The DevOps approach: Develop and test - multiplatform development with Integrated Solution for System z

Speaker Name and Title

Session #2

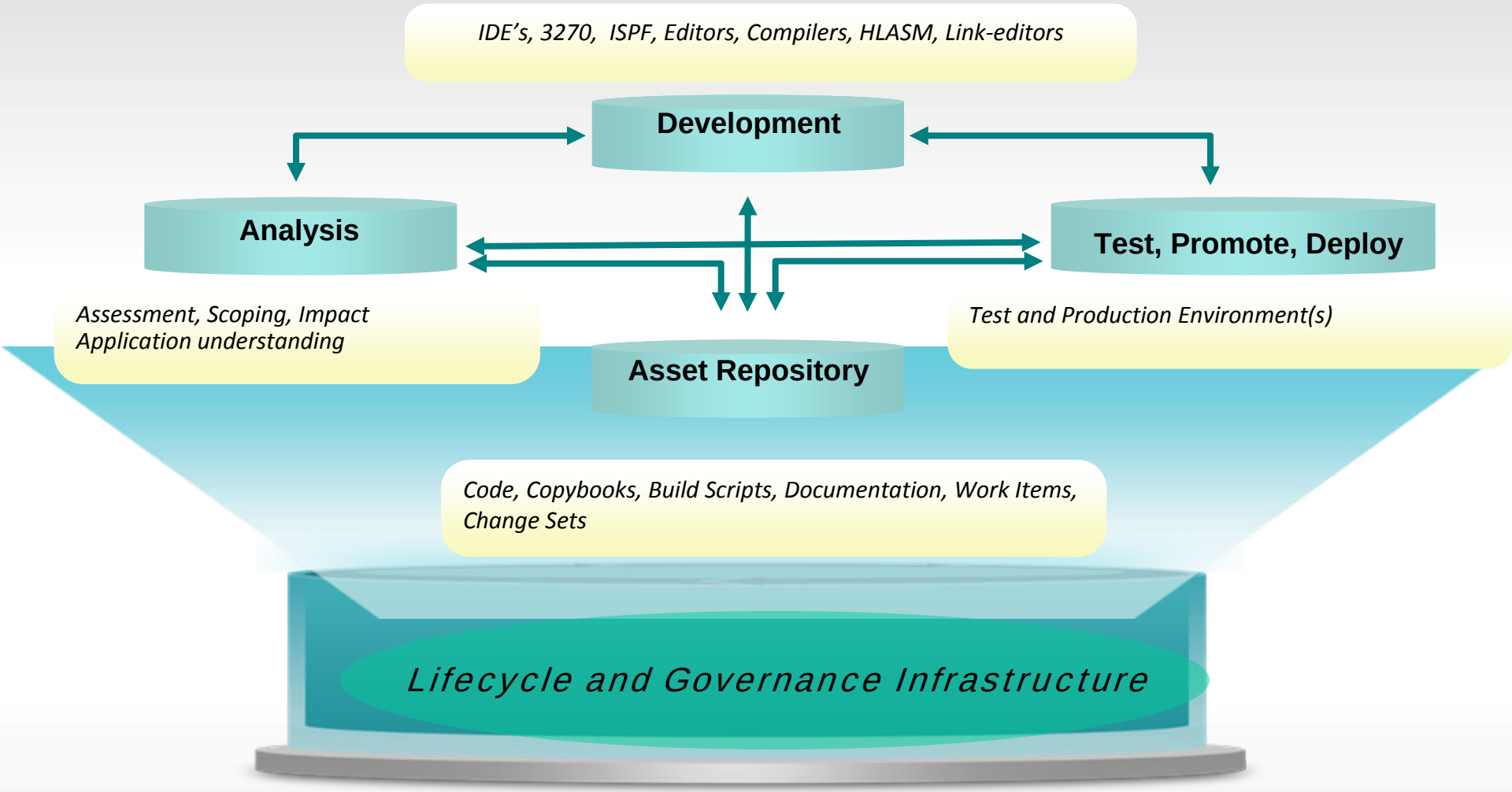
This scenario-driven session uses a COBOL/CICS program that is invoked by a smartphone application.

A bug is identified on the code that requires updates to z/OS as well as in the smartphone interface.

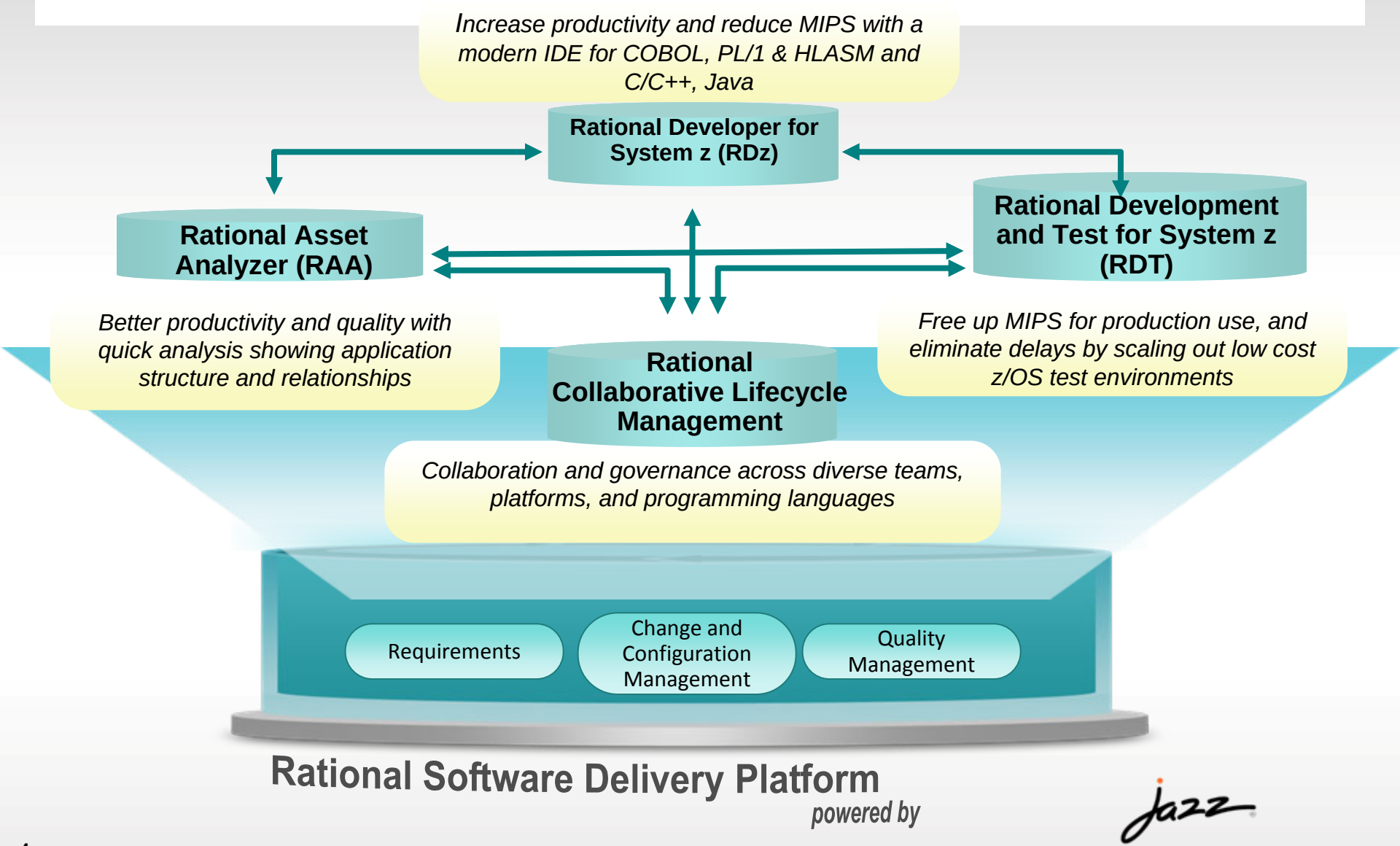
We will demonstrate how the IBM DevOps solution helps the typical developer throughout the overall application lifecycle from requirements to delivery, improving project management, productivity, testing and deployment.

The demonstration will start from the requirements and analysis phase through the final deployment using a z/OS system running on a local laptop.

Infrastructure for supporting software delivery



IBM Rational Integrated Solution For System z Development



DEMO

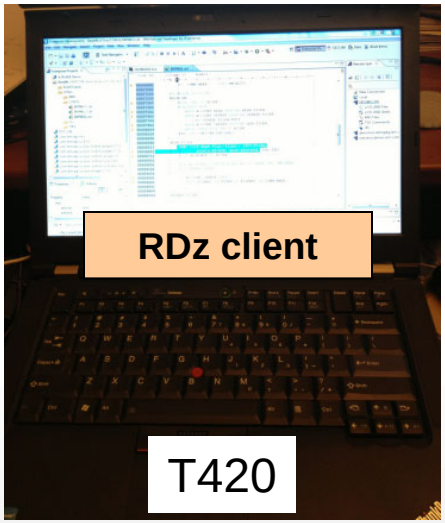
Topology used in this Demo

- Project Manager: Ursula
- Architect/Analyst: Alex
- Mainframe Developer: Deb
- Web Developer: Dave
- Release Engineer: Rebecca

Wireless Router

RD&T Server

W510 – 16 GB



RDz client

T420

COBOL, PL/I, C++, Java, Batch, Assembler, Debug Tool

IMS
CICS
DB2
WAS
MQ
z/OS
x86 PC running Linux

CLM (running on Linux)

CLM = Collaborative Lifecycle Management

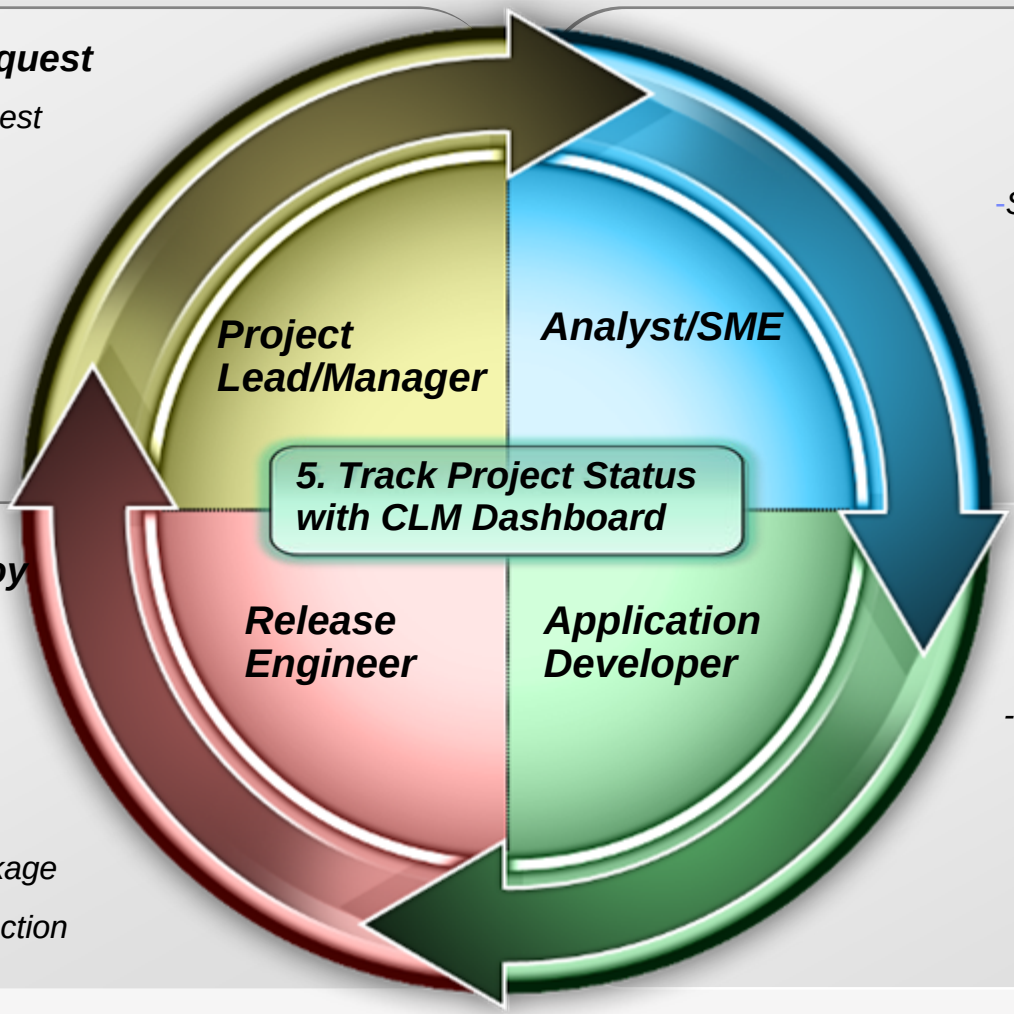
Overview of the Scenario

1: Initiate Change Request

- *Submit new change request*
- *Assign to Analyst*

2: Analyze

- *Analyze Application to be changed*
- *Size/Scope the effort for the change*
- *Assign to a developer*



4: Promote and deploy enhancement

- *Create 'official' build of application*
- *Promote through test environments*
- *Build formal release package*
- *Deploy package to production*

3: Implement required changes, build and deliver

- *Analyze source repository to identify modifications*
- *Implement and test modifications*
- *Perform personal build and deliver new features*

CLM = Collaborative Lifecycle Management

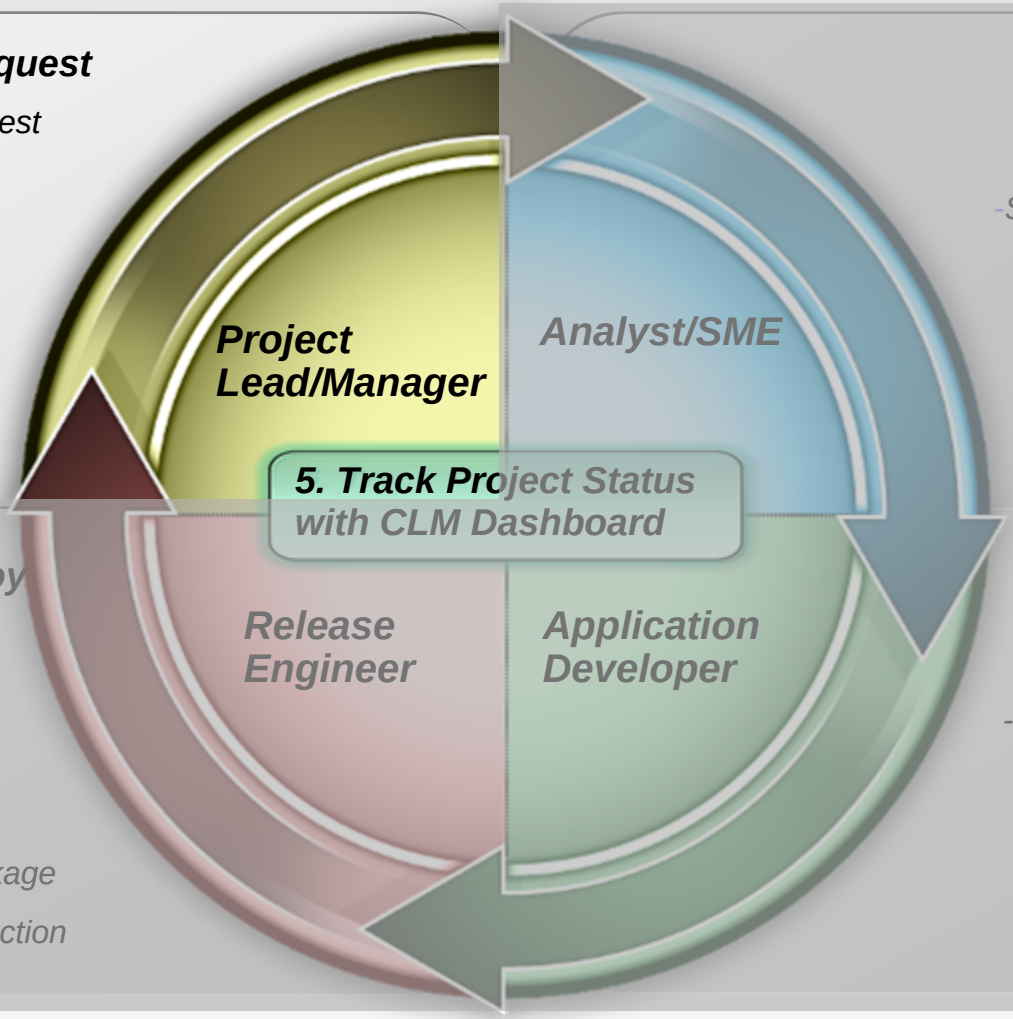
Part 1: Initiate Change Request – **Ursula** the Project Manager

1: Initiate Change Request

- Submit new change request

- Assign to Analyst

empot09



2: Analyze

- Analyze Application to be changed

-Size/Scope the effort for the change

- Create Bill of Materials

3: Implement required changes, build and deliver

- Analyze source repository to identify modifications

- Implement and test modifications

- Perform personal build and deliver new features

4: Promote and deploy enhancement

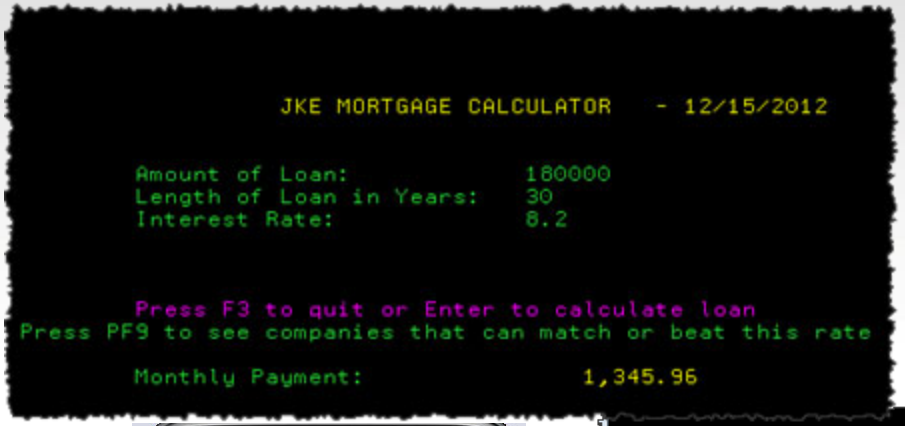
- Create 'official' build of application

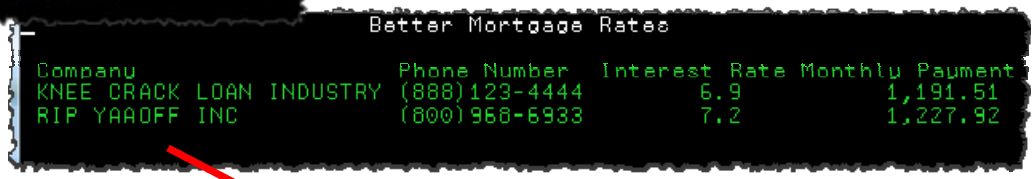
- Promote through test environments

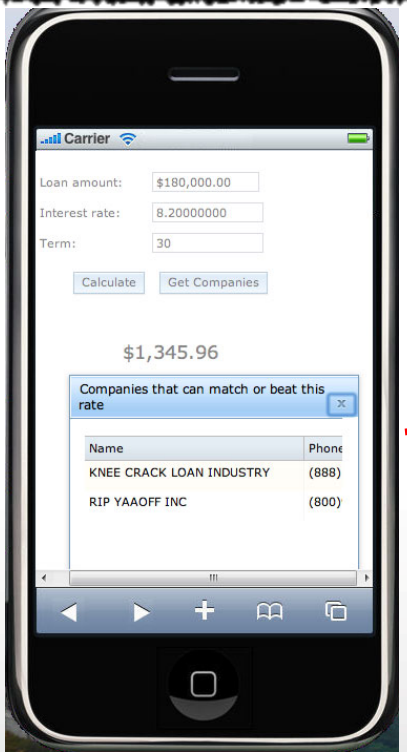
- Build formal release package

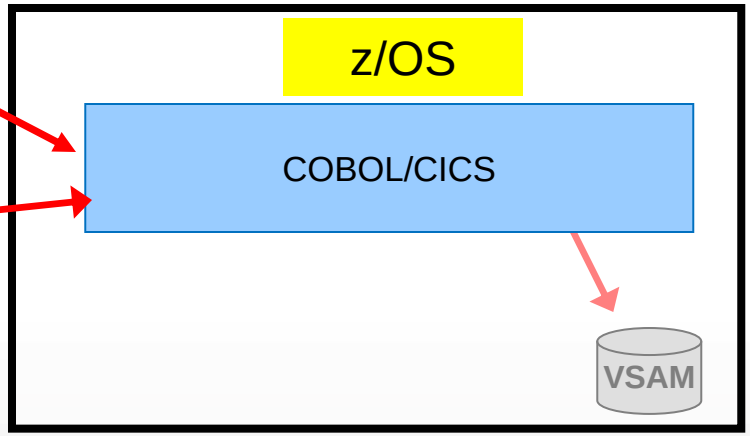
- Deploy package to production

Scenario : Application change is required









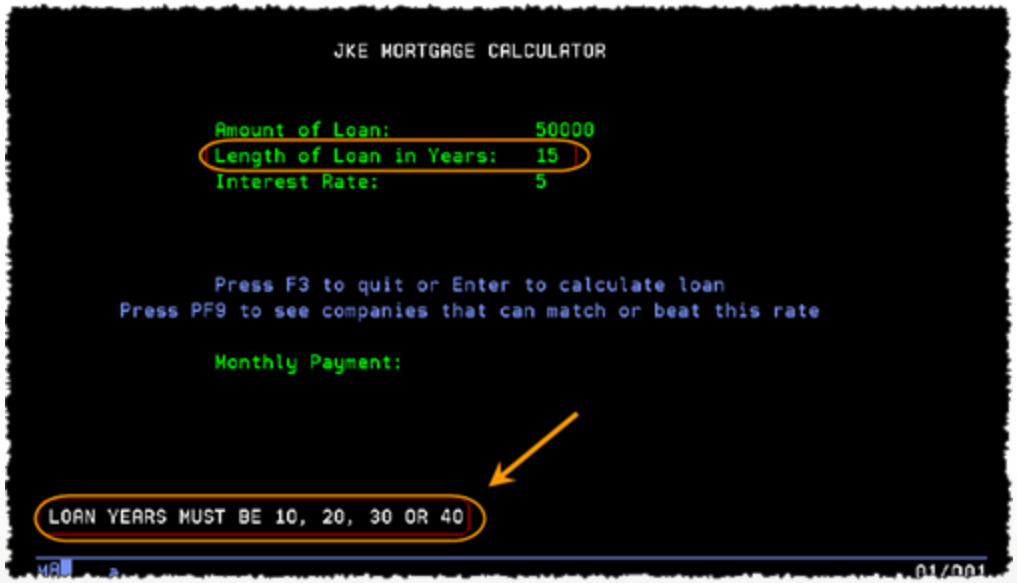
•Existing COBOL/CICS/BMS application

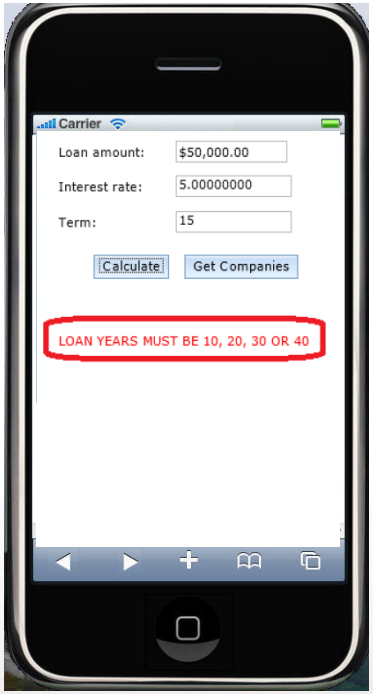
Application Bug

*The Only valid length of loan **must be 10, 20 30 or 40 years.***

Currently the length could be between 00 and 40 years..

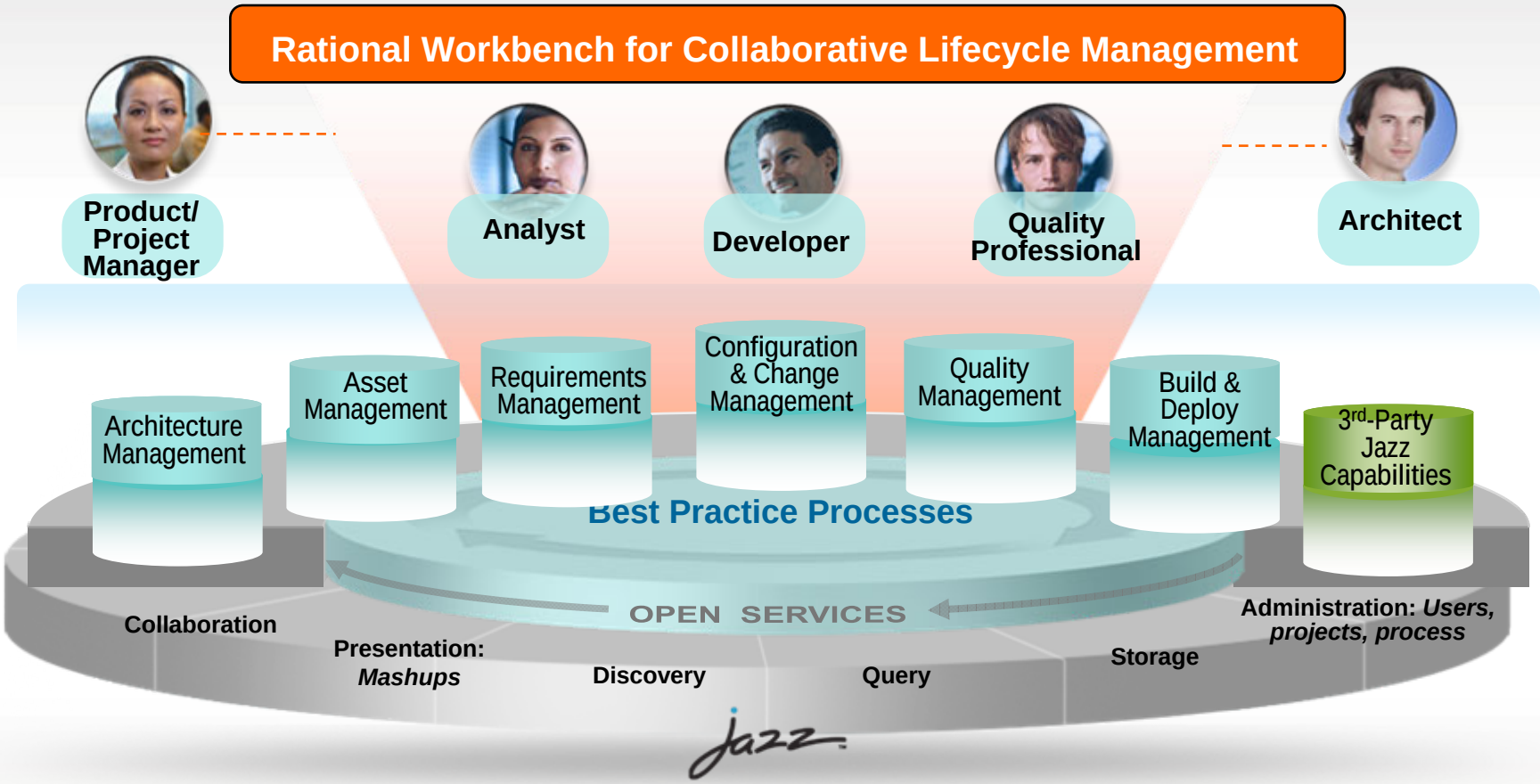
A message should reflect this new enhancement



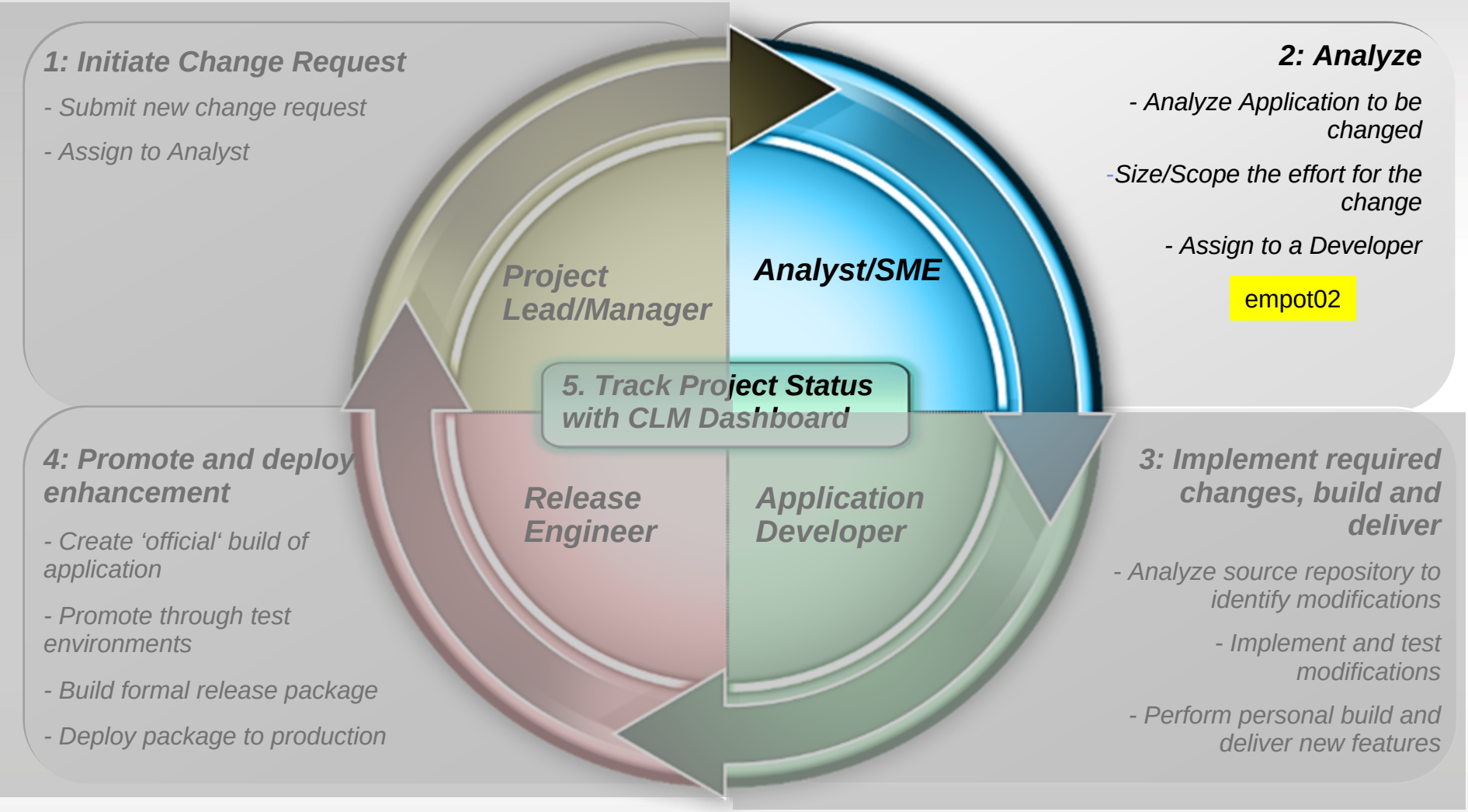


Rational Team Concert: **Workbench for Collaborative Lifecycle Management (CLM)**

A robust, extensible solution for analysts, developers and quality professionals



Part 2: Analysis – **Alex** the Architect/Analyst



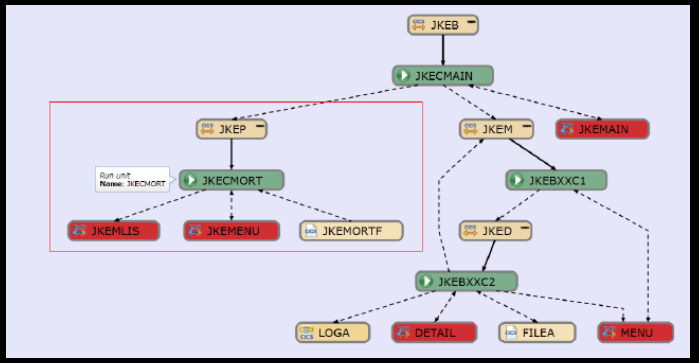
Objective: Change existing Multiplatform application

Alex – Subject Matter Expert (SME) for software project,
Performs application analysis, prioritizes requirements, etc.

1. Alex has received the change requirements (work item) and uses CLM (RTC) to start the collaboration with others on the team.

2. Alex uses Rational Asset Analyzer (RAA) to understand application framework. Also analyzes the Scope and Risk of Project Change Request.

3. Using Rational Team Concert (RTC) updates the work item for development team to proceed with the transformations.



Objective: Change existing Multiplatform application

Alex – Subject Matter Expert (SME) for software project,
Performs application analysis, prioritizes requirements, etc.

1. Alex has received the change requirements (work item) and uses CLM (RTC) to start the collaboration with others on the team.
2. Alex uses Rational Asset Analyzer (RAA) to understand application framework. Also analyzes the Scope and Risk of Project Change Request.
3. Using Rational Team Concert (RTC) updates the work item for development team to proceed with the transformations.

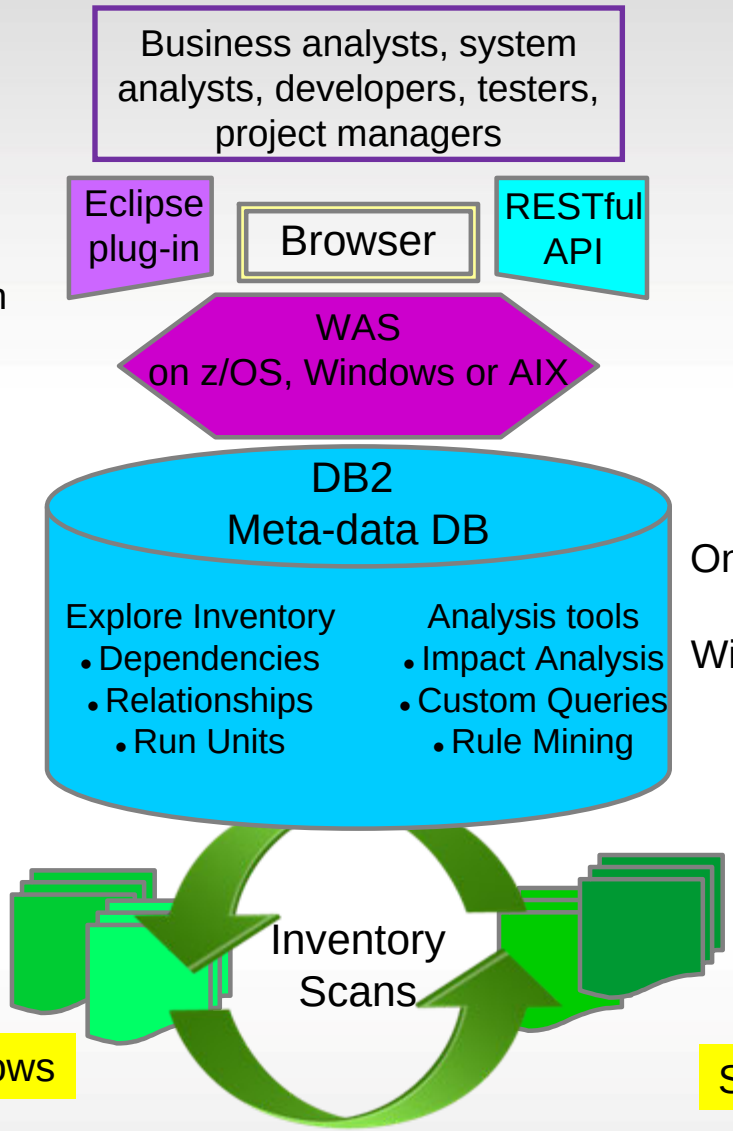
Objective: Change existing Multiplatform application

Alex – Subject Matter Expert (SME) for software project,
Performs application analysis, prioritizes requirements, etc.

1. Alex has received the change requirements (work item) and uses CLM (RTC) to start the collaboration with others on the team.
2. Alex uses Rational Asset Analyzer (RAA) to understand application framework. Also analyzes the Scope and Risk of Project Change Request.
3. Using Rational Team Concert (RTC) updates the work item for development team to proceed with the transformations.

Rational Asset Analyzer: Product Architecture

- Integrated Development Environment
  - Integrating analysis with coding tools
    - Integrated views
    - Web view



- Companion tool integration
  - Dashboards
  - Portfolio analysis
- Business tools extracts
  - Documents
  - Spreadsheets

On z/OS or Windows

COBOL, PL/I applications for CICS, IMS and DB2 plus z/OS Job Control Language (JCL) and High Level Assembler

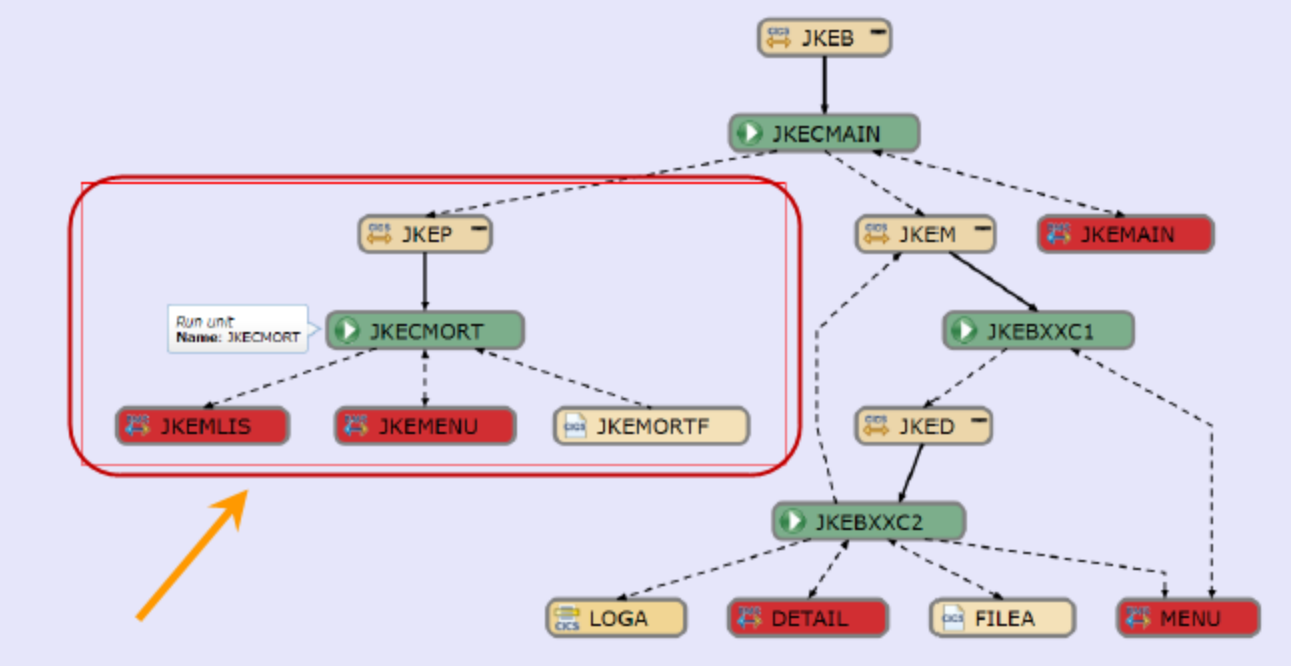
Scannable on z/OS or Windows

Java technology-based applications, HTML, JavaServer Pages (JSP), Enterprise JavaBeans (EJB), enterprise archive (EAR), Web archive (WAR) and Java archive (JAR) files, and C/C++

Scannable on Windows or AIX

Application architecture

BMS maps, CICS transactions, COBOL programs, Datasets



•* Diagram created using Rational asset Analyzer (RAA)

Objective: Change existing Multiplatform application

Alex – Subject Matter Expert (SME) for software project,
Performs application analysis, prioritizes requirements, etc.

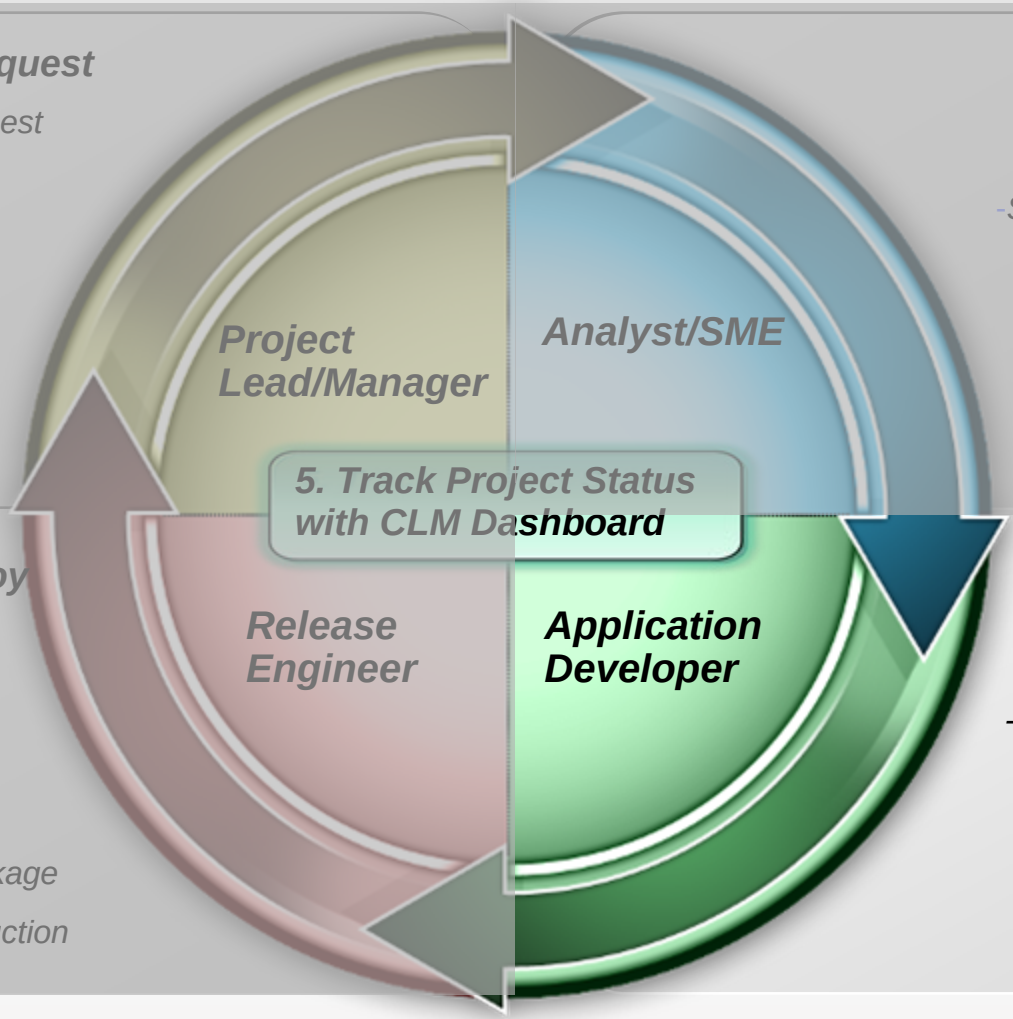
1. Alex has received the change requirements (work item) and uses CLM (RTC) to start the collaboration with others on the team.

2. Alex uses Rational Asset Analyzer (RAA) to understand application framework. Also analyzes the Scope and Risk of Project Change Request.

3. Using Rational Team Concert (RTC) updates the work item for development team to proceed with the transformations.

Part 3: Implementation – **Deb** and **Dave** the developers

z/OS = empot05 web = empot04



1: Initiate Change Request

- Submit new change request

- Assign to Analyst

2: Analyze

- Analyze Application to be changed

-Size/Scope the effort for the change

- Create Bill of Materials

3: Implement required changes, build and deliver

- Analyze source repository to identify modifications

- Implement and test modifications

- Perform personal build and deliver new features

4: Promote and deploy enhancement

- Create 'official' build of application

- Promote through test environments

- Build formal release package

- Deploy package to production

Objective: Change existing Multiplatform application

Deb – Mainframe Developer (empot05)
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.

2. Uses Rational Asset Analyzer integration with RDz (RAAi) to better understand the program to be modified

3. Uses RDz to make the changes.

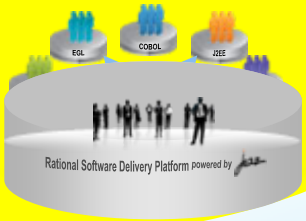
4. Uses RTC to do a personal build to z/OS

5. Developer uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)

6. Deb deliver the changes and assign work item to Dave

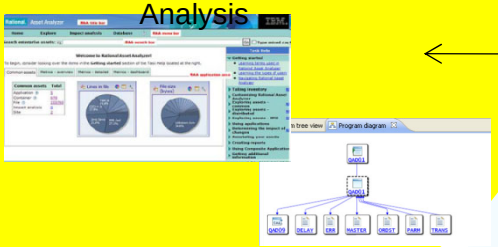
RDz provides a complete set of System z Development and Test capabilities

Integration with **Rational Team Concert** for Lifecycle and Source Management

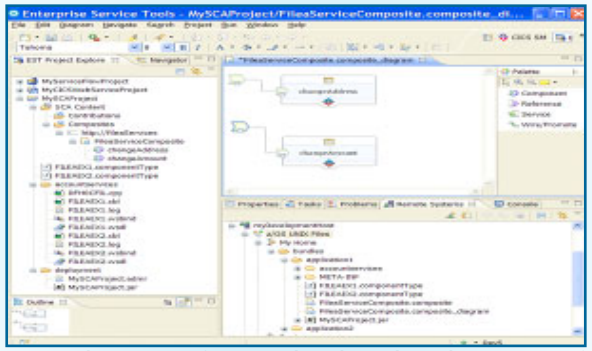


Access to typical System z sub-system functionality in z/OS, CICS, IMS, DB2, WAS

Integration with **Asset Analyzer** for Application Understanding and Impact Analysis

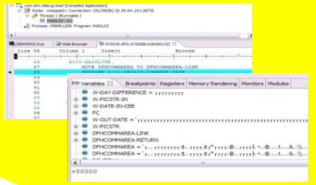


Rational Developer for System z

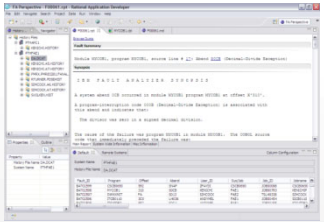


A modern IDE for productive development of cross-platform applications written in COBOL, PL/I, ASM, Java, Worklight or C/C++ in System z CICS, IMS, DB2, Batch applications

Integration with **Debug Tool** for Development and Test

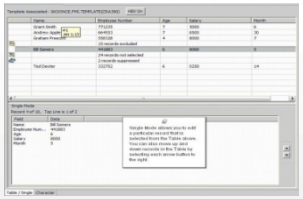


Integration with Fault Analyzer for Dump Analysis



Integration with **RD&T** for flexible access to System z environment

Integration with File Manager for file and test data handling



Shown on this demo

21

Objective: Change existing Multiplatform application

Deb – Mainframe Developer
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.
2. Uses Rational Asset Analyzer integration with RDz (RAAi) to better understand the program to be modified
3. Uses RDz to make the changes.
4. Uses RTC to do a personal build to z/OS
5. Developer uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)
6. Deb deliver the changes and assign work item to Dave

Objective: Change existing Multiplatform application

Deb – Mainframe Developer
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.
2. Uses Rational Asset Analyzer integration with RDz (RAAi) to perform impact analysis and better understand the program to be modified
3. Uses RDz to make the changes.
4. Uses RTC to do a personal build to z/OS
5. Developer uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)
6. Deb deliver the changes and assign work item to Dave

Objective: Change existing Multiplatform application

Deb – Mainframe Developer
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.

2. Uses Rational Asset Analyzer integration with RDz (RAAi) to better understand the program to be modified

3. Uses RDz to make the changes.

4. Uses RTC to do a personal build to z/OS

5. Developer uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)

6. Deb deliver the changes and assign work item to Dave

Objective: Change existing Multiplatform application

Deb – Mainframe Developer
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.

2. Uses Rational Asset Analyzer integration with RDz (RAAi) to better understand the program to be modified

3. Uses RDz to make the changes.

4. Uses RTC to do a personal build to z/OS

5. Developer uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)

6. Deb deliver the changes and assign work item to Dave

Objective: Change existing Multiplatform application

Deb – Mainframe Developer
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.

2. Uses Rational Asset Analyzer integration with RDz (RAAi) to better understand the program to be modified

3. Uses RDz to make the changes.

4. Uses RTC to do a personal build to z/OS

5. Deb uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)

6. Deb deliver the changes and assign work item to Dave

Objective: Change existing Multiplatform application

Deb – Mainframe Developer
Performs the COBOL updates

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.

2. Uses Rational Asset Analyzer integration with RDz (RAAi) to better understand the program to be modified

3. Uses RDz to make the changes.

4. Uses RTC to do a personal build to z/OS

5. Deb uses CICS Explorer component of RDz to debug the COBOL/CICS program using the z/OS Debug Tool (running on z/OS – RD&T)

6. Deb deliver the changes and assign work item to Dave

Objective: Change existing Multiplatform application

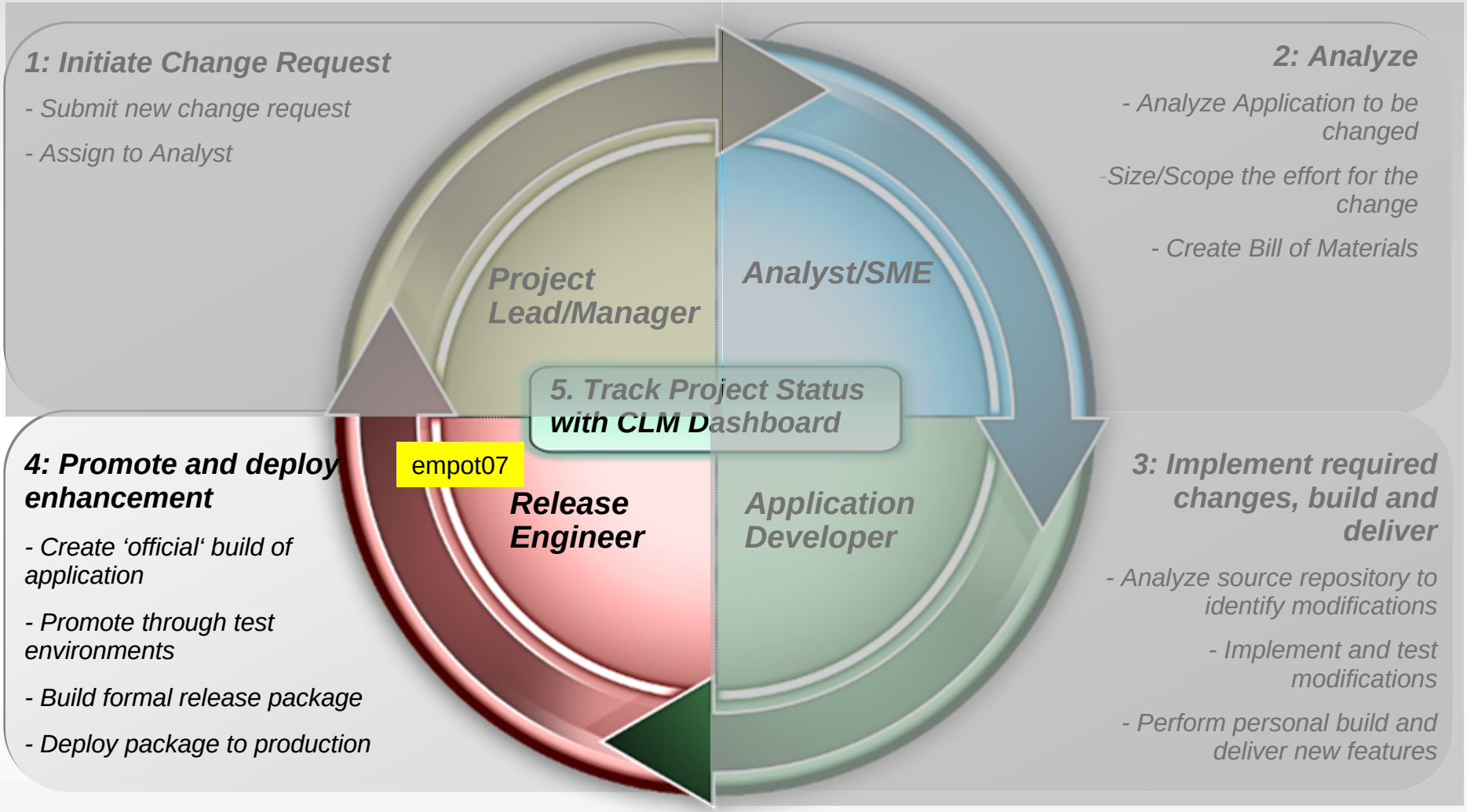
Dave – Web Developer (empot04)
Performs the Smartphone updates (Worklight)

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to verify the requirement (work item) and load the code to the RDz Workspace.

2. Uses RDz (Worklight) to make the Smartphone changes.

3. Test the Smartphone interface using iPhone simulator

Part 4: Promotion – **Rebecca** the Release Engineer



29

Objective: Change existing Multiplatform application

Rebecca – Release Engineer
Performs the promotion, package and deploy

1. Uses Rational Team Concert (RTC) integrated with Rational Developer for System z (RDz) to review and approve the changes.
2. Uses RTC to perform a Team Build.
3. Uses RTC to promote from development to test stage.
4. Uses RTC to package and deploy to z/OS.

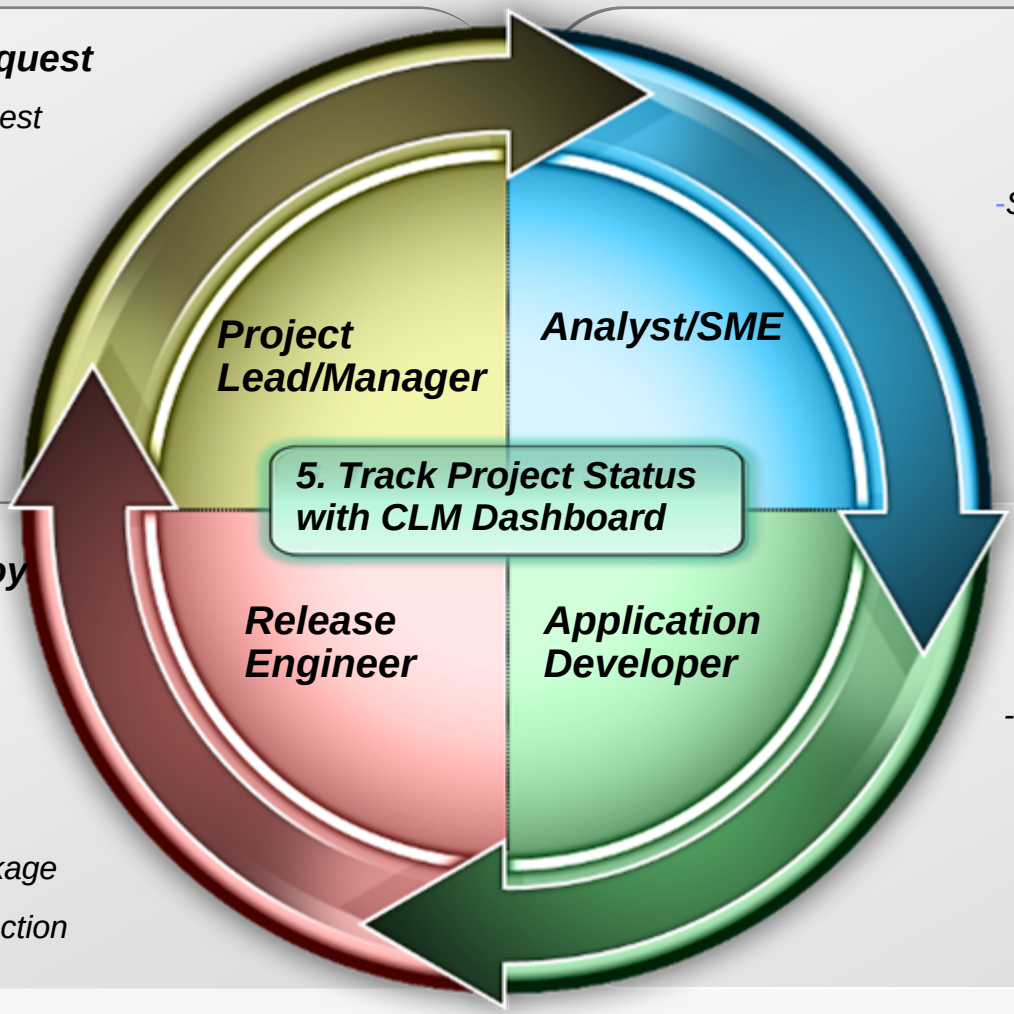
Overview of the Scenario

1: Initiate Change Request

- *Submit new change request*
- *Assign to Analyst*

2: Analyze

- *Analyze Application to be changed*
- *Size/Scope the effort for the change*
- *Create Bill of Materials*



4: Promote and deploy enhancement

- *Create 'official' build of application*
- *Promote through test environments*
- *Build formal release package*
- *Deploy package to production*

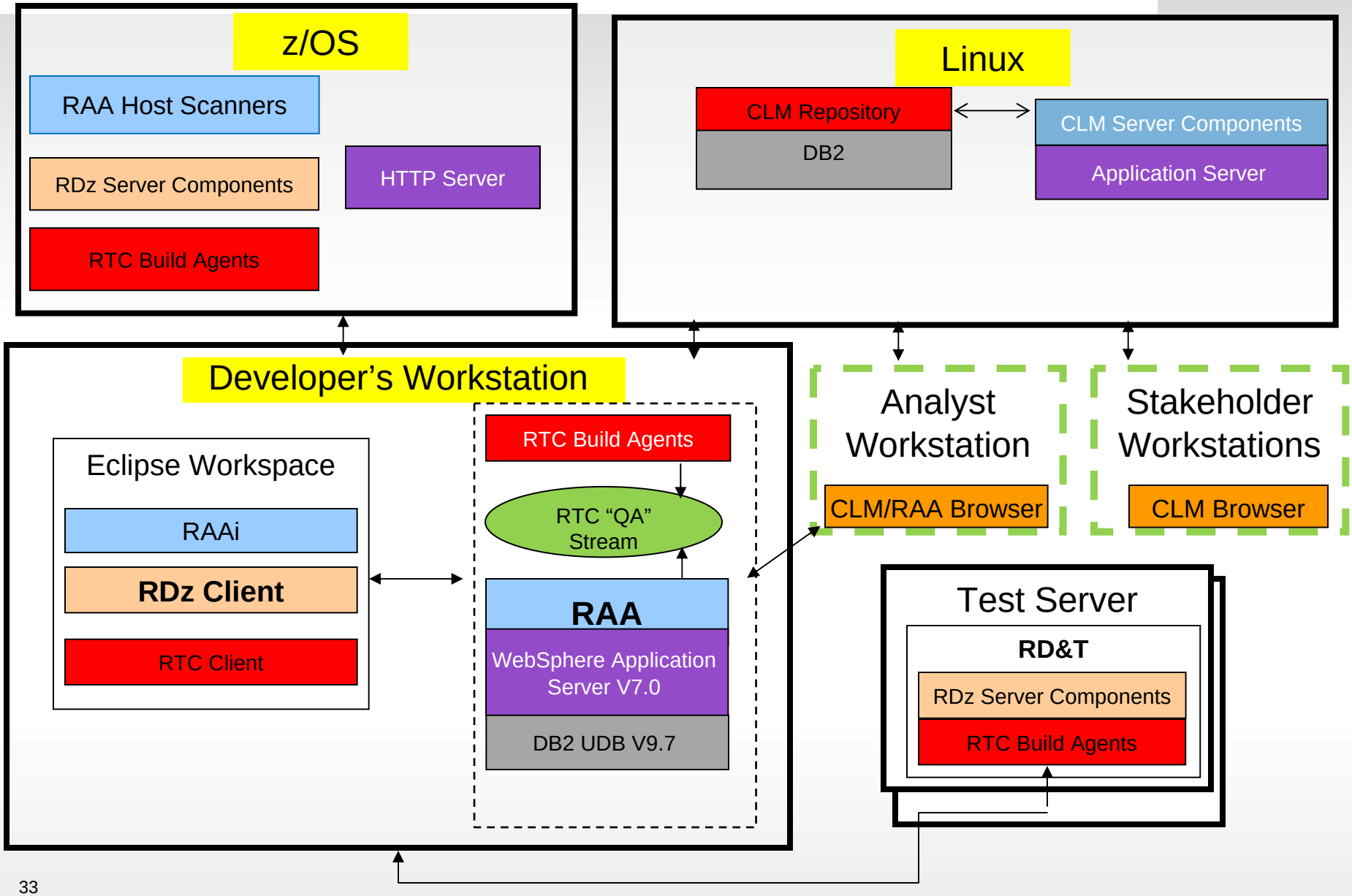
3: Implement required changes, build and deliver

- *Analyze source repository to identify modifications*
- *Implement and test modifications*
- *Perform personal build and deliver new features*

- BACKUP

http://www.youtube.com/watch?v=8fOx-MiSZFw

High-Level Topology of the solution

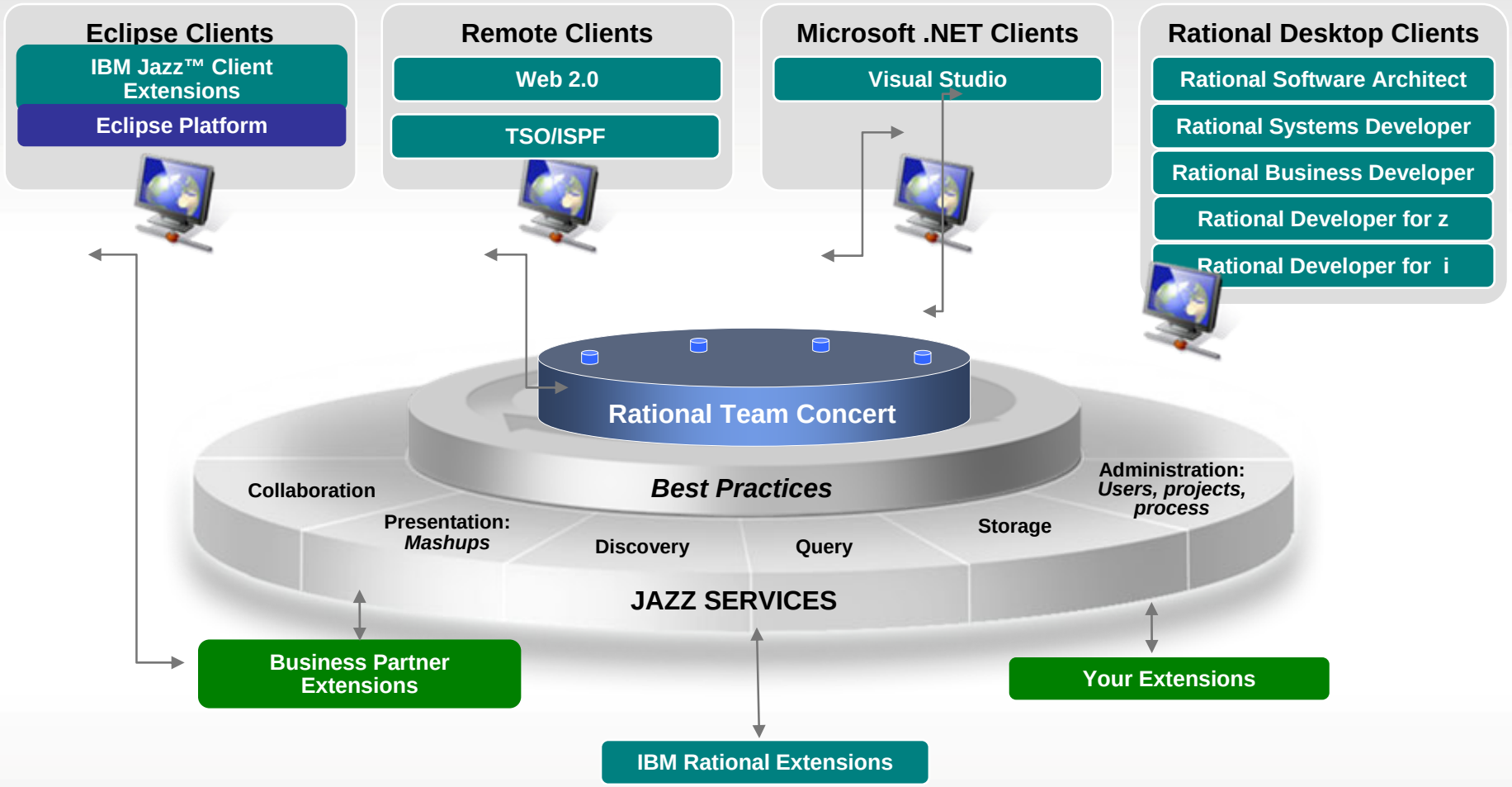


33

Rational Team Concert: Workbench for Collaborative Lifecycle Management

An open, extensible architecture

Supporting a broad range of desktop clients, IDEs and languages



Team Members/Roles

- Project Manager: Ursula (empot09)
- Architect/Analyst: Alex (empot02)
- Mainframe Developer: Deb (empot05)
- Web Developer: Dave (empot04)
- Release Engineer: Rebecca (empot07)

Ursula - empot09	Ursula	Author	Rational Requirements Composer – Analyst	Manager of the overall project
		Team Member	Rational Team Concert – Contributor	
		Test Team Contributor	Rational Quality Manager – Connector	
		Non-Administrator	Rational Asset Analyzer	
Alex - empot02	Alex	Author	Rational Requirements Composer – Analyst	Subject Matter Expert (SME) for software project, performs application analysis, prioritizes requirements, etc.
		Team Member	Rational Team Concert – Contributor	
		Test Team Contributor	Rational Quality Manager – Connector	
		Administrator	Rational Asset Analyzer	
Dave - empot04	Dave	Commenter	Rational Requirements Composer - Contributor	Web Developer
		Team Member	Rational Team Concert – Developer for IBM Enterprise Platforms	
		Test Team	Rational Quality Manager –	
Deb - empot05	Deb	Commenter	Rational Requirements Composer - Contributor	Mainframe Developer
		Team Member	Rational Team Concert – Developer for IBM Enterprise Platforms	
		Test Team Contributor	Rational Quality Manager – Connector	
		Client/Non-Administrator	Rational Developer for zEnterprise Rational Asset Analyzer	
Rebecca - empot07	Rebecca	Team Member	Rational Team Concert – Developer for IBM Enterprise Platforms	Initiates all promotion requests
		Test Team Contributor	Rational Quality Manager – Connector	