IBM Software Group

Accelerate the Modernization of System i Applications with the IBM Rational Software Development Platform

Rational on System i

Rational. software

ON DEMAND BUSINESS

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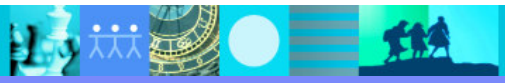
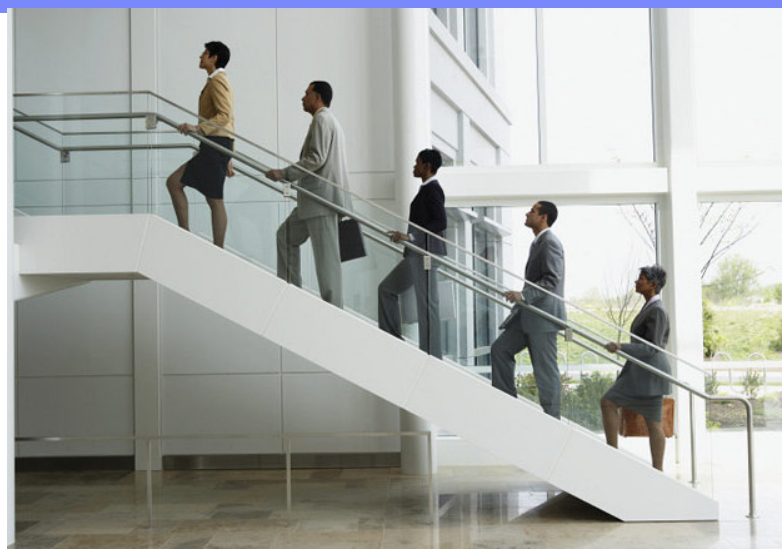


Path to the Future

- Rational and System i
- Modernize
- Manage
- Test

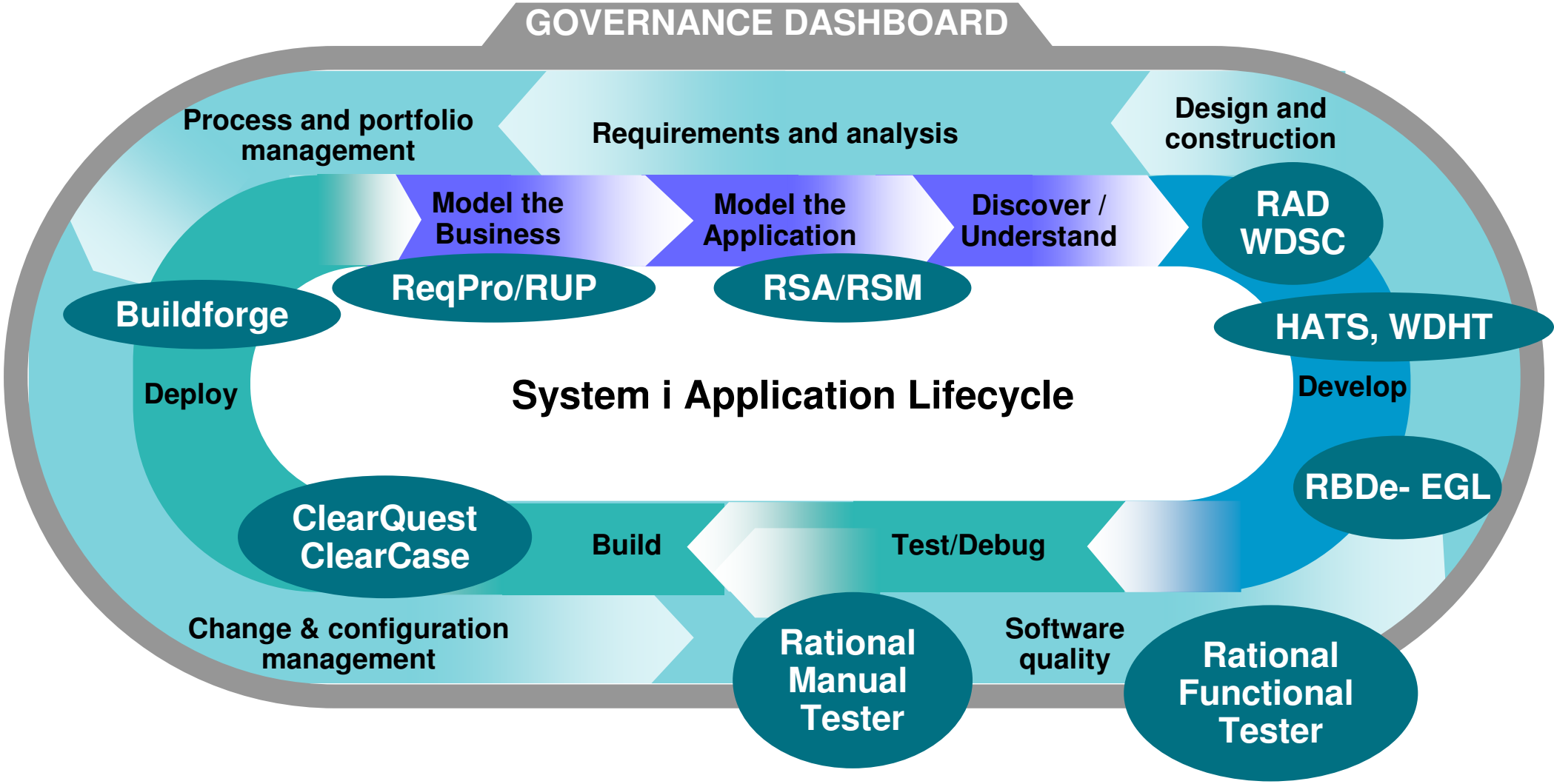
Rational and System i



- New Rational Organization
- Dedicated to System i and z
- Focus on Business Application Developers
- Focused on bringing products to System i with native System i support!
- Seamless platform independent tools and technologies for all supported systems.

The IBM Rational Software Development Platform

SEU & PDM were good yesterday…the SDP carries you into the future.



Rational technology

- Committed to standards
- Embrace open source
- Tools build over Eclipse platform
- Committed to System i

World's foremost open source software development tools platform

http://www.eclipse.org

Rational Portfolio for System i

Denotes application dev & modernization

System i Tools

Desktop Tools

Rational Software Architect

Rational Business Developer

Rational Application Developer

WebSphere Development Studio Client Advanced Edition
Includes Rational Application Developer Advanced Portal Support for WDHT

WebSphere Development Studio Client (Standard Edition)
Development tools for i5/OS

Rational Requisite Pro

Rational Method Composer

Rational Software Modeler

Rational Functional Tester

Rational Clear Quest

Rational Clear Case

System i

Server Software

WebSphere Development Studio
Compilers (RPG, COBOL, C, C++)
ADTS (SEU, PDM, SDA, RLU, DFU)

WebFacing Deployment Tool with HATS Technology

Rational ClearCase

Rational ClearQuest

Rational RequisitePro

Rational Portfolio Manager

i5 Runtime Environments

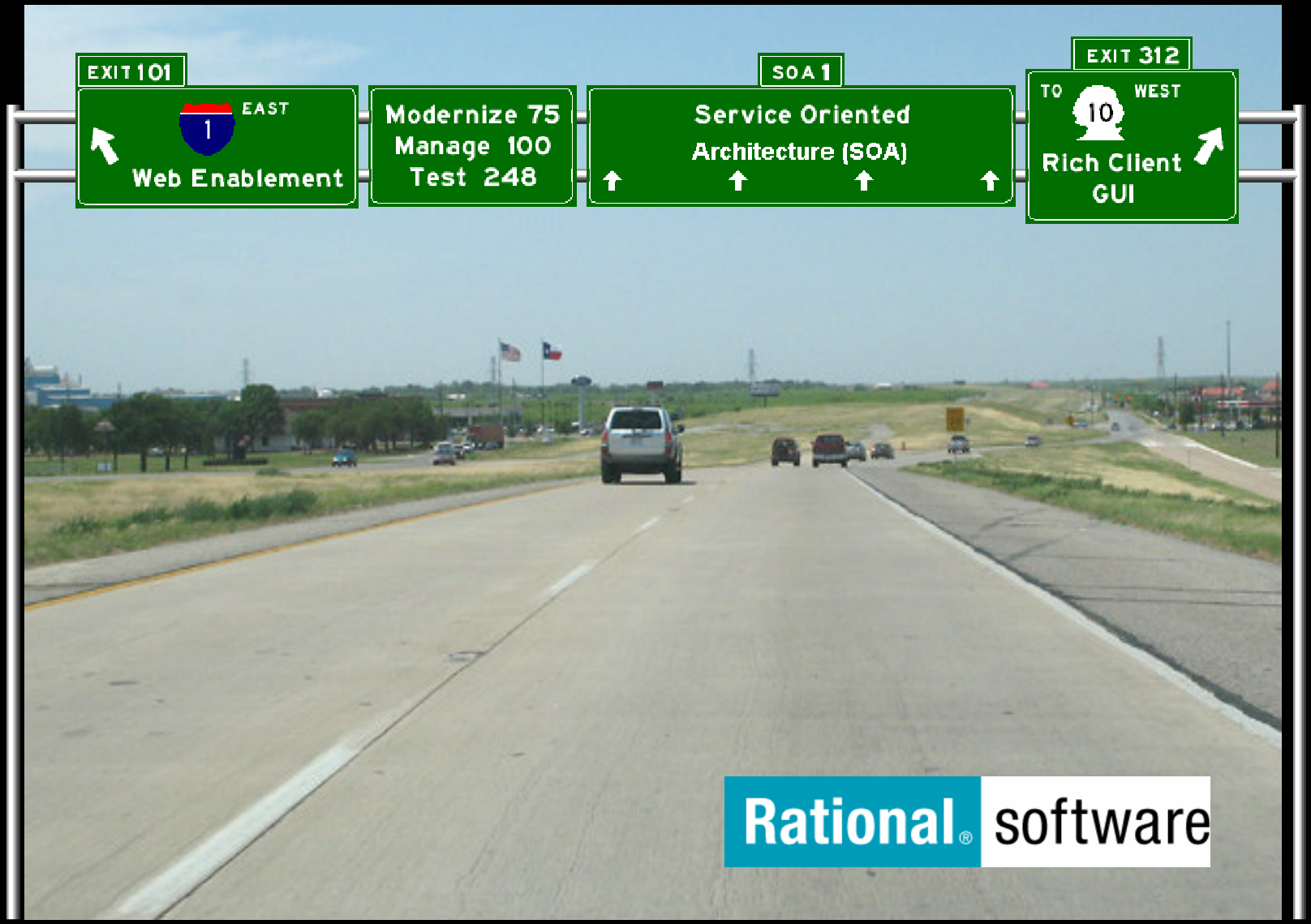
i5/OS

i5 AIX

i5 Power Linux

i5 Integrated "x"

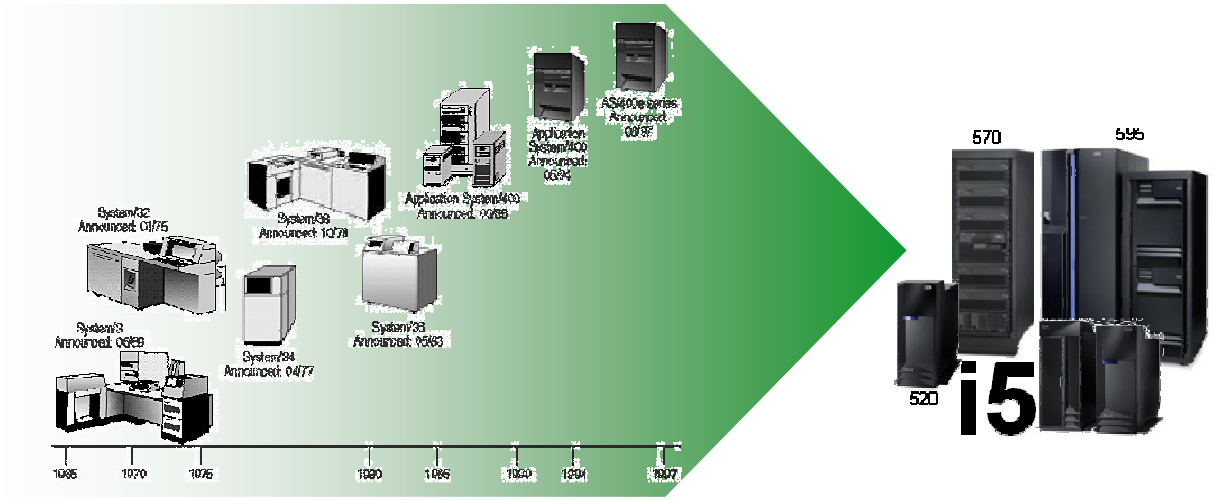
Rational Path to the future



Modernize

The System i is Changing!

- Regulation & Compliance
- Demands from Trading Partners
- Demands from Business Users
- Globalization
- New Technology
- Aging Workforce



Why Modernize Legacy Applications?

- Because …
  - they run the business
  - they are tested, proven, business-critical code
  - the cost of completely replacing them is unrealistic
  - it's all about reuse and leveraging investment
  - it's doable

Key architecture management challenges

ISV Applications
Custom .Net applications
Back-office legacy systems
Home-grown line of business apps.
ERP/CRM

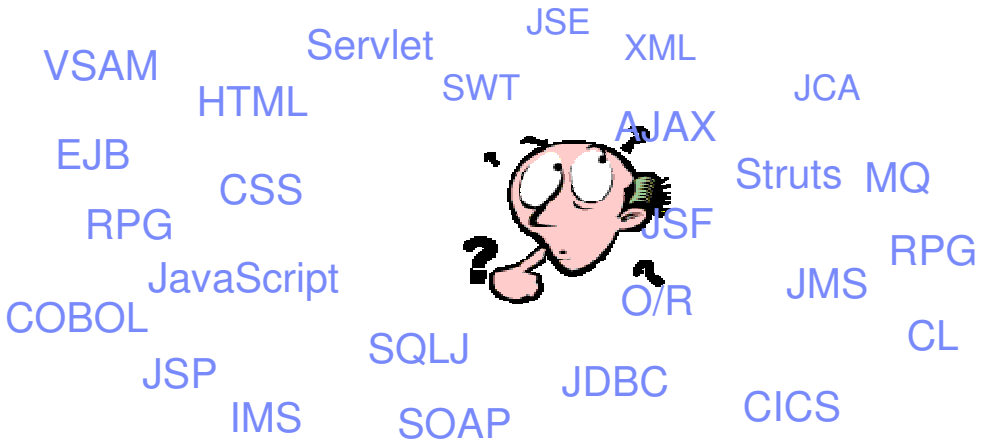
Windows
.Net
AIX
Linux
RPG
Java
COBOL/zOS
i5OS

Existing Applications	Skills	Platforms / Middleware
▪ Costly to maintain	▪ Skills silos	▪ Proliferation
▪ Monolithic	▪ Skills mismatch	▪ Coexistence
▪ Hard to reuse in new ways	▪ Erosion of legacy platforms skills	▪ Complexity

High costs — **Compromise** — **Slow response**

A Closer Look at Construction Challenges

Building applications today is not easy



- Learn and master a myriad of middleware programming interfaces.
- Understand new programming paradigms, frameworks, libraries.
- Cross platform solutions require totally different programming skills.
- Constantly emerging new technologies, frameworks, standards, etc.

Introducing IBM Rational Business Developer

New capabilities to accelerate enterprise application modernization and empower business oriented developers to reduce development costs via reuse, control maintenance burdens and rapidly deliver new applications

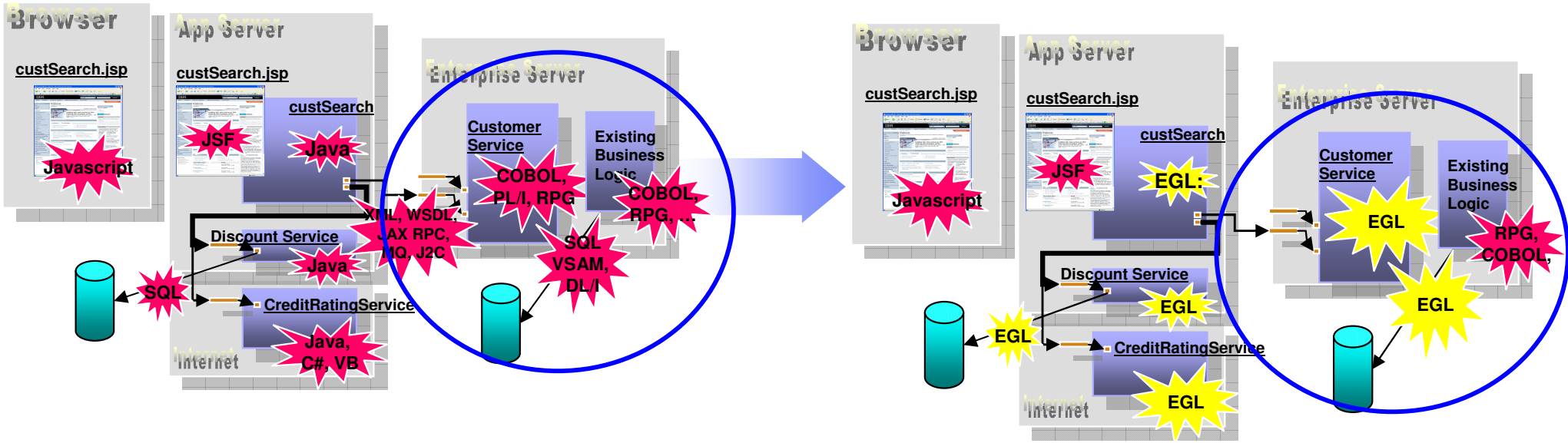
- *Simplify and accelerate cross platform development, including System i and System z*
- *Break skills silos and create a pool of "business" developers to respond faster to business needs with a unified more abstract development approach*
- *Easily integrate enterprise applications into service oriented architecture.*

- **New offerings**
  - **IBM Rational Business Developer Extension Enterprise Generation Language**

Future State – What you want

Powerful tools and abstractions to harness current employee skills

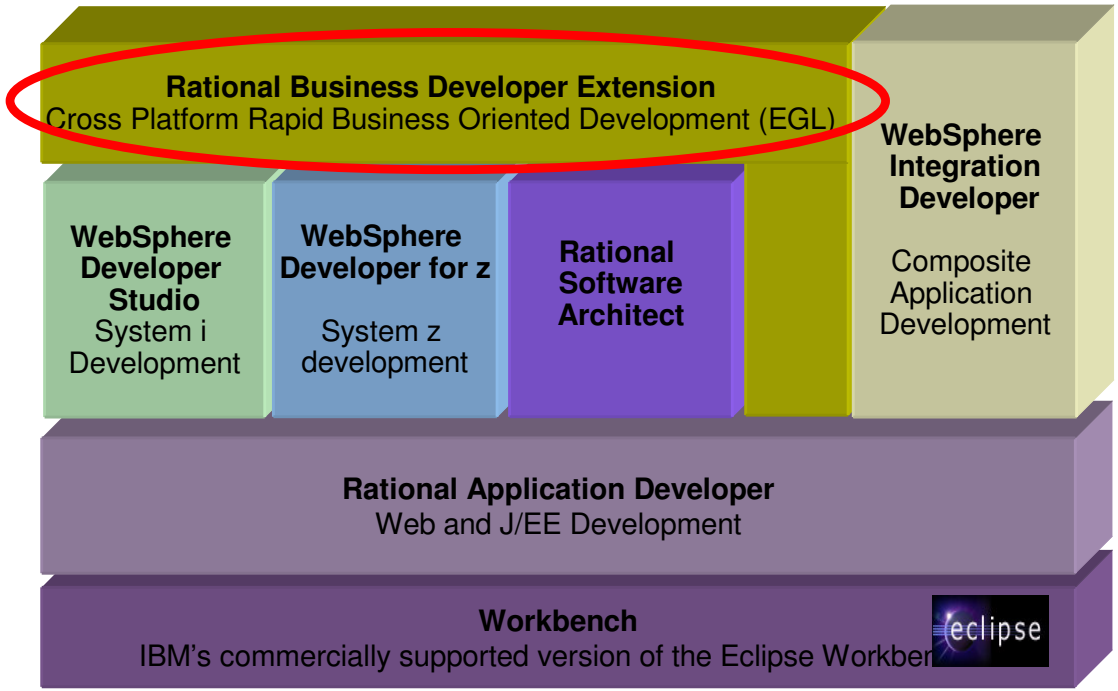
- Exploit new technologies without retraining your staff
- Use high-level abstractions to hide underlying middleware complexity
- Standardize on common processes and tools to improve productivity and communication
- Leverage tool advisors and best practices to “do it right” the first time



Solution Overview: Accelerate Enterprise Development

Extend IBM Rational and WebSphere solutions with IBM Rational Business Developer Extension

- ✓ Simplify and accelerate cross platform development
- ✓ Break skills silos with a unified more abstract development approach and create a pool of "business" developers to respond faster to business needs
- ✓ Easily integrate core business applications into service oriented architecture.
- ✓ Rapid development of new Services for all platforms including System i.

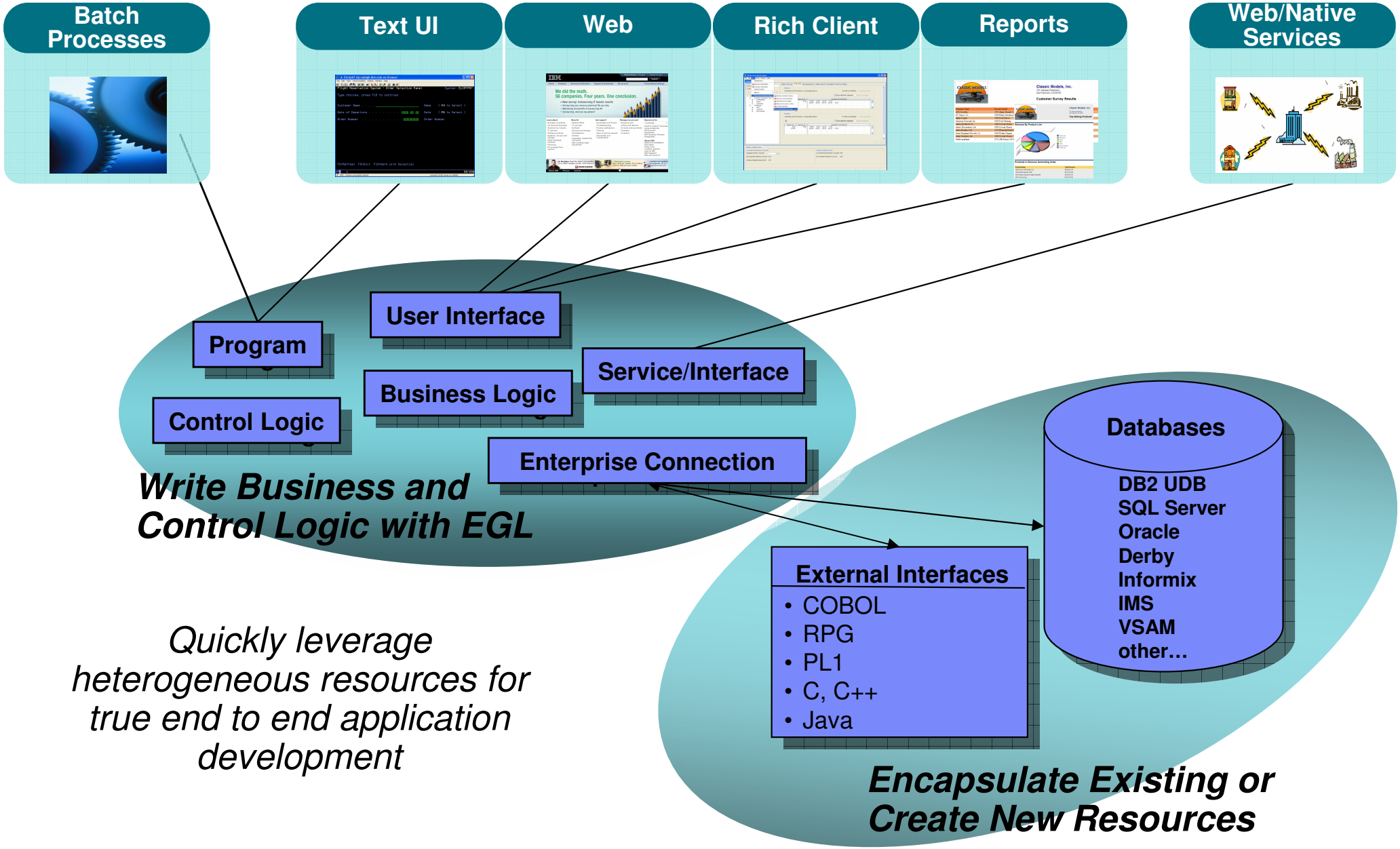


An integrated tools environment for the rapid development of scalable, robust, mission-critical applications and services using traditional enterprise skills and capable of running under a variety of environments and topologies.

Rational Business Developer Extension - RBDe Enterprise Generation Language - EGL

- A high-level business application development language
  - Programmers will instantly “know” EGL.
  - Computationally complete
  - Highly productive
- Complete application development environment
  - Build core business applications
  - Based on world-leading Eclipse IDE
  - Full, first-class SOA support!
- Optimal support of all IBM platforms
  - EGL is the culmination of 25 years of experience in the Business Language space … from CSP to VisualAge Generator to Informix 4GL to EGL!
  - Deploys Java or COBOL for System i, System z (CICS, IMS, Batch), Linux, AIX, HP-UX, Solaris, Windows
- Hides the plumbing
  - An example … MQ Series: get queueName, put queueName

Solution: IBM Rational Business Developer Extension



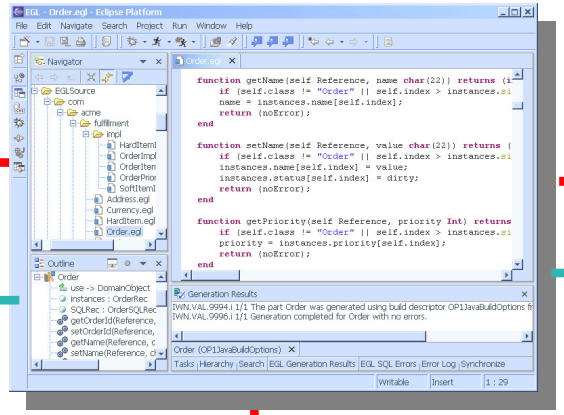
Quickly leverage heterogeneous resources for true end to end application development

RBDe: Power and Flexibility

System z

- WebSphere
- USS
- Linux*
- CICS, IMS

COBOL



COBOL

System i

- WebSphere
- Native i5OS
- Native i5OS

Windows, Linux, Unix

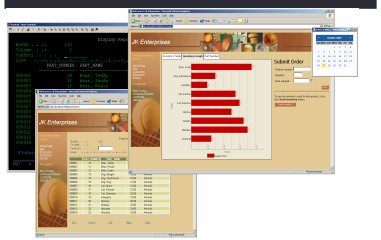
- WebSphere
- Tomcat

* Planned for 2H 2007

Four Styles of Application Modernization/Transformation

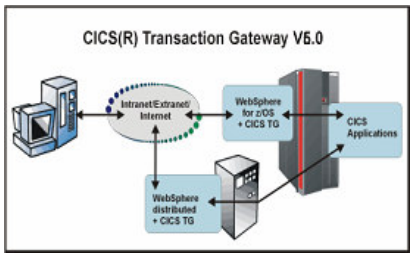
Transform User Experience

Enhance user interface and workflow for quick return on investment



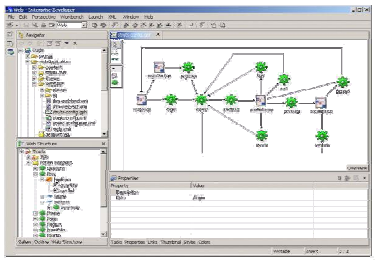
Transform Application Connectivity

Improve business processes and develop customer, partner and supplier relationships using Web services and Java connectors



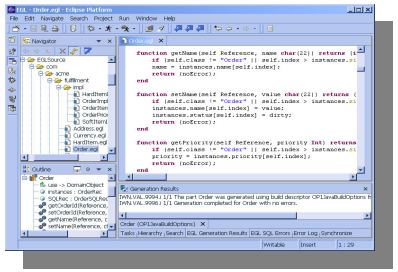
Transform Application Architecture

Update and extend mission-critical applications as services, leveraging their core value in new ways



Transform Application Code

Leverage existing, tested, production-ready application code and business logic and transform into a new, modern application development and deployment platform



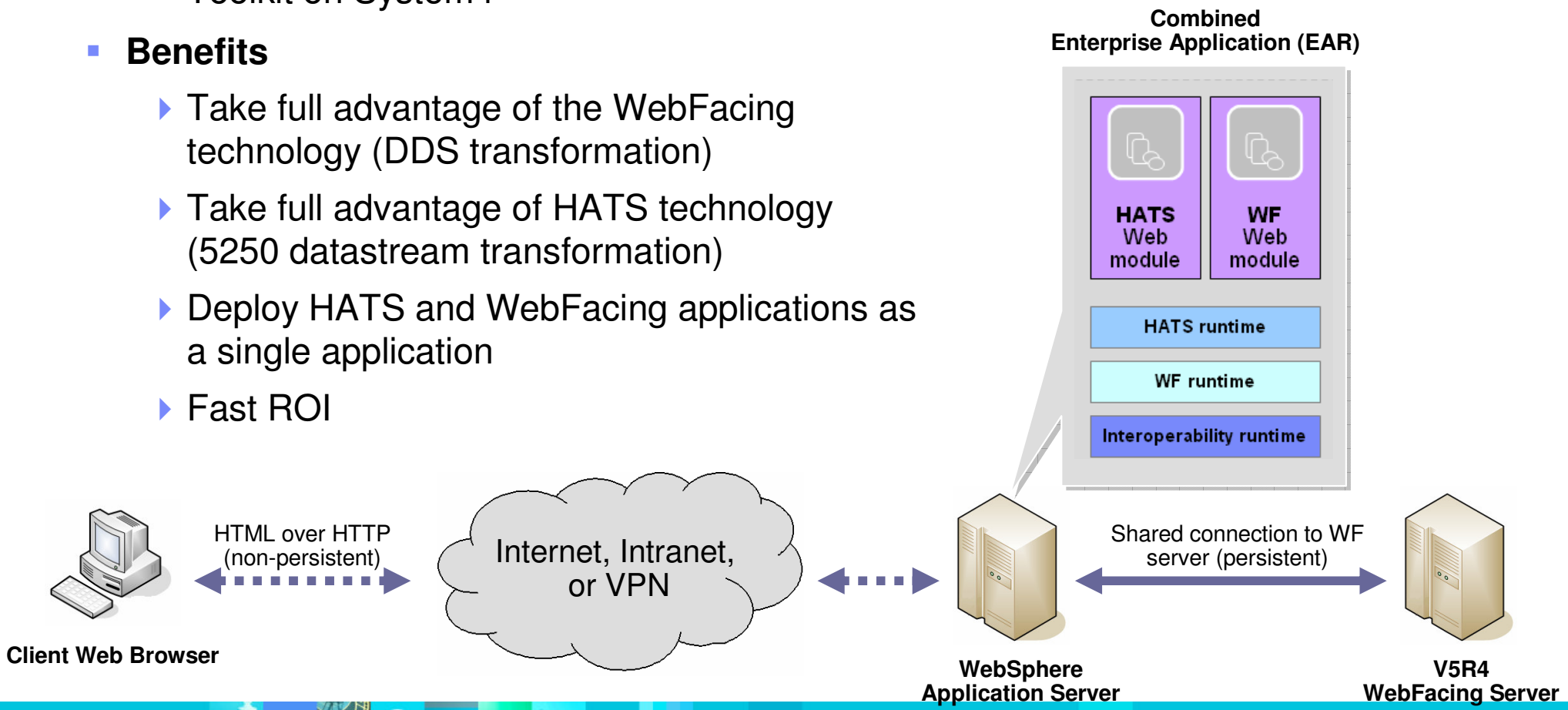
Modernize

- Rational Modernization products for System i include:
  - WebSphere Development Studio Client
  - WebSphere Development Studio Client Advanced Edition
  - Host Access Transformation Services
  - WebFacing Deployment with HATS Technology
  - Rational Business Developer Extension

Transform the User Experience: TACTICAL

System i WebFacing Deployment Tool with HATS technology

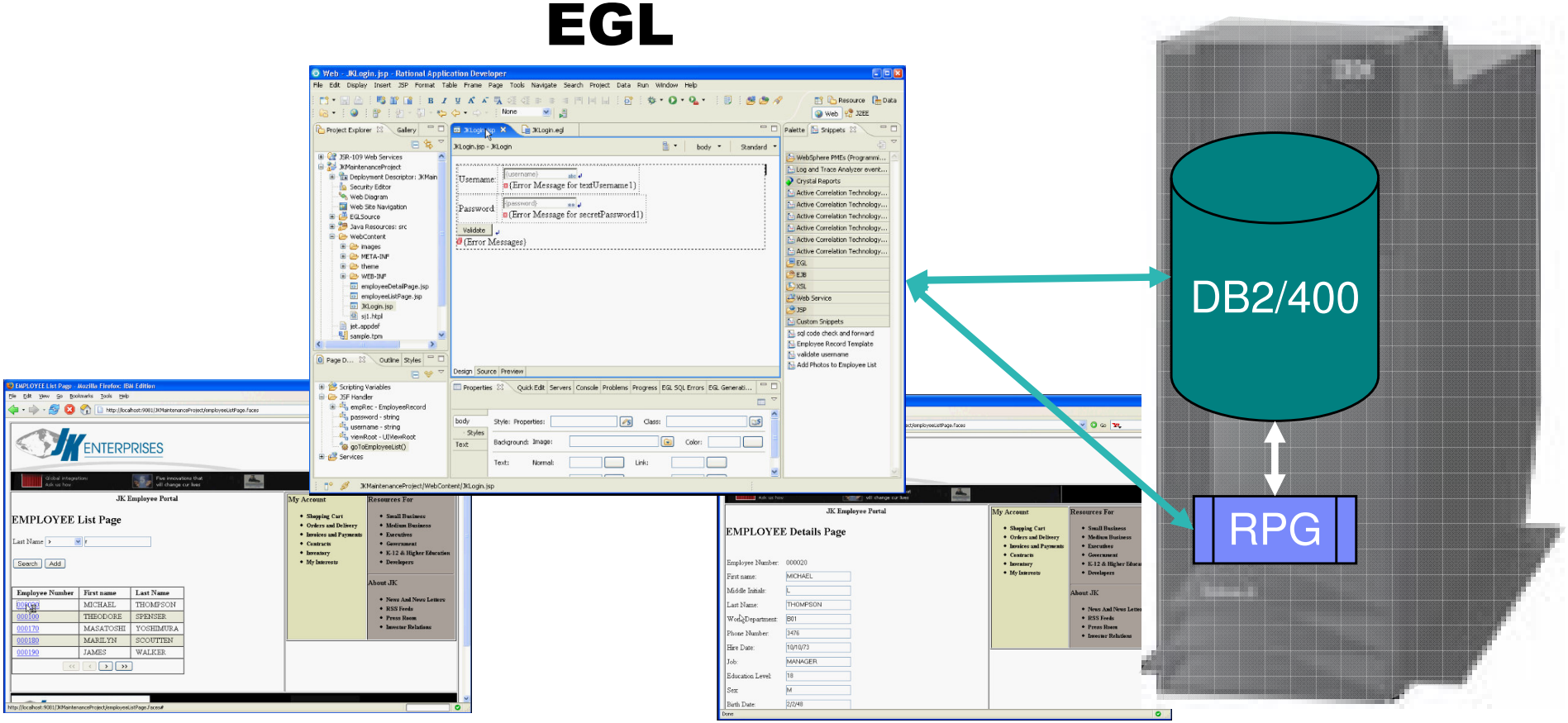
- **What is WDHT?**
  - The run-time enabler for the IBM WebFacing Tool and the run-time enabler for the HATS Toolkit on System i
- **Benefits**
  - Take full advantage of the WebFacing technology (DDS transformation)
  - Take full advantage of HATS technology (5250 datastream transformation)
  - Deploy HATS and WebFacing applications as a single application
  - Fast ROI



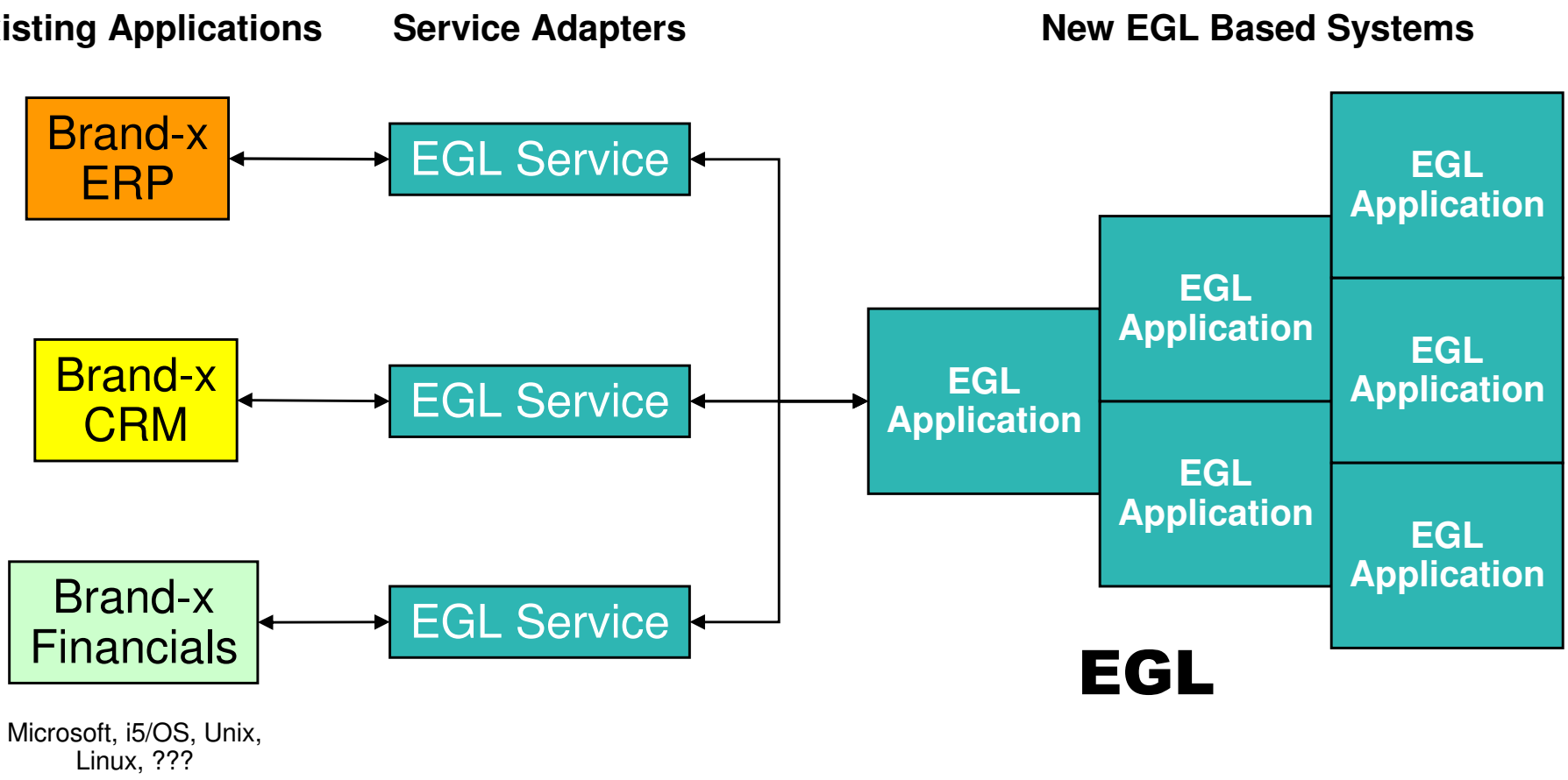
Transform User Experience: Strategic

Use RBD-EGL to develop new web UI for existing applications

Rapid Web Enablement



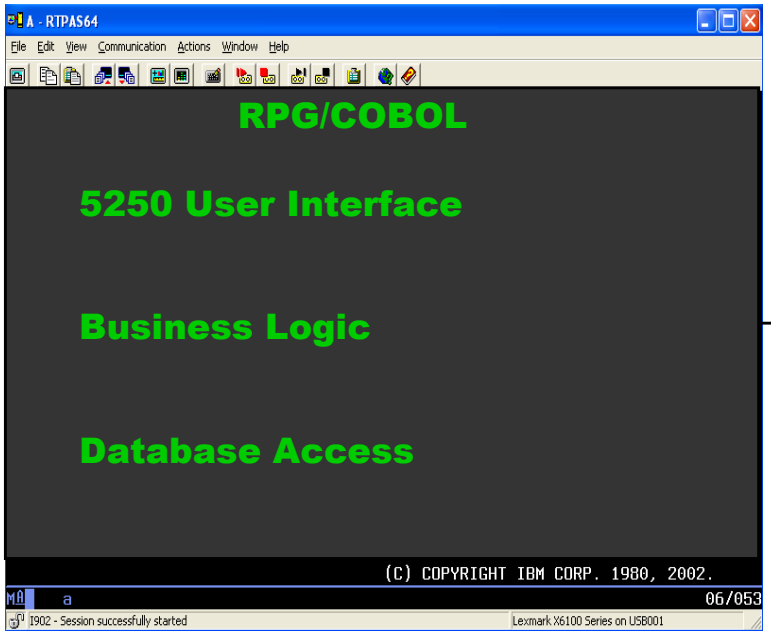
Transform Application Connectivity
-Service Adapters and Modernization



Transform Application Architecture

Refactoring and Integration

Monolithic Programs



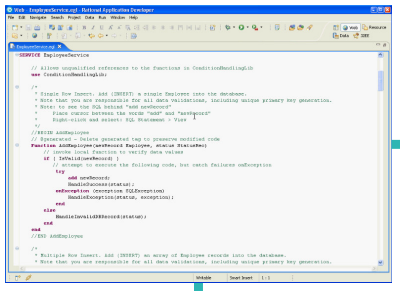
Partner Based Tools
(Databorough X-Analysis
And X-Migrate)

5250 User Interface

Database Access

Business Logic

EGL

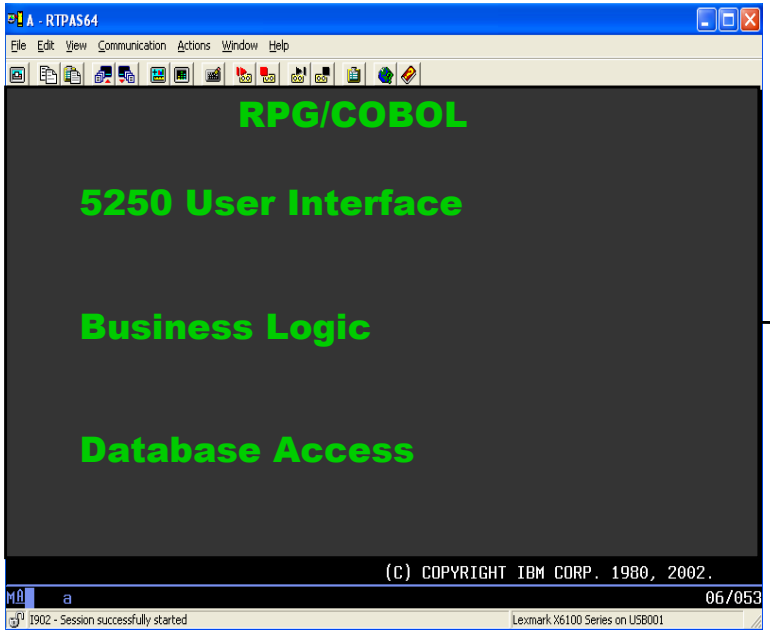


EGL Service
Web Service

New EGL
Application

Transform Application Code

Monolithic Programs



Partner Transformation Tools (PKS – Other)

EGL Application

EGL Application

EGL Application

EGL

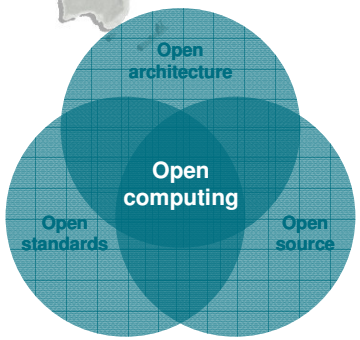
Why EGL for Application Transformation

- Platform flexibility
  - Broad choice of new target environments
- Modern, Robust, Open, SOA ready
  - Future-proof architecture allows to grow with business requirements
- Easier to learn for legacy 4GL developers
  - No need to re-staff, productive in a very short time
- Procedural nature of EGL target has greater “affinity” with original 4GL source
  - Better more natural “mapping
  - Easier to automate the transformation process
  - End result is understandable and maintainable
- Eliminate costly runtime charges

Manage

Trends in software development

- Accommodating compliance - *The new necessity*
  - Management reporting, audit support
    - Sarbanes Oxley, HIPAA, 21CFR11, Basel II, EASHW
  - IT, systems, project and product level accountability
    - ITIL, COBIT, COSO, ISO 900x, Six Sigma
  - Development compliance level
    - Change management of assets, traceability
    - CMM/CMMII, RUP, DODAF



- Open computing - *A new route to collaboration and innovation*

- Modular systems - *Greater flexibility*
  - Maximize investments: Reuse components
  - Increase flexibility: Interoperable systems
  - Accelerate initiatives: Scalable and agile

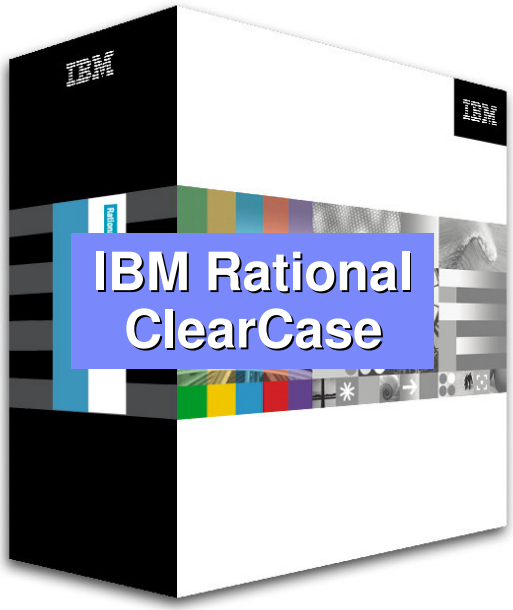
- Geographic distribution of business - *The new norm*
  - Work aligned to markets and customers
  - Evolution of right-sourcing
  - Leveraging distributed development

Typical problems with unmanaged process

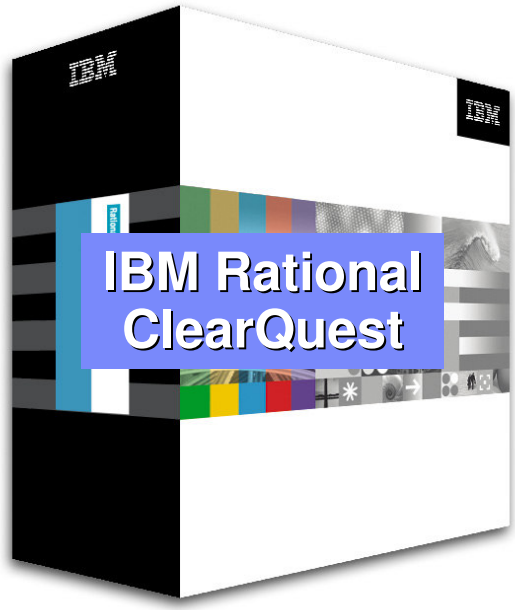
- Poor release integrity
  - Files get lost and cause recurring problems
- Quality depends on error prone, redundant tasks
  - Manual examination of builds
  - Manual mapping of files to tasks
  - Manual merging of changes
  - Manual activity reporting
- Lack of communication
  - What to work on?
  - What's important?
  - How does business community know what IT is doing?
- Difficult to determine project status
  - No connection between activities and assets

IBM Rational ClearCase and Rational ClearQuest

- The most powerful software artifact management solution
- Over 240,000 users
- Automated Parallel Development



- Easy to use, highly flexible activity tracking
- Over 160,000 users
- Powerful and customizable project metrics



Rated No. 1 by IDC for 4 years

Activity

- Tracks the changes you make to artifacts to fulfill a change request or task
- Rational ClearCase manages the artifacts that change, while Rational ClearQuest manages and tracks the activities

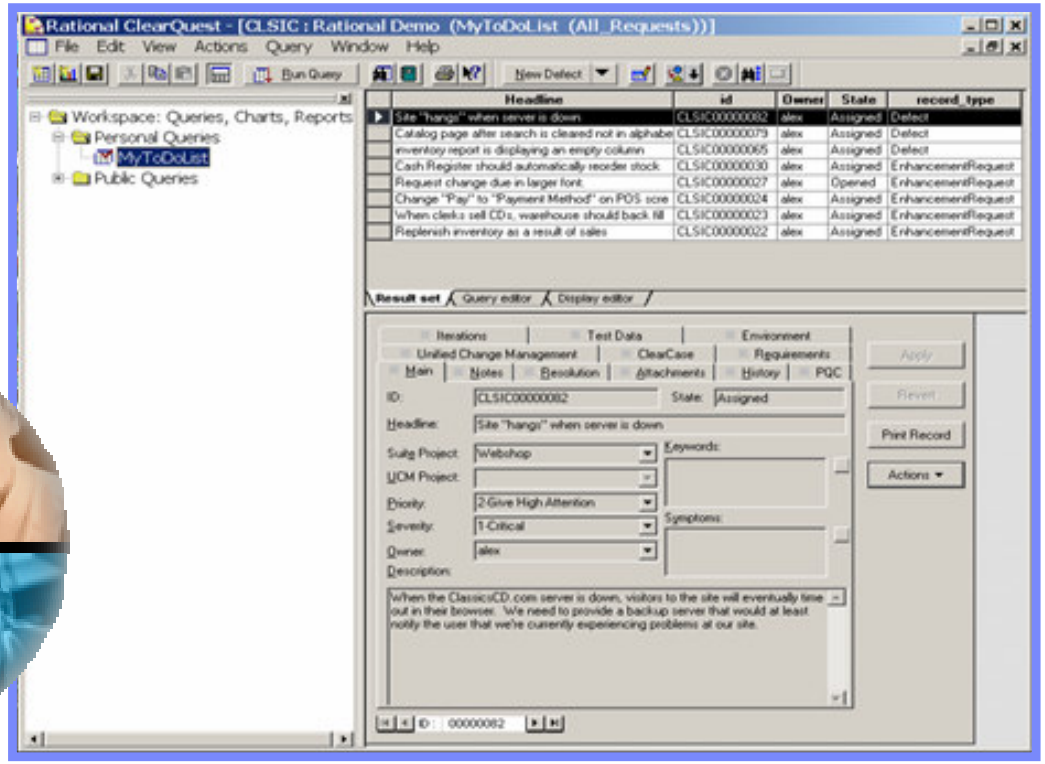
IBM Rational ClearQuest

Activity and defect tracking in the enterprise

- Capture activity requests
- Communicate real-time project status
- Control activity in the Development lifecycle
- Customize IBM Rational ClearQuest to meet your needs

Rational ClearQuest: Automating Developer Activity

- To-do list
  - "What activities have been assigned to me?"
  - "What should I work on first"

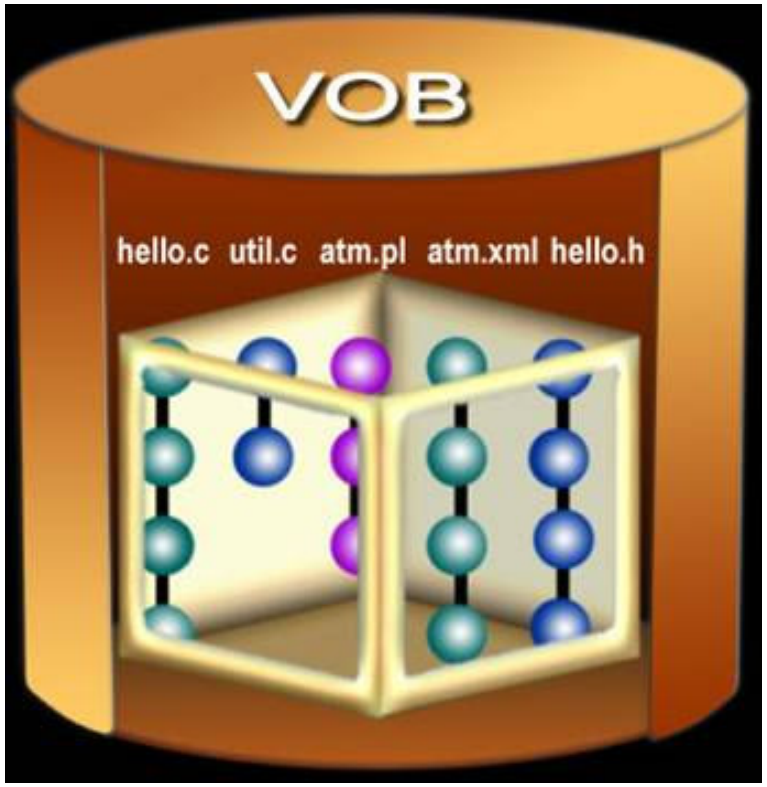


IBM Rational ClearCase

Software Configuration Management in the enterprise

- Robust, full-featured support for parallel development
- Out of the box process
- Customize to adapt to your projects
- Scaleable to meet future needs

IBM Rational ClearCase repository

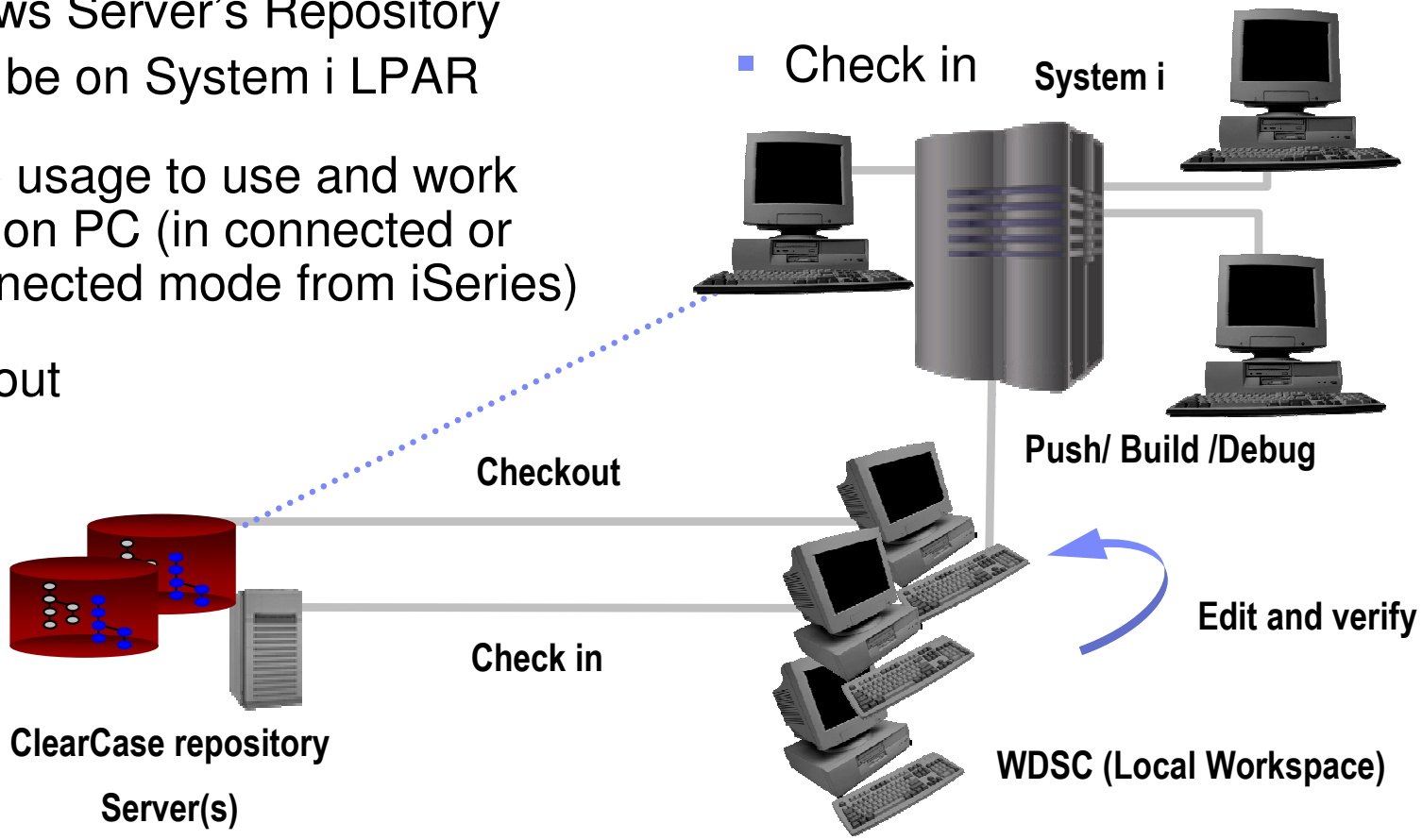


Rational ClearCase stores element versions and components in a repository called a Versioned Object Base (VOB)

Rational ClearCase repository can be hosted on System i Unix/Linux LPARs or on Integrated Windows server

System i team development with ClearCase

- System i development environment
- Asset migration on Unix/Linux or Windows Server's Repository
  - Can be on System i LPAR
- WDSC usage to use and work locally on PC (in connected or disconnected mode from iSeries)
- Checkout
- Edit and verify code
- Push / Build / Debug
- Check in

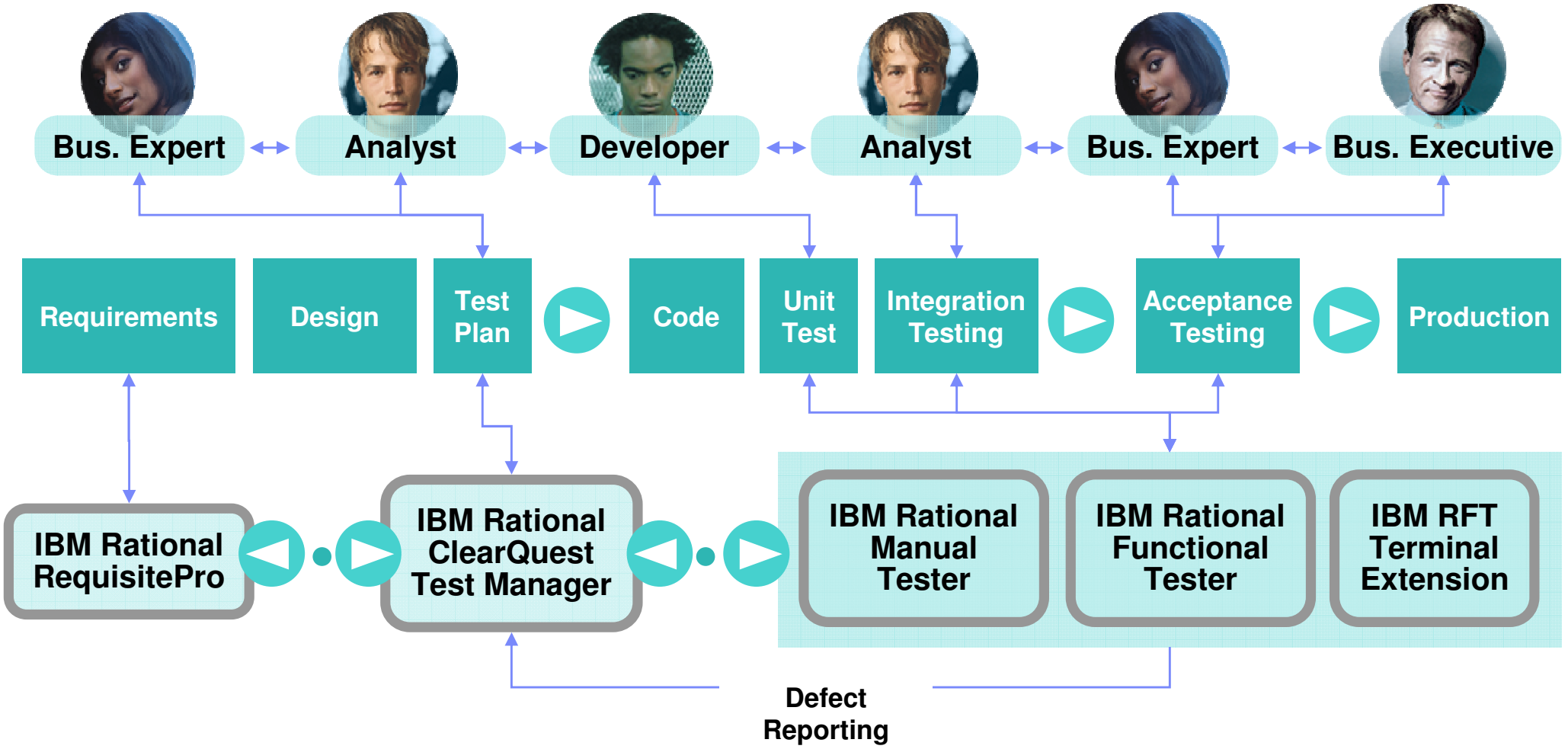


Test

Software quality and System i

- Quality is a development responsibility
  - Business systems analyst defines test plans for both unit and integration testing
  - Testing managed in the development teams
  - Business users perform acceptance testing
- Testing is a key management issue
- Sarbanes Oxley and other compliance regulation
  - Requires greater focus on user acceptance testing

Business development lifecycle



IBM Rational RequisitePro

- What is it?
  - A full featured requirements management tool
- What does it allow you to do?
  - Organize and prioritize requirements
  - Manage requirements documents
  - Search and filter requirements
  - Trace requirements to each other

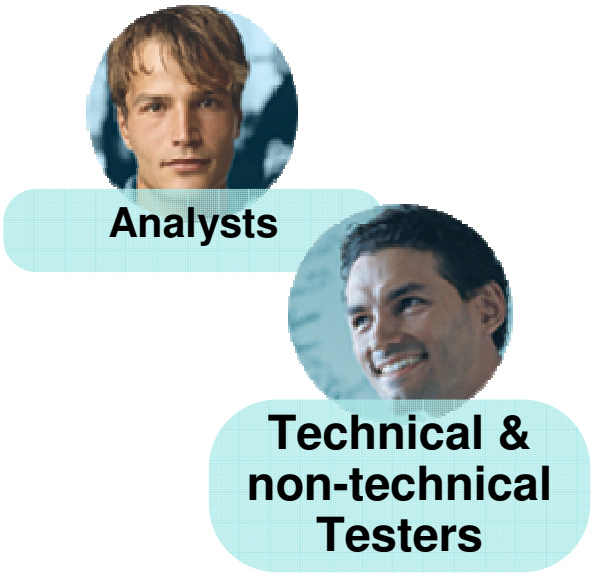
IBM Rational RequisitePro

- Link requirements to test cases
  - with Rational ClearQuest Test Manager
  - with Rational Manual & Functional Tester
- What is its value?
  - Communication
    - Everyone understands the problem and what must be done to solve it
  - Make intelligent scoping decisions
  - Understand the impact of changes

Transform manual testing with Rational Manual Tester

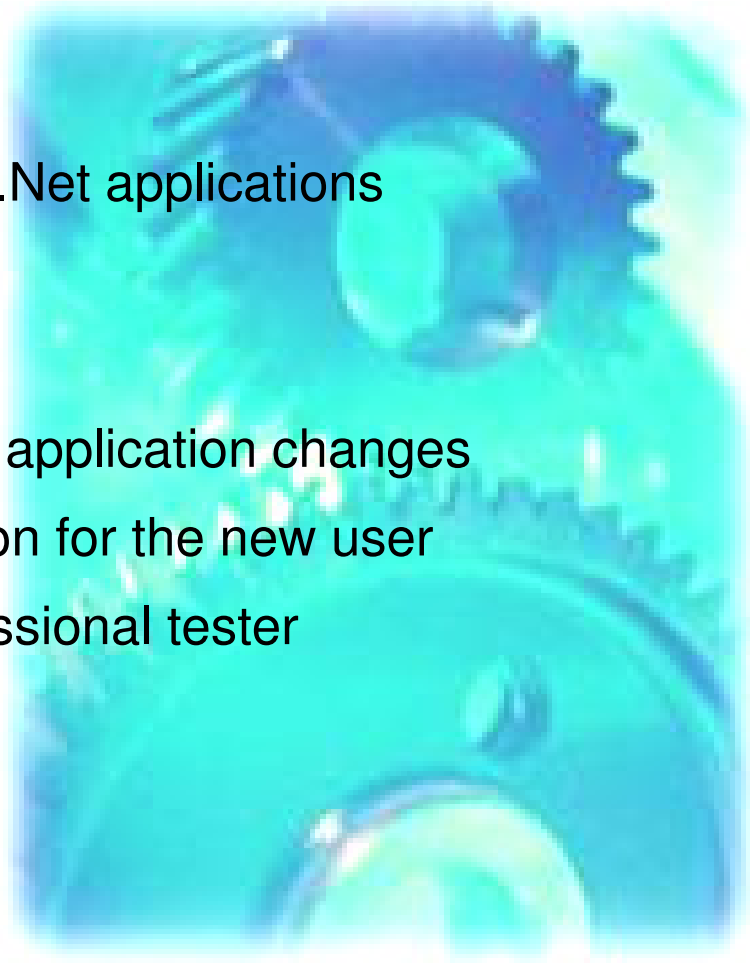
From ad-hoc testing to controlled and efficient testing

- Support analysts, subject-matter experts and professional testers
- Develop detailed, easy to follow manual tests
- Minimize test maintenance and ensure test consistency
- Reduce human error during data entry and data verification
- Support diverse usage models and processes
- Built on open source Eclipse architectural framework



Functional testing with Rational Functional Tester

Test automation for the novice and the professional



IBM Rational Functional Tester

- Automated regression testing for Web, J2EE and .Net applications

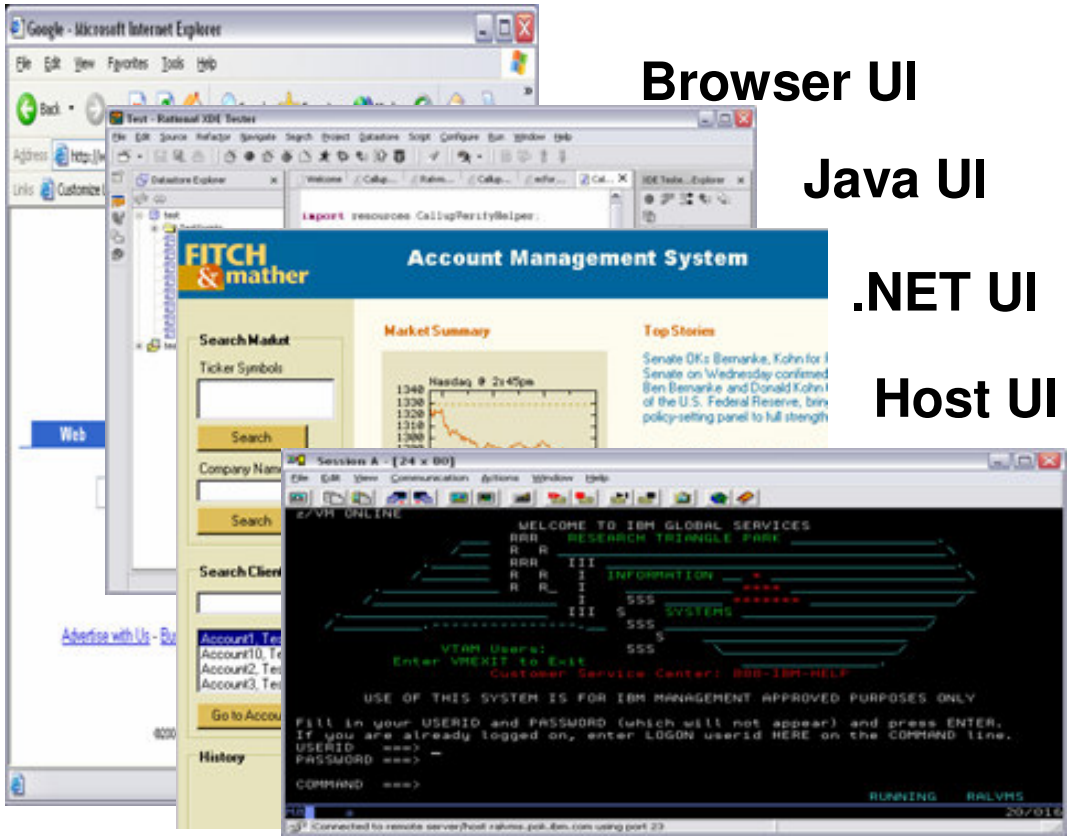
Key benefits

- Minimize test maintenance with scripts resilient to application changes
- Wizard enhanced automation to speed test creation for the new user
- Powerful scripting language and IDE for the professional tester
- Supports Team oriented parallel development

IBM Rational Functional Tester Extensions for Terminal-based Applications

Functional testing for Web/Java and 3270/5250 host applications

- Integrate traditional and mixed workload function testing
- Single point of control to manage testing of legacy applications and Web front-end components
- Single solution to manage development and testing across mainframe and distributed platforms
- Key product differentiators
  - Supports TN3270/5250 host applications

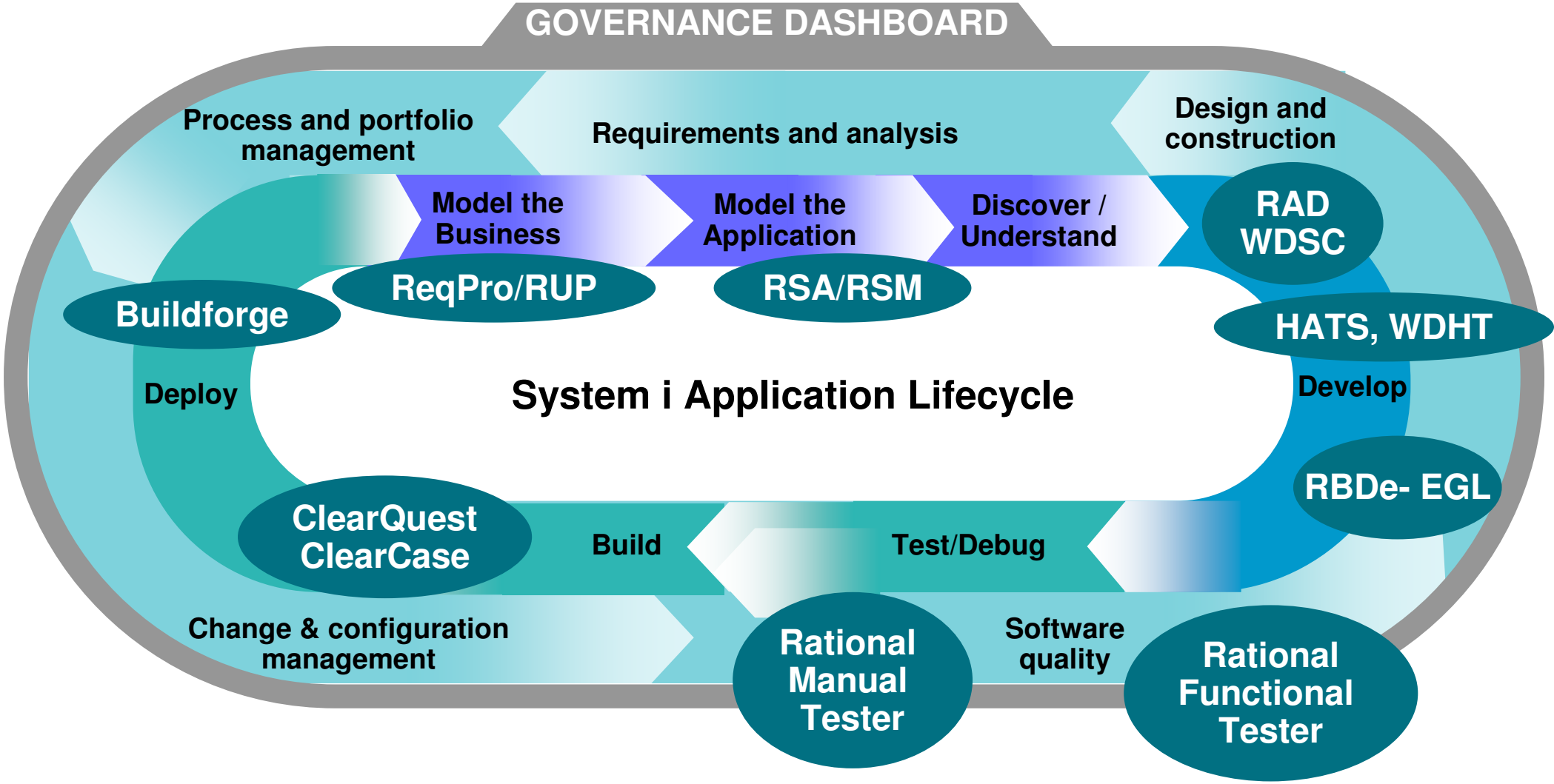


Test

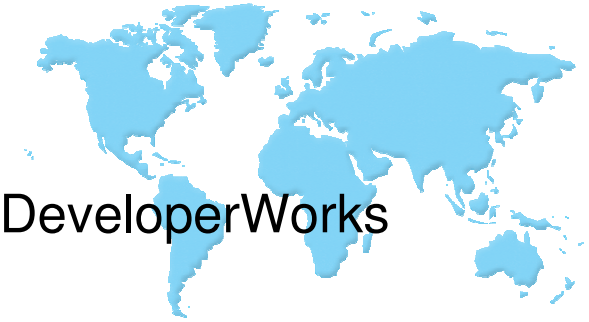
- IBM offers total lifecycle management and control over entire development process
- The IBM Rational software solution can be built over time, you don't need to purchase all tools at once to see benefits
- Many System i customers start with IBM Rational ClearQuest Test Manager and IBM Rational Manual Tester
- Rational software quality products for System i include:
  - IBM Rational RequisitePro
  - IBM Rational ClearQuest Test Manager
  - IBM Rational Manual Tester (all applications)
  - IBM Rational Functional Tester (Web)
  - IBM Rational Functional Tester Terminal Application Extension (5250 applications)

The IBM Rational Software Delivery Platform

SEU & PDM were good yesterday…the SDP carries you into the future.



For More Information



- Information on all IBM Rational Products is available on DeveloperWorks
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