

## IBM Rational Brand

# Rational and System i

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Binary Computer Services Ltd

**Application Modernisation Specialist** 

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# Happy 20<sup>th</sup> Birthday AS/400



My Memories

Silverlake or Olympic Whiz, Bang & Wallop The Moose Act of God



# On the Minds of Top Executives Worldwide



## **CEO Challenges**

- Process Efficiency
- Meeting Customer Expectations
  - Employee Productivity
    - Security & Privacy

## **CIO Challenges**

- Aligning IT & business goals
- Building responsiveness and agility into the organization through IT
  - Enable IT staff to be more effective





# Existing Realities ("Where are you now...")

70% Business Logic sits within Legacy Systems



Need for Legacy & Browser Applications to co-exist

Legacy Applications will be around in 5 years time

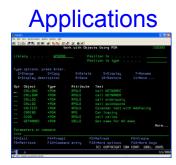






# Is this your System i Infrastructure?

# 





Do you use WDSC?



# Customers are asking, can we....?

#### Leverage existing assets?

Discover and gain control over our existing enterprise application portfolio? Identify assets for reuse in a Service Oriented Architecture?

#### Leverage modern architectures?

Create services easily from existing code, including CICS, IMS, i5/OS and 5250 terminal applications?

Define new services for all deployment platforms from initial design to implementation?

#### Leverage existing skills and attract new skills?

Exploit new technologies and innovation without retraining existing staff that knows the business?

Utilize new employees on any project independent of target platform?

# Leverage common development environment across siloed development teams?

Lower costs due to elimination of duplicate tools and processes?

Realize improved end-to-end communication and traceability across the entire lifecycle?

#### Leverage my investments?

Reduce maintenance costs, freeing resources to work on new projects?





# Other

# The Challenges of Modernization

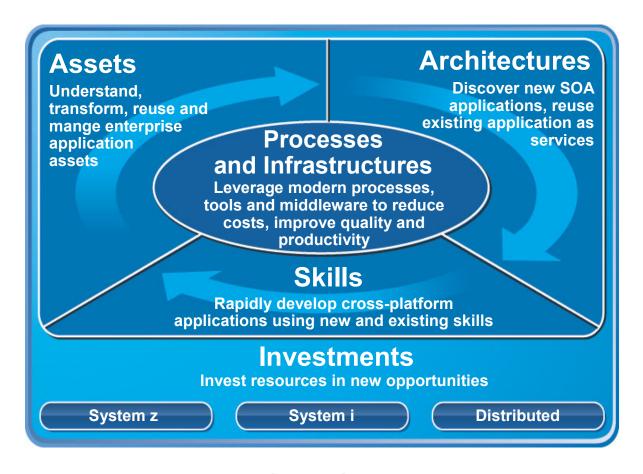


To enable flexibility, IT must overcome challenges such as:

- No electronic inventory of current IT assets
- Complex application architectures
- Skills lock-in
- Islands of development
- No flexibility for new investments



## Enterprise Modernization – Solution Overview

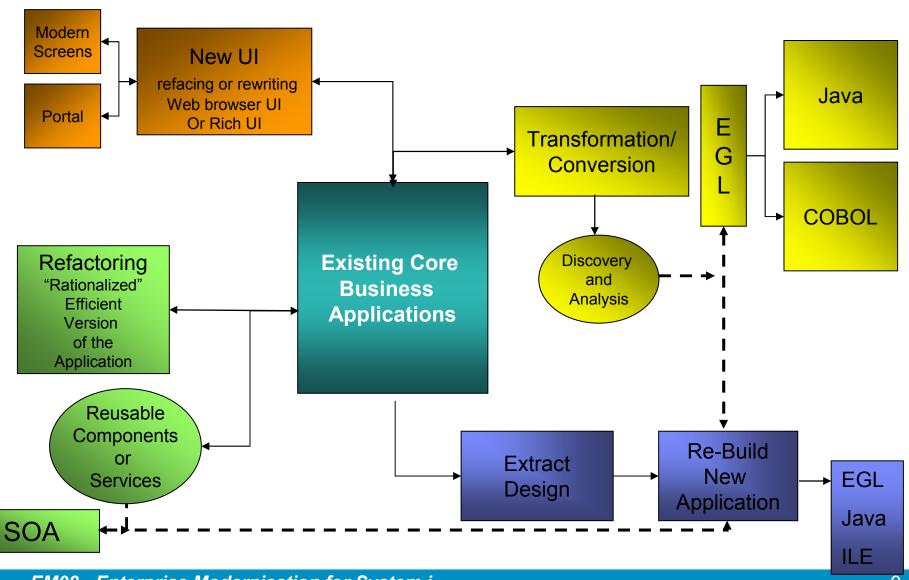


- ✓ Leverage value in existing assets
- ✓ Drive innovation with technology advancements
- ✓ Leverage existing and new skills on multi-platform projects
- ✓ Improve responsiveness of systems & people
- ✓ Reduce maintenance costs

http://www-306.ibm.com/software/info/developer/solutions/em/systems/i/index.jsp



# Spectrum of Options for Application Modernization



# IBM's Developer's Roadmap



Unlock core business applications through Web services enablement

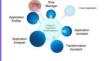


Rational HATS for 5250 Rational Developer for System i (RDi) DB2 Web Query

Rational Business Developer (EGL)

#### **Build and Extend**

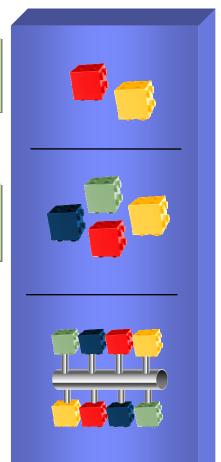
Update and extend mission-critical applications as services, leveraging their core value in new ways



DB2 Web Query
Rational Application Developer
RDi SOA
RBD (EGL)

Rational Asset Manager Rational Software Architect Rational Data Architect Rational Build Forge





#### **Model and Assemble**

Dynamically assemble services to rapidly respond to business opportunities.

Evolve to a Service Oriented Architecture

# Rational and System i

**New Rational Organization** 

**Enterprise Modernization** 

i5/OS Compilers and Tools transferred to Rational

Application development tools in same division for all platforms

Focused on

System i and z customers

**Business Application Developers** 

Bringing products to System i with native "i" OS support!

Seamless platform independent tools and technologies for all supported systems.



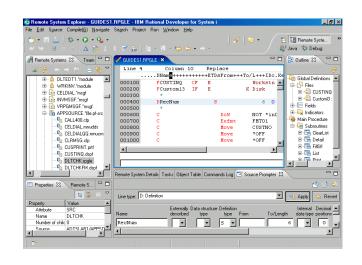






## **Modernize Your IDEs**

Achieve high productivity with modern development



- Use modern IDEs to develop and maintain code
  - Rational Developer for System i (RDi)



Rational Developer for System i for SOA Construction (RDi SOA)

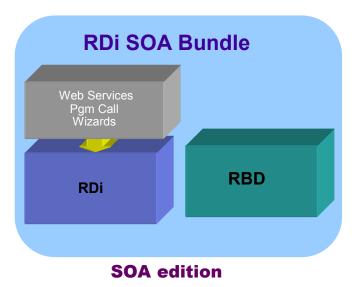


- Rational Business Developer Extension (RBDe)
- Rational Application Developer (RAD)
- Benefits of a modern IDE
  - Syntax highlighting and code assist
  - Error detection and debugging services
  - Multi-platform and off-platform edit, compile, and debug
  - ▶ Recruit new developers w/ IDE built on open standards



## New Rational products: RDi & RDi SOA

# RDi Edit, Compile, and Debug for RPG, COBOL, CL Eclipse Basic edition



#### New Rational products

RDi – lightweight Eclipse based development tool for RPG, COBOL, and CL programs Includes LPEX, RSE, and End to End Debugger

New features include: Application Diagrammer and the Screen Designer

RDi SOA – EGL, SOA, Web tools

RDi + Rational Business Developer (RBD) with EGL

Tools for Web Design

Web Services from RPG/COBOL

Bundle for developers who need end-to-end web and SOA solutions

HATS for 5250 Applications – WebFacing and HATS

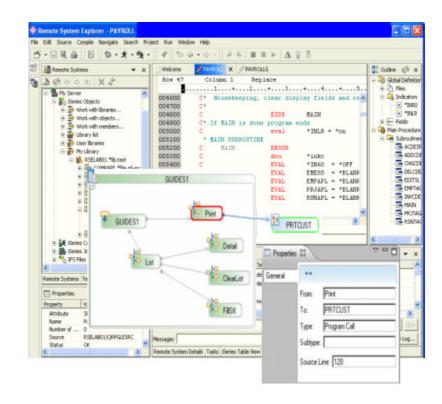
RAD - Advanced Java Development (J2EE)



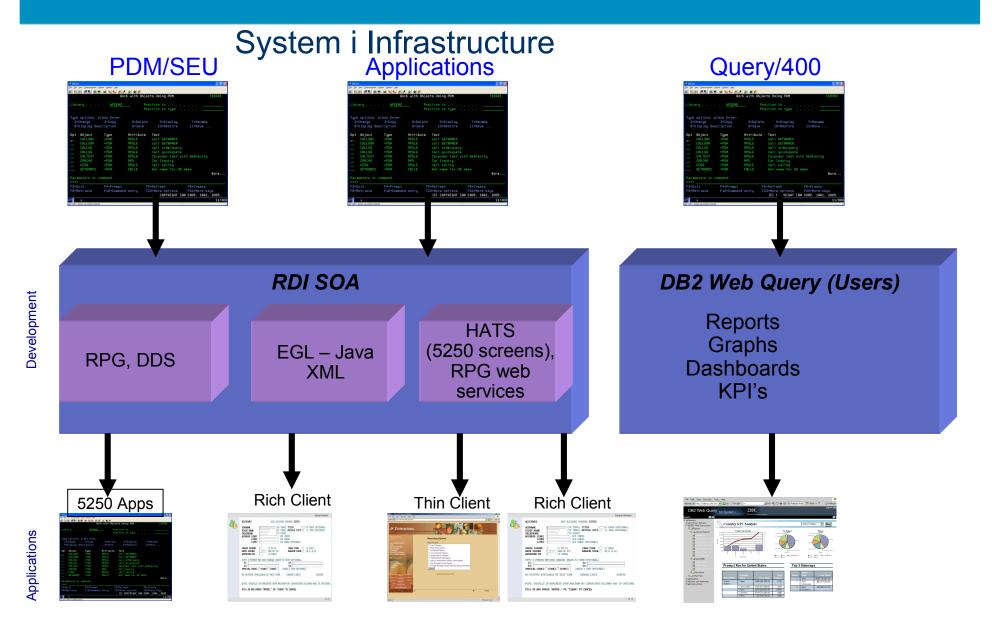
## IBM Rational Developer for System i v7.1

Open, modular and modern solutions for developing traditional RPG and COBOL applications for i

- Rational Developer for System i offers lightweight and high performance edit, compile and debug capabilities to develop traditional RPG, COBOL and CL applications for i
- System i customers looking for a low learning curve solution to exploit existing business logic
- What's new in v7.1?
  - Application diagram enhancement now includes support for CL, program calls and functional zoom
  - Screen Designer tech preview
  - White-Box Direct Program Call runtime built on top of toolbox
  - Complete J2EE application development with RDi and Rational Application Developer or Rational Software Architect
  - Pre-requisite tooling for integrating JCA Connectors, wizards and tools to leverage the I Java Toolbox, and many other Java specific features







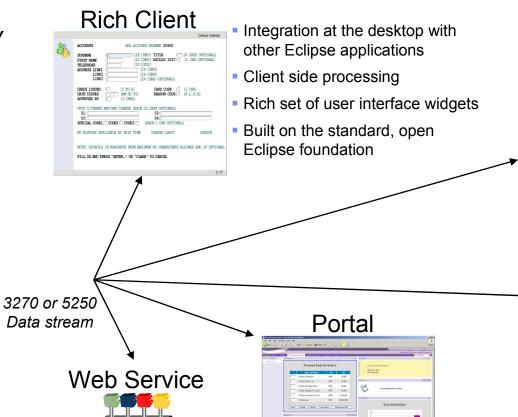




# Reface an existing UI with HATS

- Quick ROI Host applications can be quickly deployed with a GUI
- Low cost No need to rewrite application
- Low risk Leverage Open, Proven Platforms
- Increase productivity and reduce training costs
- Improving work flow from multiple applications







- Zero footprint
- View through your favorite browser



 Access host applications from mobile devices

Click-to-Action support

Build self-service

transactions



## **Host Access Transformation Services (HATS)**

#### **Rich Client**

- Integration at the desktop with other Eclipse-based applications
- Client side processing
- Rich set of user interface widgets
- Supports Lotus Expeditor deployment

#### **Browser**



- Zero footprintPure HTML
- Access through your favorite browser, including Internet Explorer and Firefox.

#### **Portal**



- Integration at the glass
  Cooperative portlet
- support
  JSR 168 compliant

#### **Mobile**



Access host applications from mobile devices

#### **Web Services**



- Build self-service transactions
- Expose host business processes as Web Services
- Provide controlled access to vital host applications and host data.

- Quick ROI: Host applications can be quickly deployed with a new user interface
- Low cost: No need to rewrite application
- Low risk: Leverage open, proven platforms and technologies
- Increase productivity and reduce training costs
- Improving work flow from multiple applications
- Provides integration of host business processes and data with other Web, portal, and rich client applications





# From this

	PURCHASE ORDER INQUIF	RY Criteria (1 of 2) PUI123-1
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	Vendor		
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	Res	et Default Refresh Disconnect Turn Keyboard Off	



# What is HATS mobile device support for v7.1?

HATS transformation applications can now be accessed by pervasive devices such as cellular phones, data collection terminals, and Personal Digital Assistants

This allows for the HATS developer to:

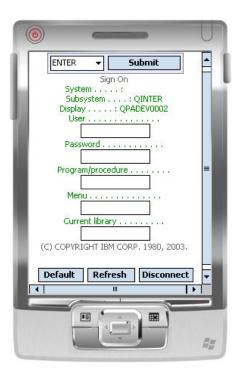
Customize and transform individual screens

Add business logic to screen interactions

Enhance the presentation, layout, and flow of the original host systems

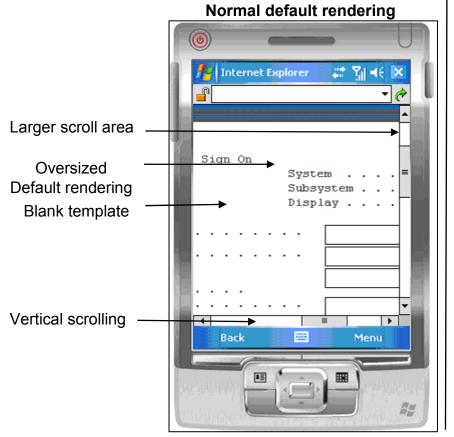
Supported browser: Internet Explorer Mobile 5.0 or later

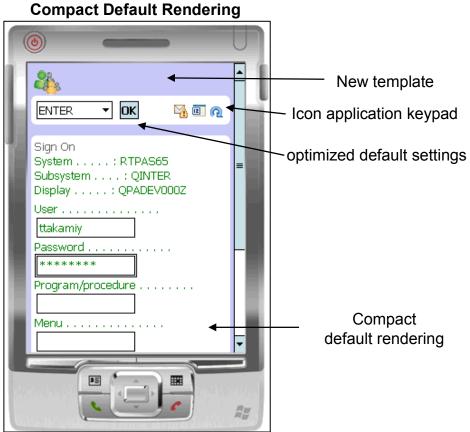
Reminder: HATS Integration Object or Web service data can also be used in conjunction with mobile devices





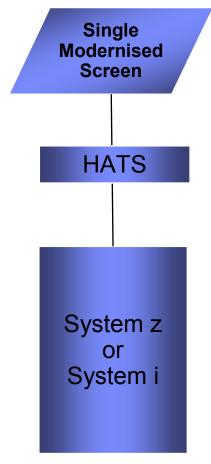
# Compact Default Rendering Example

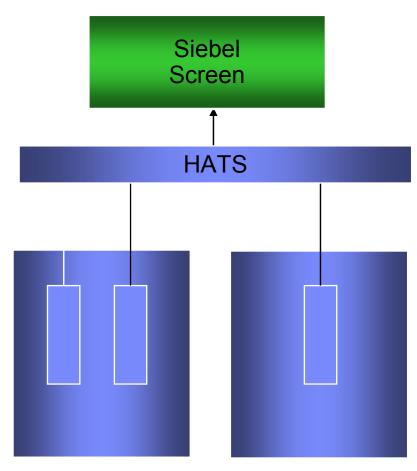






# HATS is not just a new screen.....

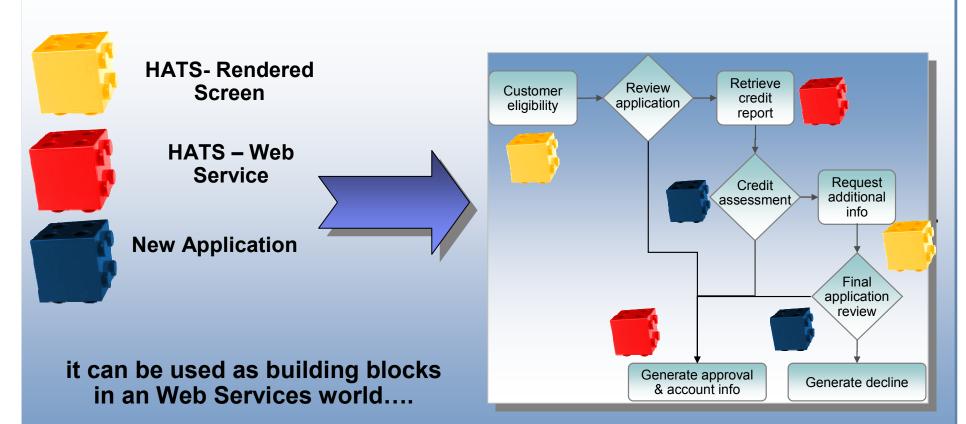




Connect To Multiple Sessions in Many Back End Applications



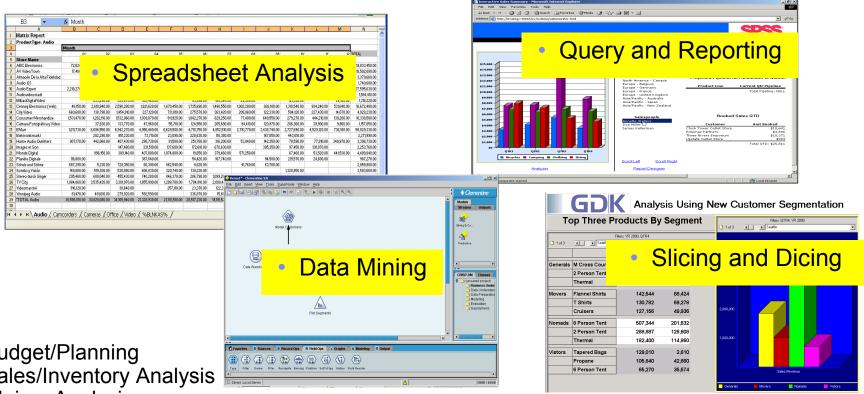
## Now that we have rendered the applications in HATS...



Business Process is implemented by integrating services



# Why are IBM Bring out DB2 Web Query?

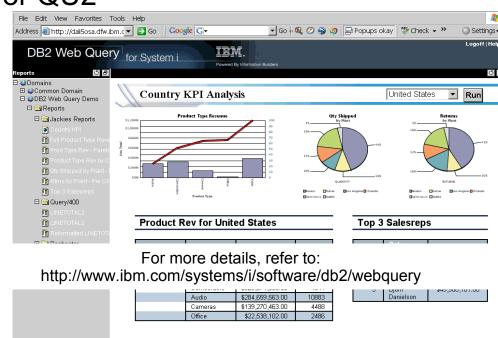


- Budget/Planning
- Sales/Inventory Analysis
- Claims Analysis
- Demand Forecasting
- Market Basket Analysis
- Financial Reporting (compliance)
- Customer Relationship Marketing
- Business Performance Measurement

- Loan Risk Assessment
- Profitability Analysis
- Supplier Analysis
- Balanced Scorecard



- IBM has delivered a System i web based query and report writing program product that replaces IBM Query for iSeries (Query/400)
- Free upgrade (Limited Users) if on SWMA
- New Software Maintenance cost for QU2
  - Base Program Product 5733-QU2
  - Report Assistant
  - Graph Assistant
  - Power Painter
  - Spreadsheet integration
  - Web-enable Query/400 reports
  - Federated queries (DB2 for i5/OS)
- Requires V5R4





## Additional Chargeable IBM Features

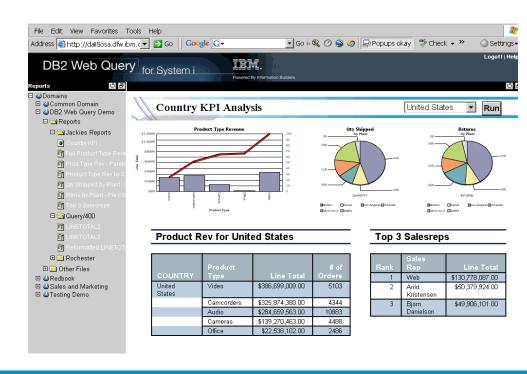
- Active Reports (Disconnected)
- On Line Analytical Processing
- Developer's Workbench

#### New Modules from IBM

- 19<sup>th</sup> September 2008
- Report Broker
- Developers Tool Kit

## Developing 3<sup>rd</sup> Party Ecosystem

- Rodin
- Databorough
- Etc...





## Report Broker – New Module

- Flexible Scheduling of Reports
  - Automatically Run and Distribute Reports
  - Days, Minutes and Weeks etc.
  - Distribution Lists
  - Blackout Days
- Output to various types
  - Email
  - Excel,
  - File
  - Active Report
- Report Bursting You can set distribution lists to e-mail particular parts of the query



## DB2 Web Query Software Development Kit – New Module

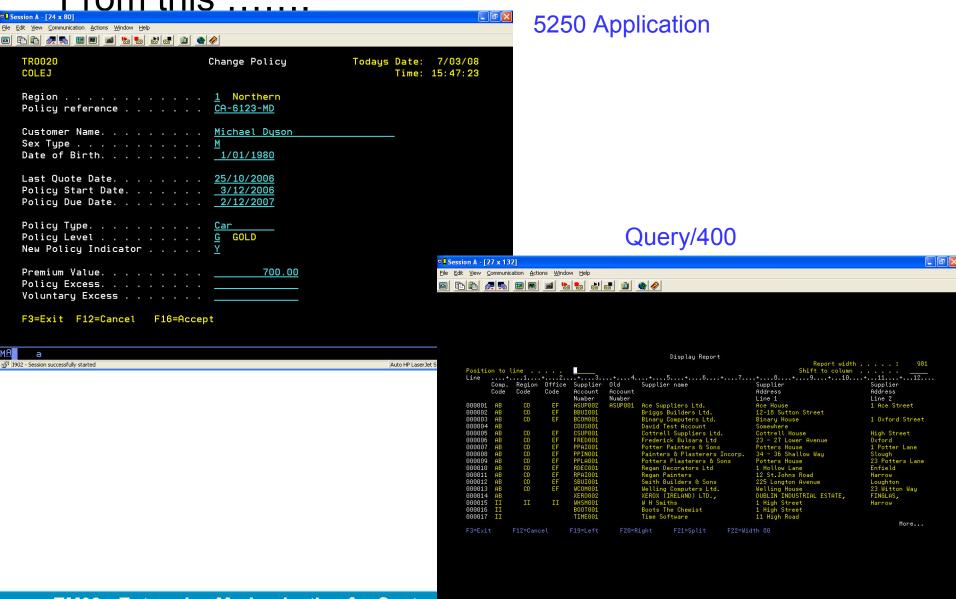
- Embed reports directly into line of business applications.
- Enable DB2 Web Query for service oriented architecture (SOA)
- Invoke a report in a CL command
- Build customized applications that integrate with DB2
   Web Query reports
- Extend business intelligence into day-to-day operations
- Manage DB2 Web Query Report Broker jobs through customized Web applications

Combined with Report Broker delivers powerful report development platform

## **IBM Rational Software Development Conference 2008**



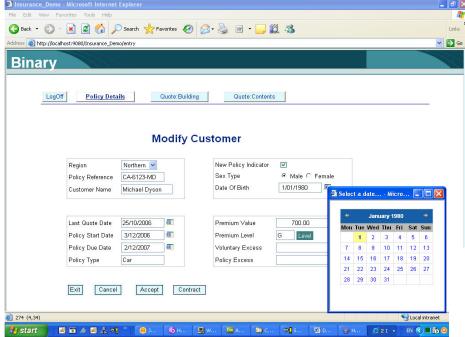
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## **IBM Rational Software Development Conference 2008**



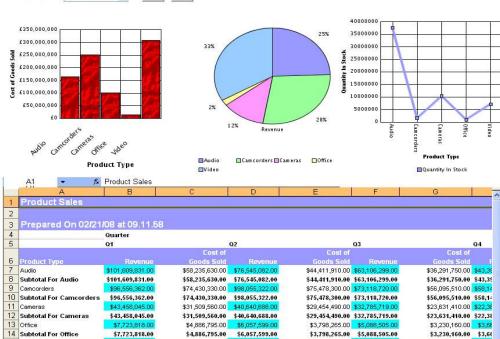
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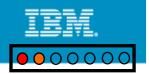


## **HATS Application**

Country: United States

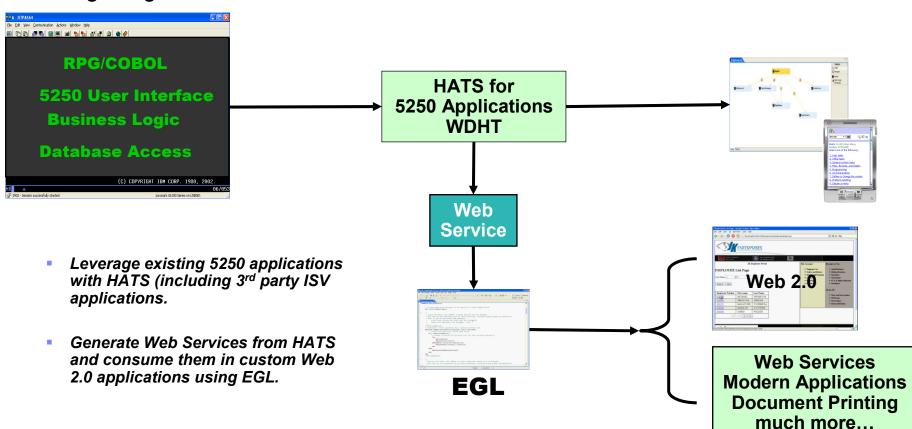
## **DB2 Web Query**





# Leverage Existing Applications with HATS and RBD

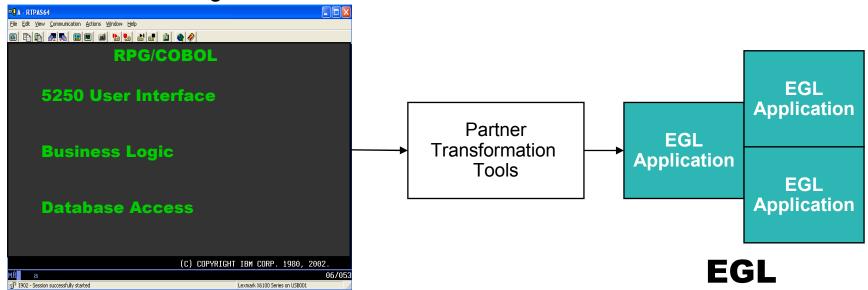
## **Existing Programs**





# Modernize your Application through Transformation





- Eliminate Skills silos allowing IT to freely shift resources across projects according to business priorities
- Create applications that are not locked into a specific computing environment



## Modernization with IBM's Enterprise Generation Language (EGL)

- IBM strategic web development environment for RPG & Cobol Developers
- Leverage existing core business applications
- Business Developers who know existing business application can quickly learn and master the skills to deliver modern UI and extend use of application

 Begin move to services based architecture

EMPLOYEE List Page

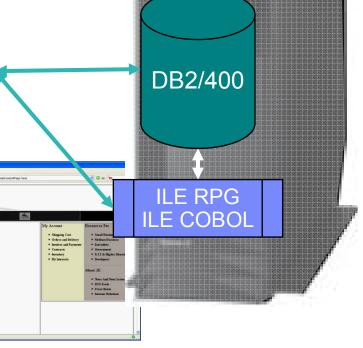
Platform Independence

**EGL** 

- Learning curve can be mastered by existing RPG staff easily
- Language design supports migration of RPG with excellent maintainability
- IBM Rational Migration Extension for IBM i – Migrating RPG code to EGL

sql code check and forward
Employee Record Template
validate username
Add Photos to Employee List







## IBM Rational Migration Extension for IBM i

- •IBM Rational Migration Extension for IBM i delivers a highly automated way to leverage and reuse businesscritical RPG applications
- •Transforms RPG into the IBM Rational Business Developer featuring EGL technology.
- •It provides a cost-effective way to modernize and transform these systems and breathe new life into applications that were considered to be on life support.

•Migration of the RPG code is performed as a service with the result being an EGL Project (fully converted EGL source code).

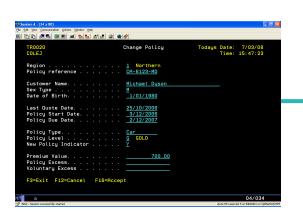
IBM Rational Migration Extension for IBM i allows the RPG applications that have been transformed into EGL to execute properly as generated Java or COBOL code.

#### **Next Stage**

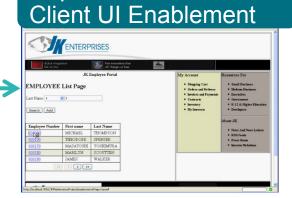
- 1. Initial Code Analysis
- 2. POC
- 3. Main Project

**EGL** → JAVA

Rapid Web & Rich



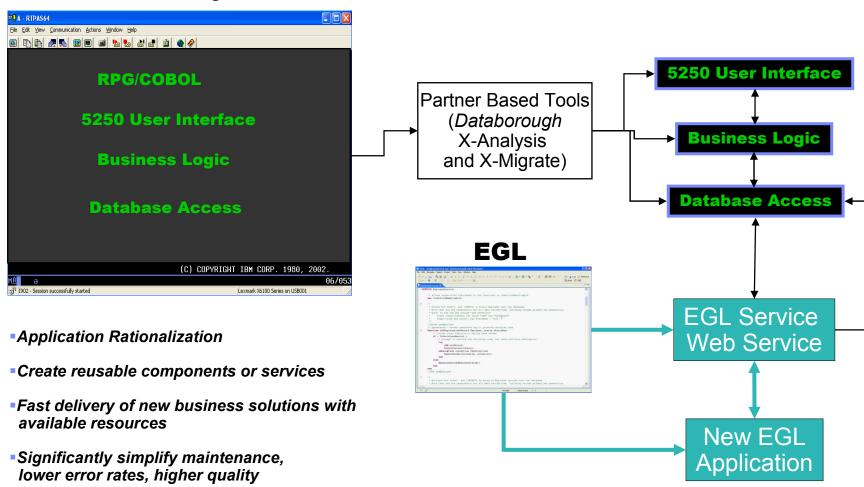
IBM Migration Offering





### Modernize your architecture through refactoring

Monolithic Programs



Remove barriers to move to SOA



# System i Design Recovery Using X-Analysis

www.databorough.com



undocumented

RPG

monolithic

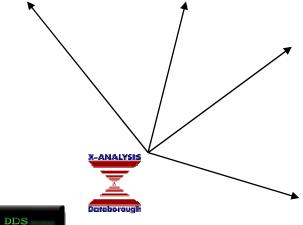
procedural

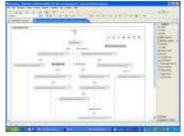
COBOL

RPGIII











#### **Application Understanding**

- Drill Down Structure Charts,
- Data Flow Charts
- Overview System Diagrams
- RPG as Pseudo Code

#### **Modern Perspectives**

- Derived Relational Data Model
- Business Rules Logic Extraction
- Screen to Screen flow with Activity and Use Case, Diagrams

#### **Re-Factored Proto-Types**

- JSF
- Java Controllers
- Business Logic Web Services



Actions Select an Action

Indirect Impacts

29 Data elements 2 Programs

1 Batch jobs

### Modernize Your Asset Management

Discover, understand, and leverage existing applications & services

- Understand and analyze the impact of change across heterogeneous enterprise applications using **Databorough's X-Analysis**
- Manage assets across their lifecycle from design and creation to consumption and change with Rational Asset Manager (RAM)
- Deploy and manage runtime services using WebSphere Service Registry & Repository (WSRR)

Rank:

Total downloads:

Average for this asset type:

Unique downloads Artifact browses

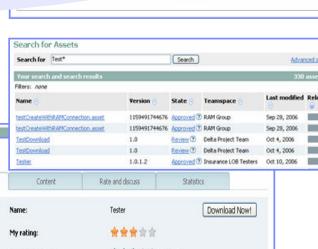
40 out of 243



results

ta element MASTER-STK-PART-NO

4:53 PM by ASTI BEE



Context: Home Impact analysis sum

Impact analysis: OAD01:MASTER-STK-F

Program/Element: QAD01/MASTER-STK-PA Created/last updated: 3/22/05 4:51 PM by ASI

Overview Summary Details

Search for Assets :

Tester

Description: GENERATED for Progra

Direct Impacts

6 Batch jobs

Impact analysis details: Impa

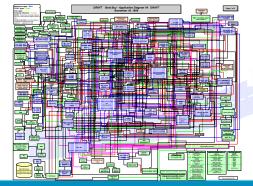
# ASSETS ARCHITECTURES Architecture

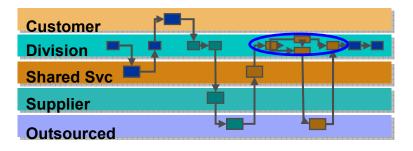
#### **Modernize Your Architectures**

#### Develop new SOA applications rapidly

- Transform green screen applications to web UIs and/or web services using Host Access
   Transformation Services (HATS) for 5250 Applications
  - Quickest ROI get to the web fast!
  - Generate web services directly from 5250 applications
- Create web services from RPG, COBOL CL, and Java with Web Services wizards using Rational Developer for System i for SOA Construction (RDi for SOA)
  - ▶ Create web services wrappers for RPG and COBOL programs

- Rapidly build, publish, and consume web services using Enterprise Generation
   Language (EGL), included in RDi SOA
  - Leverage Service and Interface keywords to re-enforce SOA development principles
  - Supports i5/OS and J2EE



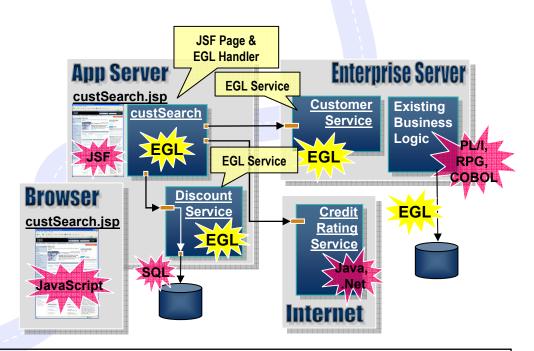


# ASSETS ARCHITECTURES SKILLS SKILLS INVESTMENTS SMELT SMELT

#### **Modernize Your Skills**

Powerful tools & abstractions for multi-platform development

- Exploit advances in middleware and technology while writing business applications using Enterprise Generation Language (EGL) support in Rational Business Developer extension (RBDe)
  - Build all elements of leading applications .. "end-to-end" from Web2.0 to services to batch processes
  - ▶ Eliminate skill islands EGL developers are able to develop applications for most platforms: i5/OS, CICS, IMS, z/OS Batch, WAS, Linux, Windows, AIX, HP-UX, Solaris



"Lack of skilled development resources" is the greatest inhibitor to implementing Web Services.

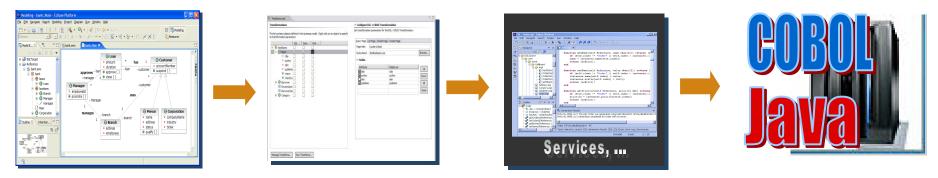
Evans Data Corp., 2007, "Web Services Development Survey, Vol. I"



# The power of tools: Model Transformations A new generation of Architected Rapid Application Development

- Transform UML models to RBD
- ▶ Best way to go...





1. Model

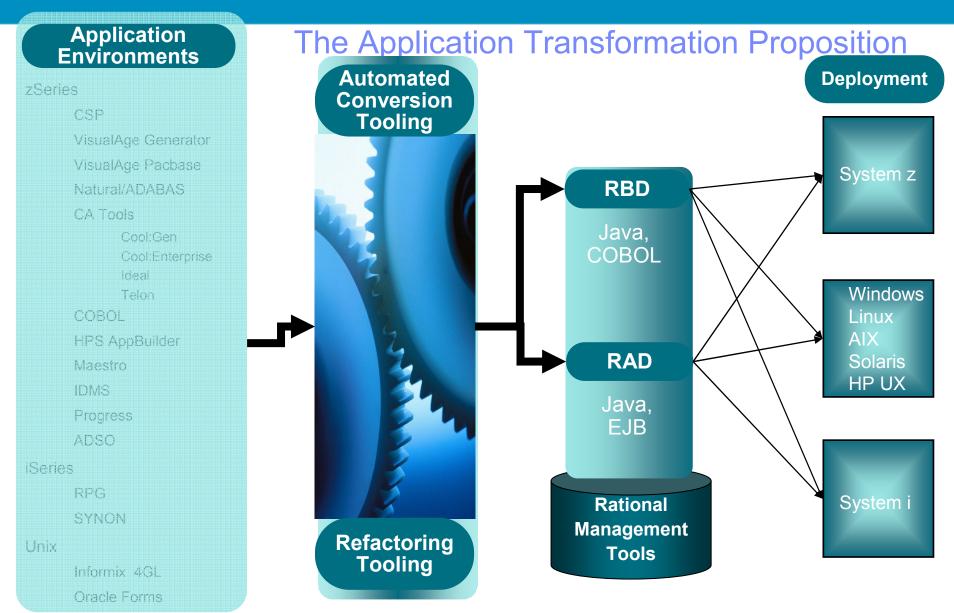
- 2. Define Transformation Parameters and additional
- 3. Transform to RBD code
- **4**. Deploy to platform (z, i, or distributed)

#### **SKILLS**

- Traceability from requirements to code
- Create your own transformations
- Transformations enriched by Business Rule Annotation and Transformation Parameters

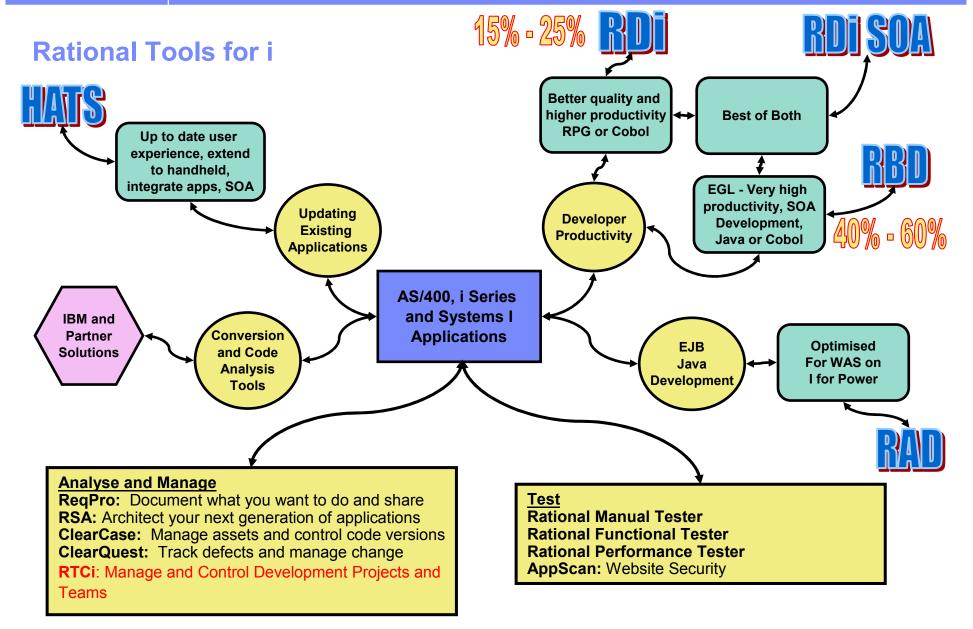
#### **IBM Rational Software Development Conference 2008**





Windows/.net







# **Get started with the System i Sandbox**

#### System i Sandbox

Examples and best practices provide low-risk, practical, hands-on path to understanding

#### www.ibm.com/rational/modernization





Full version software trials
'Try online' hosted System i environments

Tutorials

Architectural Guidance



# **Enterprise Modernization - The Road Ahead**

Each customer needs a unique modernization strategy based on:

Your business requirements

Your budget

Your staffing constraints

Choose one or more of the options to build your modernization strategy.

Rational and our business partners can help you formulate your own customized strategy for modernization

Let's look together at our solutions ...

#### **IBM Rational Software Development Conference 2008**





#### Learn more at:

- IBM Rational software
- IBM Rational Software Delivery Platform
- Process and portfolio management
- Change and release management
- Quality management

- Architecture management
- Rational trial downloads
- developerWorks Rational
- IBM Rational TV
- IBM Rational Business Partners

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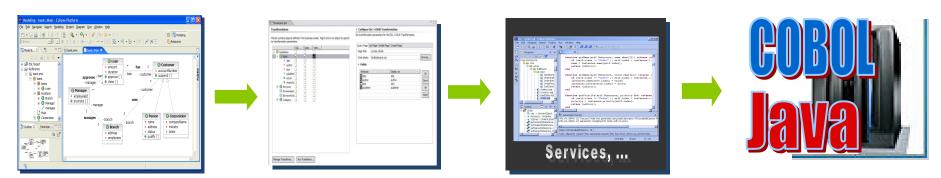


#### Rational Business Developer and RDi SOA

- Transform UML models to RBD
- Best way to go...

from SOA models to construction of services

PRODUCTIVITY



1. Model

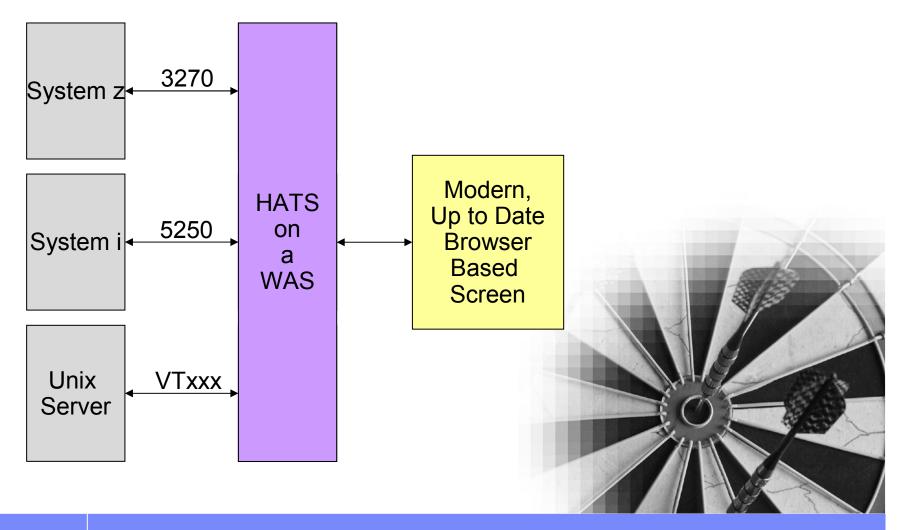
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- Transformations enriched by Business Rule Annotation and Transformation Parameters

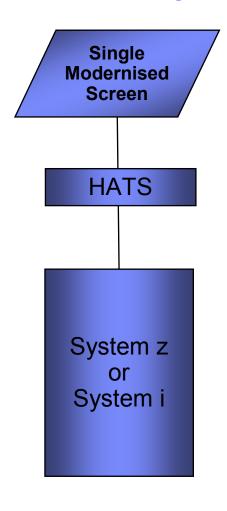


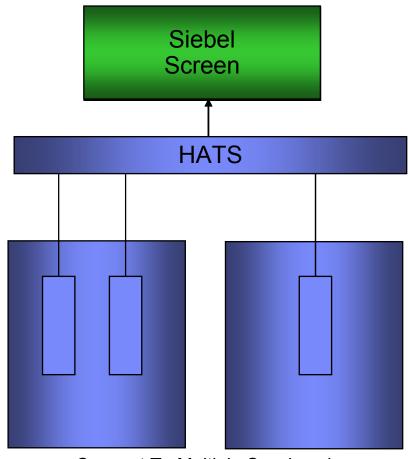
#### HATS - what is it?





#### HATS is not just a new screen.....





Connect To Multiple Sessions in Many Back End Applications