Rational and Systems i

Pat Flisher
GB and RTM Lead
Rational, NE IOT

Rational Tools for i

HATS

15% - 25% **RDi**

RDi SOA

Up to date user experience, extend to handheld, integrate apps, SOA

Better quality and higher productivity RPG or Cobol

Best of Both

RBD

EGL - Very high productivity, SOA Development, Java or Cobol

40% - 60%

Updating Existing Applications

Developer Productivity

IBM and Partner Solutions

Conversion and Code Analysis Tools

AS/400, i Series and Systems I Applications

EJB Java Development

Optimised For WAS on I for Power

RAD

Analyse and Manage
ReqPro: Document what you want to do and share
RSA: Architect your next generation of applications
ClearCase: Manage assets and control code versions
ClearQuest: Track defects and manage change
RTCi: Manage and Control Development Projects and Teams

Test
Rational Manual Tester
Rational Functional Tester
Rational Performance Tester
AppScan: Website Security

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
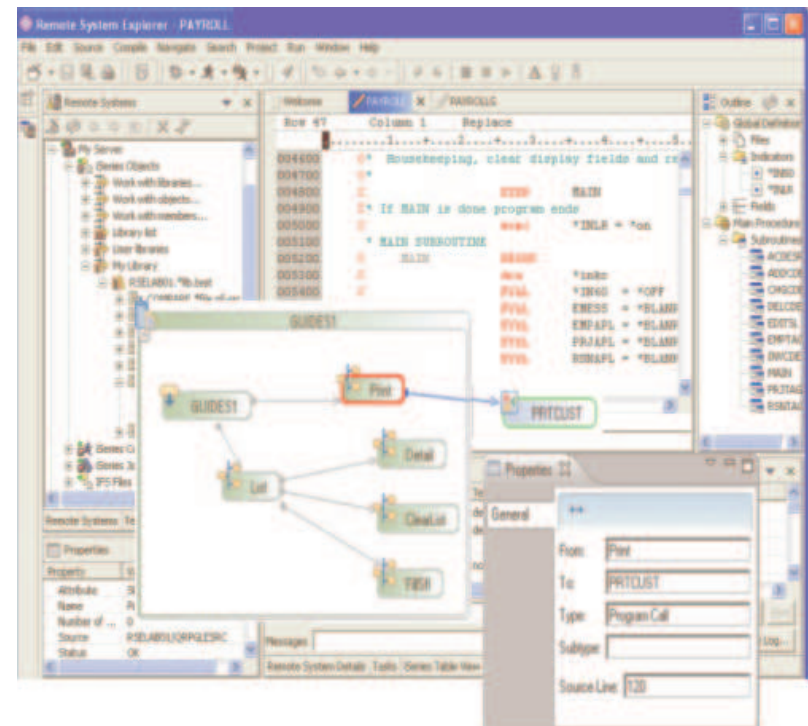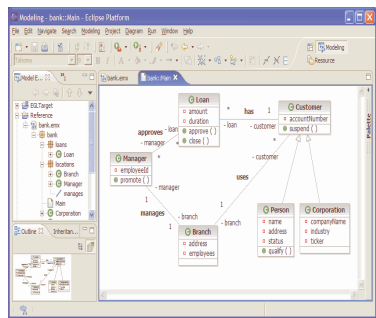
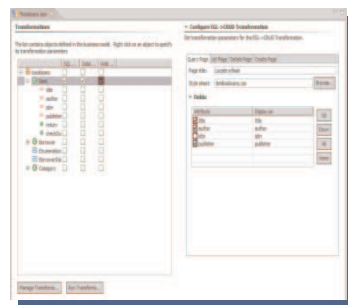## Rational Business Developer and RDi SOA

▸ Transform UML models to RBD

▸ Best way to go…
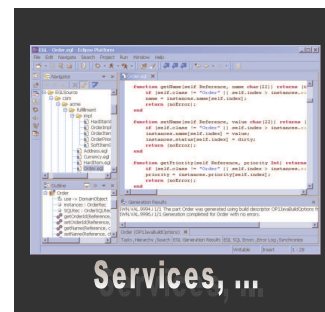
from **SOA models** to **construction of services**

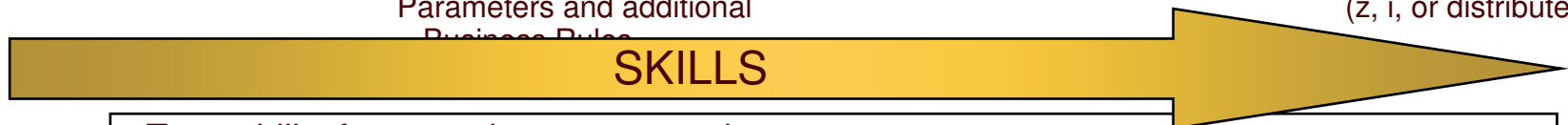~~services deployed on System z, System i, or anywhere else~~

PRODUCTIVITY

1. Model

2. Define Transformation Parameters and additional ~~Business Rules~~

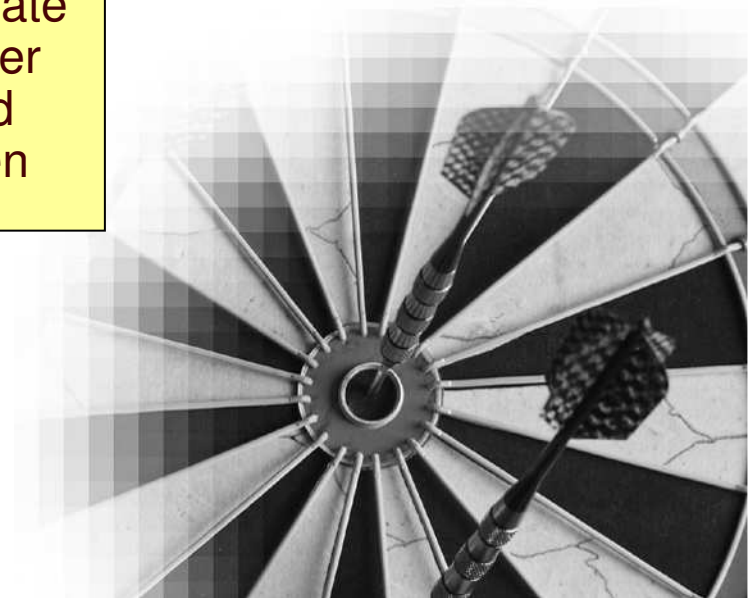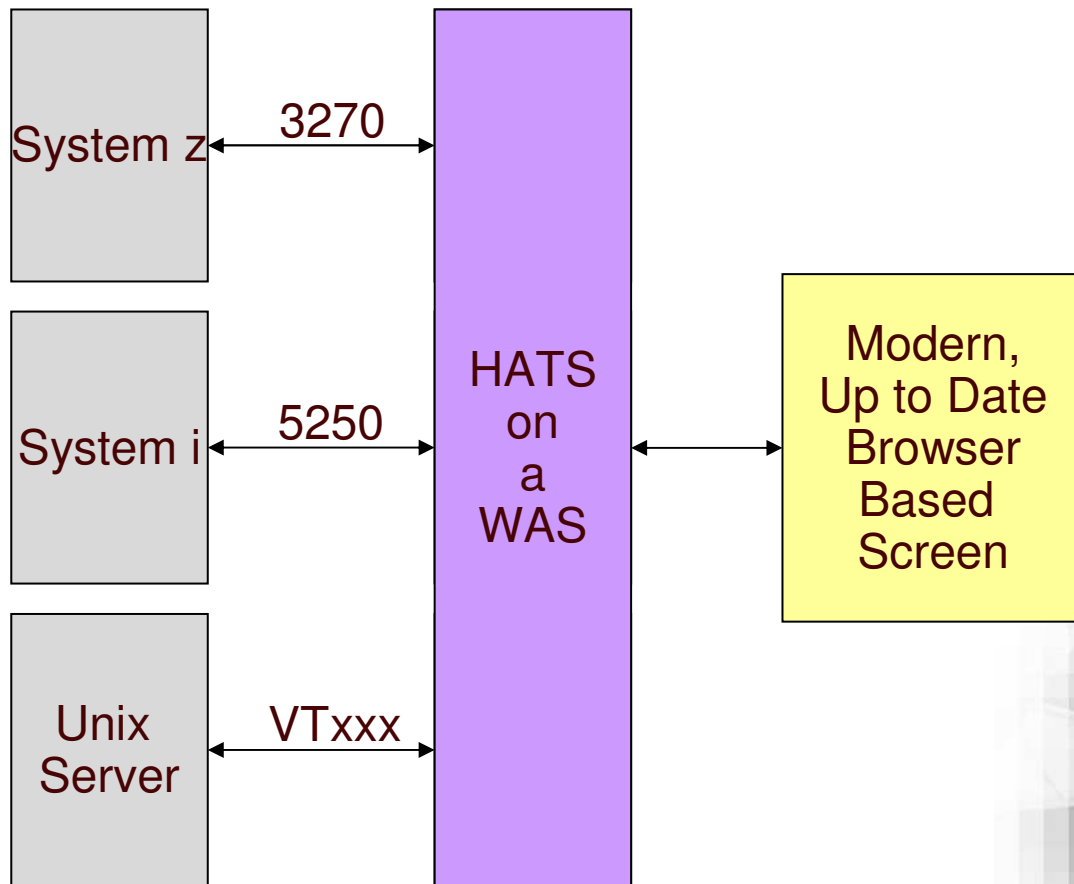**3**. Transform to RBD code

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

HATS - what is it?


```
System z  <--3270-->  ┌──────┐          ┌──────────┐
                      │ HATS │          │ Modern,  │
System i  <--5250-->  │  on  │  <--->   │ Up to Date│
                      │  a   │          │ Browser  │
Unix                  │ WAS  │          │ Based    │
Server   <--VTxxx-->  │      │          │ Screen   │
                      └──────┘          └──────────┘
```

Host Access Transformation Services (HATS)

Rich Client	**Browser**	**Portal**	**Mobile**	**Web Services**
• Integration at the desktop with other Eclipse-based applications • Client side processing • Rich set of user interface widgets • Supports Lotus Expeditor deployment	• Zero footprint • Pure HTML • Access through your favorite browser, including Internet Explorer and Firefox.	• Integration at the glass • Cooperative portlet support • JSR 168 compliant	• Access host applications from mobile devices	• 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*

HATS is not just a new screen…..

Single
**Modernised
Screen**

Siebel
Screen

HATS

HATS

System z
or
System i

Connect To Multiple Sessions in
Many Back End Applications

RU READY TO SAVE THE DAY
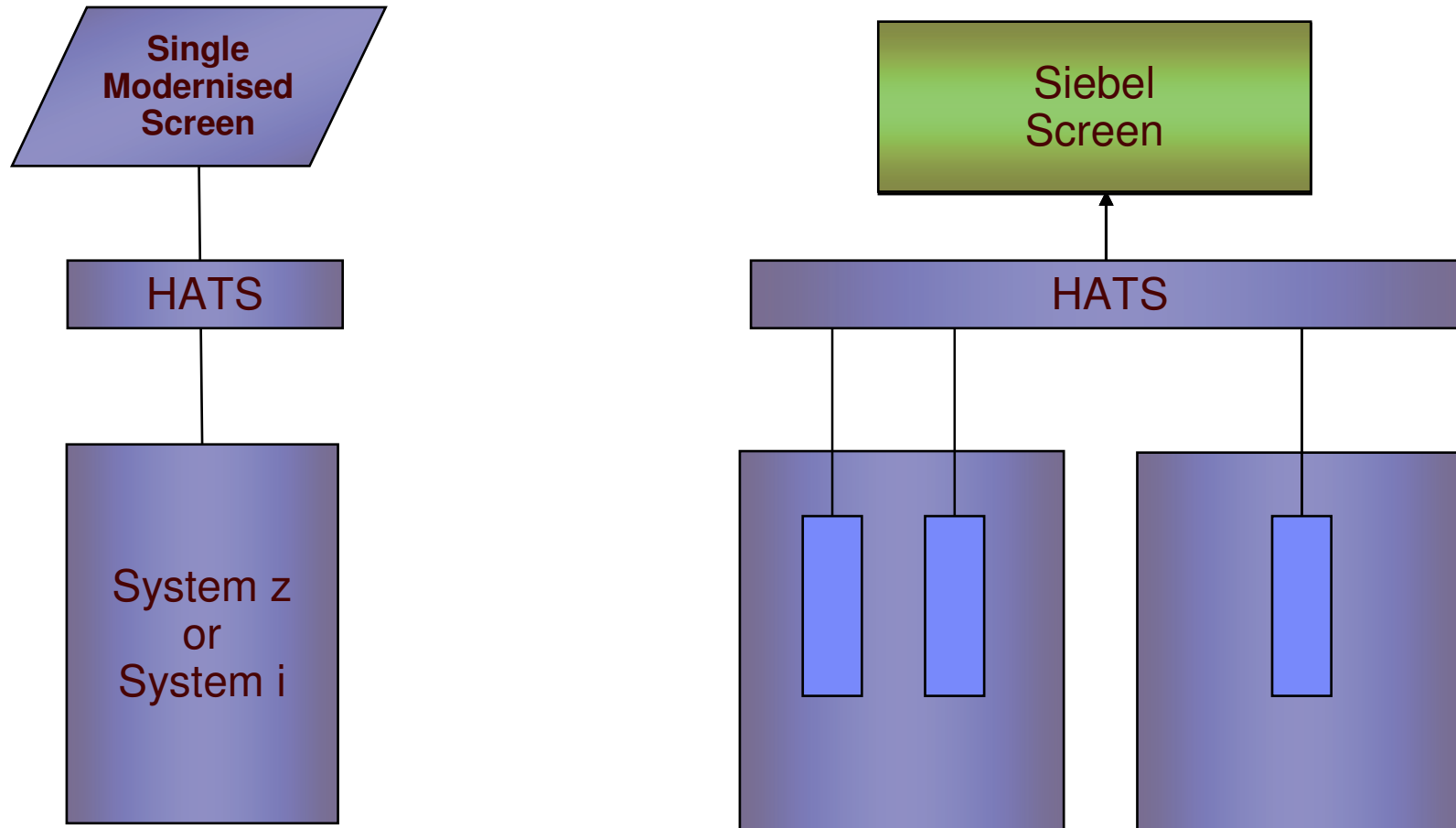
Andrew Ireland
Binary Computer Services Ltd

Application Modernisation Specialist

IBM Rational Software Development Conference 2008

WHERE TEAMS ARE R-HEROES

IBM

Rational. software

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?

PDM/SEU   Applications   Query/400

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?

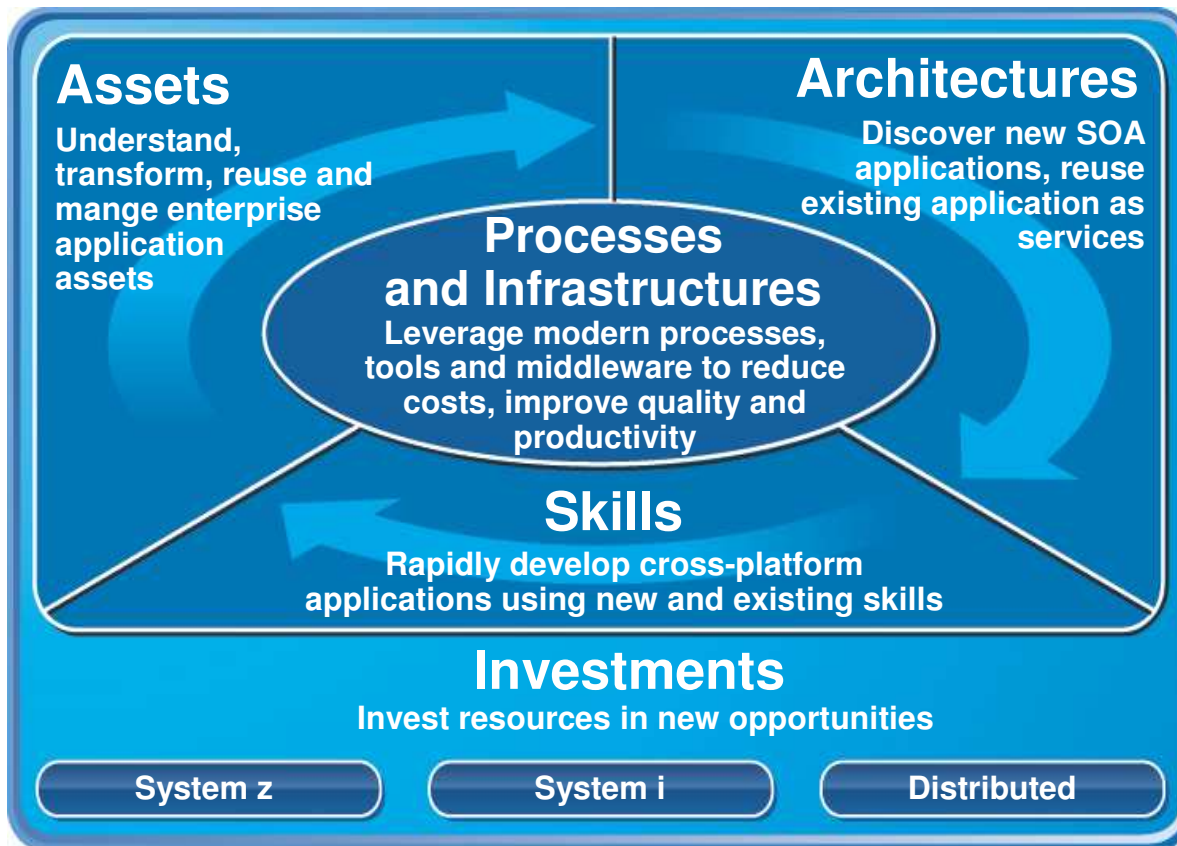Reduce maintenance costs, freeing resources to work on new projects?

~~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
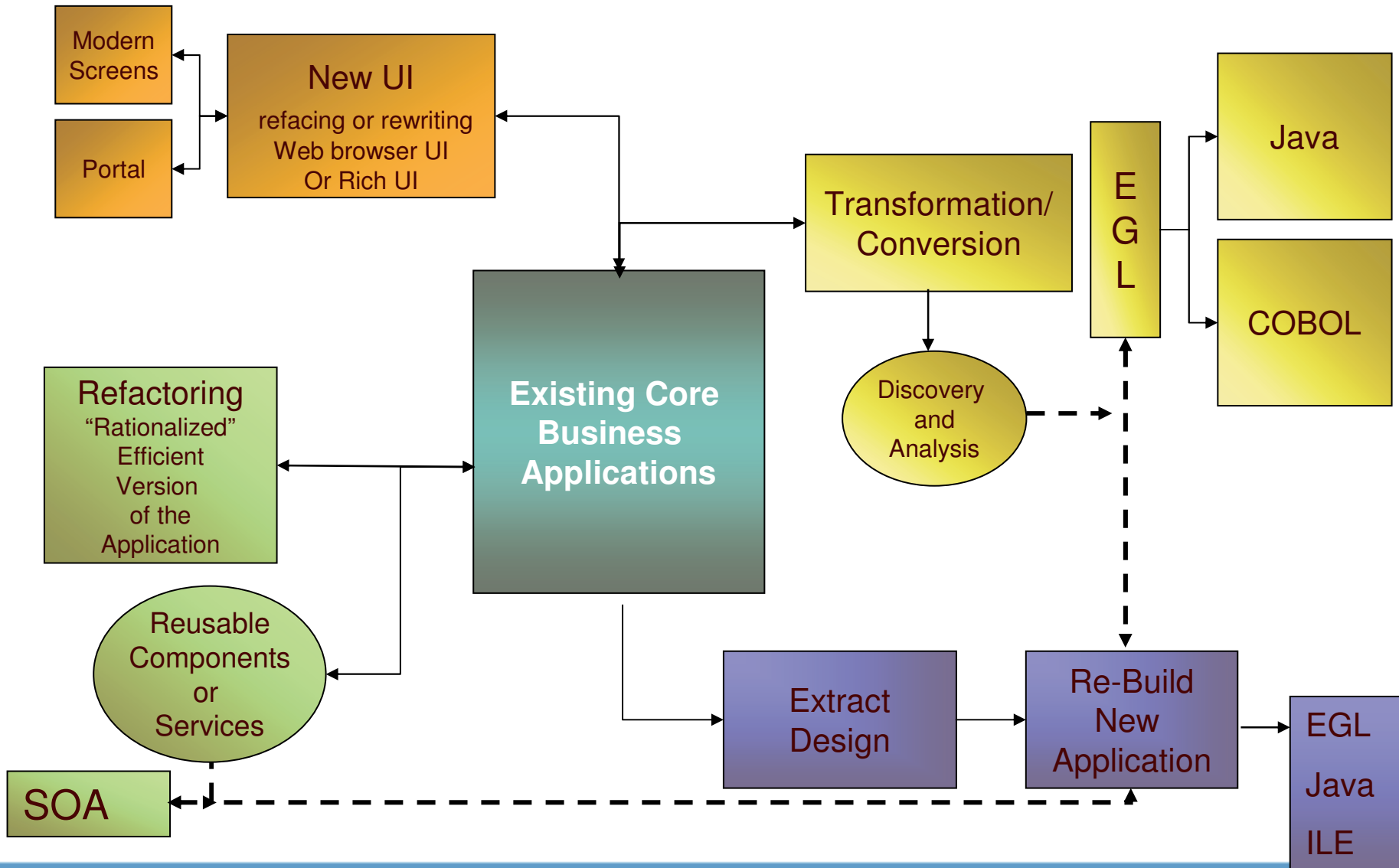
Enterprise Modernization – Solution Overview

Assets
Understand, transform, reuse and mange enterprise application assets

Architectures
Discover new SOA applications, reuse existing application as services

Processes and Infrastructures
Leverage modern processes, tools and middleware to reduce costs, improve quality and productivity

Skills
Rapidly develop cross-platform applications using new and existing skills

Investments
Invest resources in new opportunities

| System z | System i | Distributed |

✓ *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 and Open

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

WebSphere Application Server
Rational Application Developer
RDi SOA
RBD (EGL)

Model and Assemble

Dynamically assemble services to rapidly respond to business opportunities.

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

Increasing Inventory of Services

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.
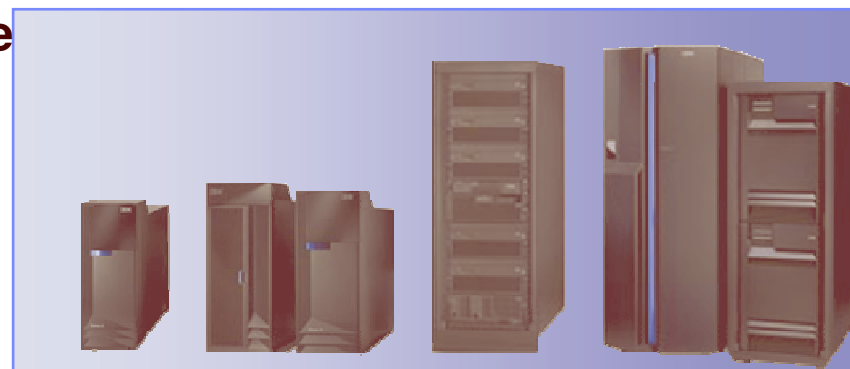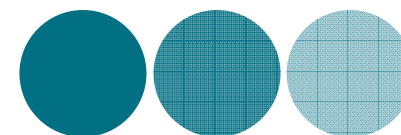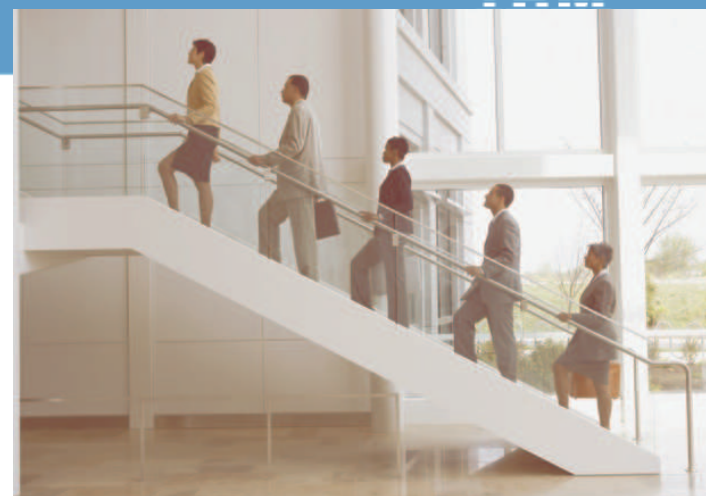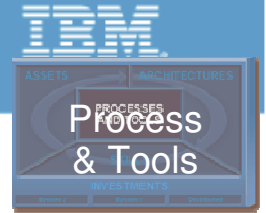
Modernize Your IDEs

Achieve high productivity with modern development
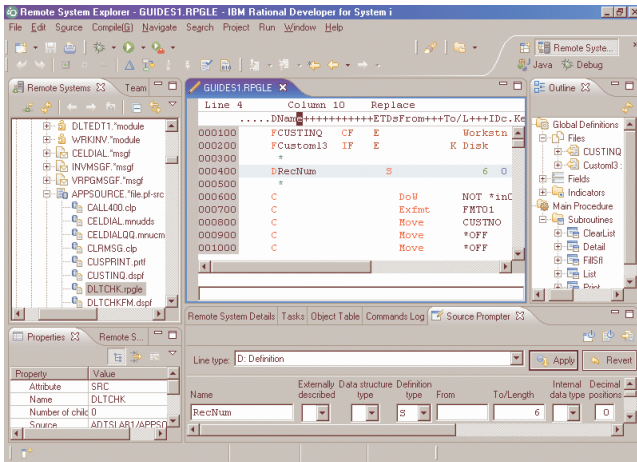
- Use modern IDEs to develop and maintain code
  - **Rational Developer for System i (RDi)**   New!
  - **Rational Developer for System i for SOA Construction (RDi SOA)**   New!
  - **Rational Business Developer Extension (RBDe)**
  - **Rational Application Developer (RAD)**

- 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

RDi SOA Bundle

Web Services
Pgm Call
Wizards

RDi

RBD

SOA edition
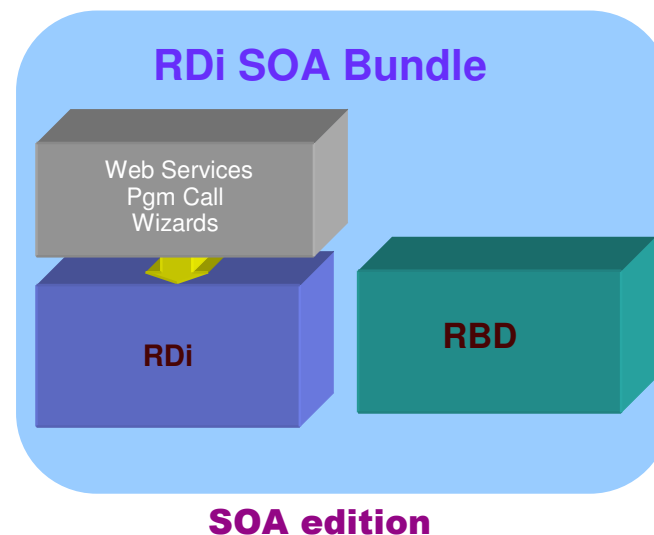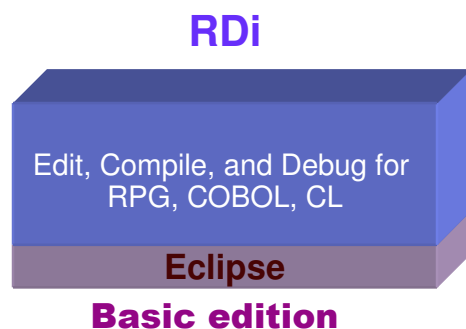
New Rational products

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)

System i Infrastructure

PDM/SEU

Applications

Query/400

RDI SOA

| RPG, DDS | EGL – Java XML | HATS (5250 screens), RPG web services |

DB2 Web Query (Users)

Reports
Graphs
Dashboards
KPI's

Development

5250 Apps

Rich Client

Thin Client
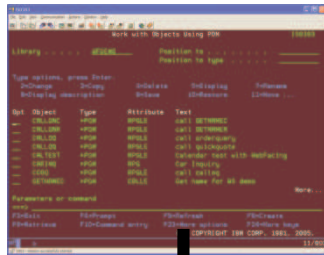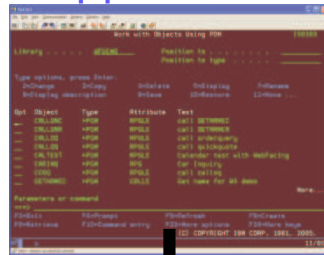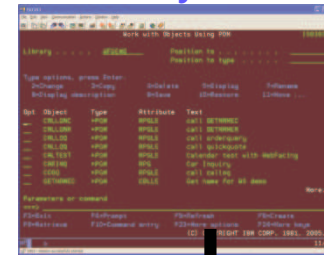
Rich Client
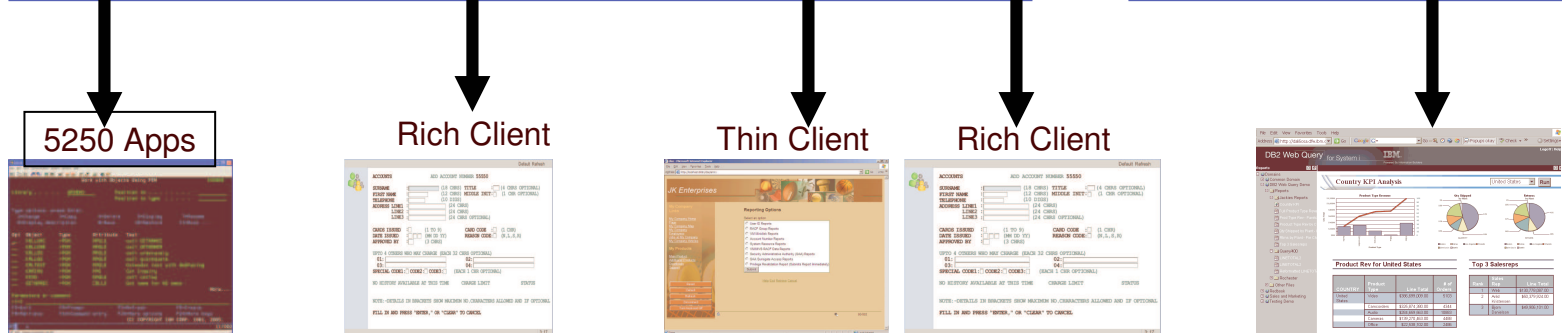
Applications

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*

Rich Client

- Integration at the desktop with other Eclipse applications
- Client side processing
- Rich set of user interface widgets
- Built on the standard, open Eclipse foundation

Web

- Zero footprint
- View through your favorite browser

3270 or 5250 Data stream

Web Service

- Build self-service transactions

Portal
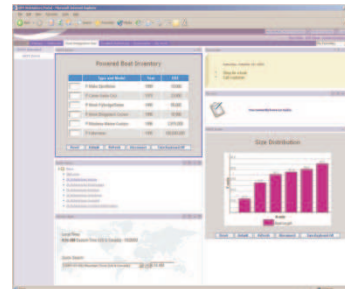
- Integration at the glass
- Click-to-Action support

Mobile   **New!**
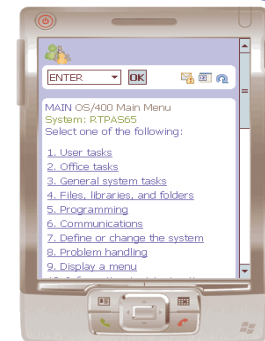
- Access host applications from mobile devices

EXTRA! A - Session1

File Edit Transfer Options Connection Macro Window Help

MASTER INDEX INQUIRY
LAST NAME: smith?? MID: ?
    FIRST: john??????????? MIDDLE: TITLE: ?
AKA: ?
AKA: NAME CNT:
    DATE OF BIRTH: SEX: TELEPHONE:

ADDRESS: ADDR CNT:
DATE OF DEATH:
STATE ID: SSN:
EMPLOYER NAME:
COMMENTS:

RELATED CASE ID   CASE TITLE   NO. OF REL. CASES:

                         PF2 - RESTART INQUIRY   PAGE: OF
    PA1 - PAGE FORWARD   PF3 - AKA SUMMARY   OPID:
    PA2 - PAGE BACKWARD PF4 - RETURN TO SUMMARY   MOD DATE:
            JSH207 - MID RECORD DOES NOT EXISTS.   TIME:
            JSH208 - SET ADDITIONAL SEARCH PARAMETERS.
            JSH209 - CANCEL TASK WITH CLEAR KEY.

JSHIM51

        X   Aa   A Session1   R 3 C 17   16:29   3/23/0

Start Exploring - Ibm_preload (C:) EXTRA! A - Session1 Untitled - Lotus ScreenCam 97

Lotus ScreenCam

hortcut to
nnect.exe

Hawai'i State Judiciary

Hawai'i State Judiciary's Public Access to Court Information

Search Option #1 - Enter the full case ID below.

Case ID

[   ] [Search]

Search Option #2 - Search on a person or business' name.

Last or Business Name   First Name

[   ] [   ] [Search]

Search Option #3 - Choose from the selections below and enter the case number as indicated. (Suffix is optional)

Circuit	Case Type	Year	Century	Case Number	Suffix
Oahu ▼	Civil ▼	[ ] ▼	2000's ▼	[ ]	01 ▼ [Search]

Civil
Circuit Court Criminal
District Court Regular Civil Claim
District Court Small Civil Claim
District Court Temporary Restraining Order
Equity
Family Court Appeal
Family Court Criminal
Divorce
Family Court Domestic Abuse
Family Court Miscellaneous
Guardianship
Land (after 1997)
LAW - initiated prior to statehood w/ activity after 1984
Mechanic's and Materialman's Lien
Probate
Small Estate (before 1995)
Small Guardianship (before 1995)
Special Proceedings
Special Prisoner Proceedings

[Print]   [Help]   [Exit]

Start   ...   3:16 PM

From this

```
                    PURCHASE ORDER INQUIRY    Criteria (1 of 2)  PUI123-1


Select scan type                                  PO scan seq. types
 Sequence ? _                                  1=PO# (Headers)    9=Req by
 Scan key ? ........................           2=PO# (Details)   10=RFQ #
     Type :  ...    Sub-type :  ...    (Seq. 13 only)  3=Vendor #       11=Contract
                                               4=Buyer           12=GL acct
P.O. selection criteria                        5=Purchase item   13=Entity
 Stores  ?  ..     (Y/N/ )                     6=Commodity       14=W.O. #
 Service ?  ..     (Y/N/ )                     7=Date ascending 15=Project
 Type    ?  ..                                 8=Req #           16=Dte dsend
    Mode - EQ, GE, GT, LE, LT, NE, RG
Criteria        Mode Values                       Other file scan seq types
 PO number      : ...  ........... ..........  21=Vendor #   22=Vendor alpha
 Date written   : ...  ........... ..........
 PO amount      : ...  ........... ..........  ......................
 Whs #          ?  ..  ...  ........  .....  .....   .....
 Buyer          ?  ..  ...  ........  .....  .....   .....
 Vendor         ?  ................................................
 Description filters : ........................  Limit ? Y (Y/N)
                       ........................  Level ? D (H/D/B)         +
Enter-Continue    Page Up Key     CK5-Refresh       CK7-End
CK15-Inquiry                      CK17-Closed POs   CK18-Open & closed POs

MA*   a                                                          04/014
```

To this

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

Normal default rendering

Compact Default Rendering

Larger scroll area

Oversized
Default rendering

Blank template

Vertical scrolling

New template

Icon application keypad

optimized default settings

Compact
default rendering

HATS is not just a new screen…..

Single Modernised Screen

Siebel Screen

HATS

HATS

System z
or
System i
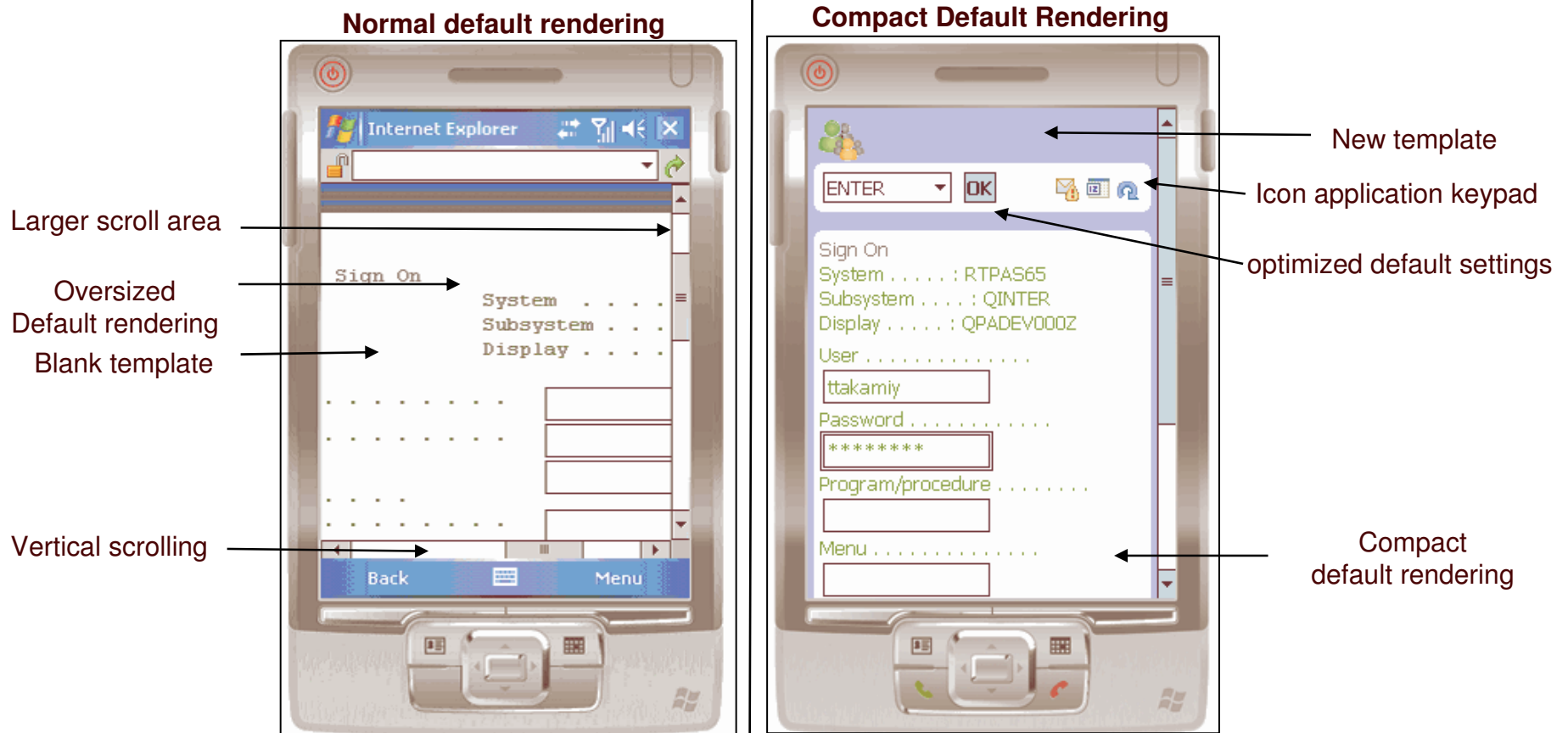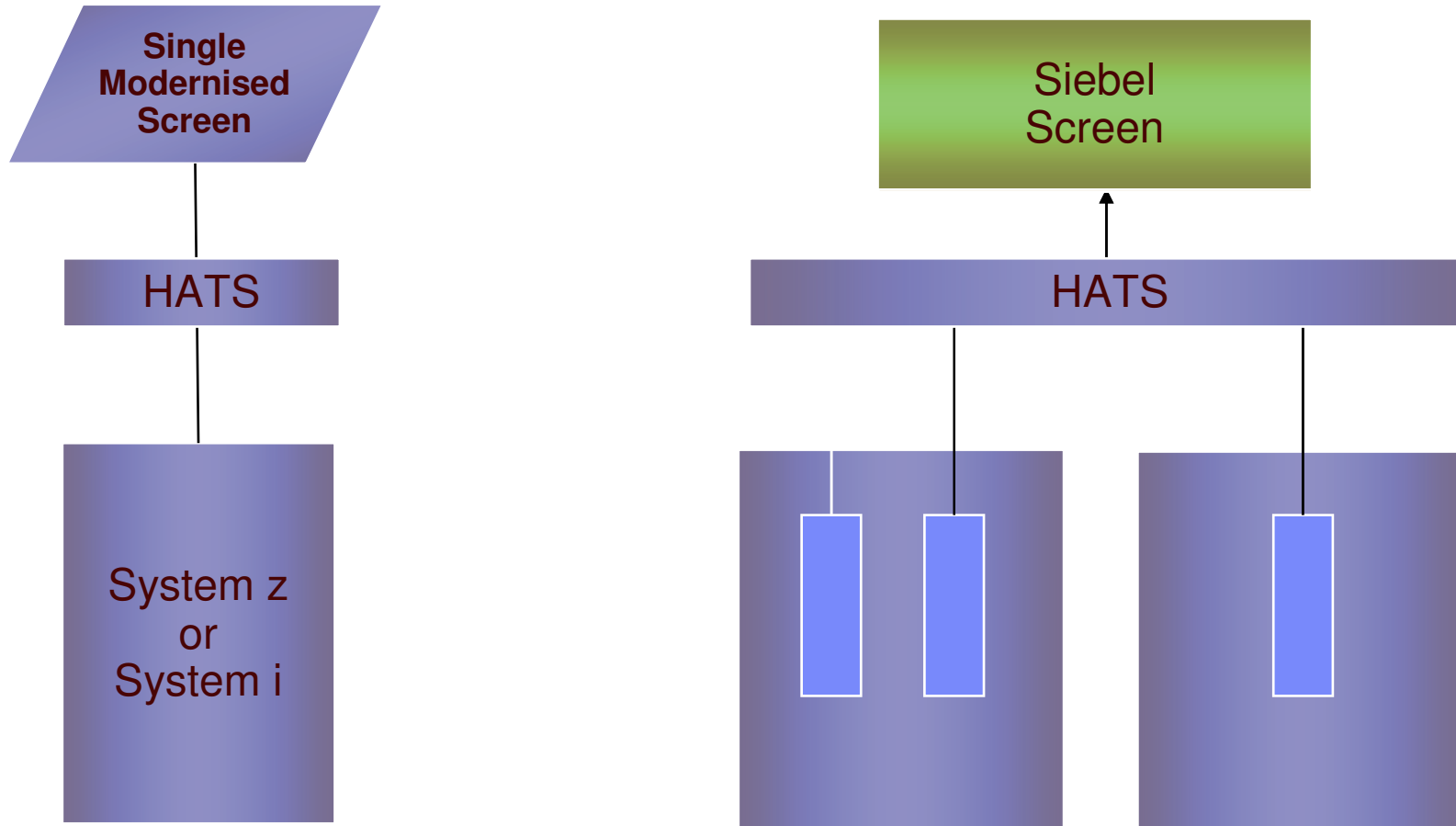
Connect To Multiple Sessions in
Many Back End Applications

Now that we have rendered the applications in HATS…

HATS- Rendered Screen
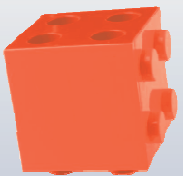
HATS – Web Service

New Application
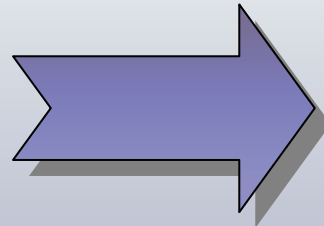
it can be used as building blocks in an Web Services world….

Customer eligibility

Review application

Retrieve credit report

Credit assessment

Request additional info

Final application review

Generate approval & account info

Generate decline
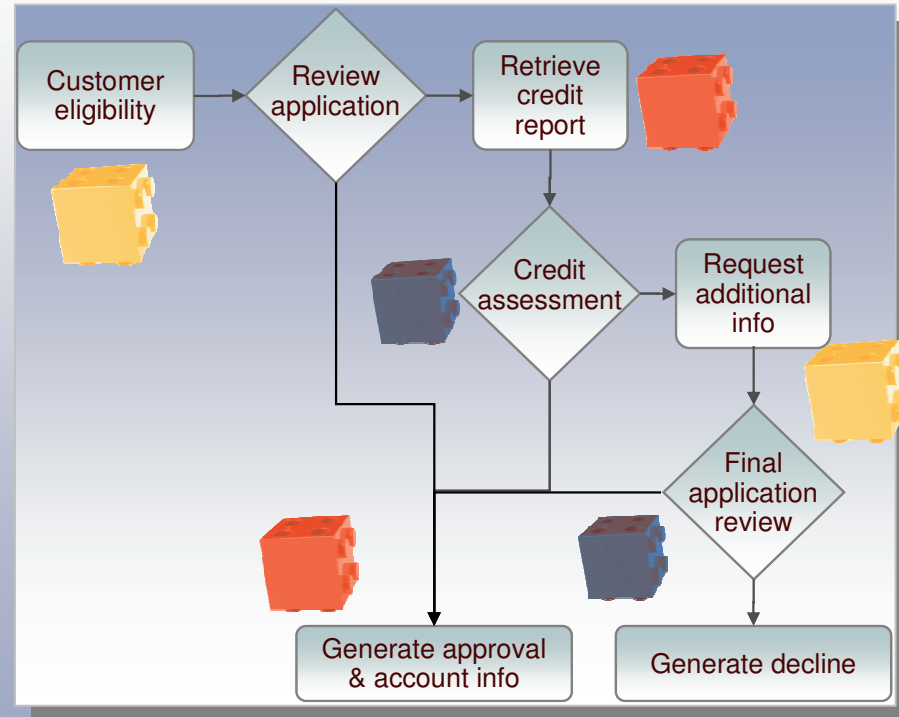
Business Process is implemented by integrating services

IBM DB2 Web Query for System i Powered By Information Builders

- **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

- 3rd Party Ecosystem Developing
  - Databorough – X-WebQuery
  - Rodin - ETL
  - Information Builders
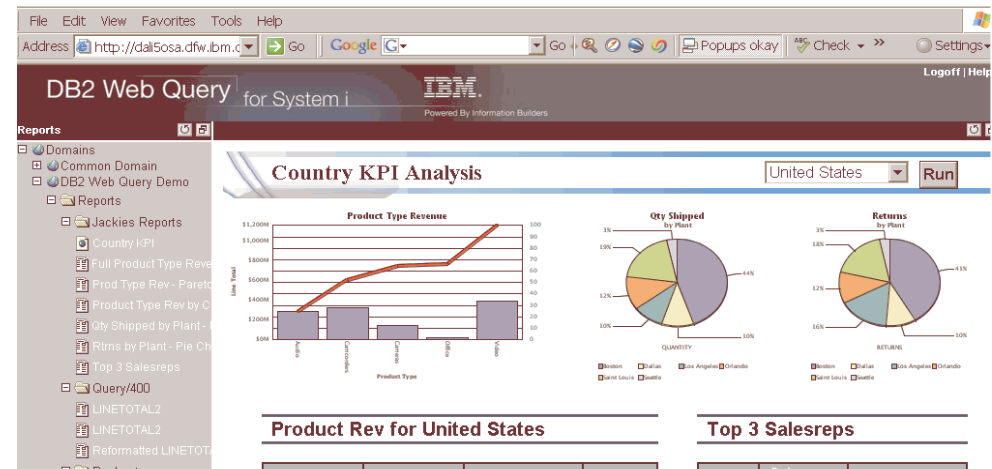
For more details, refer to:
http://www.ibm.com/systems/i/software/db2/webquery

From this ....

5250 Application

Query/400

To this ....

HATS Application

DB2 Web Query

Leverage Existing Applications with HATS and RBD

Existing Programs

RPG/COBOL

5250 User Interface
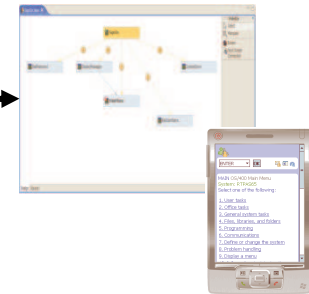
Business Logic

Database Access
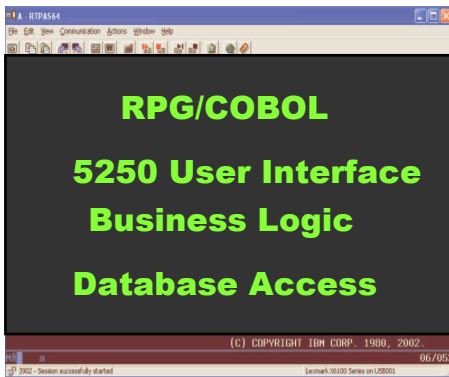
**HATS for
5250 Applications
WDHT**
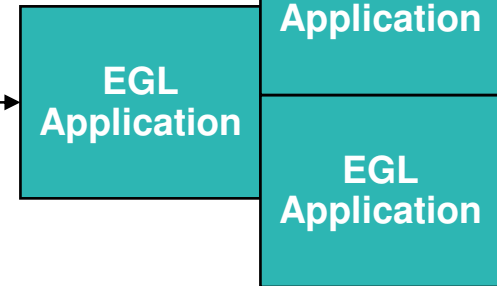
**Web
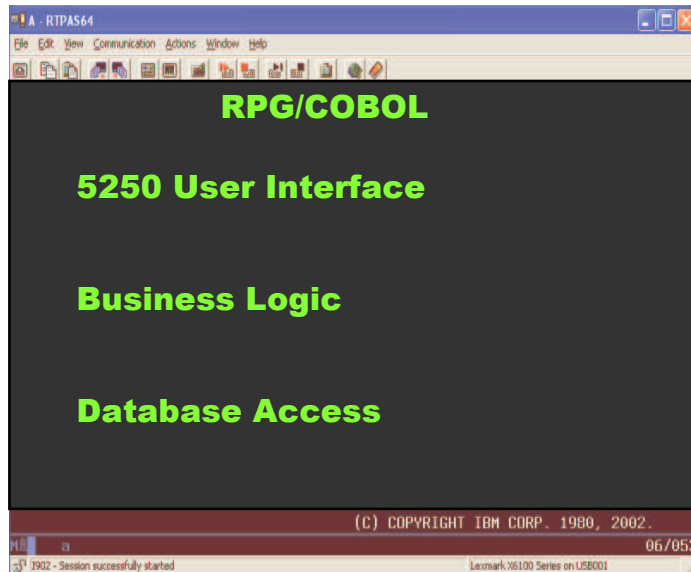Service**

EGL
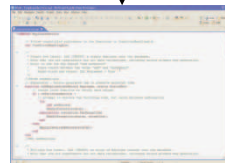
Web 2.0

**Web Services
Modern Applications
Document Printing
much more...**

- *Leverage existing 5250 applications with HATS (including 3rd party ISV applications.*

- *Generate Web Services from HATS and consume them in custom Web 2.0 applications using EGL.*

Modernize your Application through Transformation

Monolithic Programs

RPG/COBOL

5250 User Interface

Business Logic

Database Access

(C) COPYRIGHT IBM CORP. 1980, 2002.

Partner Transformation Tools

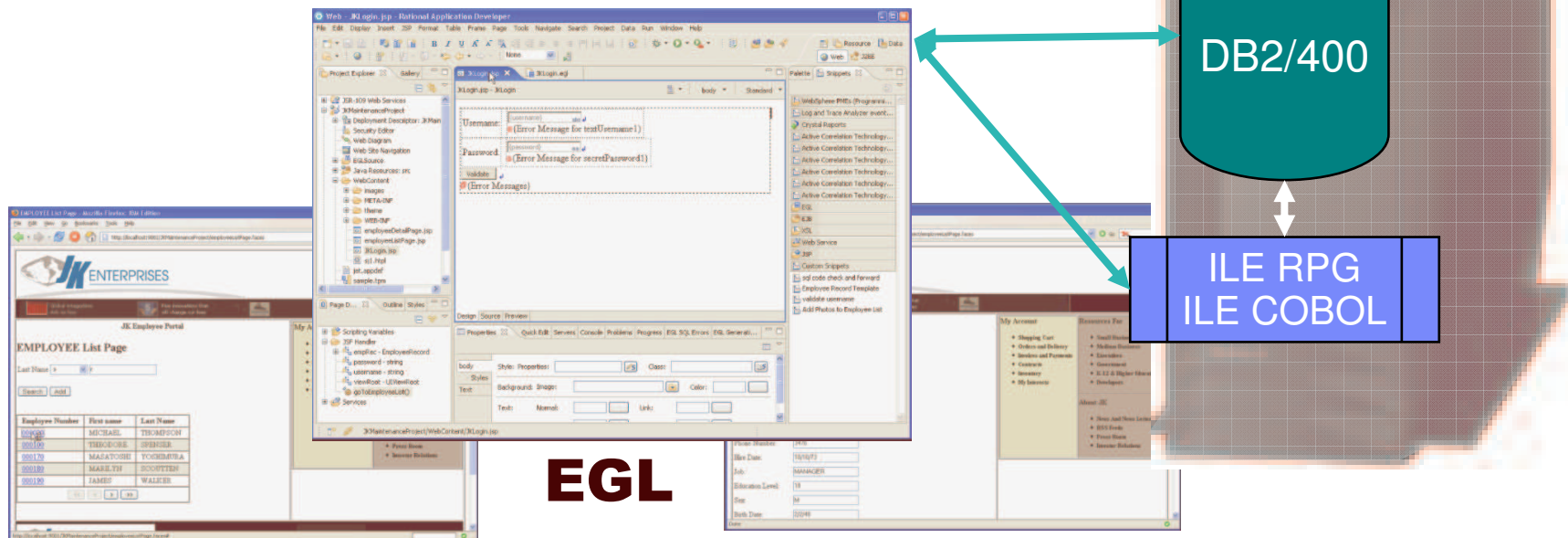EGL Application

EGL Application

EGL Application

EGL

- ▪ *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)

- **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**

- **Platform Independence**

- **Learning curve can be mastered by existing RPG staff easily**

- **Language design supports migration of RPG with excellent maintainability**

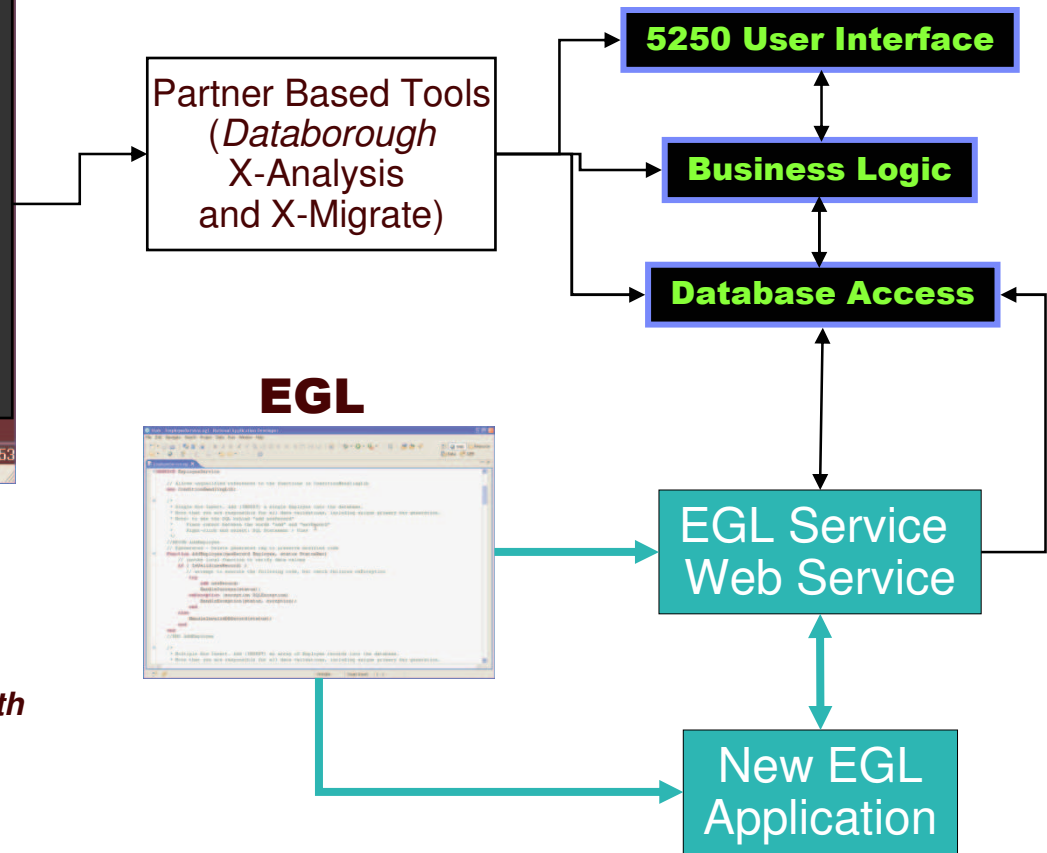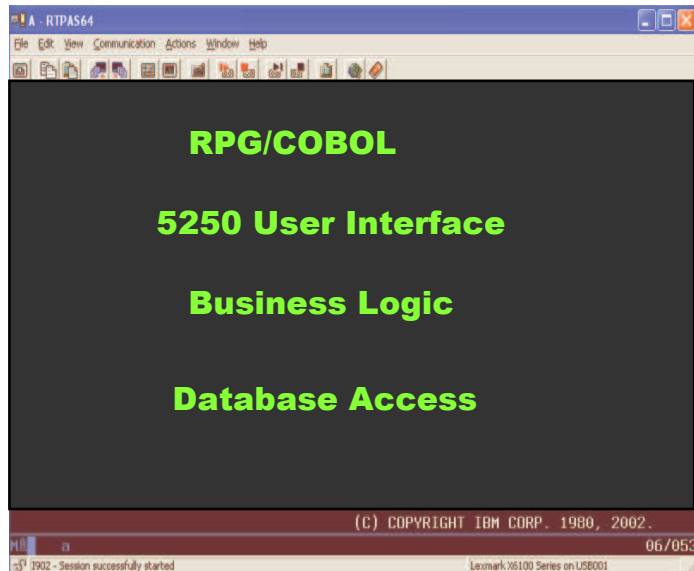- **IBM Rational Migration Extension for IBM i – Migrating RPG code to EGL**

Rapid Web & Rich Client UI Enablement

DB2/400

ILE RPG
ILE COBOL

EGL

Modernize your architecture through refactoring

Monolithic Programs

RPG/COBOL

5250 User Interface

Business Logic

Database Access

(C) COPYRIGHT IBM CORP. 1980, 2002.

Partner Based Tools (*Databorough* X-Analysis and X-Migrate)

5250 User Interface

Business Logic

Database Access

EGL

EGL Service Web Service

New EGL Application

- *Application Rationalization*

- *Create reusable components or services*

- *Fast delivery of new business solutions with available resources*

- *Significantly simplify maintenance, lower error rates, higher quality*

- *Remove barriers to move to SOA*

System i Design Recovery Using X-Analysis

www.databorough.com
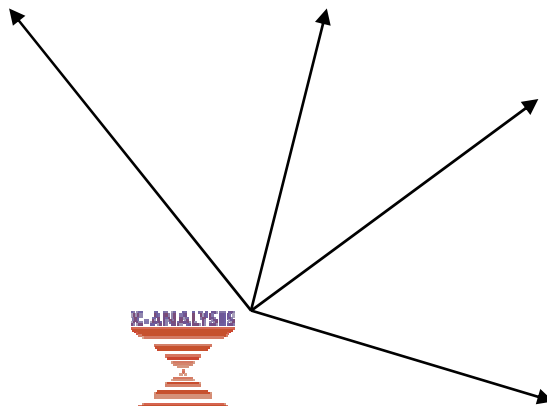
- **Application Understanding**
  - Drill Down Structure Charts,
  - Data Flow Charts
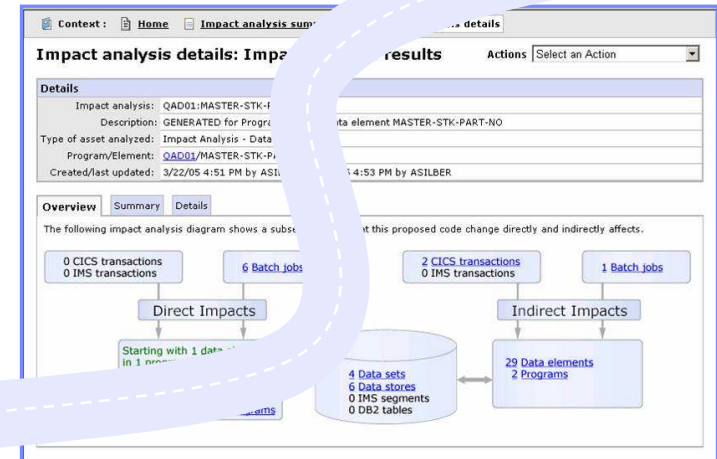 - Overview System Diagrams
  - RPG as Pseudo Code

- **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

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)**

New!

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

Customer

Division

Shared Svc

Supplier

Outsourced
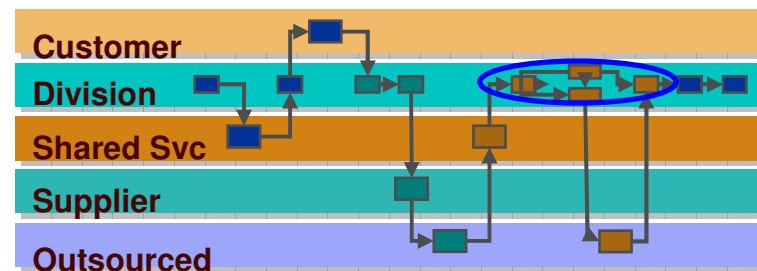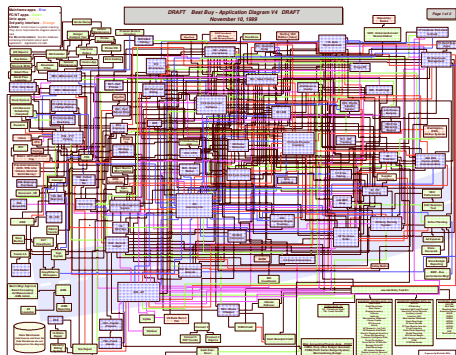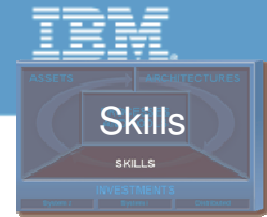
Modernize Your Skills
Powerful tools & abstractions for multi-platform development

- 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 Web 2.0 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
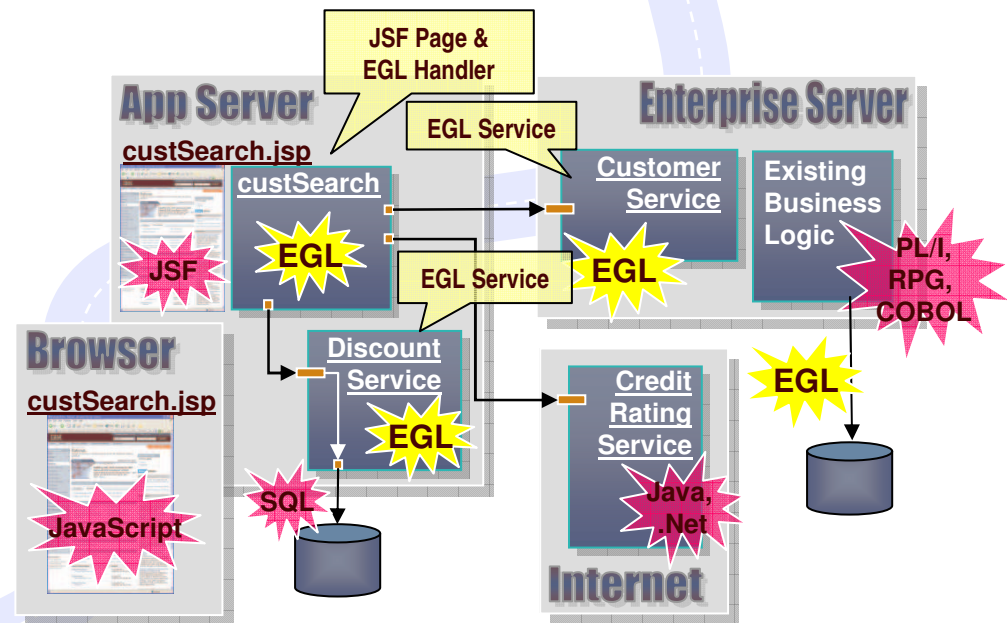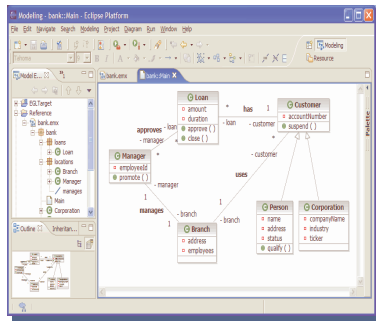

"Lack of skilled development resources" is the greatest inhibitor to implementing Web Services.
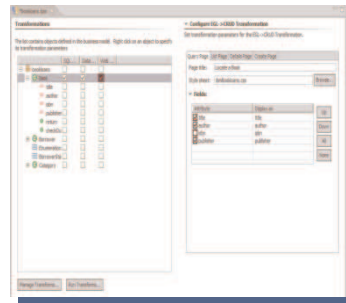*Evans Data Corp., 2007, "Web Services Development Survey, Vol. I"*

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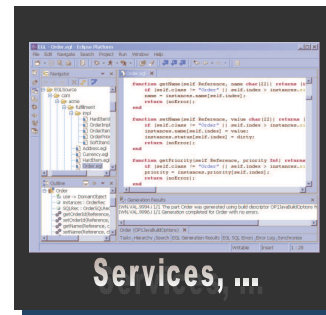*A new generation of Architected Rapid Application Development*

- ▶ Transform UML models to RBD

- ▶ Best way to go…

  from **S~~~~~~~~~** to **construction of services**

PRODUCTIVITY

services deployed on System z, System i, or anywhere else

1. Model

2. Define Transformation
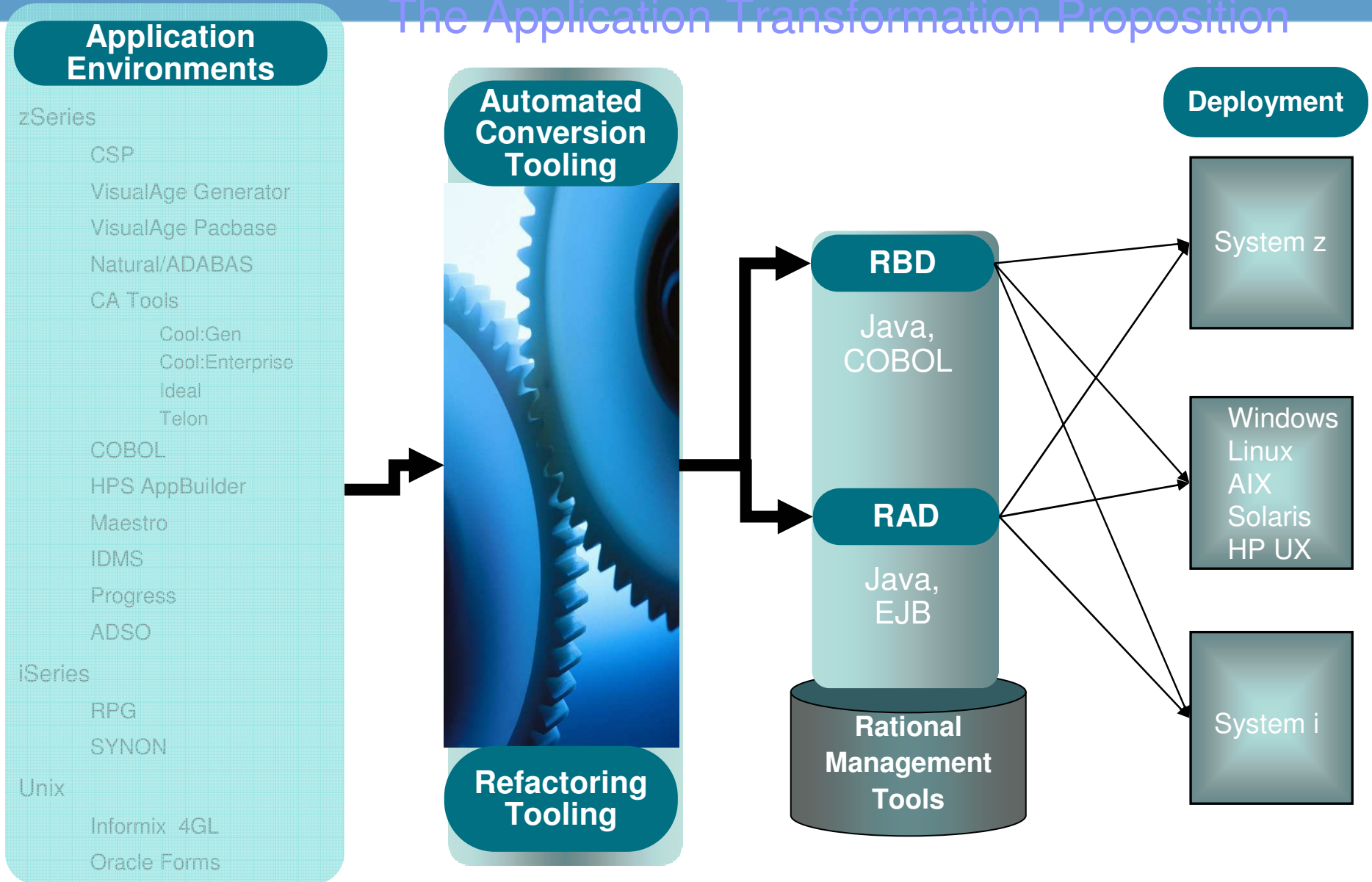Parameters and additional

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

The Application Transformation Proposition

Application Environments

zSeries

   CSP

   VisualAge Generator

   VisualAge Pacbase

   Natural/ADABAS

   CA Tools

      Cool:Gen

      Cool:Enterprise

      Ideal

      Telon

   COBOL

   HPS AppBuilder

   Maestro

   IDMS

   Progress

   ADSO

iSeries

   RPG

   SYNON

Unix

   Informix 4GL

   Oracle Forms

Windows/.net

Automated Conversion Tooling

Refactoring Tooling

Deployment

RBD

Java, COBOL

RAD

Java, EJB

Rational Management Tools

System z

Windows
Linux
AIX
Solaris
HP UX

System i

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

i5OS
Version 6 Release 1

Enterprise Modernization - The Road Ahead

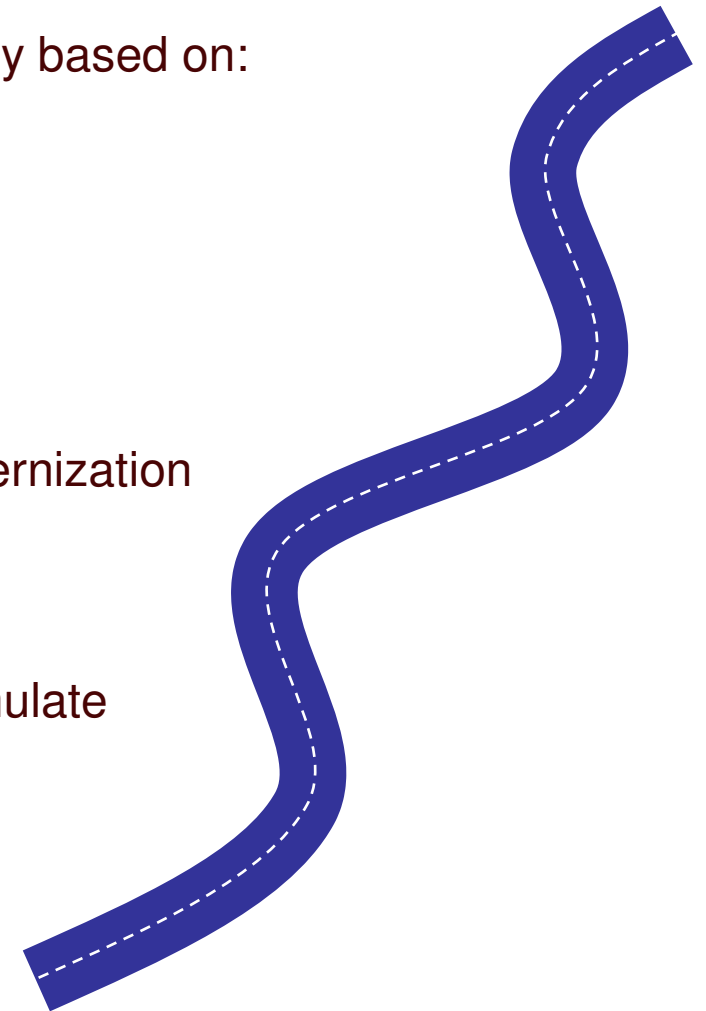Each customer needs a unique modernization strategy based on:

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 …

Thank You

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
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