



IBM Rational Software Conference 2009  
Enterprise Modernization  
*Lowering the cost of multi-platform  
application development and delivery*

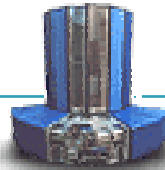
**Danny Mace**  
Development Manager  
Rational Enterprise Modernization  
dmace@us.ibm.com

**Rational.** software

# Change is the new norm



There are **1 billion** camera phones in use today

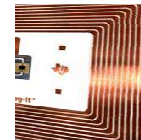


*IBM Sequoia Super Computer...*

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

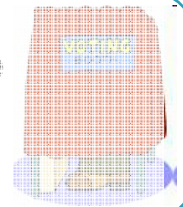


COBOL thwarts California's "Governator"

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”*

## 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

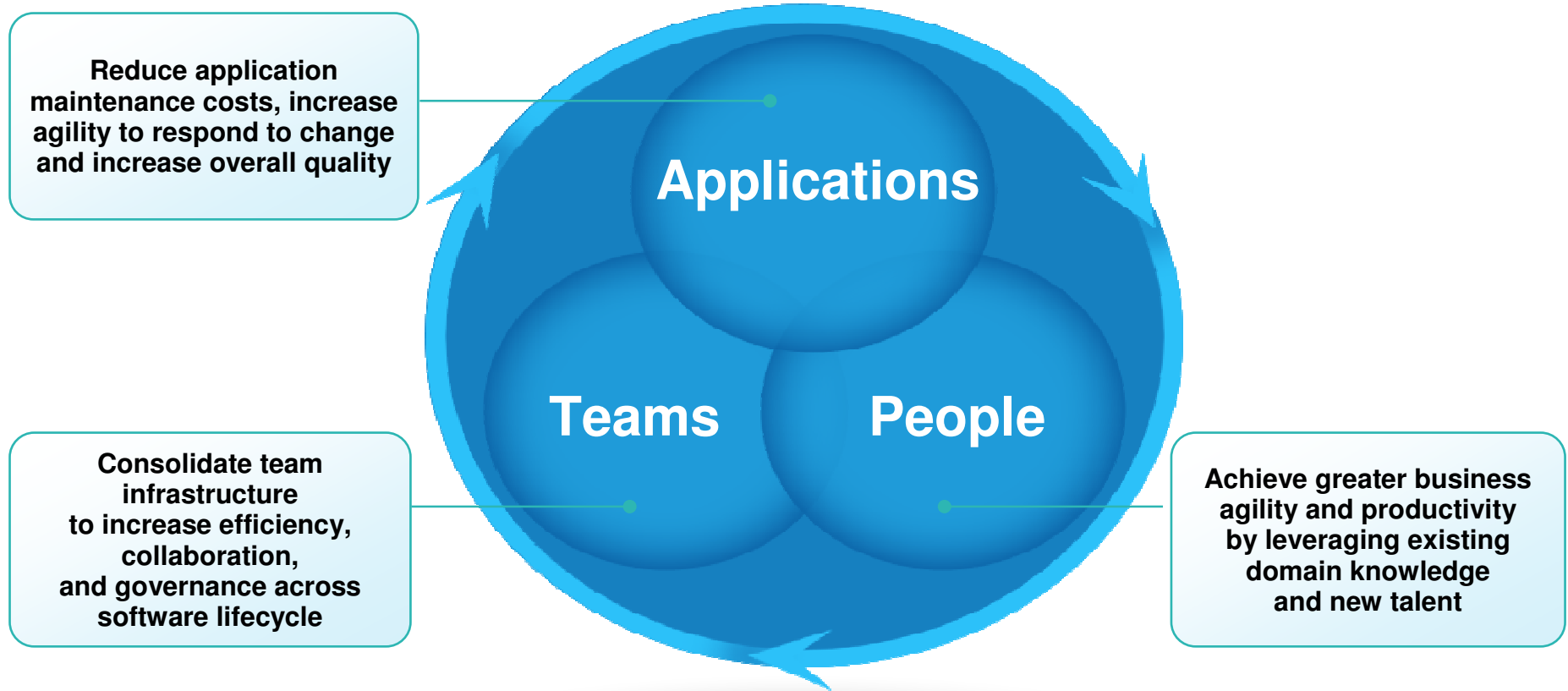
- Skills lock-in
- Plethora of new technologies
- Unattractive, low productivity tools
- Steep learning curve due to platform/language-unique tools

## 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*

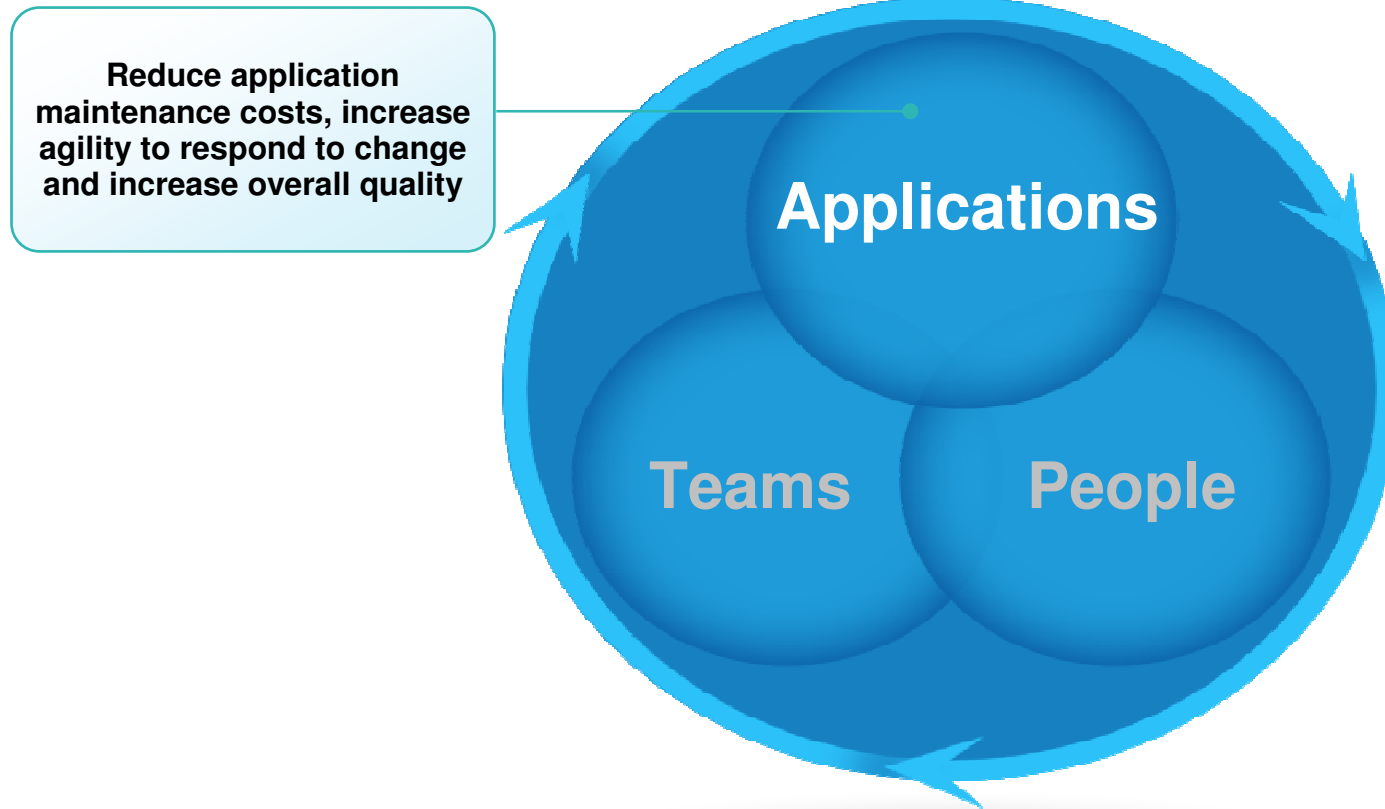


For more information, visit:  
[www.ibm.com/rational/modernization](http://www.ibm.com/rational/modernization)



# Enterprise Modernization solutions

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



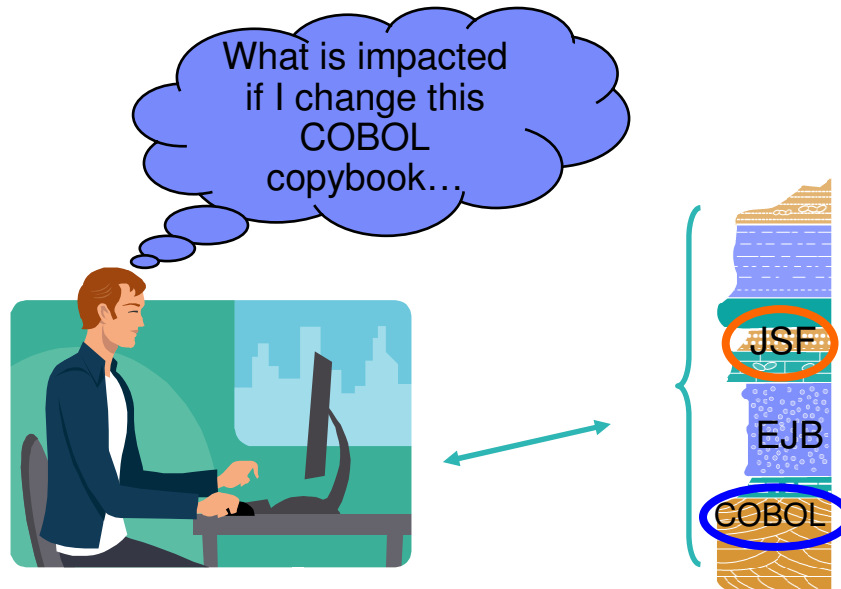
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# Enterprises want to

**Understand the impact and cost of change to their IT systems**



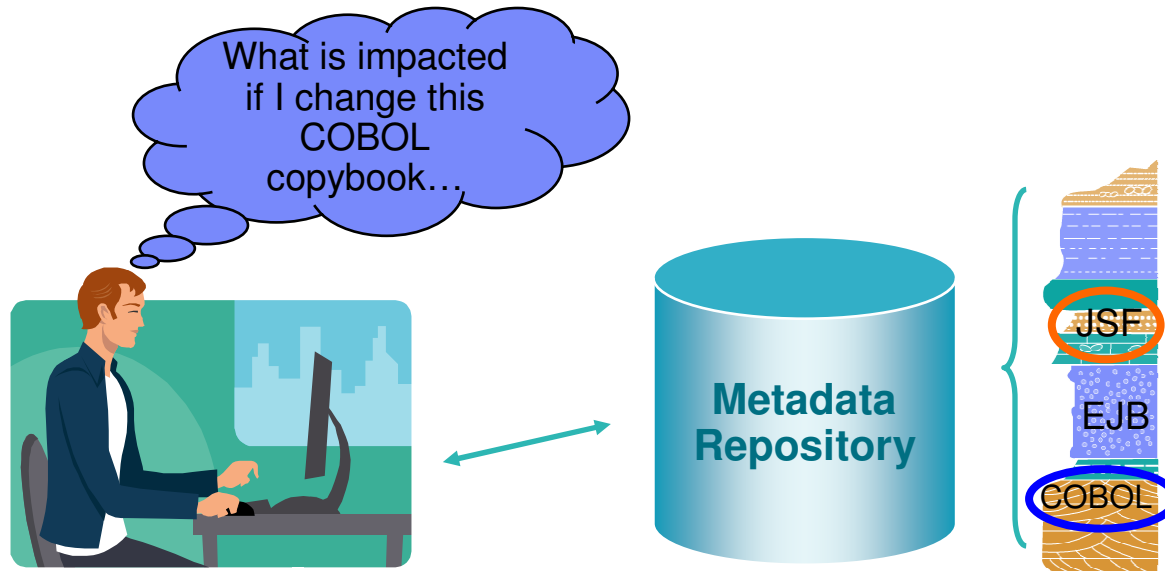
**But**

**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

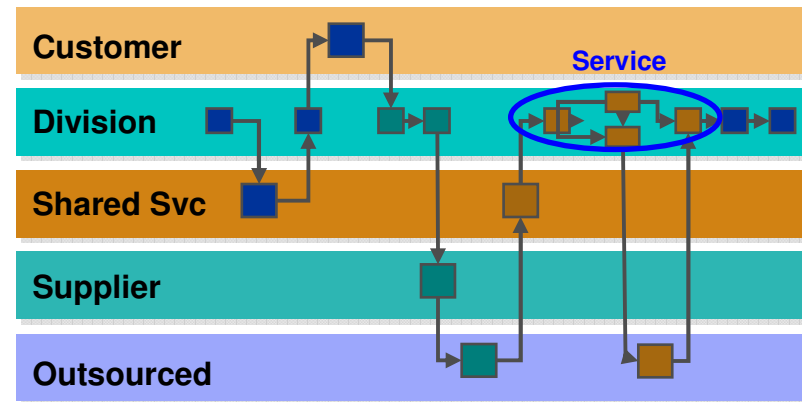
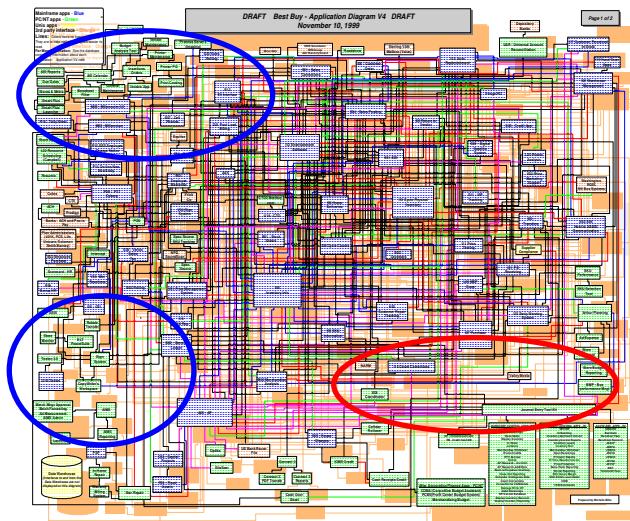
**Reduced risk by quickly determining the full impact of proposed changes and lowered costs via dead code elimination, optimal planning, focused testing and faster development**





# Enterprises want to

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



But

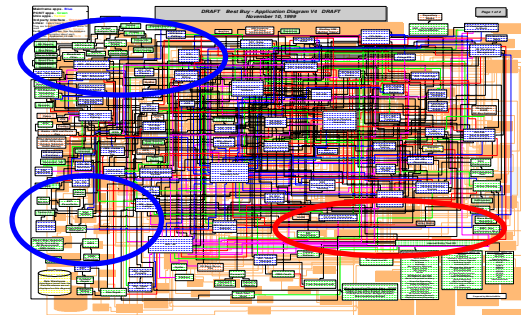
**They have application architectures that were built incrementally over the last 20-30 years and are no longer flexible or agile**



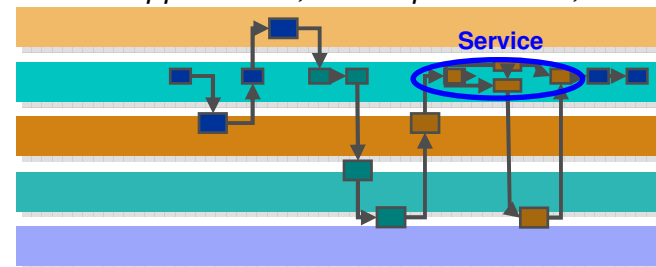


# Solution: SOA tools for all platforms, languages

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

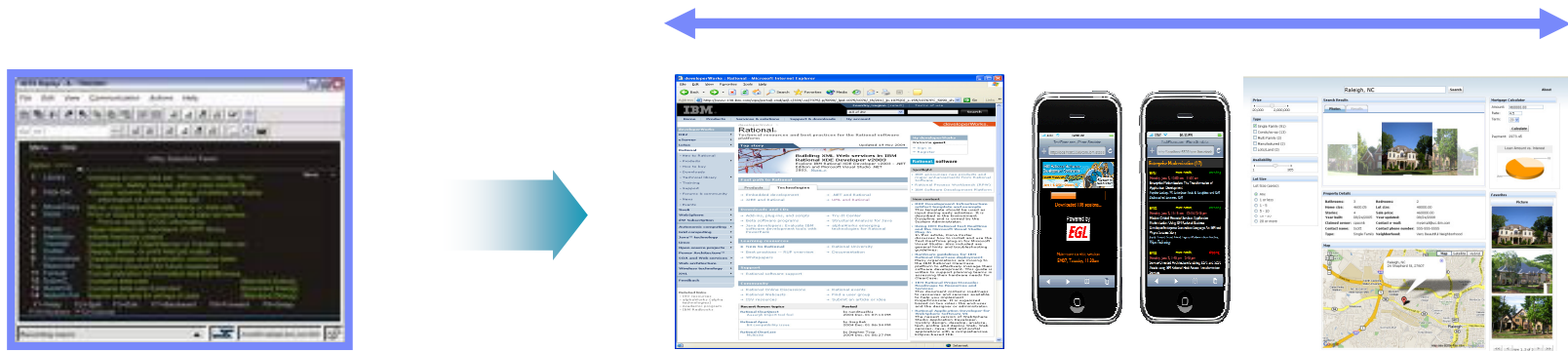
**5x lower costs through reuse of existing assets, higher productivity and platform portability of new services**





# Enterprises want to

**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

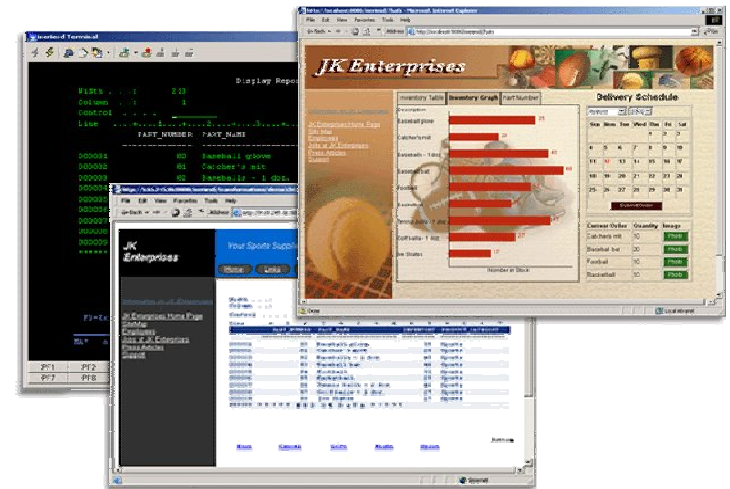
Greater customer satisfaction, lower employee training costs, and fewer errors from more modern and compelling UIs



# Host Access Transformation Services (HATS) for IBM i

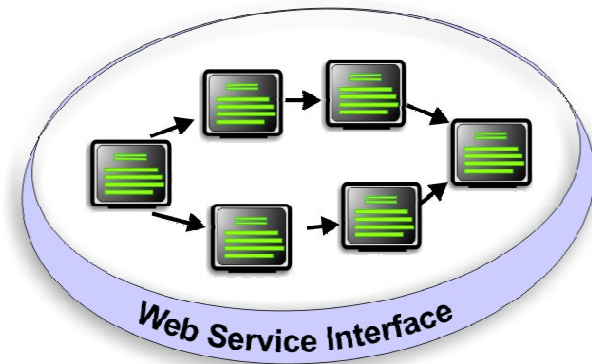
## ■ What can you do with HATS?

- ▶ Quickly and easily create Web, portal or rich client applications
  - Provide easy-to-use GUI for your green-screen applications
  - Low skills requirement
  - Highly customizable
  - Iterative development process
  - Transformation “on the fly”
- ▶ Extend terminal application tasks as Web services



## ■ Benefits

- ▶ Extend host application to new users
- ▶ Improve the navigation of your host application
- ▶ Reuse your existing assets in a Service Oriented Architecture
- ▶ Avoid rewriting applications (no impact to code)

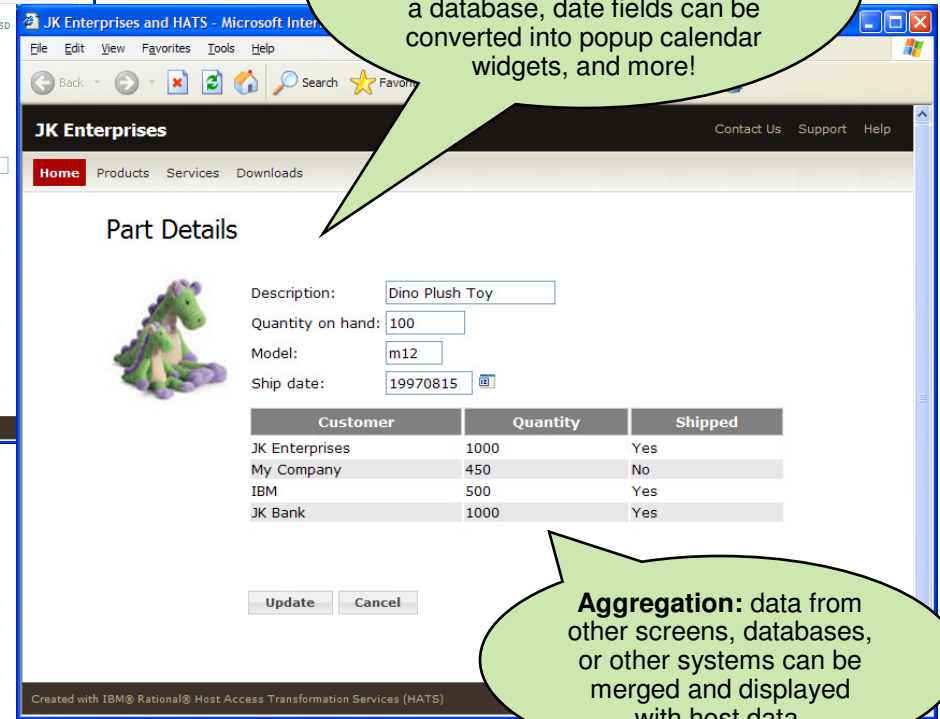
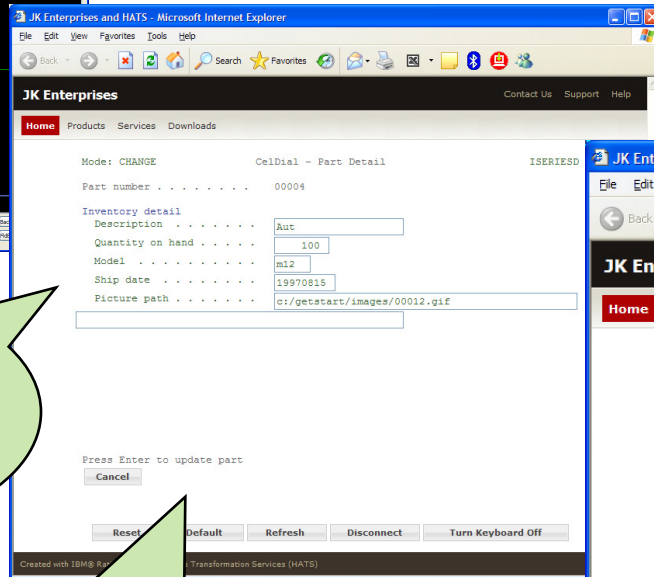
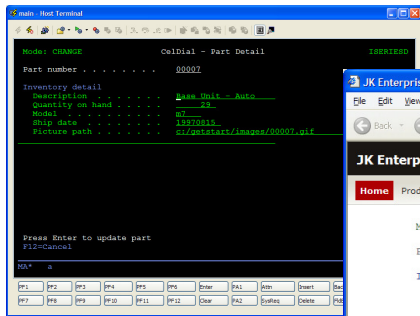


# Modernization At Your Own Pace

Today

Day 1

Tomorrow



**Modern UI:** All pages share the same theme and style, which can be based on an existing Web site.

**Instant Value:** HATS default rendering automatically transforms actions into clickable links and buttons. No changes required to the host application.

**Integration:** Text can be replaced with images, input fields can be populated from data on other screens or from a database, date fields can be converted into popup calendar widgets, and more!

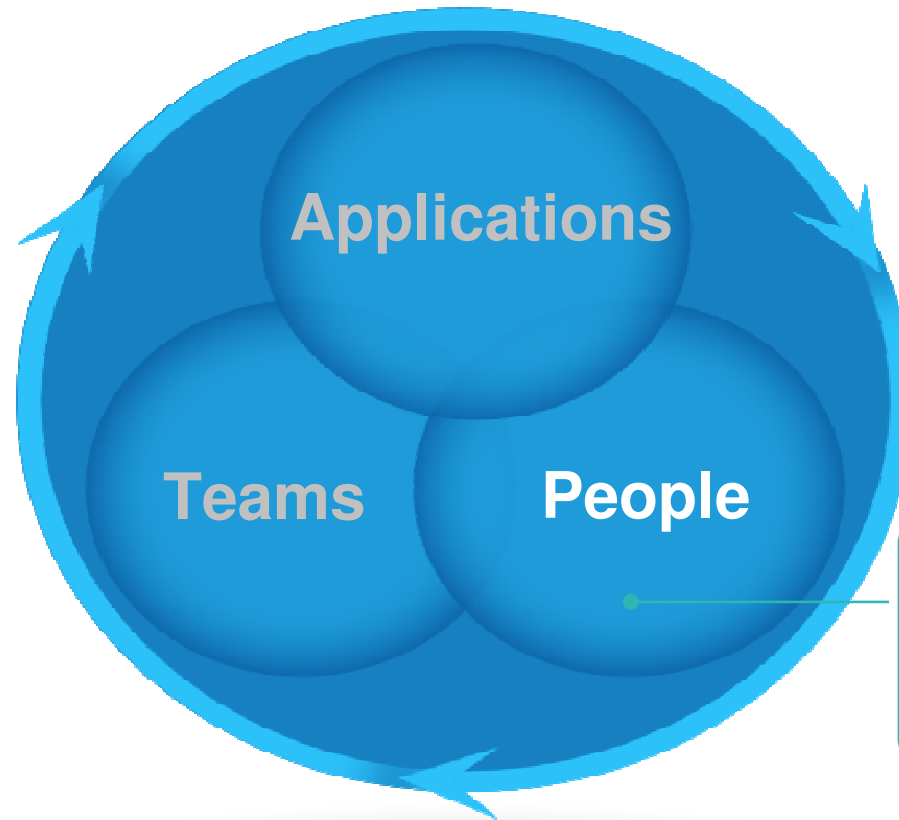
**Aggregation:** data from other screens, databases, or other systems can be merged and displayed with host data.





# Enterprise Modernization solutions

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



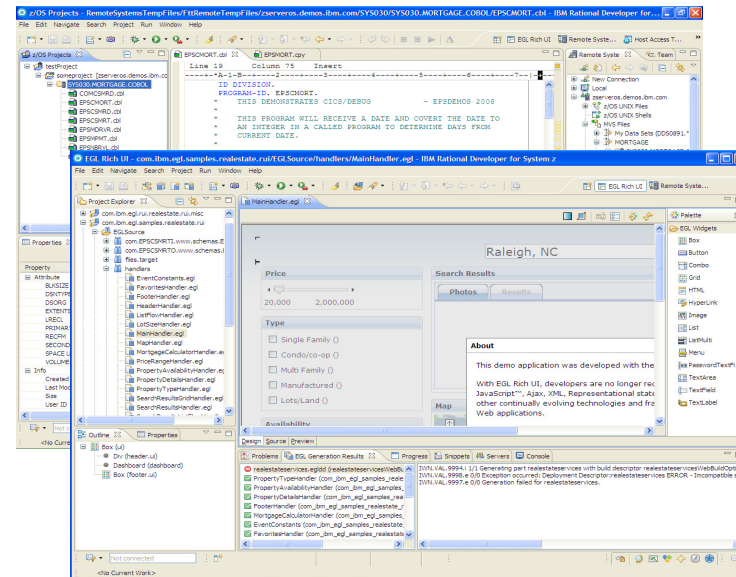
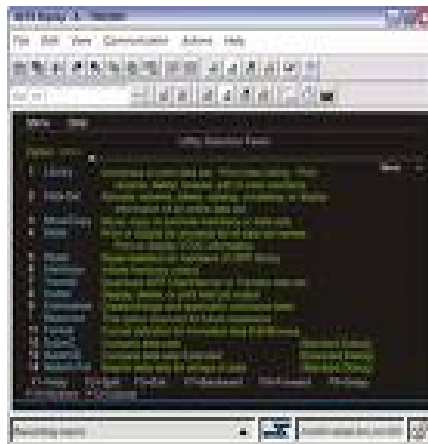
**Achieve greater business agility and productivity by leveraging existing domain knowledge and new talent**

**For more information, visit:**  
[www.ibm.com/rational/modernization](http://www.ibm.com/rational/modernization)



# Enterprises want to

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



**But**

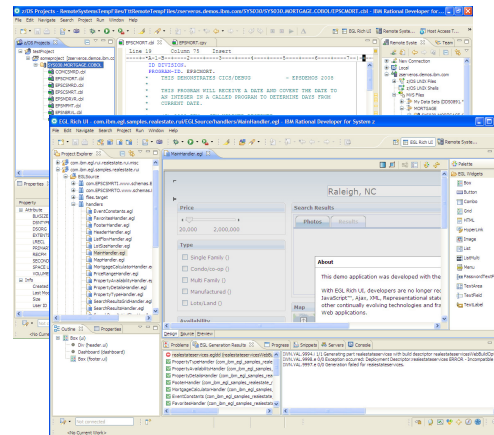
**They have antiquated development tools which deliver low productivity and are repulsive to younger staff**





# 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 IBM i  
Rational Developer for IBM i for SOA  
Rational Business Developer*

## Delivering

**50%-80%<sup>1</sup> reduction in host CPU usage with workstation syntax checking, ~15% improvement in developer productivity<sup>1</sup>, and tools with which to attract new talent**

<sup>1</sup> Aggregation of results from a productivity study conducted by IBM System z customers.



# Rational Developer for i

## ■ Rational Developer for i (RDi)

- ▶ Modern workstation development tools for native RPG, COBOL, CL, DDS development
- ▶ Integrated edit, compile, debug, and search capabilities
- ▶ Work with remote libraries, objects, members, jobs, IFS files, and run CL commands
- ▶ Tools to help developers understand monolithic applications
- ▶ Replacement for green screen ADTS tools (“SEU/PDM”) and the CODE (CODE/400) workstation tools

```

Columns . . . : 6 76          Edit          YANTZI/QRPGLSRC
SEU=>          ORDENTR
FMT *         *. 1 ...+. 2 ...+. 3 ...+. 4 ...+. 5 ...+. 6 ...+. 7 ...+.
***** Beginning of data *****
-----
0001.00 *
0002.00 *
0003.00 *
0004.00 * Program: ORDENTR
0005.00 *
0006.00 * This program allows a user to enter and confirm an order. It sends
0007.00 * a print request to a batch job via a data queue. The program only
0008.00 * handles District 1 and Warehouse '0001'.
0009.00 *
0010.00 * Don see here
0011.00 *
0012.00 * INDICATOR USAGE:
0013.00 * 03 - F3=Exit
0014.00 * 04 - F4=Prompt
0015.00 * 06 - F6=Receipt order
0016.00 * 12 - F12=Cancel

F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F10=Cursor  F11=Toggle
F16=Repeat find  F17=Repeat change  F24=More keys
(C) COPYRIGHT IBM CORP. 1981, 2005.
  
```



```

Remote System Explorer - RemoteSystemsTempFiles\TORASBCC\OSYS.LIB\RDDEMO.LIB\ORPGLSRC.FILE\ORDENTR.RPGL - IBM Rational Developer f...
File Edit Source Compile(G) Navigate Search Project Run Window Help

Remote Systems Team

Objects
  TORASBCC
  Work with libraries...
  Work with members...
  Library list
  QSYS.*ib.prod-sys
  QSYS2.*ib.prod-sys
  QJRSYS.*ib.prod-sys
  RDDEMO.*ib.test-var
  GETITEM.*pgm.rpgle
  GETITEM_MP.*pgm.rpgle
  GETITEM_WP.*pgm.rpgle
  INFLUOP.*pgm.rpgle
  ITEMMAIN.*pgm.rpgle
  ORDENTR.*pgm.rpgle
  ORDENTRCL.*pgm.dle
  ORDENTR2.*pgm.rpgle
  PRYORDER.*pgm.rpgle
  SLTCUSTR.*pgm.rpgle
  SLTCUSTRF.*pgm.rpgle
  SLTPARTR.*pgm.rpgle
  ZORDENTR.*pgm.rpgle
  ZSLTCUSTR.*pgm.rpgle
  ZSLTCUSTRF.*pgm.rpgle
  GETTEMPRC.*svpgm.rp
  ITEMPROCS.*svpgm.rp
  GETTEMPRC.*module
  ITEMPROCS.*module
  ORDENTR.*module
  ABC.*msgfl

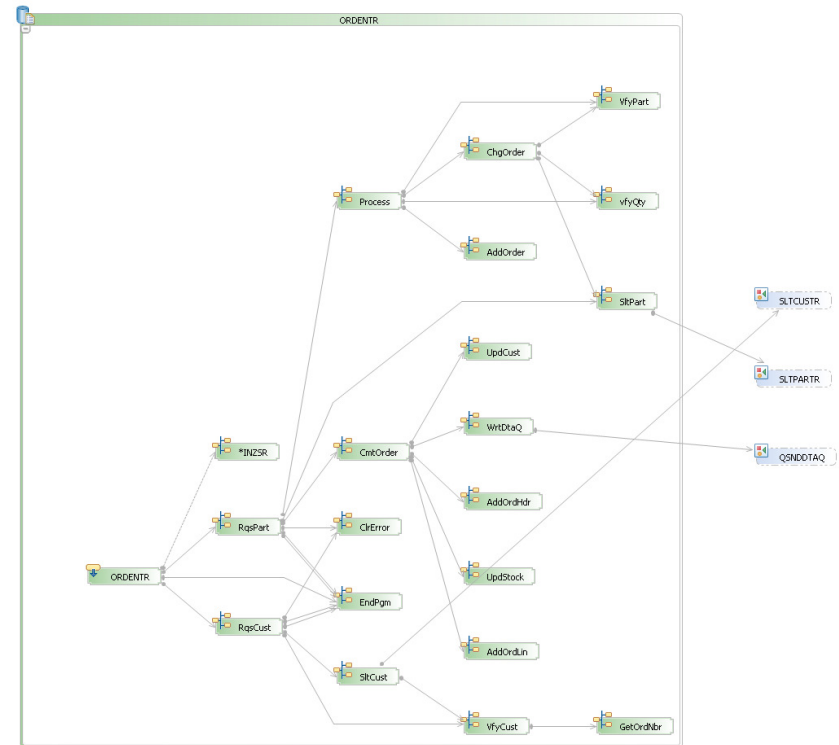
Line 26 Column 1 Replace
...FFilename+IPEASFRlen+LKLen+IDevice+.Keywords+++++
002300 // 99 - General I/O errors
002400 //
002500 //
002600 FORDENTD CF E WORKSTN SFLE(ORDSFL
002700 FILTER IF E K DISK
002800 FIDISTRCT UF E K DISK
002900 FOSTR UF A E K DISK
003000 FSTOCK UF E K DISK
003100 FORDERS O A E K DISK
003200 FORBLIN O A E K DISK
003300 //
003400 // Mnemonic values
003500 D $dqName C CONST('ORDE
003600 D $dqLib C CONST('LIBL
003700 D $True C CONST('1')
003800 D $False C CONST('0')
003900 D $warehouse C CONST('0001'
004000 D $district C CONST(1)
004100 D $pane1 C CONST(1)
004200 D $pane12 C CONST(2)
004300 D $change C CONST(2)

Remot Tasks Object Conn Proper Field T Progr Error L IBM Team Remot
ITEM - 74 Occurrences in 13 Members
  RDDEMO\ORPGLSRC\GETITEM (5 matches)
    (Line 3) * SAMPLE RPGV PROGRAM TO ACCESS FILE ITEM
    (Line 6) FITEM IF E K DISK
    (Line 11) D PARTREC E DS EXTNAM(ITEM:ITRC)
    (Line 24) C PARTID CHAIN ITEM 5050
    (Line 28) C EVAL FEEDBACK=ITEM NOT FOUND'
  RDDEMO\ORPGLSRC\GETITEM_MP (3 matches)
  
```



# Benefits of Using Rational Developer for i

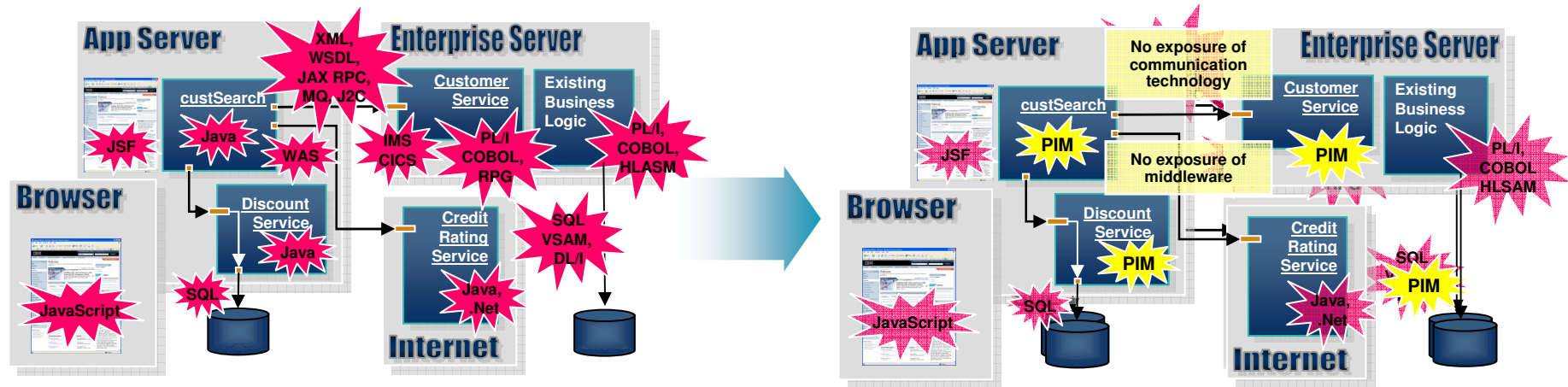
- ▶ Improve productivity
  - Modern development features
  - Integrated tools
  - Tools to help understand monolithic applications
  - Customizable environment
- ▶ Lower learning curve for other technologies
  - Learn Remote System Explorer for RPG / COBOL development
  - Then use similar tools for Java, Web, EGL, XML, or PHP development
- ▶ Common development tools across all programming / hardware platforms
  - ▶ Rational Developer for i for IBM i
  - ▶ Rational Application Developer for J2EE
  - ▶ Rational Business Developer for EGL
  - ▶ Rational Software Architect for UML modeling





# Enterprises want to

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



PIM = Platform Independent Model

But

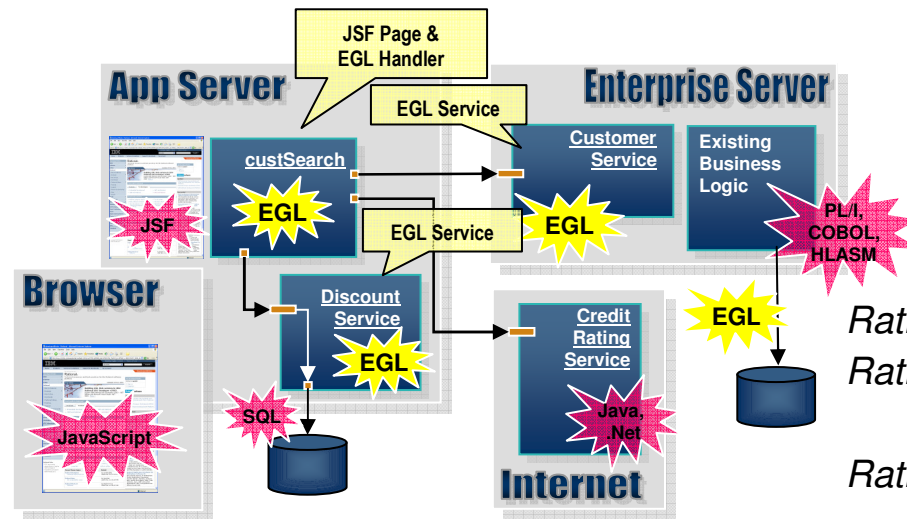
**They have different teams of developers for each platform, and re-training them to all the new technologies would be costly, time consuming, and often impractical**





# 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 i  
 for SOA Construction*

## Delivering

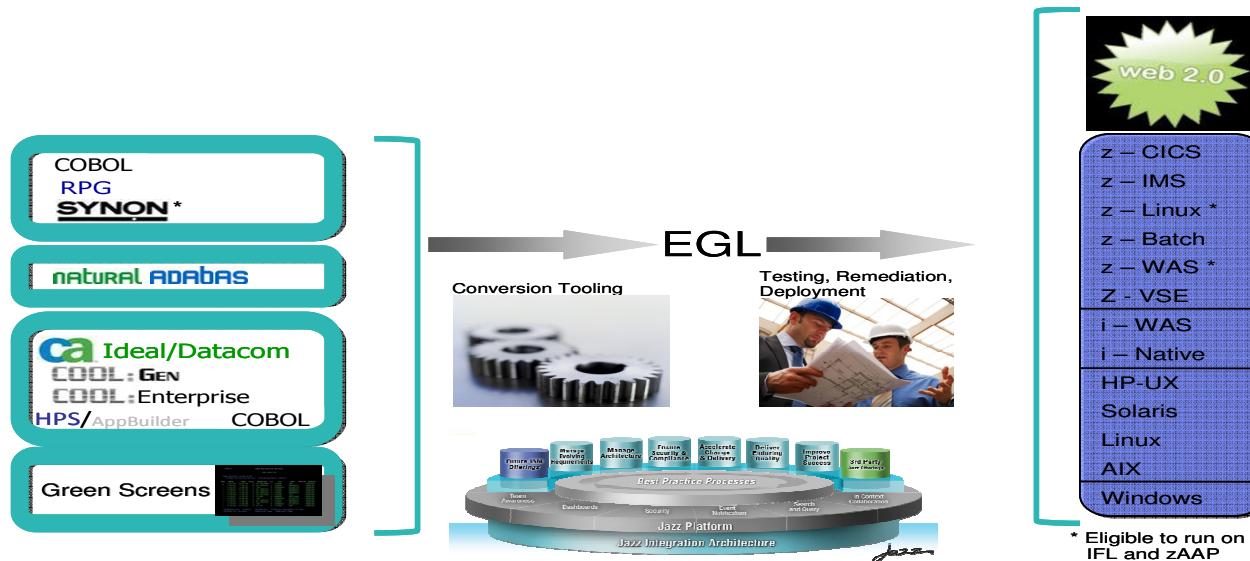
**Skills flexibility, high productivity and platform portability for existing and new developers when building all types of modern enterprise applications**





# Enterprises want to

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



But

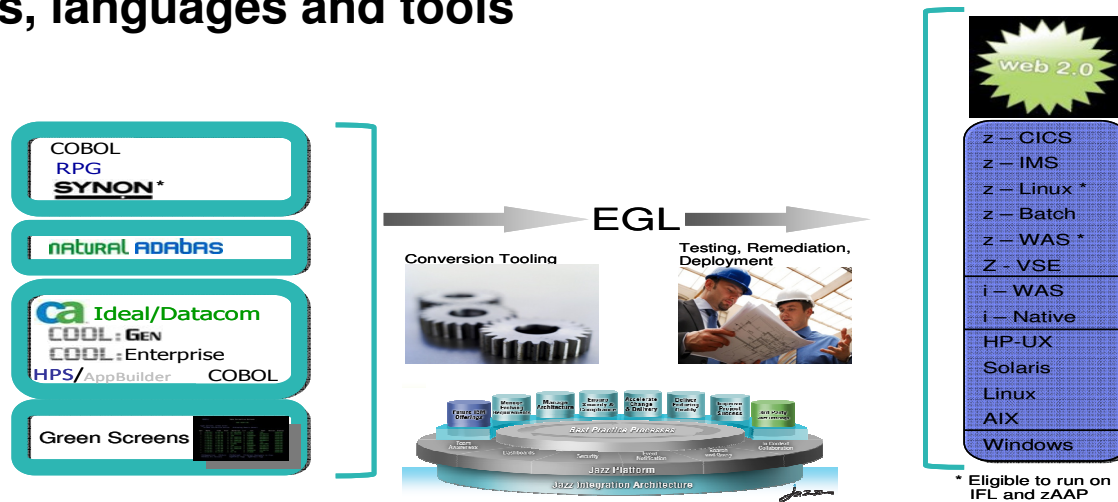
They are stuck on poorly supported, expensive, legacy development platforms





# Solution: Application transformation tools and services

**Migrate from old, stagnant languages to modern development platforms, languages and tools**



*Rational Migration Extension for Natural  
Rational Migration Extension for IBM i*

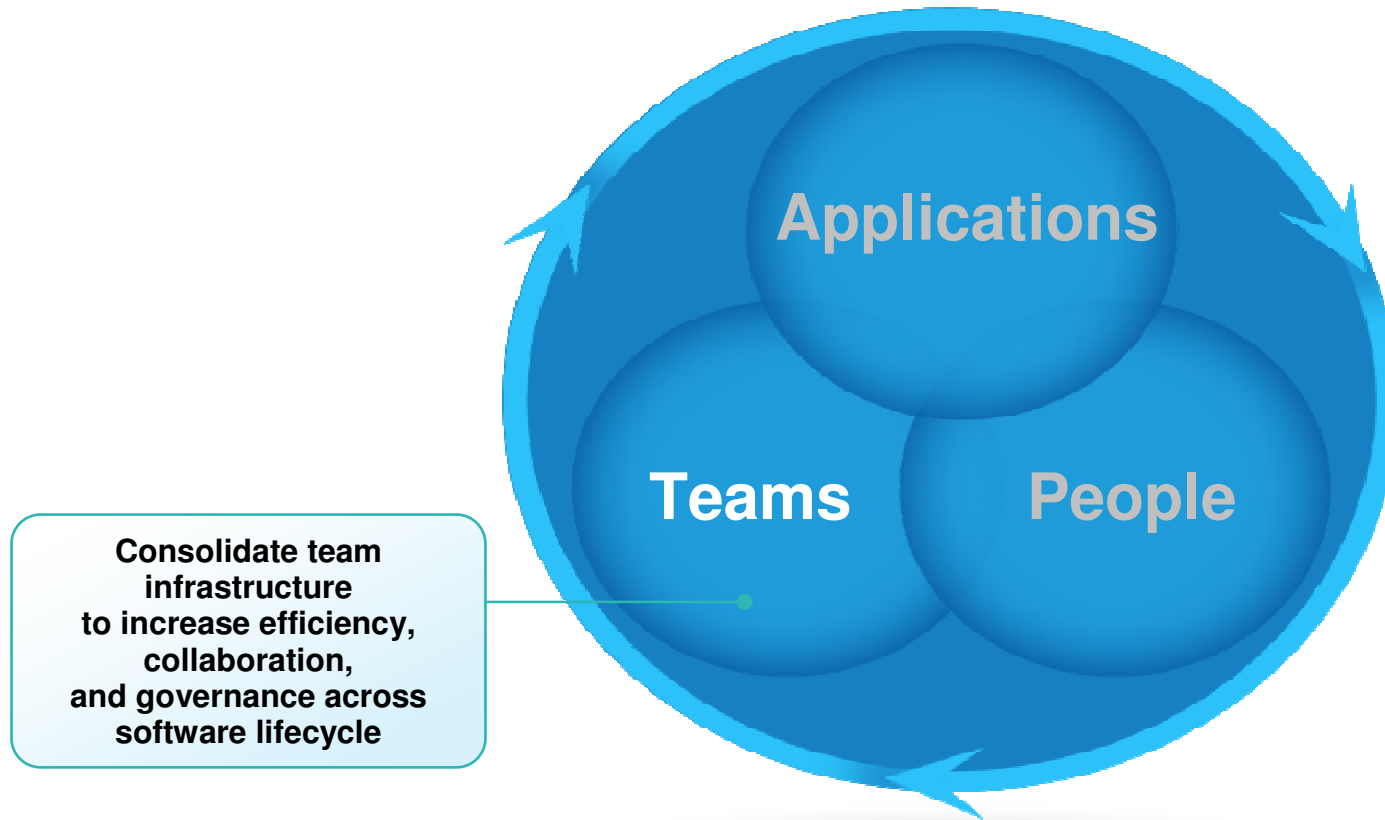
## Delivering

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



# Enterprise Modernization solutions

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

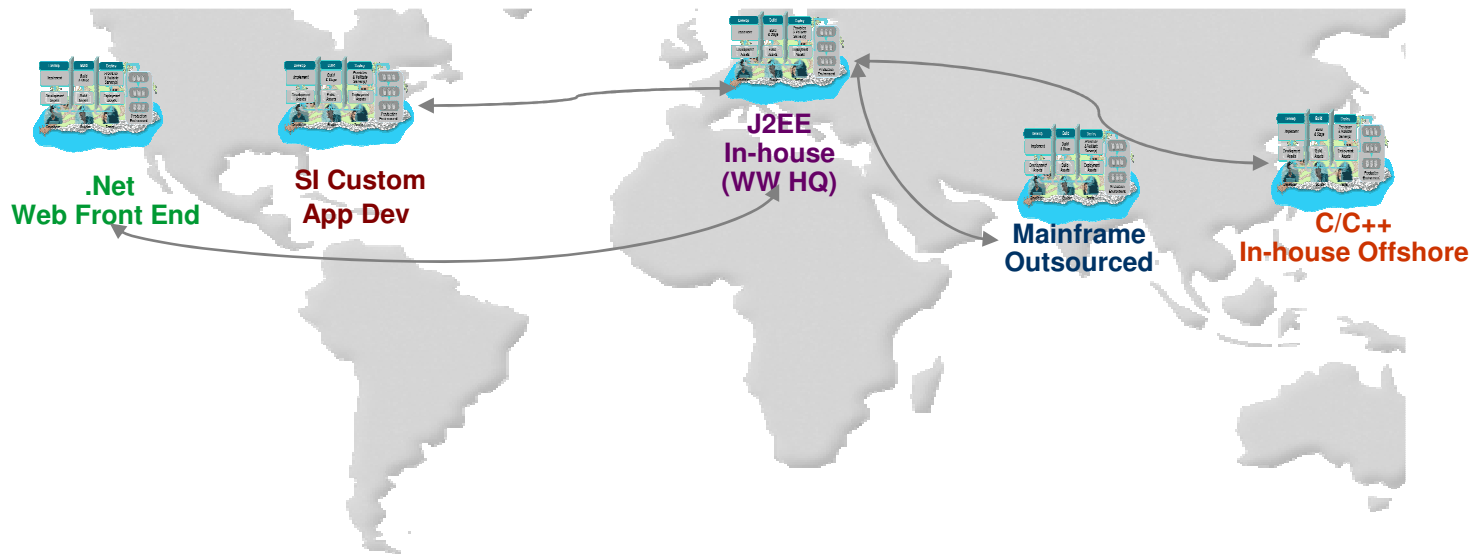


For more information, visit:  
[www.ibm.com/rational/modernization](http://www.ibm.com/rational/modernization)



## Enterprises want to

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



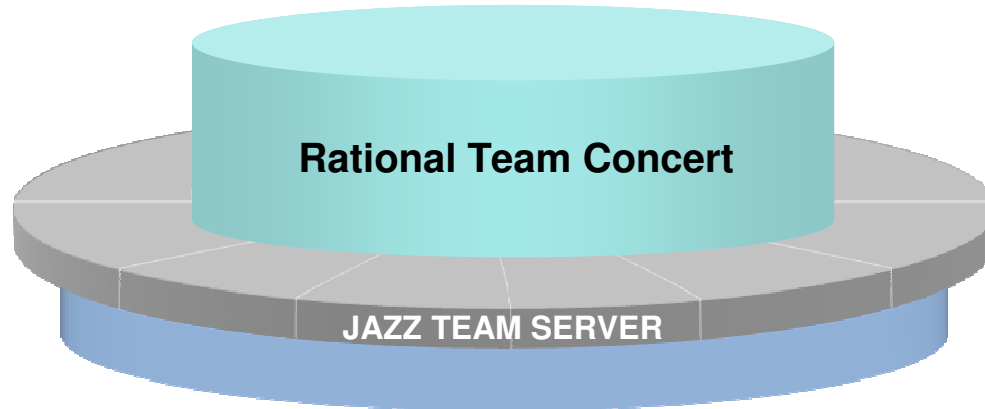
But

**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 Team Concert for i

## Meeting Today's IT Challenges

### ■ Increased Regulation and Governance

- ▶ Support and enforcement for development process
- ▶ Traceability of work items and source changes
- ▶ Generate reports

### ■ Multiple Development Teams

- ▶ Single process, work items, SCM, and iteration planning for all development teams
- ▶ IBM i, Java, EGL, PHP, and .NET
- ▶ Reduce project risk for composite application development

### ■ Collaboration

- ▶ Between developers, testers, teams, business stakeholders
- ▶ Bring together geographically distributed teams

### ■ Project Transparency

- ▶ No more manual status meetings and status distribution
- ▶ Business stakeholders can get self-serve, real-time access to their project status via dashboards



Process Awareness  
& Customization



Team Awareness



Work Item Tracking



Source Control



Build & Deploy

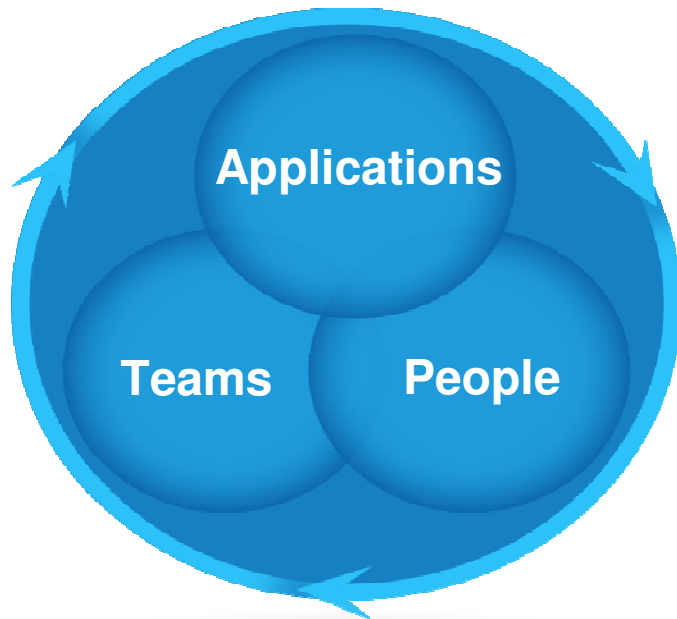


Project Health



# Rational Enterprise Modernization Solutions

*Lowering the cost of multi-platform application development and delivery*



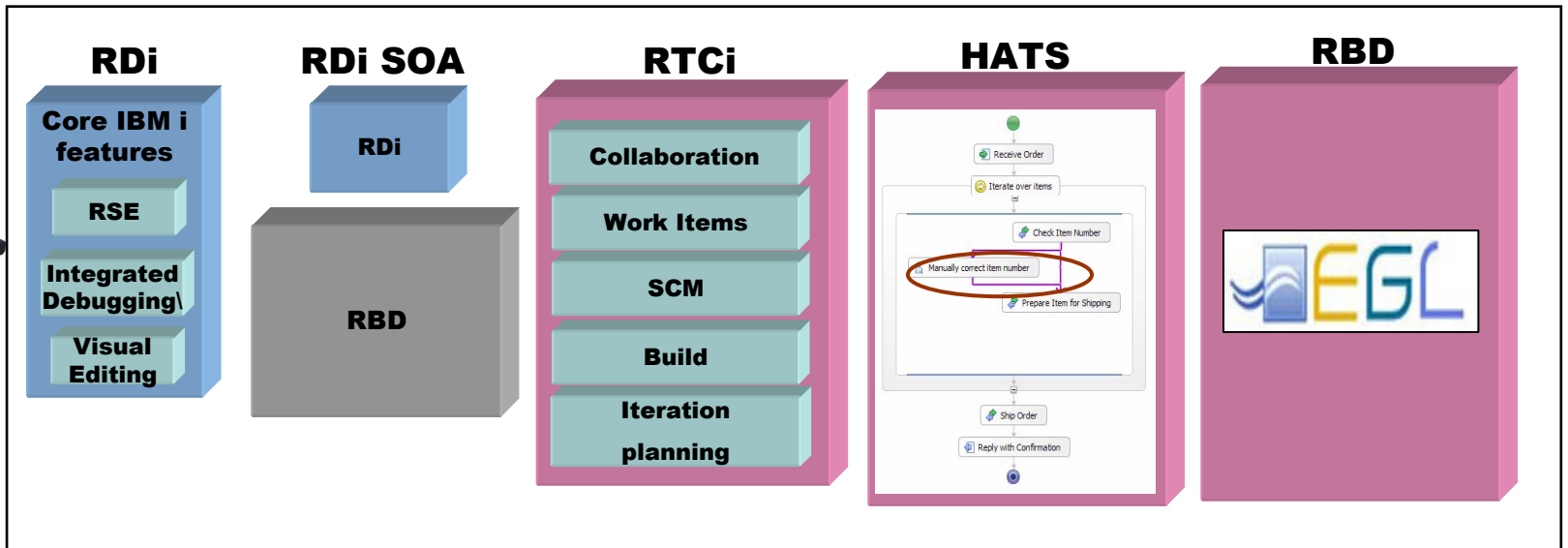
- ✓ Difficult times present opportunities to companies that can adapt quickly
- ✓ IT frequently inhibits flexibility due to fragile and poorly understood applications, limited staff productivity, poor collaboration and traceability across teams
- ✓ Rational Enterprise Modernization solutions deliver 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?**

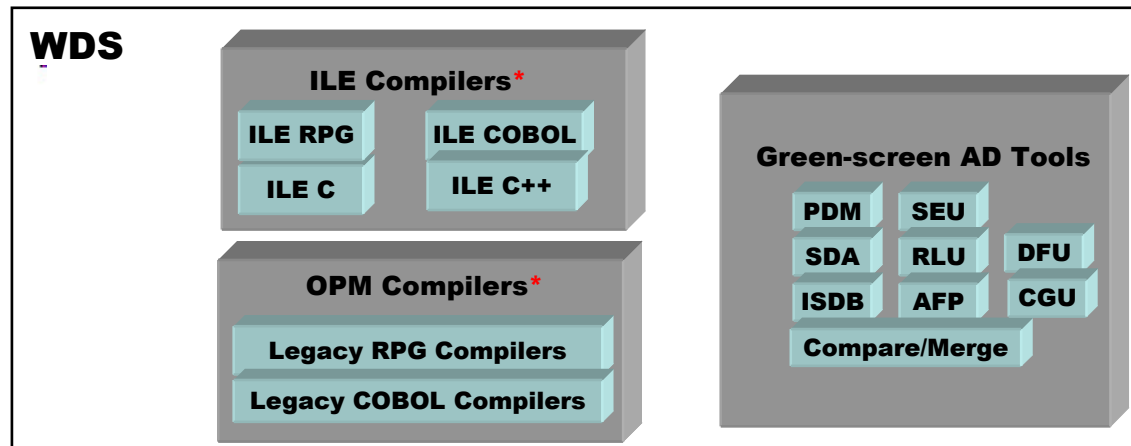
# Taking Inventory IBM i Application Development Tools & Compilers



**Client  
Software**



**Host  
Software**





- **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-](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)

[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](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

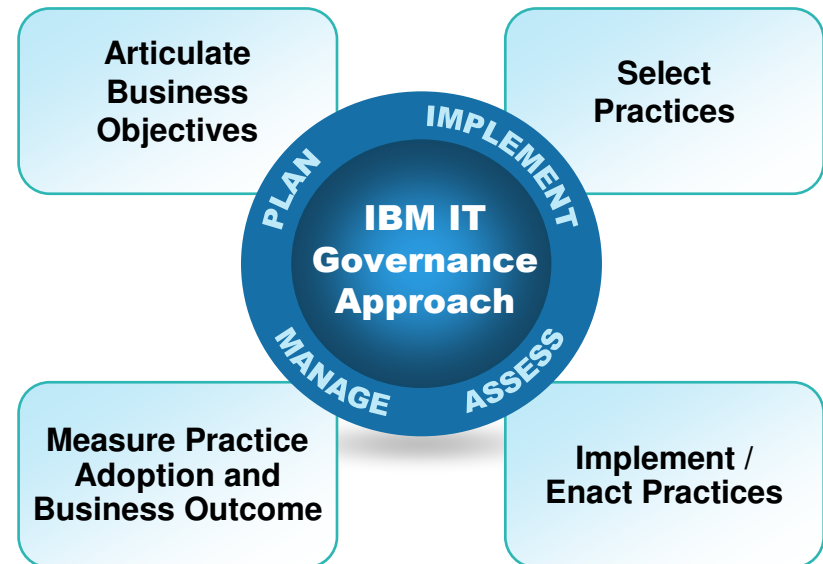
<http://www-949.ibm.com/software/rational/cafe/community/egl>



# 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

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