

Innovate2011

The Rational Software Conference

11th and 12th of October

Let's **build** a smarter planet.



Driving Business Value with Modernisation on Power Servers

Andrew Ireland
Binary Computer Services - Director



Key Business Value Drivers

Improving Development Productivity

Greater Visibility & Control of Development Lifecycle

Modernising User Interface

Flexible Architecture with Web Services



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Improving Development Productivity

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10/11/2011

Yesterdays AS/400 – IT Manager's Challenge

- Most Common System i Development Tool is PDM
 - Released 22 years ago
 - iSeries customers have investing in new Hardware but not in development tools to take advantage of it.
- ADTS Tools have been Stabilised
 - ▶ PDM, SEU, SDA etc
 - ▶ Will not support new features is Compilers or OS
 - ▶ WDSC is withdrawn at V6.1
 - ▶ No Support for Web Development
- ▶ New Licensing Model at V6.1
 - ▶ User Based
 - ▶ Their may be an upgrade cost for ADTS & Compilers
- ▶ How can I maximise Today's System i
 - ▶ Attract the next generation of developers
 - ▶ Looking to increase development productivity
 - ▶ Reuse existing application assets in a SOA world



New Packaging for WDS – V5R4 vs. 7.1 and 6.1

WDS V5R4

Everything is included in V5R4, Unlimited licenses

- ILE RPG
- S/36 Compatible RPGII
- S/38 Compatible RPGII
- RPG/400
- ILE RPG *PRV Compiler
- ILE COBOL
- S/36 Compatible COBOL
- S/38 Compatible COBOL
- OPM COBOL
- ILE COBOL *PRV Compiler
- ILE C
- ILE C++
- IXLC for C/C++
- ADTS
- **WDSC** (this is removed from the new version of WDS/RDS)

RDS 7.1, WDS 6.1

These features are sold separately in 7.1 and 6.1 by named user

Feature: ILE Compilers

- ILE RPG
- ILE RPG *PRV Compiler
- ILE COBOL
- ILE COBOL *PRV Compiler
- ILE C
- ILE C++
- IXLC for C/C++

Feature: Heritage Compilers

- S/36 Compatible RPG II
- S/38 Compatible RPG II
- RPG/400 (RPG III)_
- S/36 Compatible COBOL
- S/38 Compatible COBOL
- OPM COBOL

Feature: ADTS

- ADTS

For pc-based tools, customers will need to order RD Power or RDi SOA instead



Upgrade Entitlement

5722-WDS to 5770-WDS 7.1 or to 5761- WDS 6.1

Users currently on IBM i Software Subscription (SWMA)

Includes ILE Compilers, Heritage Compilers, ADTS

Does not include Rational Developer for Power

SW Tier level entitled to the number of users specified

Additional users are charged per user

See Product Announcement for detailed ordering information

WDS 7.x is licensed for unlimited users based on 5722-WDS V5R4 SWMA

SW Tier	Maximum Entitled Users
P05	10
P10	15
P20	25
P30	40
P40	60
P50	80
P60	100



Rational Strategic Platforms

- Eclipse - Development Environment
 - RAD, RDp, RDi SOA, RBD
 - RPG Café, EGL Café
- JAZZ Server - Development Life Cycle Management
 - RTC, Requirements Composer, Rational Insight, Quality Manager
 - Jazz.net

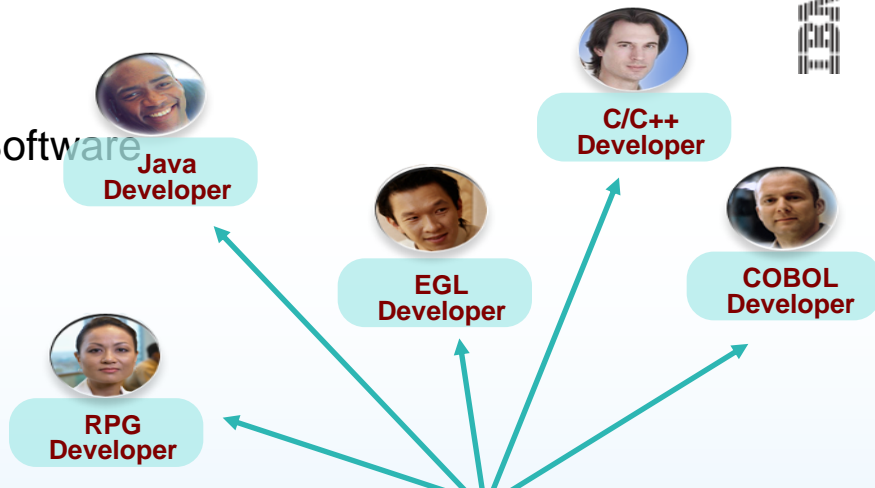


Rational Developer for Power family - Summary



The IBM Rational Developer Family of products includes integrated development environments for the major development workloads on AIX and IBM i.

- Rational Developer for Power Systems Software
 - ▶ C/C++ development tools for AIX
 - ▶ COBOL development tools for AIX
 - ▶ RPG and COBOL development tools for IBM i
- Rational Application Developer for WebSphere Software
 - ▶ Java & Java Enterprise Edition tools
 - ▶ Tools for Web, Web Services, & SOA
 - designers and developers
- Rational Business Developer
 - ▶ EGL development tools
 - ▶ For Business Developers
 - ▶ Tools for Web, Web Services, & SOA designers and developers




```

Columns . . . : 6 76          Edit          YANTZ1/QRPGLESRC
SEU=>          ORDNTR
FMT *
* 1 ...+... 2 ...+... 3 ...+... 4 ...+... 5 ...+... 6 ...+... 7 ...+
***** Beginning of data *****
0001.00 *-----*
0002.00 *
0003.00 *
0004.00 *  Program: ORDNTR
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 was here
0011.00 *
0012.00 *  INDICATOR USAGE:
0013.00 *   03 - F3=Exit
0014.00 *   04 - F4=Prompt
0015.00 *   06 - F6=Accept order
0016.00 *   12 - F12=Cancel

F3=Exit  F4=Prompt  F5=Refresh  F9=Retrieve  F10
F16=Repeat find  F17=Repeat change  F24
(C) COPYRIGHT

```



Remote System Explorer - RemoteSystemsTempFiles\DBGAI3\home2\yantzi\demof\tps\core\FSHLS.cpp - IBM Rational C/C++ and COBOL Development Tools for AIX

File Edit Navigate Search Project Run Window Help

Remote Systems Team

Files

- My Home
 - bin
 - debug_engine
 - demof
 - CDemoProject
 - COBOLProject
 - tps
 - basictpd
 - core
 - evaltpd
 - ftpservers.pdom
 - api_license.txt
 - Ready
 - Open
 - Open With...
 - Refresh F5
 - Delete... Delete
 - Copy
 - Move...
 - Search...
 - Compile
 - User Action
 - Compare With
 - Replace With
 - Properties
 - Alt+Enter

Properties

Property	Value	Alt+Enter
Canonical Path	/home2/yantzi/demof/tps/Mkafite	
Classification	ascii text	
Extension		
Filter string	/home2/yantzi/demof/tps/*	
Group	staff	
Hidden	No	
Last modified	November 19, 2009 10:41:36 AM	
Location	/home2/yantzi/demof/tps	
Name	Mkafite	
Number of children	0	

FSHLS.cpp

```

// Gets information about a file.
// [in] filepath : Path to the file.
// [out] infoPtr : Structure containing the file information.
// Return : On success 1 is returned. 0 is returned if there was an
// error accessing the file or the file does not exist.
int CPSUtils::GetFileStats(char *filepath, tutilsFileInfo_t *infoPtr)
{
    int len, flagslashend = 0;
    if (filepath == NULL || infoPtr == NULL)
        return(0);
    //remove any trailing slashes if necessary
    len = strlen(filepath);
    if (len > 0) {
        if (*(filepath+len-1) == '\\') || *(filepath+len-1) == '/' {
            //only removes the trailing slash if it is not the only slash
            if (strchr(filepath, '\\') != (filepath+len-1) && strchr(filepath, '/')
                *(filepath+len-1) == '\\')
                flagslashend = 1;
        }
        else {
            return(0); //the filepath is empty
        }
    }
}

```

Outline

- pwd.h
- utime.h
- Windows.h
- sys/types.h
- sys/param.h
- sys/acl.h
- sys/mount.h
- sys/fs.h
- StrUtils.h
- FSUtils.h
- CPSUtils
- ~CPSUtils()
 - DirGetFirstFile(const char*, char*,
 - DirGetNextFile(long, char*, int) int
 - DirClose(long) int
 - DirIsEmpty(char*) int
 - GetFileStat(char*, tutilsFileInfo_t
 - SetFileTime(char*, long, long) int
 - GetUserName(long, char*, int) int
 - GetAppName(long, char*, int) int
 - GetProcName(long, char*, int) int
 - BuildPath(const char*, const char*
 - FreePath(char*) void
 - ValidatePath(char*) int
 - CheckSlashLead(char*, int) int
 - CheckSlashEnd(char*, int) int
 - CheckSlashDir(char*, const char*
 - ComparePath(const char*, const char*

Remote System Details Tasks Remote Shell

ADX Development Box

```

cd /home2/yantzi/demof/tps>
ls -la
total 136
drwxr-xr-x  5 yantzi  staff    4096 Dec 03 15:09 .
drwxr-xr-x  5 yantzi  staff    256 Dec 08 11:10 ..
-rw-r--r--  1 yantzi  staff   10018 Dec 03 15:09 .cproject
-rw-r--r--  1 yantzi  staff    2972 Dec 03 15:09 .project

```

Command





Rational Developer for Power Systems Software

Integrated tools for Power operating systems and programming languages

Remote development environment supporting edit, compile, and debug of native AIX, Linux and IBM i applications on Power Systems, from a local Windows or Linux workstation

One integrated solution – supporting multiple environments *
C/C++ and COBOL on AIX
RPG, COBOL, CL, C/C++, DDS on IBM i
Java on AIX and IBM i
C/C++ on Linux

It also allows organisations to attract and retain new talent, many of whom are already familiar with the Eclipse workbench

Lower development and application maintenance costs – do more with less!



IBM Rational Developer for Power Systems Software **NEW!**

Rational Software Delivery Platform

IBM Power Systems

AIX i for Business Linux Power7 BUILT ON Power

jazz

Creating projects and files was easy as I had a prior knowledge on the Eclipse-based tools. COBOL edit features made the application programming easier and reduced the developer's work effort"

Major AP IT Development Company

Asia



Rational Developer for Power Systems Software (RDp)

Modern Developer Tools for the IBM i



List of programmes and files

RPG Source

Outline view (usage of fields, file indicators, subroutines etc)

Additional Property information

(Debugger, tables compiles etc,)

The screenshot displays the Rational Developer for Power Systems Software (RDp) interface. The main window is titled "Remote System Explorer - RemoteSystemsTempFiles/TORASBCC/QSYS.LIB/RDIDEMO.LIB/QRPGLESRC.FILE/ORDENTR.RPGLE - IBM Rational Developer f...". The interface is divided into several panes:

- Remote Systems Explorer (Left):** Shows a tree view of the project structure. The "Library list" pane contains a list of files and programs, including GETITEM.*pgm.rpgle, INFLOOP.*pgm.rpgle, ORDENTR.*pgm.rpgle, and ZSLTCUSTRF.*pgm.rpgle.
- RPG Source Editor (Center):** Displays the source code for the file ORDENTR.RPGLE. The code includes comments and data structures. A table of field definitions is visible:

Field Name	Indicator	Field Name	Indicator	Field Name	Indicator
FORDENTD	CF	E	WORKSTN	SFILE	(ORDSFL)
FITEM	IF	E	K	DISK	
FDSTRCT	UF	E	K	DISK	
FCSTMR	UF	A	E	K	DISK
FSTOCK	UF	E	K	DISK	COMMIT (Cmt.Ac)
FORDERS	O	A	E	K	DISK
FORDLIN	O	A	E	K	DISK
- Outline View (Right):** Shows a hierarchical view of the data structures defined in the program. It includes sections for "Files", "Data Structures", and "CustInfo".
- Bottom Panel:** Displays search results for the selected field "ITEM", showing 74 occurrences in 13 members. The results include details for the file RDIDEMO/QRPGLESRC(GETITEM) and its various members.

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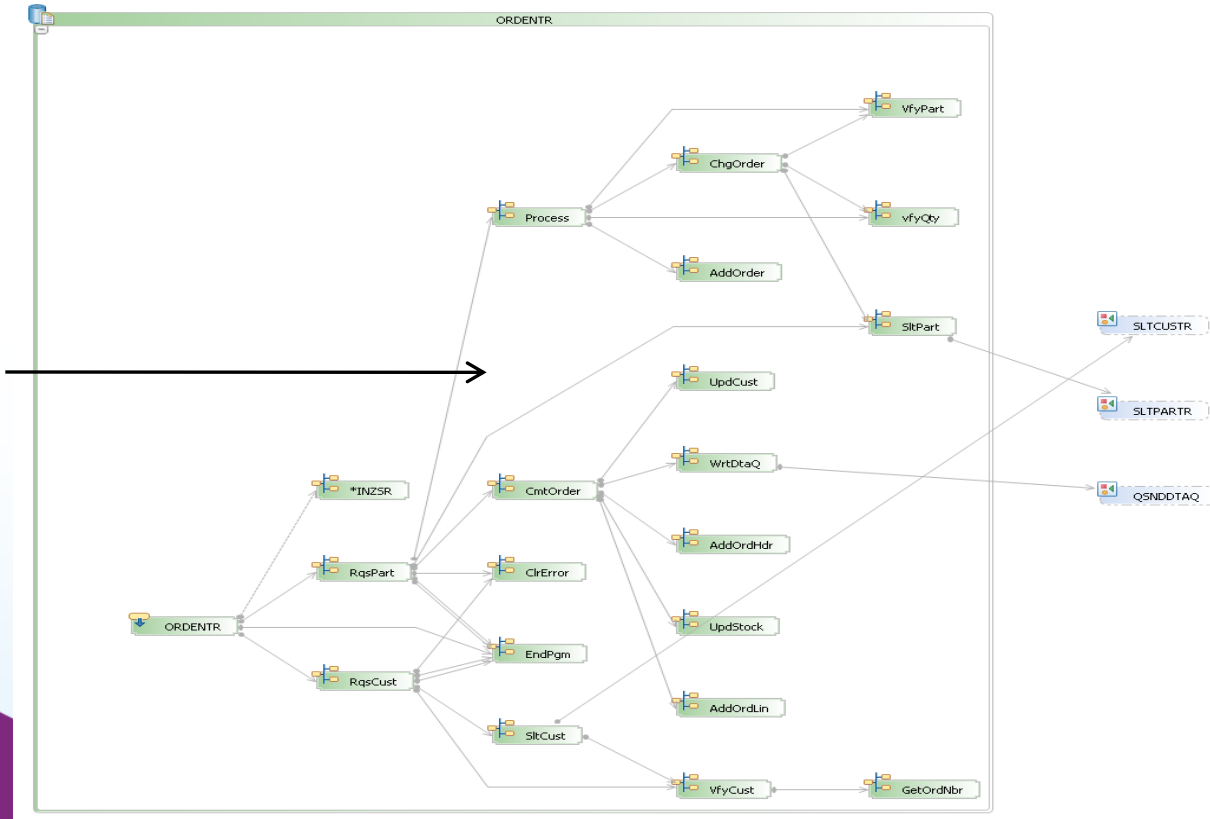
Rational Developer for Power Systems Software (RDp)

Modern Developer Tools for the IBM i



External call programmes

Internal Subroutines



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Commitment to RPG

To IBM i community

Created on: Apr 26, 2010 1:57 PM by cafe - Last Modified: Apr 26, 2010 2:04 PM by cafe

Power your Innovation

April 13, 2010

Dear IBM i client,

IBM® has a strong history of providing compilers and development tools for applications on IBM i. In his "Power of i" letter, Ross Mauri, IBM Power Systems™ General Manager, outlined IBM's solid and unchanged commitment to our IBM i clients. We at IBM Rational® would like to echo this by confirming our commitment to support and enhance our ILE RPG and ILE COBOL compilers on IBM i and our application development tools.

Back in February, IBM announced POWER7™ and exciting new advancements for the IBM Power Systems platform. As part of those announcements, IBM Rational announced two new products: IBM Rational Developer for Power



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We are also excited about the release of Rational Open Access: RPG Edition, a new product that has the potential to transform the landscape of RPG development. Rational Open Access enables partners, ISVs, and clients to write handlers that extend ILE RPG's native I/O to access new devices and resources such as Web browsers, services, external databases, or spreadsheets.

IBM Rational is committed to the success of our IBM i clients, helping you continue to realize business value from your applications and leverage these applications in new business opportunities.

Echoing Ross's closing comments, thank you for your business and your confidence in the future of one of the world's most durable and productive platforms for business.

Hayden Lindsey

Vice President and Distinguished Engineer

Enterprise Modernization, Modeling, Construction, & Compilers – IBM Rational

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Construction and Compilers

IBM Rational

https://www.ibm.com/developerworks/mydeveloperworks/wikis/home?lang=en#/wiki/We13116a562db_467e_bcd4_882013aec57a/page/To%20IBM%20i%20community

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AAA Cooper Transportation

Improves developer productivity and time to market



The challenge

- Development efficiency for 12 green-screen programmers
- Company wanted to improve the time to market
- They wanted a “source control” solution that integrated IBM i and PHP platforms

Business value

- Within a month they were seeing between 10 - 20% productivity improvements

Solution

- Rational Developer for i
- Rational Team Concert for i



- Family owned trucking firm
 - 78 terminals
 - 4,000 employees

“Within a month the use of the green screen development was almost completely gone, and our team was excited about working entirely on the new IDE. ...My advice, try it. You will never go back.”

- Bruce Collins

Manager of Systems Administration



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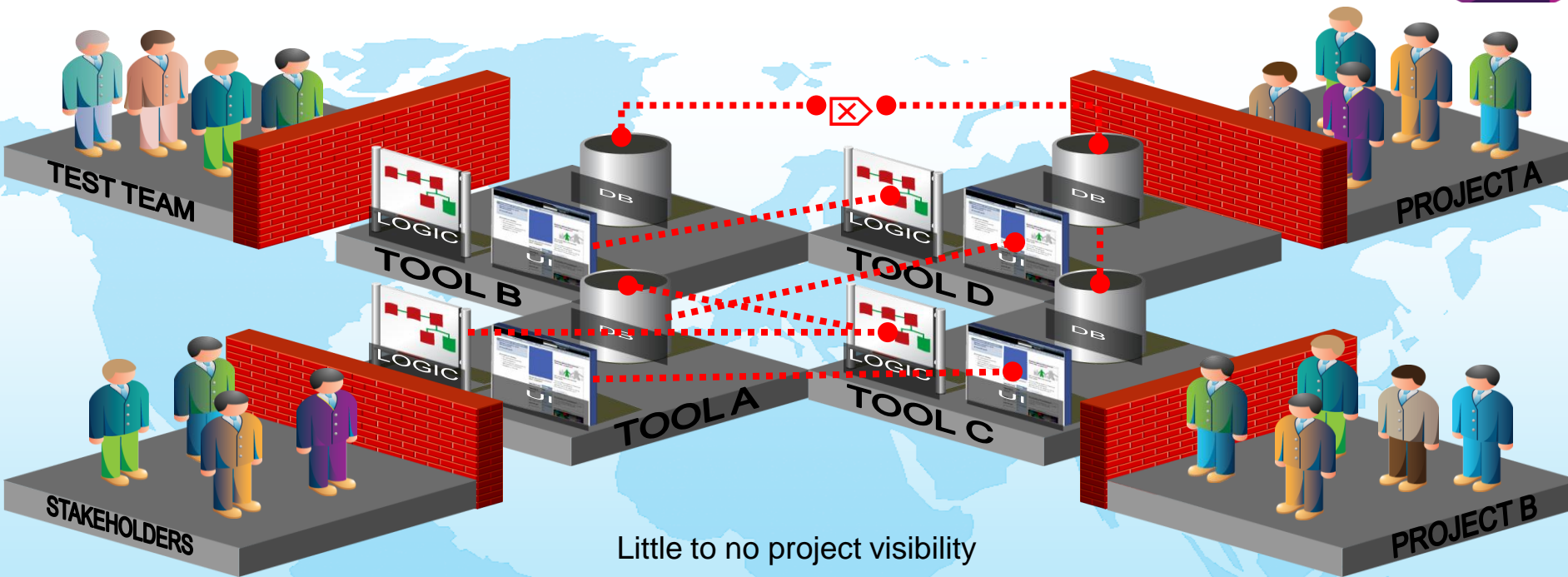
Greater Visibility & Control of Development Lifecycle

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Traditional software delivery environments reinforce the problem

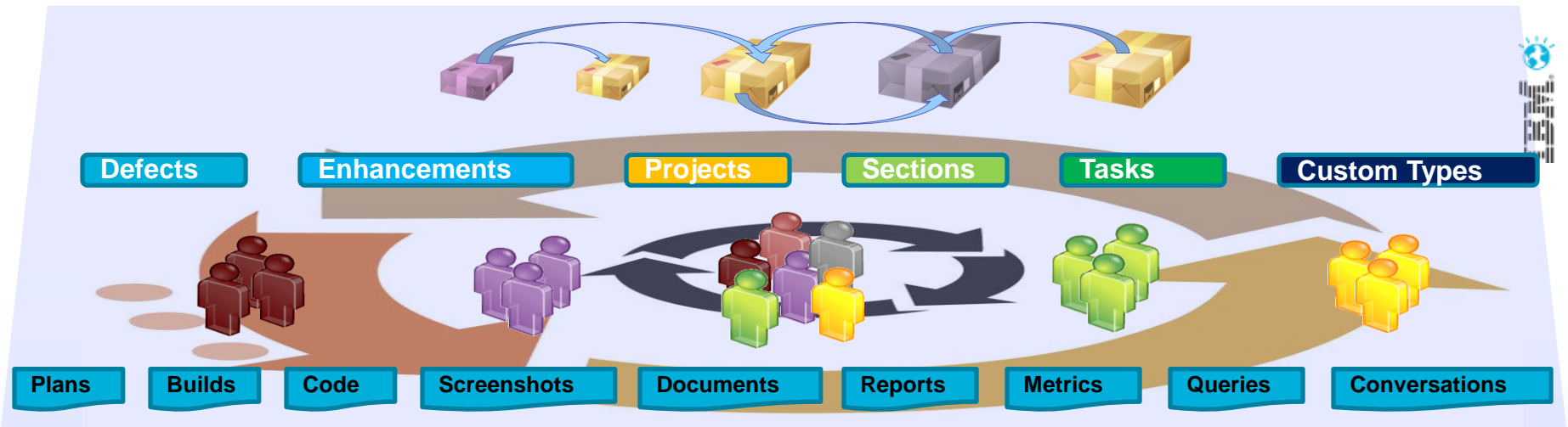
Heterogeneous environments, distributed teams, multiple systems



- Little to no project visibility
- Data locked in proprietary APIs
- Poor process and workflow integration
- High maintenance and administration costs
- Inconsistency among products (UI, logic, storage)

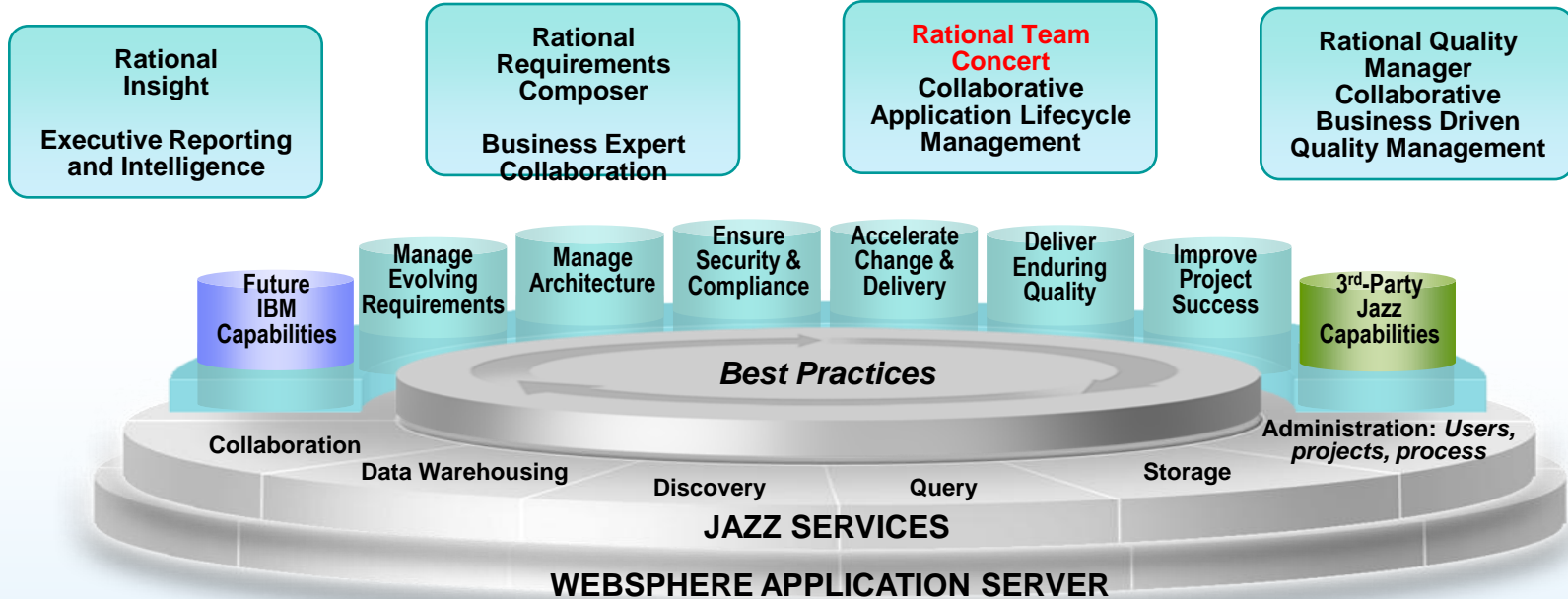
Application Development is Complex

Collaborative Change Management is Fundamental for Effective Software Delivery



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A unified platform for complete Application Lifecycle Management



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Team Concert: An Overview

Planning

- Integrated release/iteration planning
- Effort estimation & progress tracking taskboards
- Out of the box agile process templates

Project Transparency

- Customizable web based dashboards
- Real time metrics and reports
- Project milestone tracking and status

SCM

- Integrated stream management
- Component level baselines
- Server-based sandboxes
- Identifies component in streams and available baselines
- SVN, Git, CC bridge, connector

Work Items

- Defects, enhancements and conversations
- View and share query results
- Support for approvals and discussions
- Query editor interface

Build

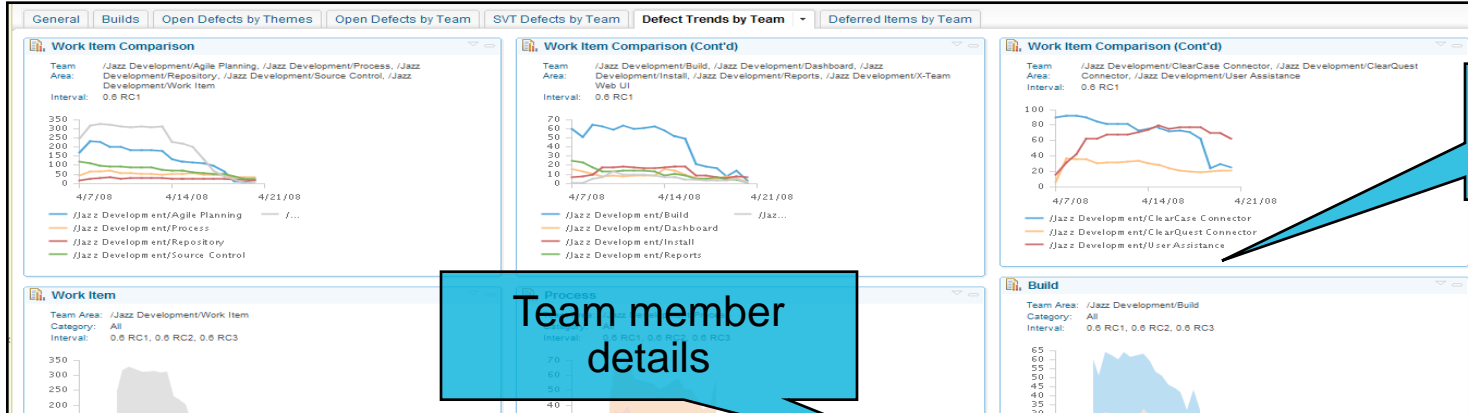
- Work item and change set traceability
- Build definitions for team and private builds
- Local or remote build servers
- Supports Ant and command line tools
- Integration with Build Forge

- Single structure for project related artifacts
- World-class team on-boarding / offboarding including team membership, sub-teams and project inheritance
- Role-based operational control for flexible definition of process and capabilities

- Team advisor for defining / refining “rules” and enabling continuous improvement
- Process enactment and enforcement
- In-context collaboration enables team members to communicate in context of their work



Dashboards and reporting



Trending by project or by individual team

Team member details

Current milestone status

The dashboard shows 'Work Item Members (16)' with a list of team members and their roles. Below this is 'Current Work Item Plans (2)' showing progress bars for 'Foundation & Work Items' across iterations 0.6 RC1, 0.6 RC2, and 0.6 RC3. A blue callout box labeled 'Current milestone status' points to the RC1 milestone. At the bottom, there is a 'Work Item Event Log' with recent events and a 'Work Item Builds' section showing a successful build.

UniCredit Example

Improves developer productivity and testing efficiency for IBM i development

The challenge

- Modernize its development platform for core financial business software
- Development and testing efficiency for new and existing applications
- Make traditional development more attractive to younger programmers

Business value

- Similar development environment for traditional and Web applications — attractive to younger developers
- Estimated **15%** increase in development and 10% increase in testing productivity

The Solution

“Our approaches are consistent throughout the entire software development life cycle, from planning, definition and implementation to test and configuration”



UniCredit  HVB Group

- One of Europe's largest financial services organizations
- 9,000 branch locations
- 40 million customers
- Employing over 170,000 people

“We at UniCredit Leasing Austria have opted for the combined toolset of Rational Team Concert for IBM i and Rational Developer for IBM i because they provide us with the best support for modern approaches to software engineering for the IBM i platform.”

- Mircea-Dan Antonescu
IT Leader, UniCredit Leasing Austria

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Modernising User Interface

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Rational Host Access Transformation Services

Achieve fast ROI with low risk



Quickly and easily transform green screen applications to Web services, Web, Mobile, Portal and rich client interfaces

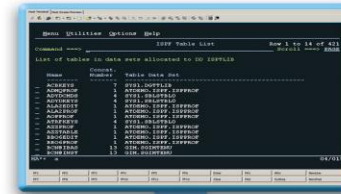
Low cost and low risk: No need to rewrite or refactor existing applications and built on open, proven platforms and technologies

Increase productivity and reduce training costs and data entry errors with workflow and navigation improvements

Integrate host business processes and data with other web, portal, mobile, and rich client applications

Packaging:

- HATS for 5250 Applications on Multiplatforms
- HATS for 5250 Applications on IBM i
- HATS is also included as a component of Rational Host Integration Solution (HIS)



IBM Host Access Transformation Services



What's new in HATS V8.0



Web 2.0

- Dojo
- HATS Dojo widgets
- Transform for Dojo editing
- Dojo for IOs
- New templates
- RESTful web services
- JSR286 Portlet support
- iPad support
- Support for the latest runtimes
- Support for the latest development tools

And more....



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Web 2.0: HATS Dojo widgets



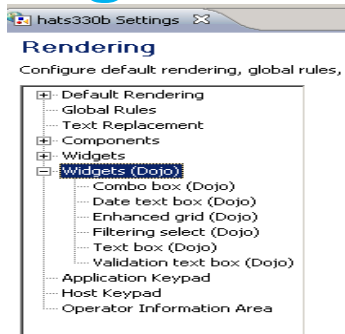
New HATS Dojo widgets:

- Combo box
- Date Text box
- Enhanced Grid
- Sorting
- Drag and drop columns
- Filtering select
- Text box
- Validation text box

Benefits:

- New, built-in UI transformation options
- No programming skills required
- Enhanced usability

New widgets



Expiration date:

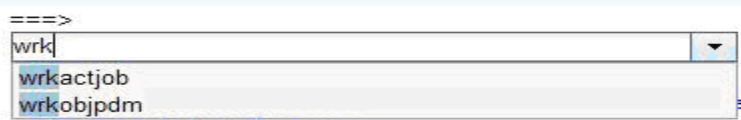


Date text box

Enhanced Grid

Opt	Subsystem/Job	User	Type	CPU%	Function	Status
	ZENDCORE	QTMHHTTP	BCI	.0	BCMDZSRHTTP	DEQW
	QZSHSH	ASH	BCI	.0	PGM-QZSHSH	TIMW
	QPADEV0001	SANSU	INT	.0	PGM-QCMD	DSPW
	QPADEV0004	WEBGUI	INT	.0	CMD-WRKACTJOB	RUN
	QPADEV0007	WEBGUI	INT	.0	MNU-MAIN	DSPW
	QPADEV0009	ASH	INT	.0	CMD-QSH	DEQW
	QINTER	QSYS	SBS	.0		DEQW
	QMQM	QSYS	SBS	.0		DEQW
	QSERVER	QSYS	SBS	.0		DEQW

Filtering select



Validation text box

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iPad Support

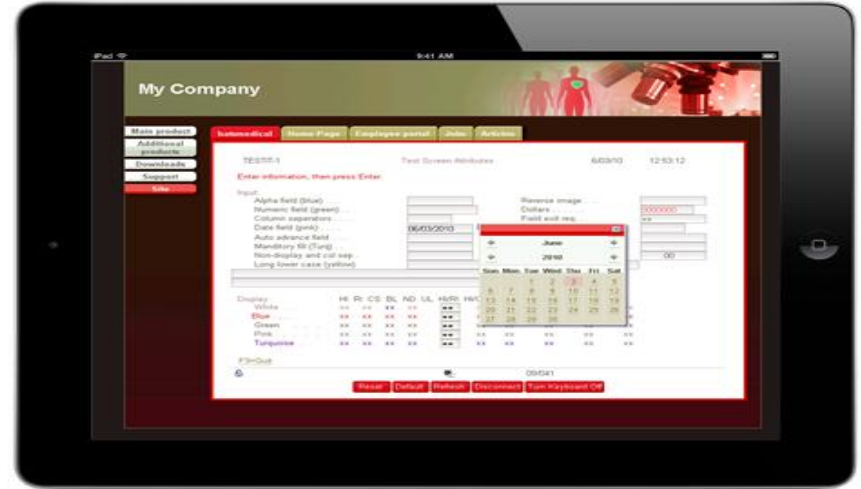
iPad has been added to the growing line up of mobile devices that HATS supports

- Windows Mobile devices
- iPod Touch
- iPhone
- iPad

The larger display size of iPad works especially well for customer facing roles

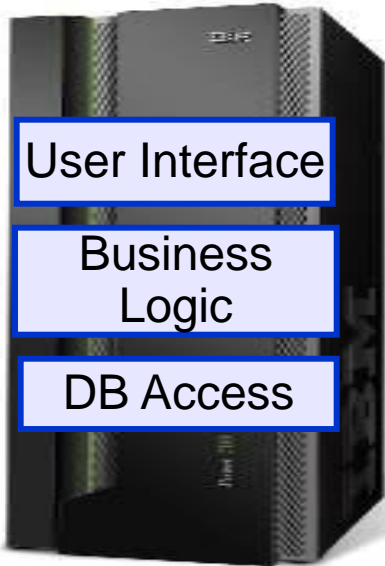
Mobile devices open up possibilities:

- An employee on the department store floor needs to check stock in the warehouse and make an order
- A distributor of products to car dealers needs to track product availability and order products while at the dealer



Rational Open Access: RPG Edition

RPG Applications

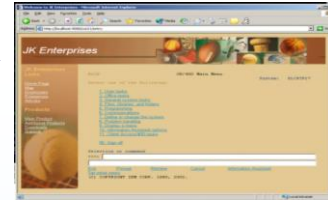


Traditional RPG
Interface

5250 Screens



JSPs



How to Support Other
Interfaces?



Other
Servers



Mobile
Devices

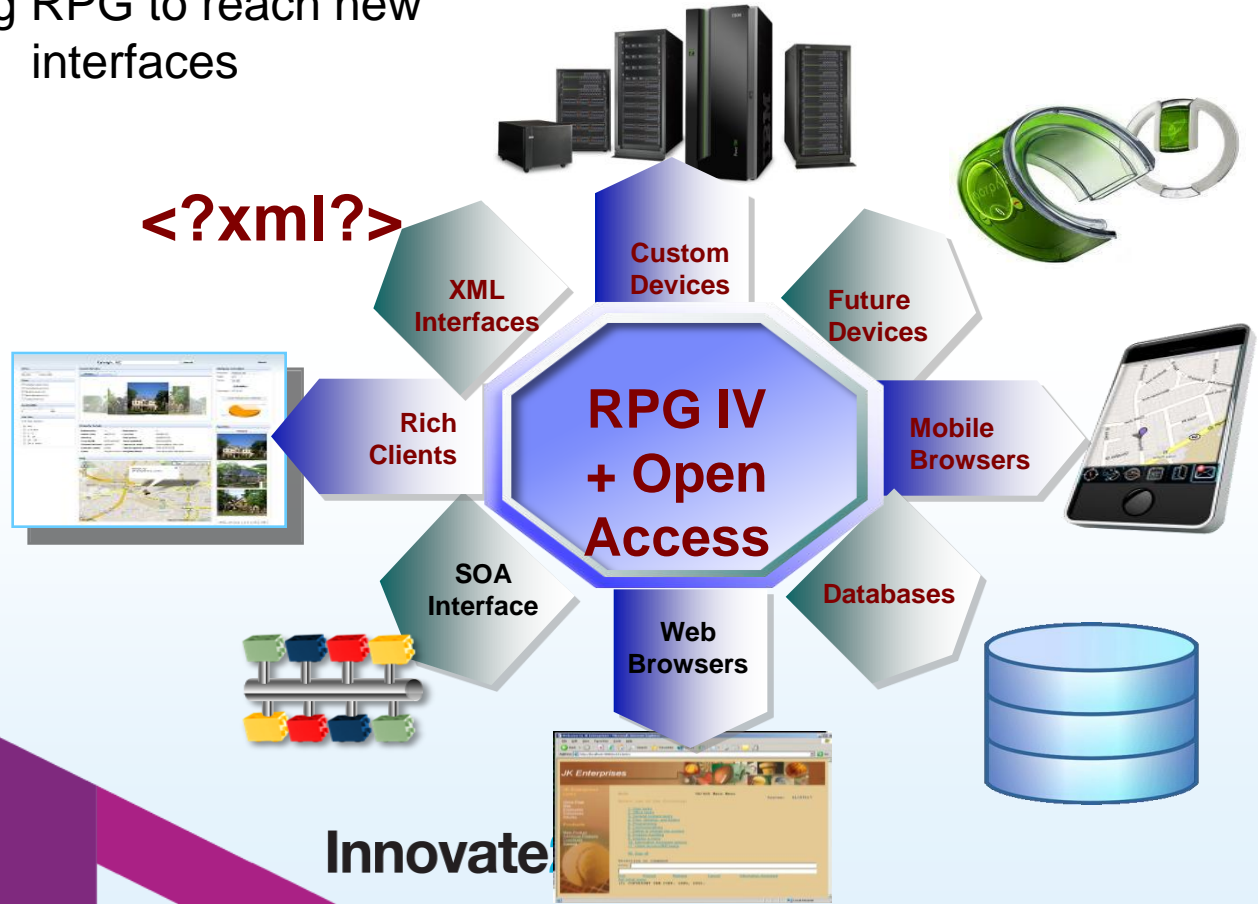
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Rational Open Access: RPG Edition



Extending RPG to reach new interfaces

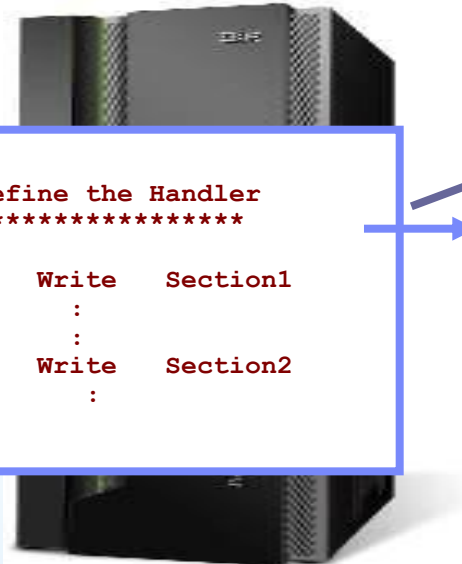


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Rational Open Access: RPG Edition



RPG Applications



```
F      Define the Handler
D*****
C*
C      Write   Section1
C*      :
C*      :
C      Write   Section2
C      :
```

Traditional RPG

Interface

Data

Handlers

Handlers

Handlers

Target Program

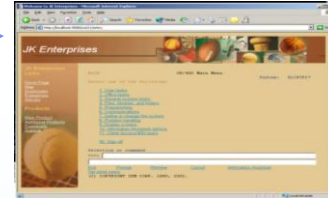
Target Program

Target Program

5250 Screens



JSPs



Mobile Devices

Other Servers

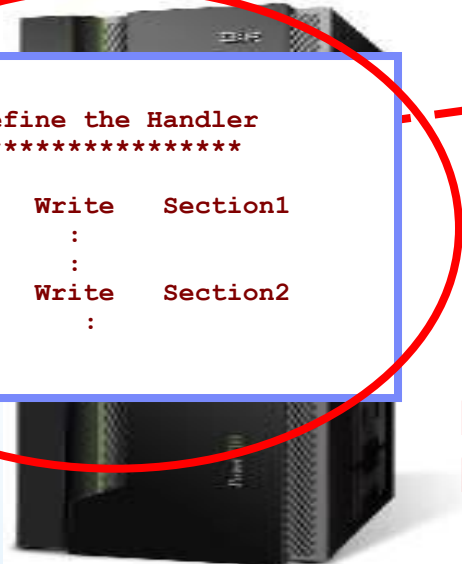


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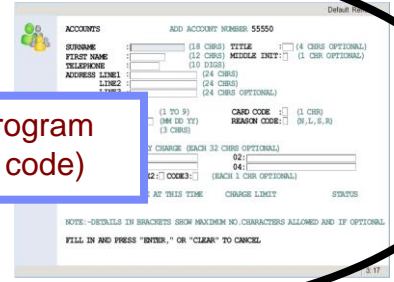
Rational Open Access: RPG Edition



```
F      Define the Handler
D*****
C*
C      Write    Section1
C*      :
C*      :
C      Write    Section2
C      :
```



Data



ISV or Customer

Rational Open Access:
RPG Edition





Flexible Architecture with Web Services

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10/11/2011

Evolving into a Web Services Environment ...



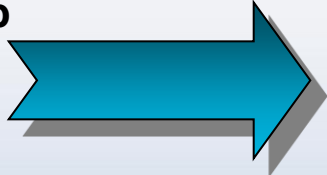
SQL Stored Procedures



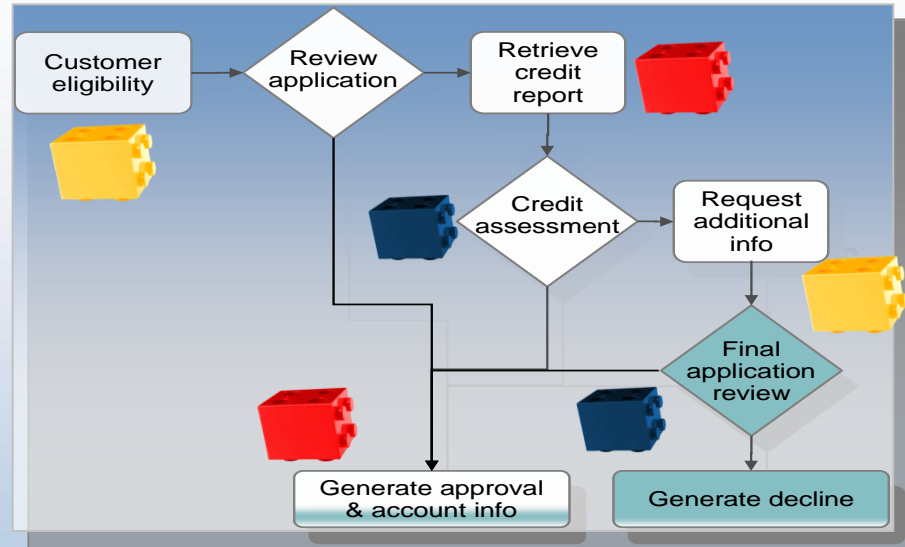
RPG/HATS - Web Service



New EGL Web Services



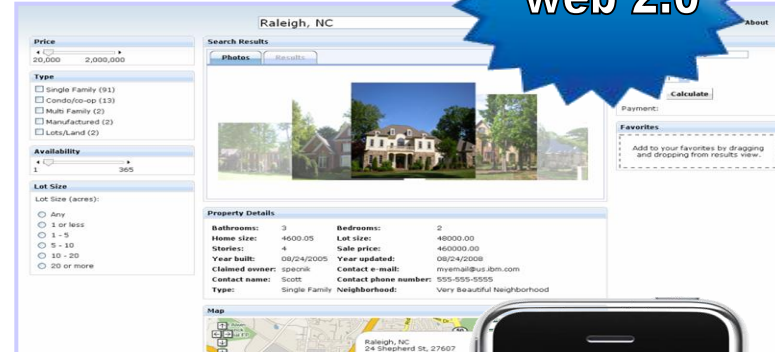
**it can be used as building blocks
in an Web Services world....**



Business Process is implemented by integrating services

IBM Rational Business Developer - EGL

- Simplify the development of JavaScript-based Web 2.0 applications and services with EGL
- Building new Web Services on Power
- Skills flexibility and high productivity for building all types of enterprise applications
- Platform independent for portability



Welcome to the sMash Employee demo with EGL Rich UI front end.

The grid below contains a list of employees served up using REST services written in Groovy and hosted by sMash. You can edit each cell by clicking in it. You can save the changes, create a new employee, or delete the currently selected employee using the buttons that are provided below.

The entire UI is written in EGL Rich UI, and no JavaScript, HTML, or dojo is needed.

Username	First name	Last name	Location	Phone Number
Chris	Chris	Laffra	East	555-3345
Saul	Ben	Margolis	East	555-9932
hdjkhaskjd	jhadjkaskh	dhajkdhaskj	West	555-3321
Terry	Theresa	Ramsey	West	555-3321



Analyzer Details

elecsys 2010
RECALLS
All tests...

Results for this test

Result	Low	High	Mean	Std.Dev.
92.0000	72.8000	95.2000	84.0000	5.6000

Corrective Action

Date: 06/28/2002
Time: 4:06:02
Tech: DC ACCEPTABLE WITHIN SFG LBMT
Action: Comment

Lot Results

Lot 360440 contains 16 tests

See Westgard Rules explanation

Archive Action

Date: 06/06/2002
Time: 7:04:11
Technician: JBJ

Oxford International, Inc.

Improves distributed team productivity and time to market

The challenge

- Cross-platform distributed development teams needed better communications, project visibility
- Looking for a single enterprise-wide solution to improve software development, management and control.
- Needed to improve governance and traceability for multi-tier and distributed development teams.

Business value

- Realized 20-30% improvements in team productivity and quality
- Realized accelerated time to market

Solution

- Rational Developer for Power (formerly RDi)
- Rational Team Concert for Power (formerly RTCi)



*Oxford International Inc.
An IBM Certified Software Business Partner*



- IBM Business Partner for Rational Software for Power and System z
- Oxford has been deploying application modernization solutions since 2004

“We estimate between 20-30% improvements in team productivity and quality across the development process. Rational Team Concert for i and Power solutions truly hits the mark of the most demanding business and IT department.”

- Steve Norton, President



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