT Architect, Shell





## Solution: Re-usable, high value assets

*Transform software artifacts into meaningful software assets to be shared or referenced throughout the organization*



**Catalog assets:**  
Quickly find the assets you need



**Govern usage:**  
Automate reviews and policy enforcement



**Share assets:**  
Easily publish and consume assets



▪ Rational Asset Manager

*“In the past, our personnel were forced to use a multitude of interfaces to find the information they required. With Rational Asset Manager, they now have a single point of entry. As a result, they have faster access to information.”*

— Edwin Freekenhorst, IT Architect, Shell



## Enterprises want to...

*Proactively manage and mitigate security exposures as they open their legacy applications to the web*



### **Legacy functionality exposed in web applications and services creates significant risk without security measures**

- **76%** of CEO's surveyed feel reducing potential security flaws within business-critical applications is the most important aspect of their data protection program - *Business Case for Data Protection - A Study of CEOs and other C-level Executives in the United Kingdom, March 2010, Ponemon Institute*
- **\$7.2M** average cost of Corporate data breach  
– *Cost of Data Breach study, March 2011, Ponemon Institute*
- **55%** of all cyber vulnerabilities are web application vulnerabilities - *IBM Xforce 2010 Mid-Year Trend Report*
- **79%** of compromised records were compromised using web applications as the attack method  
- *Verizon 2010 Data Breach Investigations Report*



## But...

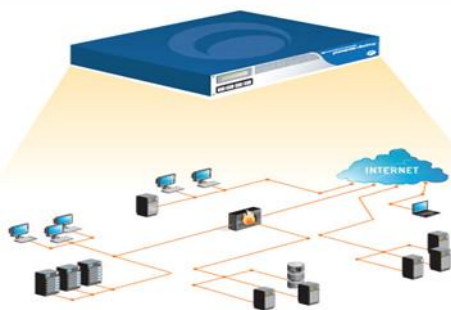
*Developers are uninformed of the problem and not mandated to develop secure applications causing applications to be deployed that are riddled with security flaws and that are often non-compliant with industry regulations*

# Solution: Proactively secure your applications

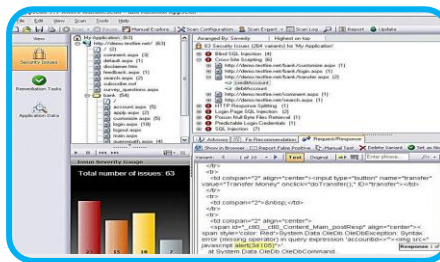
*Scan applications for security flaws before they are deployed*



## 1. Scan applications and code



## 2. Analyze and identify issues



## 3. Report: Detailed, actionable



**Extensive language support including: COBOL, Java, C, C++, .NET, PL/SQL, and many more**

- ✓ Cost effectively manage risk with proactive remediation of application vulnerabilities
- ✓ Protects legacy assets by securing applications

*“The real key is that we have the education in place and now implement security early in the application development lifecycle, so we have less overall vulnerabilities to manage.”*  
— DTCC

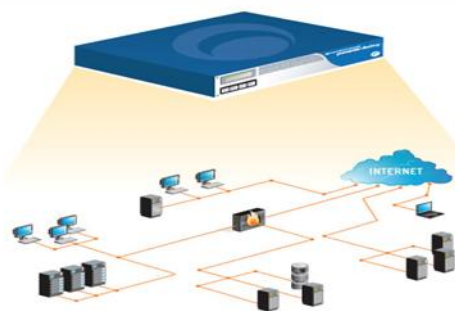


# Solution: Proactively secure your applications

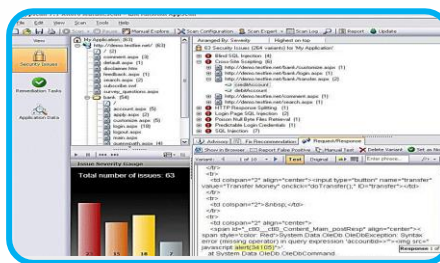
*Scan applications for security flaws before they are deployed*



## 1. Scan applications and code



## 2. Analyze and identify issues



## 3. Report: Detailed, actionable



**Extensive language support including: COBOL, Java, C, C++, .NET, PL/SQL, and many more**

- Rational AppScan Source Edition
- Rational AppScan Enterprise Edition
- Rational AppScan Standard Edition

*“The real key is that we have the education in place and now implement security early in the application development lifecycle, so we have less overall vulnerabilities to manage.”*

— DTCC

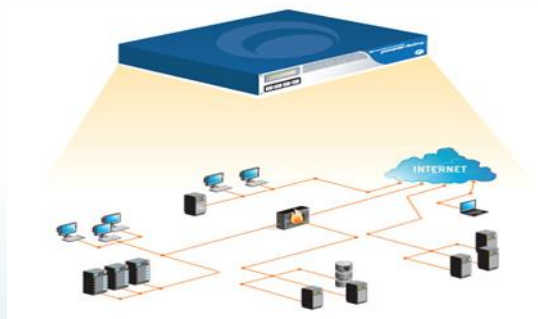


# Announcing: Rational AppScan Source Edition v8.5

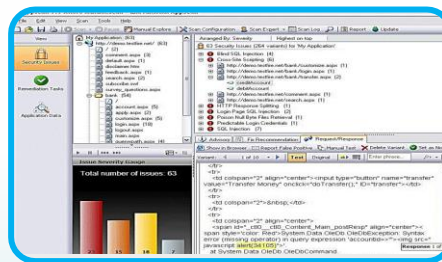
*Expanded language and platform support, extensible framework support and hybrid analysis strengthen security*



## 1. Scan applications and code



## 2. Analyze and identify issues



## 3. Report: Detailed, actionable



## Delivering...

- Protection of legacy assets by securing applications
- Extensive language support including: COBOL, Java, C, C++, .NET, PL/SQL and many more
- Robust integration with IDEs including: RAD, Eclipse and others
- Dynamic results correlated with Static results
- Over 40 out-of-the box compliance reports



# Rational Programming Patterns for System z v8.0.3

*Preserve and extend your VA Pacbase investments*



- ✓ Experience the power of programming patterns
- ✓ Low cost migration from VisualAge Pacbase v3.5
- ✓ Leverage traditional and new programming skills
- ✓ Comprehensive integrated development platform



## Delivering...

- New integrated development environment for Pacbase models and programs
- Fully integrated with Rational Developer for System z and Rational Team Concert
- Ultimate platform flexibility



# Compilers for System z and Power Systems

*Improve application performance, productivity, and return on investment*



## IBM zEnterprise 196

- z/OS XL C/C++ v1.13
- Enterprise PL/I for z/OS v4.2
- Enterprise COBOL for z/OS v4.2



## zEnterprise BladeCenter Extension (zBX)

- XL C/C++ for AIX and Linux v11.1
- XL Fortran for AIX and Linux v13.1
- COBOL for AIX v4.1.1

## Delivering...

- Performance improvements for applications with enhanced compiler optimization technology
- Exploitation of new zEnterprise 196 and POWER7 hardware
- Productivity improvements with enhanced reporting, problem determination, performance tuning and code portability support