



System z Technology Summit

Enterprise Modernization Strategy and Overview





Many businesses are challenged by growing complexity

79%



49%

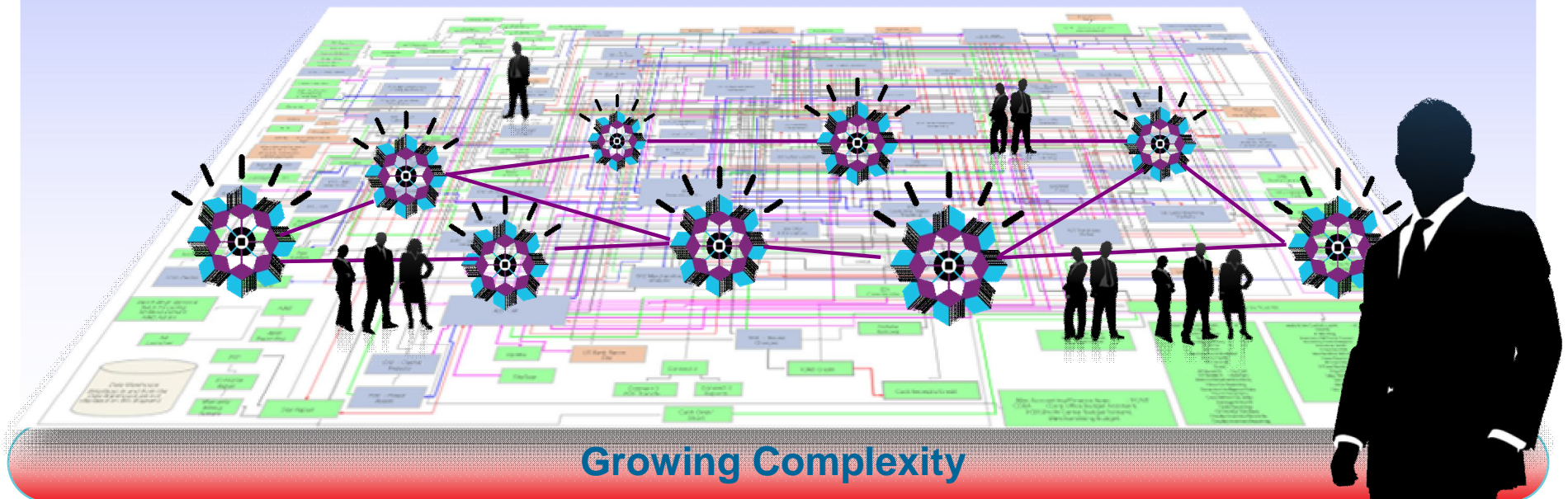


30%

CEOs anticipate complexity to grow significantly in the next five years.

CEOs believe they know how to deal with this complexity.

Complexity gap means that CEOs increasingly see change coming but feel ill-equipped to handle it.



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



Many companies consider IT a contributor to complexity...and a cost center 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”



Various challenges impinge effective software development and delivery



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.”

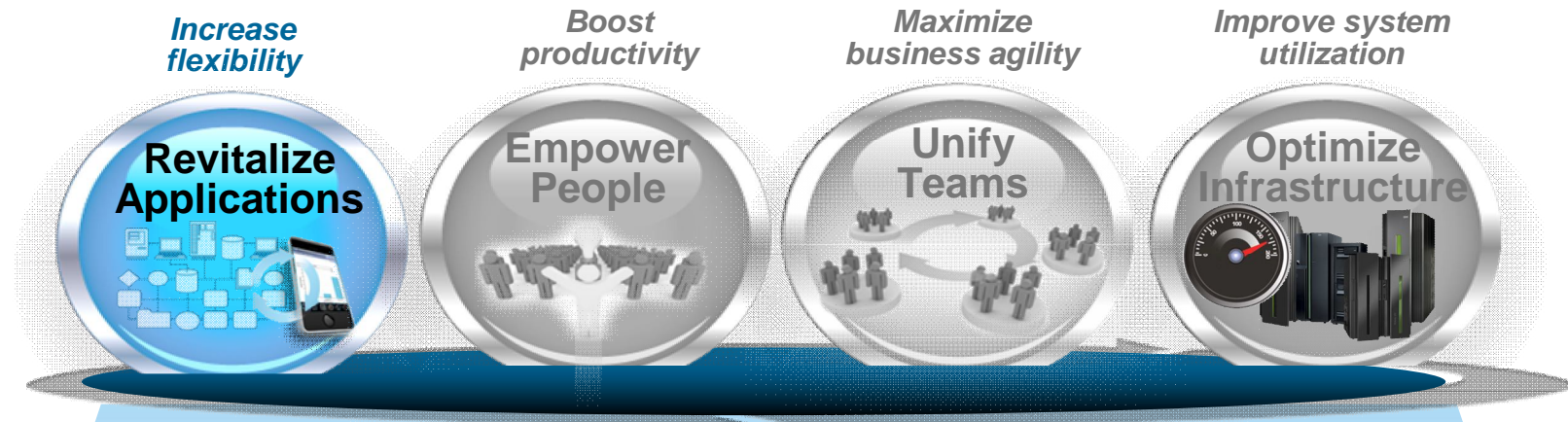
Infrastructure inefficiency



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



Increase flexibility by revitalizing existing application portfolios



Enterprise architecture and portfolio management

Business intelligence for applications

SOA tools for all platforms and languages

Operational reuse

User interface modernization

Application transformation tools and services

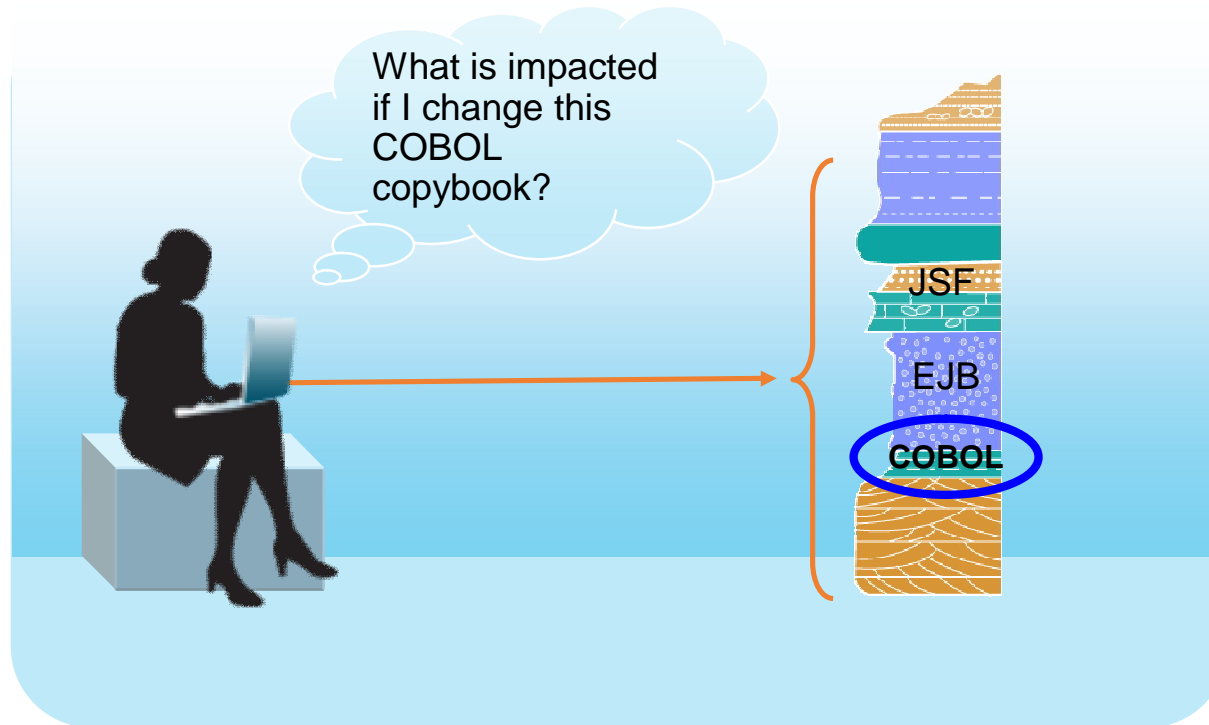
Quality across the organization

Rational Software Delivery Platform powered by *Jazz*



Enterprises want to...

Understand the impact and cost of 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

Mainframe

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

Distributed

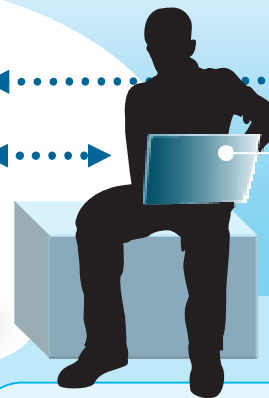
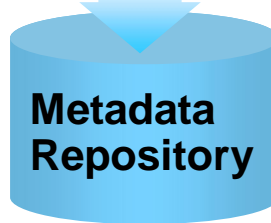
- Java
- WebSphere
- HTML
- WSDL
- Enterprise Archive (EAR)
- Web Archive (WAR)
- C++

Application inventory

Impact analysis



Metadata Repository



Business Rule Discovery and Management



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

NEW!

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

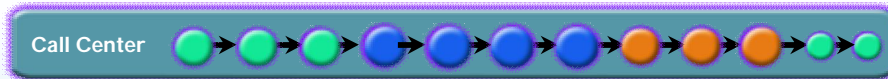


Enterprises want to...

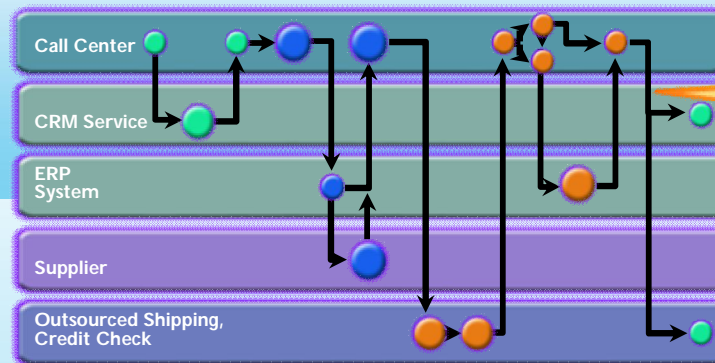
Have a nimble IT organization that leverages SOA to respond more quickly to the needs of the business



Customer Order & Fulfillment



Customer Order & Fulfillment



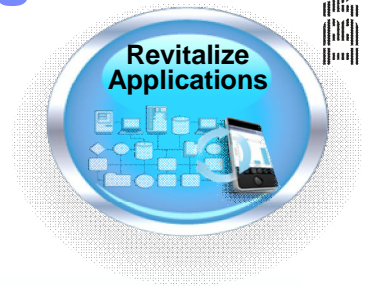
But...

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

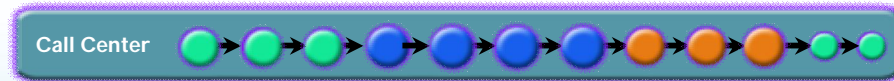


Solution: SOA tools for all platforms and languages

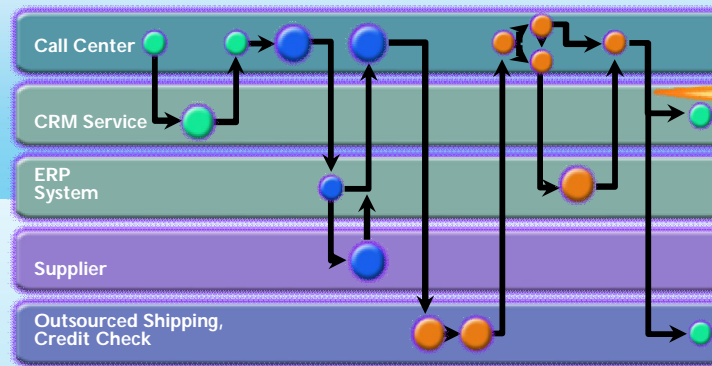
Use powerful tools to quickly begin SOA evolution by harvesting and repurposing proven assets



Customer Order & Fulfillment



Customer Order & Fulfillment



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

Delivering...

5x lower costs and reduced risk through reuse of existing assets, higher productivity, and platform portability of new services

Enterprises want to...

Reuse existing assets to reduce duplication and speed time to market

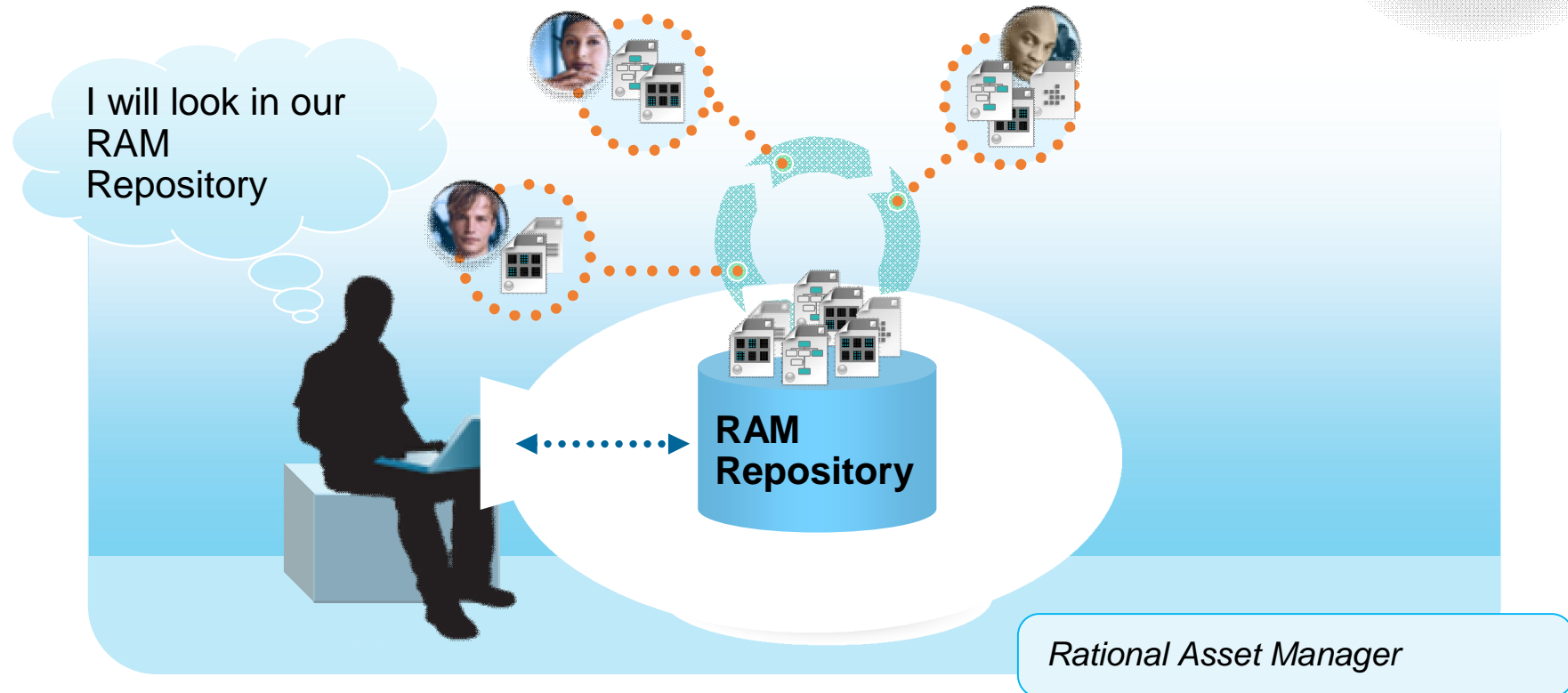


But...

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



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

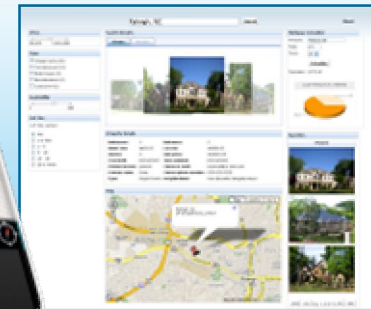
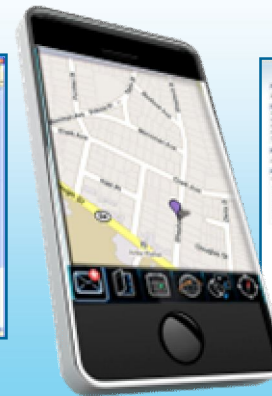


```
Session A - [24 x 80]
File Edit View Communication Actions Window Help
Client Inquiry - calls LAB3POT (LAB3BMS)

Customer number: 004
Last name: Silva
First: Lula da
Address: Palacio do Planalto
City: Brasilia
State: DF
Country: BRAZI

Type customer Number Between 1 and 10 or 99 to END

Customer retrieved sucessfully
```



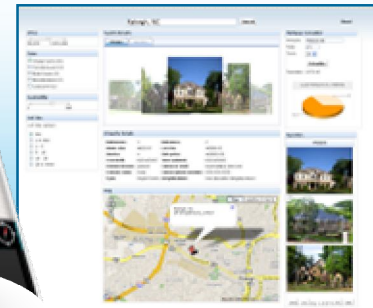
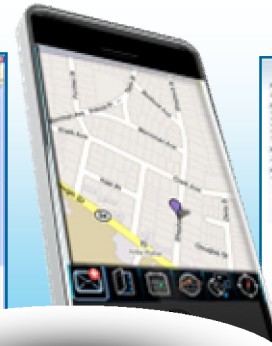
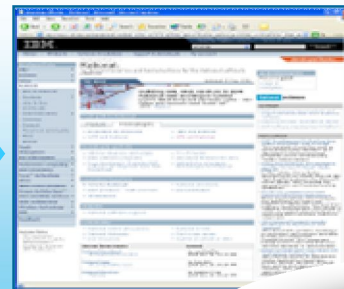
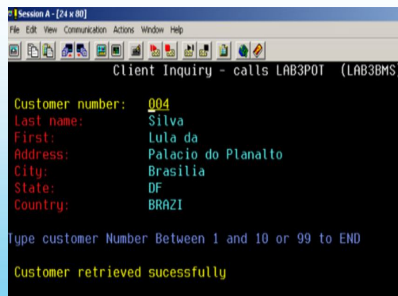
But...

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
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



- System z – CICS
- 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

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

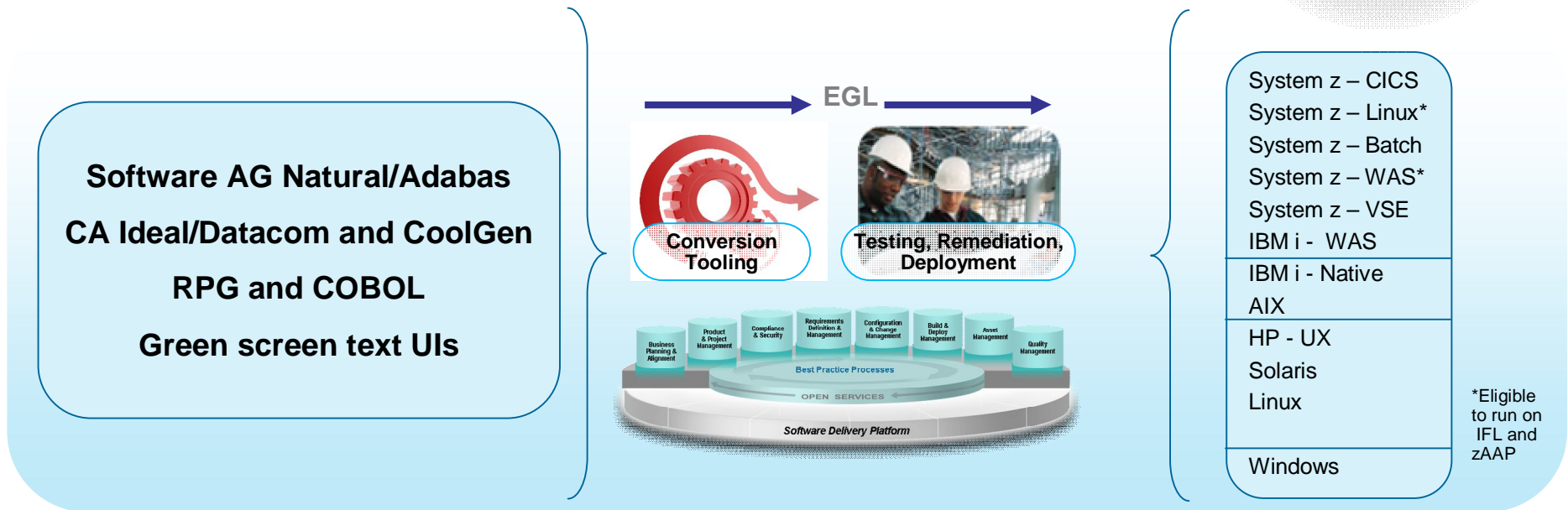


But...

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



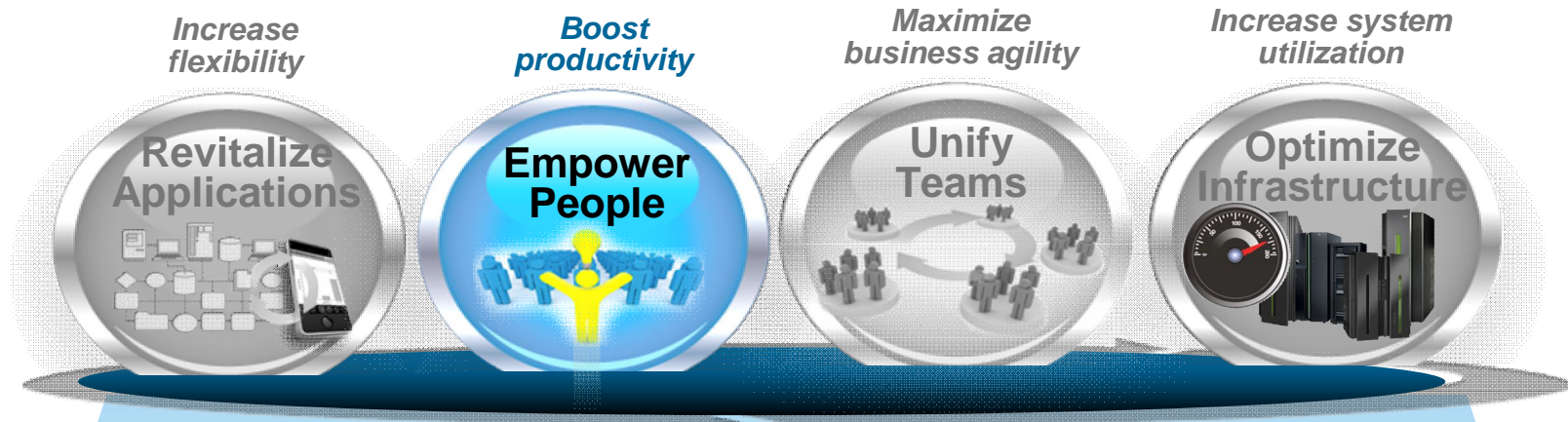
Delivering...

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



Boost productivity and accelerate innovation with modern skills



Modern IDEs for all platforms and languages

Modern business language

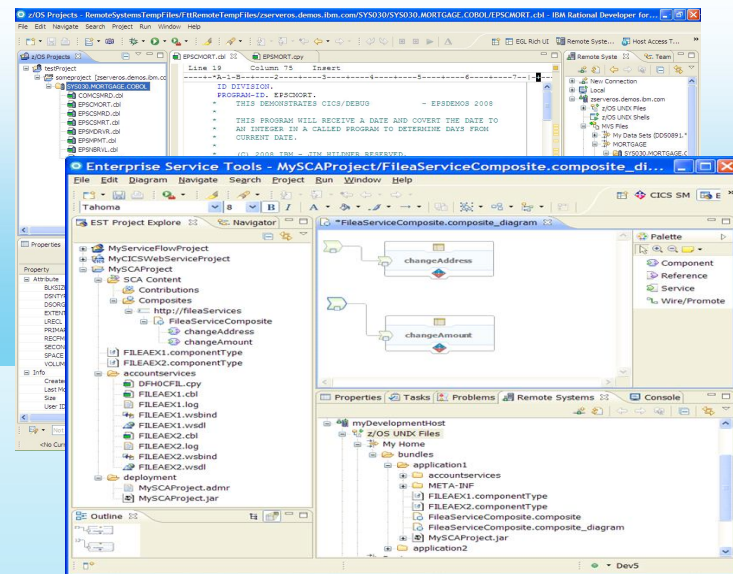
Enterprise training programs, communities and resources

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



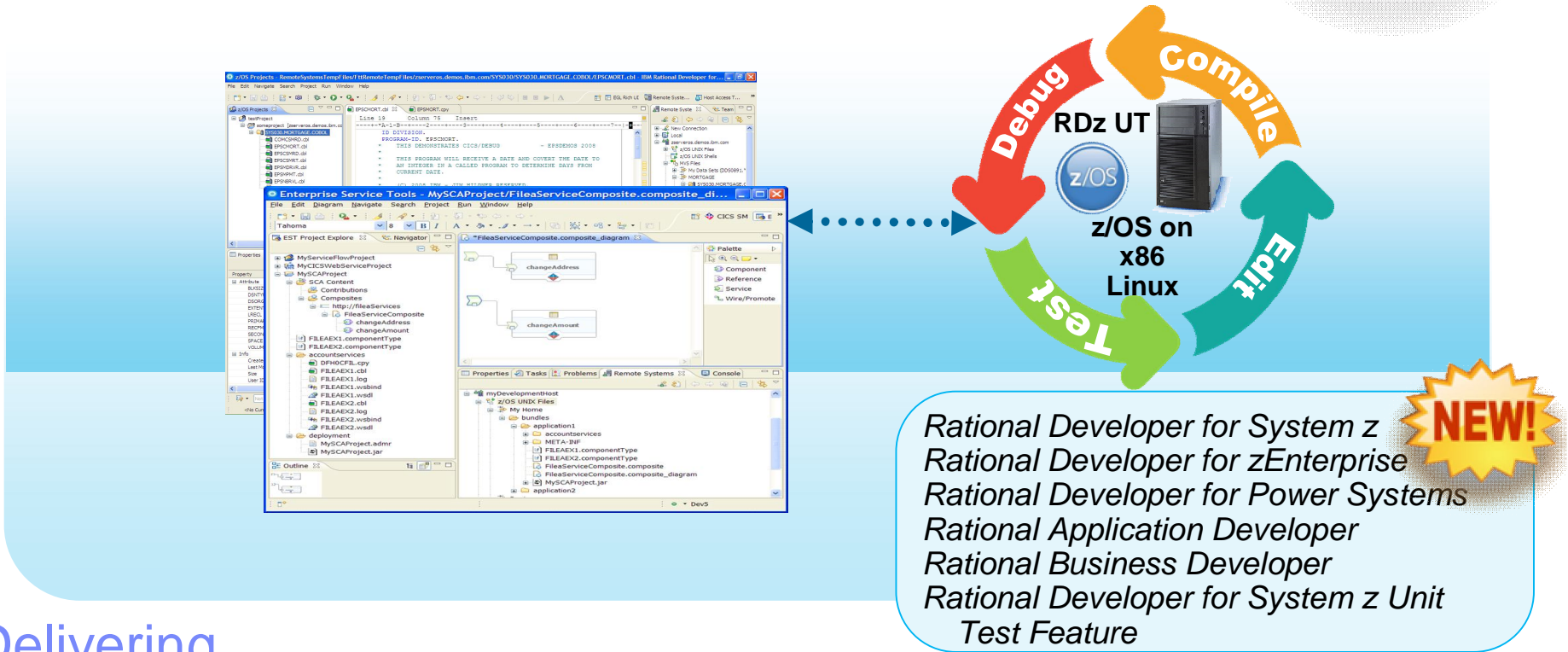
But...

They have antiquated development tools which deliver low productivity and are repulsive and unfamiliar 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 and to free-up production capacity



Delivering...

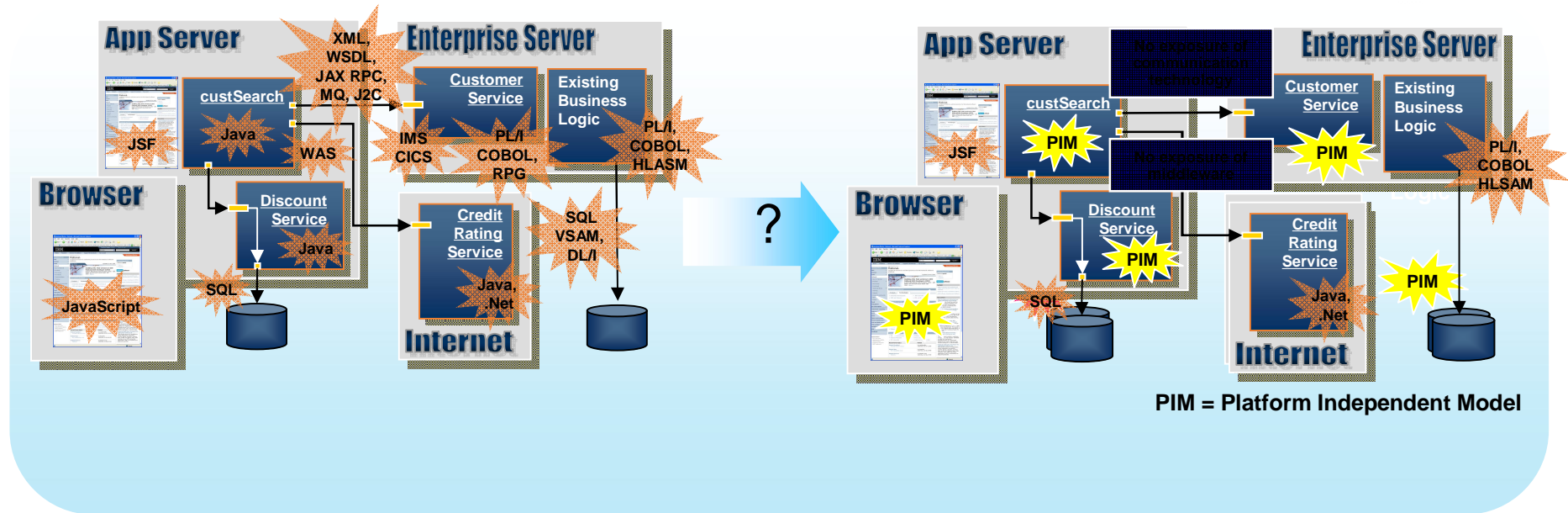
22%-37% improvement in developer productivity¹, modern tools with which to attract new talent, and 50%-80%¹ reduction in host CPU usage with workstation syntax checking and by offloading development and testing to a workstation



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

Enterprises want to...

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

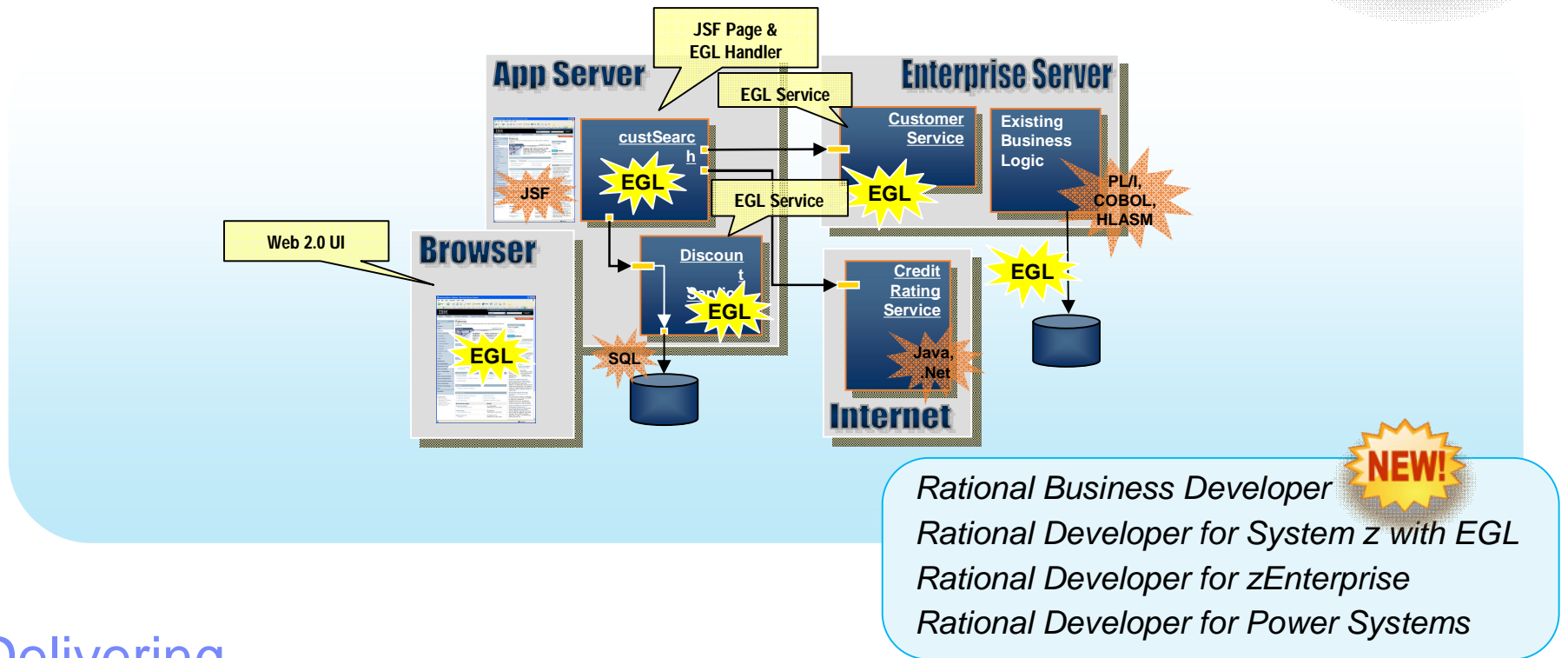


But...

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

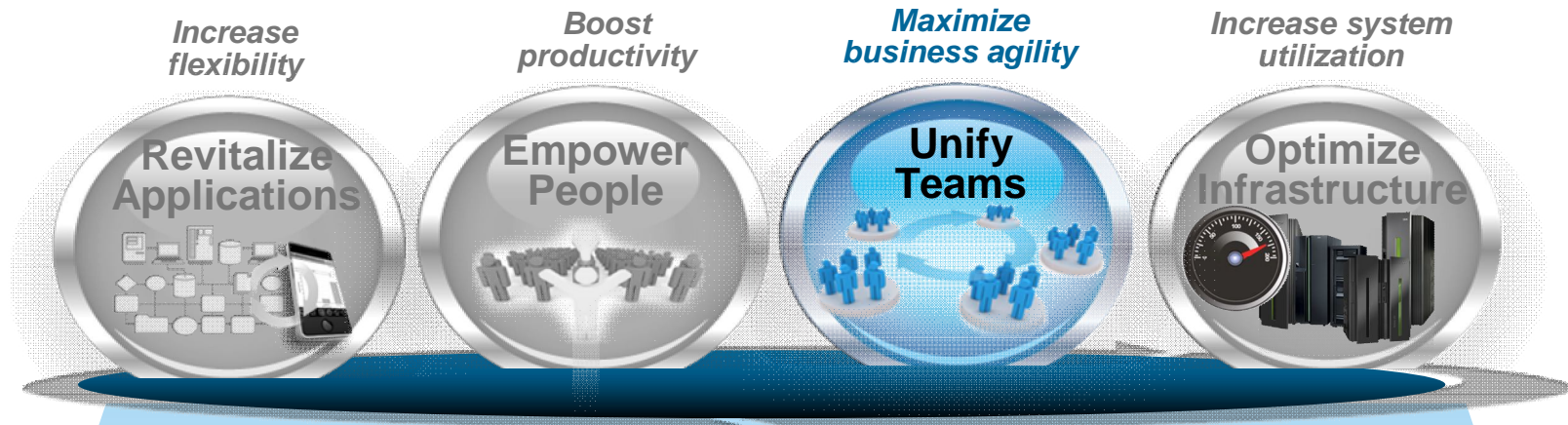
Build new or extend existing multi-platform enterprise applications in EGL with its middleware abstractions, high productivity language, modern IDE, and extensible architecture



Delivering. . .

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

Maximize organizational agility by unifying development teams



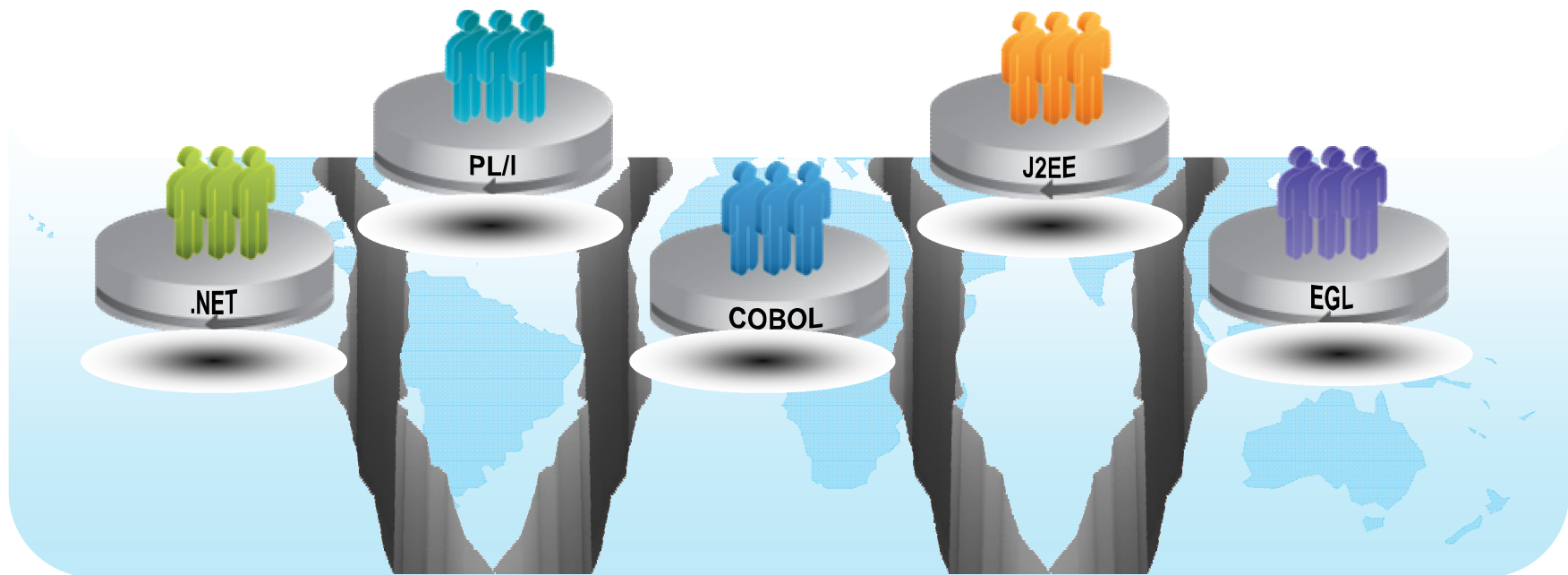
Consolidated team infrastructure

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

and...Enterprises want to...

Deliver to market faster and cheaper by exploiting agile and test-driven development practices while effectively tracking end-to-end requirements via tight process controls



Project/Planning

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

Requirements

- Use Cases
- Nonfunctional
- Sign-off
- Contract
- Risk Assess
- Threat Model
- Test Requirements

Development

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

Testing

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

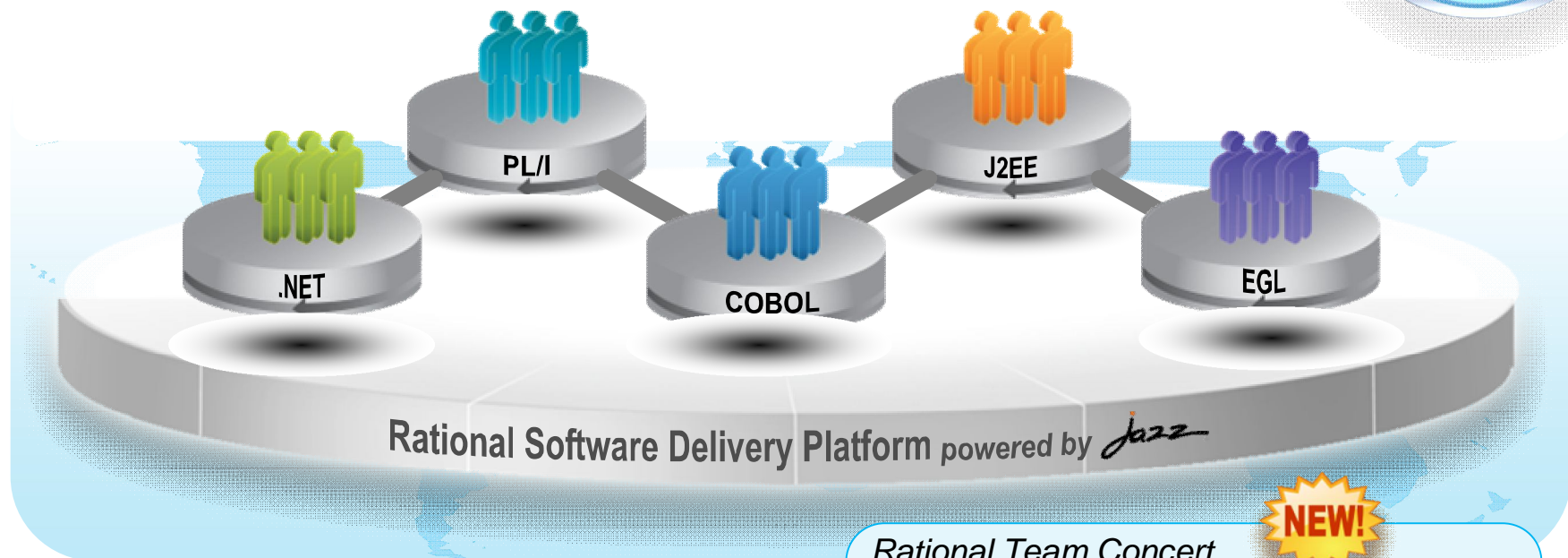
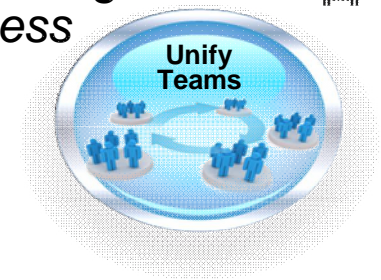
Continuous Learning and Feedback

But...

They are stuck with disjoint and disconnected processes with no lifecycle traceability of requirements resulting 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



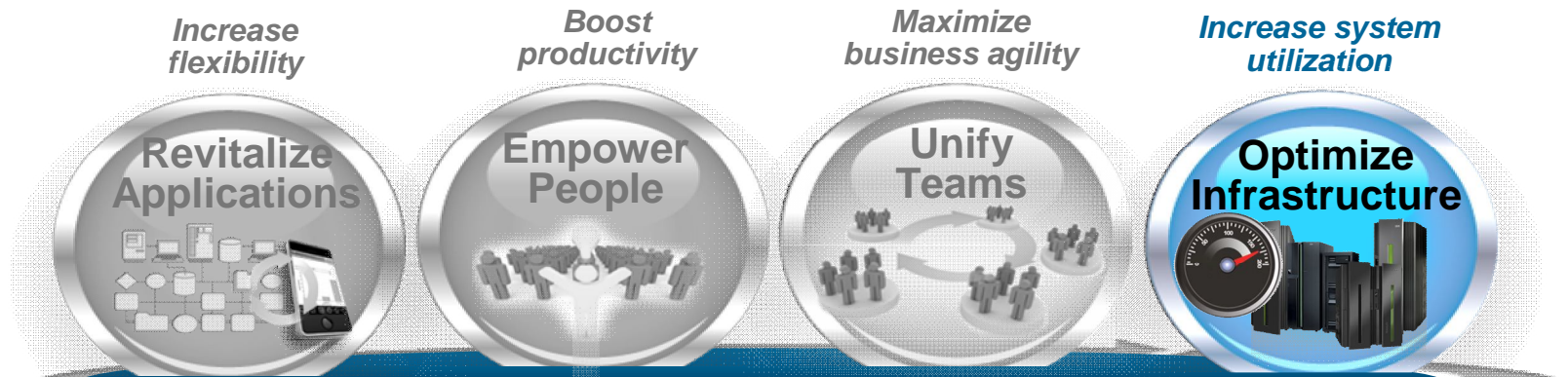
Rational Team Concert
Rational Requirements Composer
Rational Quality Manager
Rational Build Forge
Rational ClearCase / Rational ClearQuest

Delivering...

Improved communication, higher quality, informed decision-making, and more automated, transparent and predictable software development



Improve application performance by fully exploiting modern hardware

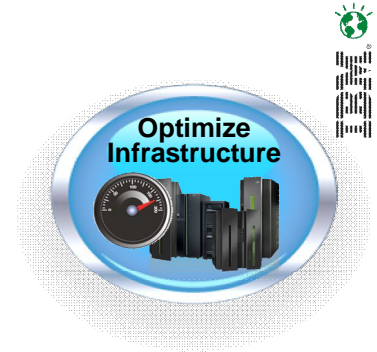


Exploit new advanced optimization technology in C/C++, Java, COBOL, PL/I, Fortran and RPG compilers

Rational Software Delivery Platform powered by *Jazz*

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**

- 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



Customers are adopting Rational 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 for developers and customers 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.



www.ibm/software/rational

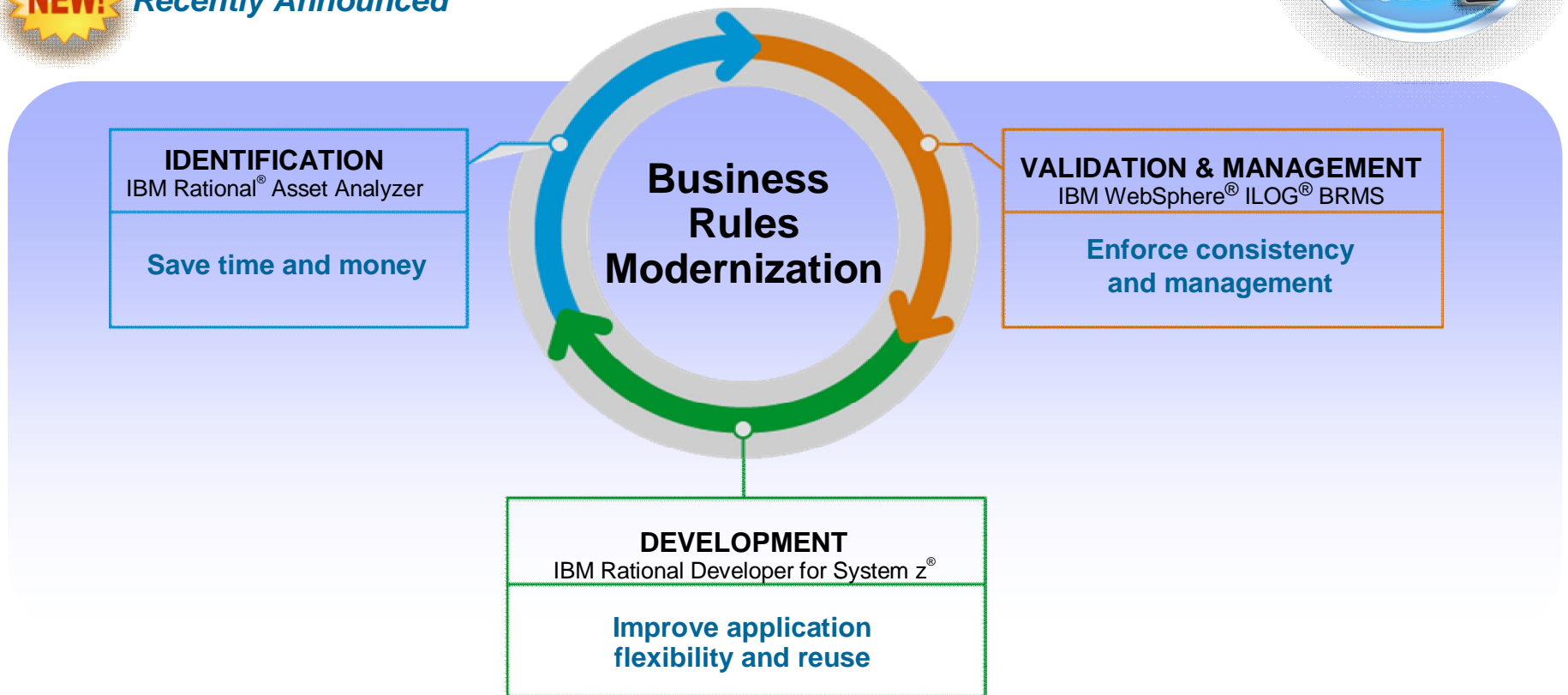
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Announcing: Rational Asset Analyzer v6

Reduce the risk and cost of your application modernization projects



NEW! Recently Announced

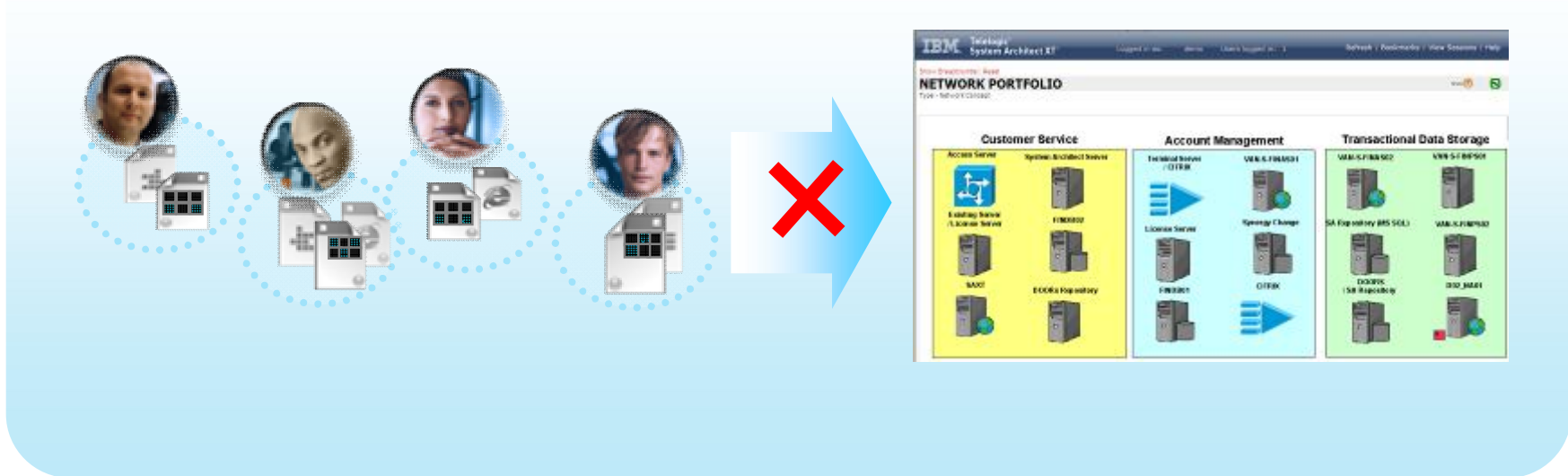


Delivering...

- ✓ 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

Enterprises want to...

Better align IT activities and investments with their business goals and objectives

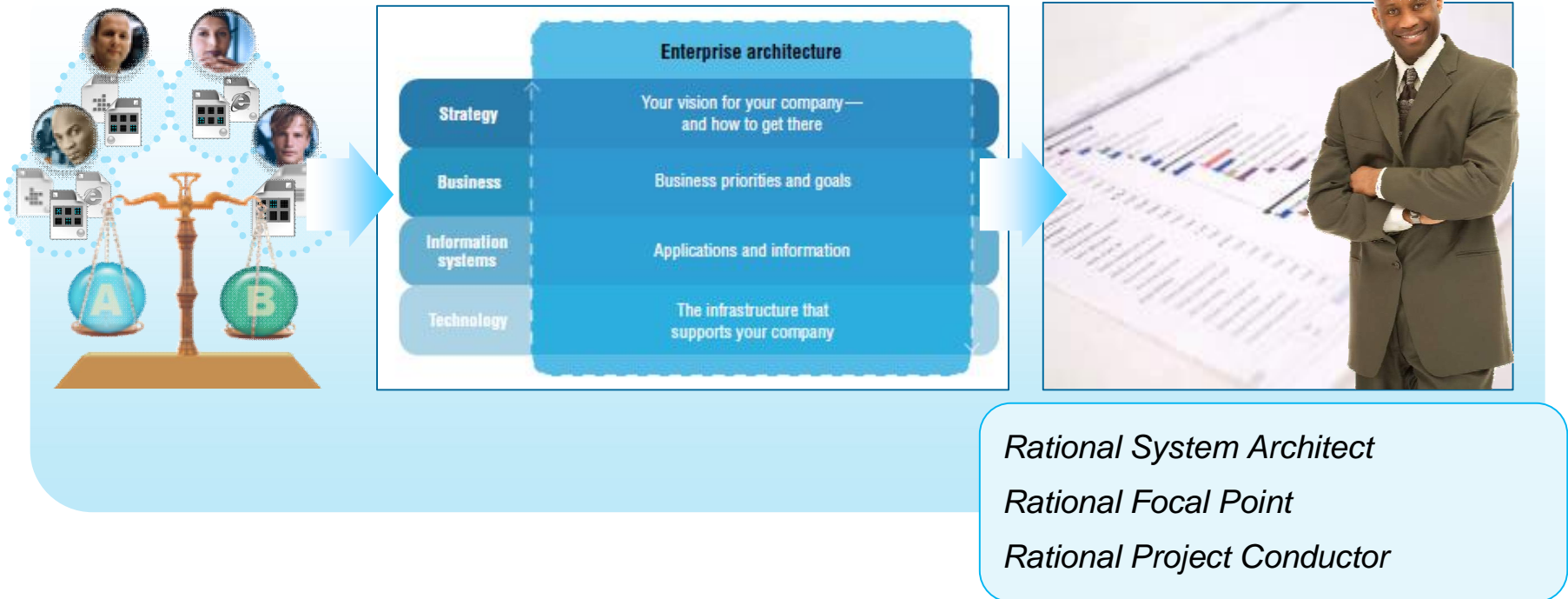
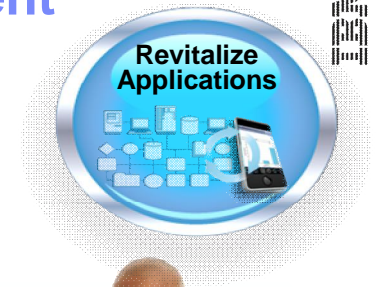


But...

They do not have a tool or process for capturing business goals or prioritizing projects, nor for linking them to the associated IT efforts. They rely instead upon less rigorous verbal discussions and difficult-to-maintain documents.

Solution: Enterprise architecture and portfolio management

Make enterprise IT planning actionable and traceable



Delivering...

Understanding of current application infrastructure, prioritization of cost-cutting and consolidation candidates, impact analysis of portfolio decisions, and central oversight of architecture, risks, demands, and investment management

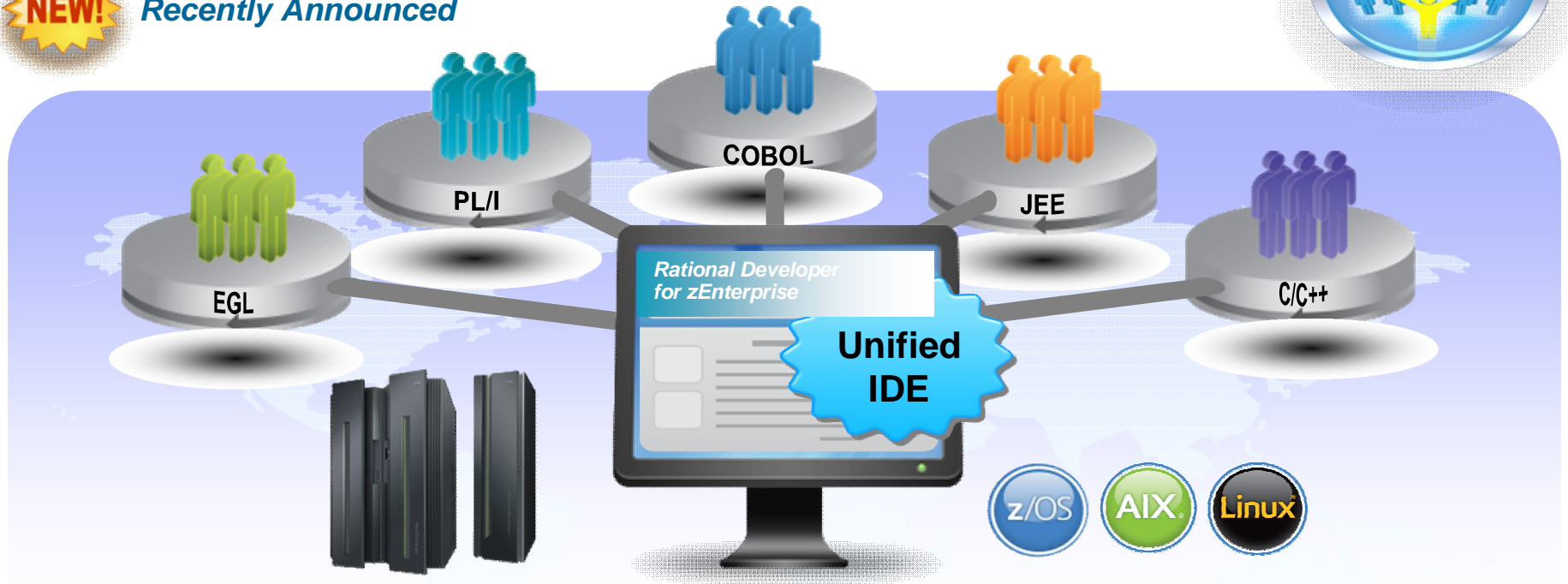


Announcing: Rational Developer for zEnterprise v8.0.1

Gain productivity and efficiency through a multiplatform IDE



NEW! Recently Announced



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

Delivering...

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

Announcing: Rational Developer for System z v8.0.1

Improve mainframe skills and attract new development and support staff



Recently Announced



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



Delivering...

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

Announcing: Rational Developer for System z Unit Test Feature v8.0.1

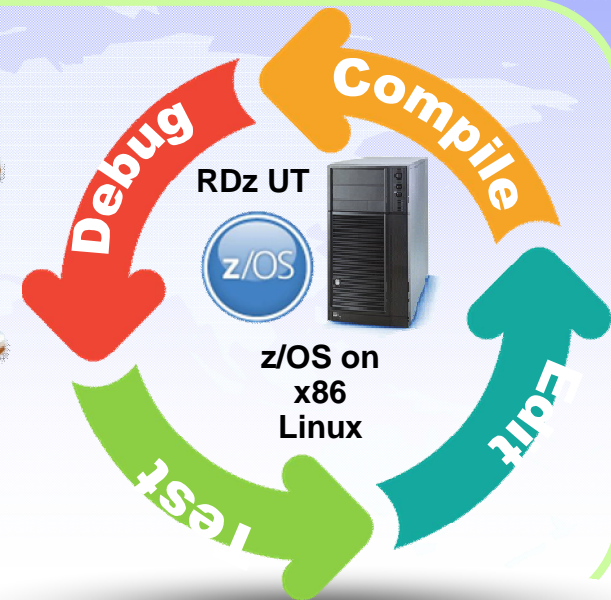
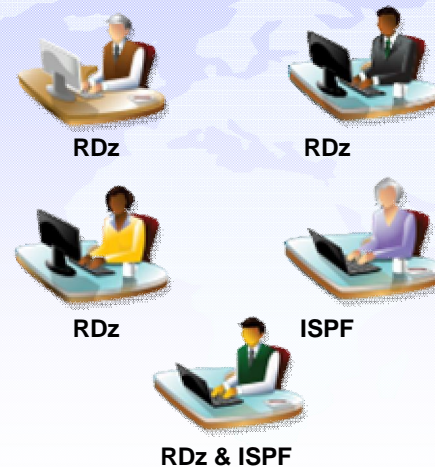
Increase flexibility, portability, and free-up production capacity



NEW! Recently Announced



- ✓ 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

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.



Announcing: Rational Business Developer v8.0.1

Multiplatform business language for modern application development



NEW! Recently Announced

- ✓ 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
- ✓ New Open Source EGL Development Tools Project now live at eclipse.org!

Rational Programming Patterns for System z

Preserve and extend your VA Pacbase investments



Recently Announced

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

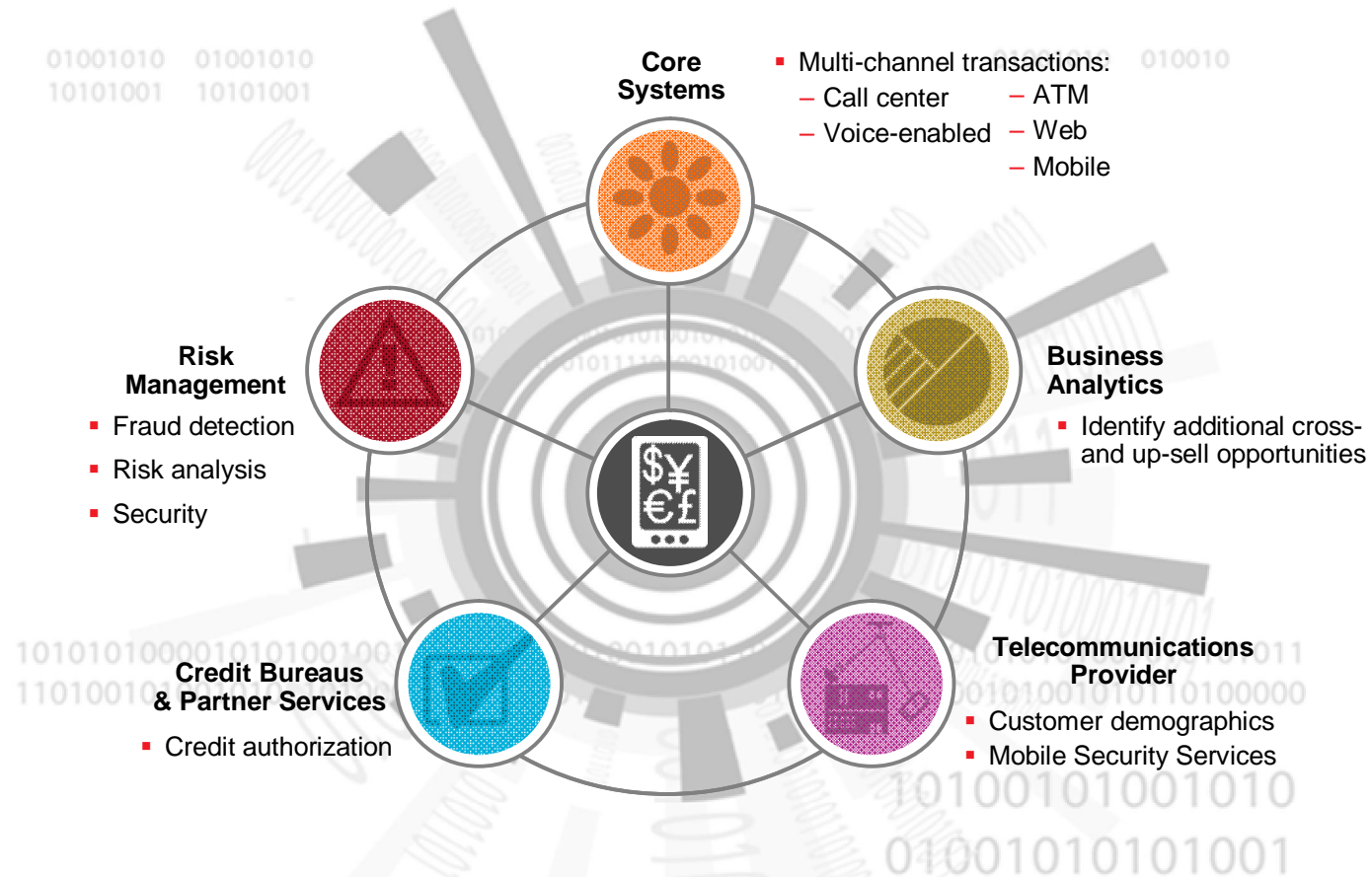


Delivering...

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

Financial scenario: Banking is getting smarter...

A multi-national bank wants to leverage their existing mainframe-based applications to provide next generation mobile banking products and services to their customers

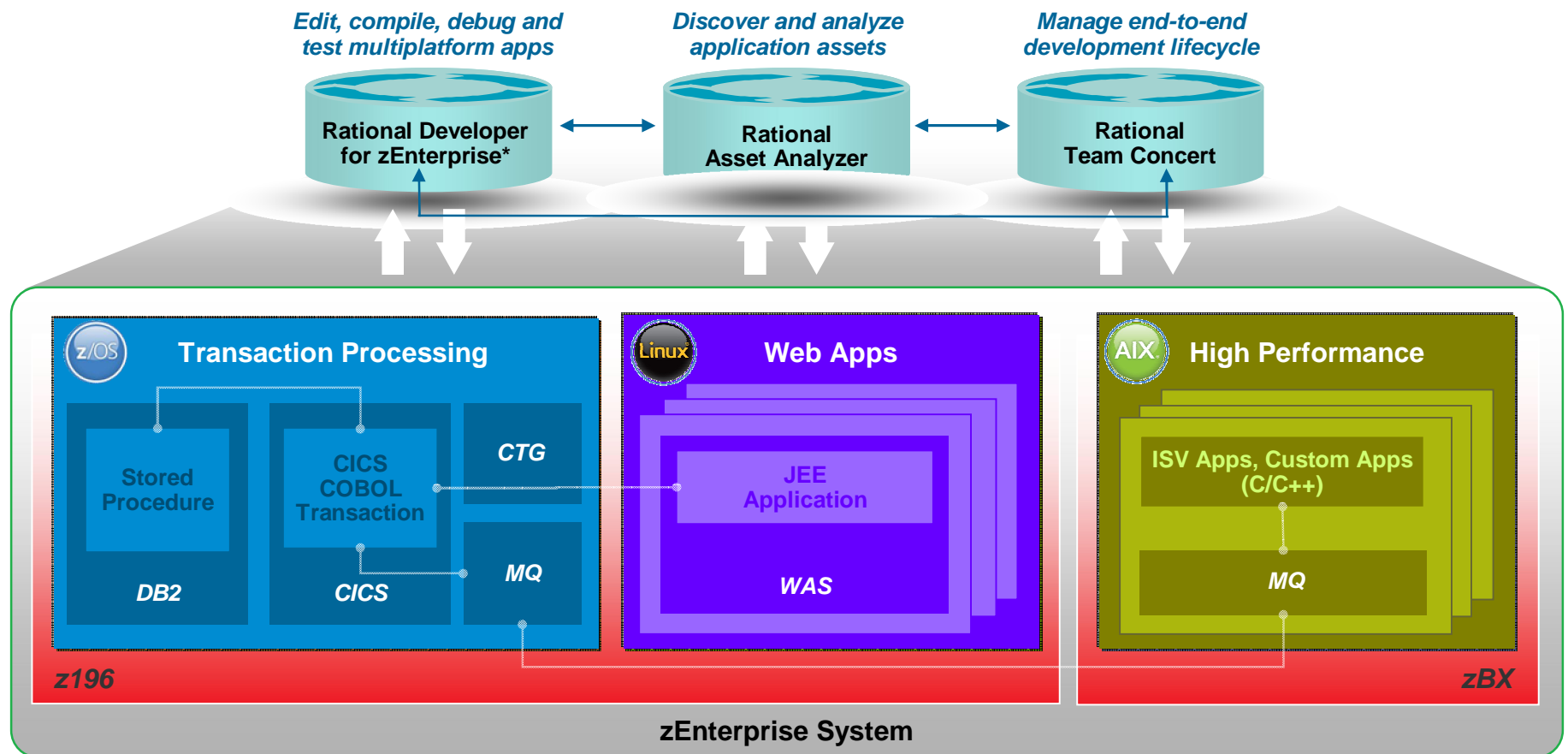


Software is the invisible thread of today's innovation



Scenario: Multiplatform application development and testing with IBM software for the zEnterprise System

- Application source code cross-reference and dependency analysis of multiple languages
- Simultaneous edit, compile, debug and test of multiple elements of the composite application
- Interactive debug of multiple parts of the application, spanning multiple zEnterprise operating systems
- Distributed, coordinated, cross-platform build and deploy to test systems



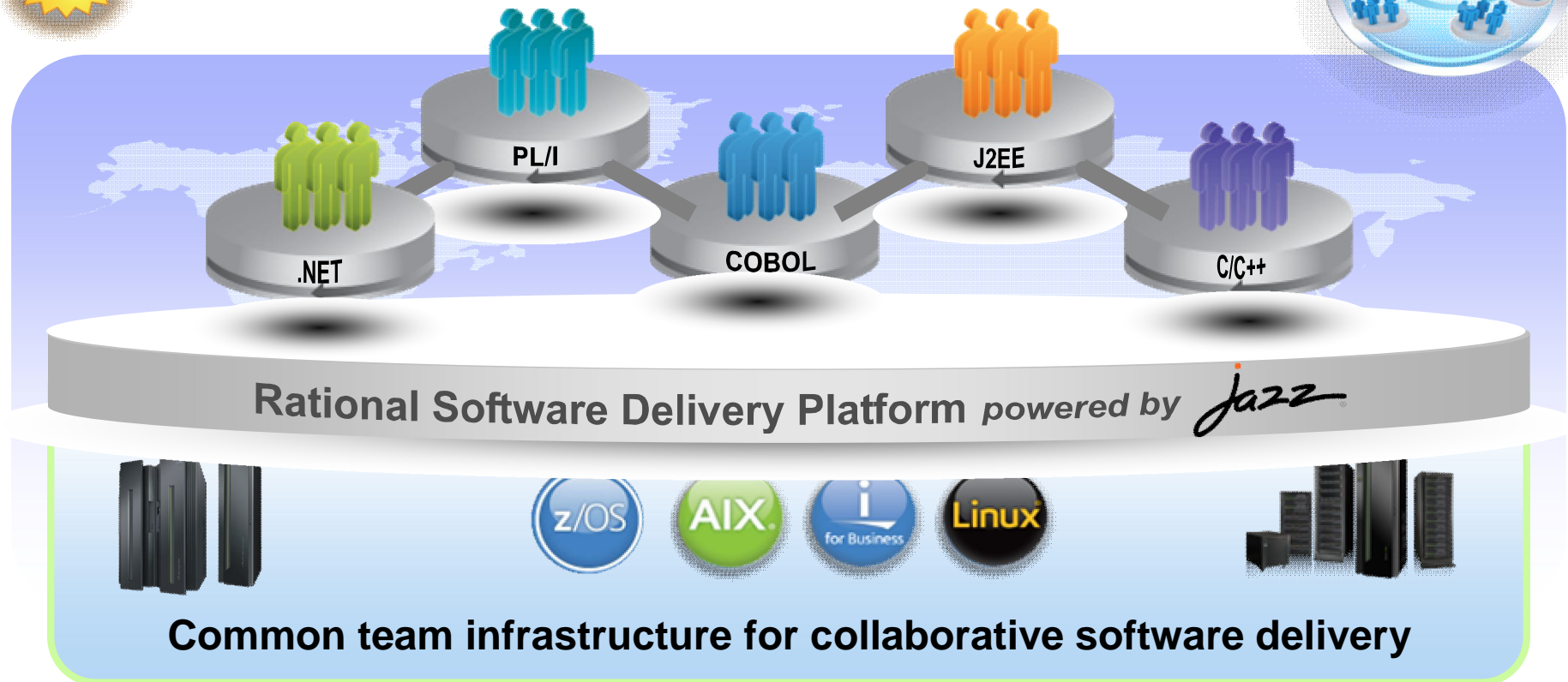
* Packaged IDEs (RDz, RAD, RDp for AIX, RBD)

Rational Team Concert

Unify geographically dispersed teams, gain efficiency and productivity



Recently announced; V3



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

Rational Compilers for System z and Power Systems

Improve application performance, productivity, and return on investment

Recently Announced



IBM zEnterprise 196

- NEW!** z/OS XL C/C++ v1.12
- NEW!** Enterprise PL/I for z/OS v4.1
- Enterprise COBOL for z/OS v4.2



zEnterprise BladeCenter Extension (zBX)

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

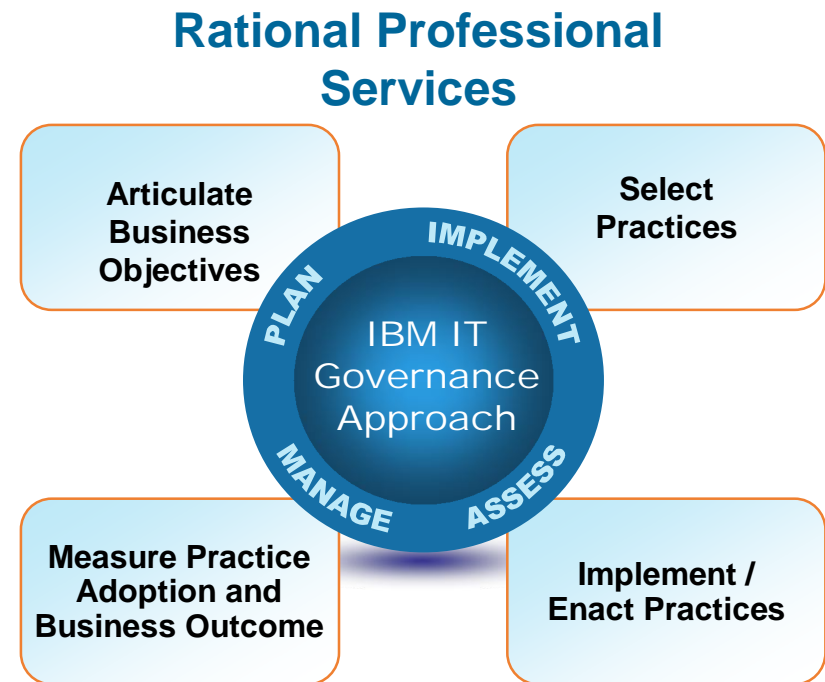
Delivering...

- ✓ 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



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



IBM Rational Enterprise Modernization key announcements

Continuing the evolution to optimize multiplatform application development



10/26 - Rational Asset Analyzer v6

10/26 - Rational Asset Analyzer for System z v6

10/26 - Rational Developer for zEnterprise v8

10/26 - Rational Developer for System z v8

10/26 - Rational Developer for System z Unit Test Feature v8

10/26 - Rational Business Developer v8

11/09 - Rational Team Concert v3

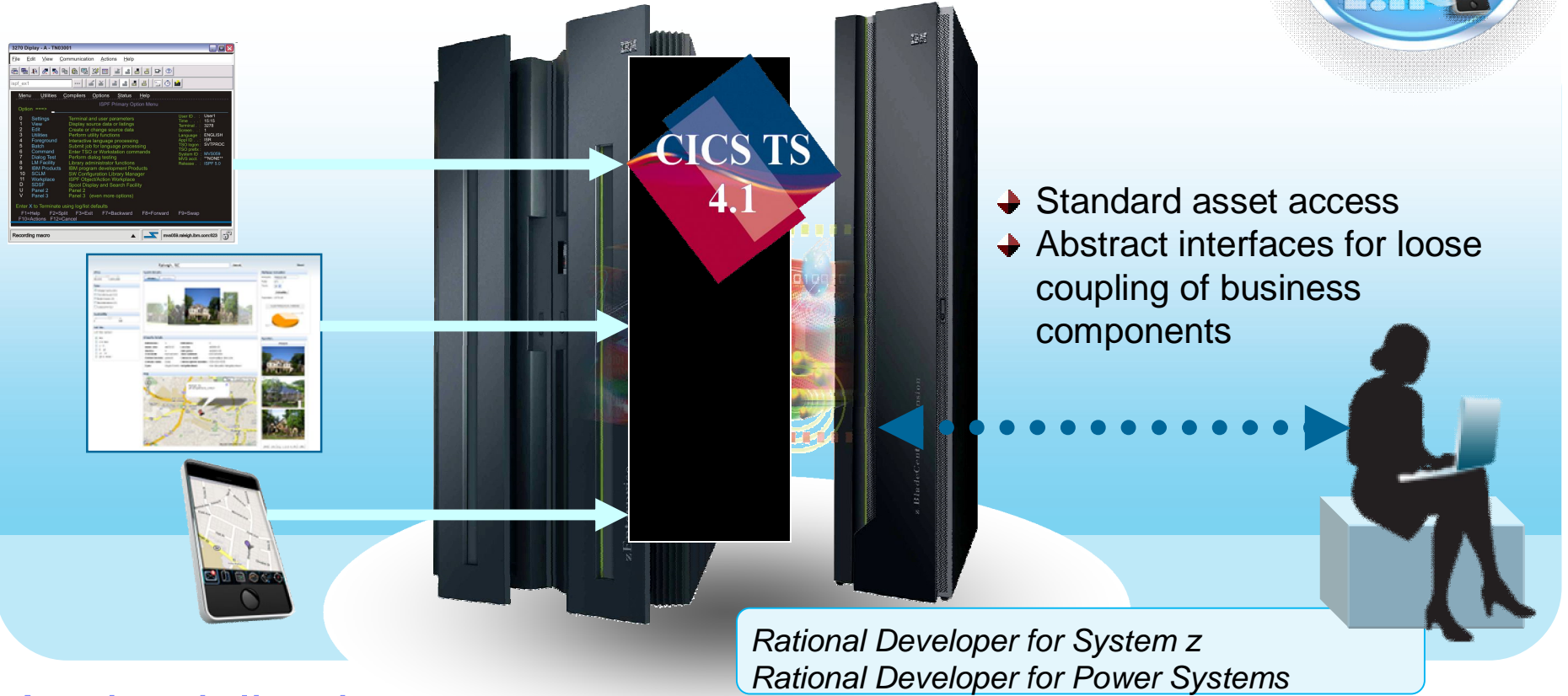


To learn more visit:
ibm.com/software/rational/announce/modernization/



Solution: Use SOA to modernize legacy applications and maximize re-use

Speeding development and delivery of your applications



Again, delivering...

*5x lower costs and reduced risk through reuse of existing assets, higher productivity, and platform portability of new services **WHILE** also protecting your legacy investments and allowing you to move your developers to more modern tooling yielding higher productivity and more on-time deliveries.*