



SE-1783 (BE)

What's New with IBM Rational Systems Engineering and Software Development for Systems Solutions

Noud van Mullekom

Software Specialty Architect and CTP Manager BeNeLux

noud.vanmullekom@nl.ibm.com

IBM Software

Innovate2012

The Premier Event for Software and Systems Innovation



Please note

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

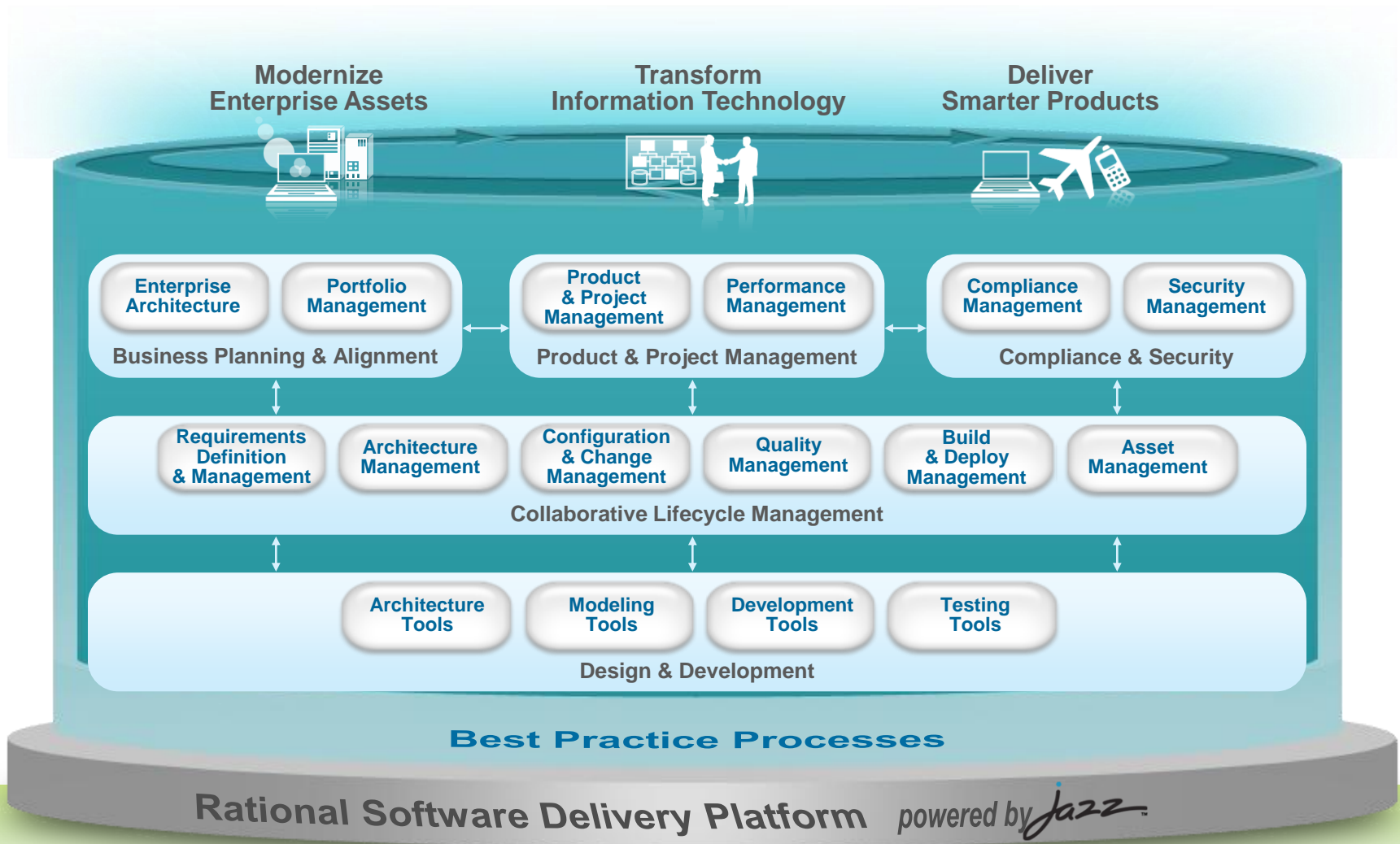
The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

Agenda

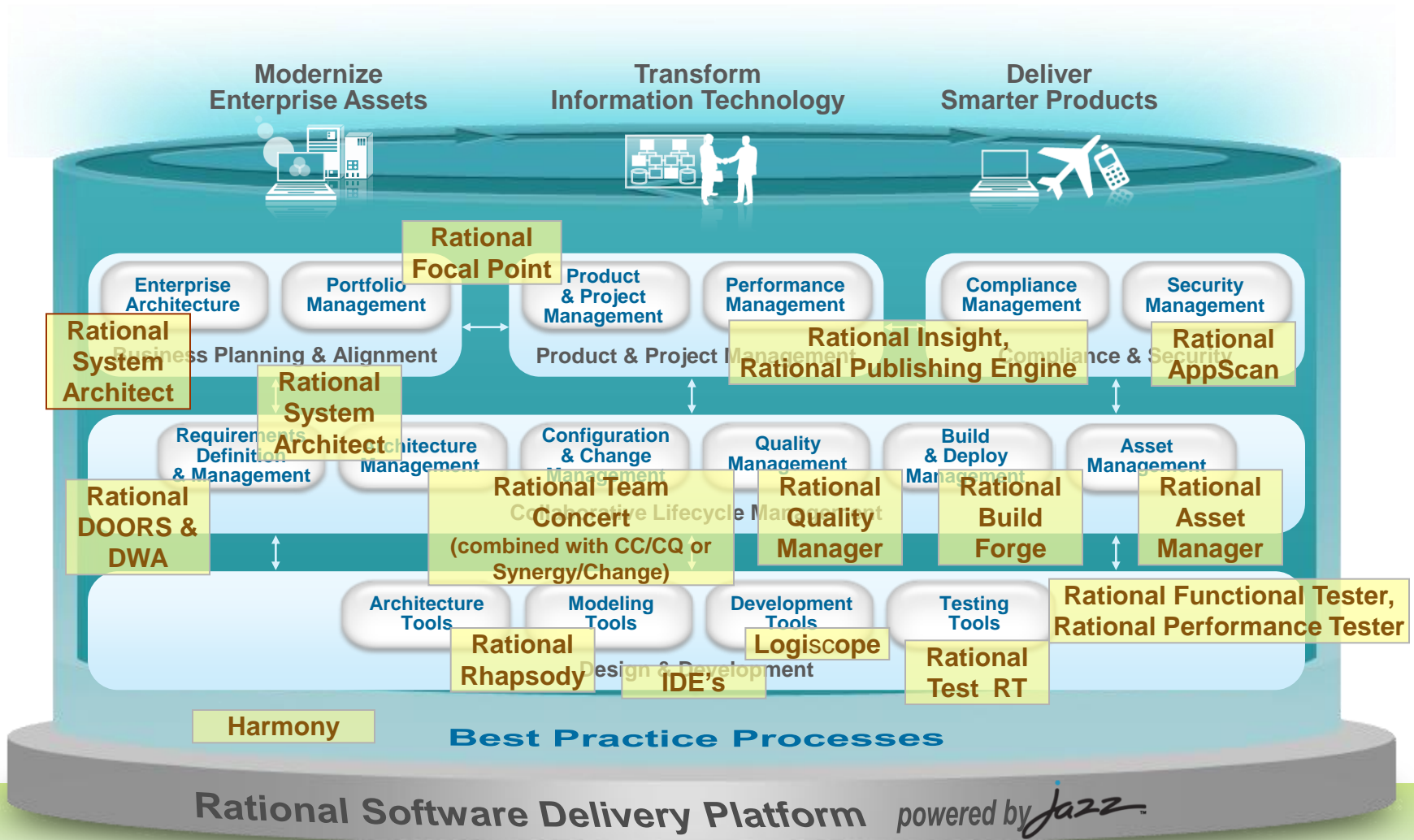
- **Recap**
 - Rational Product Portfolio Overview
 - Rational Product Domains
 - Rational Systems and Embedded Software
- **Now and Next**
 - Product Solutions
 - CLM 4.0, RTC 4.0, RQM 4.0
 - DOORS 8.4 and DOORS Next Generation
 - Rhapsody 8.0 and Design Manager 4.0
 - RELM
 - Industry Solutions
- **Don't Forget**

Rational Product Portfolio Overview



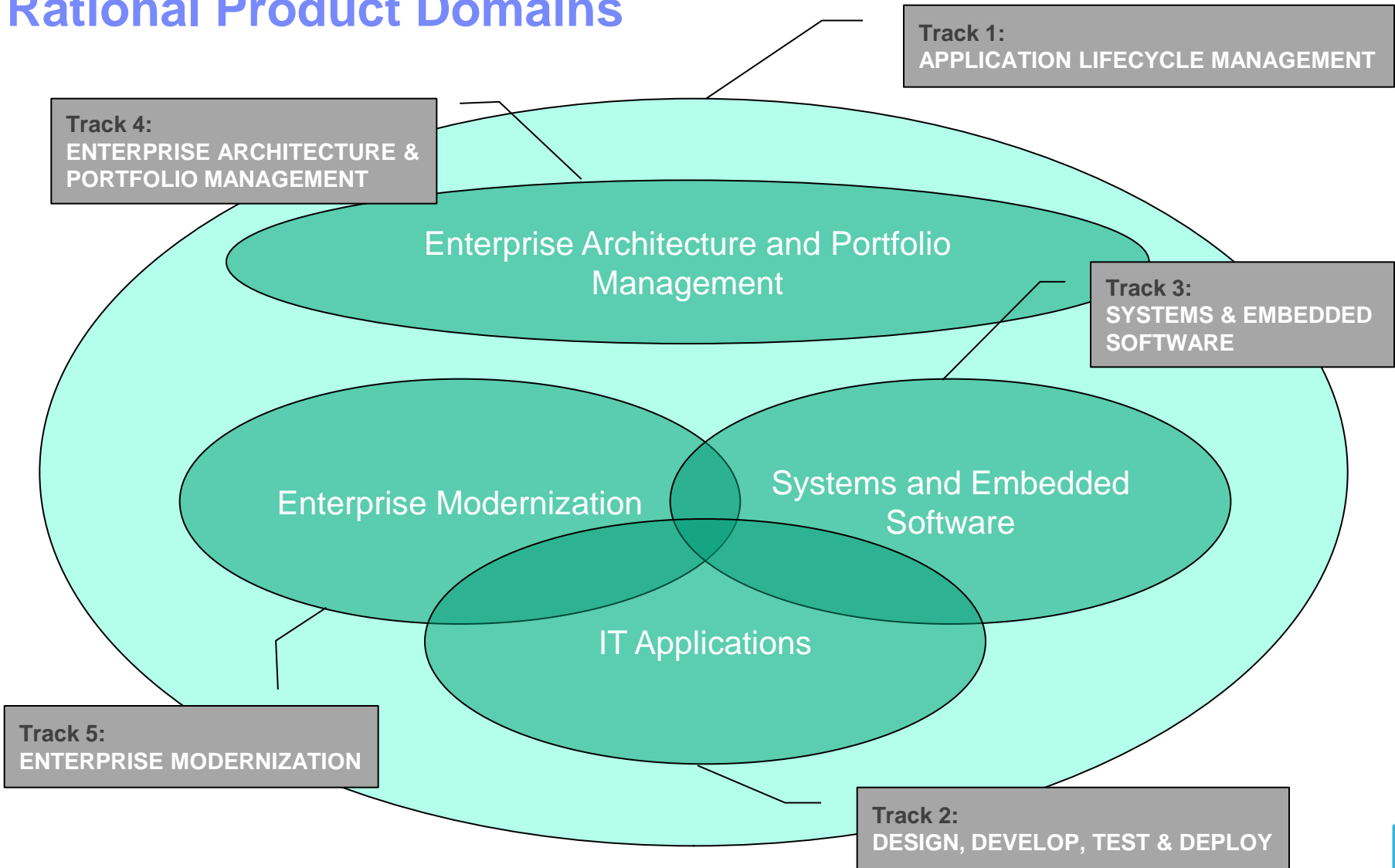
IBM and Business Partner Ecosystem

Rational Product Portfolio Overview



IBM and Business Partner Ecosystem

Rational Product Domains



Rational Systems & Embedded Software - Core



Open Services for Lifecycle Collaboration

REQUIREMENTS MANAGEMENT

Manage all system requirements with full traceability across the lifecycle

Rational DOORS

QUALITY MANAGEMENT

Achieve "quality by design" with an integrated, automated testing process

Rational Quality Manager

ARCHITECTURE & DESIGN

Use modeling to validate requirements, architecture and design throughout the development process

Rational Rhapsody

DEVELOPER TESTING

Model based and code based unit testing to ensure high quality designs and production code

Test RT, Logiscope, TestConductor

COLLABORATION, PLANNING & CHANGE MANAGEMENT

Collaborate across diverse engineering disciplines and development teams

Rational Team Concert, Design Manager

**Rational ClearCase
Rational ClearQuest**

**Rational Synergy
Rational Change**



NOW & NEXT – Product Solutions

Updated Product Solution:

- CLM 4.01 – includes support of Design Manager and DOORS Next Generation interoperation. Various improvements to clustering & server rename support
- DOORS 9.5 Delivers interoperation with DOORS Next Generation
- RTW, RPTS and RTVS 8.01 (aka Green Hat) Improved MQ & z support, CLM 2012 and optimal integration, internal API for custom protocol development

New Product Solution:

- Rational Lifecycle Integration Adapters 1.0 Packaged offering with OSLC Adapters for HP QC, Git and Atlassian JIRA
- RELM - Rational Engineering Lifecycle Manager
- Rhapsody 8.0 / Rhapsody Design Manager 4.0
- DOORS Next Generation

Collaborative Lifecycle Management (CLM)

REQUIREMENTS MANAGEMENT

Manage all system requirements
with full traceability across the lifecycle
Rational DOORS

QUALITY MANAGEMENT

Achieve "quality by design" with an integrated,
automated testing process
Rational Quality Manager



Open Services for Lifecycle Collaboration

COLLABORATION, PLANNING & CHANGE MANAGEMENT

Collaborate across diverse engineering disciplines and development teams
Rational Team Concert, Design Manager



Collaborative Lifecycle Management 2012 – CLM 4.01

- **Server Rename**
 - Scenarios supported: Production to Staging, Pilot to Production
- **Improved reporting with RRDG and RRDI**
 - Consistent RRDG across CLM, improved install and configuration for RRDI
- **CLM High Availability / Clustering on WAS**
 - Front load balancer dispatching, providing automatic failover
- **Support rolling upgrade capability (N-1) for CLM**
 - Coexistence of 3.0.1 and 4.x clients, upgrade incrementally
- **CLM extended with Design Management**
 - Design Management integrated into the lifecycle
- **Simpler, faster upgrades and deployments**
 - Automated WAS deployments, JTS Express Setup, accelerated data migration
- **Cross Repository Process Inheritance**
 - Share a project's process template across multiple JTS servers
- **CLM for Mobile**
 - Lifecycle management integration with IBM Mobile Platform
- **Enhanced CLM for SAP**
 - Lifecycle management for SAP extended with support for RTC and RRC

Rational Team Concert: An Overview

Agile Planning

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

Project Transparency

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

SCM

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

Work Items

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

Build

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

Jazz Team Server

- Single structure for project related artifacts
- World-class team on-boarding / offboarding including team membership, sub-teams and project inheritance
- Role-based operational control for flexible definition of process and capabilities
- Team advisor for defining / refining “rules” and enabling continuous improvement
- Process enactment and enforcement
- In-context collaboration enables team members to communicate in context of their work

What is new in RTC 4.0

- **Planning**
 - Plan across projects; Support Kanban; Improved MS-Project Import/Export
- **Work Items**
 - More flexible access control, user input on queries, manage external HTTP data sources
- **SCM**
 - Improved variant management - locate change sets across release streams
 - Flexible workspace layout and control – load rules from files
 - Version anything outside the IDE – Windows Shell SCM integration
 - Improved CLI; more CLI commands and enhanced scripting, Enhanced ISPF client
 - Integrate SCM better with MSSCCI tools
 - Load with dependencies
- **Build**
 - Out of the box support for Jenkins and Hudson
 - Improved build, promote and deploy for system z and IBM i

What is new in RTC 4.0

- **Planning**

- Plan across projects; Support Kanban; Improved MS-Project Import/Export

- **Work Items**

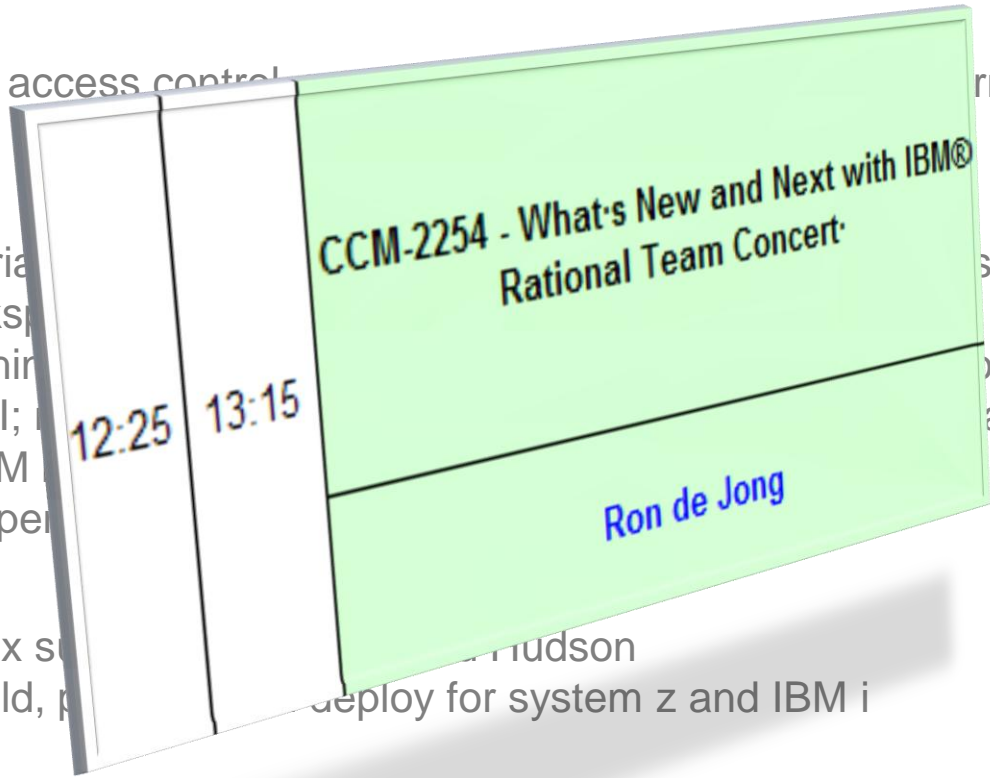
- More flexible access control
- External HTTP data sources

- **SCM**

- Improved variable support
- Flexible workspace
- Version anything
- Improved CLI; improved
- Integrate SCM
- Load with dependencies

- **Build**

- Out of the box support for Hudson
- Improved build, packaging and deploy for system z and IBM i



Rational Quality Management: An Overview



What is new in RQM 4.0

- **Test Planning**
 - Planning fields to help prioritize, schedule and manage testing activities
 - Generated TERs inherit estimate and priority from associate test case/suite
 - Traceability views for test plans, test cases/scripts, test suite/case execution records and test suite/case results
 - New and updated execution progress views
 - Flexible planning across test plans and iterations via timelines
 - Enable re-use of test iterations across test plans
- **Test Construction**
 - Ensure full coverage even if requirements keep changing
 - Real-time lifecycle traceability to RRC, ReqPro and DOORS requirements
 - Fine grained traceability to meet regulatory requirements
- **Team Collaboration**
 - Ownership assignment for test artifacts
 - Test artifact workflow customization
 - Improved review and approval process support including E-signature
 - Re-use process templates for new project areas
- **Reporting & Dashboard**
 - New dashboard widgets for Test teams and Test Execution Record Queries
 - Many reporting enhancements

What is new in RQM 4.0

- **Test Planning**

- Planning fields to help prioritize, schedule and manage testing activities
- Generated TERs inherit estimate and priority from associate test case/suite
- Traceability views for test plans, test cases/scripts, test case execution records and test suite/case results
- New and updated
- Flexible planning
- Enable re-use

- **Test Construct**

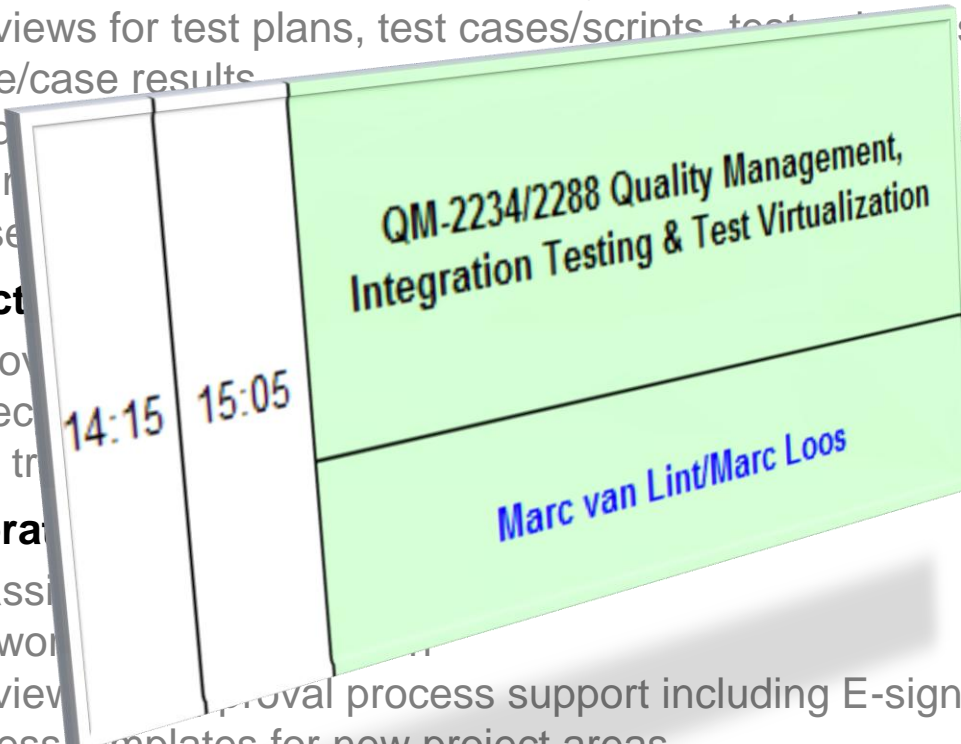
- Ensure full coverage
- Real-time lifecycle
- Fine grained traceability

- **Team Collabora**

- Ownership assigned
- Test artifact workflow
- Improved review and approval process support including E-signature
- Re-use process templates for new project areas

- **Reporting & Dashboard**

- New dashboard widgets for Test teams and Test Execution Record Queries
- Many reporting enhancements



Strategic investments in Requirements Management (1)

2012 Q4 - DOORS 9.5

- Integrations using OSLC and linked lifecycle data e.g. RQM, Design Manager
- RIF upgraded to ReqIF to support supply chains and ready for DOORS Next Generation interoperation
- DOORS - HPQC 11 integration
- Built-in and configurable metrics reporting
- Support for RELM

RRC 4.0

- Modules (structured collections of artifacts)
- Fine-grained data access controls
- Traceability improvements (*Graphical Links Explorer, Suspect Link Identification / Notification*)
- RRC – Design Manager integration (RSA & Rhapsody)
- RRC – HPQC integration

2012 Q4 - DOORS Next Generation

- Moving DOORS concepts to a Jazz requirements server
- Requirements re-use, fully functional web client, commercial database (on-line backup), WAN support without Citrix
- Interoperation with DOORS 9.4 /9.5 via ReqIF and OSLC linking
- Audience – existing DOORS customers on pilot projects, new customers in supply chain



Rational DOORS Next Generation

Collaborative specification development and requirements management

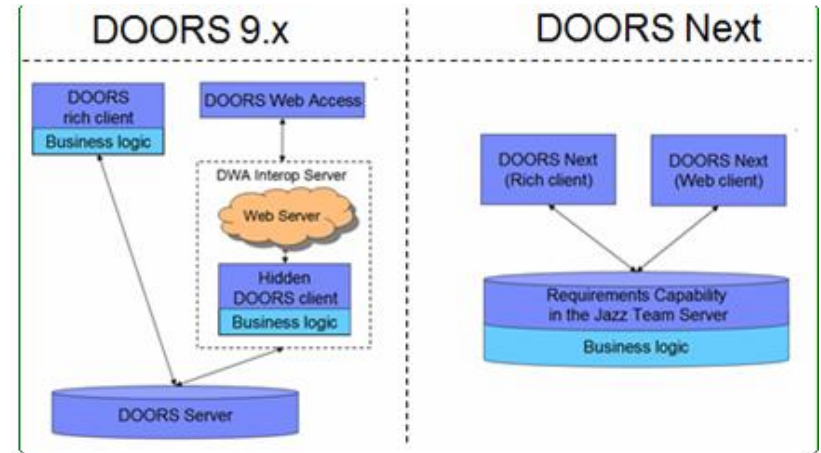
The IBM Rational DOORS project on Jazz.net is an initiative to develop a “next generation” requirements management solution for complex software and systems engineering environments. The goal of this initiative is to help engineers work more effectively across disciplines, time zones, and supply chains to achieve better project outcomes.

**DOORS Next Generation
Beta 4 is now available on Jazz.net**

Strategic investments in Requirements Management (2)

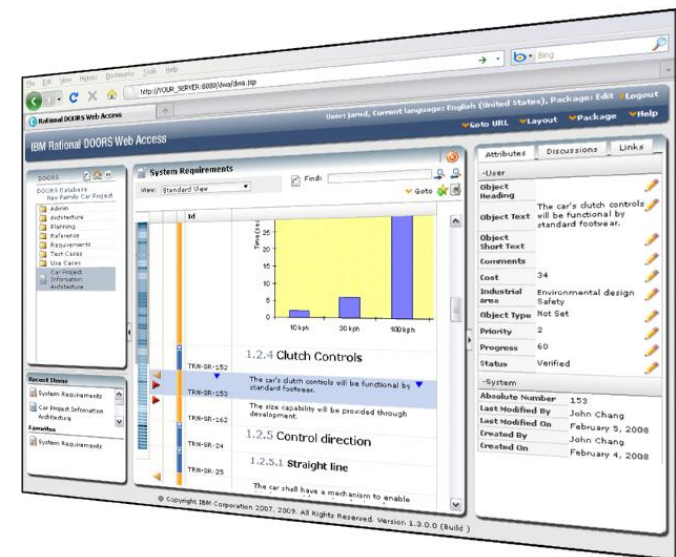
DOORS Next Generation

- Hosting DOORS on a Jazz requirements server
 - Commercial database support (COTS)
 - Performance, resilience, and availability
- ALM with RTC, RQM etc. using linked data
- Interoperation with DOORS 9.x
 - Linked lifecycle data between databases
 - Data exchange (ReqIF)
- Project level attribute/types management
- Dashboard viewlets
- Requirements reuse
- Requirements and task management



Future direction

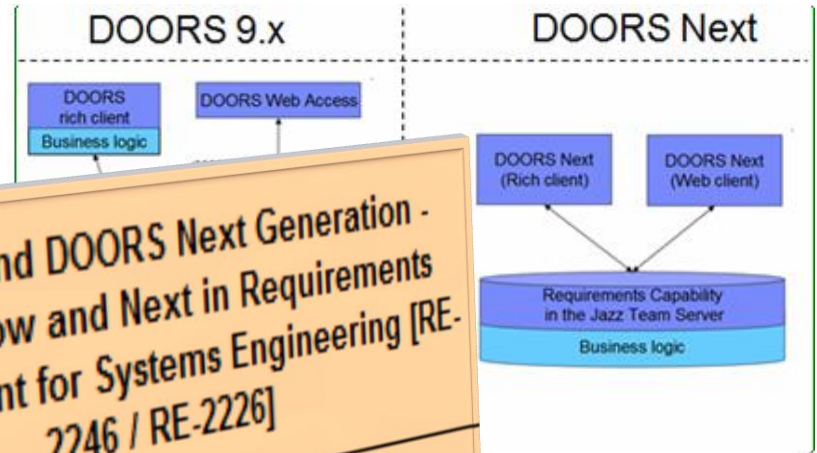
- Change notification
- Reuse, variant management,
- Configuration management at requirement level
- Lifecycle baselines
- RM OSLC and other integrations
- Migration solutions



Strategic investments in Requirements Management (2)

DOORS Next Generation

- Hosting DOORS on a Jazz requirements server
 - Commercial database support (COTS)
 - Performance, resilience, and availability
- ALM with RTC, RQM etc.
- Interoperation with
 - Linked lifecycle data
 - Data exchange (Re)
- Project level attributes
- Dashboard viewlets
- Requirements reuse
- Requirements and tool



DOORS and DOORS Next Generation -
What's Now and Next in Requirements
Management for Systems Engineering [RE-
2246 / RE-2226]

Han van Gerwen

11:35 12:25



Future direction

- Change notification
- Reuse, variant management
- Configuration management at requirement level
- Lifecycle baselines
- RM OSLC and other integrations
- Migration solutions

What is new in Rhapsody 8.0 and Design Manager 4.0 (1)

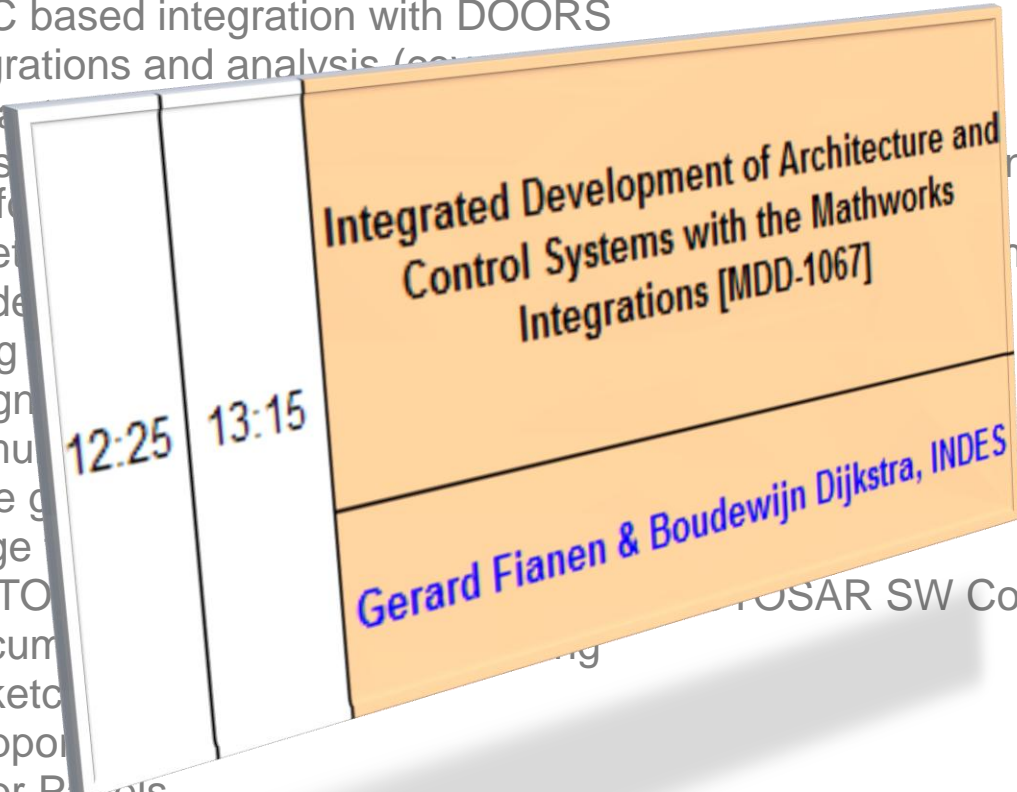
- **Highlights of new capabilities**

- Improve product consumability based on user type (role)
- Detailed OSLC based integration with DOORS
- Lifecycle integrations and analysis (coverage / impact analysis)
- Graphical impact analysis
- Rhapsody Design Management based version, variant, configuration and change management for Systems Engineers
- Improved Safety Critical Systems/Certification kits for simplified frameworks
- Statistical Model Query
- Spell Checking
- SysML 1.3 alignments
- Enhanced Simulink Workflows
- Improved code generation performance utilizing multiple cores
- Code Coverage for C++ (beyond MISRA C++)
- Enhanced AUTOSAR support including testing of AUTOSAR SW Components
- Enhanced document generation and reporting
- Web-based sketching
- UPDM 2.0 support
- Ada support for Panels
- Query-based searching of design resources across multiple project areas
- Sharing a Jazz Team Server with CLM for easier administration

What is new in Rhapsody 8.0 and Design Manager 4.0 (1)

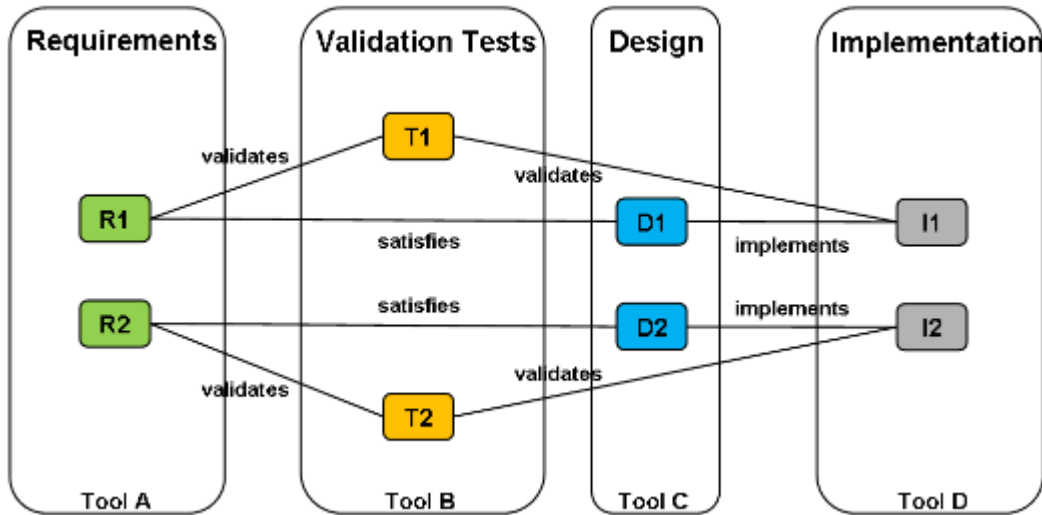
- **Highlights of new capabilities**

- Improve product consumability based on user type (role)
- Detailed OSLC based integration with DOORS
- Lifecycle integrations and analysis (e.g. with DOORS)
- Graphical impact analysis
- Rhapsody Design Manager for change management for PLM
- Improved Safety analysis
- Statistical Modeling
- Spell Checking
- SysML 1.3 alignment
- Enhanced Simulation
- Improved code generation
- Code Coverage
- Enhanced AUTOSAR SW Components
- Enhanced documentation
- Web-based sketching
- UPDM 2.0 support
- Ada support for Panels
- Query-based searching of design resources across multiple project areas
- Sharing a Jazz Team Server with CLM for easier administration



Rational Engineering Lifecycle Management – RELM (1)

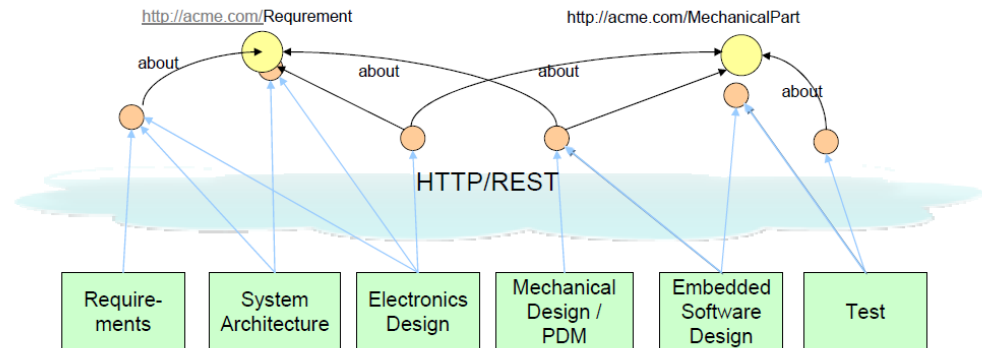
Building a Smarter Systems Engineering Environment



- Powerful impact analysis
- Make effective and timely decisions
- Improve reuse of engineering data
- maintain compliance with standards

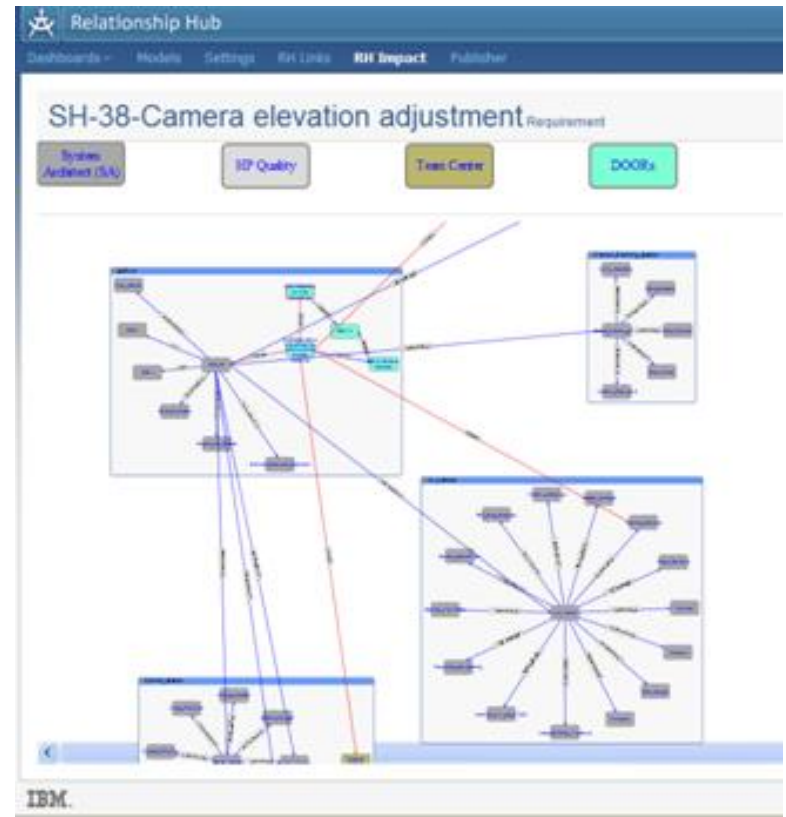
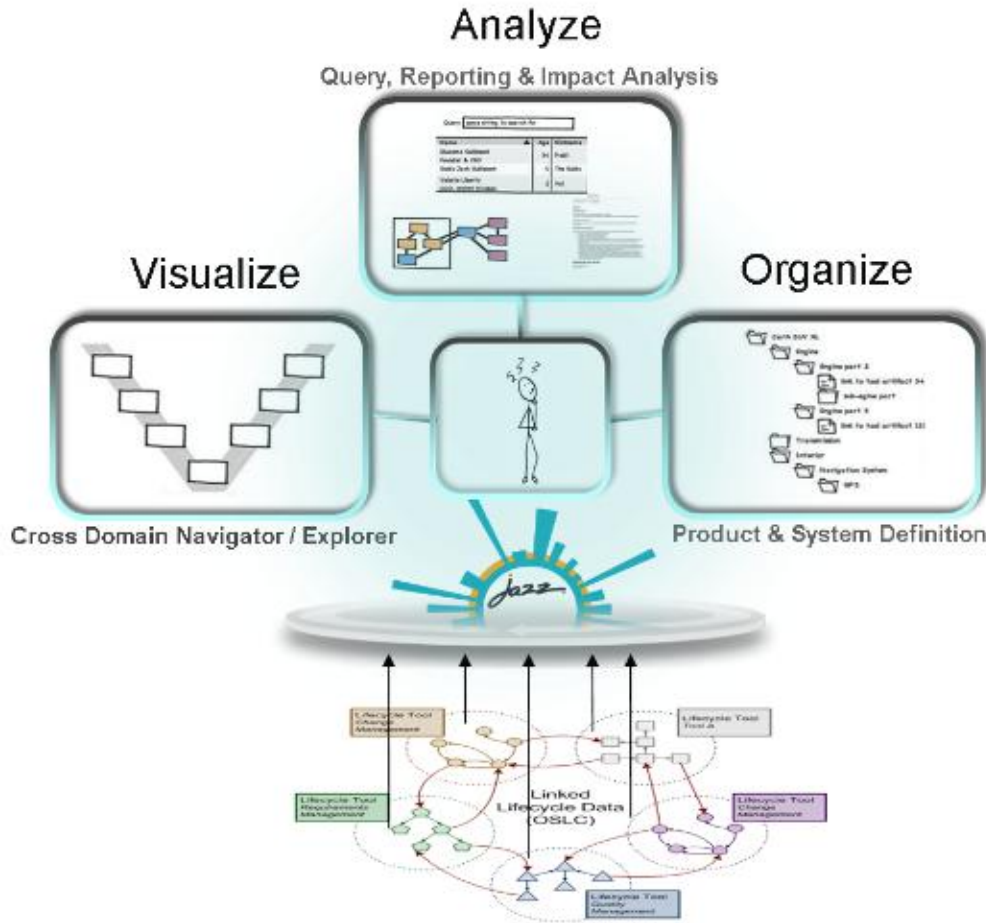
RELM helps engineering teams to visualize, analyze and organize engineering data and their relationships.

RELM indexes OSLC based linked lifecycle data to delivers cross-domain views, impact analysis and the ability to group the data into product & system structures to support search and queries.



Rational Engineering Lifecycle Management – RELM (2)

Building a Smarter Systems Engineering Environment



Example Impact Analysis View

Rational Engineering Lifecycle Management – RELM (2)

Building a Smarter Systems Engineering Environment

Analyze
Query, Reporting & Impact Analysis

Visualize

Cross Domain Navigator / Explorer

16:25 17:15

Integrating Rational's jazz solutions with multi-vendor and open source tools.

Alexandre Abi Khaled

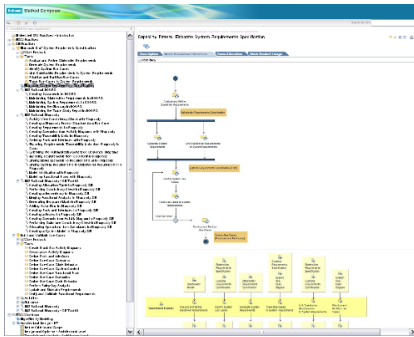
Relationship Hub
SH-38-Camera adjustment requirement
Test Cases DOORS

Example Impact Analysis View

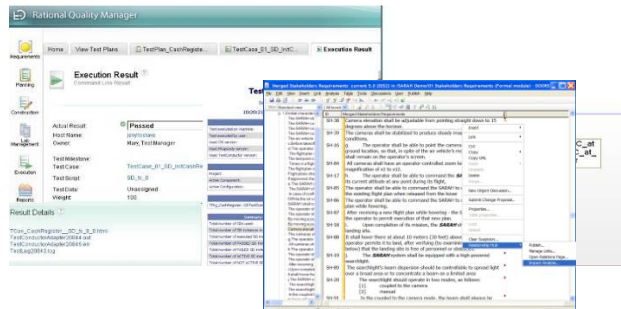
Industry Solution Accelerators

Tools, best practices, mentors, templates, services

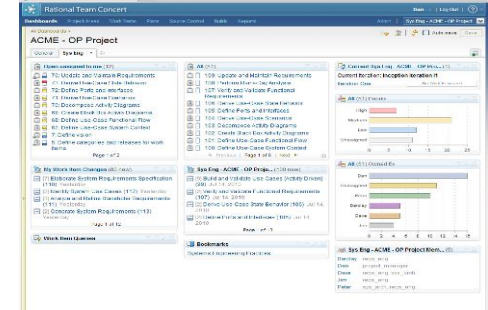
Practice Library



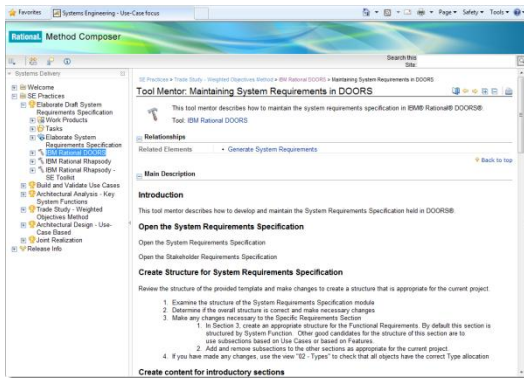
Starting Templates



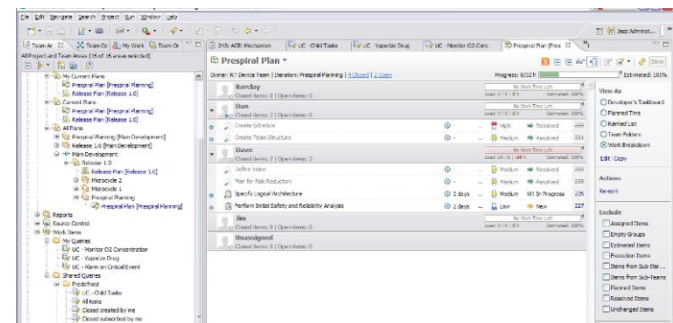
Dashboards



Tool Mentors



Auto Generation of Practice Work Items



Accelerating Industry Specific Development Capability With Industry Specific Safety Standards

Extends base Solution with industry-specific process and practice guidance
integrated with the tooling

A&D

Support for **DO-178B** standard, the international and de facto standard for certifying all aviation safety-critical software.



Electronics

Solution support for HW/SW Co-design. Integrations with key EDA companies like Cadence and Mentor Graphics



Automotive

Support for **ISO 26262**, an upcoming new automotive functional safety standard for in-vehicle electric and electronic (E/E) systems

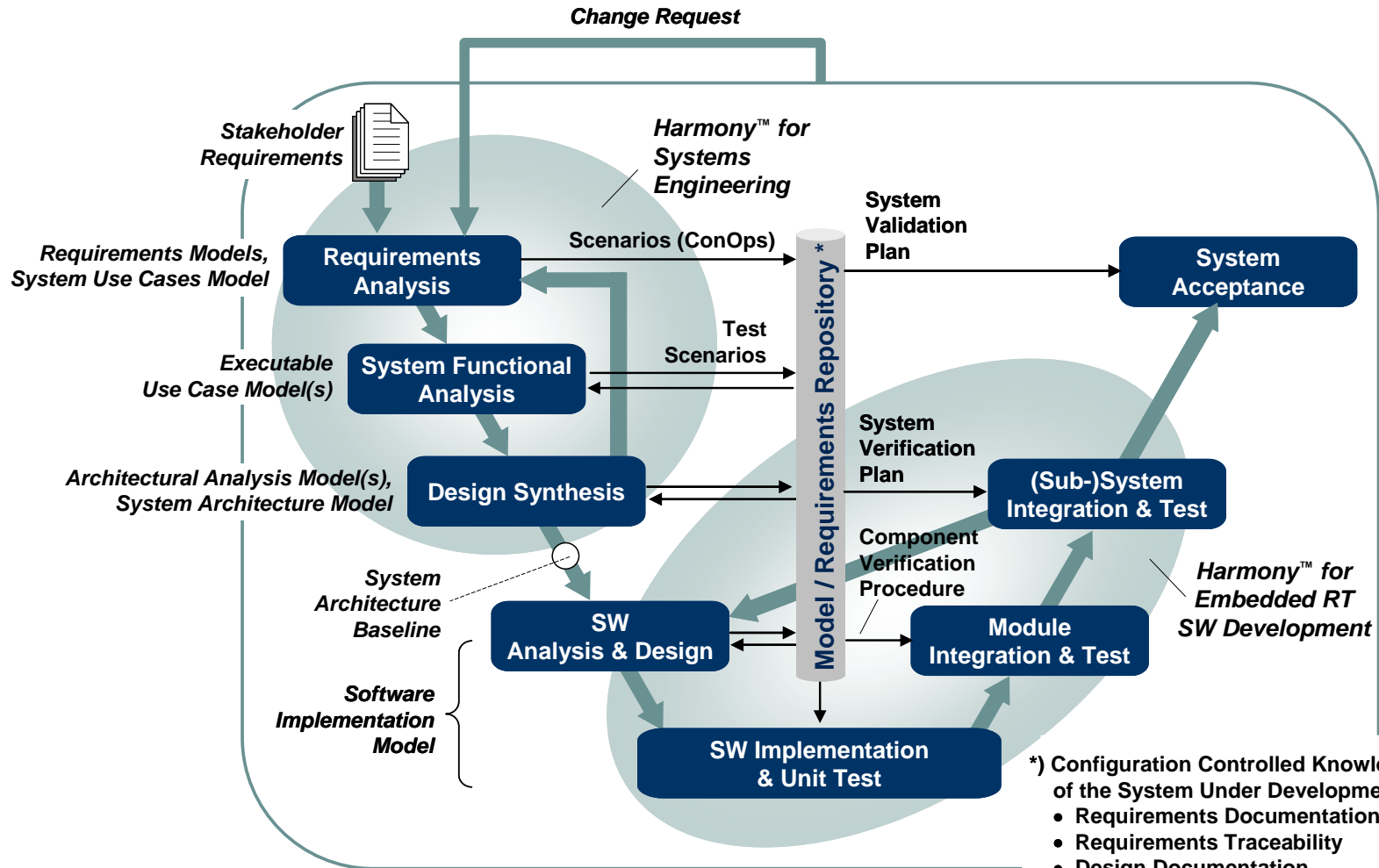


*Planned August delivery



Integrated system / embedded software development

Model-driven development with HARMONY SE & SW



NOW and NEXT – Industry Solution Accelerators

Updated Industry Solution Accelerator:

- SSE Core M3 Updates to include Design Manager 4.0 and RELM
- Auto M3 Includes updates from Core and expanded support for ISO 26262
- A&D M3 Includes updates from Core and expanded support for Defense Architecture frameworks and more DO-178B & C content.
- IBM Integrated Solution for Mobile Development and Delivery Combines Rational CLM and IBM Worklight mobile platform to create cross-platform multi-tiered mobile application + RAD 8.5.1, RDz 8.5.1, RDp 8.5.1 to support Worklight integration
- Governance of Application Development Outsourcing Release 2 adds RQM and scenarios supporting work item planning, Test Planning, User Acceptance Testing, and additional vendor monitoring and measurement.

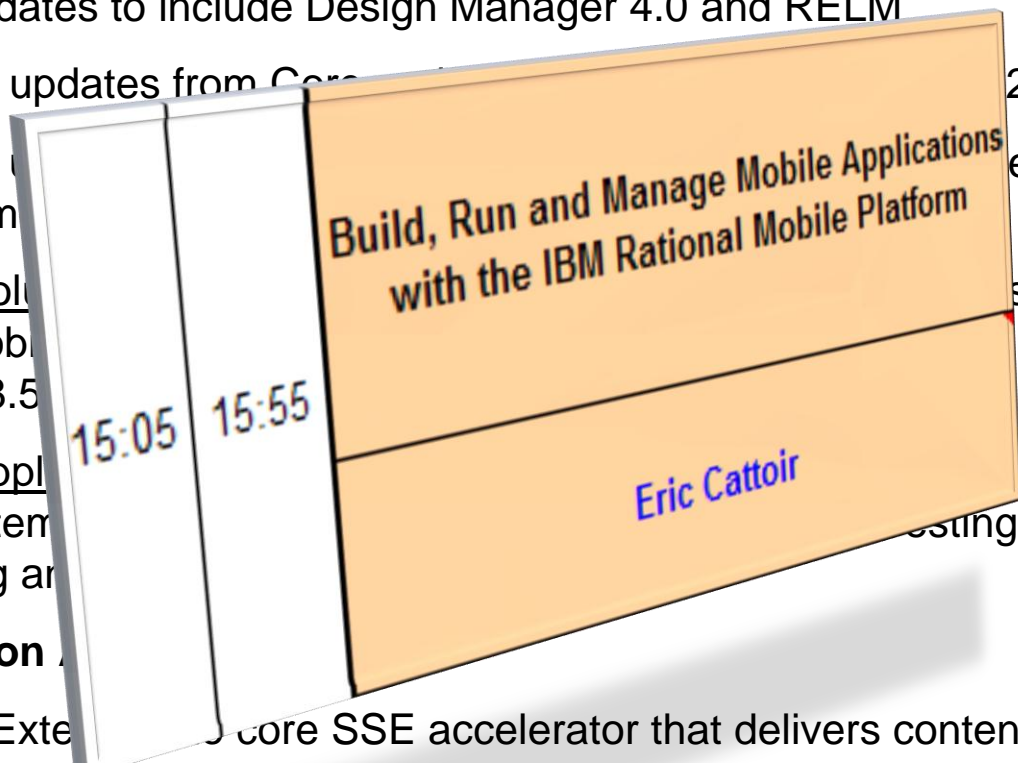
New Industry Solution Accelerator:

- Medical Devices Extension to core SSE accelerator that delivers content and best practices for development of complex medical devices
- Electronics Design Extension to core SSE accelerator that delivers content for companies developing complex semiconductors or printed circuit boards

NOW and NEXT – Industry Solution Accelerators

Updated Industry Solution Accelerator:

- SSE Core M3 Updates to include Design Manager 4.0 and RELM
- Auto M3 Includes updates from Core M3 262
- A&D M3 Includes updates to the Architecture
- IBM Integrated Solutions Includes Rational CLM and mobile application +
- IBM Worklight mobile RAD 8.5.1, RDz 8.5
- Governance of Applications RQM and scenarios supporting work items, testing, and additional vendor monitoring and



New Industry Solution Accelerator:

- Medical Devices Extension to core SSE accelerator that delivers content and best practices for development of complex medical devices
- Electronics Design Extension to core SSE accelerator that delivers content for companies developing complex semiconductors or printed circuit boards

Accelerator Bill of Materials

- Vision / Strategy (Business Overview)
- Release Notes
- Scenarios / Use Cases
- Sample Project / Application
- Scenario and sample project design notes
- Project Features and integrations
- Process and Practice Supported
- Improvement Metrics - ISSR
- Automation of Improved Metrics
- ROI Calculator
- Value Estimator
- Accelerator Business Command Center Metrics
- Solution Brief
- Marketing Video
- Client Reference and Case Studies
- Client-facing web pages
- External Announcement
- Internal Announcement
- Business Value White Paper
- Webcast
- Sales Plays - Sales
- Whiteboard Discussions that Include Accelerator
- Quick Reference Guide
- Client Facing Sales Presentation
- Competitive information
- Sales FAQ
- Sales Enablement Collateral
- Sales Learning Roadmap
- SSW Sales Kit
- Refine Quick Diagnostics Tool
- Refine VTT's to support Accelerator
- Health Assessment
- Client-facing Technical Sales presentation
- Demo scripts
- Recorded Demo
- VMware Image
- Cloud Image
- Proof of Technology (PoT)
- Technical Sales FAQ
- Technical sales Enablement Collateral
- Technical sales learning roadmap
- Technical Articles
- Architectural Brief
- Solution Installation Guide
- Deployment Services Offering(s)
- End-user Training Path
- Deployment FAQ
- Deployment Enablement Collateral
- Deployment Learning Roadmap
- Self-Check Service

Example: A&D Solution 2012

Scenarios

- *Systems CLM for Software development under DO-178C*
- *Systems CLM for S.o.S, Systems and Software under Defence Architecture Frameworks standards (DoDAF and UPDM)*

Product features / integrations / dependencies

- *Rhapsody & DM – 178 Qualification kit, UPDM 2.0 (extended) and DOORS/DM improvements.*
- *DOORS/RQM improvements*
- *After analysis we may determine that we will need to also include System Architect although will not be considered a core tool, only a “extension”.*
- *Non tool dependency – availability of 178C standard publically and legal approval*

Practice / process assets

- *Process and work item templates for DO-178C including testing (Q3)*
- *Updated 178 plan and checklist documents*
- *Tool 178 profiles for requirements & design*
- *Reporting templates for 178*
- *Process and work item templates to support systems that need to comply with Architecture Framework standards (DoDAF, UPDM)*
- *Tool mentors for core products supporting DO-178C and Defence AF as needed*

Marketing assets

- *New solution brief for Defence AF solution*
- *Updated solution brief for DO-178C support*
- *Updated DO-178C whitepaper*
- *New Defence AF whitepaper*

Pre-sales assets (sales and tech sales)

- *New sellers and technical presentation for Defence AF solution*
- *Updated sellers and technical presentations for DO-178C support*
- *Updated demo for DO-178*
- *Updated demo for Defence AF*
- *POT for DO-178B/C*
- *POT for Defence AF*

Post-sales (deployment) assets

- *Practice customization guidelines to deploy solutions*
- *Deployment getting started guide and help for sellers*

Example: Automotive Accelerator 2012

Scenarios

- *Systems CLM for Automotive Systems under ISO-26262 (expanded)*

Product features / integrations / dependencies

- *Rhapsody / DM – ISO-26262 Rhapsody and Test Conductor Qualification kit, DOORS/DM improvements, AUTOSAR updates.*
- *DOORS/RQM improvements*
- *RELM capabilities*
- *Non tool dependency – availability of ISO-26262 standard publicly and legal approvals*

Practice / process assets

- *Expanded practices, process and work item templates for ISO-26262 including testing.*
- *Software development workflows expanded upon, with AUTOSAR included*
- *Tool 26262 templates/profiles for requirements & design*
- *Reporting templates for 26262*
- *Tool mentors for core products supporting ISO-26262 as needed*
- *RELM practices*

Marketing assets

- *Updated solution brief for ISO-26262 support*
- *New ISO-26262 white paper focusing on design*

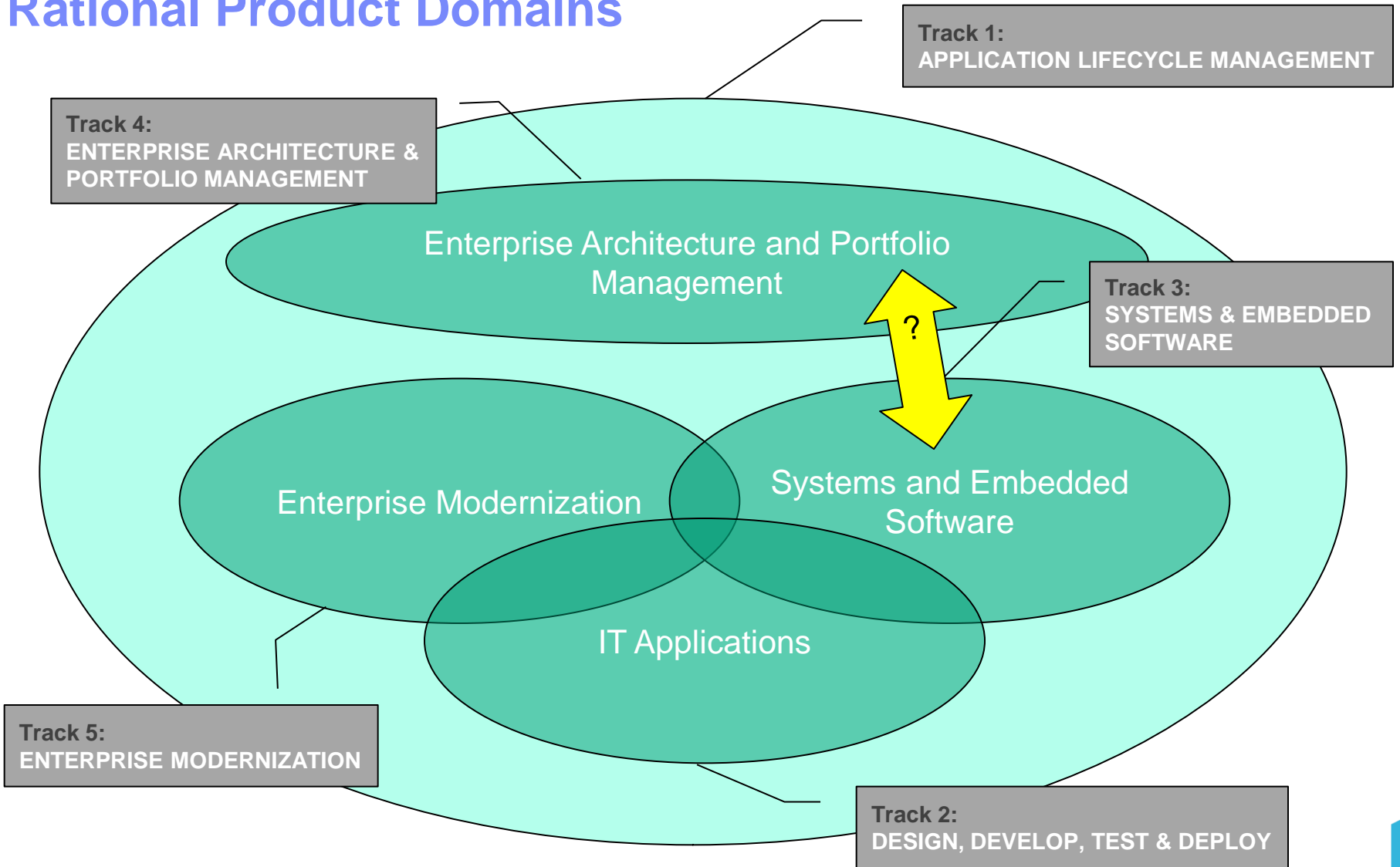
Pre-sales assets (sales and tech sales)

- *Updated Sales presentation for ISO-26262 support*
- *POT for ISO-26262*

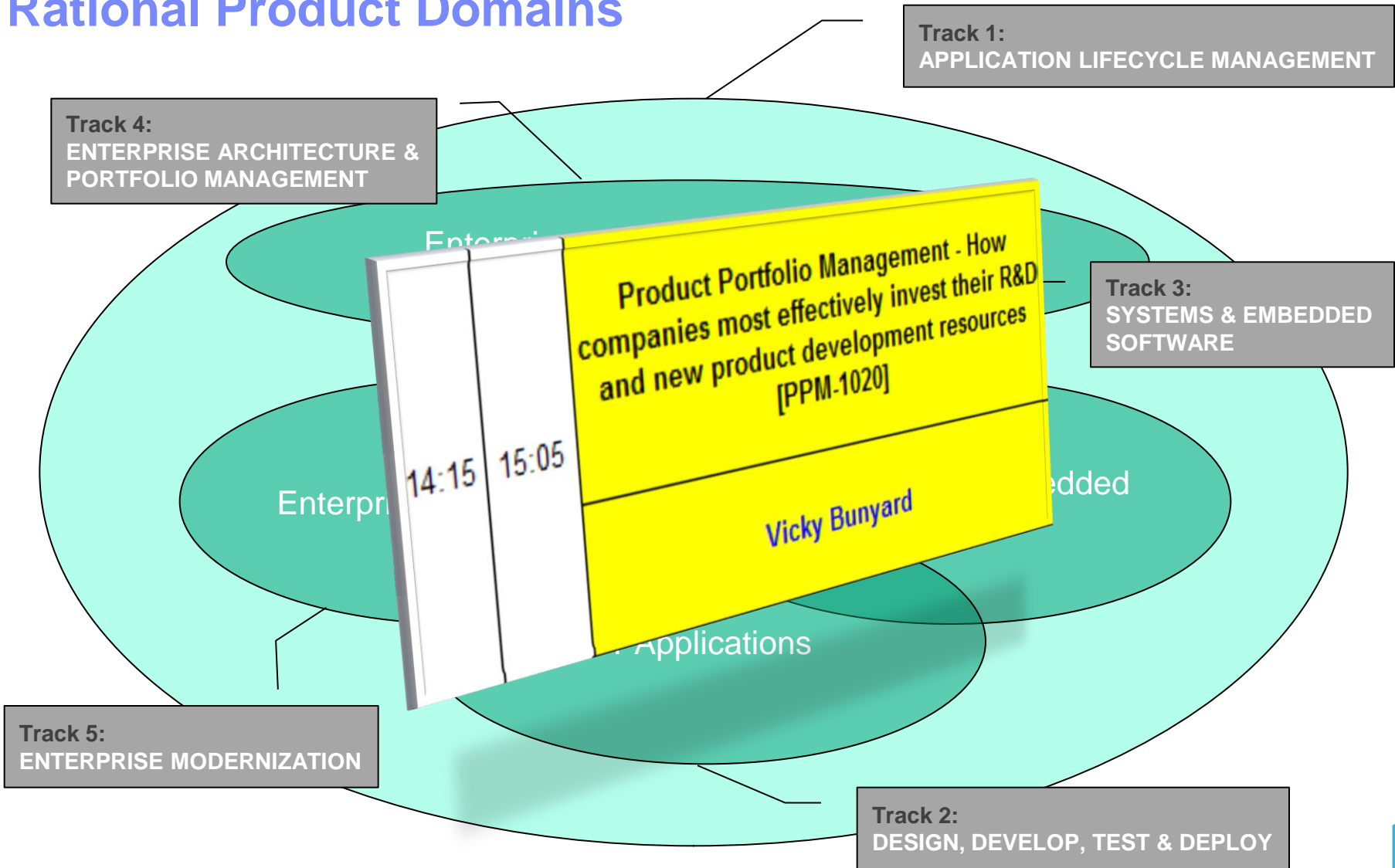
Post-sales (deployment) assets

- *Practice customization guidelines to deploy solutions*
- *Deployment getting started guide and help for sellers*

Rational Product Domains



Rational Product Domains



QUESTIONS

www.ibm.com/software/rational

Acknowledgements and disclaimers

Availability: References in this presentation to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates.

The workshops, sessions and materials have been prepared by IBM or the session speakers and reflect their own views. They are provided for informational purposes only, and are neither intended to, nor shall have the effect of being, legal or other guidance or advice to any participant. While efforts were made to verify the completeness and accuracy of the information contained in this presentation, it is provided AS-IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, this presentation or any other materials. Nothing contained in this presentation is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software.

All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer. Nothing contained in these materials is intended to, nor shall have the effect of, stating or implying that any activities undertaken by you will result in any specific sales, revenue growth or other results.

© **Copyright IBM Corporation 2012. All rights reserved.**

– **U.S. Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.**

IBM, the IBM logo, ibm.com, Rational, the Rational logo, Telelogic, the Telelogic logo, Green Hat, the Green Hat logo, and other IBM products and services are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at www.ibm.com/legal/copytrade.shtml

If you have mentioned trademarks that are not from IBM, please update and add the following lines:

[Insert any special third-party trademark names/attributions here]

Other company, product, or service names may be trademarks or service marks of others.



www.ibm.com/software/rational

© Copyright IBM Corporation 2012. All rights reserved. The information contained in these materials is provided for informational purposes only, and is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, these materials. Nothing contained in these materials is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software. References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. IBM, the IBM logo, Rational, the Rational logo, Telelogic, the Telelogic logo, and other IBM products and services are trademarks of the International Business Machines Corporation, in the United States, other countries or both. Other company, product, or service names may be trademarks or service marks of others.