

IBM Rational System Workbench



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<http://tech.groups.yahoo.com/group/RT-UML>

Innovate2010

The Rational Software Conference

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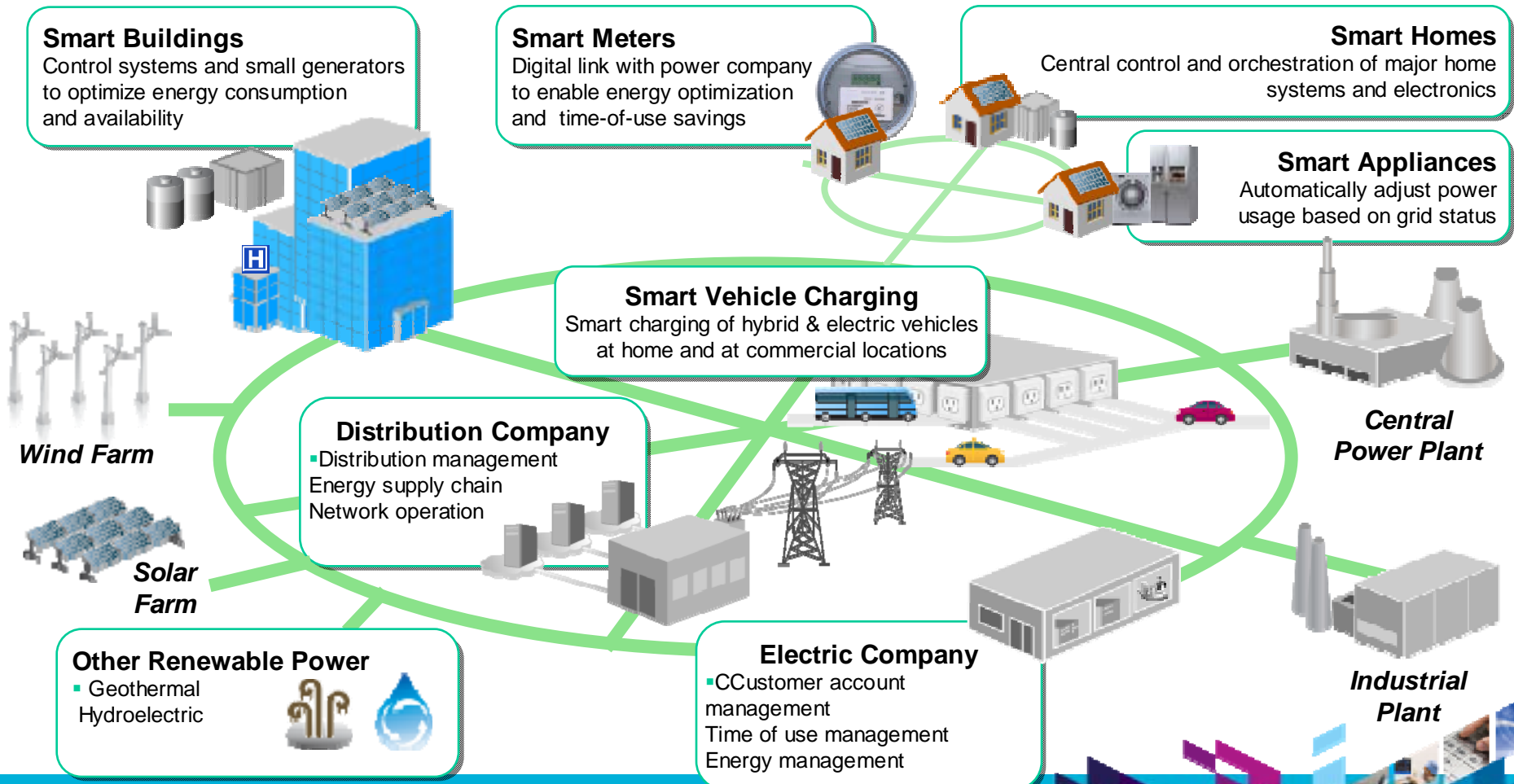
Agenda

- ▶ What's the problem?
 - What's a workbench?
 - The Rational System Workbench



The Systems Space

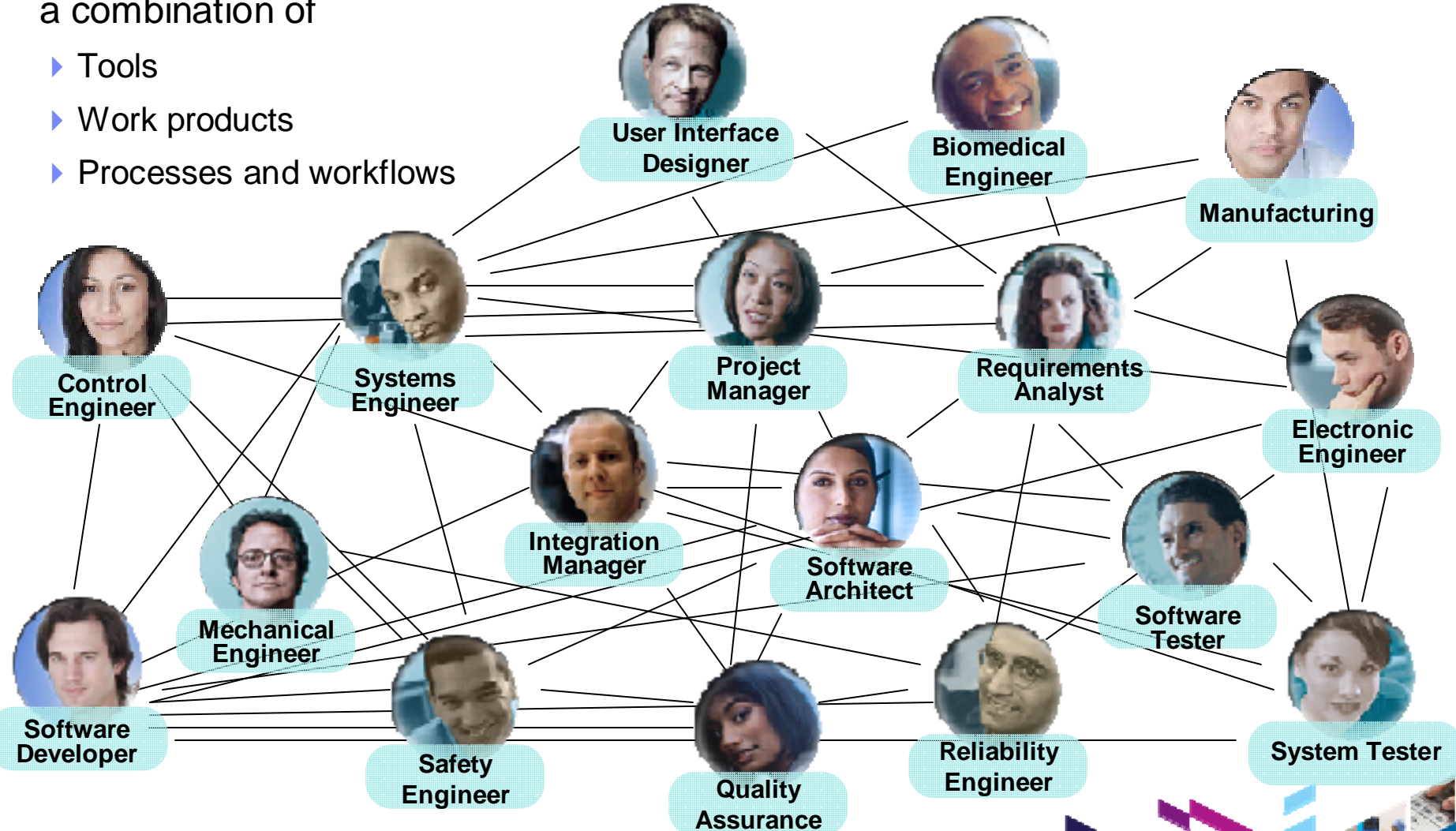
- Systems are getting more larger, more complex, and more mission-critical
- Systems interconnect in complex, chaotic ways and must meet the needs of many stakeholders simultaneously



Systems Development

Requires the collaboration of many different disciplines. They collaborate through a combination of

- ▶ Tools
- ▶ Work products
- ▶ Processes and workflows



Agenda

- What's the problem?
- ▶ What's a workbench?
- The Rational System Workbench

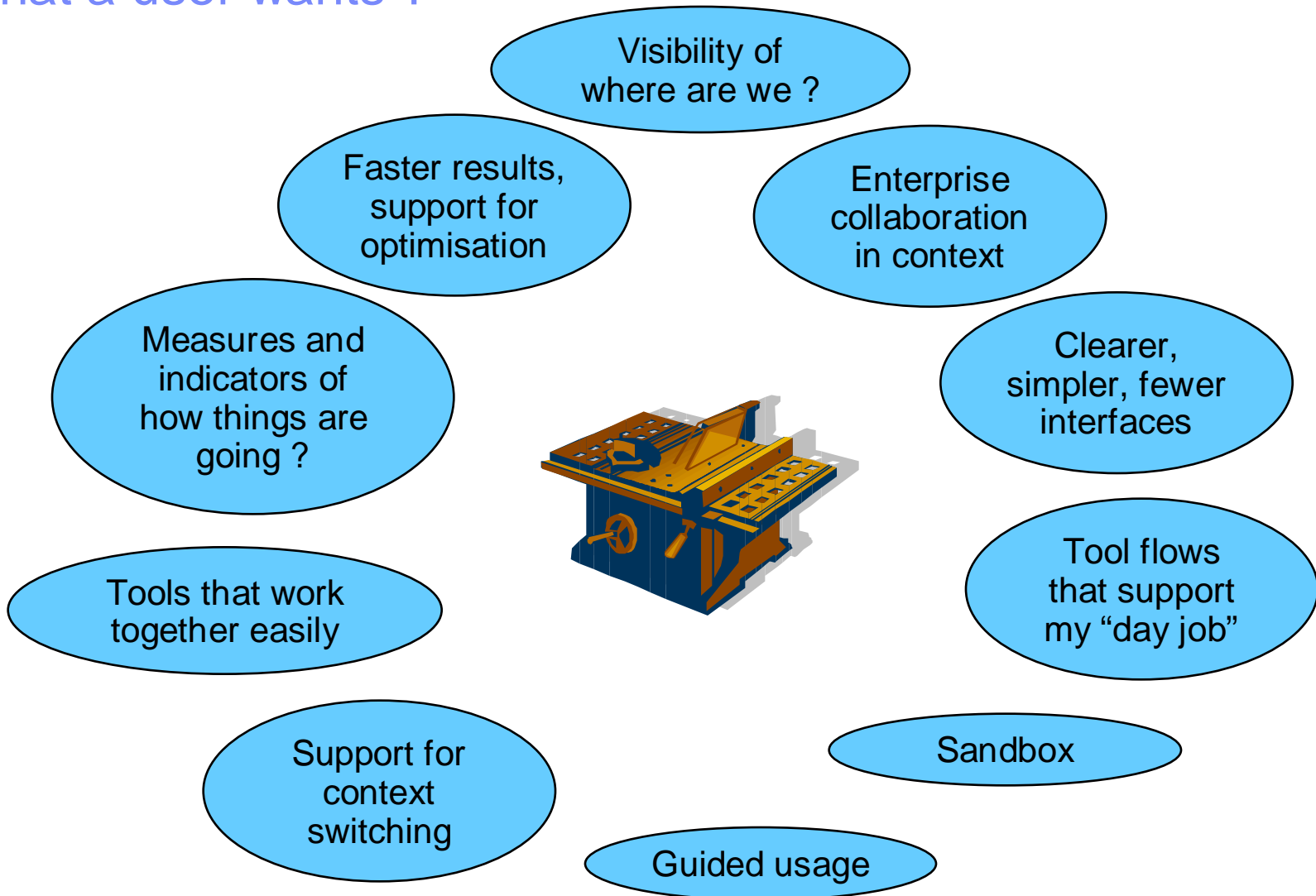


So what is a workbench ?

- Collins English Dictionary says
 - ▶ “A heavy table at which work is done by a carpenter, mechanic, toolmaker etc”
- We mean
 - ▶ An organized place to undertake useful work efficiently
- We assume
 - ▶ A clear purpose for the place i.e. useful outcome
 - ▶ A collection of useful tools for some related work types
 - ▶ Clear support for our work through some kind of configuration of interworking methods and tools
- We have in mind that a workbench increases productivity or quality or perhaps both
 - ▶ Manufacturers have experimented with
 - task specific, multi-task and multi-discipline team workstations
 - personal and team workstations
 - manual, semi or automatic processing
- Perhaps we also mean a place to
 - ▶ demonstrate and grow our prowess
 - ▶ gain guidance of how to do things or get some results
 - ▶ exercise flexibility to support skill levels, work variation, size of job
 - ▶ provide segmented support for technologies or disciplines



What a user wants ?




A Workbench is

- An integrated environment that
 - ▶ Supports the development of high-quality work products
 - ▶ Enables collaboration among workers
 - within a single discipline
 - across disciplines
 - ▶ Supports project management by
 - Identifying work items and goals to various team members
 - Providing guidance as to how to accomplish the work
 - Allows tracking of relevant project metrics, such as
 - Defect density
 - Project velocity
 - Schedule adherence
 - ▶ Is extensible by allowing teams to plug in
 - Different tools
 - Different workflows
 - Different tracking metrics
 - Different reporting mechanisms



Agenda

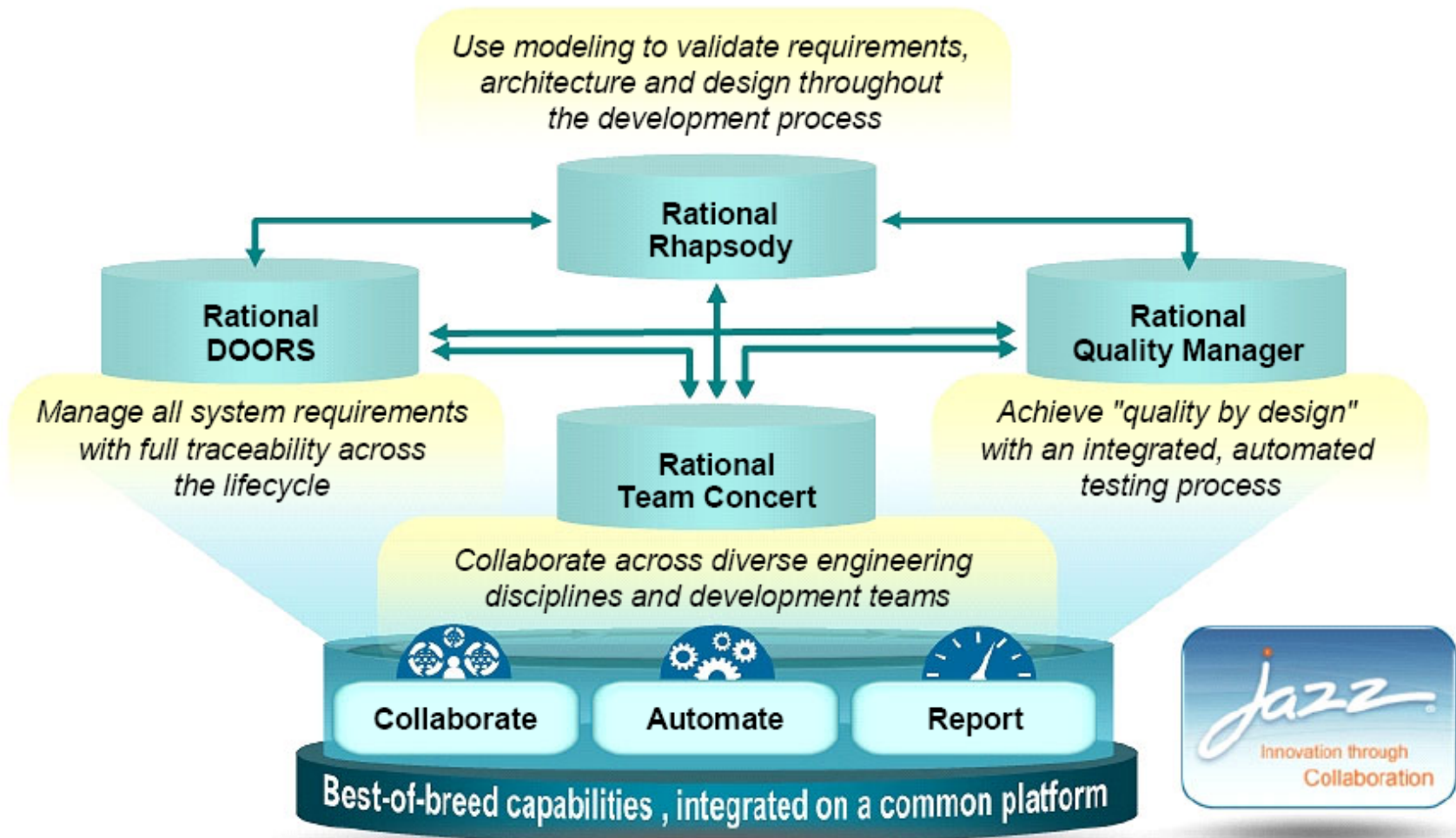
- What's the problem?
- What's a workbench?

 The Rational System Workbench



Rational System Workbench

- Integration of best-in-breed tools provide an unparalleled collaborative environment



Key roles supported by the Rational System Workbench

- Project, development and test team lead engineers and managers
 - ▶ Provides work and plan management for system delivery teams across the project lifecycle and enables live transparency through collaboration, automation, and reporting to the system delivery work products and project health.

- Requirements engineers
 - ▶ Provides environment for requirements authoring, analysis and management with DOORS and good interfaces to team leads, engineers, and testers. Managing traceability to system engineering and software engineering work products as well as test plans and test cases.

- System engineers
 - ▶ Provides an integrated and collaborative environment for requirements analysis, architecture management, and work, change and configuration management for teams of system engineers. The leading products are DOORS and Rhapsody for system engineering tasks, integrated with Team Concert for lifecycle management of the work products. The integrations with Rational Quality Manager provides for strong collaboration with System Validation teams from the start of the project.



Key roles supported by the Rational System Workbench

- Software engineers
 - ▶ With Rhapsody integrated with Rational Team Concert in the Eclipse IDE, provides a software development solution for Software Engineers. This integrates model driven development using UML with the Rational Team Concert capabilities for team collaboration, like model configuration management, work items, change sets, and continuous software build support. The System Workbench also provides traceability to up-stream System Engineering work products in DOORS and Rhapsody, or down-stream traceability to System Integration and Validation.
- Software and system test engineers
 - ▶ Rational Quality Manager provides a collaborative environment for test planning, construction, and execution supporting continuous testing as part of the software engineering teams, as well as test management of system validation and acceptance testing. Rational Test Lab Manager improves the efficiency of system test labs and manages how test resources are requested and provided.

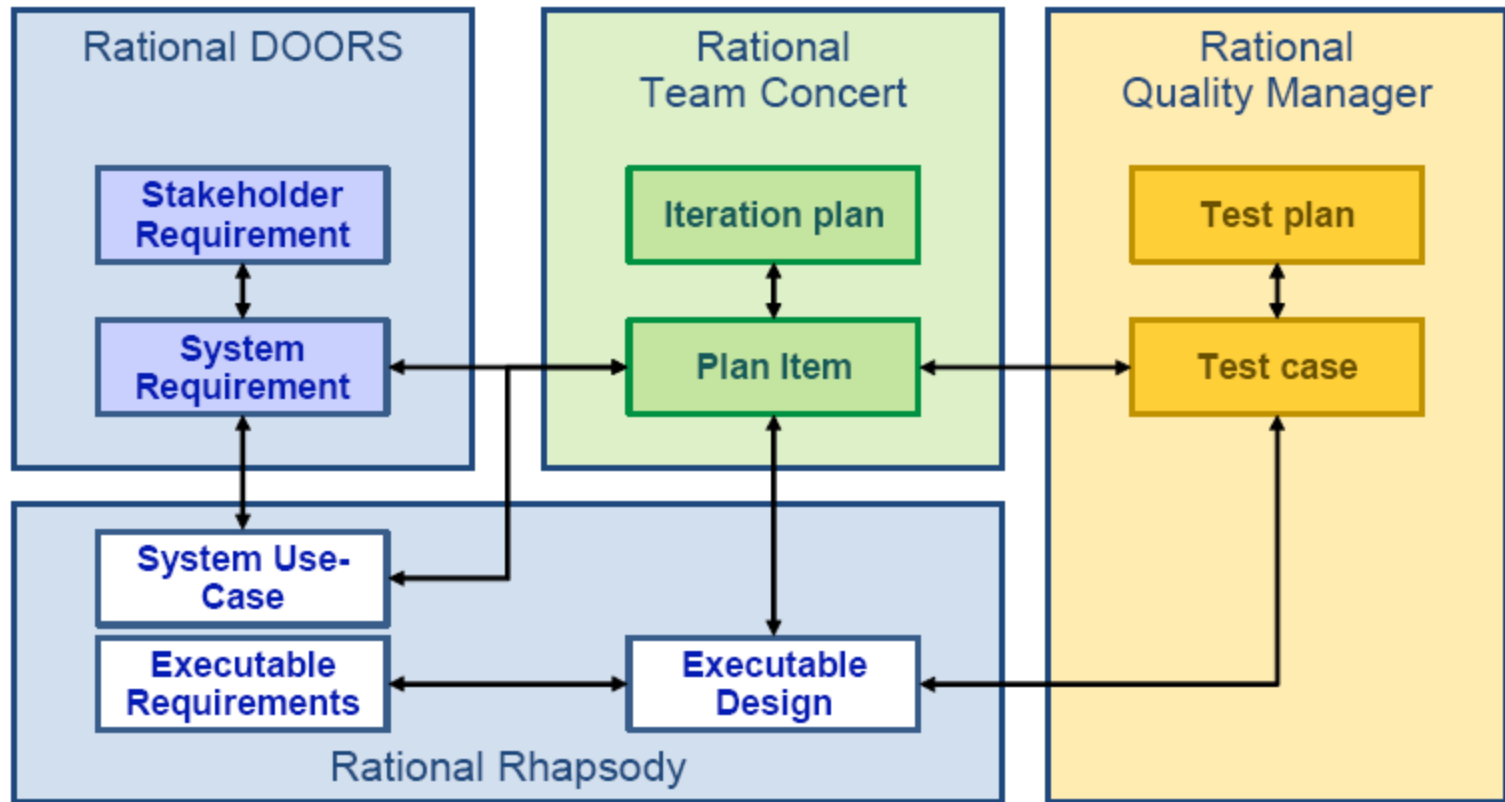


Rational Workbench: Rational Team Concert

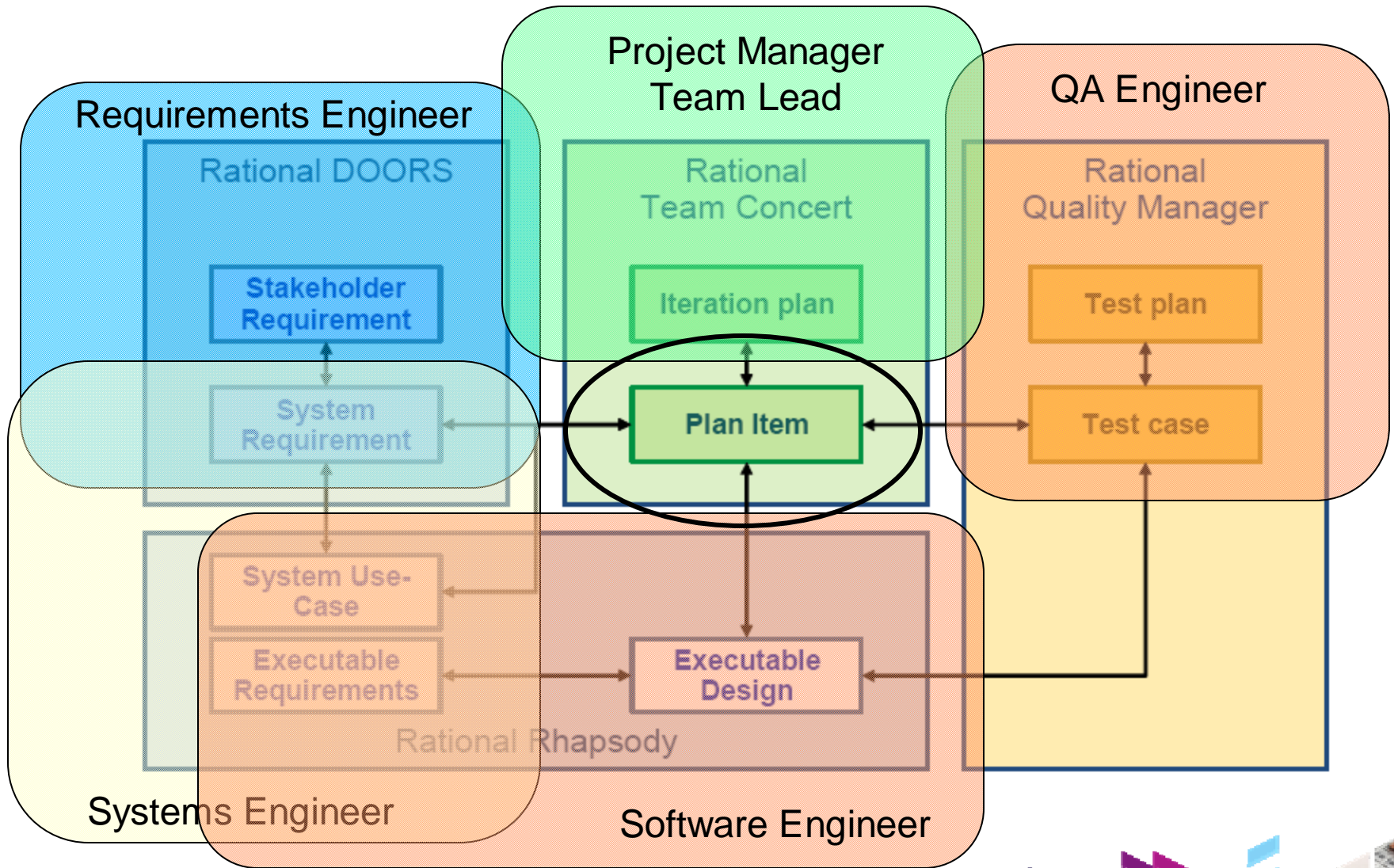
- Rational Team Concert (RTC) is a commercial realization of the Jazz platform
- RTC provides
 - ▶ Process automation and workflow support
 - Processes are supported through process templates that provide governance and guidance during project execution, including the detection of process violations
 - ▶ OLS tool integrations
 - Standardized interfaces allow tools to be plugged into to meet business and team needs
 - ▶ Work item tracking
 - Work items are the fundamental mechanism to track and coordinate development tasks and workflows, all governed by your team's associated process
 - ▶ Agile Planning
 - Provides tools to assist with the planning and execution of development iterations
 - ▶ Project health tracking
 - Team Reports and Web Dashboards help you to keep tabs on the health of your project. Dashboards provide an at-a-glance view of work item queries, event feeds, reports, and other items that are critical to understanding your progress.



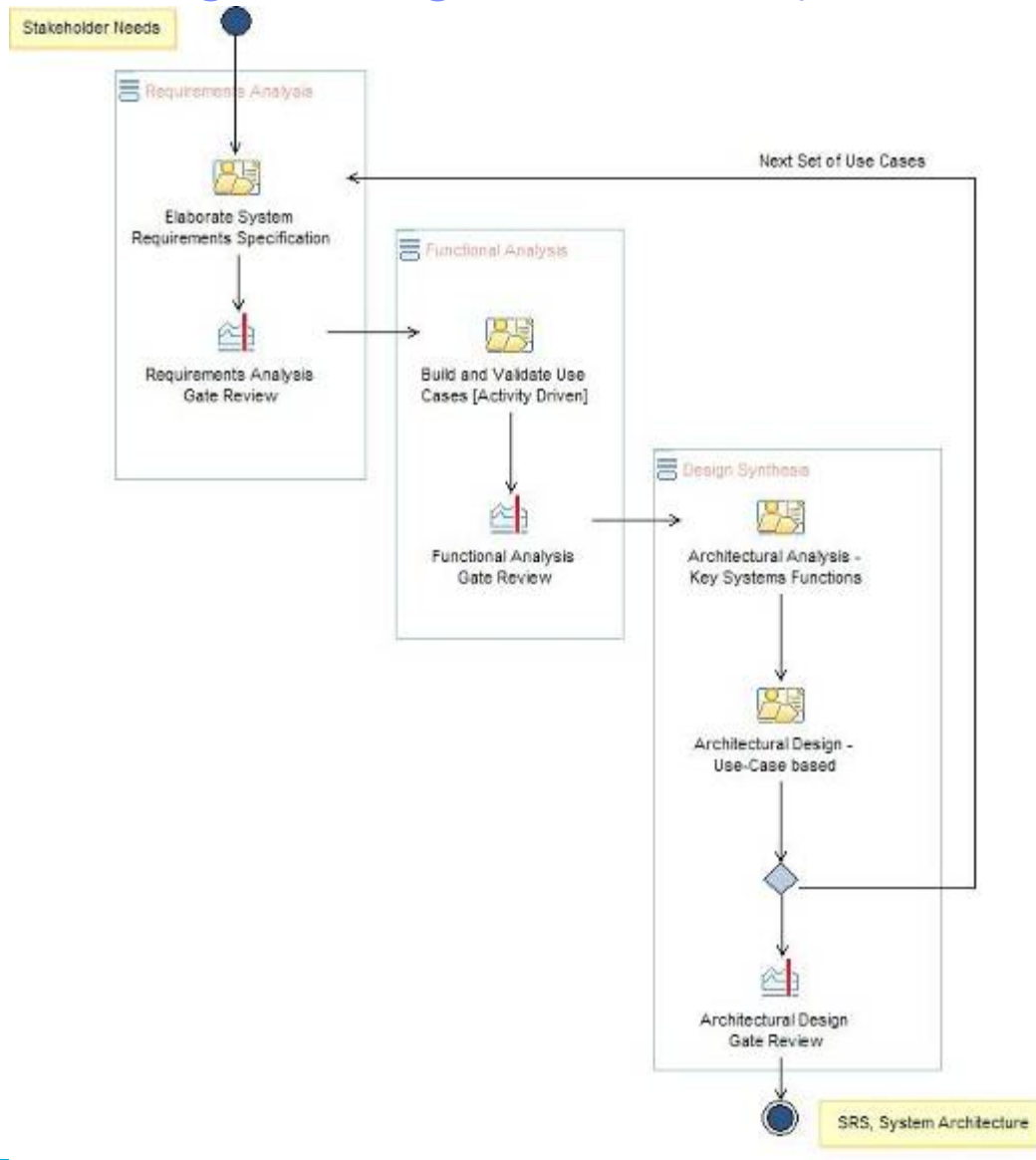
RTC: Project Planning and tracking workflows



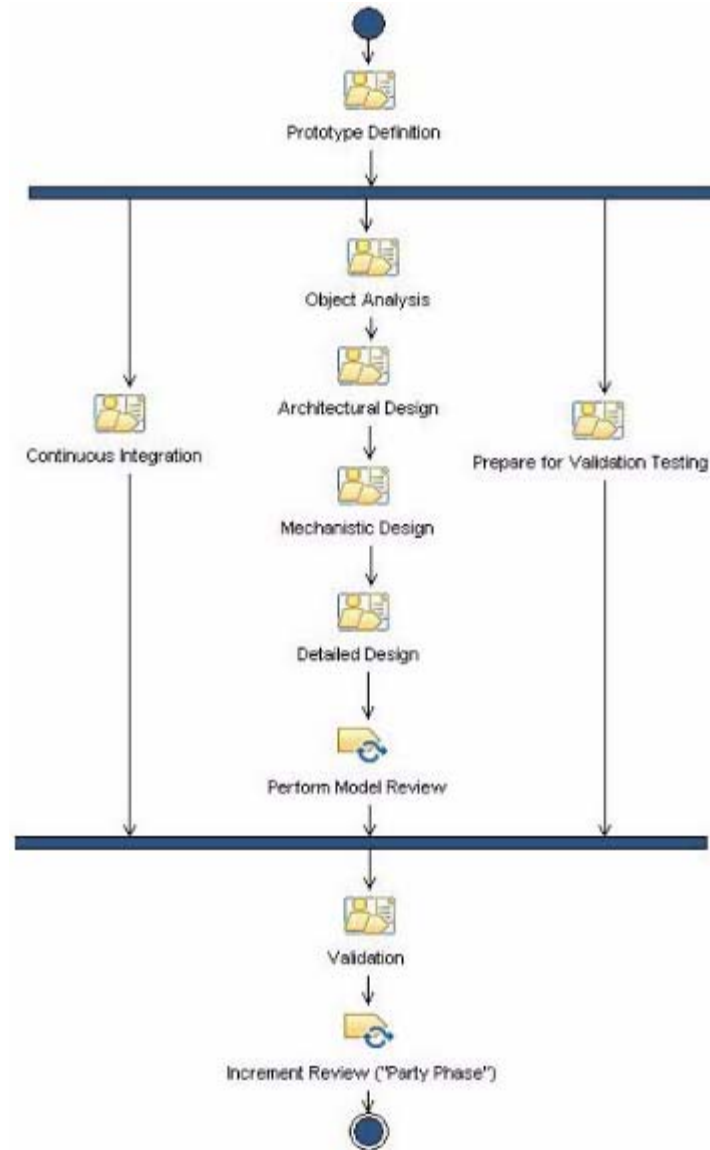
RTC: Role responsibilities



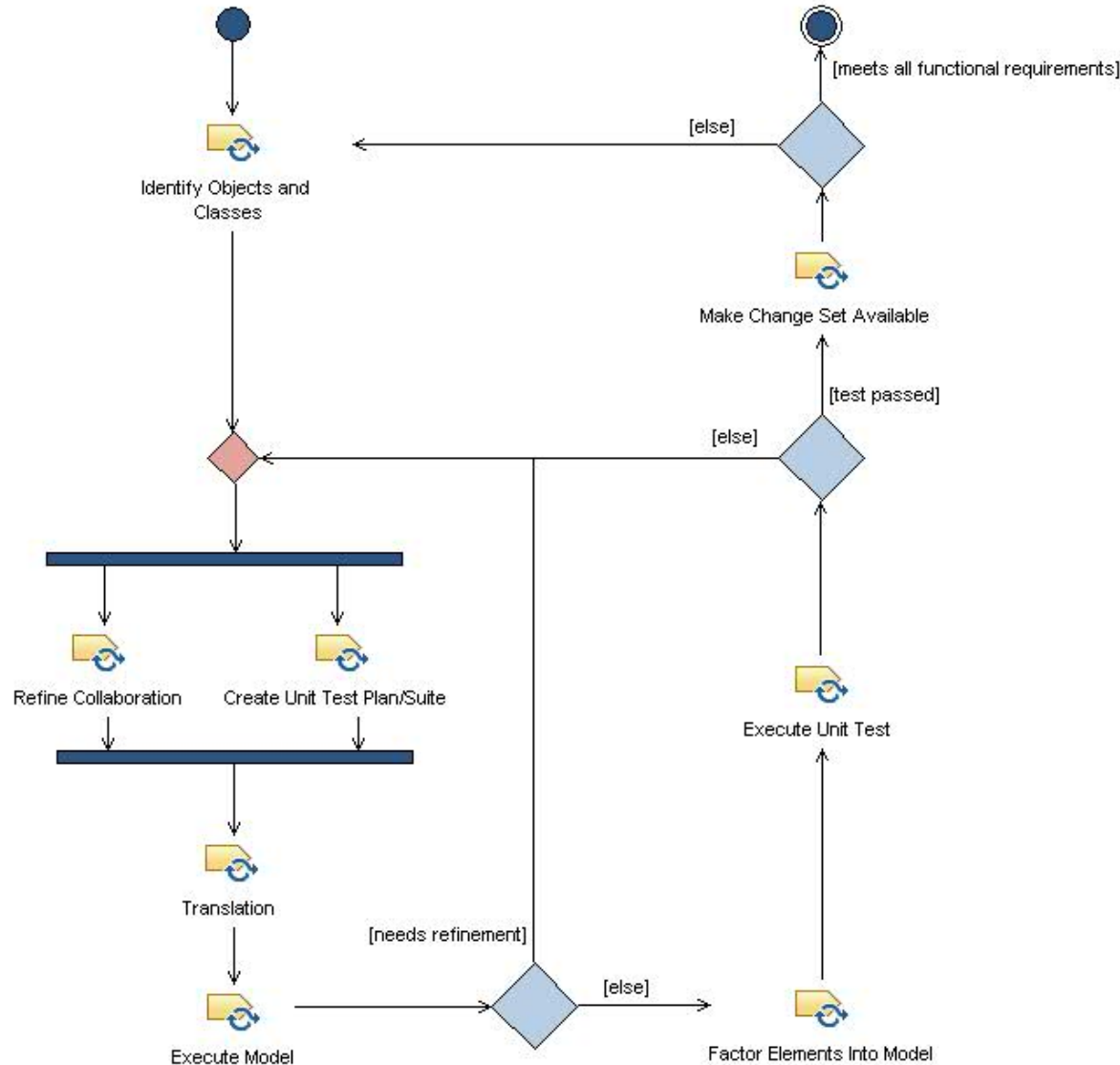
RTC: System Engineering Workflows (Harmony/SE or MDSD)



RTC: Software Engineering Workflows (Harmony/ESW)



RTC: Software Engineering Workflows (Harmony/ESW)



RTC: Software Engineering Workflows (Harmony/ESW)

IBM Rational Harmony for Embedded RealTime Development

Glossary | Feedback | About

Print

Where am I | Tree Sets

Harmony/ESW
CMMI® Browser

- Introduction to IBM® Rational®
- Getting Started with Harmony
- Core Principles
- Full Spiral Process
- Disciplines
- Domains
- Roles
- Real Time Concepts
- IBM® Rational® Tools
- References
- About IBM® Rational® Harmo
- IBM® Rational® Harmony™ fo

Task: Execute Model

Model execution is the best way to ensure that it does the right thing at the right time. You should execute the model early and often.

Expand All Sections | Collapse All Sections

Purpose

The purpose of model execution is to validate that the structure and behavioral aspects collaborate together to realize the requirements appropriately.

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Relationships

Roles	Main: <ul style="list-style-type: none"> Software Modeler 	Additional:	Assisting:
Inputs	Mandatory: <ul style="list-style-type: none"> Platform Independent Model 	Optional: <ul style="list-style-type: none"> Source Code 	External: <ul style="list-style-type: none"> None
Outputs	<ul style="list-style-type: none"> Platform Independent Model Scenario Work Items List 		

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Main Description

This task executes the model. This means that with appropriate tools, the model is executed and that execution is visualized in terms of model concepts - e.g. colors depict the current state in a state diagram or step in an activity diagram of instances, sequence diagrams are dynamically drawn as the object collaborate, attribute values can be viewed, etc. Debugging, with appropriate tools, can also take place at the model level - e.g. set breakpoint on state or operation entry or exit, insertion of events, setting of attribute values, etc. The goal is always to *show at this point in the development* the system is correct.

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Steps

Expand All Steps | Collapse All Steps

- Determine the purpose of the execution
- Set up the execution environment
- Compile and link model content
- Run the model
- Analyze execution results

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Properties

More Information

Tool Mentors	<ul style="list-style-type: none"> Executing a Model with Rhapsody®
---------------------	--

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RTC: Tracking via dashboards

IBM Rational Team Concert - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Rational Team Concert Marco | Log Out | ?

Dashboards Project Areas Work Items **Plans** Source Control Builds Reports Adaptive Cruise Control

My Current Plans >

Previous | 1 of 1 | Next

Iteration 3 (1.0) Related Plans (0)

Owner: Adaptive Cruise Control Team Area | Iteration: I3 (3/1/10 - 5/31/10) | 1 Closed | 20 Open

Overview | **Planned Items** | Charts

Progress: 0/248 | -244.5 h Estimated: 90%

View As: Ranked Tree

ACC Speed Control Mode	High	Marco	In Progress	128
ACC Speed Control Mode Engineer Tests	High	Tanuj	New	131
ACC Speed Control Mode Engineer Model	Medium	Unassigned	New	130
ACC Speed Control Mode Engineer Requirements	Unassigned	Michelle	Resolved	429
ACC Deceleration Control	High	Scott	In Progress	137
ACC Deceleration Control Engineer Model	High	Deb	In Progress	139
ACC Deceleration Control Engineer Requirements	High	Bob	New	138
ACC Deceleration Control Engineer Tests	Low	Tanuj	New	140
ACC Follow Mode	Medium	Michelle	In Progress	132
ACC Maintain Time Gap	Medium	Tanuj	In Progress	124
ACC Disable Adaptive Cruise Control	Unassigned	Unassigned	New	144
Failing Test Case "Test Cruise Disabled"	Unassigned	Deb	New	145

IBM. jazz

Done rtc:9444

RTC: Tracking via dashboards

Rational Team Concert | Deb | Log Out | Adaptive Cruise Control

Adaptive Cruise Control

Project Description
Project area for an Adaptive Cruise Control model.

Adaptive Cruise Control Teams (1)
Adaptive Cruise Control Team Area

Server Status
Database: Connected
Services: Ok
Memory: 20% free of 256MB allocated / 1500MB Max
Version: 1.0.0.2 iFix 1.0004.00003.10473
Uptime: 4 days, 12

Work Item Query
Closed created by me (0)
Closed subscribed by me (0)
New unassigned (5)
Open assigned to me (4)
Open assigned to me (current milestone) (4)
Open created by me (2)
Open subscribed by me (2)
Pending approvals for me (0)
Recently closed (0)
Recently created (0)
Recently modified (0)
Resolved by me (1)

Unassigned Defects Blocking Test Execution (0)
No work items found.

Open current milestone (20) Owned By

Person	Count
Michelle	5
Unassigned	4
Deb	4
Tanuj	4
Bob	1
Maroo	1
Scott	1

Build Duration

Hours

0:00

0:00

Annotations:

- Easy access to favorite queries
- Graphical presentation of queries
- Information related to the dashboards viewer



RTC: Developer's Dashboard

Rational Team Concert

Deb | Log Out | ?

Dashboards | Project Areas | Work Items | **Plans** | Source Control | Builds | Reports

Adaptive Cruise Control

My Current Plans >

Previous | **1 of 1** | Next

Iteration 3 (1.0) Related Plans (0)

Owner: Adaptive Cruise Control Team Area | Iteration: I3 (3/1/10 - 5/31/10) | 2 Closed | 18 Open

Overview | **Planned Items** | Charts

View As: **Developer's Taskboard**

Team	Item	Progress	Estimated
AI Closed Items: 0 Open Items: 0	No Work	Progress: --	Estimated: --
	ACC Deceleration Control	Progress: 0/0 +0 h	Estimated: 100%
	ACC Deceleration Control Engineer Model	Progress: 0/16 -15.5 h	Estimated: 100%
Bob Closed Items: 0 Open Items: 1	ACC Deceleration Control	Progress: 0/137	Estimated: --
	ACC Deceleration Control Engineer Model	Progress: 0/139	Estimated: --
Deb Closed Items: 1 Open Items: 2	ACC Maintain Time Gap	Progress: 0/124	Estimated: --
	ACC Maintain Time Gap Engineer Model	Progress: 0/126	Estimated: --
Marco Closed Items: 0 Open Items: 2	Falling Test Case "Test Cruise Enabled"	Progress: 0/48 -48 h	Estimated: 100%
		Progress: 0/48 -48 h	Estimated: 100%
Michelle		Progress: 0/48 -48 h	Estimated: 100%

Done rtc:9444

Overview of planned and assigned tasks



Rational System Workbench: DOORS

- DOORS is the best of breed requirements management tool
- DOORS provides
 - ▶ Collaborative environment for requirements stakeholders to participate in the requirements definition and review activities
 - ▶ Ability to manage changing requirements
 - ▶ Scalability from small to very large projects
 - ▶ Exchange requirements with other requirements tools



RTC Tool Integrations

- Managing stakeholder and system requirements

The screenshot displays the Rational Team Concert interface with two main windows:

- System Functional Requirements:** A table listing requirements for Adaptive Cruise Control (ACC).

ID	Requirement
17	1.7 ACC Requirement 007 Speed Control Mode - Operation during this mode is equivalent to that of control. If no forward vehicle is present within the Time Gap or clearance of vehicle's speed is maintained at the target speed.
18	1.8 ACC Requirement 008 Follow Mode - The ACC system maintains a target speed when a forward vehicle is present within the time gap control. When this mode of operation is active, the system sends a target speed to the Engine Control Module and deceleration Brake Control module to maintain the target speed between the vehicles.
20	1.9 ACC Requirement 009 Deceleration Control - The ACC system decelerates the vehicle by lowering the target speed sent to the Engine Control Module and sending a brake deceleration command to the Brake Control Module.
22	1.10 ACC Requirement 0010 The maximum allowed braking effort of the system is 1 MPH per 1.5 seconds.
24	1.11 ACC Requirement 0011 During brake deceleration events, the Brake Control Module activates the brake.
26	1.12 ACC Requirement 0012 Acceleration Control - The ACC system accelerates the vehicle by increasing the target speed sent to the Engine Control Module.
28	1.13 ACC Requirement 0013 The Engine Control Module tries to maintain the target speed and can accelerate at up to 1 mph per 1.5 seconds.
30	1.14 ACC Requirement 0014 Adjusting The Time Gap - The driver can adjust the time gap value by pressing the 'Time Gap -' switch. Pressing the 'Time Gap +' switch causes the clearance between the two vehicles to increase and therefore the time gap value to increase and therefore the clearance between vehicles to increase.
32	1.15 ACC Requirement 0015 Reaction to a Slow Moving or Stopped Vehicle - Situations may occur such as when the vehicle is unable to maintain the time gap within the deceleration authority of the system (1.5 seconds). The clearance between the ACC vehicle and the forward vehicle is decreasing or the minimum vehicle speed of 25 [mph] may be reached. Under these conditions, the ACC system enters 'ACC standby' and alerts the driver by displaying a 'Required' text message on the instrument cluster and by turning on an ACC indicator light.
- Rhapsody Modeling - PrimaryUses in AnalysisPkg:** A use case diagram showing actors (Radar, Driver, ECM, Display) and use cases (Control Vehicle Speed, Manage ACC Modes, Control Cruise Settings). A red line connects Radar to Control Vehicle Speed, and a blue dashed arrow labeled «trace» connects Control Vehicle Speed to ECM. A yellow callout bubble points to the diagram with the text "System use-case tracing to requirement".

Additional callouts and interface elements include:

- A yellow callout bubble pointing to requirement 1.8: "System requirement linked to task".
- A yellow callout bubble pointing to requirement 1.14: "System engineering task worked on".
- A yellow callout bubble pointing to the bottom right of the Rhapsody window: "Sharing model changes with the team".
- A toolbar at the bottom right with "NUM LOCK: OFF".
- A "My Work" sidebar showing task lists: "Inbox (Adaptive Cruise Control)", "Current Work (Adaptive Cruise Control)", "Past (1 items)", "Today (2 items)", and "Future Work (Adaptive Cruise Control)".

Rational System Workbench: Rhapsody

- Support for Systems Engineering
 - ▶ SysML
 - ▶ DoDAF and MODAF (UPDM)
 - ▶ Simulation and model-based debugging
- Support for Software Development
 - ▶ Rhapsody has specialized support for technical and embedded software development
 - ▶ Supports
 - Model-based execution and debugging
 - Model-code associative always maintains your models in sync with your code
 - Production-quality code generation (C, C++, C#, Java, Ada)
 - Dozens of embedded RTOS environments and compilers out-of-the-box
- Systems extensions with profiles for
 - Safety analysis
 - Schedulability analysis
 - Simulink integration
 - Functional C modeling
 - AutoSAR
 - CORBA
 - ...



Rhapsody – Model Execution and Debugging

The screenshot displays the IBM Rational Rhapsody IDE interface. The top window shows a sequence diagram titled "Sequence Diagram: Animated Calculator_4". The diagram features lifelines for ENV, Calculator, CalculatorStimulator, CharParser, Tokenizer, Evaluator, and Stack. The ENV lifeline initiates the process with a "Create()" message to the Calculator lifeline. Subsequent "Create()" messages are sent from Calculator to CalculatorStimulator, CharParser, Tokenizer, Evaluator, and Stack. The diagram illustrates the flow of control and data between these components during the execution of an animated calculator model.

Below the sequence diagram, three statechart windows are visible, each showing the internal state transitions for a specific component:

- Statechart of CharParser:** Shows states like "idle", "waiting for character", and "waiting for operator". Transitions are triggered by events such as "character" and "operator".
- Statechart of Tokenizer:** Shows states like "idle", "waiting for token", and "waiting for operator". Transitions are triggered by events like "token" and "operator".
- Statechart of Evaluator:** Shows states like "idle", "waiting for expression", and "waiting for operator". Transitions are triggered by events like "expression" and "operator".

The bottom of the screen shows the Windows taskbar with the Start button and various application icons, including Microsoft Outlook, Firefox, and Rhapsody in C++.



Rhapsody integration with RTC (and DOORS and RQM ...)

The screenshot displays the Rational Rhapsody Modeling environment integrated with Rational Team Concert (RTC). The interface is divided into several panes:

- Left Pane (Model Browser):** Shows the project structure for 'AdaptiveCruiseControl', including packages like 'FunctionalRequirements', 'AnalysisPkg', 'ArchitecturePkg', and 'AlgorithmPkg'.
- Task 139 Details (Center-Left):**
 - Summary:** In Progress
 - Details:** Type: Task, Severity: Normal, Found In: Release (1.0), Creation Date: Mar 31, 2010 1:08 PM, Created By: Scott, Team Area: Adaptive Cruise Control Team, Filed Against: Adaptive Cruise Control, Tags: (empty), Owned By: Deb, Priority: High, Planned For: -> I3, Estimate: 2 d, Time Spent: (empty), Due Date: None.
 - Quick Information:** Subscribers (1): 5, Parent: 137
- Diagram Pane (Center-Right):** Displays a UML diagram for 'AdaptiveCruiseSystem'. It shows components: Radar, aRadarMon, CCM, RM, aCCM, and SpeedFilter.
 - Inputs: Radar, vehicleSpeed: double
 - Outputs: desiredSpeed: int, out: real_T, measuredSpeed: real_T
 - Internal connections: Radar to aRadarMon, aRadarMon to CCM, CCM to RM, RM to aCCM, aCCM to desiredSpeed: int, SpeedFilter to out: real_T, out: real_T to measuredSpeed: real_T.
- Right Pane (Diagram Tools):** Lists various diagram tool types such as Object, Class, Composite Class, Package, File, Port, Generalization, Association, Directed Association, Aggregation, Composition, Link, Dependency, Flow, Realization, Interface, and Actor.

The bottom status bar shows the current task: '139: ACC Deceleration Control Engineer Model'.

Rational System Workbench: Rational Quality Manager (RQM)

- RQM tracks and manages the quality aspects of system development
- RQM provides
 - ▶ Risk-based testing – prioritize features and functions to be tested based on criteria such as
 - Criticality
 - Likelihood of failure
 - Impact of failure
 - ▶ Duplicate defect identification
 - ▶ Multi-level test planning for big projects
 - ▶ Test authoring
 - ▶ Test reuse
 - ▶ Test coverage optimization
 - ▶ Built-in ROI metrics reporting



RTC with Rational Quality Manager

'System Functional Requirements' current 0.0 in / Adaptive Cruise Control (Formal module) - DOORS

ID	Test Cases	Test Status	Verdict
1	1 Adaptive Cruise Control Functional Requirements	Not Approved	Passed
2	1.1 ACC Requirement 001 <i>Initialization - The ACC shall initialize to the ACC off state whenever the ignition key is cycled from the OFF position to the ON position</i>	(6) Test Adaptive Cruise Enabled: Not Approved	
4	1.2 ACC Requirement 002 <i>Entering ACC standby - The ACC system shall enter 'ACC standby' mode when ACC 'On' button.</i>		
6	1.3 ACC Requirement 003 <i>The following conditions must be true for the system to enter 'ACC active' in response to cruise switches: Brake Switch = brake not applied Vehicle Speed >= 30 mph</i>		
10	1.4 ACC Requirement 004 <i>Entering ACC active via SET - The ACC system shall enter the 'ACC active' state by pressing the 'Set' button provided ACC active enable criteria is met. The ACC system shall capture the current speed of the vehicle when the Set button was pressed and this will become the target speed.</i>	(9) Test Set Desired Speed: Passed	Not Approved Passed
12	1.5 ACC Requirement 005 <i>Entering ACC active via RESUME - The ACC system shall enter the 'ACC active' state by pressing the 'RESUME' button provided ACC active enable criteria is met. The ACC system shall use the prior saved target speed as the target speed when 'RESUME' is pressed, else, the current vehicle speed</i>	(4) Test increment Speed: Passed	Not Approved Passed

Test coverage and status reported in DOORS

Username: Bob | Exclusive edit mode

Rational Quality Manager - Mozilla Firefox

Tanuj | Log Out | Type to Search

Admin - Preferences Adaptive Cruise Control

Dashboards

Tanuj's Dashboard

General

Plan Requirements: Coverage by Test Case

Reports on test coverage

Overview and state of software builds ready for test

Task assignments in RTC added to the RQM test dashboard

- Adaptive Cruise Control Team Events (71 new)
 - * Provide the Summary Section for TestCase: Test Follow Mode (46) Apr 1, 2010
 - * Provide the Summary Section for TestCase: Test Deceleration Control (45) Apr 1, 2010
 - * Provide the Manual Steps Section for VersionedExecutionScript: Determine Object Present Script (44) Mar 31, 2010
 - * Provide the Manual Steps Section for VersionedExecutionScript: Mar 31, 2010
- Adaptive Cruise Control
 - ✓ Succeeded: ACC Dev Team build 20100401-0909 Apr 1, 2010
 - ✗ Failed: ACC Dev Team build 20100401-0903 Apr 1, 2010
 - ✓ Succeeded: ACC Dev Team build 20100401-0859 Apr 1, 2010
 - ✓ Succeeded: ACC Dev Team build 20100331-1024 Mar 31, 2010
- Open assigned to me (current milestone) (4)
 - 140: ACC Deceleration Control Engineer Tests
 - 131: ACC Speed Control Mode Engineer Tests
 - 127: ACC Maintain Time Gap Engineer Tests
 - 124: ACC Maintain Time Gap

Test cases's count of how many requirements are associated
May 26, 2010 4:31:10 AM

Done | rqm:9443



RQM Dashboard

Dashboard: Deb's Dashboard - IBM Rational Team Concert - Mozilla Firefox

File Edit View History Bookmarks Tools Help

https://rtc:9444/jazz/web/projects/Ade

Dashboards Admin ACCQM Home Jazz Community Site Doors Web Access

Rational Team Concert

Dashboards Project Areas Work Items Plans Source Control Builds Reports

Deb's Dashboard

General

About Deb

Name: Deb
User ID: Deb
Email: Deb@jazz.squawk.net

Projects and teams

Adaptive Cruise Control team-member
Adaptive Cruise Control Team Area team-member

Open assigned to me (current milestone)

- 145: Failing Test Case "Test Cruise Disabled"
- 139: ACC Deceleration Control Engineer Model
- 126: ACC Maintain Time Gap Engineer Model
- 117: Failing Test Case "Test Cruise Enabled"

Adaptive Cruise Control Builds

- Succeeded: ACC Dev Team build 20100401-0908 Apr 1, 2010
- Failed: ACC Dev Team build 20100401-0903 Apr 1, 2010
- Succeeded: ACC Dev Team build 20100401-0859 Apr 1, 2010
- Succeeded: ACC Dev Team build 20100331-1024 Mar 31, 2010

Page 1 of 2

IBM

Done rtc:9444

Execution Result - Rational Quality Manager - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Rational Quality Manager Tanuj Log Out Type to Search

Admin Preferences Adaptive Cruise Control

Dashboards View Execution Results Execution Result

Execution Result

Command Line Result

Discard Changes Save

Saved successfully at: 05:24:49

ID: 4

Actual Result: **Blocked**

Host Name: calmVM

Owner:

Test Milestone: <05:28:04>

Test Case:

Test Script:

Test Data:

Build

Weight:

Weight Distrib

Pass

Fail

Inconclusive

Blocked

Attempted

Defects

Test Environ

Defects

Show All lte

Blocking Status Summary

145: Failing Test Case "Test Cruise Disabled"

Done rqm:9443

Submit defects directly from failing test cases

Defects are added directly to the To-Do list for the developer

Add New Defect

Summary: * Failing Test Case "Test Cruise Disabled"

State: [Dropdown]

Resolution: [Dropdown]

Severity: Normal

Found In: [Dropdown]

Filed Against: * [Dropdown]

Owned By: [Dropdown]

Priority: [Dropdown]

Planned For: [Dropdown]

Description: Failing Test Case "Test Cruise Disabled"

Discussion: No Comments

Add Comment

OK Cancel

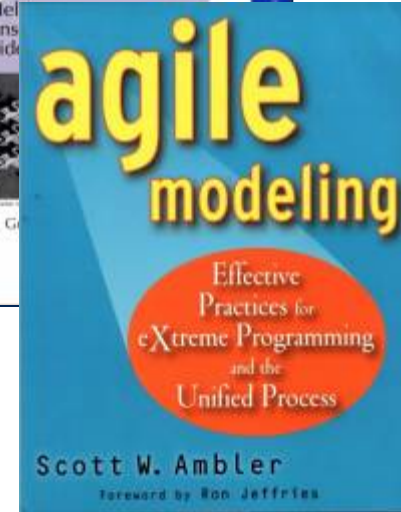
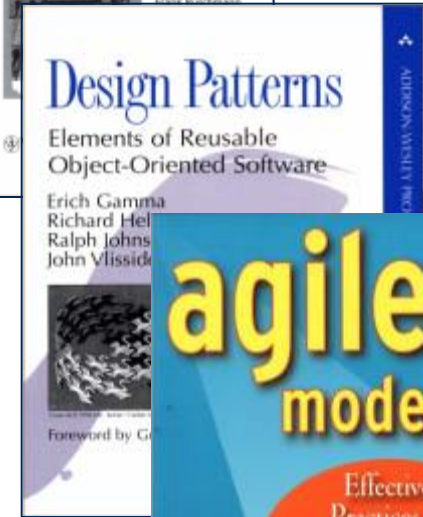
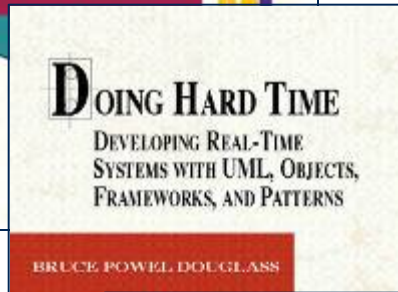
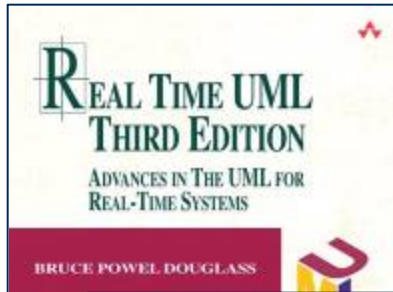


Extending the Rational System Workbench

- Of course these tools aren't all you need or want. Typical extensions include:
 - ▶ System of Systems
 - ▶ Product life cycle management
 - ▶ Reporting and metrics (Rational Publishing Engine and Insight)
 - ▶ Service management
 - ▶ Configuration management (e.g. ClearCase or Synergy)
 - ▶ Change management (e.g. ClearQuest or Change)



References





www.ibm/software/rational

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