IBM Rational Software Conference 2009

Enterprise Modernization

Lowering the cost of multi-platform application development and delivery

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Rational. software

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Go to IBM

Change is the new norm

There are 1 billion camera phones in use today

IBM Sequoia Super Computer…
It would take the entire population of the earth, about six billion, each of us working a handheld calculator at the rate of one second per calculation, more than 320 years to do what Sequoia can do in one day.

"8 of 10 CEOs see significant change ahead"
- 2008 IBM CEO Survey

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

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

Soon there will be over 2 billion people on the web

China sends more text messages in a week than the U.S. does in 1 year

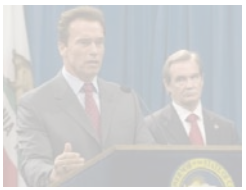
Change can be ~~very disruptive~~ an opportunity

IT skills shortage reaches highest level in 10 years

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

50% of outsourced projects are expected to under perform

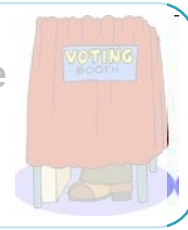
"The gap between expected change and the ability to manage it has almost tripled since 2006."
– 2008 IBM CEO study



COBOL thwarts California's "Governator"

North Carolina Jobless Claims Crash State's Web Site

Ohio election web site shut down after being hacked



View fashion shows and collections on your iPhone

Malta is building a smart grid to link the power and water systems

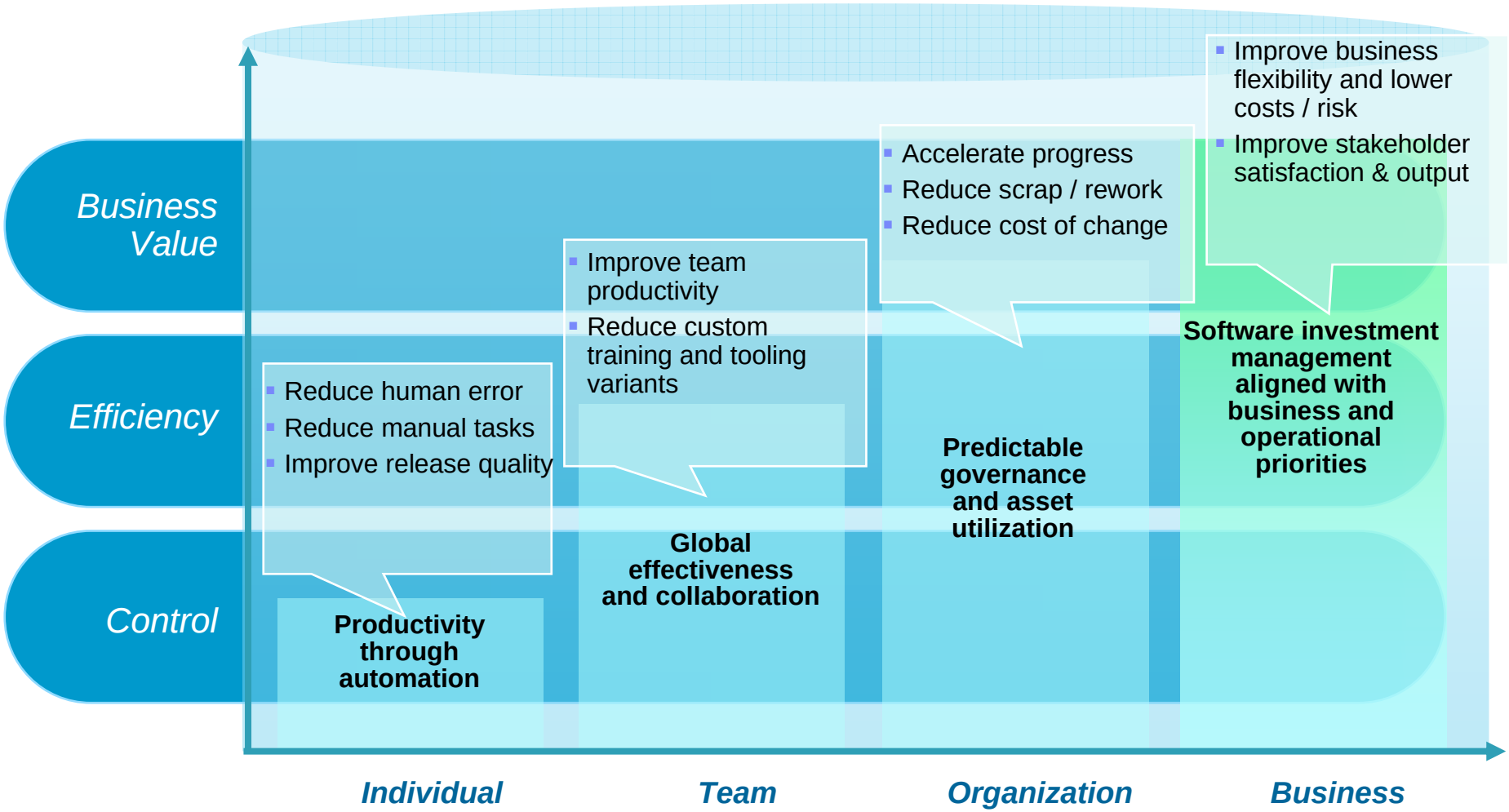
Mobile phone provider "3" launches new handset to allow users to make free calls via Skype

Is your IT infrastructure flexible enough?

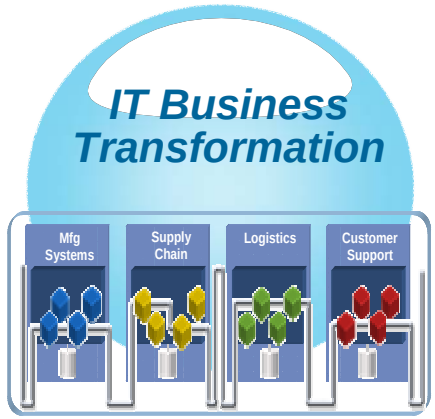
"The message for IT is clear; business needs and expects greater agility from IT. A new approach to IT delivery models and sourcing options is required that allows IT organizations to be more responsive to the needs of the business."

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

Treat software development as a strategic business process



Rational solutions can help in 3 domains



- **Enterprise Modernization** – harness the same power and flexibility for all types of applications, no matter what platform they are deployed on
- **IT Business Transformation** – align your IT infrastructure with your business strategy and vision to innovate new business strategies and meet long term objectives
- **Complex/Embedded Systems** – deliver innovative software for your products, while integrating across mechanical, electronic, and software domains

Key modernization challenges for IT organizations

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

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

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

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

Application Challenges

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

People Challenges

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

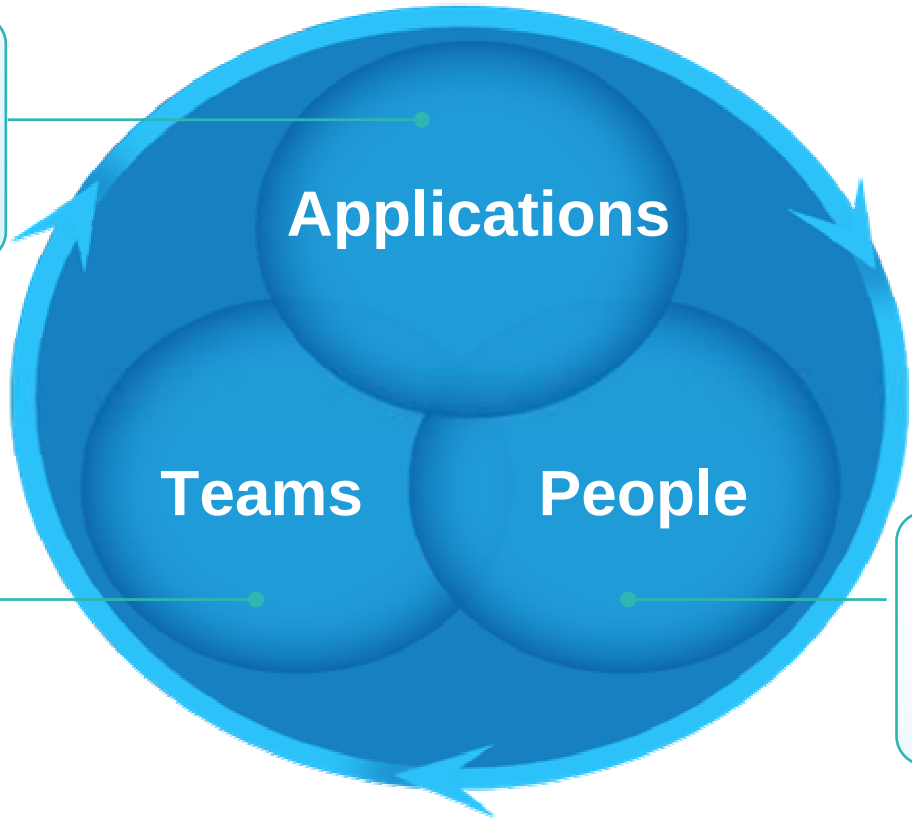
Team Challenges

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

Enterprise Modernization solutions

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

Reduce application maintenance costs, increase agility to respond to change and increase overall quality



Consolidate team infrastructure to increase efficiency, collaboration, and governance across software lifecycle

Achieve greater business agility and productivity by leveraging existing domain knowledge and new talent

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

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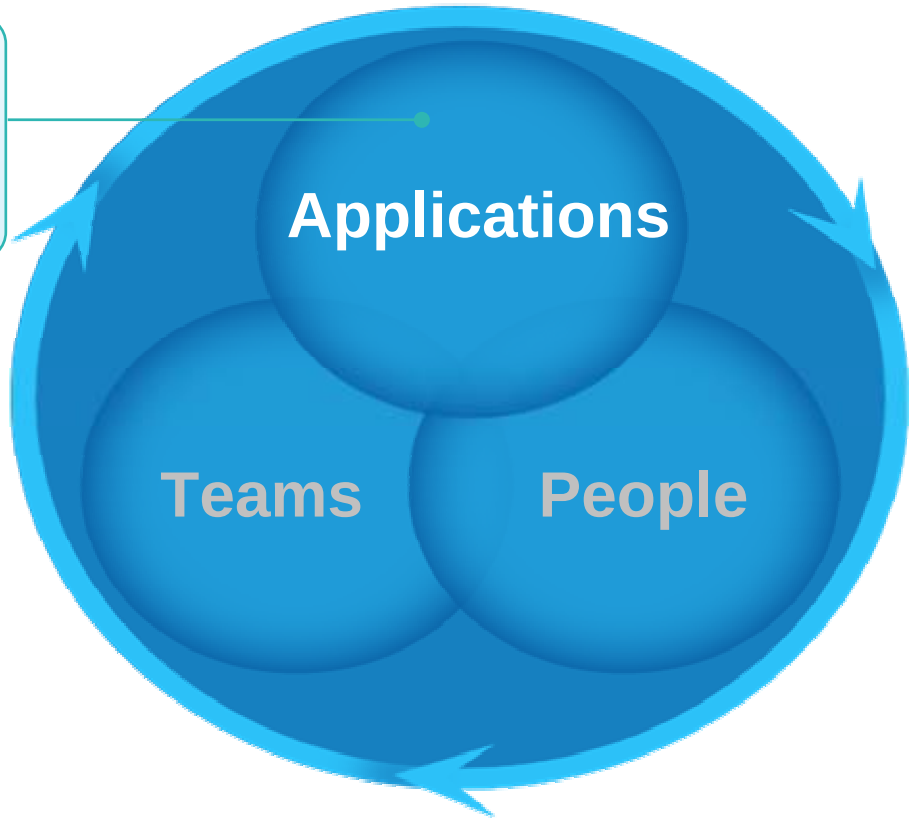

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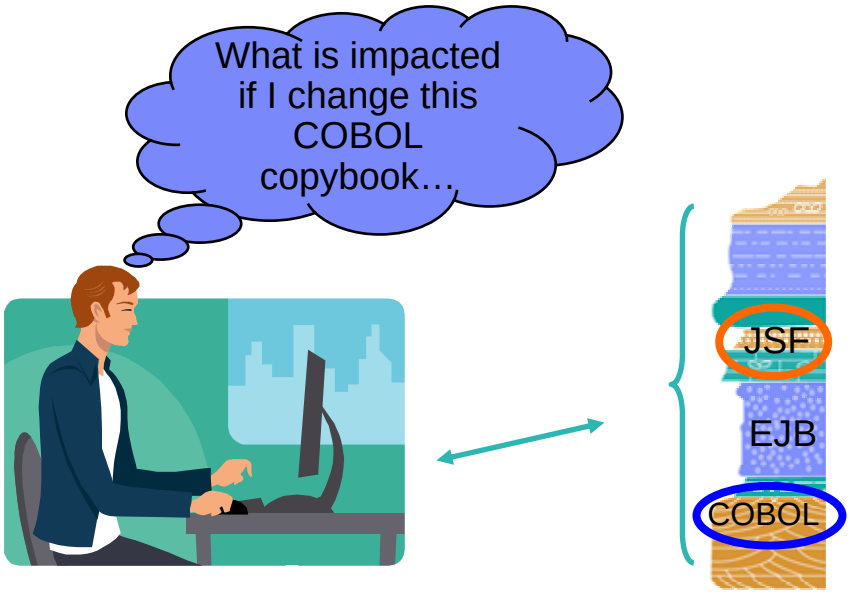
Enterprises want to

Understand the impact and cost of change to their IT systems

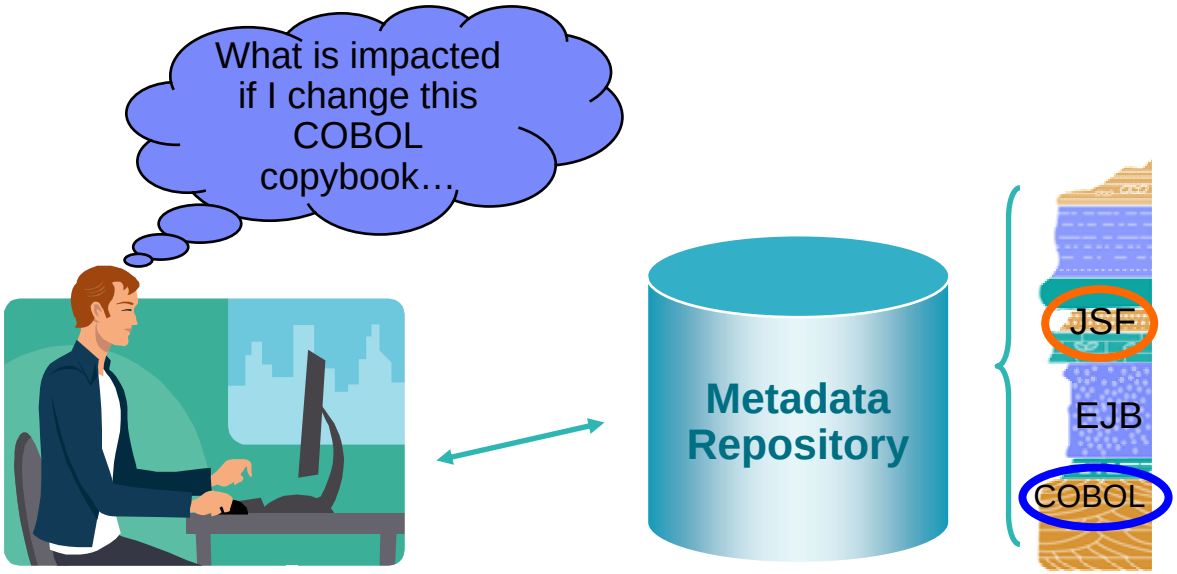


But

They have no business intelligence inventory of their application assets, relying instead on manual and error-prone processes and incomplete knowledge. They must compensate with more extensive planning and extra testing.

Solution: Business intelligence for applications

Restore lost application knowledge via technical analysis



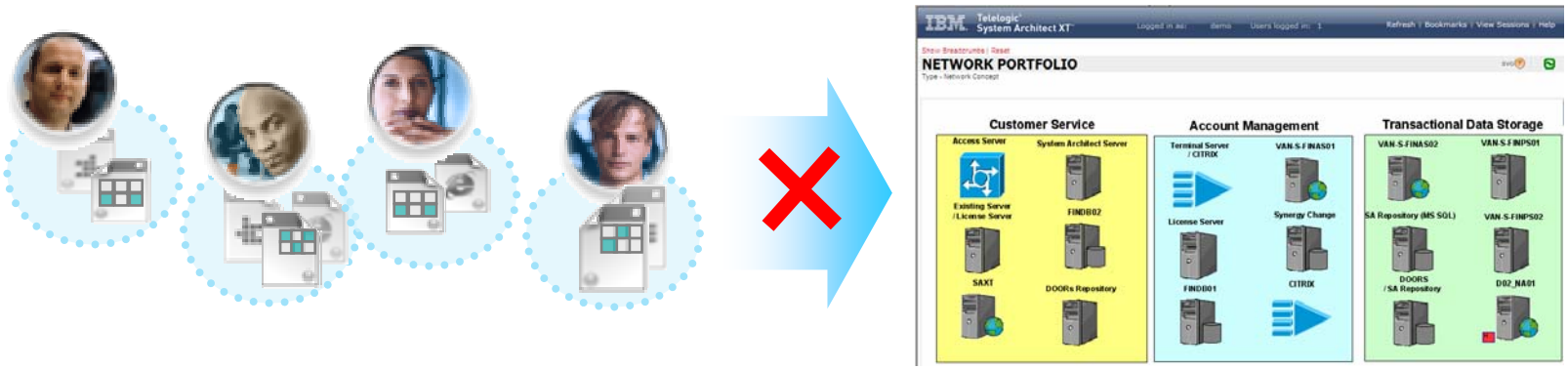
Rational Asset Analyzer
WebSphere Studio Asset Analyzer

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

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 trackable

Rational System Architect
Rational Focal Point for Product and Portfolio Management
Rational Focal Point for Project Management

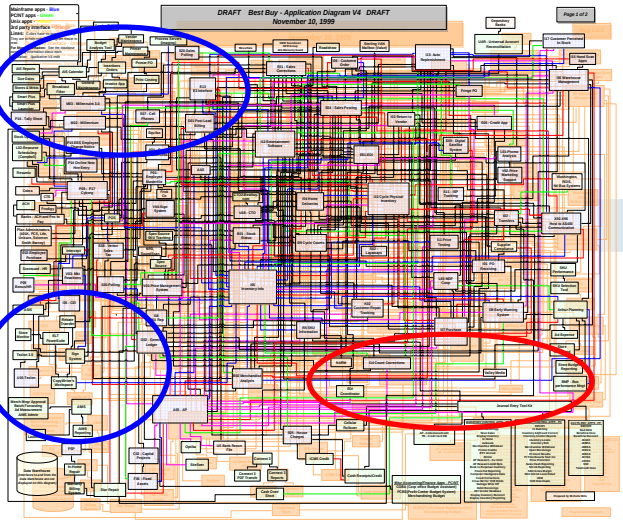
Beta

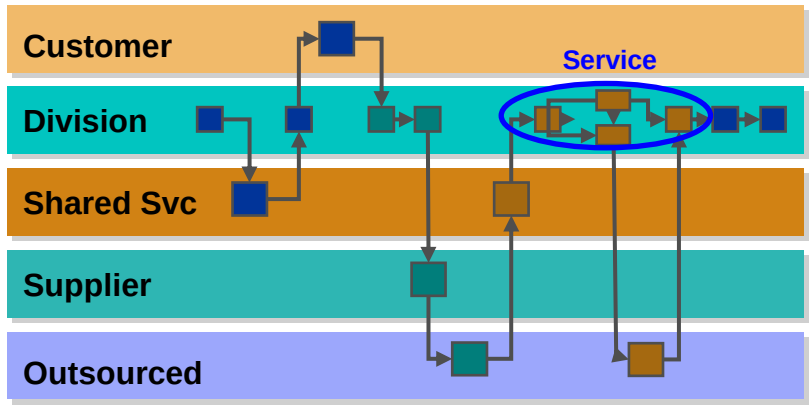
Delivering

Prioritization of competing projects, impact analysis of portfolio decisions, assurance projects remain aligned with business goals, and central oversight of budget, 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



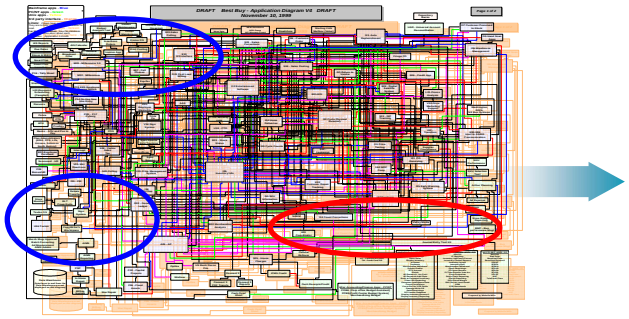


But

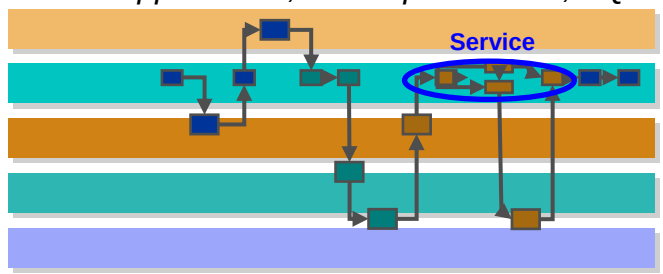
They have application architectures that were built incrementally over the last 20-30 years and are no longer flexible or agile

Solution: SOA tools for all platforms, languages

Use powerful tools to quickly begin SOA evolution by leveraging the proven assets that have been running the enterprise for years, and then accelerate with visual specifications and platform-independent services



EGL, C/C++, COBOL, PL/I, RPG,
Java applications, stored procedures, SQL



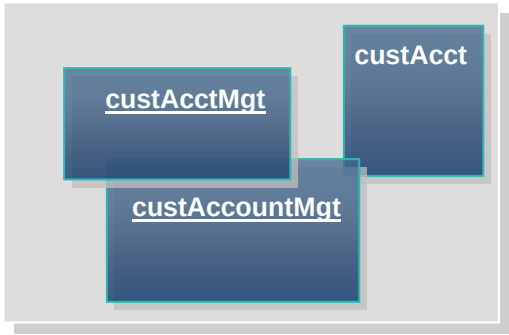
Rational Application Developer
Rational Developer for System z
Rational Developer for i for SOA Construction
Rational Business Developer
Host Access Transformation Services

Delivering

5x lower costs 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

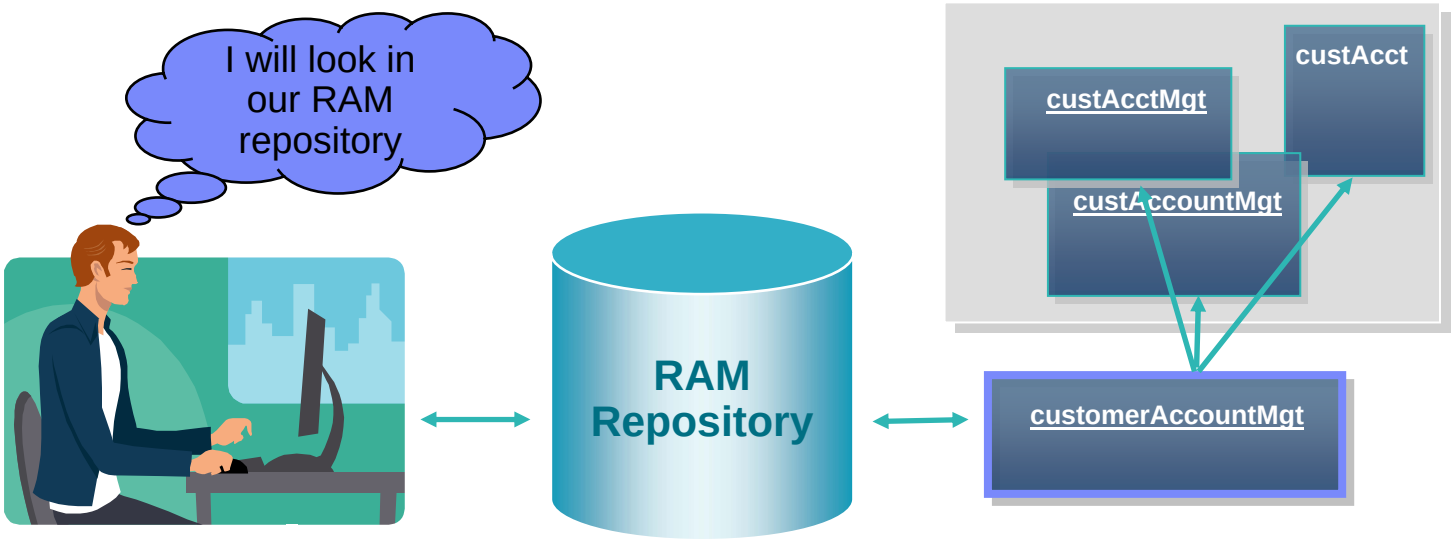


But

They do not have the infrastructure to implement 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



Rational Asset Manager
WebSphere Service Registry and Repository

Delivering

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

Enterprises want to

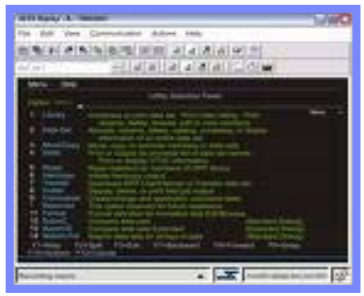
Provide a range of appealing, more intuitive user interfaces to increase employee productivity and boost customer satisfaction

But

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

Solution: UI modernization

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



Host Access Transformation Services
Rational Application Developer
Rational Developer for System z
Rational Business Developer

Delivering

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

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 and PL/I compilers

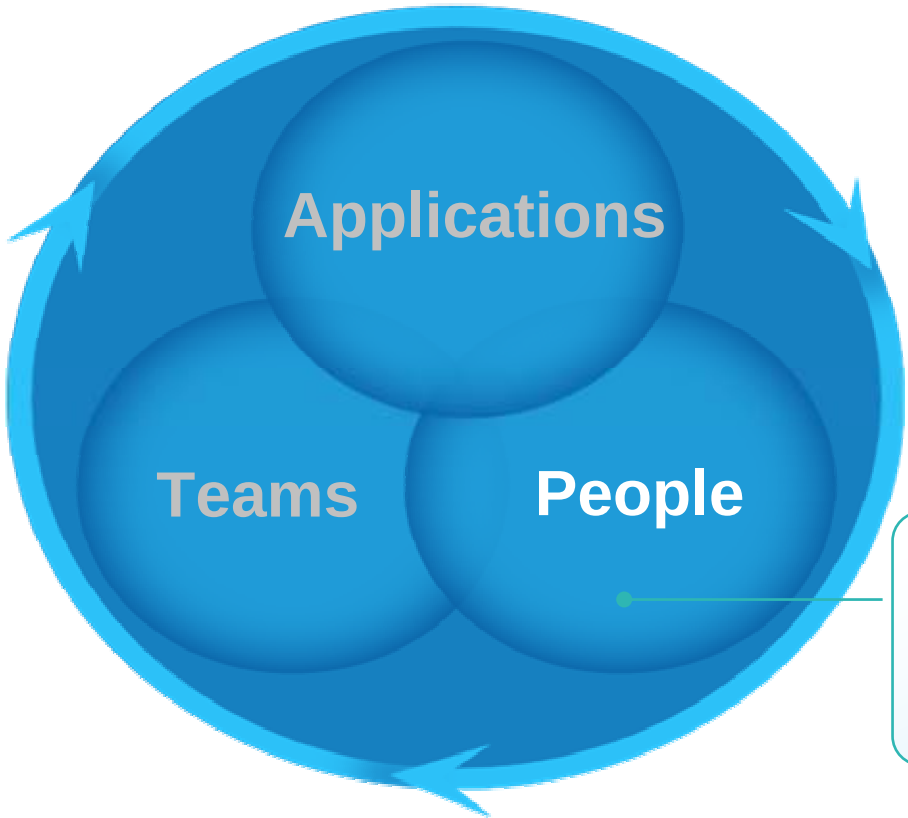
IBM Compilers on System z
IBM Compilers on POWER systems

Delivering

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

Enterprise Modernization solutions

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



Achieve greater business agility and productivity by leveraging existing domain knowledge and new talent

For more information, visit:
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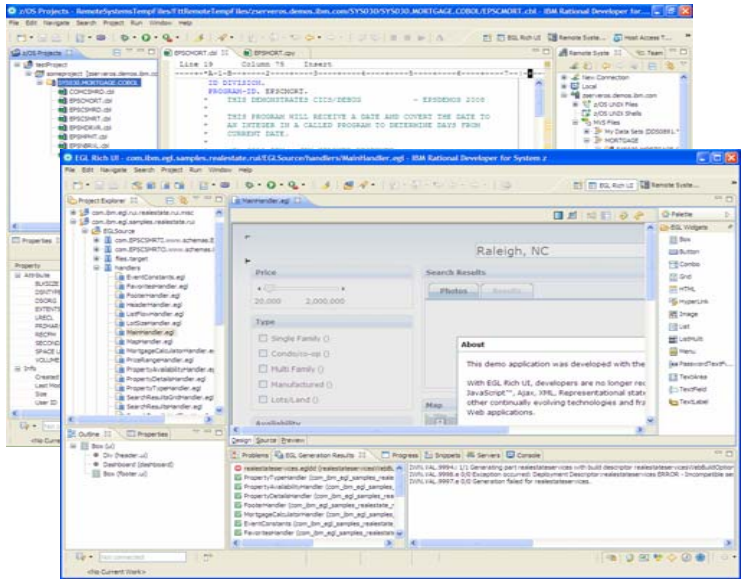
Enterprises want to

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

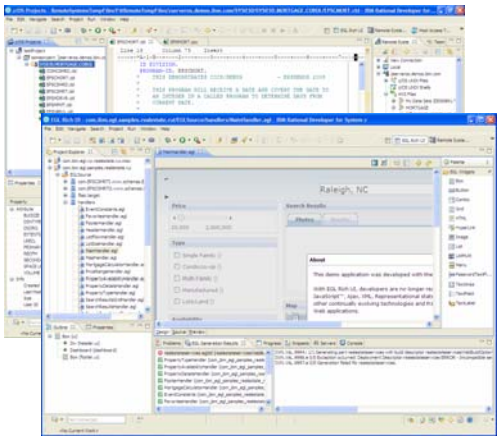


But

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

Solution: Modern IDEs for all platforms and languages

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



Rational Developer for System z
Rational Developer for System i for SOA
Rational Business Developer

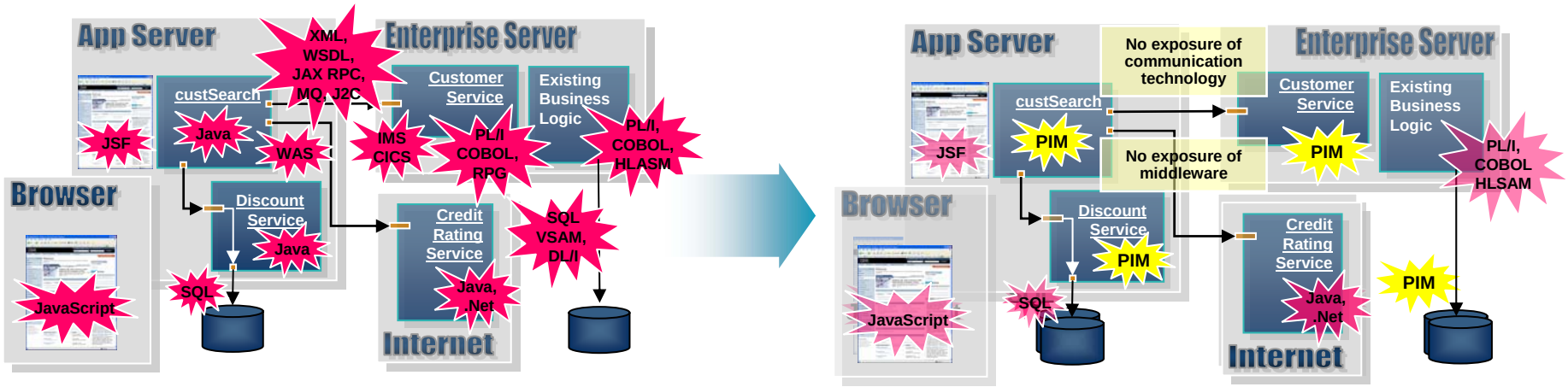
Delivering

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

[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



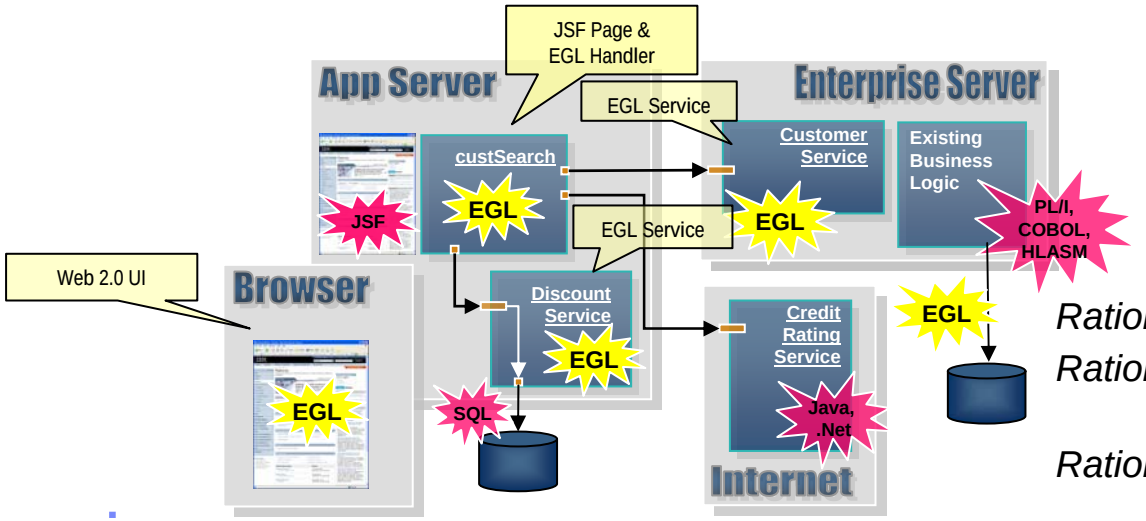
PIM = Platform Independent Model

But

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

Solution: EGL – next gen business language

Build new or extend existing multi-platform enterprise applications leveraging EGL with its middleware abstractions and high productivity language and development environment



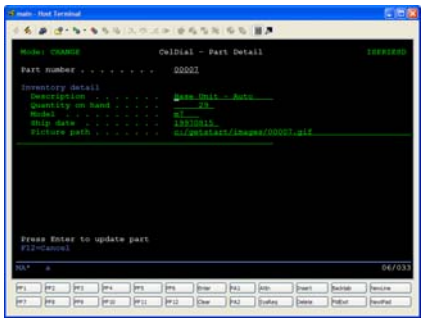
Rational Business Developer
Rational Developer for System z with EGL
Rational Developer for System i for SOA Construction

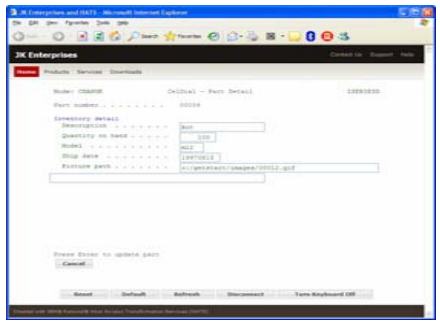
Delivering

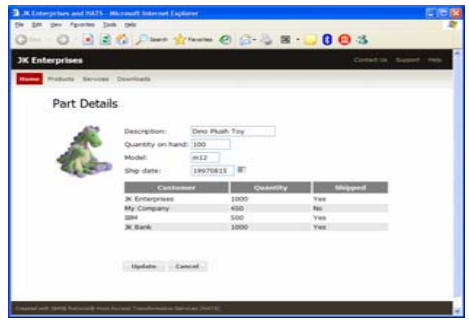
Skills flexibility, high productivity and platform portability for existing and new developers when building all types of modern enterprise applications

Enterprises want to

Quickly convert existing green screen applications to a modern web UI





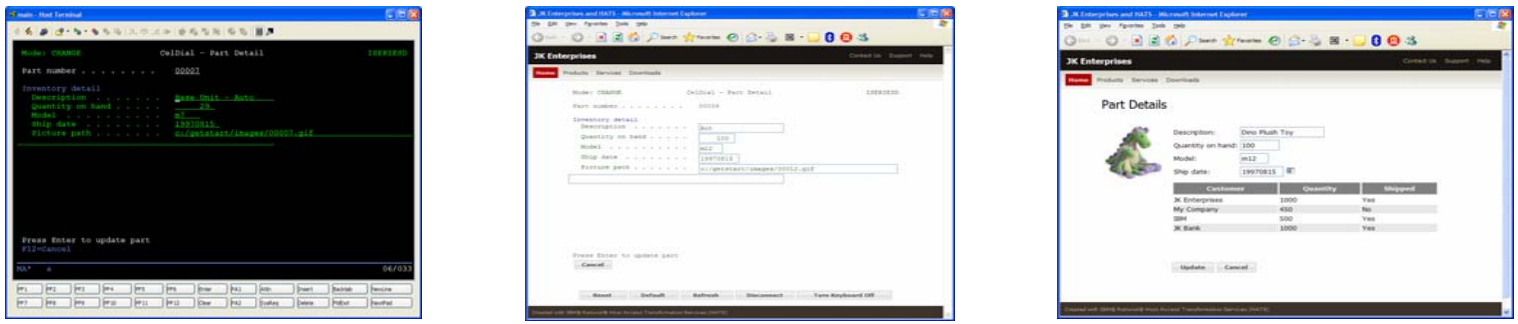


But

Their developers do not have the necessary web, portal, mobile or rich UI skills, and the enterprise may not even have the source code for the applications (eg. packaged apps)

Solution: Green screen transformation

Equip existing staff to extend the value of their green screen applications



Host Access Transformation Services

Delivering

Greater productivity from existing developers, and modern UIs for proven applications

Enterprises want to

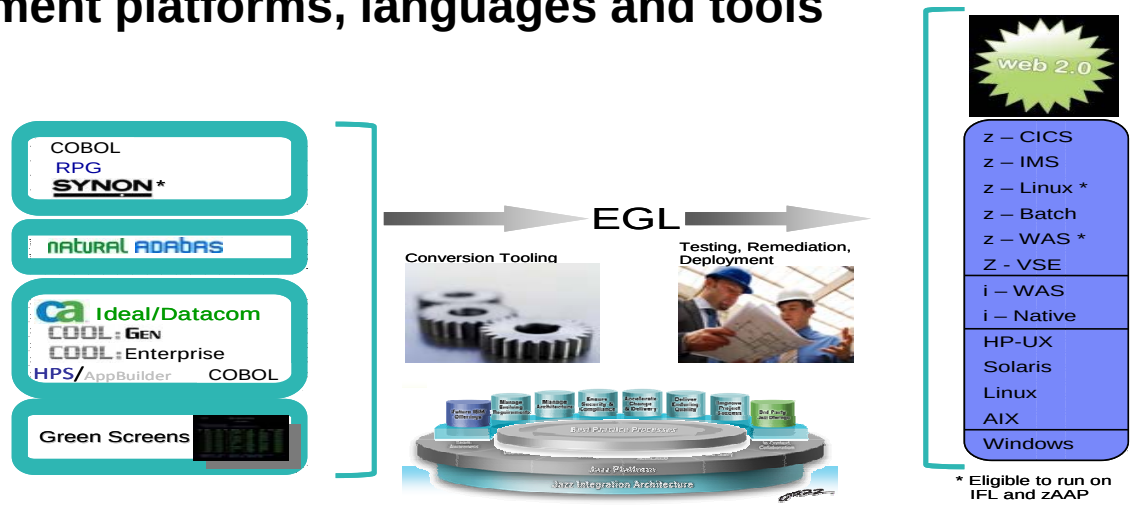
Reduce tool support costs and move to modern platforms, languages, and tools for their multi-platform application development

But

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

Solution: Application transformation tools and services

Migrate from older languages and stagnant platforms to modern development platforms, languages and tools



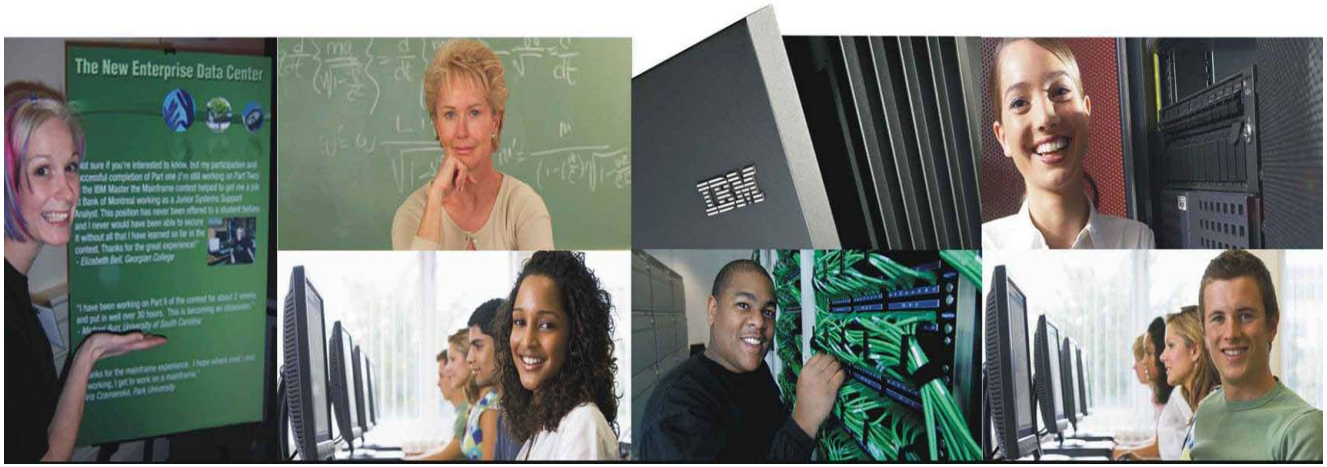
Delivering

Rational Migration Extension for Natural
Rational Migration Extension for IBM i

Greatly reduced development platform support costs, and more flexible, integrated SDLC environment for making future application enhancements (eg. SOA and web 2.0)

Enterprises want to

Maintain the necessary skills within their IT workforce



But

They are concerned about how they will replace experienced enterprise developers when they retire

Solution: Enterprise training programs

Hire skilled employees from universities in the IBM Academic Initiative, and leverage IBM on-line resources to train existing staff

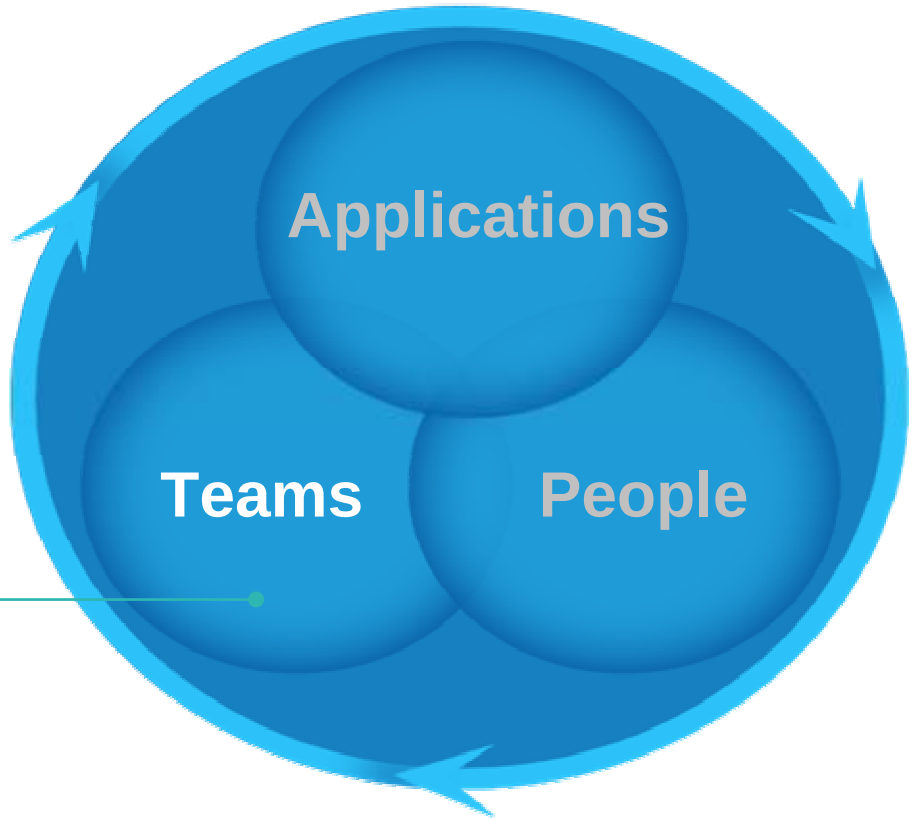
IBM Academic Initiative
IBM Enterprise Modernization sandbox
Community Cafés:
- ✓*C/C++ Café*
- ✓*EGL Café*
- ✓*RPG Café*
- ✓*COBOL Café*

Delivering

New talent with enterprise skills, convenient training for existing employees, and a growing community of skilled business partners, customers, students and IBM employees

Enterprise Modernization solutions

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



Consolidate team infrastructure to increase efficiency, collaboration, and governance across software lifecycle

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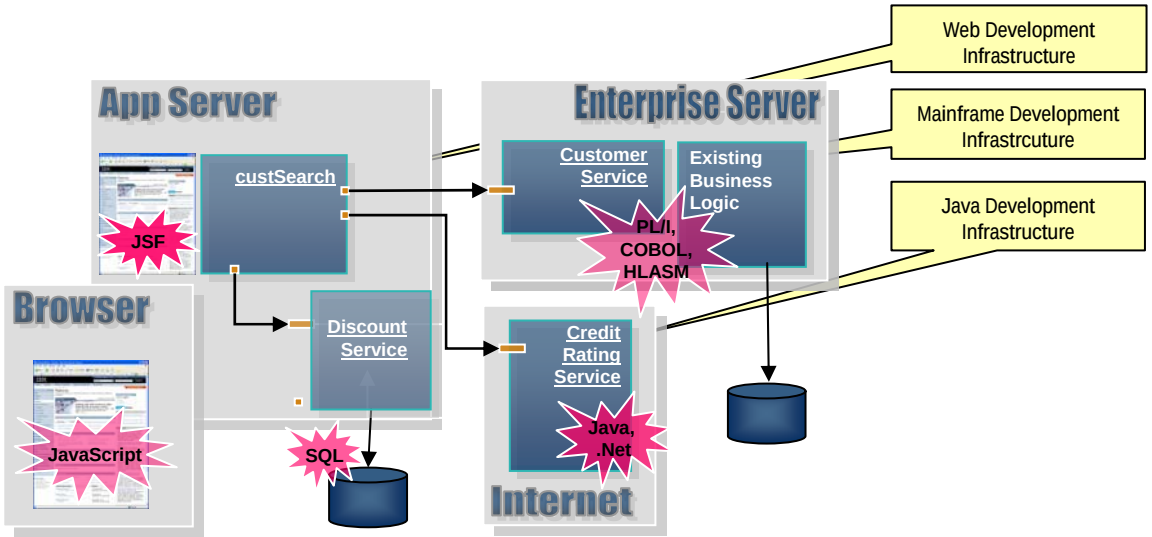
Enterprises want to

Quickly build and deploy composite applications and reduce their team infrastructure costs

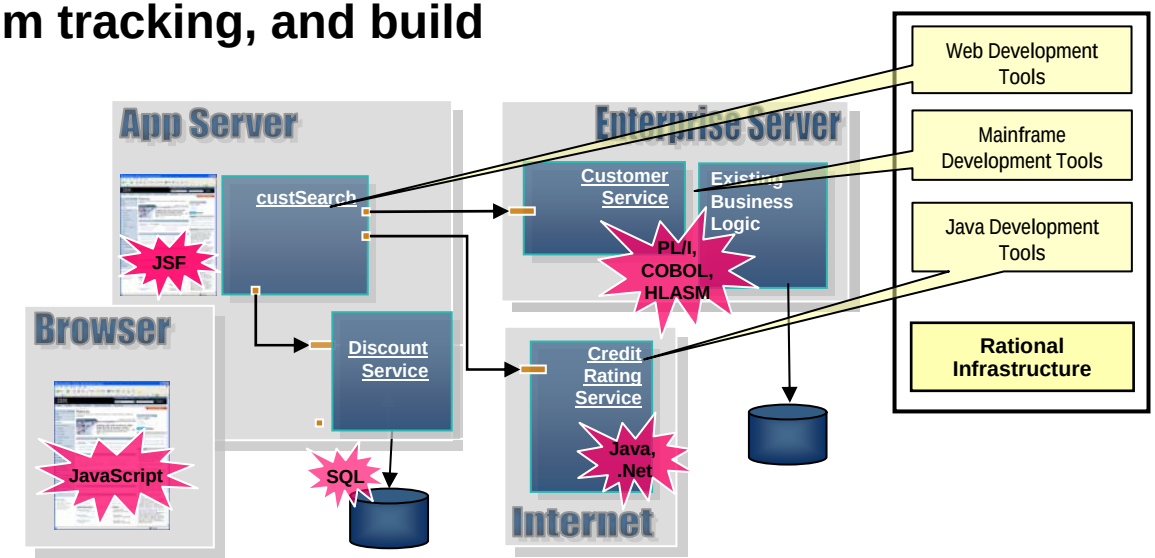


But

They have different tools, processes and team infrastructure for each deployment platform, greatly complicating development of composite apps, and they are using expensive, legacy SCM tools

Solution: Consolidated team infrastructure

Standardize, consolidate and simplify the team infrastructure for multi-platform projects including source code management, problem tracking, and build



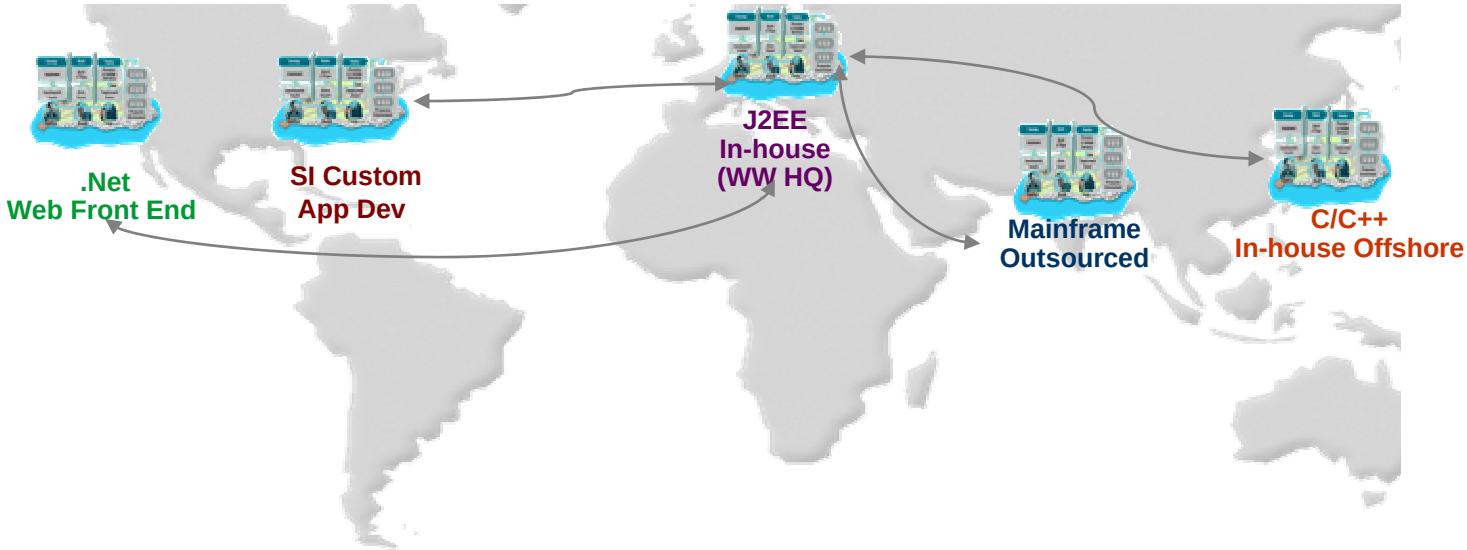
Rational ClearCase
Rational ClearQuest
Rational BuildForge

Delivering

Reduced costs, improved quality, greater team efficiency, and a comprehensive, holistic view of the entire multi-platform development effort

Enterprises want to

Enable agile, multi-platform and cross-geo collaboration and governance

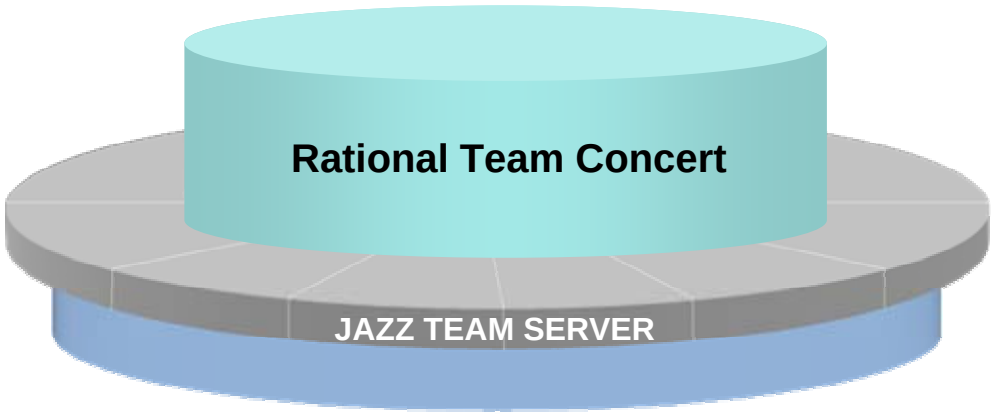


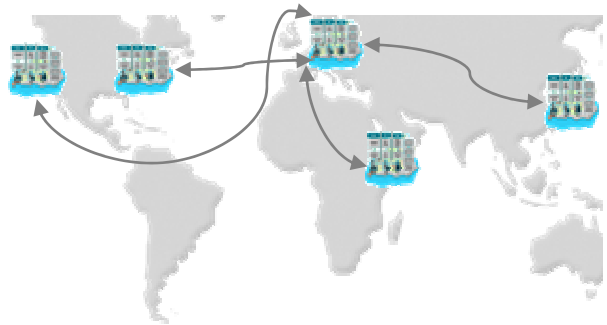
But

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: Modern team infrastructure

Deploy new team infrastructure that supports collaboration in context across all platforms and geographies, real-time, automated monitoring of project health, and built-in development workflows





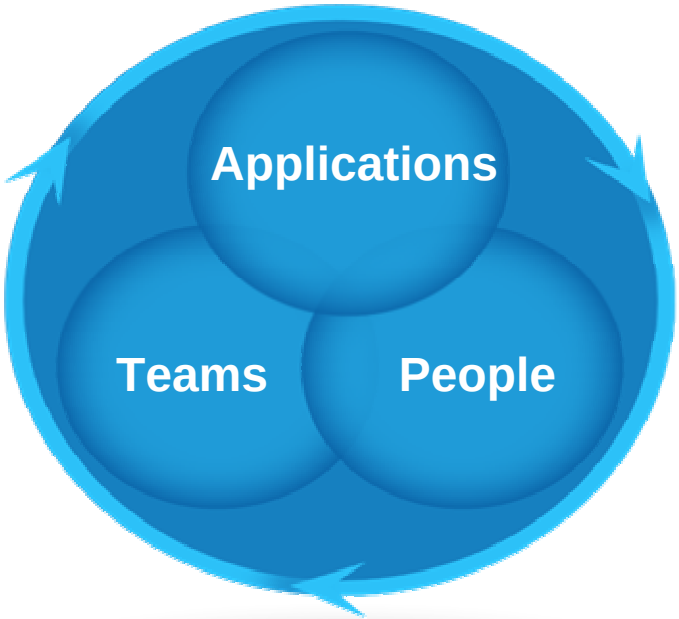
Rational Team Concert for System z
Rational Team Concert for i
Rational Team Concert

Delivering

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

Rational Enterprise Modernization Solutions

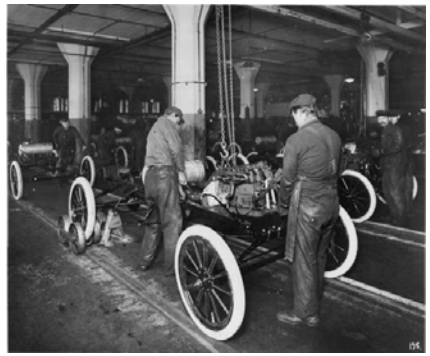
Lowering the cost of multi-platform application development and delivery



- ✓ Difficult times present opportunities to companies that can adapt quickly
- ✓ IT frequently inhibits flexibility due to fragile and poorly understood applications, limited staff productivity, poor collaboration and traceability across teams
- ✓ Rational Enterprise Modernization solutions deliver flexibility by:
  - Improving how you build, maintain, and manage your Applications
  - Helping your People be more productive
  - Consolidating Teams across locations, roles, and platforms

Now, can we do this for less cost, better quality, and with more predictability?

This is a familiar problem …



Characteristics

- ✓ No automation
- ✓ Many skills to master
- ✓ Little standardization
- ✓ Local supply chain or custom built
- ✓ Manual monitoring, traceability

Results

- ✓ Very expensive
- ✓ Poor quality
- ✓ Unpredictable – time, cost, quality
- ✓ Flexible

Characteristics

- ✓ Process flow automation
- ✓ Specialists for each phase
- ✓ Some parts standardized
- ✓ Local or slow supply chain
- ✓ Manual monitoring, traceability

Results

- ✓ Less expensive
- ✓ Improved quality
- ✓ Unpredictable – quality
- ✓ Inflexible

Characteristics

- ✓ Process & task automation
- ✓ Optimized workforce with specialists
- ✓ Significant standardization
- ✓ Agile process for just-in-time production
- ✓ Automated oversight and intervention

Results

- ✓ Least expensive
- ✓ High quality
- ✓ Predictable
- ✓ Flexible

Software development today

Software development tomorrow?

Examining the characteristics of a modern factory

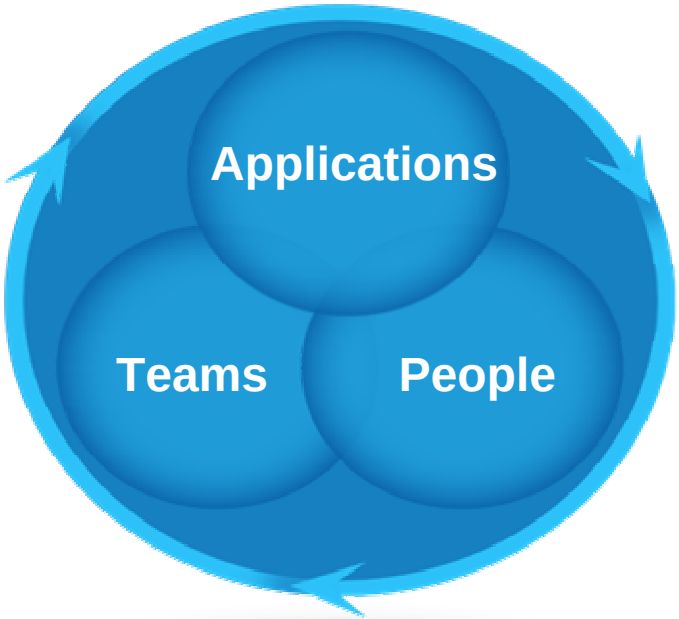
Characteristics	*Modern Factory*	*Software Factory*
Process & task Automation	Well-established, automated process to transform inputs to finished products	Well-established software delivery process with automated tooling to transform business strategy to IT deployment
Specialized skills	Optimal blend of people with diverse skill set, and robots working on product assembly for optimal cost, and productivity	Use of role-based knowledge workers equipped with specialized tools for optimal cost and productivity
Standardized components	Product assembled with industry standard components sourced from global suppliers for cost and quality	Applications assembled from standardized software components/services built by a globally distributed workforce
Agile processes & integrated infrastructure	Flexible and agile process that optimizes production schedule with a just-in-time inventory/changes to lower cost and time-to-market	Flexible and agile process with real-time collaboration, integrated across disparate platforms, roles, and geographies
Automated control & oversight	Automated control system to monitor and intervene to ensure predictable outcomes	Governed software delivery process to continuously measure and improve, to ensure predictable outcomes

What components do we have today?

Characteristics	*Software factory enabled by Rational*
Process & task automation	Rational automates the software development lifecycle and common development tasks
Specialized skills	Rational offers role-based tooling optimized for specific roles
Standardized components	Rational enables transformation of code/assets from disparate platforms and expose them as standards-based services
Agile processes & integrated infrastructure	New — Rational's Jazz-based platform enables real-time collaboration of a global and diverse workforce, integrated across disparate platforms, roles and geographies
Automated control & oversight	New — Rational's Managed Capability Improvement Framework enables controlling and steering of processes toward desired business outcomes

Rational Enterprise Modernization Solutions

Lowering the cost of multi-platform application development and delivery

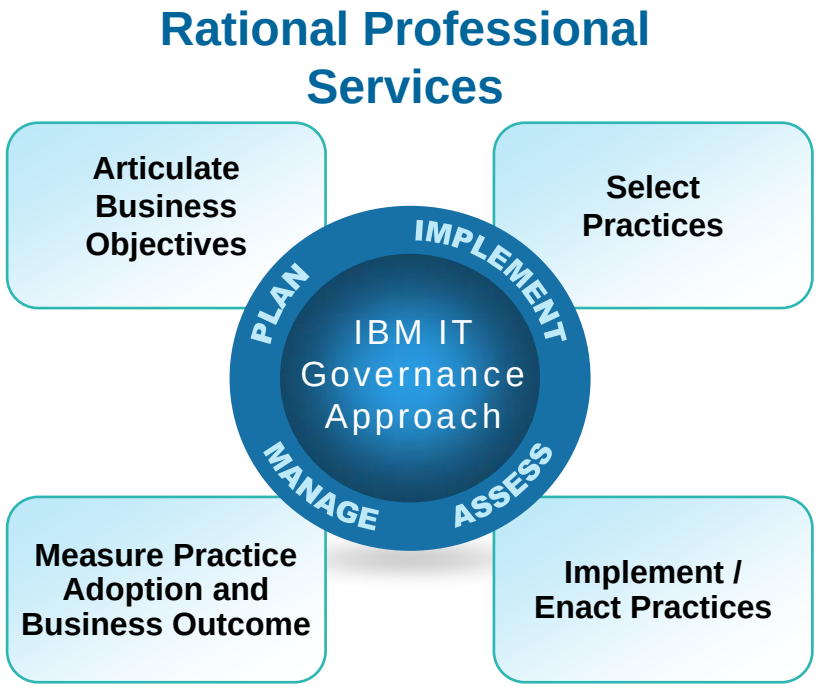


- ✓ Difficult times present opportunities to companies that can adapt quickly
- ✓ IT frequently inhibits flexibility
- ✓ Rational Enterprise Modernization solutions deliver flexibility
- ✓ A software factory puts it all together with
  - Flexible & agile processes
  - Automation across the software lifecycle
  - Use of standardized components
  - Optimized tooling that aligns with roles
  - Continuous measurement & improvement
  - Predictable outcomes

Get started today. We can help!

Leverage IBM Services to get started today

- Executive Services
  - Schedule an *Enterprise Modernization Executive Planning Session* to define modernization strategies
- Application Modernization Services
  - Application Assessments to:
    - Develop Modernization roadmaps to resolve specific business issues
    - Improve Application Quality & Performance
    - Identify opportunities for business software delivery improvements
- People and Team Modernization Services
  - Provide Implementation Services for Rational Enterprise Modernization tools
  - Provide SCM migration assistance
  - SDLC Assessments to:
    - Improve Software Delivery performance
    - Implement Software Delivery Metrics to more effectively manage the software development environment



- **RDz V.Next**
  - Support reuse of CICS v4.1 applications as services (tech preview)

    https://www14.software.ibm.com/iwm/web/cc/earlyprograms/ibm/cicsts41open/
  - Integration with CA Endevor® SCM (tech preview)

    http://www-01.ibm.com/support/docview.wss?rs=3365&context=SSQ2R2&context=SS9KR6&context=SS2JX4&context=SS2QJ2&context=SSSTY3&context=SSDV2W&dc=D400&uid=swg24022860&loc=en_US&cs=utf-8&lang=en
  - RTCz - extend the z/OS platform to support multiplatform software development and delivery on z/OS, Windows, and Linux, integration with RDz (tech preview)

    https://jazz.net/downloads/rational-team-concert/
- Tech preview for new **C/C++ and COBOL IDEs for POWER** on alphaWorks

  http://alphaworks.ibm.com/tech/cremoteide
- **RTCz open beta** – try out the latest features for z/OS development

  https://www-304.ibm.com/software/earlyprograms/surveys/cust/nomination.wss?id=875
- Improve your skills - preview version of **online course to learn COBOL** with RDz, at the COBOL Café

  http://www-949.ibm.com/software/rational/cafe/docs/DOC-3129
- **Free version of EGL**, with Java & Web 2.0 support, available soon on the EGL Café

  http://www-949.ibm.com/software/rational/cafe/community/egl

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