

Uncover Reusable System z Assets & Manage their Use

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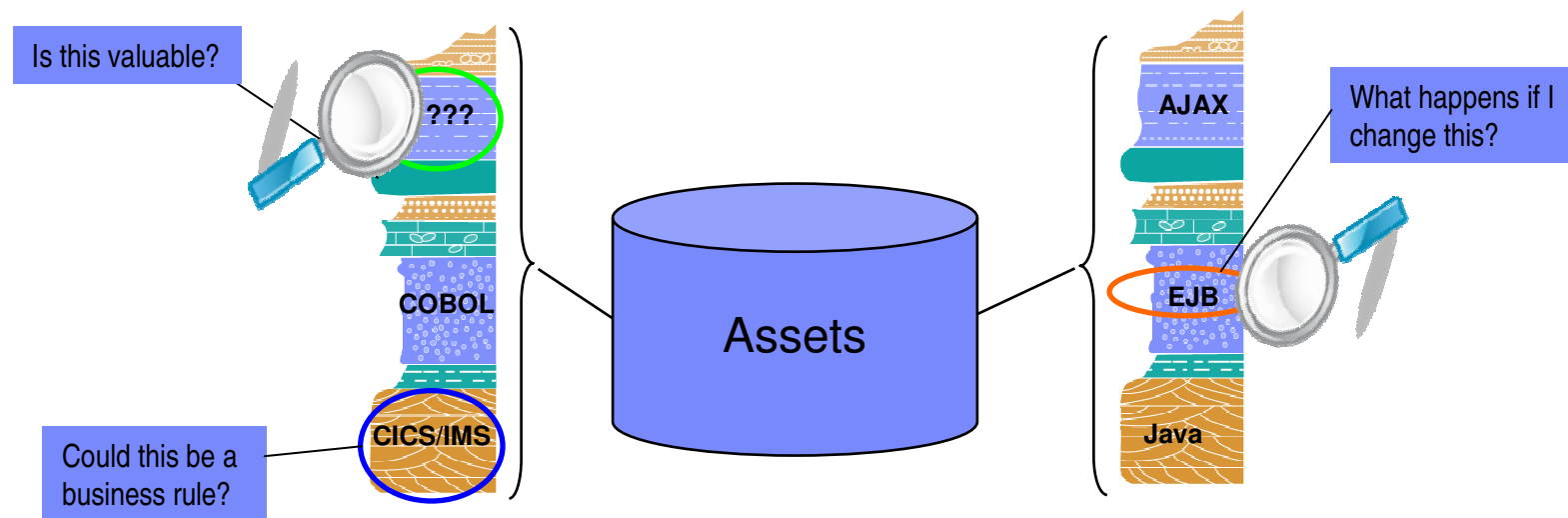
Rational. software

Agenda

- **The Challenge**
- **Parts of the Solution**
 - Rational Asset Analyzer
 - Rational Asset Manager
 - Rational Developer for System z
 - Rational Transformation Workbench
- **Putting it All Together**
- **Resources**

Challenge #1 - No inventory of current assets

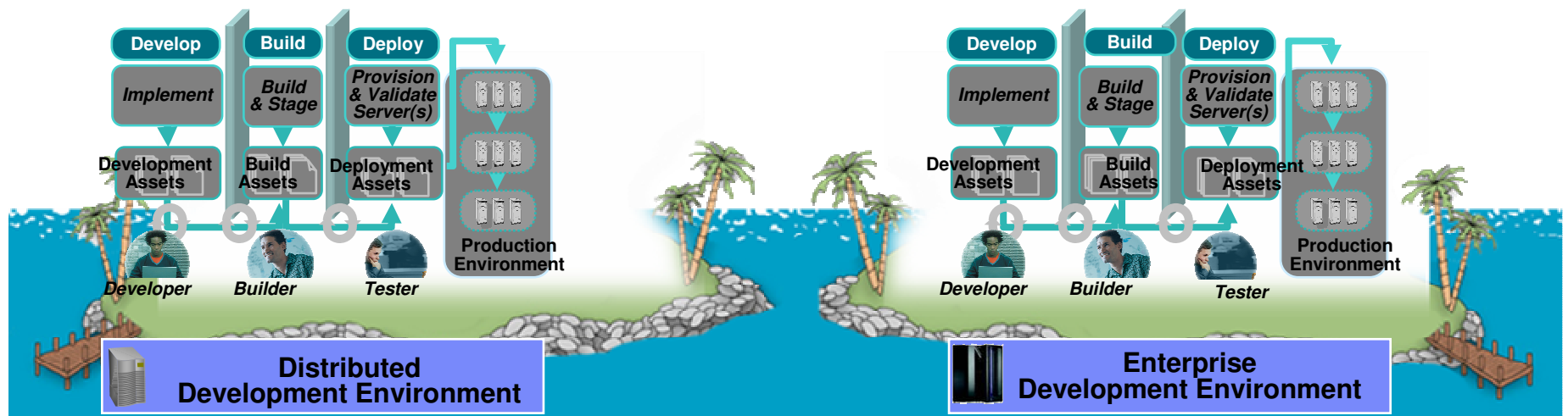
- ▶ Absence of asset inventory inhibits reuse in new contexts (e.g. as a service)
- ▶ Difficult to gauge impact of code changes without dependency knowledge
- ▶ Cannot separate business rules from the code, constraining flexibility



Analyst studies have found it 5 times less expensive to re-use existing applications than to write new applications.

Challenge #2 - Islands of development

- ▶ Duplicate infrastructures limit IT and skills flexibility, introduce errors, reduce productivity
- ▶ Multiple infrastructures increase costs, less available for new projects
- ▶ Lack of traceability inhibits end-to-end governance



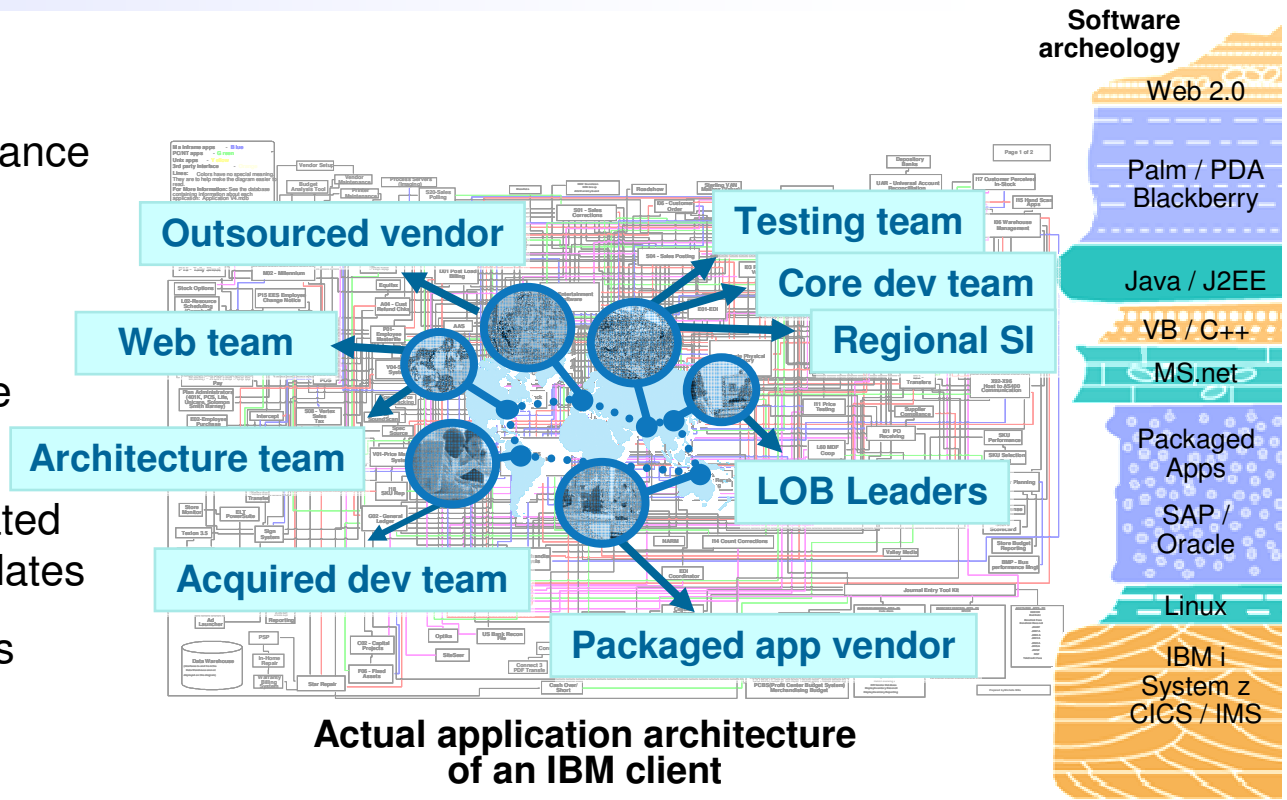
Challenge #3 – Lack of governance & reuse



“Whether designing an airplane, assembling a motorcycle [or delivering software]... the ability to integrate the talents of dispersed individuals and organizations is becoming the defining competency for managers and firms.”

— Tapscott & Williams, Wikinomics, Copyright 2006

- Lack of architectural governance
- Layers of disjointed, poorly managed software assets
- Contributors are everywhere with diverse skills, roles
- Growing complexity associated with IP and regulatory mandates
- More formal IT and business service level agreements



Agenda

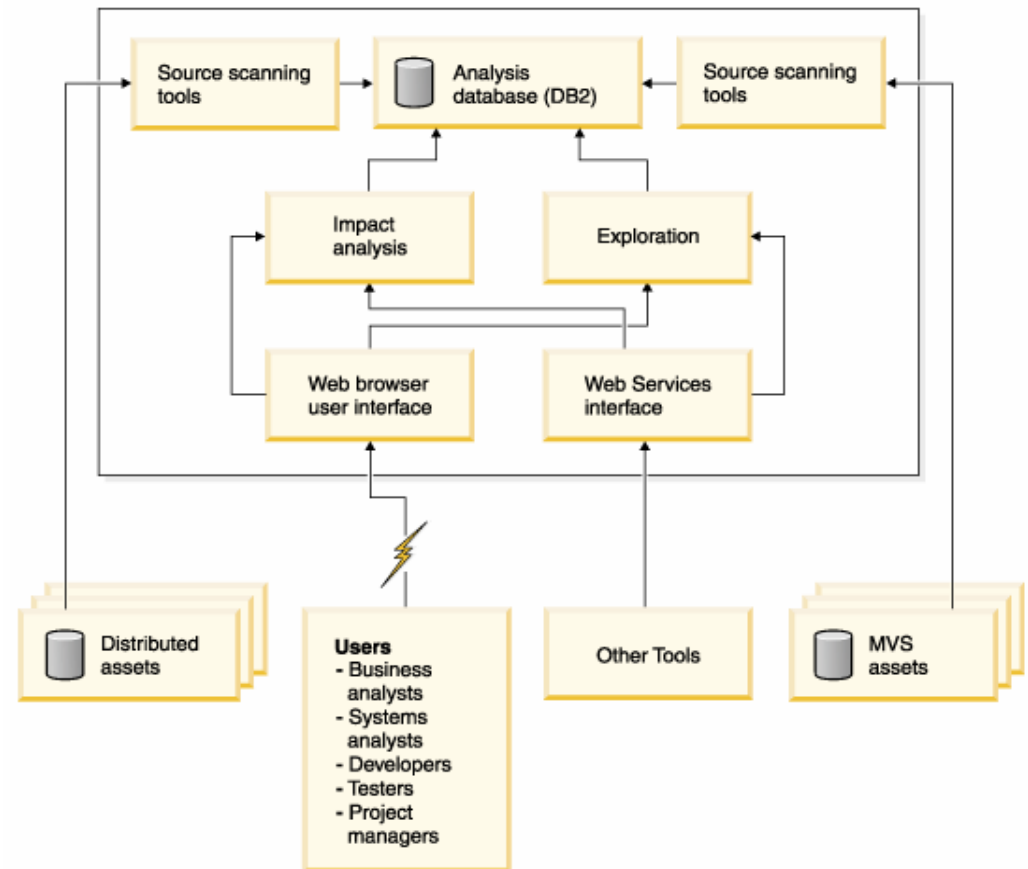
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Rational Asset Analyzer V5.5 Overview

What is Rational Asset Analyzer?

Asset Analyzer:

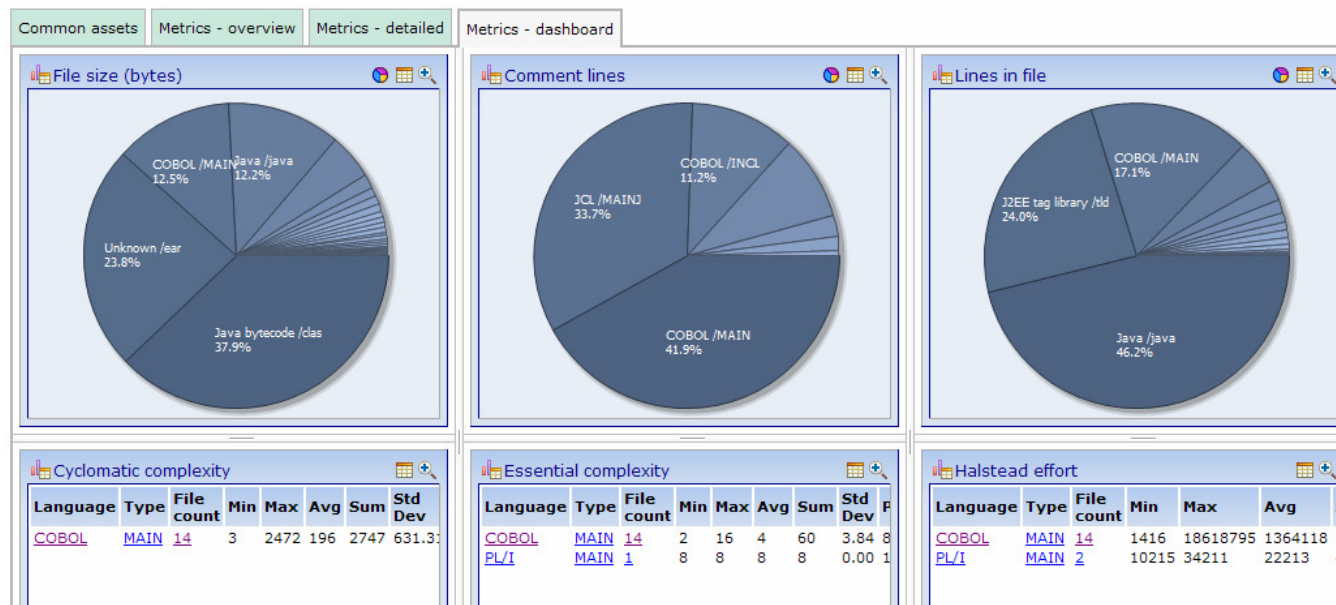
- Scans mainframe & distributed software assets downloaded to a Windows Server
- Stores related application information on DB2 running on Windows
- Consists of the following components:
 - Source scanners running on Windows
 - Metadata repository in DB2 on Windows
 - Web applications running on Windows



Rational Asset Analyzer – Counts & Metrics

Gain control of your assets & know what you have

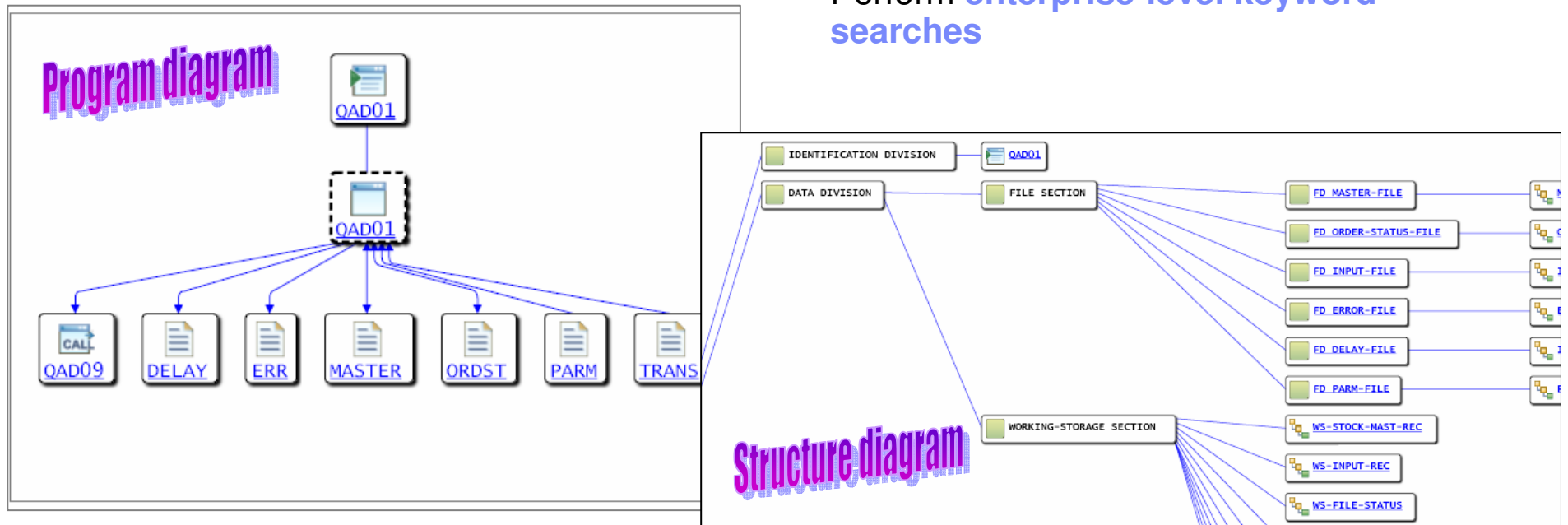
- Identify the **breadth of technologies** currently used in the enterprise – using a dashboard or report view
- Understand the **quality and complexity** of your assets
- Use the Errors view to **identify missing resources**
- Error rate is an indication of **validity of data**; also includes tools to help reduce the error rate



Rational Asset Analyzer – Application Understanding

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

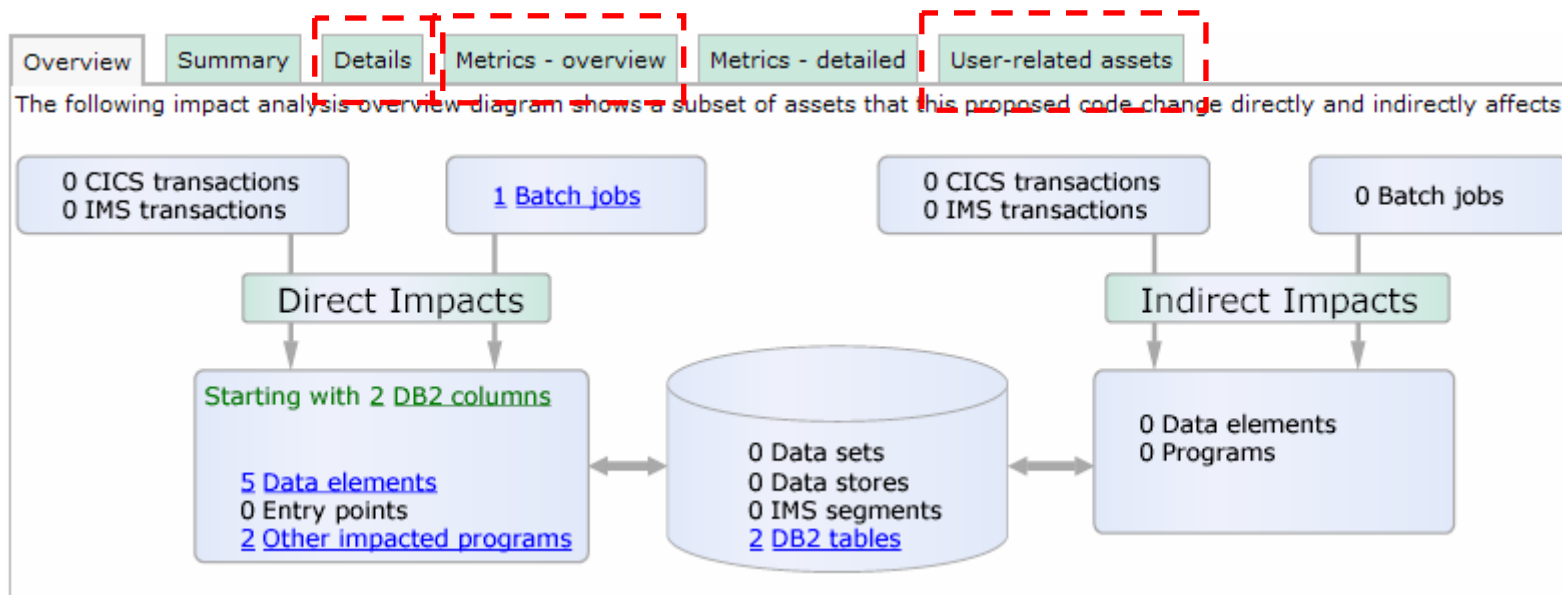
- Group artifacts into **user-defined groups** called Applications to limit scope to area of interest
- Use **various types of diagrams** for understanding how the application “hangs together”
- Use **annotations** to capture knowledge from SMEs e.g. Business function, description, etc.
- Create **user-defined relationships** for situations where relationships cannot be determined through static analysis
- Perform **enterprise-level keyword searches**



Rational Asset Analyzer – 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



Rational Asset Analyzer – Extensible Framework

Tailor Rational Asset Analyzer to your organization's needs

- Create **custom queries**, and optionally include them as actions on pages
- Consume Rational Asset Analyzer information in your own Web 2.0 applications leveraging the **RESTful interface**
- Access the wealth of information using standard **web services**
- Add support for languages not currently supported using the documented **import file** format
- Extend the capabilities with **user-defined metrics & counts**

Database Tables, by name

The DB2 tables created by Rational Asset Analyzer are listed in alphabetical order. Not all of these tables are for reference only and are subject to 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
DMH_ARCHIVE	Table	Logical assets (Distributed)	Archive

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

Scenario: Small Group, Small Project

- Assumptions: **RAA installed on Windows Server, multi-user access**
- Problem: **A team that is not familiar with a system has been assigned an initiative, and needs to analyze and size the scope of work**
- Benefits:
 - Reduce time for team to begin execution by accelerating application understanding
 - Increase quality of delivery by ensuring that all impacted code is identified
 - Increase level of confidence in estimating the effort required to execute the change
- Steps
 - Initial Startup:
 1. Identify (and download) source needed
 2. Initiate inventory scan on source.
 3. Reduce error rate (iterative)
 4. Team members create their own applications to scope down to what is relevant to each
 - Create “bill of materials” resulting from change
 1. Determine impact of change. For example, changing length of field defined by Data Element:
 2. Produce report of Programs requiring updates as a result of the field length change
 - Update RAA inventory with changed Programs

Scenario - Small Group, Small Project

Server running RAA

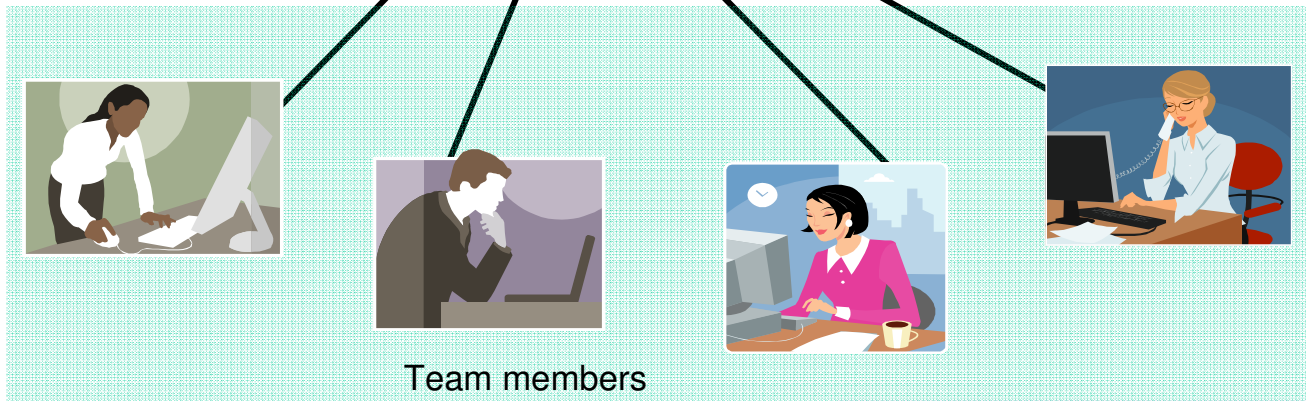


Team leader/architect:
 1. Sets up server
 2. Reduces error rate

Team leader/architect:
 6. Refreshes the source
 7. Reruns the scans



Admin/
team lead



Team members

Team members:
 3. Identify scope of their work
 4. Run impact analysis
 5. Execute the changes

Benefits:

- Reduce time for team to begin execution by accelerating application understanding
- Increase quality of delivery by ensuring that all impacted code is identified
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Rational Asset Manager Overview

- **RAM is a software development asset management repository**
 - Uses the Reusable Asset Specification to **define, create and modify assets**
 - Provides asset type specific **search & governance**
 - **Measures** asset reuse in development
- **Handles any kind of asset**
 - Applications, components, patterns, services, frameworks, templates...
- **Benefits:**
 - Reduce software development and operational costs
 - Improve quality by facilitating the reuse of approved & proven assets
 - Integrated with other Rational and other IBM tools

Govern your assets from development to deployment

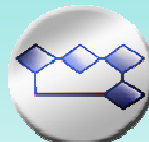
Scalable, Flexible, Enterprise-Level Solution

Store and Organize



Repository to store, catalog and flexibly organize individual services

Customize Workflow



Customizable workflow to automate the process of managing the service lifecycle

Impact Assessment



Flexible solution for capturing relationships between services and impact analysis

Audit and Report



Reporting on key metrics to support planning and assessment

Manage assets within your geographically distributed enterprise

- **Asset governance**
 - Coordinate and control assets and intellectual property
 - Determine what is shared, versioned, and visible for others to use
- **Broker communication across communities**
 - Govern assets across communities
 - A community describing needs
 - Another community realizing needs and submitting solutions to repository
- **Advanced reporting**
 - Identify bottlenecks in delivery of software components within distributed teams

The screenshot displays the IBM Rational Asset Manager web interface. The top navigation bar includes 'Home', 'My Asset Manager', 'Communities', 'Search for Assets', 'Submit an Asset', and 'Administration'. The main content area shows the details for an asset named 'Loan Application [1.0]'. The 'General Details' tab is active, showing a short description, owners (Master Administrator), community (Associates), type (MOD_ProcessModel), and unique ID. A 'Download' button is visible. The 'Asset Detail Tools' sidebar offers actions like Modify, Create new version, Delete, Retire, Duplicate, Change owner, E-mail, and Rate. Below this, the 'Description' and 'Categories' sections are visible. The bottom part of the screenshot shows the 'Search for Assets' page for 'RAM Support Training [2]', featuring a 'Download' button and a table for permissions.

Name	Permission	Edit permission	Remove
Paula J. Cox	Download	Edit permission	Remove

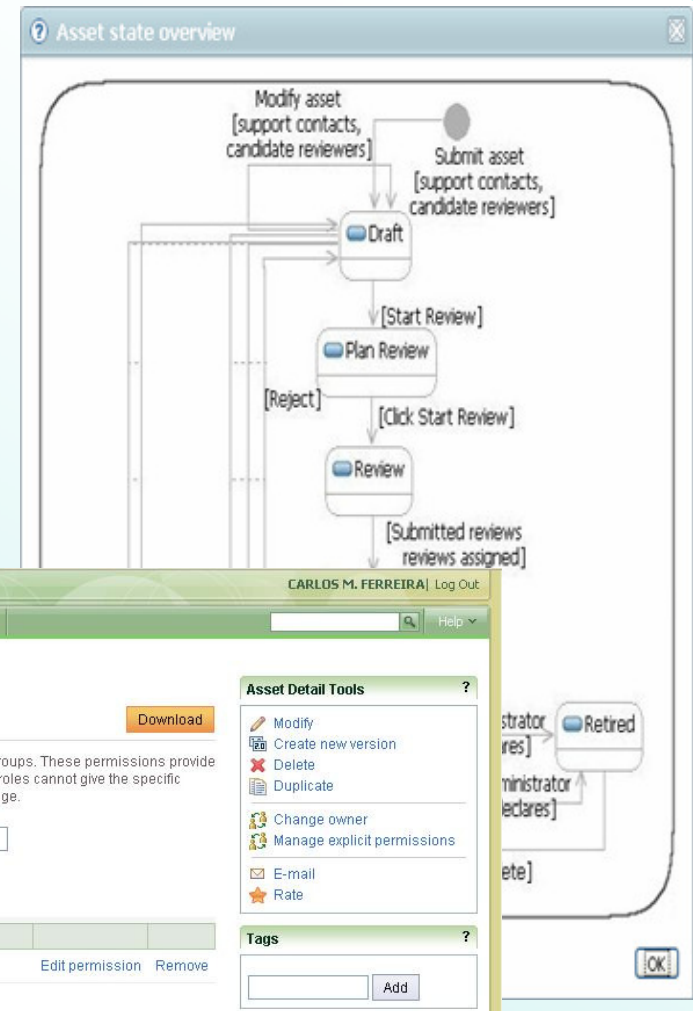
Reduce risk by automating asset policies

- **Automate manual review processes**
 - Customizable policies via Rational Asset Manager policy adapter
 - Report on policies
 - Automate or expedite asset review process using policies
- **Reduce risk exposures for asset reuse by automating asset policy validation**
 - Administrator configuration of policy adapters
 - Administrator can specify when policies run
 - E.g., uploads, downloads, update, ...
- **Reduce maintenance and training costs**
 - Ensure assets are compatible with enterprise architecture (EA)



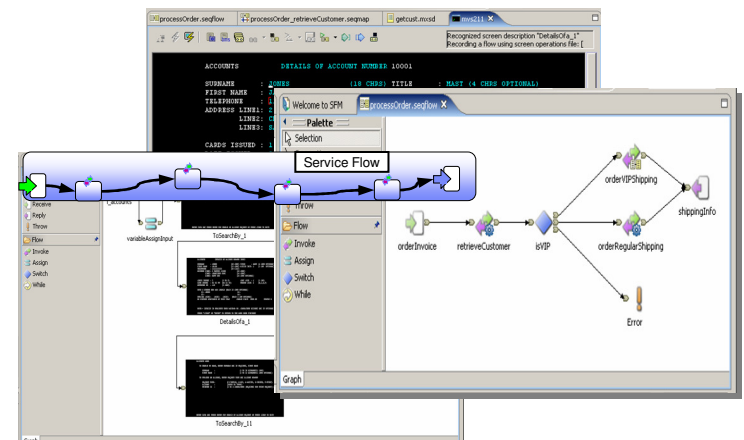
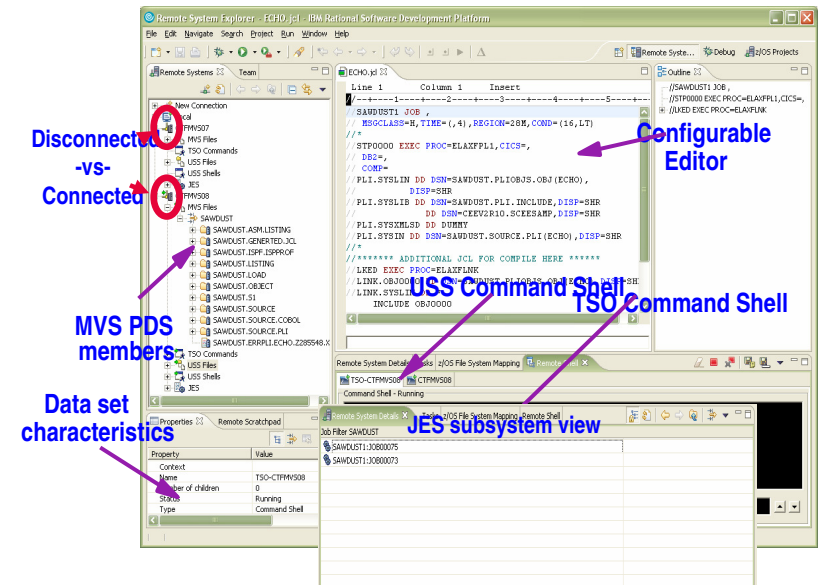
Manage access and asset review process

- **Manage change of collaborative assets and implement a review process.**
 - Review processes can be customized
 - Manage change by board or individual reviewers
 - Reviewers receive notifications automatically
- **Manage roles and access control**
 - Reports on access patterns, ratings
 - Individual asset permissions for third parties, external partners



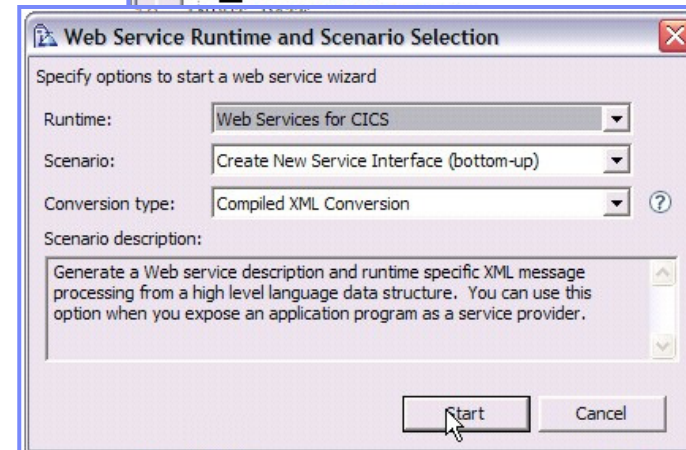
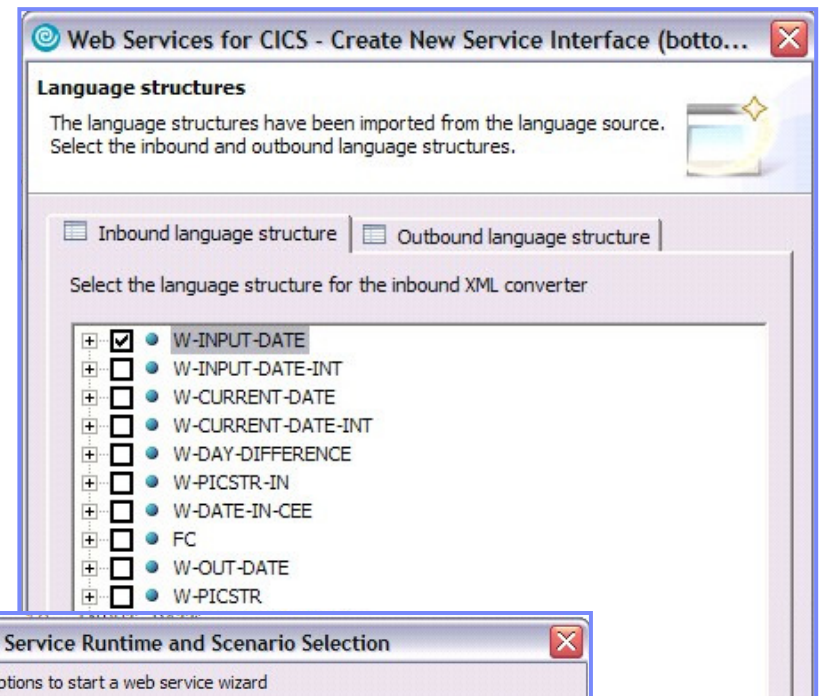
Rational Developer for System z (RDz) Overview

- ▶ What is RDz?
 - The Eclipse-based IDE speeding modern composite (SOA) application development – linking WAS and core system z processing
- ▶ RDz supports Enterprise Modernization
 - Supports common IDE for COBOL, PL/I, C, C++, HLASM, Java, and web services development
 - Transforms UML to COBOL source code
 - Provides interactive access to z/OS for development, debug, job generation, submission, monitoring, command execution
 - Support 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

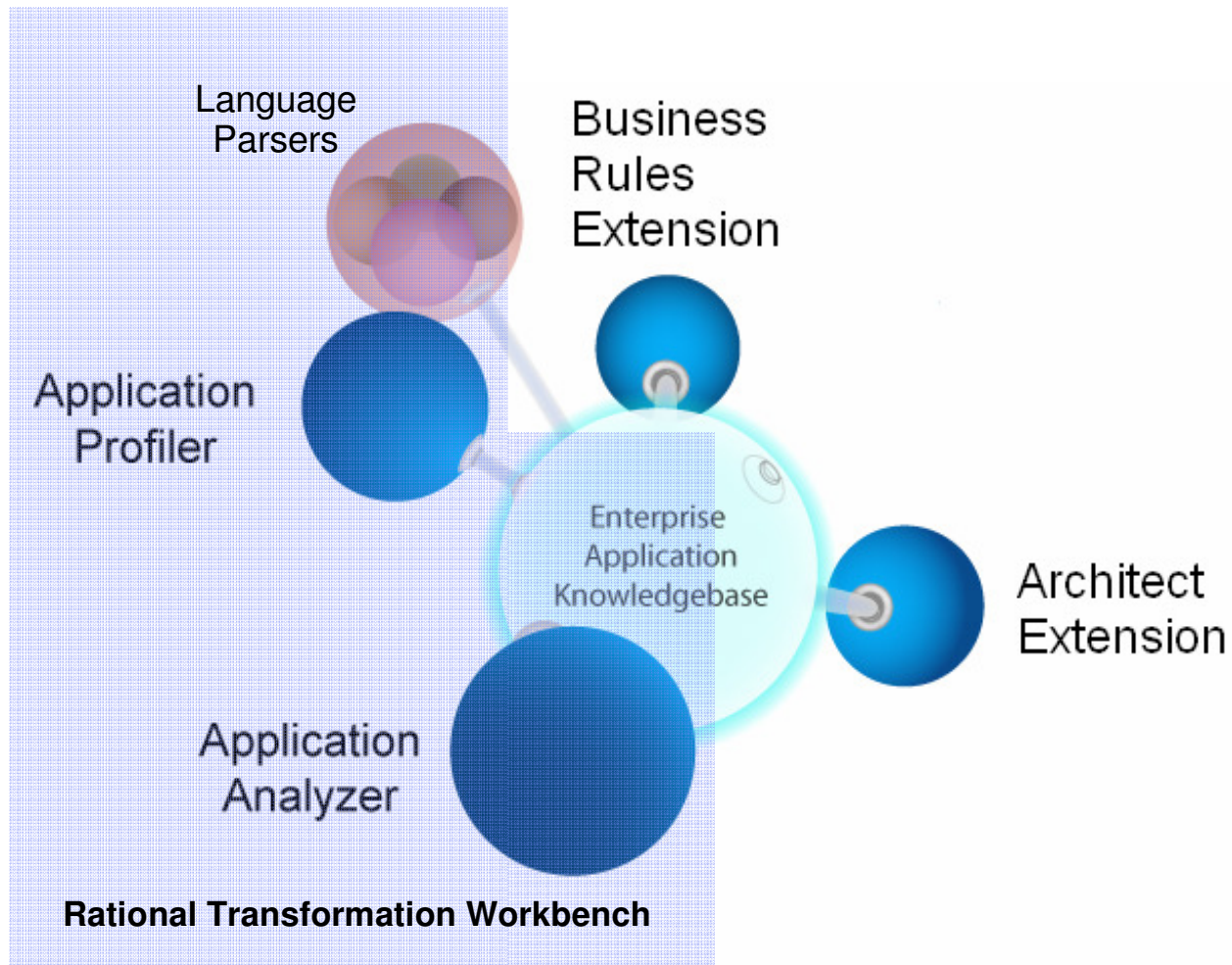


RDz - Create web services for zOS runtimes

- **Build, Deploy, and Test Web services from existing applications**
- **Create source code skeletons from web service definitions**
- **Map web service definitions to existing application modules**
- **Supports traditional languages**
 - COBOL
 - PL/I
- **Supports zOS specific runtimes**
 - CICS
 - IMS
 - Batch



Rational Transformation Workbench Overview



Rational Transformation Workbench Business Rules Extension

- **Accelerated business rule discovery**
 - Sophisticated tools help to **quickly identify rules**
 - Powerful interrogation **simplify manual searches**
 - Creation of rules directly from a search screen **accelerates the collection process**

- **Powerful business rule management**
 - Persistence ensures that **rules are not lost** as programs change
 - Rules Filter helps to **focus business rule searches**
 - Analysts can **categorize and describe** their portfolio of business rules, simplifying ongoing usage

- **Integrated approach magnifies benefits**
 - Rich diagramming and search functions help users to **focus searches**
 - Convenient reports help analysts to **plan, manage, and share** business rules
 - **Browser-based access** allows users to remotely search, audit and annotate the latest business logic

Rational Transformation Workbench Architect Extension

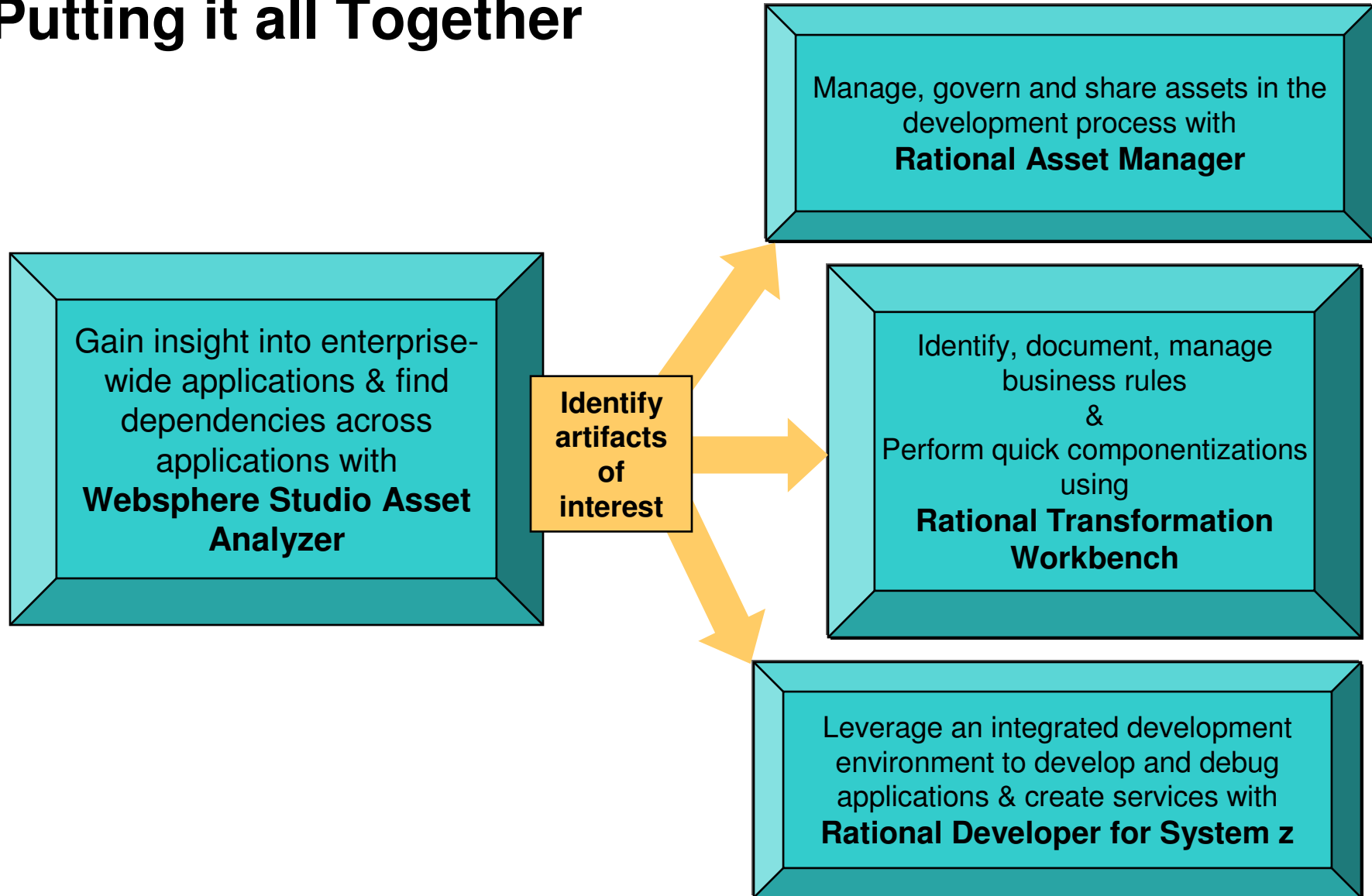
- **Flexibility and reuse with componentization**
 - Componentization tools enable the creation of **more reusable and maintainable** programs
 - Examines all dependencies to ensure that the extraction is a **functionally complete** component
 - Coverage Report identifies additional opportunities and **ensures completeness**

- **Reduced complexity with application renovation**
 - **Reduces complexity by partitioning** business logic, data access, and user interfaces
 - **Ensures compliance** with corporate standards by propagating naming conventions
 - Eliminates dead, redundant, and duplicate code to **reduce complexity and enhance maintainability**

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Putting it all Together



Synergies

Rational Asset Analyzer enhances value of other tools

▪ Rational Developer for System z (RDz)

- *Combine productivity gains of RDz with the enterprise-level insight in Rational Asset Analyzer to minimize time-to-market and minimize risk due to lack of visibility into impacted artifacts*

▪ Rational Asset Manager (RAM)

- *Use Rational Asset Analyzer to identify artifacts/assets of interest, then use RAM to publish those assets for reuse, and manage/govern the development process around changes to those assets. That is, jumpstart RAM deployments for a quicker ROI.*
- *Use Rational Asset Analyzer to perform deeper level analysis for change requests coming in to RAM.*

▪ Rational Transformation Workbench (RTW)

- *Use Rational Asset Analyzer to gain visibility and control at enterprise level, then*
 - *Use RTW Business Rules Extension to extract, document and manage business rules.*
 - *Use RTW Architect Extension to identify and remove dead code, and accelerate componentization efforts.*

For more information

- **Links to more information (whitepapers, demos, etc.)**
 - Enterprise Modernization:
<http://www.ibm.com/rational/modernization>
 - Rational Asset Analyzer
<http://www.ibm.com/software/awdtools/raa/>
 - Rational Asset Manager
<http://www.ibm.com/software/awdtools/ram/>
 - Rational Developer for System z
<http://www.ibm.com/software/awdtools/rdz/>
 - Rational Transformation Workbench
<http://www.ibm.com/software/awdtools/rtw/>
- **Enterprise Modernization Sandbox**
http://www.ibm.com/developerworks/downloads/emsandbox/systemz.html?S_TACT=105AGX28&S_CMP=EMSAND

THANK YOU!

Learn more at:

- [IBM Enterprise Modernization Solutions](#)
- [IBM Rational Software Delivery Platform](#)
- [Process and portfolio management](#)
- [Change and release management](#)
- [Quality management](#)
- [Rational Developer for System z](#)
- [Architecture management](#)
- [Rational trial downloads](#)
- [developerWorks Rational](#)
- [Rational Transformation Workbench](#)
- [IBM Rational Business Partners](#)
- [Rational Asset Analyzer](#)

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Questions

Rational Developer for System z V7.1

Preserve System z investment – and leverage existing assets

JES and PD Tools

- Debug z/OS 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
- Interact with the Job Entry Subsystem (JES) to submit jobs, monitor jobs, and review job output

Integration with EGL using RBD

- Quick and easy development of modern enterprise applications for business programmers
- Simplify and speed up creation of Web applications and services without having to learn Java or J2EE

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 z/OS
- 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 CRUD DB2 program code from UML, which can also be easily integrated into web service applications

IBM Rational Developer for System z

Host Tooling Integration

[JES, FA, FM, Debug Tool]

z/OS Application Development

[COBOL, PL/I, C/C++, JCL, Screens, Stored Procedures, etc]

Enterprise Service Tools

[Web Services For CICS/IMS]

Host / Distributed SCM Integration

IBM Rational Application Developer

z/OS Web Service and Flow Creation

- Implements SOA and Web Services
- SOA access to CICS V3.2 and IMS V9 COBOL applications
- Bottom-up/Top-down or meet-in-the-middle COBOL to XML mapping support
- Integrated COBOL 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.

SCM Support

- Access to host SCMs such as SCLM
- Framework for writing/deploying custom SCM integration code
- Support for storing z/OS resources in distributed SCMs such as ClearCase

Web and JEE Development

- Create Web Pages / JSF / Struts
- JEE/Java Development
- JCA Connectors
- Distributed debugger
- Web Services and Test environment