Speed the development of multiplatform applications

Agenda

08:40 - 09:40 - Build a smarter foundation for future investments
09:40 - 09:50 - Break (10 min)
09:50 - 10:50 - Smart Reuse- Transform green screens to Web, SOA,
                  mobile, and portal
10:50 - 11:00 - Break (10 Min)
11:00 - 12:00 - Speed the development of multiplatform applications

12:00 - 01:00 - Lunch (1 hour)

 1:00 -   2:00 - Developing Web 2.0 applications using Mashup Tools
 2:00 -   2:10 - Break (10 Min)
 2:10 -   3:10 - Smart Work on System z: Enhance teamwork with
                  multiplatform SCM tools
 3:10 -   3:20 - Break (10 Min)
 3:20 -   4:20 - Let's tie it all together and play in the sandbox
 3:20 -   4:30 - Close

A simple Google search..
http://cwflyris.computerworld.com/t/915781/281087/36897/2/

Many IT managers slowly migrating away from Cobol wonder whether they'll run out of
Cobol programmers before they run out of Cobol c
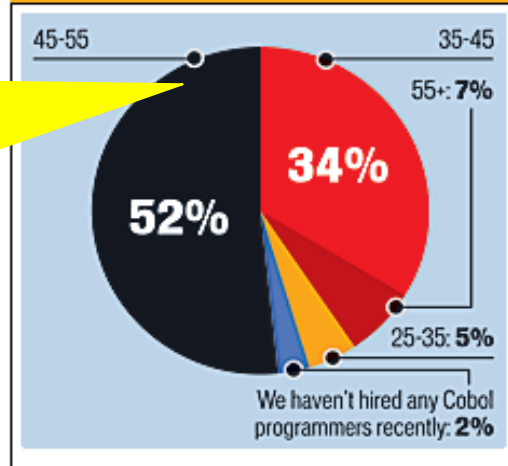
Gary Anthes **Today's Top Stories ▸**

October 09, 2006 (Computerworld that mainsta ughe 60s,
'70s and '80s, is not going away ar a Cor ers at 352
companies, 62% of the respondents
it "a lot" and 58% said they're using i

Are you noticing a short
programming

ve years. - 27%

org nizations may want to think carefully before
rewriting those applications in another language.
Cobol is easier to read and manage than C# or
Java, says Crego, who calls Visual Basic, C and
C# "write-only code." And rewriting some Cobol
programs can require four or five times as many
program lines in Java or C#, says Vecchio. He
describes such projects as "a maintenance
nightmare waiting to happen."

Developers need a Modern development environment !

What's the average age of your Cobol
programmers hired in the past 12
months?

45-55   35-45
55+: 7%
34%
52%
25-35: 5%
We haven't hired any Cobol
programmers recently: 2%

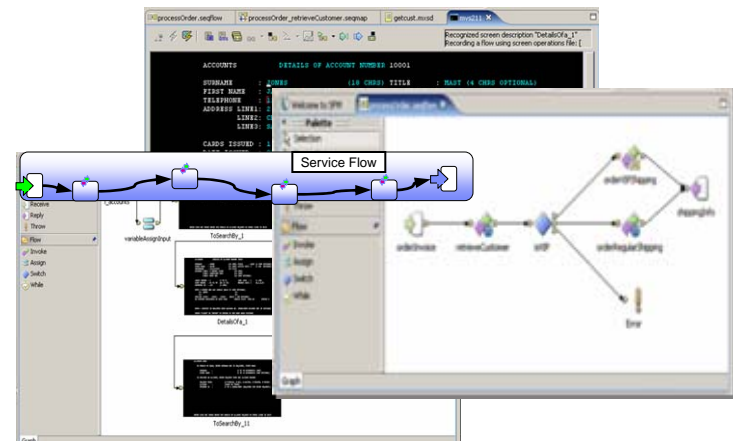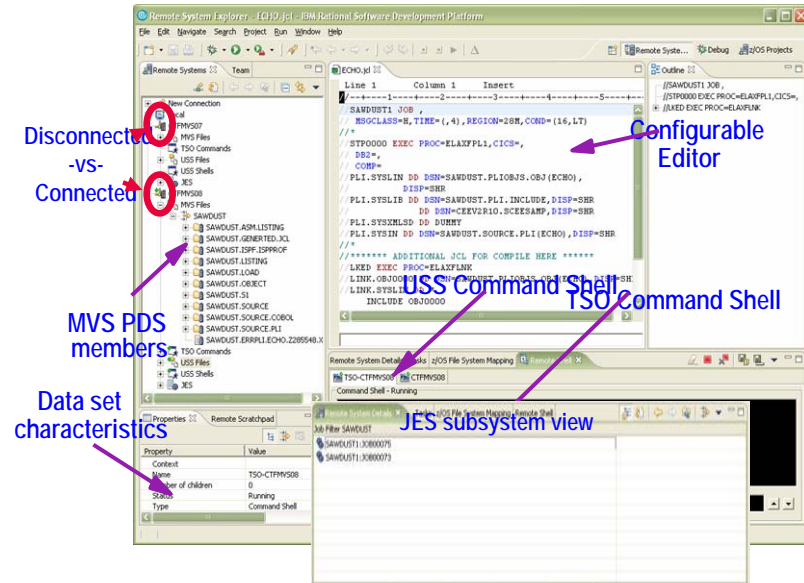# Rational Developer for System z (RDz)

What is RDz

- Eclipse-based IDE speeding modern composite (SOA) application development

RDz supports Enterprise Modernization

- Links WAS and core system z processing

- Supports common IDE for COBOL, PL/I, C, C++, HLASM, Java, EGL and web services

- Transforms UML to COBOL source code

- Provides interactive access to z/OS for development, debug, job generation, submission, monitoring, command execution

- Supports new and existing runtimes (CICS, IMS, Batch, USS, DB2 SP, WAS)
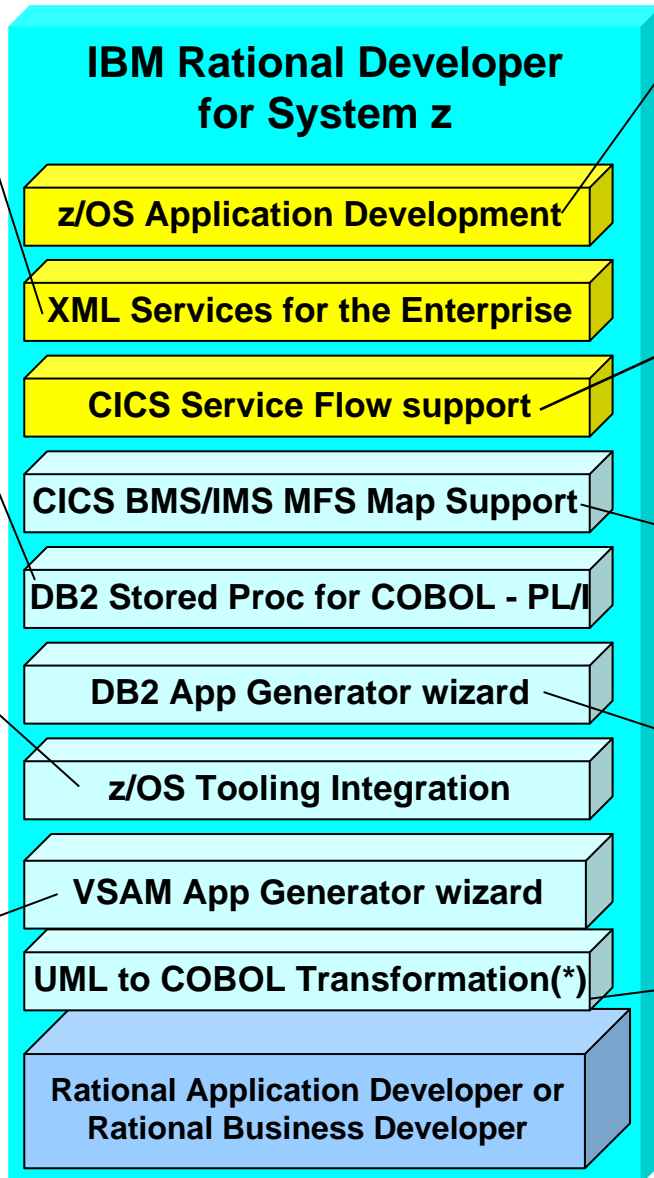
RDz supports SOA

- Enables CICS and IMS applications for web services and SOA

- Supports for J2EE, JCA, XML, web services

IBM Rational Developer for System z

XML Services for the Enterprise

- SOA support for COBOL or PL/I using CICS or IMS
- Bottom-up/Top-down or meet-in-the-middle COBOL/PLI to XML mapping support
- meet-in-the-middle development scenario tooling wizards. for CICS, IMS, and batch applications

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z/OS Tooling Integration

- Read/Write/Update VSAM datasets via integration with **IBM File Manager**
- Access **IBM Fault analyzer** reports for analyzing ABENDS and associating back to source code

VSAM App Generator wizard

Generate JCL , BATCH or CICS COBOL program skeletons to access VSAM/QSAM

Legend
- Core functions
- Other functions

IBM Rational Developer for System z

- z/OS Application Development
- XML Services for the Enterprise
- CICS Service Flow support
- CICS BMS/IMS MFS Map Support
- DB2 Stored Proc for COBOL - PL/I
- DB2 App Generator wizard
- z/OS Tooling Integration
- VSAM App Generator wizard
- UML to COBOL Transformation(*)
- **Rational Application Developer or Rational Business Developer**

---

z/OS Application Development

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- Provide UML assets in order to represent COBOL in UML (Models, Profiles, Patterns)
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  (*) Requires Rational Software Architect (RSA)

IBM Rational Developer for System z

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6

ISPF based Development

submit compile job → swap to SDSF → select job

edit JCL

find error msg

exit source

find code line
(remember error)

change code

swap to edit session

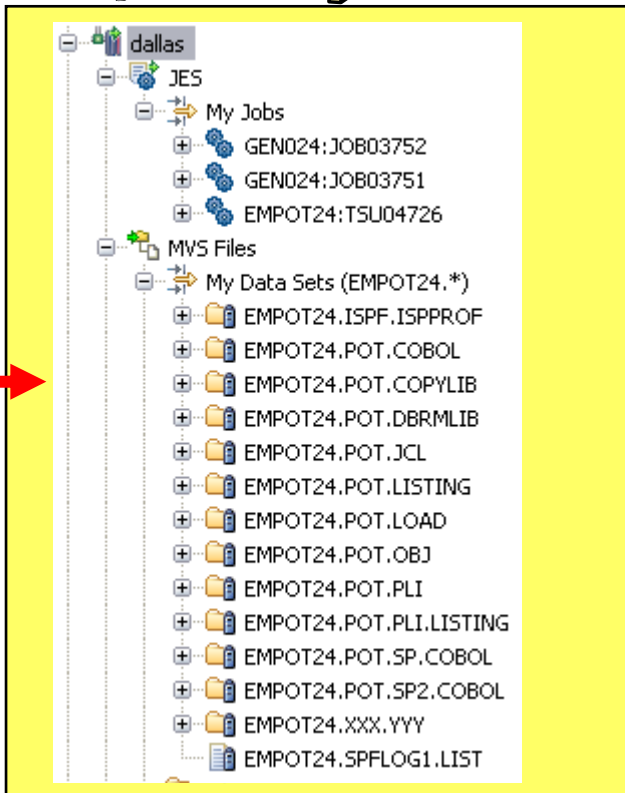find code line ← edit source ← exit JCL

Host → Workstation Overview

```
GEN024      JOB03751 EMPOT24
GEN024      JOB03752 EMPOT24
```

```
EMPOT24.HFS
EMPOT24.ISPF.ISPPROF
EMPOT24.POT.COBOL
EMPOT24.POT.COPYLIB
EMPOT24.POT.DBRMLIB
EMPOT24.POT.JCL
EMPOT24.POT.LISTING
EMPOT24.POT.LOAD
EMPOT24.POT.OBJ
EMPOT24.POT.PLI
EMPOT24.POT.PLI.LISTING
EMPOT24.POT.SP.COBOL
EMPOT24.POT.SP2.COBOL
EMPOT24.SPFLOG1.LIST
EMPOT24.XXX.YYY
```

'Magic'

```
dallas
  JES
    My Jobs
      GEN024:JOB03752
      GEN024:JOB03751
      EMPOT24:TSU04726
  MVS Files
    My Data Sets (EMPOT24.*)
      EMPOT24.ISPF.ISPPROF
      EMPOT24.POT.COBOL
      EMPOT24.POT.COPYLIB
      EMPOT24.POT.DBRMLIB
      EMPOT24.POT.JCL
      EMPOT24.POT.LISTING
      EMPOT24.POT.LOAD
      EMPOT24.POT.OBJ
      EMPOT24.POT.PLI
      EMPOT24.POT.PLI.LISTING
      EMPOT24.POT.SP.COBOL
      EMPOT24.POT.SP2.COBOL
      EMPOT24.XXX.YYY
      EMPOT24.SPFLOG1.LIST
```

Files on the host look as though they are workstation files

Eclipse based development

Edit source

Syntax Check

Statement in error

double click on the error

Outline view presents COBOL structure

Benefit: Simplified development for COBOL, PL/I, C and C++ on a common development environment

Access source code…

- **RDz offers integration into a variety of Source Code Management (SCM) tools as well as a framework for creating SCM integration on your own**

- **Variety of vendors supply plug-ins to RDz to provide easy access to processes and source code controlled by their products**

RDz	
	Team Concert
	SCLM
	ClearCase
	CA Endevor
	Framework for other SCMs
	Serena Changeman
	ISPW

IBM Supplied
Vendor Supplied
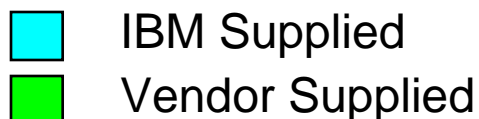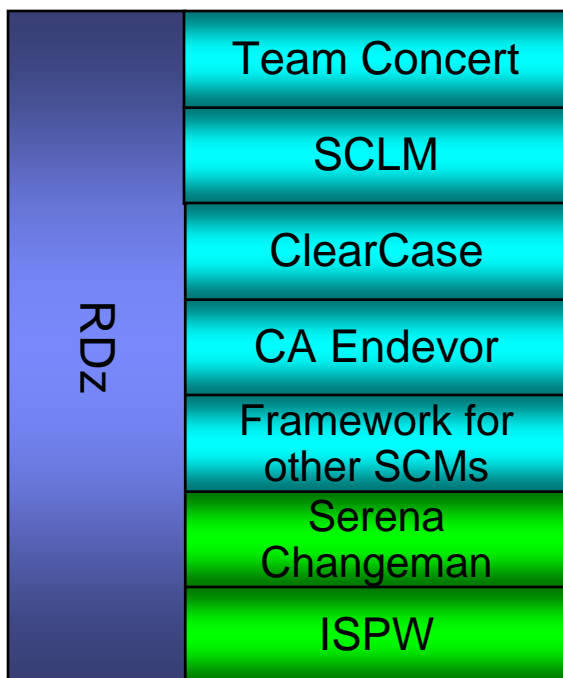
z/OS demo

and If we can connect it.. Live Demo

Edit → Compile → Debug (Debug loops back to Edit)
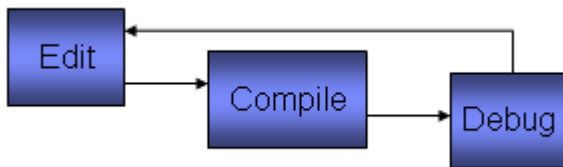
•connect to z/OS
•change source

•Using MVS project
•Smart COBOL Editor
•Local syntax check
•Generate JCL compile, Link

•Generate JCL
•Submit to z/OS
•Interactive Debug
•Check results

13 Minutes

Link to 1.RDz7.6_edit_compile_debug_cobol_batch_13Min.html

IBM Rational Developer for System z

XML Services for the Enterprise

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Rational Application Developer or Rational Business Developer

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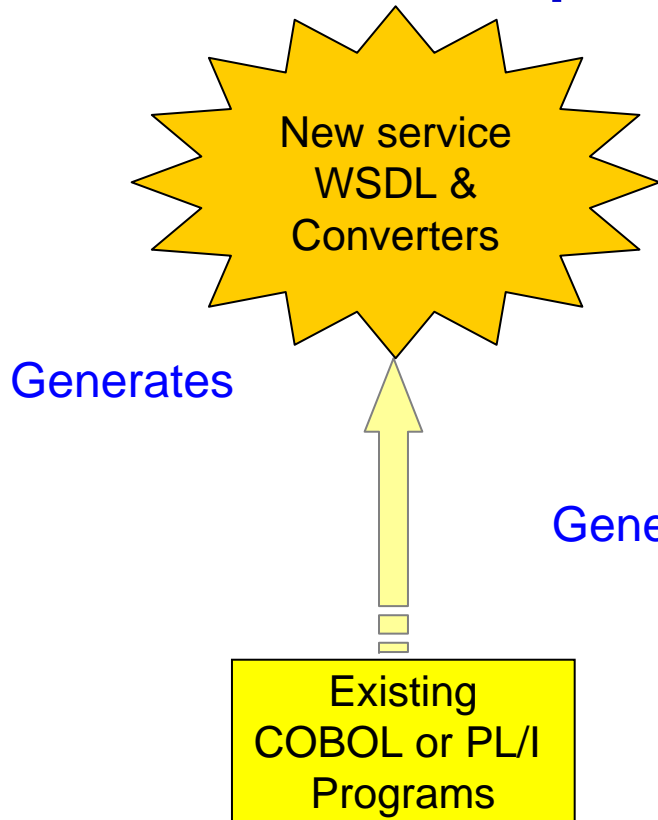• Final transformation generates COBOL source (*) Requires Rational Software Architect (RSA)
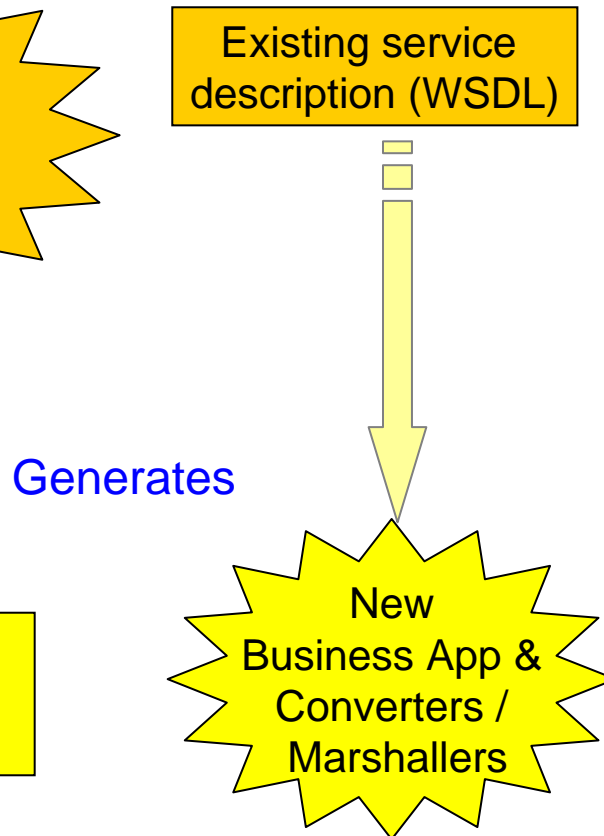
XML Services for the Enterprise
Web Service Enablement Styles

Bottom-up

New service
WSDL &
Converters

Generates

Existing
COBOL or PL/I
Programs

Top-down

Existing service
description (WSDL)

Generates

New
Business App &
Converters /
Marshallers

Meet in the middle

Existing service
description (WSDL)

Maps and
Generate

Converters /
Marshallers/
Aggregators

Existing
Business Apps

IBM Rational Developer for System z

IBM Rational Developer for System z

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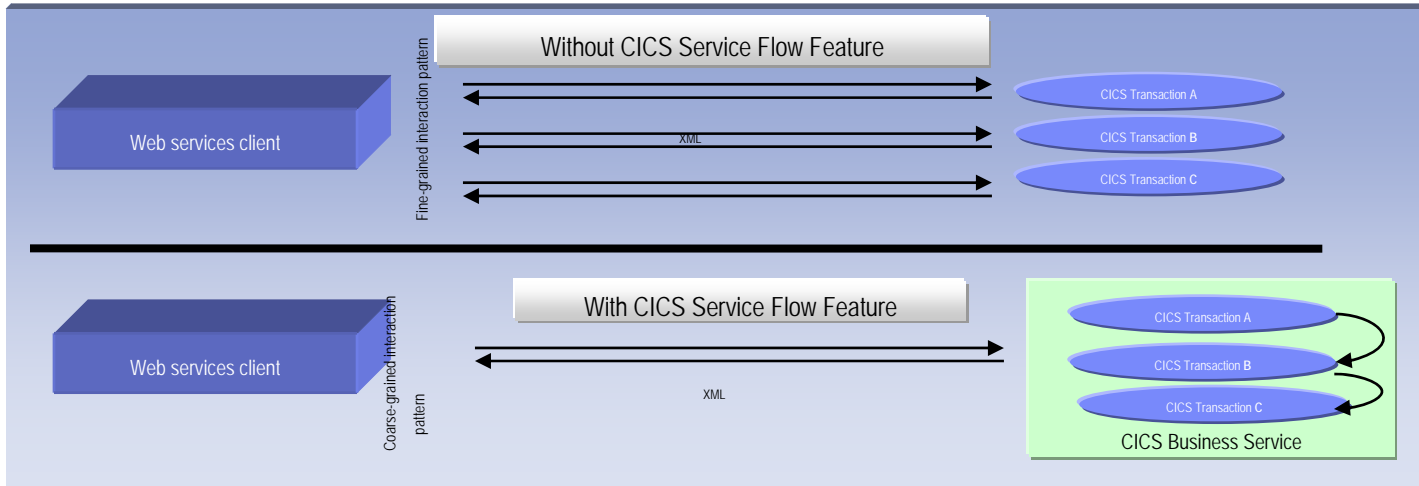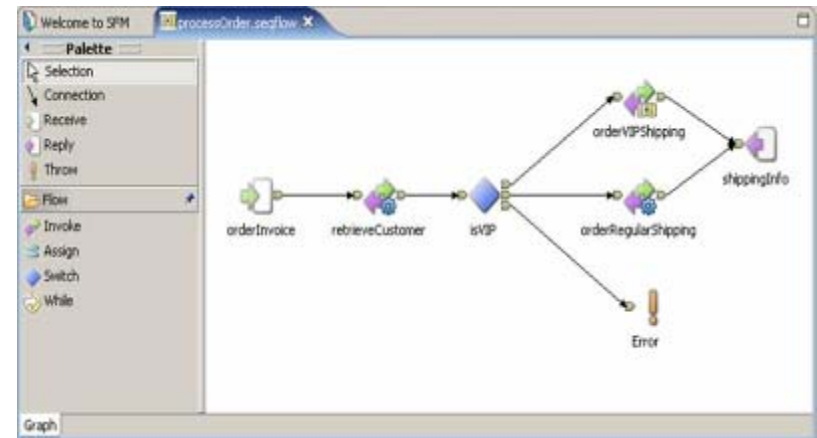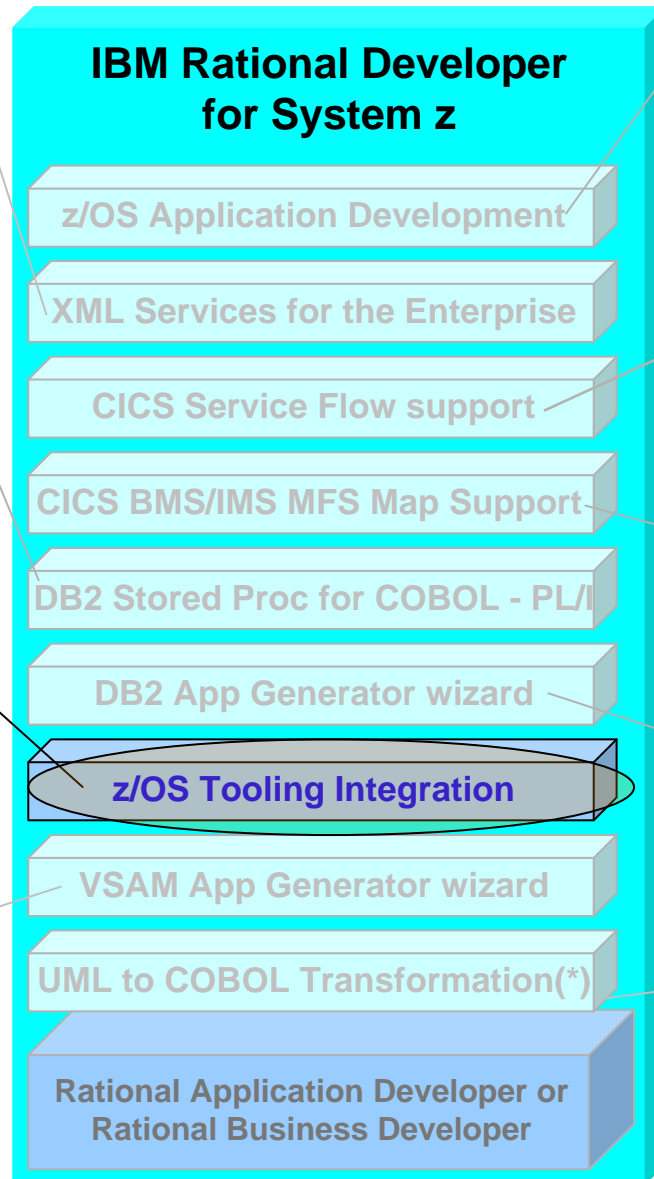
RDz improves CICS Business Services development

Without CICS Service Flow Feature

Web services client — XML — CICS Transaction A, CICS Transaction B, CICS Transaction C

Fine-grained interaction pattern

With CICS Service Flow Feature

Web services client — XML — CICS Transaction A, CICS Transaction B, CICS Transaction C — CICS Business Service

Coarse-grained interaction pattern

RDz generates

- **Optimize application investment with CICS Service Flow Feature**
  - Aggregate multiple CICS transactions into reusable CICS Business Services

- **Reduced network cost and development risk by using CICS business service**

- **Increased productivity using RDz's Service Flow Modeler to develop CICS business service**

IBM Rational Developer for System z

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Access host-resident data

- Allows for a formatted edit session of many dataset types. Among the options are:
  - ▸ VSAM - KSDS, ESDS, RRDS, VRRDS
  - ▸ QSAM – PDS, SDS

- **Multiple views of the data within the formatted edit session:**
  - – Table
  - – Single Character

- **Browse and alter VSAM data easily without having to leave your development environment**

- **Apply different views of data using copybooks as a template**

- **Issue utility commands for copying, sub-setting, and searching data from right-click menus**

- **Requires on IBM File Manager**

Analyse production problems

- Provides an interface to browse a real-time ABEND analysis reports
- Supported environments: COBOL, PL/I, Assembler, C/C++, Java, CICS, MQ, IMS and DB2.
- COBOL working storage display using mini-dump and sidefiles.
- Requires on IBM Fault Analyzer for z/OS.

Analysis report containing probable cause, source listing, and dump information

List of history files

History file summaries

© 2010 IBM Corporation

Service Component Architecture (SCA) helps with cross-platform application assembly

- **Open, multi-vendor endorsed standard (soon) designed for SOA**

- **Extends, exploits and complements existing standards**

- **Unifying framework for assembling services from disparate assets**

- **Loose or tight coupling of coarse or fine grained services**

- **Diverse implementations, bindings and data representations**

- **Recursive "composite" definition**

- **Inversion of Control – dependency injection, annotations, reflection**

- **Asynchronous, conversational programming model**

- **Declarative Policy**

- **Deployment and packaging model similar to OSGi**

New WAS service…

Account Service

Java

Existing CICS function…

Chequing Account

COBOL CICS

Acquired external function…

Saving Account

???
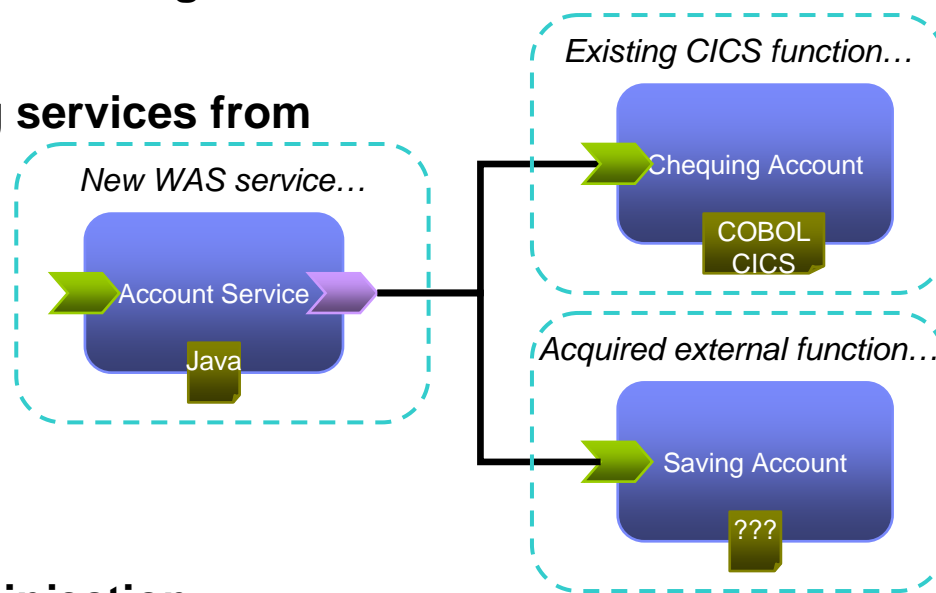
RDz improves Web 2.0 development

- **Simplify delivery** of modern user interfaces such as JSF and Rich UI (Web 2.0) on top of System z applications
  - Visual programming speeds design and coding, fewer errors
  - Generate code from UML models to speed application development
  - Common IDE shared between Java and z/OS developers
- **Reduce training costs** by leveraging RDz with EGL
  - Current Business-based developers use existing skills
    - No Java coding required; yet deploys as Java

RDz with EGL

- System z tools
- Edit, Compile, Debug
- Web Services
- PD Integration

- EGL tools
- EGL, JSF, Rich UI
- COBOL Gen,
- etc

Eclipse

RDz with Java

- System z tools
- Edit, Compile, Debug
- Web Services
- PD Integration

- JEE tools
- JEE, JSF, Web 2.0
- Visual designer
- etc

Eclipse
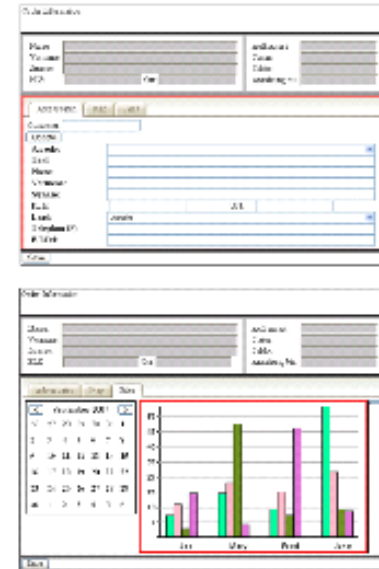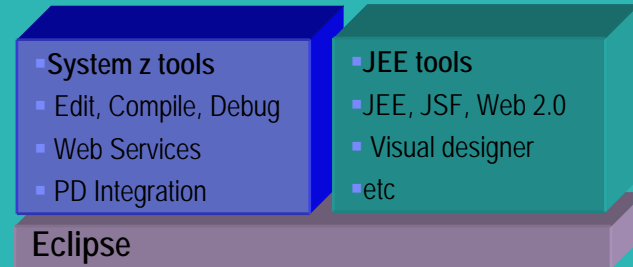
IBM "Trivial Edit" Usage Pattern Benchmark – ROI Calculations

Savings:

- **5,620,300 Service Units/day *****

CPU Savings: 42%

*** Based on 10 developers, working 7 hours/day, using RDz instead of TSO/ISPF

Details:

- TSO Session:
  - CPU = 191,842 SU/per user/per hour
- RDz Development:
  - CPU = 111,552 SU/per user/per hour
- Savings: 80,290 Service Units/per user

Rational Asset Analyzer

v.5.cc

Rational Asset Analyzer Overview

23
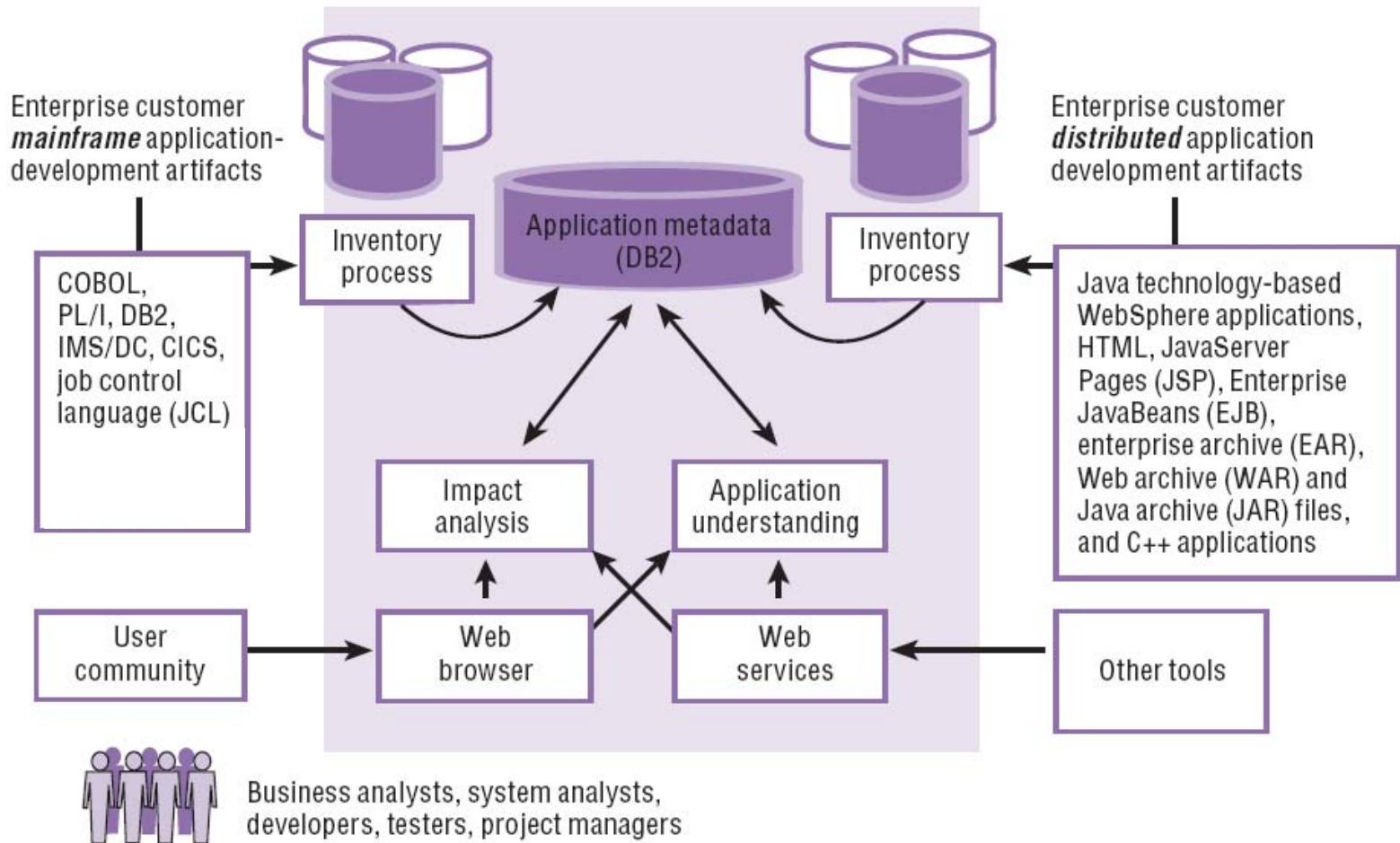
Counts & Metrics

Gain control of your assets & know what you have

- Identify the **breadth of technologies** currently used in the enterprise – using a dashboard or report view

- Understand the **quality and complexity** of your assets

- Use the Errors view to **identify missing resources**

- Error rate is an indication of **validity of data**; also includes tools to help reduce the error rate
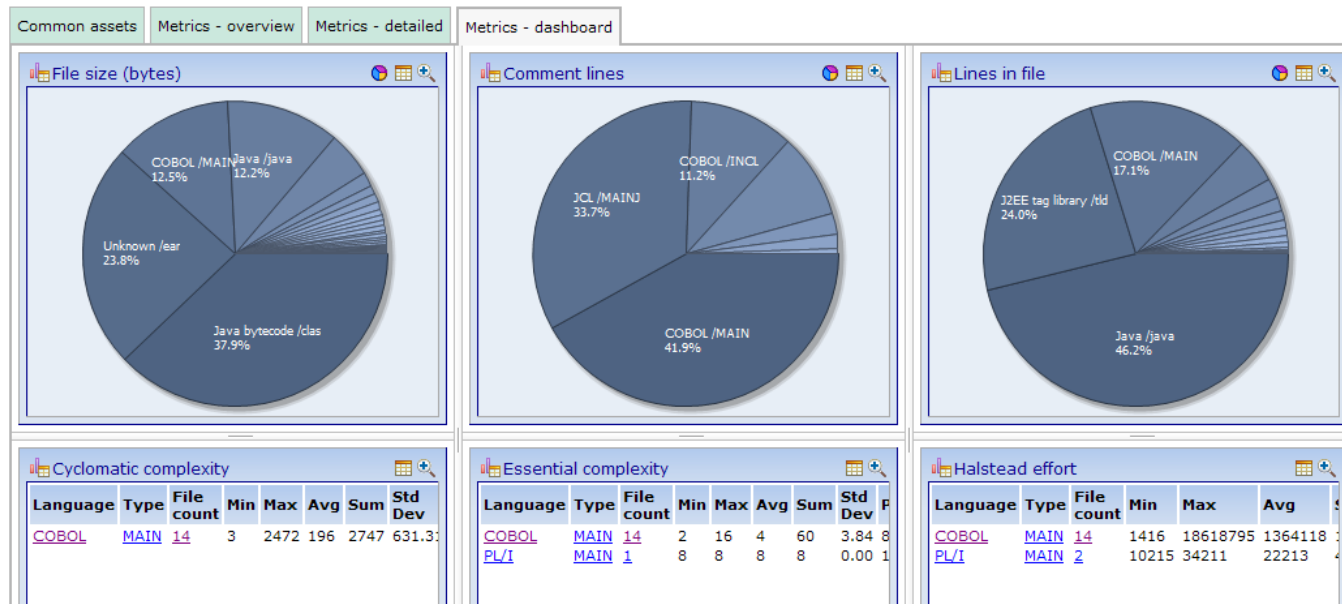
End to End Impact Analysis

Reduce time to market & risk of downtime by understanding change impact upfront

- Reduce time to determine **scope of change** whether for new enhancements, or even maintenance efforts

- View the metrics for impacted artifacts to determine the **risk of change** i.e. cyclomatic complexity, lines in file, etc.

- Traverse user-defined relationships to determine **impacts across platforms** i.e. follow dependencies from mainframe to J2EE and back.

- Create a "**bill of materials**" of impacted artifacts by evaluating the details page
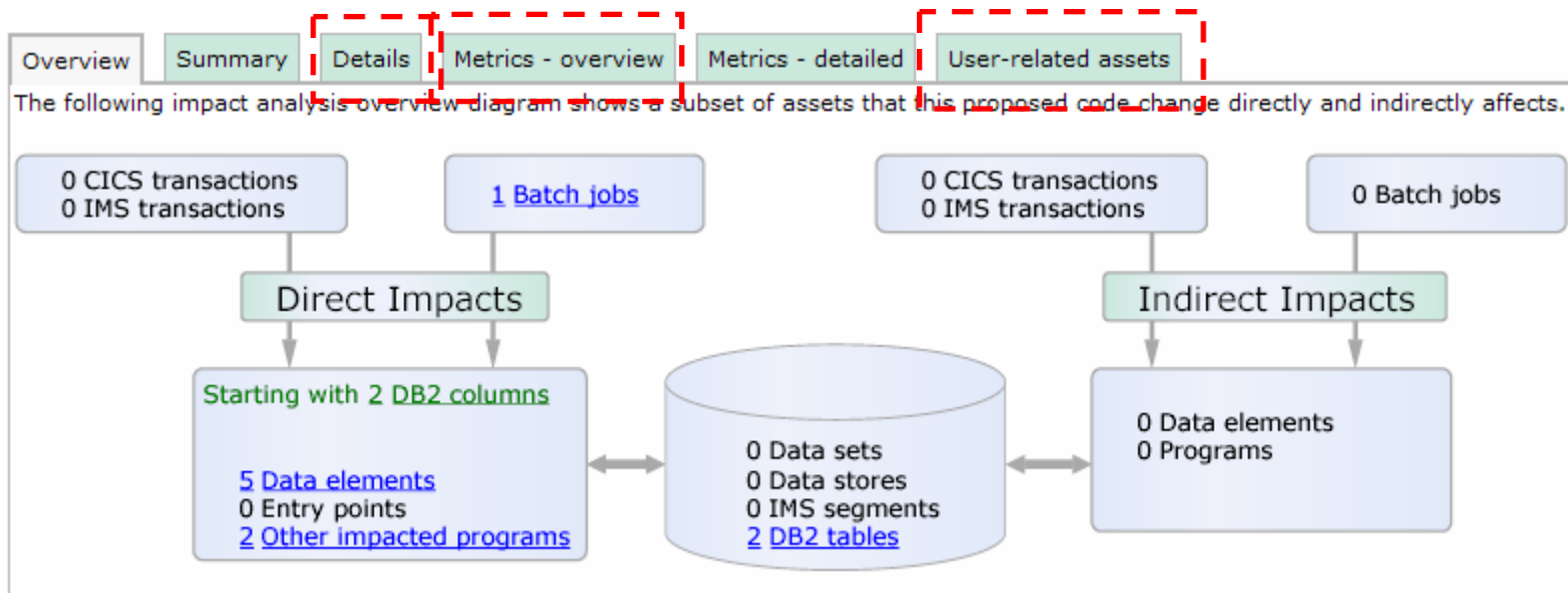
Application Understanding

Quickly understand code with little or no documentation, and relationships across the enterprise

- Group artifacts into **user-defined groups** called Applications to limit scope to area of interest

- Use **various types of diagrams** for understanding how the application "hangs together"

- Use **annotations** to capture knowledge from SMEs e.g. Business function, description, etc.

- Create **user-defined relationships** for situations where relationships cannot be determined through static analysis

- Perform **enterprise-level keyword searches**

Program diagram

Structure diagram
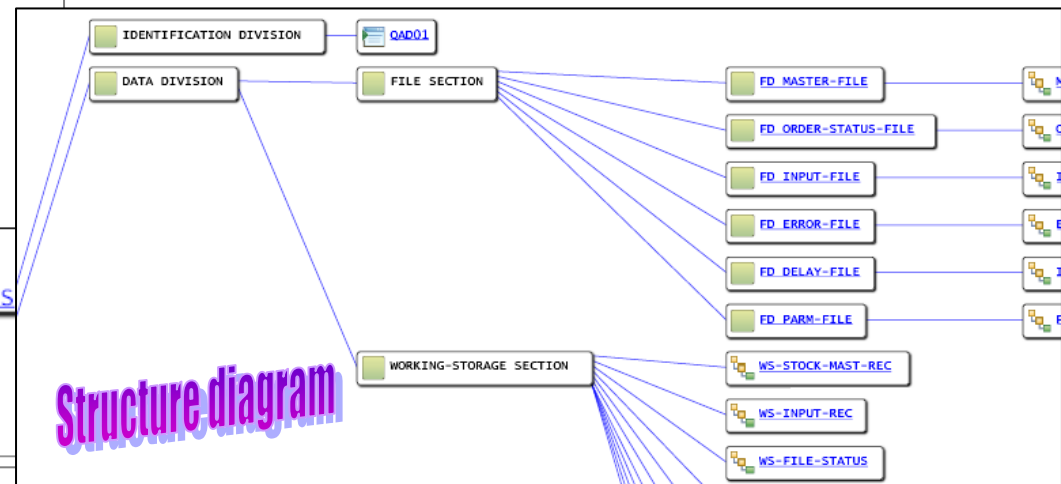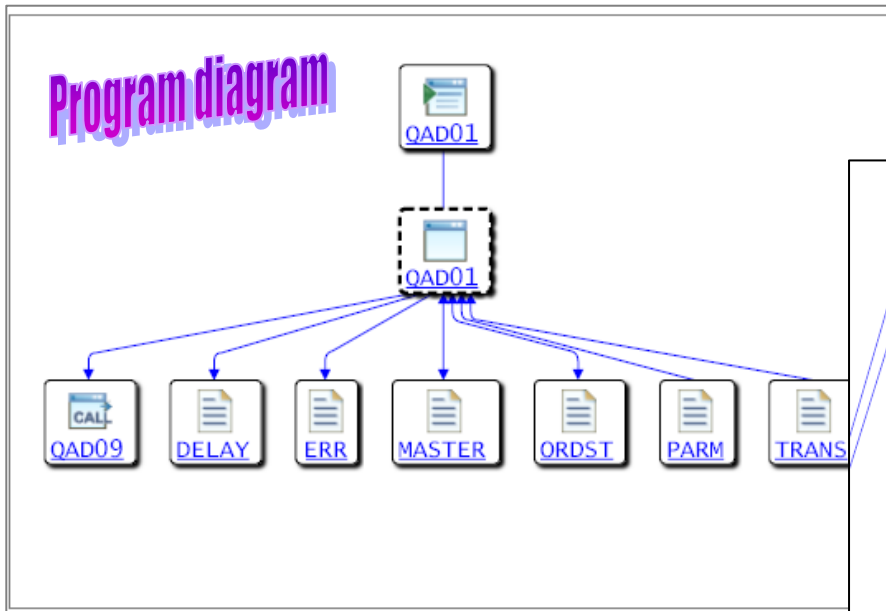
Extensible Framework

Tailor RAA to your organization's needs

- Access RAA's wealth of information using standard **web services**

- Easily add the support for languages not currently supported using RAA's documented **import file** format

- Extend RAA with **user-defined metrics & counts**

- Create **custom queries**, and optionally include them as actions on pages

- Combine RAA information to your pages using RAA's **REST interface** in support of Web 2.0

Database Tables, by name

The DB2 tables created by ~~Published Database Schema~~ in alphabetical order. Not all o~~...~~ese tables are for reference only and are su~~...~~change. They do not constitute a programming interface.

Table name	Type	Model	Submodel
DMH_ACTIVITY_LOG	Table	System	Activity log
DMH_ACTUAL_PARM	Table	Logical assets (MVS)	Compile unit parameter
DMH_ANALYSIS_QUEUE	Table	System	Analysis queue
DMH_APPLICATION	Table	System	Application
DMH_APPL_CLOSURE	Table	System	Application
DMH_APPL_CMPNT	Table	System	Application

Import file description

The input file, which must reside on the server machine, is a text file with fixed format records. Each record contains an identifying record type followed by one or more attribute fields (separated by at least one space).

For the import process to work correctly, the order of the text file records is important. The following lists outline the appropriate order for these records:

Record type: identifies

- FMT: the import file's format
- TOOL: the import file's origin
- SITE: the site (or server) name to associated with any subsequent import records
- APP: the Application owner for components that follow
- LIBR: a container
- MEMB: a file
  - ATTC: a character attribute
  - ATTN: a numeric attribute
  - incl (format 1): identifies an included source file
  - msg: identifies the text of a message

Published Import File Format

RDz Integration with Rational Asset analyzer

- **Bring application analysis information into the IDE to aid in program development and understanding**

  - Link code to data and runtime resources

  - Visualize code structure and flow

- **Understand the effect of changes made in the IDE when deployed into production**

  - Run impact analysis on code changes to determine effected production modules

  - Size testing efforts and create workspaces for changes
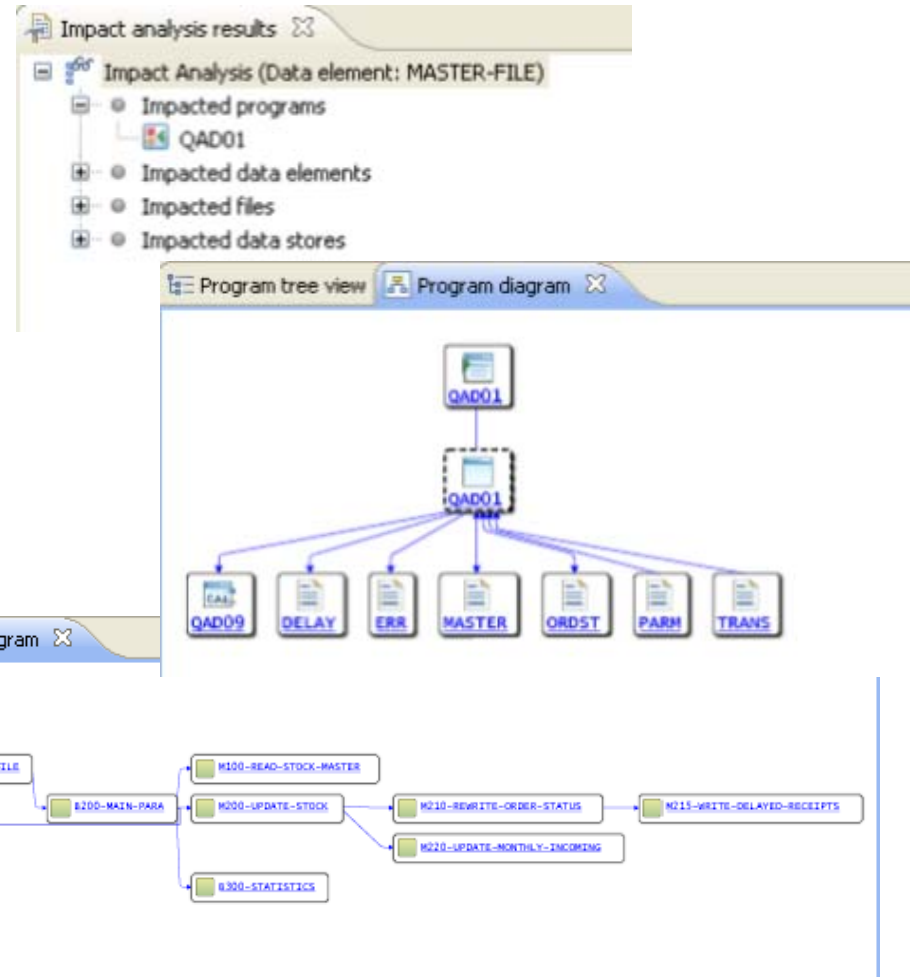
What Kinds of Mainframe Savings Will End Clients Get With RDz/RAA?

End clients receive three Kinds of Savings**

1. Mainframe compile savings:

- Batch compiles
- TSO/Foreground compiles
- Both include the CICS and DB2 pre-processors

- Compile cost reduction: **~80%**
- Compile productivity savings: **~25%**

2. TSO/CPU Savings - Per user/Per session

- CPU Costs
- TSO Session Connect time
- DASD/Virtual Storage/Swap Space

- Combined savings: **35% → 75%**

3. Productivity gains

- Analysis (assuming RAA): **20% → 50%**
- Edit: **10% → 25%**
- Debug: **10% → 20%**

***** *Reductions based on RDz customer experiences*
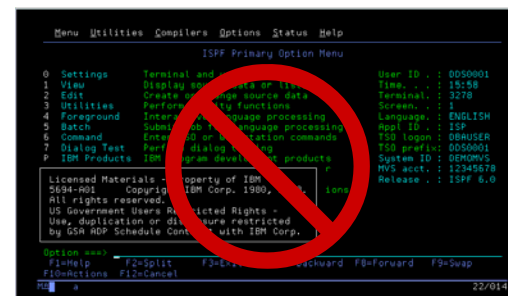
RDz integrated with RAA

Using Rational Asset Analyzer and Rational Developer for System z
Working with z/OS COBOL remote assets

Main Tasks
 1. RAA -Locate which program uses POTVSAM data store
 2. RDz - Find the identified program (CUSVSAM) on z/OS and add to a Remote Project
 3. RDz/RAA - Understand the program before start the changes, see diagrams, Impact analysis, dead code, etc
 4. For the RDz changes, z/OS debug etc.. see other Demo sequence

Link to RDz_RAA_CUSVSAM\RDz_RAA_CUSVSAM.html

10 Minutes
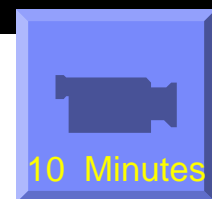
Proof Of Technology:
Discovering the value of IBM Rational Developer for System z

Attendees will complete structured walk through labs that demonstrate the major features and new functionality of RDz. The labs also provide an introductory hands-on experience to using RDz on building a zSeries-based Service Oriented Architecture (SOA).

The main points to be covered are:

• How to code test and debug a simple COBOL or PL/I program that access DB2 without connection to the mainframe using RDz

• How to code compile and debug using a remote connection to z/OS eliminating the need for TSO/ISPF.

• How to create a Java client from existing z/OS CICS or IMS COBOL programs using J2C connectors and then test it.

• How to transform and test existing COBOL programs to understand XML enabling service-oriented architecture (SOA) access to CICS Transaction Server and IMS.

• How to create test and debug z/OS DB2 Stored Procedures using COBOL or PL/I

• How to use the BMS Editor for CICS or MFS Editor for IMS with RDz.

• How to use the Enterprise Service Tools Service Flow modeling capability of RDz to create a business service that may be deployed to CICS and invoked as a Web service

• How to generate COBOL/CICS/DB2 COBOL program from existing z/OS DB2 tables using RDz wizard

• How to generate a Web application that access databases and Web 2.0 examples using EGL wizards.

Duration : 2 days
Free Of Charge

http://nasoftware.ibm.com/tec/assets.nsf/doc/RWBA-7P8LKX

POT Link

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QUESTIONS

Agenda

08:40 - 09:40 - Build a smarter foundation for future investments
09:40 - 09:50 - Break (10 min)
09:50 - 10:50 - Smart Reuse- Transform green screens to Web, SOA,
                      mobile, and portal
10:50 - 11:00 - Break (10 Min)
11:00 - 12:00 - Speed the development of multiplatform applications

12:00 - 01:00 - Lunch (1 hour)

1:00 -   2:00 - Developing Web 2.0 applications using Mashup Tools
2:00 -   2:10 - Break (10 Min)
2:10 -   3:10 - Smart Work on System z: Enhance teamwork with
                      multiplatform SCM tools
3:10 -   3:20 - Break (10 Min)
3:20 -   4:20 - Let's tie it all together and play in the sandbox
3:20 -   4:30 - Close

BACKUP

Was on original charts

Change is the new norm

There are 1 billion camera phones in use today

IBM Sequoia Super Computer…
It would take the entire population of the earth, about six billion, each of us working a handheld calculator at the rate of one second per calculation, more than 320 years to do what Sequoia can do in one day.

"8 of 10 CEOs see significant change ahead"
- 2008 IBM CEO Survey

The internet of people is over one billion strong. The internet of things is almost one trillion.

By 2010, there will be 30 billion RFID tags in circulation

Soon there will be over 2 billion people on the web

China sends more text messages in a week than the U.S. does in 1 year

# Is your IT infrastructure flexible enough?

IT Infrastructure

"The message for IT is clear; business needs and expects greater agility from IT. A new approach to IT delivery models and sourcing options is required that allows IT organizations to be more responsive to the needs of the business."

– Gartner, October 14, 2008, "Changing the Cost Structure of IT Will Become a Business Imperative for Most CIOs"

RDz and PD tools create a single developer desktop
Supporting development and testing of SOA and composite applications

- **Optimize and manage the performance of application resource**

- **Compile, debug and test applications, and convert code quickly and easily**

- **Analyze and correct application failures with minimal down-time**

- **Manage and generate data files, including XML data files**

- **Extract/manipulate production data for testing applications (DB2, IMS, VSAM) and provide data privacy functionality**

- **Conduct stress, performance, regression, function and capacity planning tests**
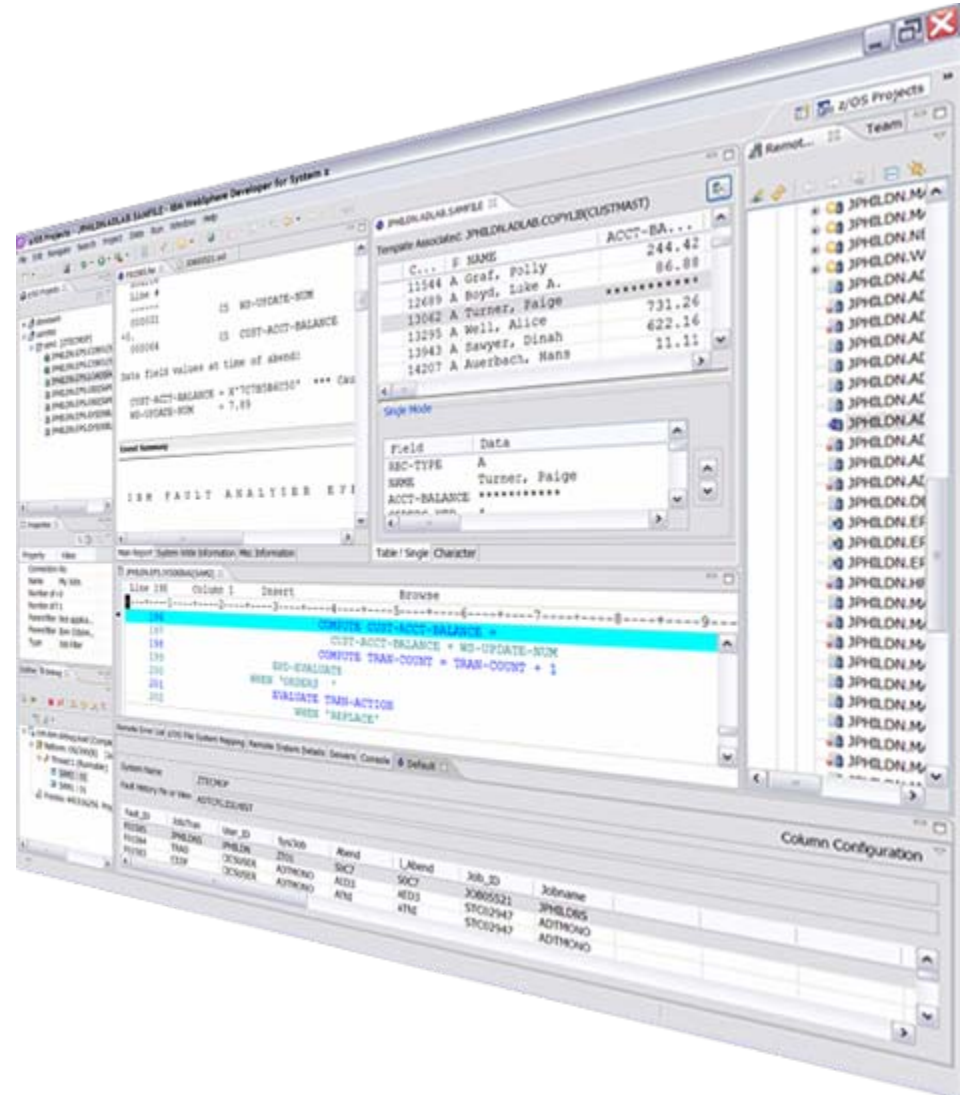
IBM Rational Developer for System z V7.6 – core capability

Lifecycle Tools
- Debug zOS applications from the workstation as they execute live in the remote runtime
- Read/Write/Update VSAM datasets via integration with IBM File Manager
- Access IBM Fault analyzer reports for analyzing ABENDS and associating back to source code

Traditional Development

Development Environment
- Connect to z/OS systems
- Work with z/OS resources like COBOL, PL/I , C, C++, JCL, assembler, etc.
- Perform dataset management actions like allocating datasets and migrating datasets
- Perform typical edit, compile, and debug tasks on remote z/OS resources from the workstation
- Create, build, and catalog DB2 stored procedures on zOS
- Compile and test programs locally to ensure correctness

Screen design
- Visually create, modify, build, and deploy BMS maps sets or MFS/IMS maps remotely or on the local workstation

Code Generation
- Generate program code from UML, easily integrated into web service applications

IBM Rational Developer for System z

Host Tooling Integration	zOS Application Development	Enterprise Service Tools
[FA, FM, Debug Tool]	[COBOL, PL/I, C/C++, JCL, Screens, Stored Procedures, etc]	[Web Services For CICS/IMS]

Mainframe / Runtime Integration

Eclipse Framework

zOS Web Service and Flow Creation
- Implements SOA and Web Services for CICS and IMS COBOL and PLI applications
- Bottom-up/Top-down/meet-in-the-middle COBOL to XML mapping support
- Integrated COBOL and PL/I XML converters, XML schemas, and WSDL generation
- Service Flow Modeler to build/deploy service flows out of your existing Commarea, Channel, MQ, and Terminal CICS applications.
- Service deployment modeling tools

Mainframe / System z Runtime Support
- Access to host SCMs such as Team Concert, CCz, SCLM, Endevor, and ChangeMan
- Framework for writing/deploying custom SCM integration code
- SCM process integration (JCL, TSO, ISPF applications) via HATS and Menu Manager
- CICS Explorer with Application Deployment Manager
- Interact with the Job Entry Subsystem (JES) to submit jobs, monitor jobs, and review job output

Eclipse Platform and Java Development
- Plug-in integration framework
- Java Development (useful for System z Java development)
- Distributed team integration
- Database access/search tools

Reduce application maintenance time and cost…
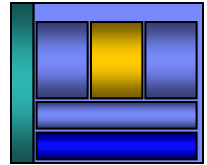
- **Work with existing host resources in a workstation environment**

- **Integrate development with change management**

- **Experience productivity gains with modern development tools**
  - Quickly perform mundane tasks with embedded code insight
  - Generate code for faster application development
  - Automatically identify code quality problems

- **Ensure proper governance of application development**

Edit → Compile → Debug → Edit
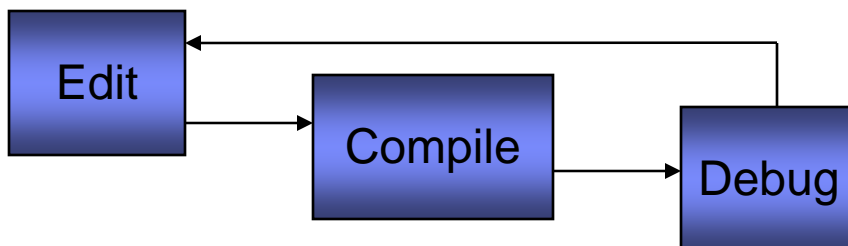
RDz improves zOS application development
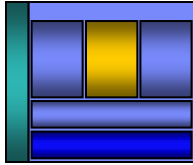
- **Modern UI for z/OS developers reduces training costs, more attractive to younger developers**

  - Windows Explorer-like feel simplifies interaction with z/OS
    - Point and click to allocate, copy, move z/OS files and datasets

- **Eclipse-based open source IDE increases productivity**

  - Enables more relevant information to be readily available
  - Specialized editors and code generation wizards speed development
    - Code assist for COBOL, PL/I, C/C++, Visual editors for BMS and MFS maps
    - Generate code from UML

- **Workstation syntax checking reduces host CPU usage**

  - Fewer COBOL and PL/I program compiles required on z/OS

- **Integrated business development language reduces training costs and increases productivity**

  - EGL lowers skill requirements for Web 2.0 development and multiplatform development

  Benefits: Productivity, higher quality code, reduced training, MIPS offload

ISPF 3270-based development

- **Limited screen content requires multiple screen switching**

- **Lack of productivity aids requires more developer effort**
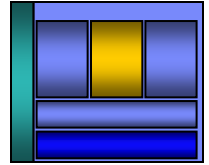
submit compile job ⟶ swap to SDSF ⟶ select job

edit JCL

find error msg

exit source

find code line (remember error)

change code

swap to edit session

find code line ⟵ edit source ⟵ exit JCL
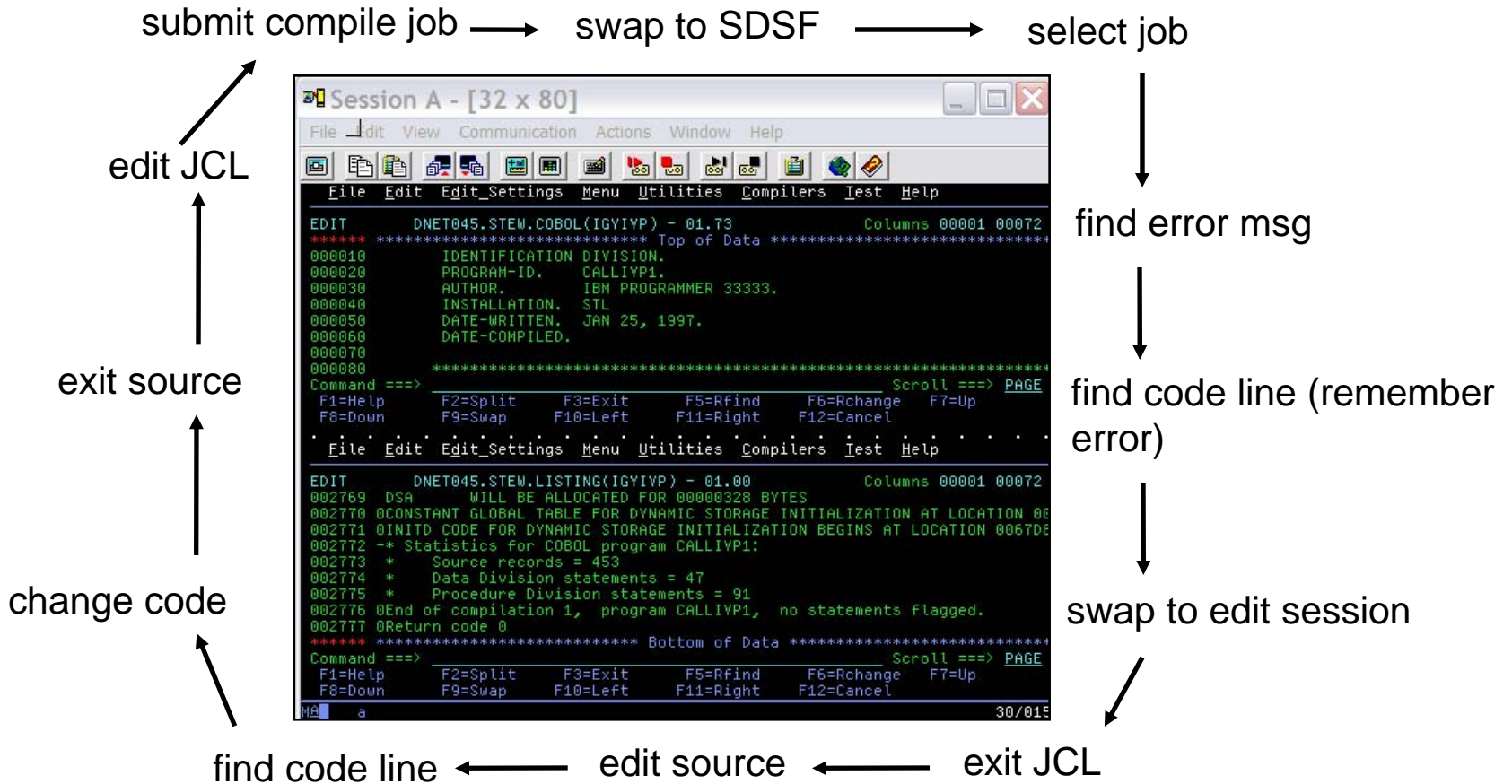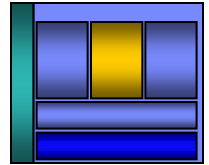
RDz Eclipse-based development

- **More information readily available to the developer**

- **Productivity aids simplify and eliminate developer tasks**

- **Local syntax checking eliminates host compile MIPS**

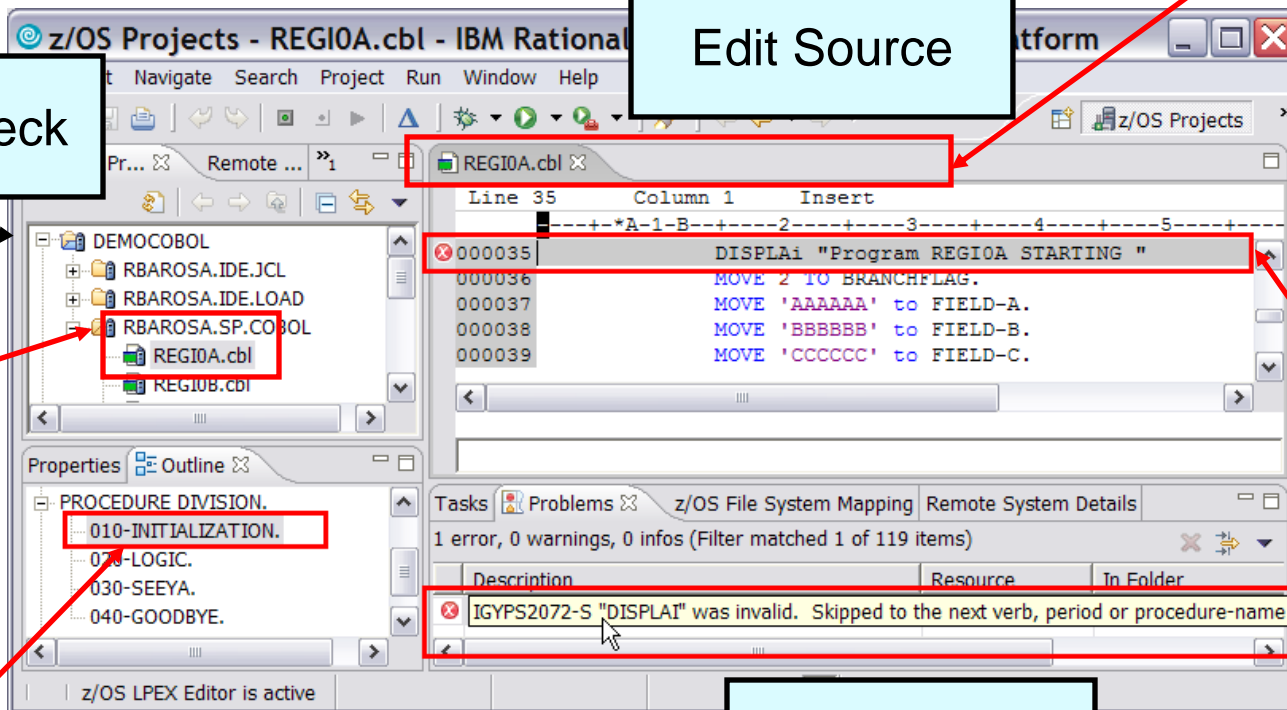**Open and edit multiple source and JCL members simultaneously**

Edit Source

Syntax Check

Submit jobs, access job output, or open source members with a single click

Statement in error indicated in source

```
z/OS Projects - REGI0A.cbl - IBM Rational          tform
t    Navigate  Search  Project  Run  Window  Help
                                                        z/OS Projects

Pr... ⊠   Remote ...  »1          REGI0A.cbl ⊠
                                     Line 35      Column 1     Insert
                                   ---+-*A-1-B--+----2----+----3----+----4----+----5----+----
DEMOCOBOL                          000035              DISPLAi "Program REGI0A STARTING "
  RBAROSA.IDE.JCL                  000036          MOVE 2 TO BRANCHFLAG.
  RBAROSA.IDE.LOAD                 000037          MOVE 'AAAAAA' to FIELD-A.
  RBAROSA.SP.COBOL                 000038          MOVE 'BBBBBB' to FIELD-B.
    REGI0A.cbl                     000039          MOVE 'CCCCCC' to FIELD-C.
    REGI0B.cbl

Properties  Outline ⊠              Tasks  Problems ⊠   z/OS File System Mapping  Remote System Details
PROCEDURE DIVISION.                1 error, 0 warnings, 0 infos (Filter matched 1 of 119 items)
  010-INITIALIZATION.              Description                          Resource      In Folder
  020-LOGIC.                       IGYPS2072-S "DISPLAI" was invalid.  Skipped to the next verb, period or procedure-name d
  030-SEEYA.
  040-GOODBYE.

       z/OS LPEX Editor is active
```

Outline view presents COBOL structure

Double-Click on the Error

**Error list in Problems view**

Save time and money with operation offload

- **Access multiple LPARs and runtimes concurrently**

- **Work with zOS assets like you work with windows files**

- **Use advanced editing technology to:**
  - Easily work with multiple members
  - Use code insight to automatically understand and create code
  - Quickly create programs from code templates, pattern definitions, or UML
  - Ensure compliant COBOL syntax with feedback as you type
  - Save MIPS and time by running code validation and editing cycles on the workstation
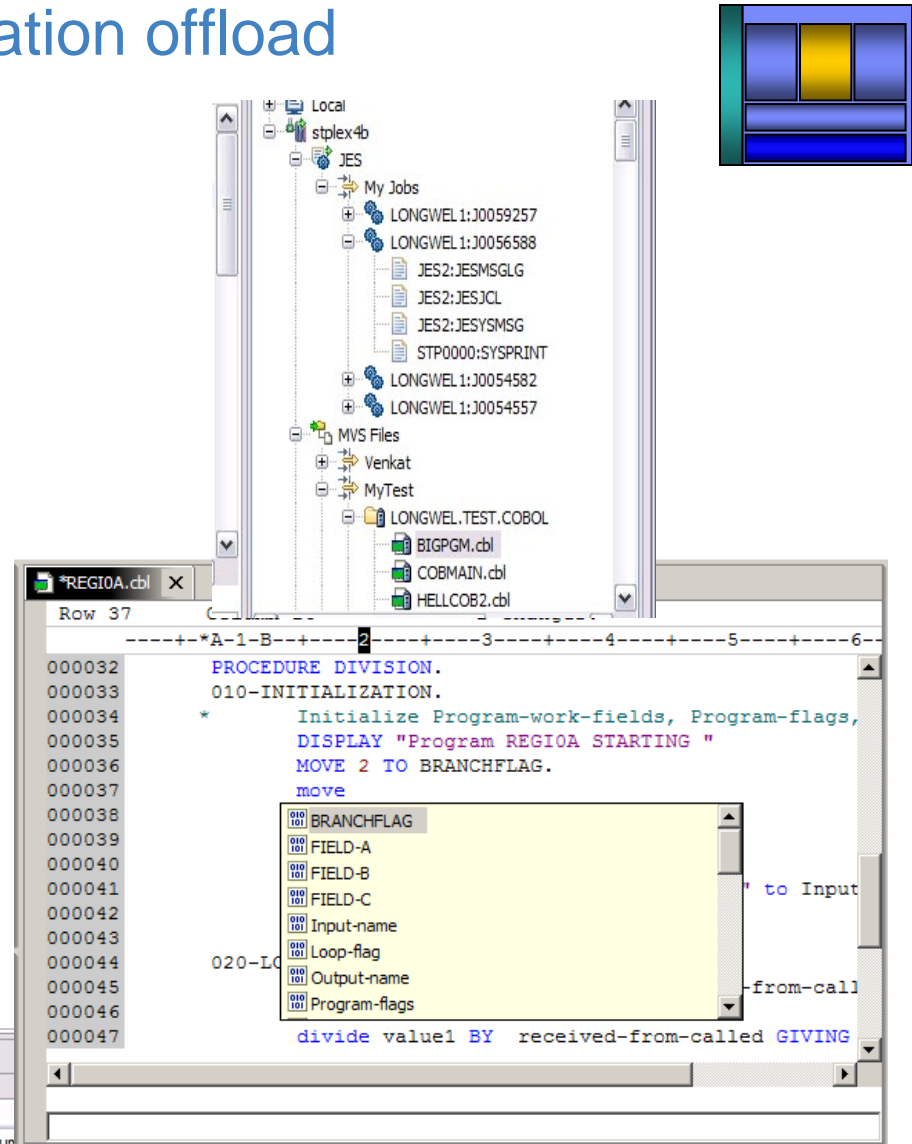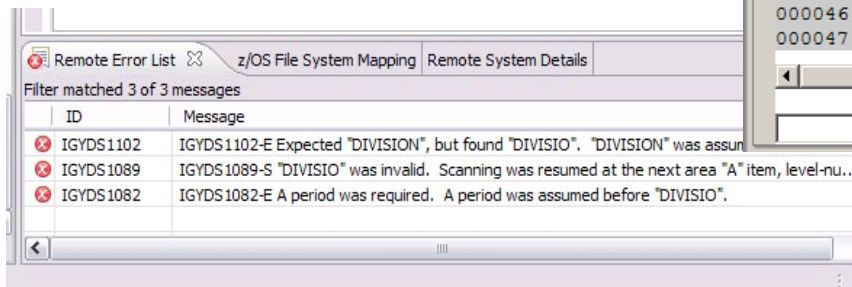
Innovative Debugging using Collaboration

- **Collaborative debug with RDz and IBM Debug Tool via the Rational Team Concert Server!**

  - Share breakpoints and monitors with other team members

  - Transfer debug session control to other users

  - Save debugging sessions for later retrieval in the team environment

  - Works for WAS (JEE) and System z applications
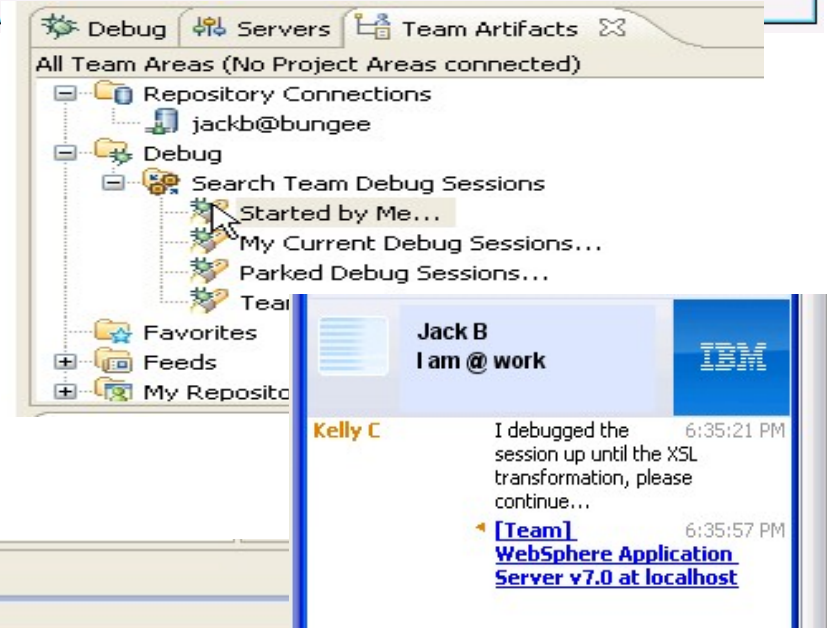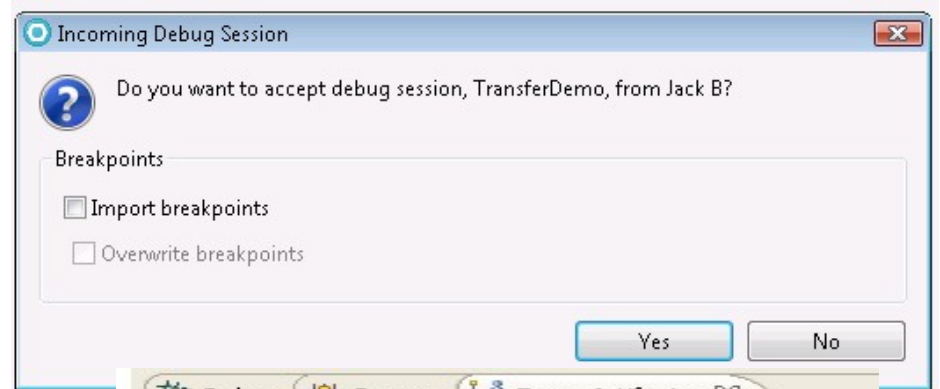
Save time with integrated tools …
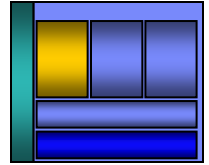
- **Take advantage of the Eclipse environment to gain access to a wider variety of data and functionality**

- **Create or install third-party Eclipse plug-ins to extend and specialize the development experience**

- **Work with the IBM Problem Determination tools from the RDz environment**
  - Debug Tool
  - File Manager
  - Fault Analyzer

Tooling integration using the Eclipse IDE
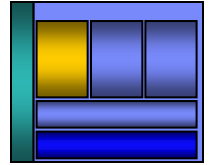
- **Increased productivity** and **higher code quality** using:
  - WebSphere Test Environment
  - Web Services Explorer
  - Data Explorer

- **Extend and specialize the development experience for additional productivity, code quality, and risk reduction** with:
  - Rational Asset Analyzer
  - CICS Interdependency Analyzer, Performance Analyzer, Configuration Manager
  - ClearCase, ClearQuest and Build Forge
  - IBM Problem Determination Tool Suite for z/OS

Debug Multiple Runtimes

- **Use the cross-platform debugger to debug end-to-end systems as they execute in the runtime**
  - CICS
  - IMS
  - DB2
  - Batch
  - WAS
  - Native LUW

- **From the workstation:**
  - View executing source code
  - Step through host code line-by-line
  - Set breakpoints
  - Alter working storage values
  - Alter register values
  - Etc…

- **Debug zOS and distributed code in the same interface even stepping between runtimes and platforms!**

- **Requires on IBM Debug Tool**

# Reuse existing business logic to speed development
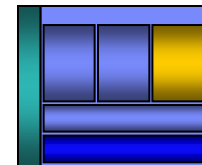
- **Web 2.0 interfaces offer a rich experience on top of existing zOS applications, data, and logic**

- **Web services provide standardized access to assets for different software applications residing on disparate platforms**

- **Web service definitions provide abstract interfaces which allow for loose coupling between business components – implementation can vary without affecting consumers**

- **You can reuse applications exposed as Web services in a variety of service-oriented architecture frameworks, such as a process choreographer or an enterprise service bus.**
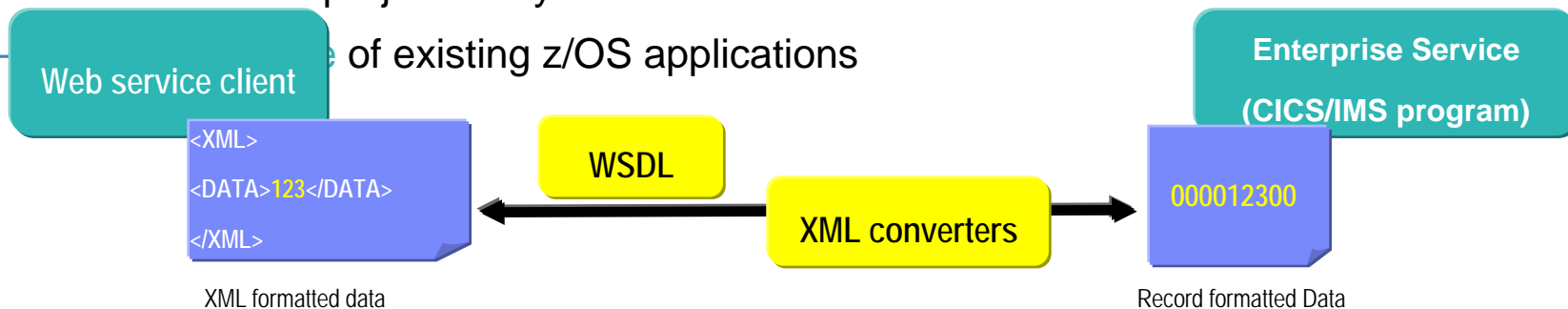
RDz improves Web services development
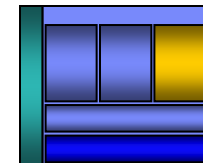
- **Generates XML conversion programs, WSDL, other deployment artifacts**

  – Reduces developer training costs

  – Increases developer productivity

  – Produces higher quality applications

  – Reduces risk of project delays

  – ~~e~~ of existing z/OS applications

Web service client

Enterprise Service
(CICS/IMS program)

```
<XML>
<DATA>123</DATA>
</XML>
```

XML formatted data

WSDL

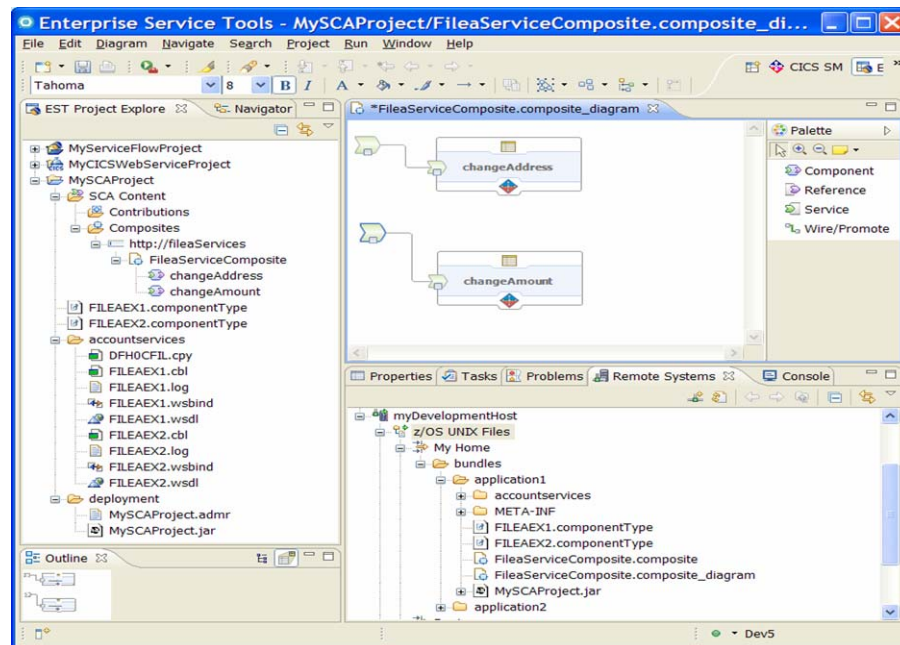XML converters

000012300

Record formatted Data

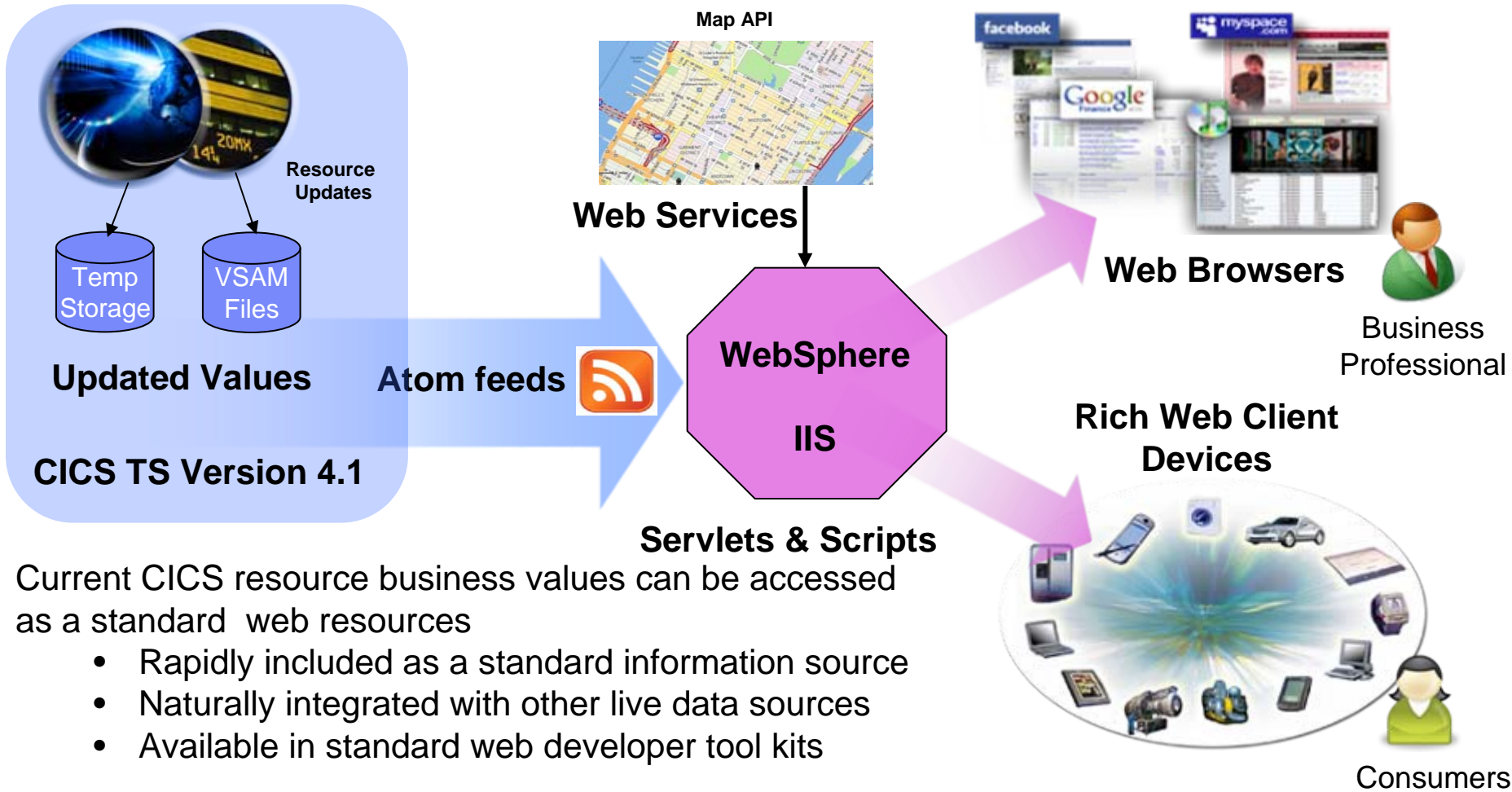| RDz Code Generation options	WSDL (SOA Message definition)	XML Converter (Conversion program)	CICS/IMS program
Start with existing z/OS program	RDz Generated	RDz Generated	Input
Start with program and client WSDL	Input	RDz Generated	Input
Start with client WSDL	Input	RDz Generated	RDz Generated

RDz SCA tooling – Modeling and deploying services

• Define application component interfaces and dependencies
  - input/output
  - CICS/WAS resource requirements

• Visualize application structure and dependencies between components and services

• Easily deploy component definitions to CICS and WAS
  - Right-click and deploy for testing

• Manage components through the lifecycle

CICS Web 2.0 ATOM Feed

Map API

Web Services

Resource Updates

Temp Storage

VSAM Files

Updated Values   **Atom feeds**

CICS TS Version 4.1

WebSphere

IIS

Servlets & Scripts

Web Browsers

Business Professional

Rich Web Client Devices

Current CICS resource business values can be accessed as a standard web resources

- Rapidly included as a standard information source
- Naturally integrated with other live data sources
- Available in standard web developer tool kits

NO APPLICATION CHANGE REQUIRED

Consumers

Mashups

Combine content from more than one source into an integrated experience

Google Map

Hotel information — separate database

Directions — come from somewhere else

Send to a phone — Additional functionality

Disney's Yacht & Beach Club Resorts Yacht Club
★★★★☆ 430 reviews - more info »
1800 Epcot Blvd.
Lake Buena Vista, FL 32830
(407) 934-8000
go.com

Get directions - Search nearby
Save to My Maps - Send to phone

Why?
- Rapid application development
- Reuse existing services
- Avoid reinventing the wheel
- Empowers users

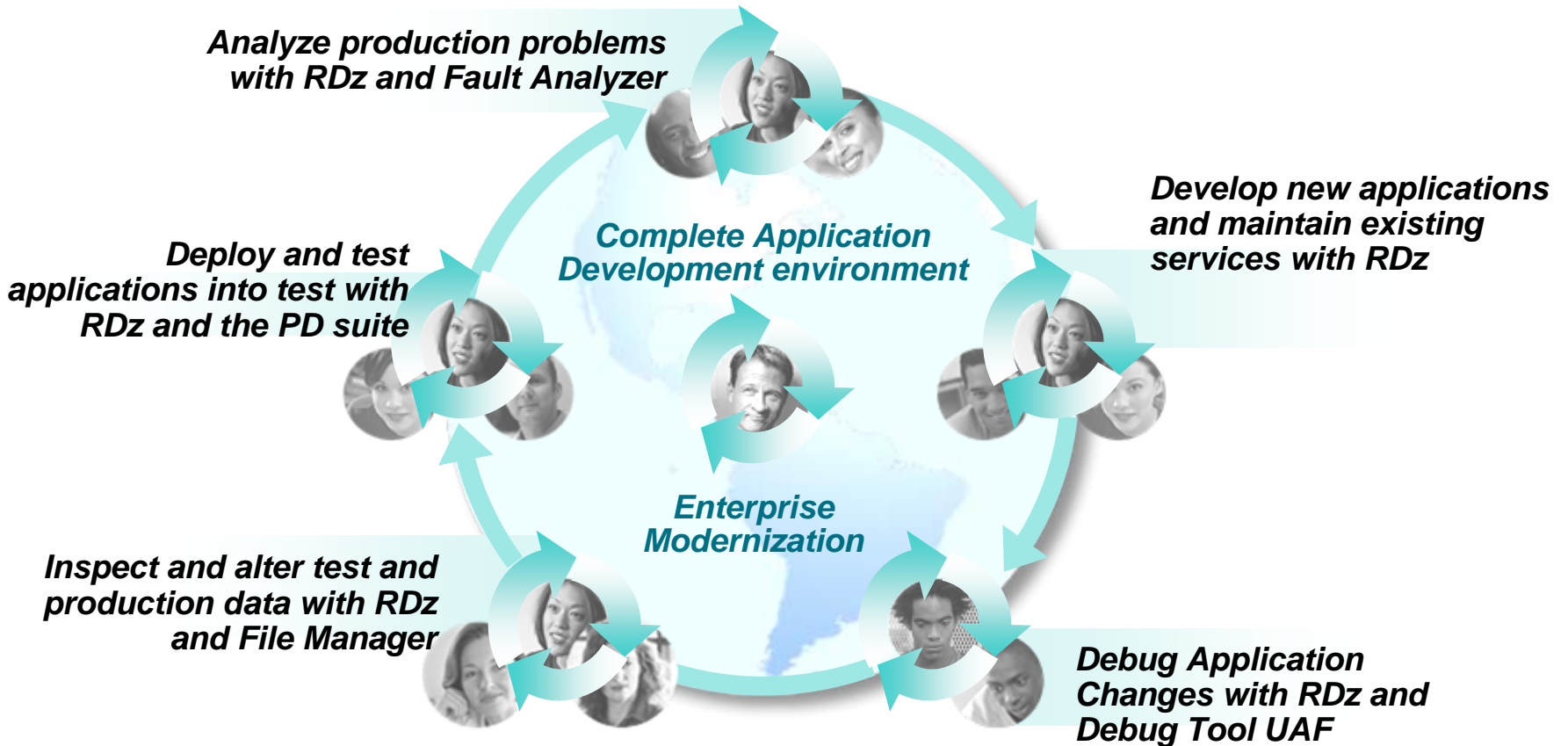# Easily create situational applications with low skill

- **Enable subject matter experts to build loosely-coupled composite applications via reuse and "mash-ups" quickly**

- **Allow disjoint data to be quickly combined in different ways to make an immediate business impact**
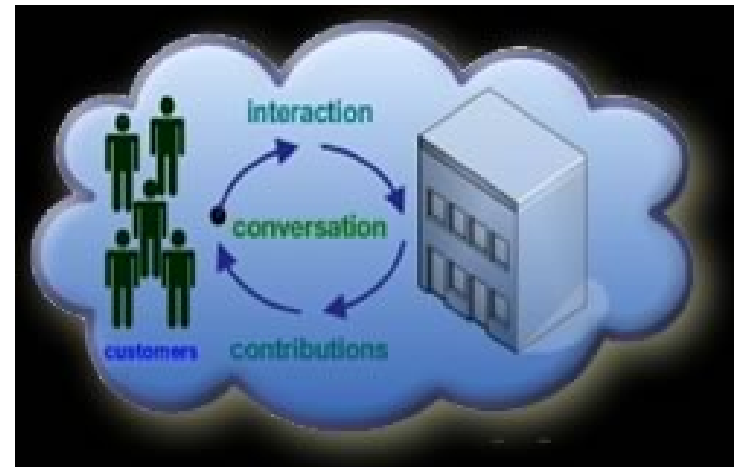
Complete development environment with CICS, RDz, and PD Tools

View your ABENDS, debugging information, source code, and backend data side-by side in the same workstation development environment

Analyze production problems with RDz and Fault Analyzer

Develop new applications and maintain existing services with RDz

Complete Application Development environment

Deploy and test applications into test with RDz and the PD suite

Enterprise Modernization

Inspect and alter test and production data with RDz and File Manager

Debug Application Changes with RDz and Debug Tool UAF

RDz integrates with Rational Team Concert for z

- **RTCz provides**

  - Agility, collaboration and process

 - SCM and Build functions for z/OS (and other platforms)

- **RDz augments the development productivity & experience**

  - files act as if on the host

  - Appropriate editors (COBOL, maps, etc.) and functions (content assist, syntax check, etc.)

  - High value functions (XML enablement, SFM, code generation from models, from UML, etc)

- **RDz projects in RTCz**

  - RDz projects are a view into the RTCz project

  - RDz projects provide a working set for the developer

  - RDz projects are not shared in the SCM

IBM Rational Team Concert for System z
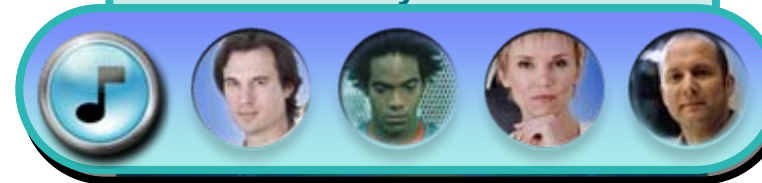
transparent *integrated presence*
wikis OPEN real-time reporting
chat documents Web 2.0 *custom*
dashboards automated data gathering
EXTENSIBILITY *Eclipse plug-ins* services
architecture **FREEDOM TO CREATE**

JAZZ TEAM SERVER

Open and extensible on

jazz

✓Collaborate
✓Automate
✓Report

Next Steps: How to get started?

Resources to help kick-start your Enterprise software innovation

System z Sandboxes

Example assets and best practices providing low-risk, practical, hands-on path to leveraging IBM solutions

- Full version software trials
- 'Try online' hosted System z environments
- Hands-on-exercises

System z Starter Solutions

Solution to help you incrementally evolve core IT systems towards modern architectures and technologies

- Discover, reuse and grow
- Analyze and modernize
- Develop and manage
- Test and track

Jump-start your modernization projects!

Education Series

Modern Application Architecture for COBOL Developers
Learn how to design and integrate composite applications across CICS and WebSphere – leveraging existing COBOL processes

EGL Distance Learning
8 days of training free electronically - lectures, labs, and electronic support

Learn more at:
www.ibm.com/rational/modernization

http://w3-103.ibm.com/software/xl/portal/viewcontent?type=doc&srcID=R9&docID=X983555G31195K78