Enterprise Modernization – revolutionizing the economics of enterprise application development and Maintenance

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Innovate2010
The Rational Software Conference

Let's **build** a smarter planet.

The premiere software and product delivery event.
4 de Noviembre, Madrid

Many businesses are challenged by growing complexity

79% → **49%** → **30%**

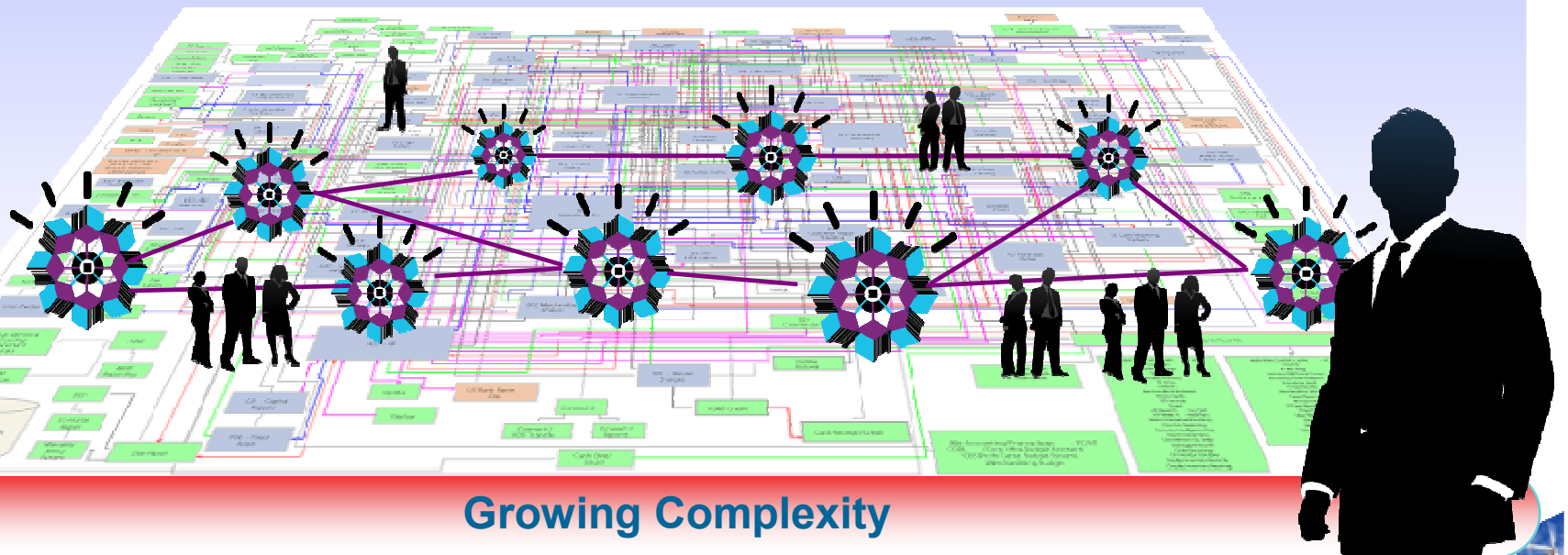CEOs anticipate complexity to grow significantly in the next five years.

CEOs believe they know how to deal with this complexity.

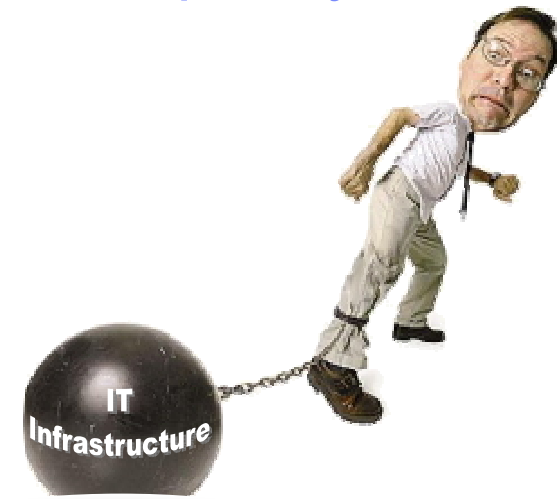Complexity gap means that CEOs increasingly see change coming but feel ill-equipped to handle it.

Growing Complexity

Let's **build** a smarter planet.

Many companies consider IT a contributor to complexity…and a cost center and a source of inflexibility

IT Infrastructure

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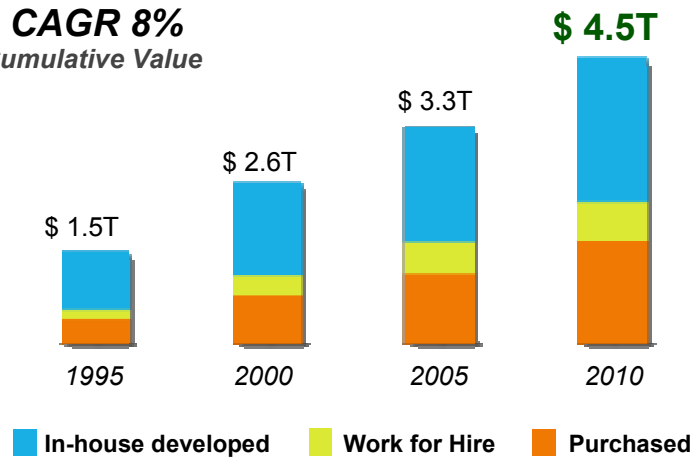
Gartner, October 14, 2008, "Changing the Cost Structure of IT Will Become a Business Imperative for Most CIOs"

Managing software delivery effectively is a KEY challenge

Investment

CAGR 8%
Cumulative Value

$ 4.5T

$ 3.3T

$ 2.6T

$ 1.5T

1995   2000   2005   2010

■ **In-house developed**   ■ **Work for Hire**   ■ **Purchased**

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

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."

IBM solutions for Enterprise Modernization can help
Optimizing applications, people, team and infrastructure investments

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

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

Rational Software Delivery Platform *powered by* Jazz

Increase flexibility by revitalizing existing application portfolios

Increase flexibility

Boost productivity

Maximize business agility

Improve system utilization

Revitalize Applications

Empower People

Unify Teams

Optimize Infrastructure
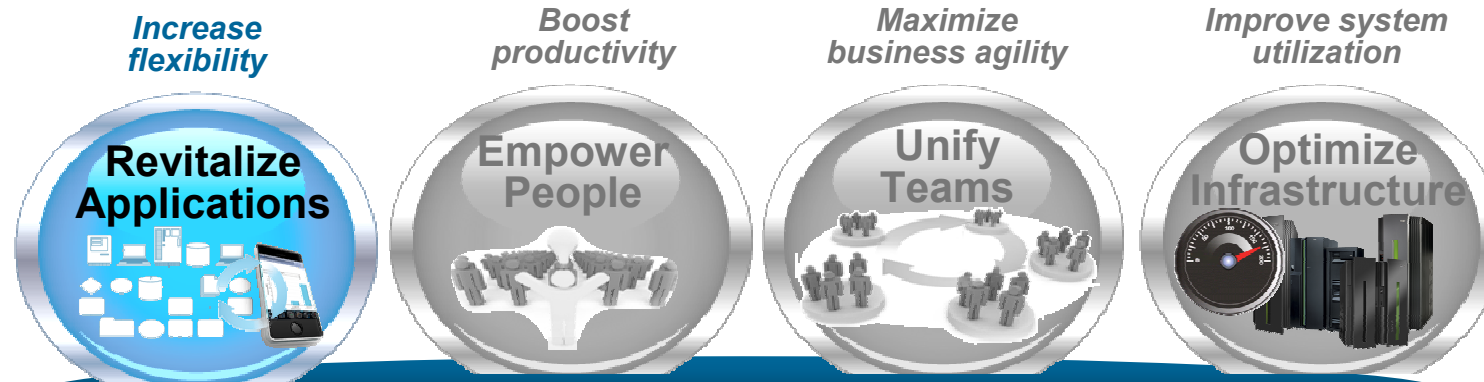
Enterprise architecture and portfolio management

Business intelligence for applications

SOA tools for all platforms and languages

Operational reuse

User interface modernization
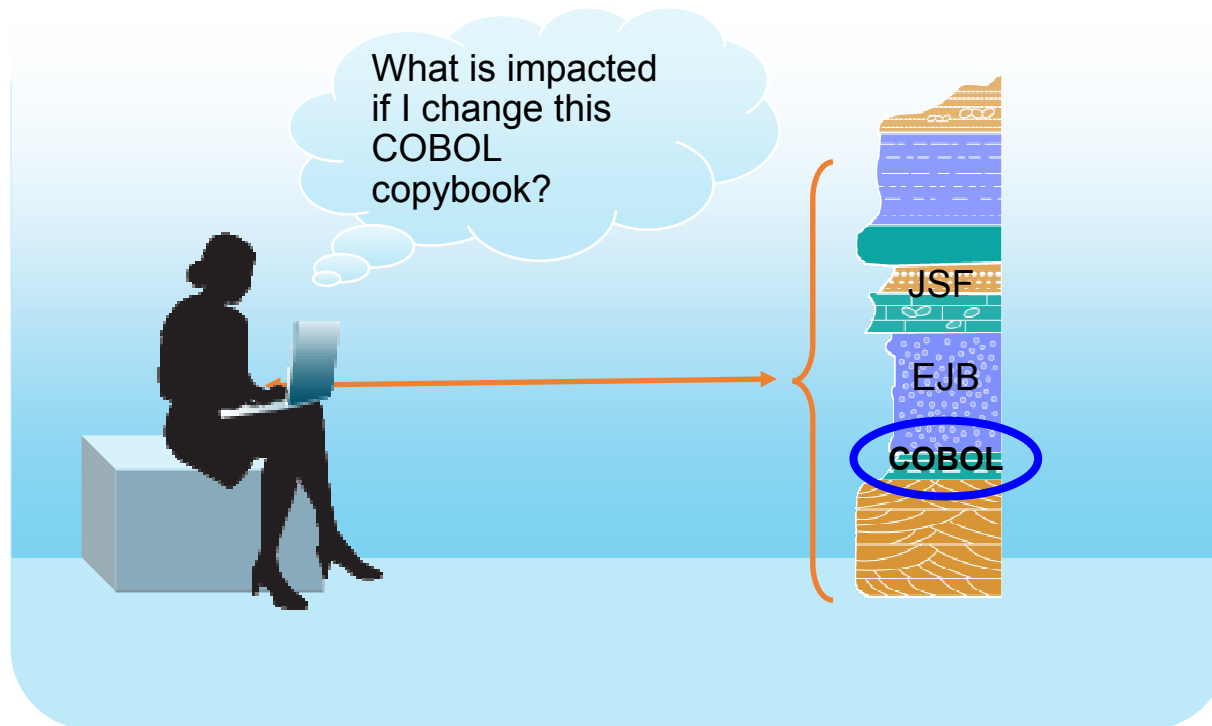
Application transformation tools and services

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

Revitalize Applications

What is impacted if I change this COBOL copybook?

JSF

EJB

COBOL

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.

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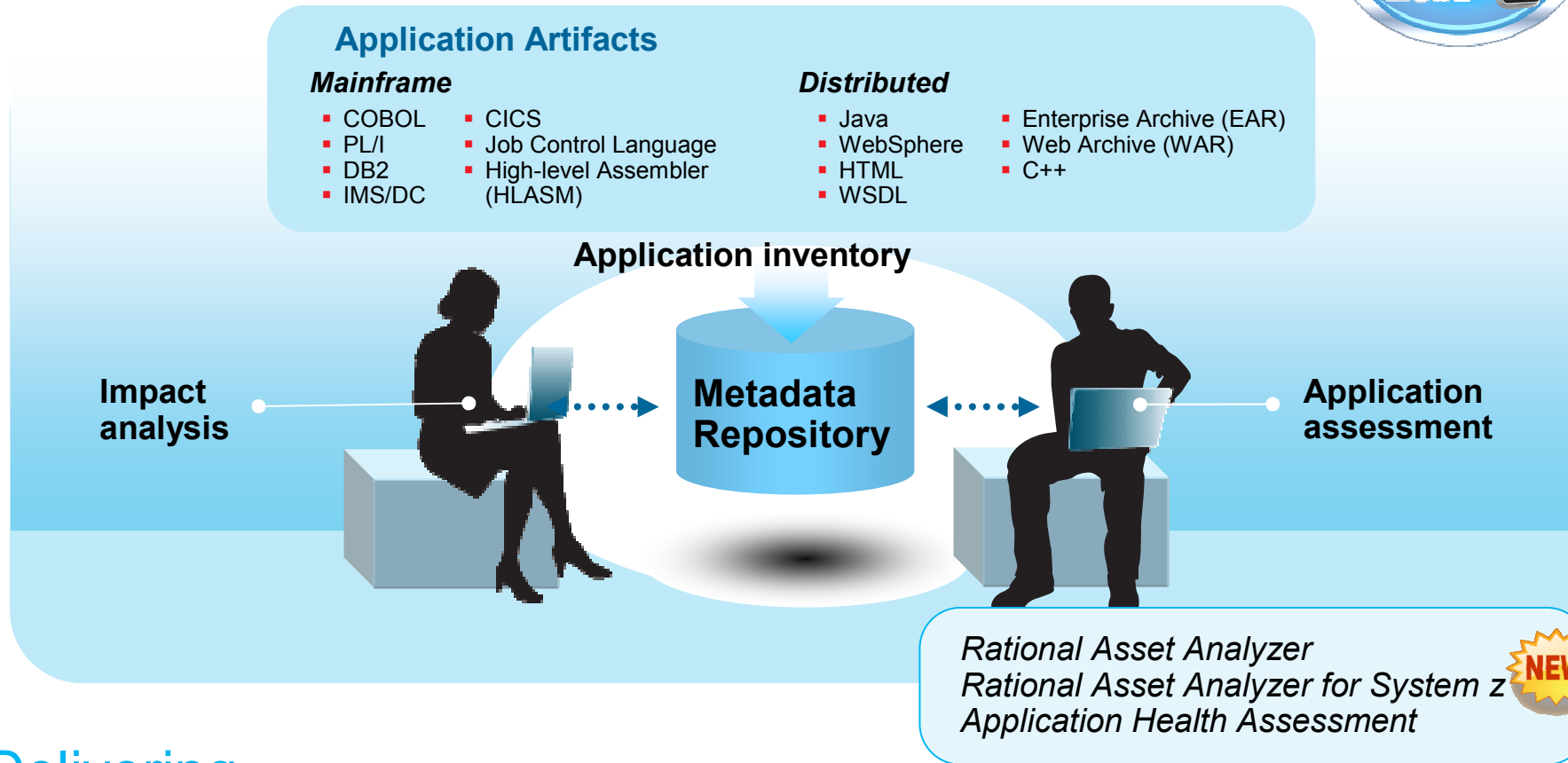*Restore lost application knowledge via technical analysis*

Revitalize Applications

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

Application assessment

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
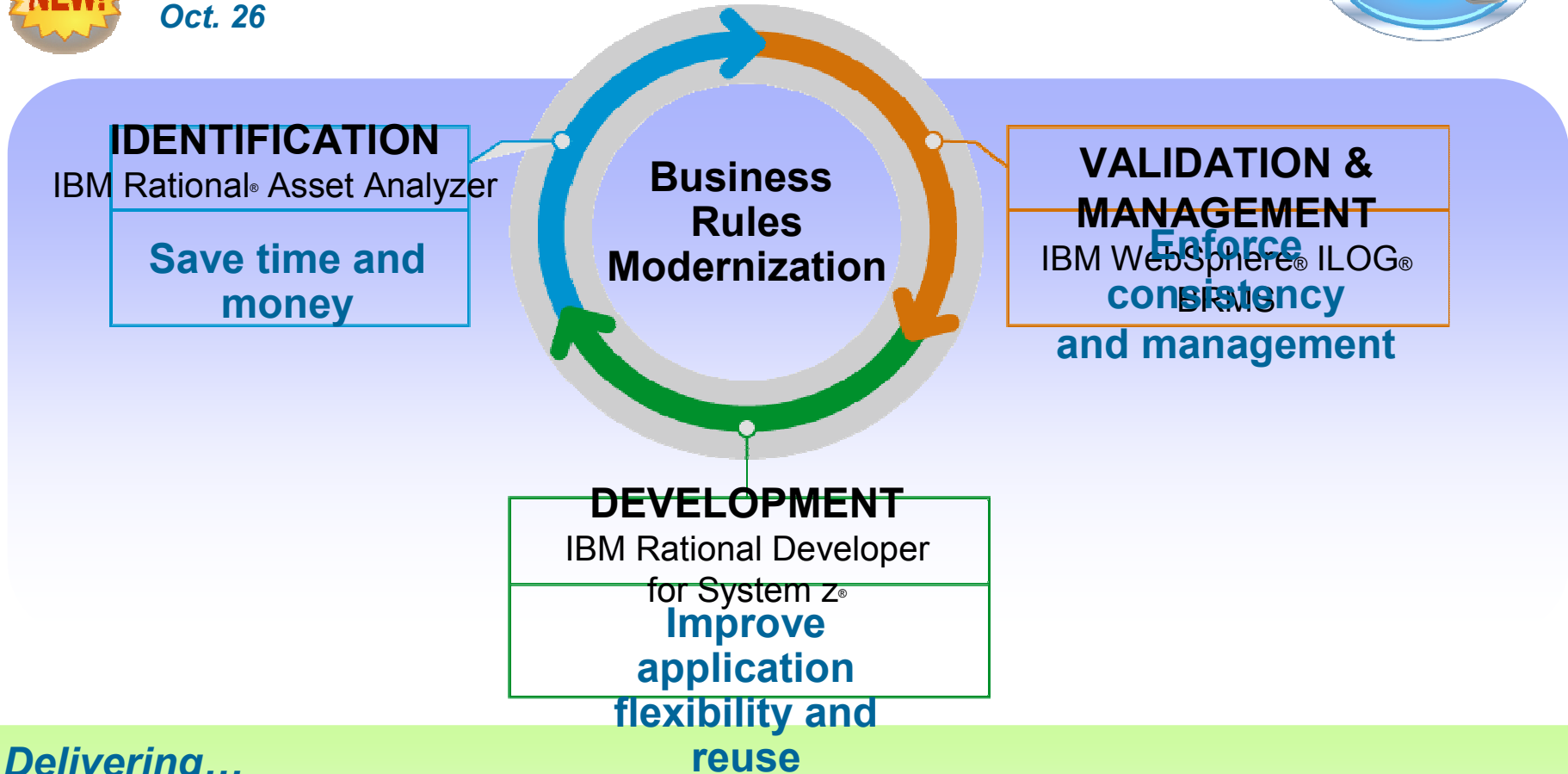
Announcing: Rational Asset Analyzer v6
Reduce the risk and cost of your application modernization projects

Revitalize Applications

NEW!

***Announce Date
Oct. 26***

Business Rules Modernization

IDENTIFICATION

IBM Rational® Asset Analyzer

Save time and money

VALIDATION & MANAGEMENT

IBM WebSphere® ILOG® BRMS

Enforce consistency and management

DEVELOPMENT

IBM Rational Developer for System z®

Improve application flexibility and reuse

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…

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 and COBOL

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

Solution: Application transformation tools and services

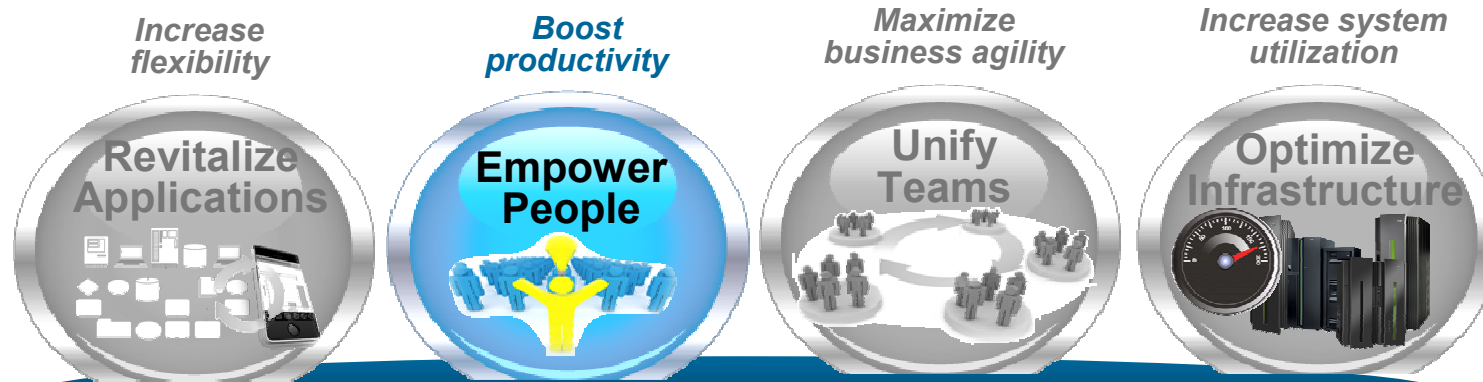*Migrate from older languages and expensive tools to modern development platforms, languages, databases and tools*

Revitalize Applications

Software AG Natural/Adabas

CA Ideal/Datacom and CoolGen

RPG and COBOL

Green screen text UIs

EGL

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

Boost productivity and accelerate innovation with modern skills

Increase flexibility

Boost productivity

Maximize business agility

Increase system utilization

Revitalize Applications

Empower People

Unify Teams

Optimize Infrastructure
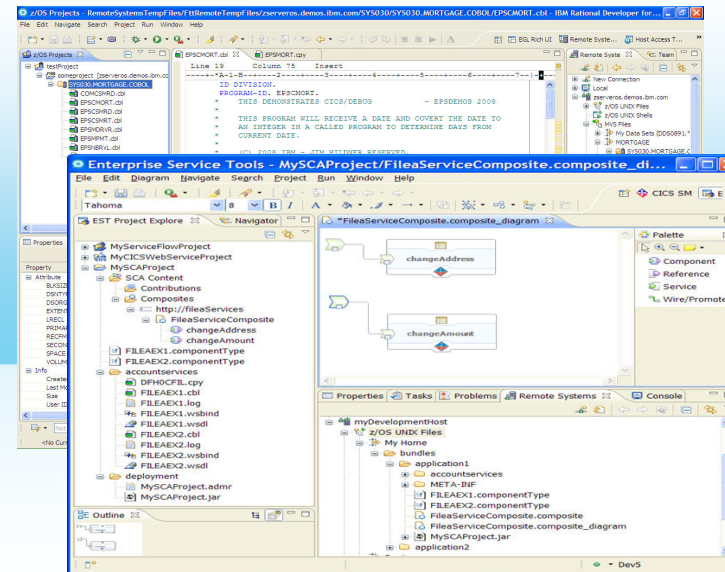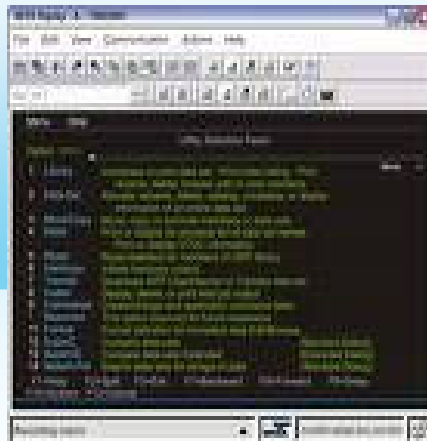
Modern IDEs for all platforms and languages

Modern business language

Enterprise training programs, communities and resources

Rational Software Delivery Platform *powered by* Jazz

13

Enterprises want to…

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

Empower People

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
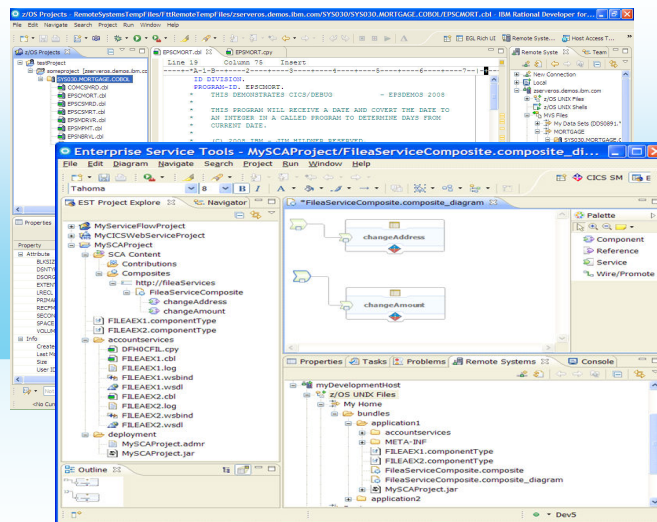
NEW!

Rational Developer for System z
Rational Developer for zEnterprise
Rational Developer for Power Systems
Rational Application Developer
Rational Business Developer

Delivering…

22%-37% improvement in developer productivity[1], modern tools with which to attract new talent, and 50%-80%[1] reduction in host CPU usage with workstation syntax checking

Announcing: Rational Developer for zEnterprise v8.0.1
Gain productivity and efficiency through a multiplatform IDE

Empower People

NEW! **Announce Date Oct. 26**

COBOL

PL/I

JEE

EGL

C/C++

Rational Developer for zEnterprise

Unified IDE

z/OS   AIX   Linux
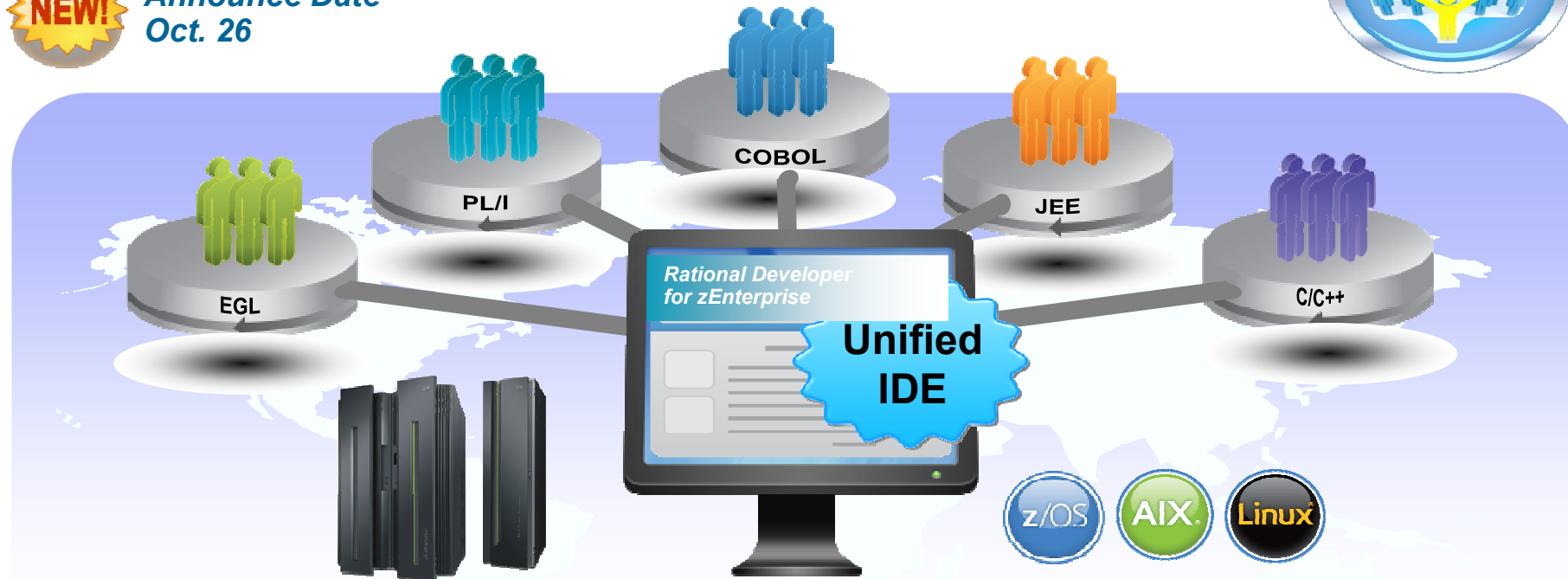
✓ **Lower your enterprise development and maintenance costs**

✓ **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

Empower People

NEW!

Announce Date
Oct. 26

✓ Lower development cost

✓ Faster time-to-market

✓ Enhanced productivity

✓ Increased application quality

IMS | C/C++ | EGL | JEE | PL/I | COBOL | CICS | WAS

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
Increase flexibility, portability, and free-up production capacity

NEW!

Empower People

Announce Date
Oct. 26

✓ Easy access to z/OS

✓ Free up production MIPS

✓ Enable quick, agile approach

✓ Portable z/OS development

RDz

RDz

RDz

ISPF

RDz & ISPF

Debug

Compile

RDz UT

z/OS

z/OS on
x86
Linux

Edit
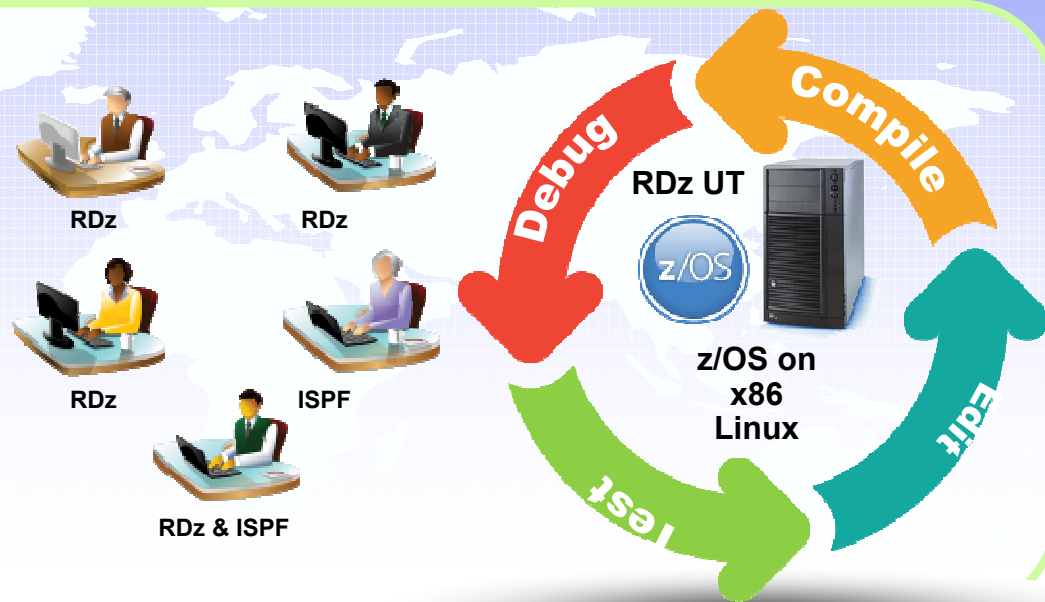
Test

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.

Enterprises want to…

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

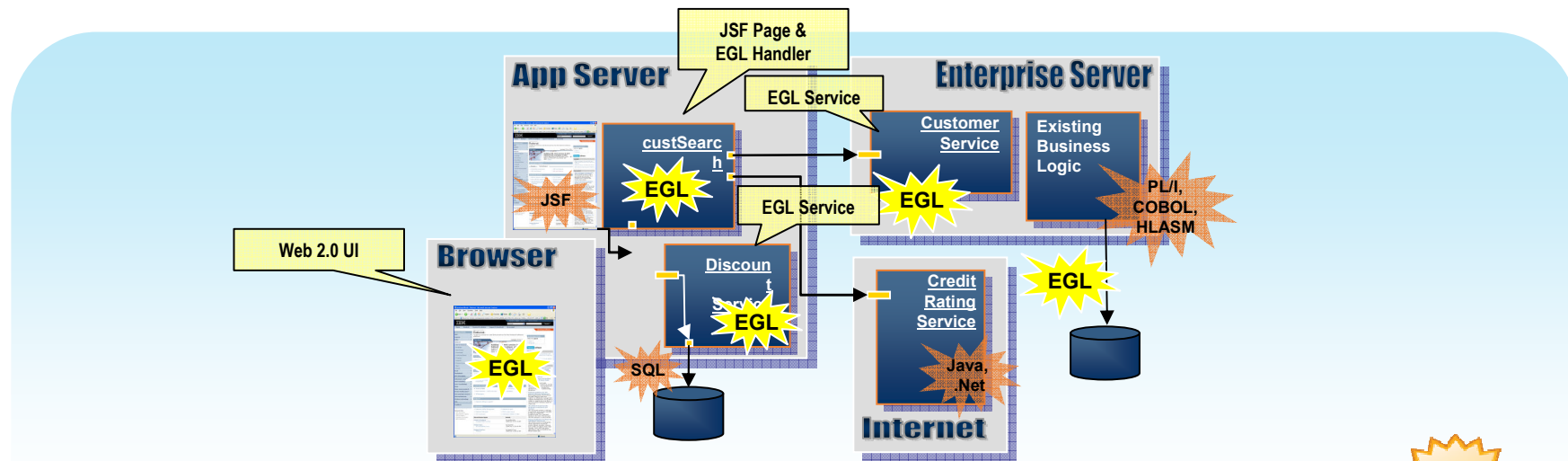**Empower People**

PIM = Platform Independent Model
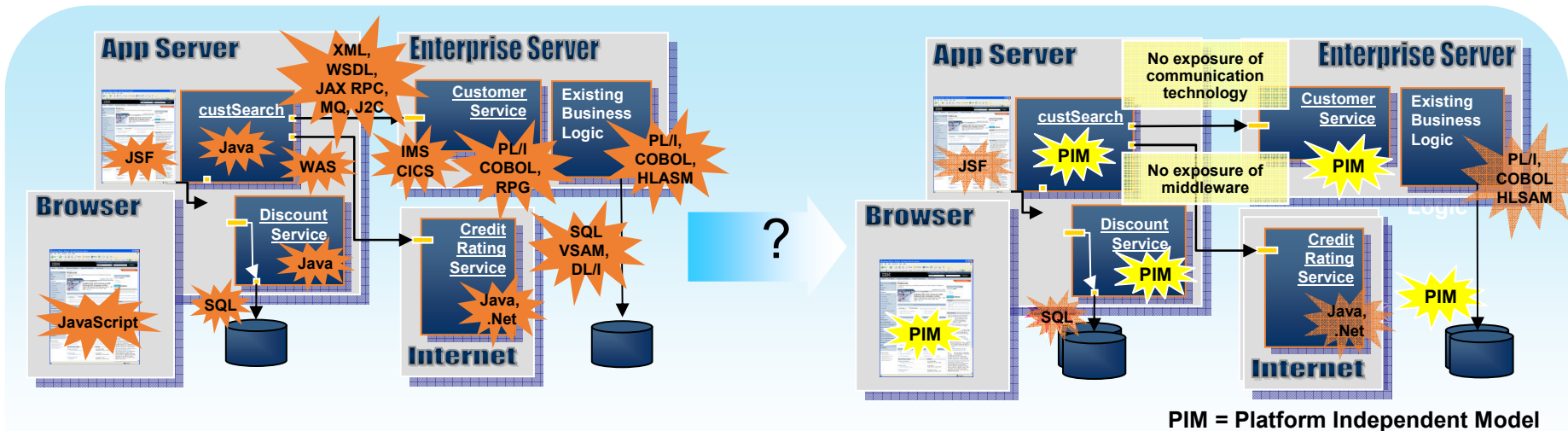
But…

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

App Server

Enterprise Server

JSF Page & EGL Handler

EGL Service

custSearch

EGL

JSF

Customer Service

EGL

Existing Business Logic

PL/I, COBOL, HLASM

EGL Service

Web 2.0 UI

Browser

EGL

Discount Service

EGL

EGL

Credit Rating Service

Java, Net

Internet

SQL

EGL

NEW!

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

Delivering. . .

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

Announcing: Rational Business Developer v8.0.1

Multiplatform business language for modern application development

NEW!

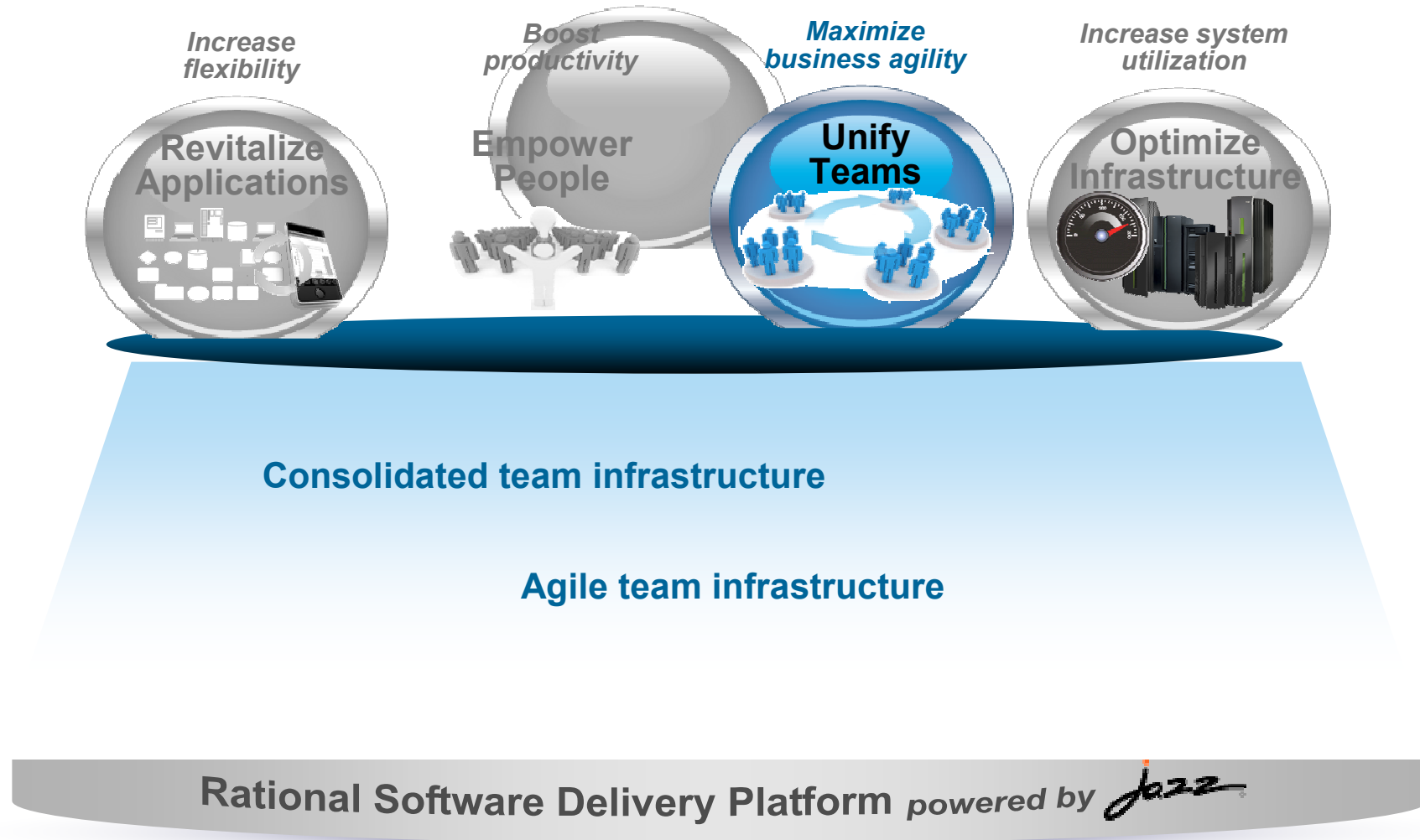*Announce Date*
Oct. 26

Empower People

✓ Faster time to market

✓ Improved productivity

✓ Leverage traditional programming skills

✓ Ultimate platform flexibility

WEB 2.0

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!

Maximize organizational agility by unifying development teams

Increase flexibility

Boost productivity

Maximize business agility

Increase system utilization

Revitalize Applications

Empower People

Unify Teams

Optimize 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

Unify Teams

PL/I

J2EE

.NET

COBOL

EGL
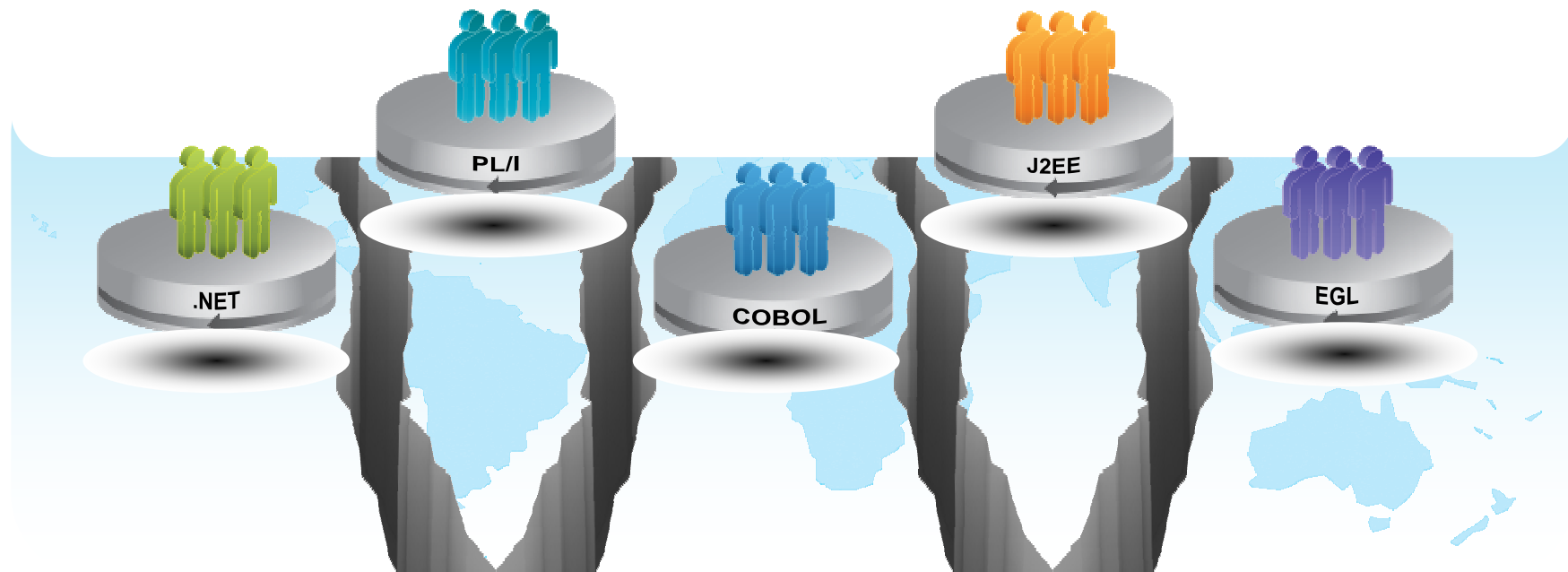
But…

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 mana...
and build that empowers your team with integrated collaboration, process
automation, and reporting*

Unify
Teams

PL/I

J2EE

.NET

COBOL

EGL

Rational Software Delivery Platform *powered by* Jazz
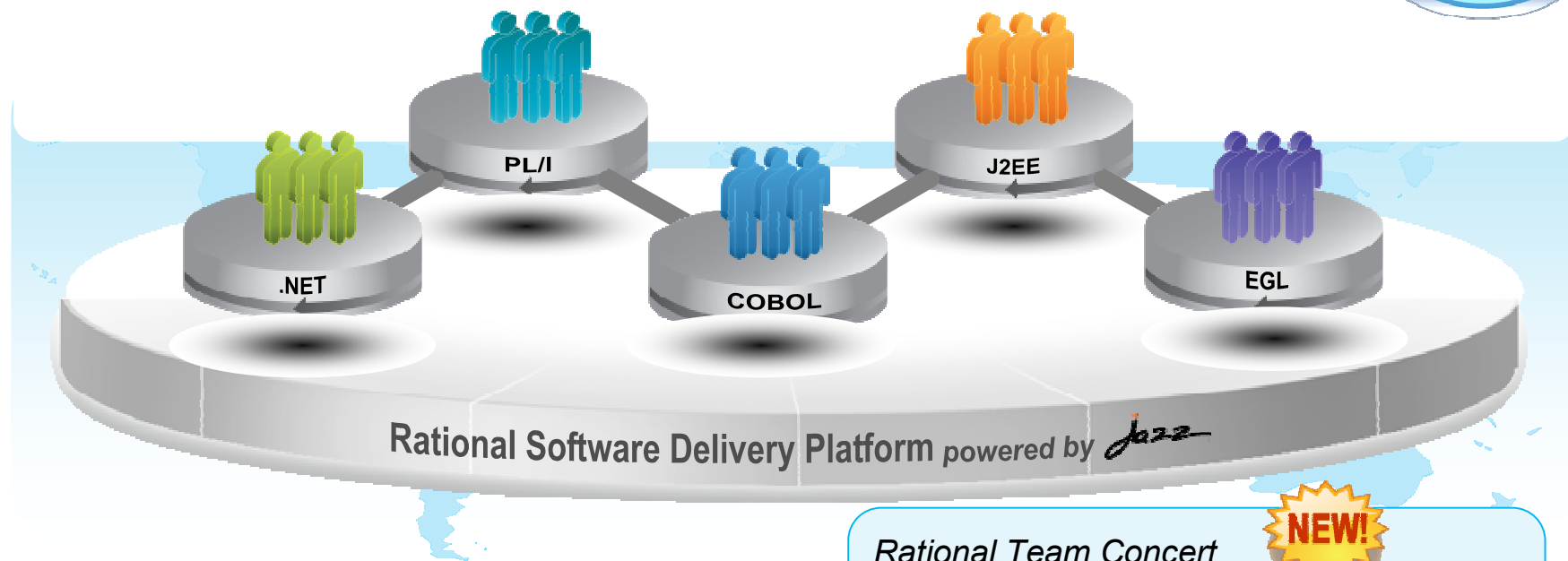
NEW!

Rational Team Concert

Rational ClearCase / Rational ClearQuest

Rational Build Forge

Delivering…

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

Rational Team Concert
Unify geographically dispersed teams, gain efficiency and productivity

NEW! *V3 currently available on Jazz.net*

Rational Software Delivery Platform *powered by* **Jazz**

Common team infrastructure for collaborative software delivery
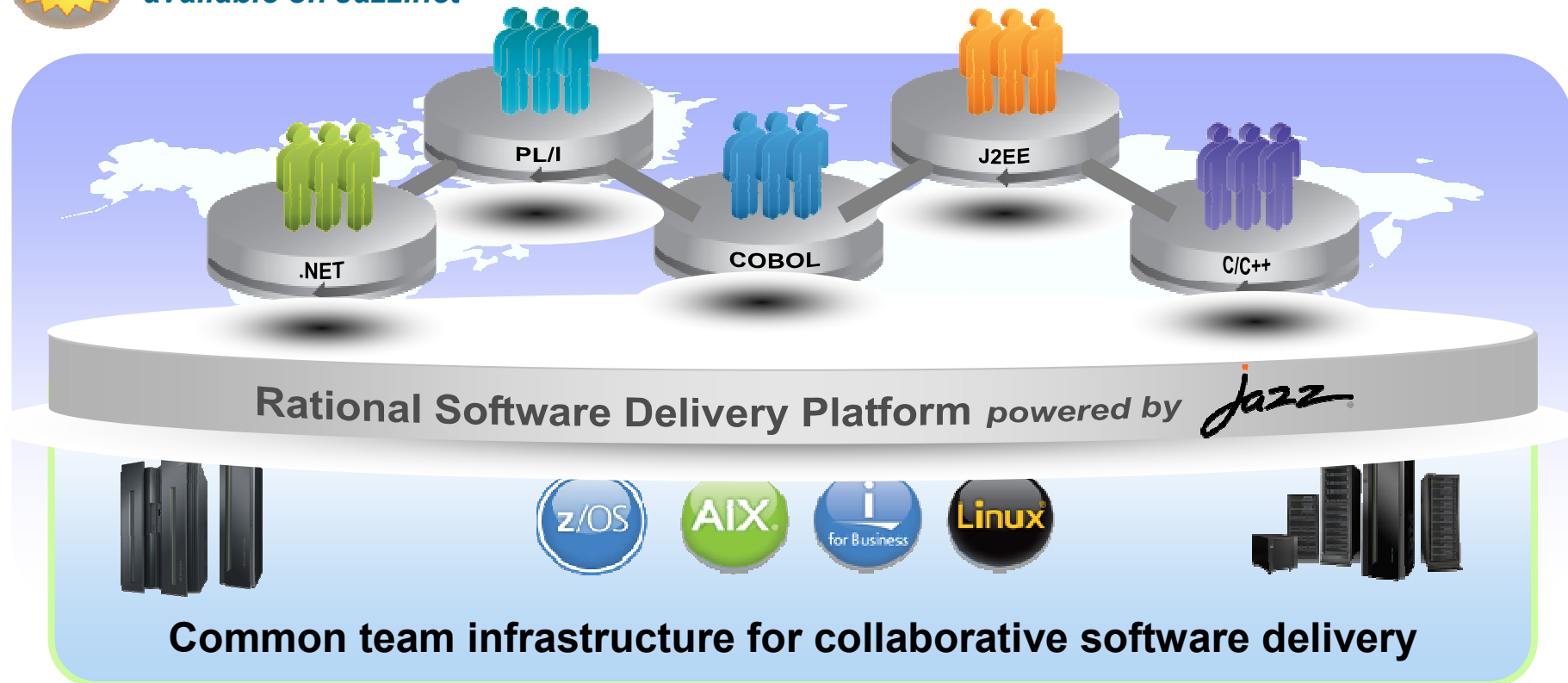
Delivering…
- ✓ Single integrated platform for managing delivery of multiplatform projects
- ✓ New support for advanced dependency analysis and build capabilities for z/OS
- ✓ New integrated ISPF client for z/OS source edit, compile and debug

Improve application performance by fully exploiting modern hardware

Increase flexibility	*Boost productivity*	*Maximize business agility*	*Increase system utilization*
Revitalize Applications	**Empower People**	**Unify Teams**	**Optimize Infrastructure**
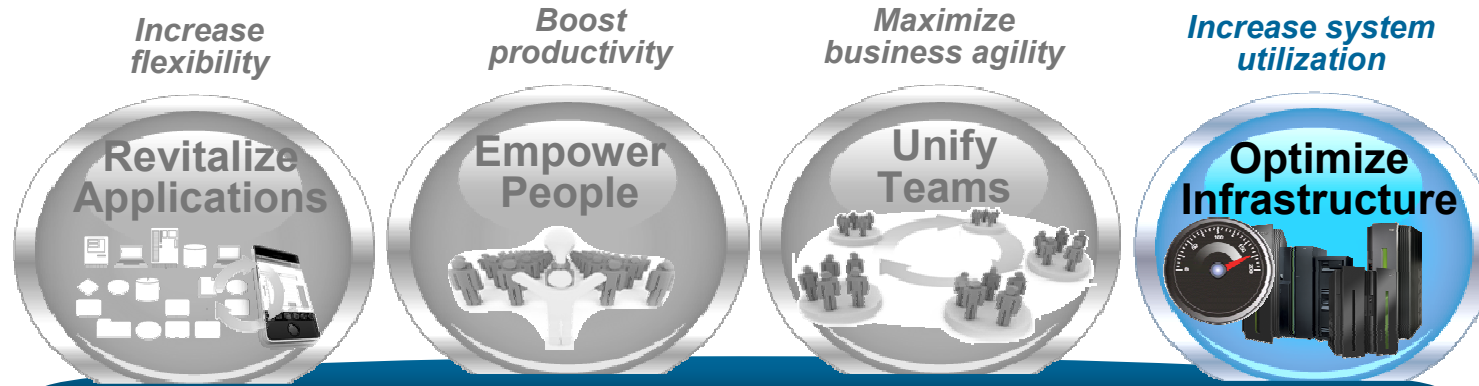
Exploit new advanced optimization technology in C/C++, Java, COBOL, PL/I, Fortran and RPG compilers

Rational Software Delivery Platform *powered by* Jazz

Enterprises want to…
Maximize application performance on existing hardware to reduce capital expenses

Optimize 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

Optimize Infrastructure

Performance

Compiler Version

Same hardware + *NEW* compiler = _Increased_ Performance

NEW hardware + *NEW* compiler _ximum_ 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

Rational Compilers for System z and Power Systems
Improve application performance, productivity, and return on investment

Optimize Infrastructure

Recently Announced

IBM zEnterprise 196

zEnterprise BladeCenter Extension (zBX)

NEW! ▪ z/OS XL C/C++ v1.12

NEW! ▪ Enterprise PL/I
for z/OS v4.1

▪ Enterprise COBOL
for z/OS v4.2

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

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.

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

Articulate Business Objectives

Select Practices

PLAN
IMPLEMENT
IBM IT Governance Approach
MANAGE
ASSESS

Measure Practice Adoption and Business Outcome

Implement / Enact Practices
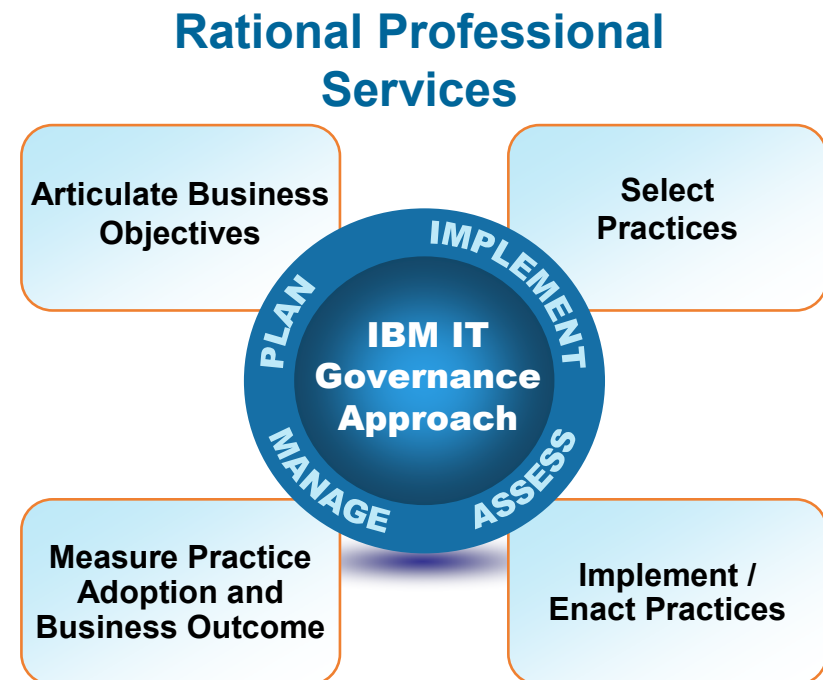
IBM Rational Enterprise Modernization key announcements
Continuing the evolution to optimize multiplatform application development

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

NEW!

Revitalize Applications

Empower People

Unify Teams

Optimize Infrastructure

Rational Software Delivery Platform *powered by* jazz
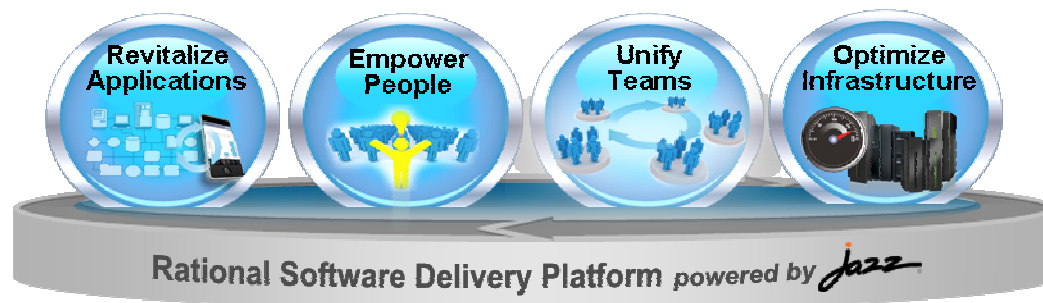
To learn more visit:
ibm.com/software/rational/announce/modernization/

System z Sandbox

www.ibm/software/rational

Enterprises want to…
Better align IT activities and investments with their business goals and objectives
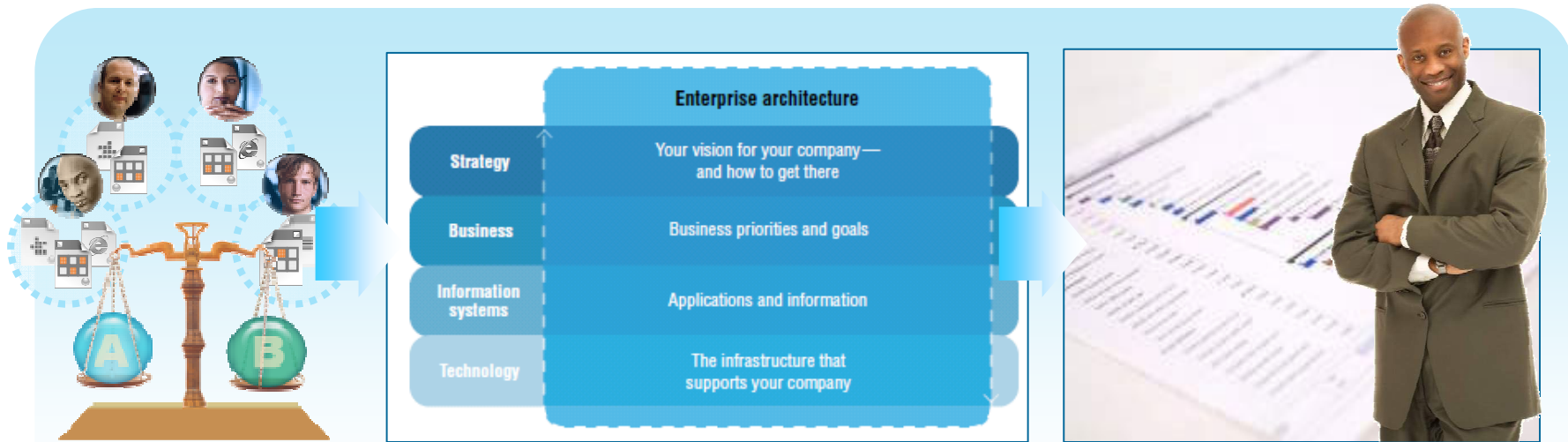
Revitalize Applications

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.

Revitalize Applications

Solution: Enterprise architecture and portfolio management
Make enterprise IT planning actionable and traceable

Enterprise architecture

Strategy	Your vision for your company— and how to get there
Business	Business priorities and goals
Information systems	Applications and information
Technology	The infrastructure that supports your company

Rational System Architect

Rational Focal Point

Rational Project Conductor

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

Enterprises want to…

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

Revitalize Applications

Customer Order & Fulfillment

Call Center

Customer Order & Fulfillment

Call Center

CRM Service

ERP System

Supplier

Outsourced Shipping, Credit Check

Service
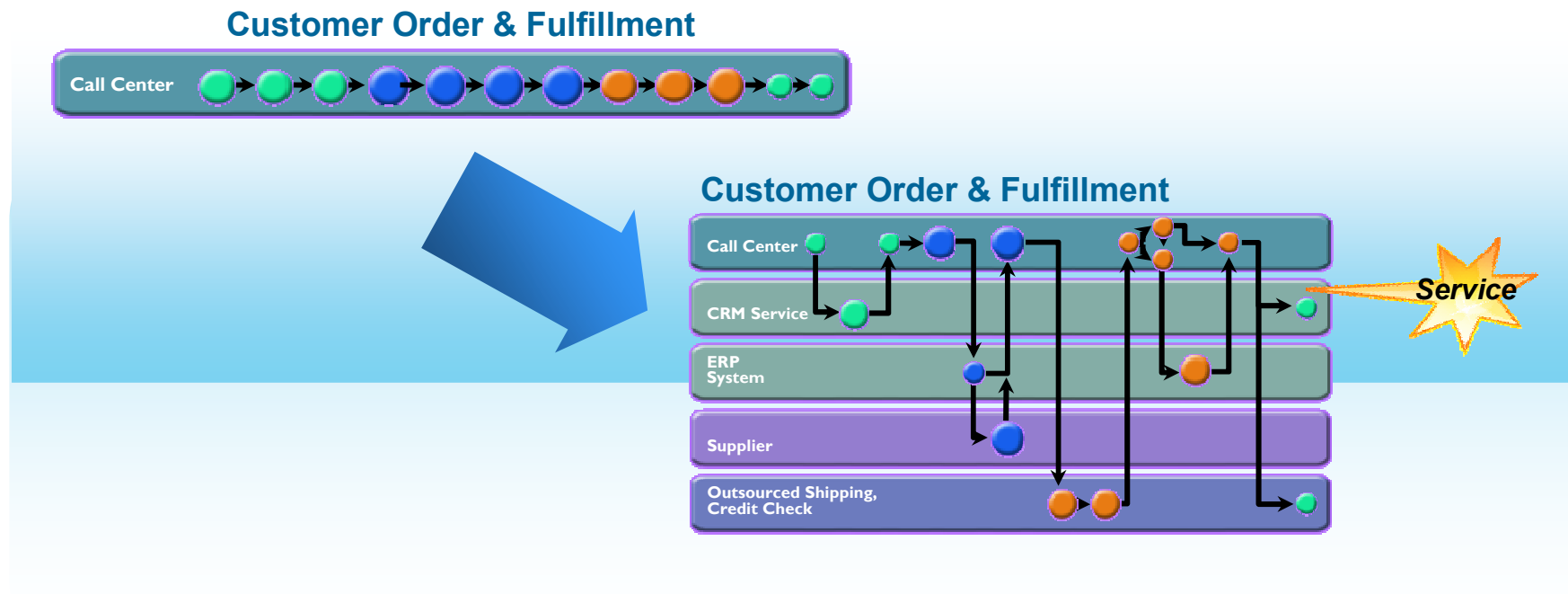
But…

They have application architectures that were built incrementally over the last 20-30 years and are no longer flexible or agile.
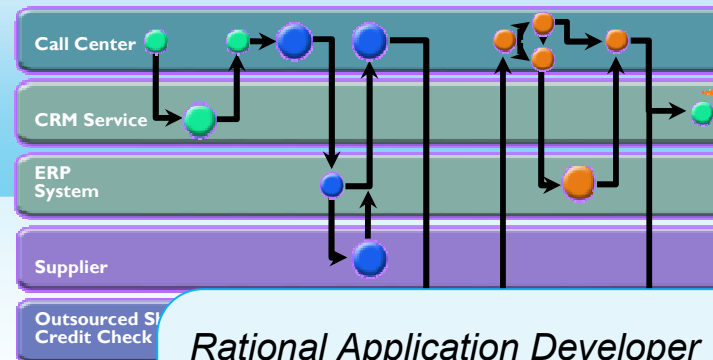
Solution: SOA tools for all platforms and languages
*Use powerful tools to quickly begin SOA evolution
by harvesting and repurposing proven assets*

Revitalize Applications

Customer Order & Fulfillment

Call Center

Customer Order & Fulfillment

Call Center

CRM Service

ERP System

Supplier

Outsourced S...
Credit Check

Service

*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*
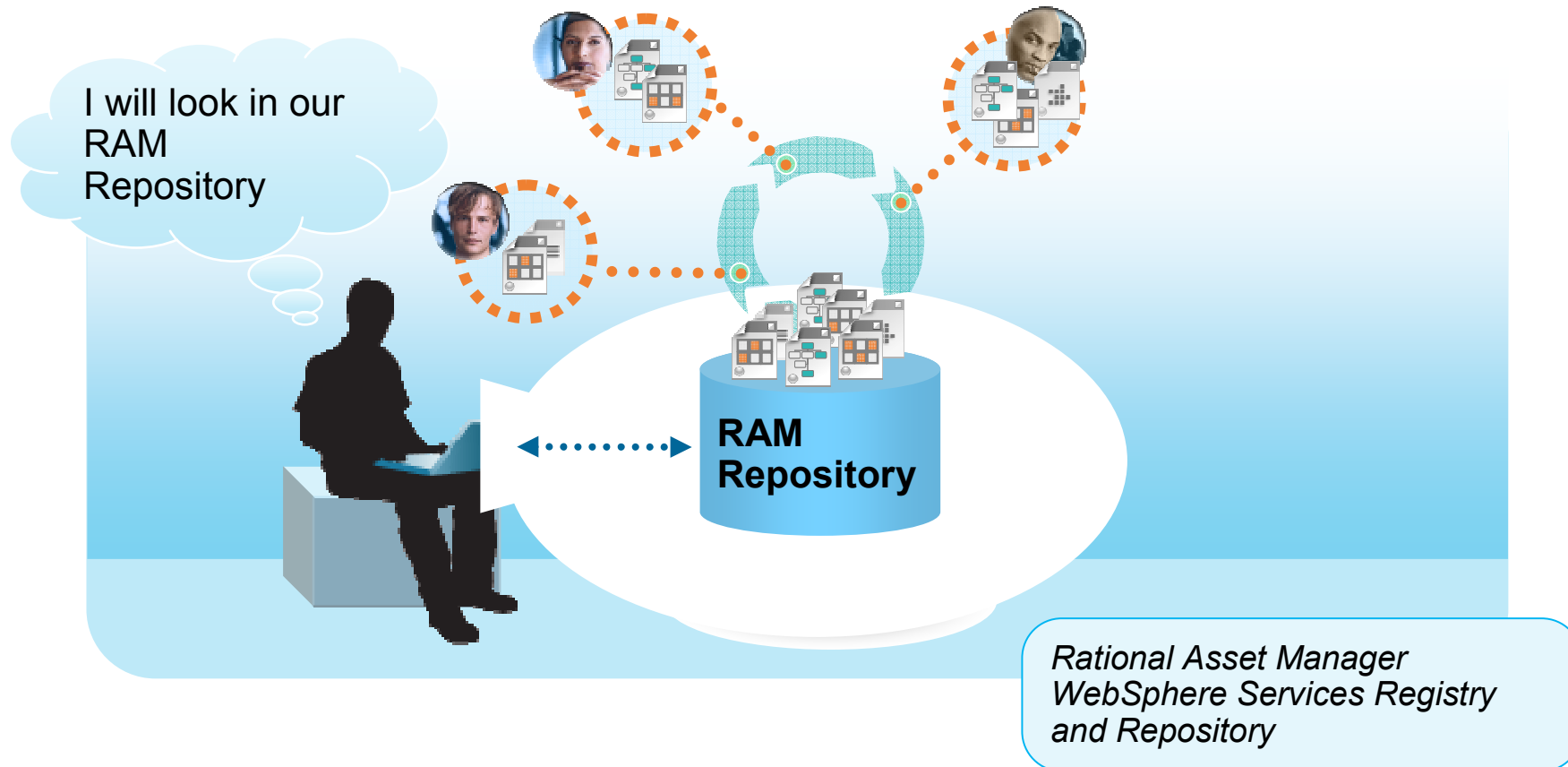
Revitalize Applications

Do we already have code to do this?
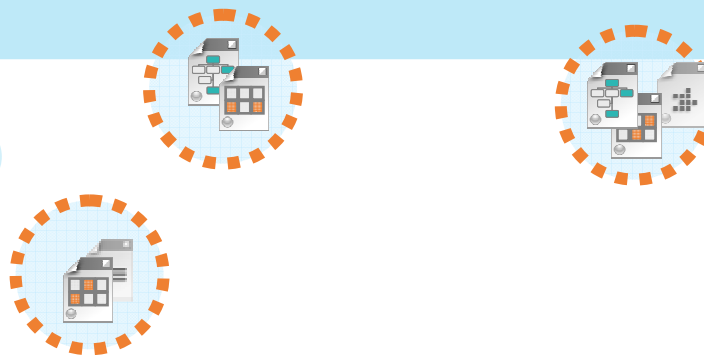
But…
They do not have the infrastructure to establish a reuse culture

Solution: Operational reuse

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

Revitalize Applications

I will look in our RAM Repository

RAM Repository

Rational Asset Manager WebSphere Services 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

Revitalize Applications
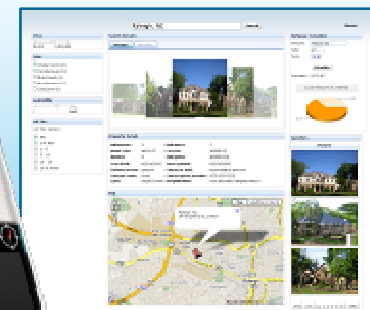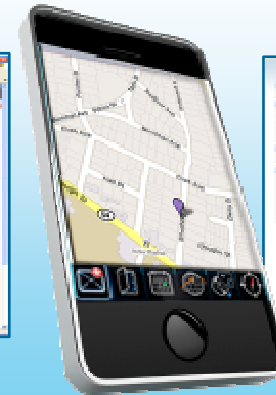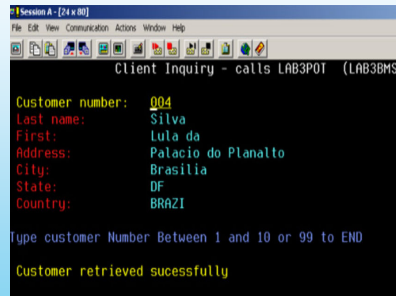
But…

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
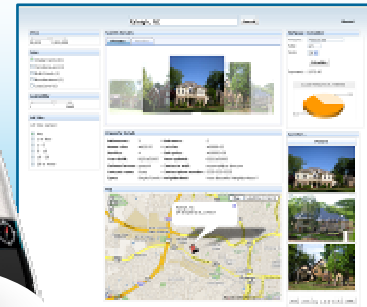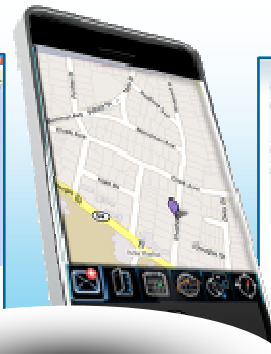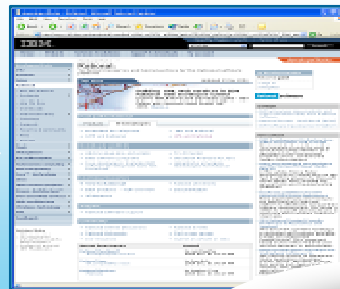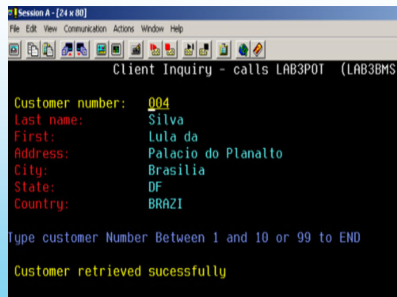
Rational EGL

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

Rational Programming Patterns for System z
Preserve and extend your VA Pacbase investments

Empower People

NEW! *Currently in Beta*

- ✓ Experience the Power of programming patterns

- ✓ Low cost migration from VisualAge Pacbase v3.5

- ✓ Leverage traditional and new programming skills

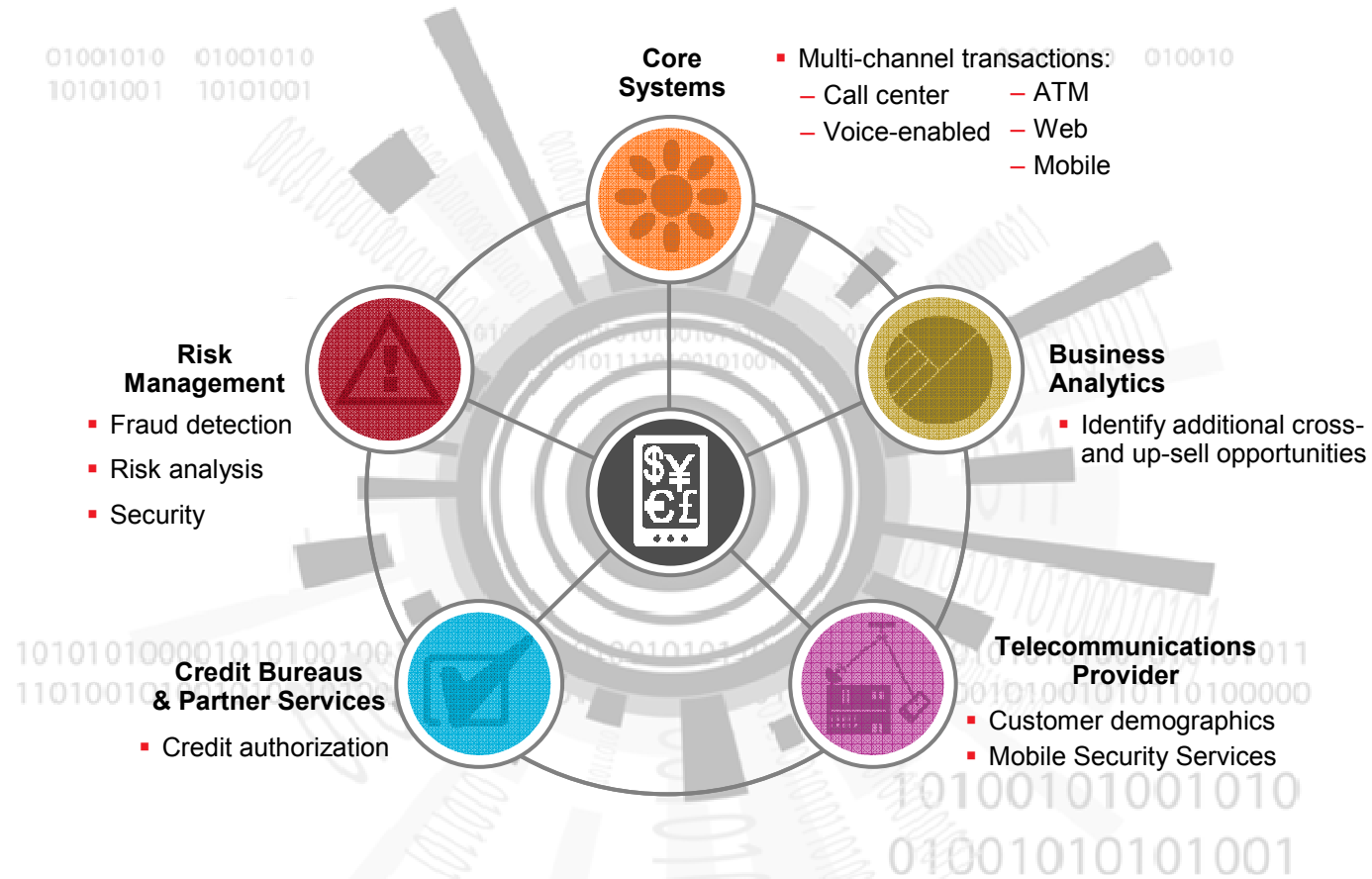- ✓ Comprehensive integrated development platform

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

Core Systems
- Multi-channel transactions:
  - Call center
  - Voice-enabled
  - ATM
  - Web
  - Mobile

Business Analytics
- Identify additional cross- and up-sell opportunities

Telecommunications Provider
- Customer demographics
- Mobile Security Services

Credit Bureaus & Partner Services
- Credit authorization

Risk Management
- Fraud detection
- Risk analysis
- Security

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**

Edit, compile, debug and test multiplatform apps
Rational Developer for zEnterprise*

Discover and analyze application assets
Rational Asset Analyzer

Manage end-to-end development lifecycle
Rational Team Concert

z/OS — **Transaction Processing**

Stored Procedure

CICS COBOL Transaction

CTG

MQ

DB2   *CICS*

Linux — **Web Apps**

JEE Application

WAS

AIX — **High Performance**

ISV Apps, Custom Apps (C/C++)

MQ

z196

zBX

zEnterprise System

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