



SE-1783 (NL)

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

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IBM Software

# Innovate2012

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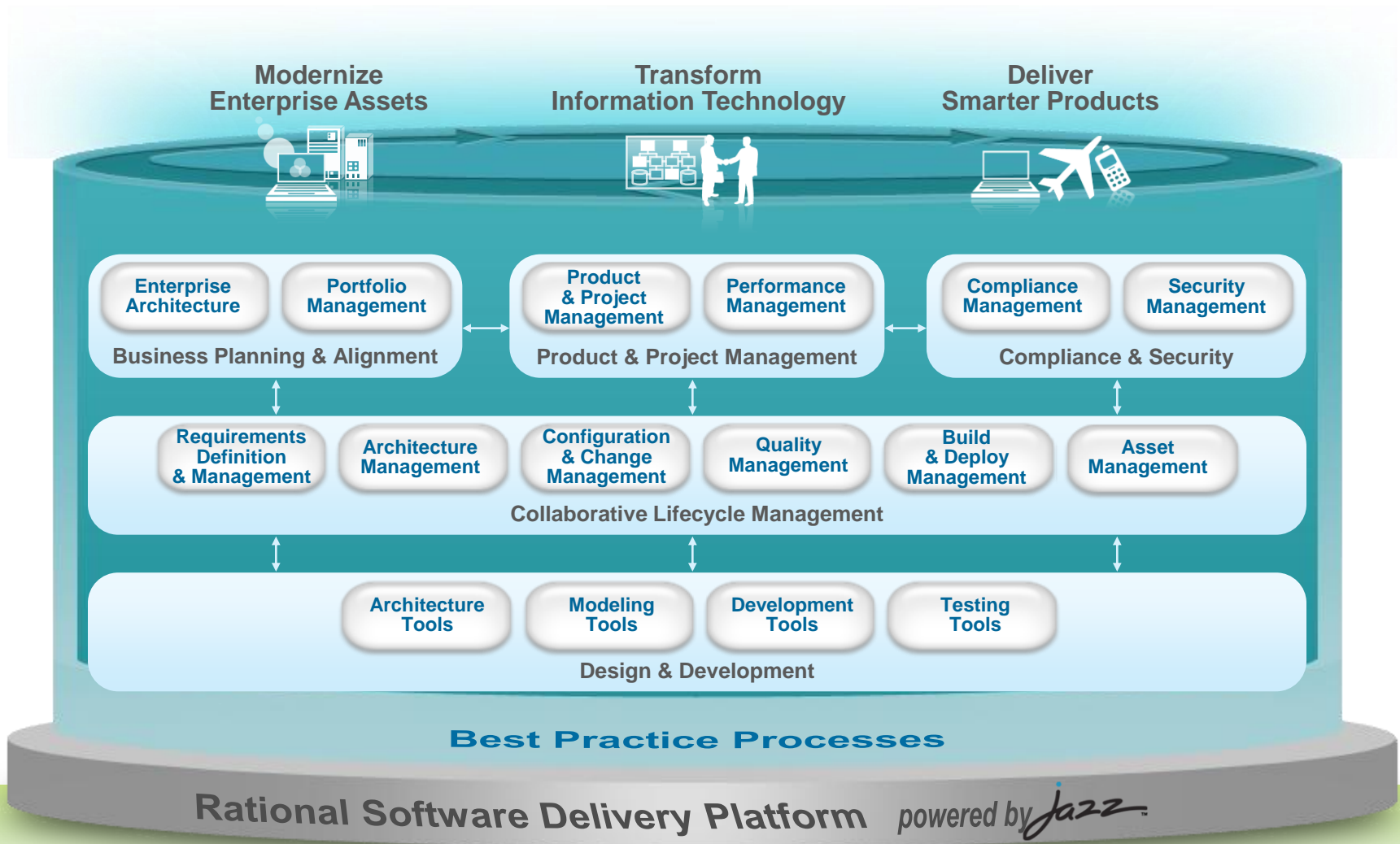
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# Agenda

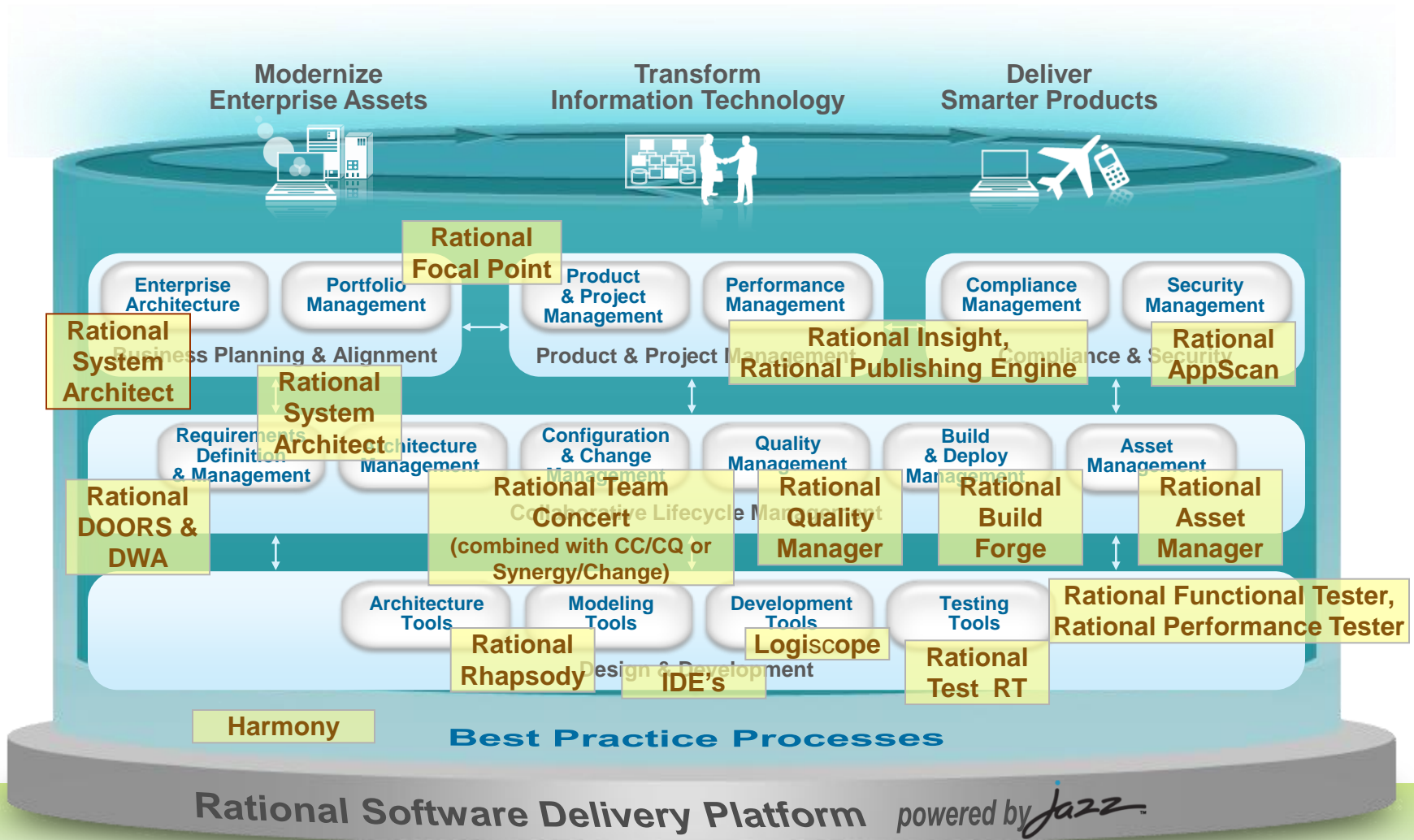
- Recap
  - Rational Product Portfolio Overview
  - Rational Product Domains
  - Rational Systems and Embedded Software
- Now and Next
  - Product Solutions
    - CLM 4.0, RTC 4.0, RQM 4.0
    - DOORS 8.4 and DOORS Next Generation
    - Rhapsody 8.0 and Design Manager 4.0
    - RELM
  - Industry Solutions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

# Rational Product Portfolio Overview



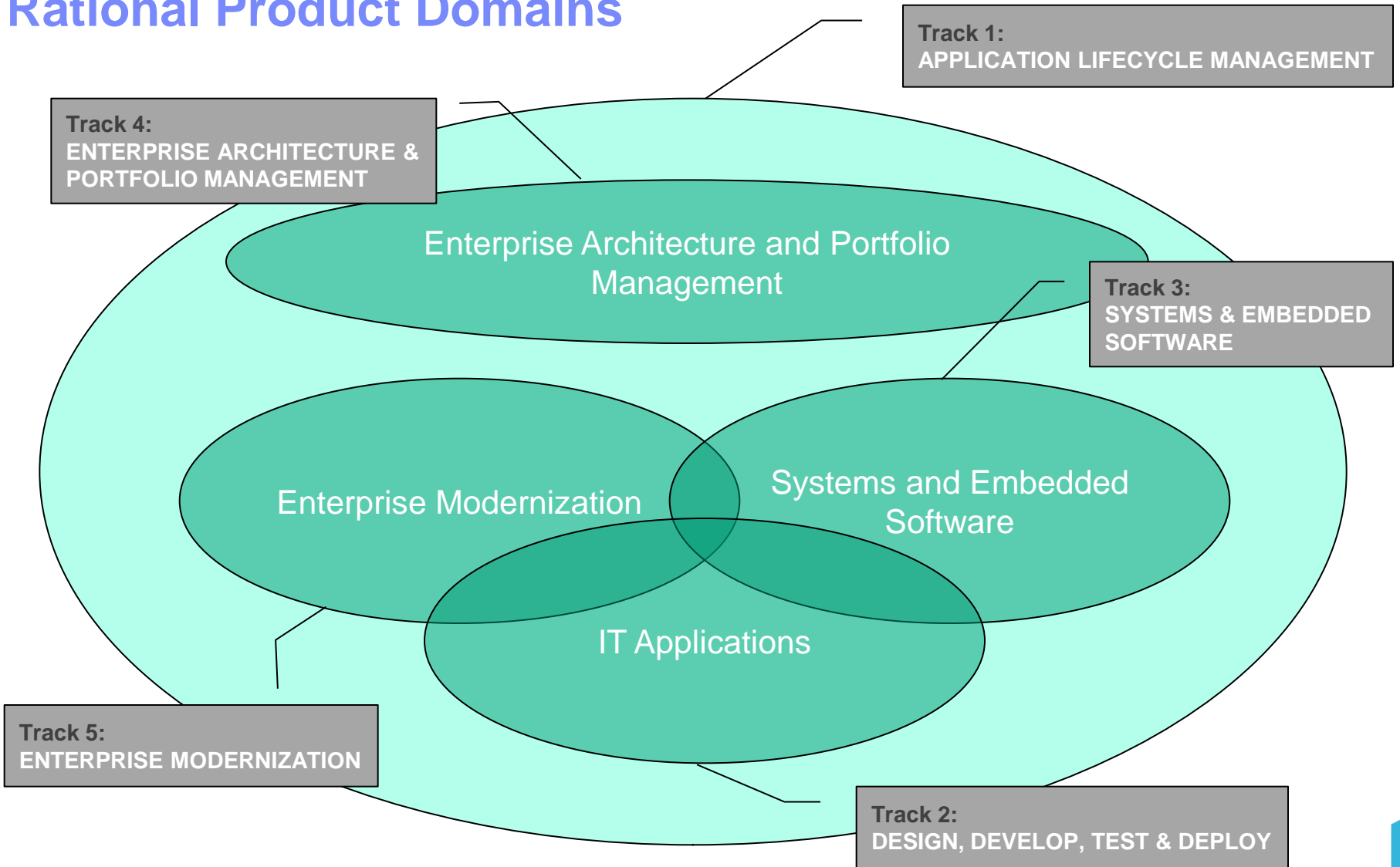
IBM and Business Partner Ecosystem

# 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)

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

## QUALITY MANAGEMENT

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*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**

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- **Work Items**

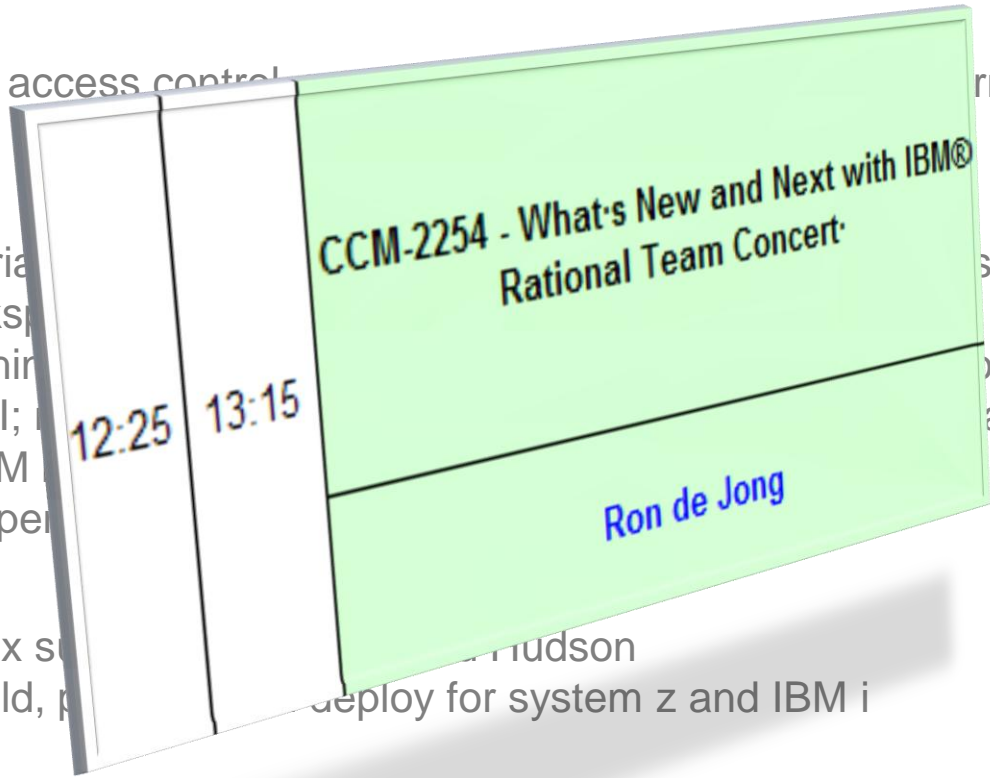
- More flexible access control
- External HTTP data sources

- **SCM**

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

- **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

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- **Test Construct**

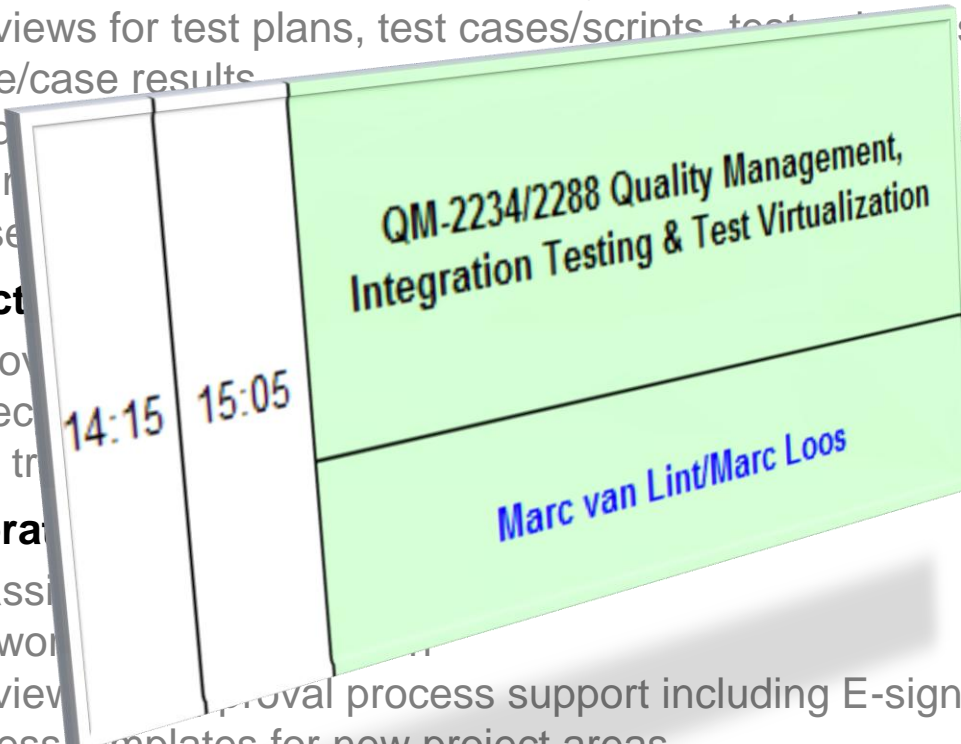
- Ensure full coverage
- Real-time lifecycle
- Fine grained traceability

- **Team Collabora**

- Ownership assigned
- Test artifact workflow
- Improved review and approval process support including E-signature
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# 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**

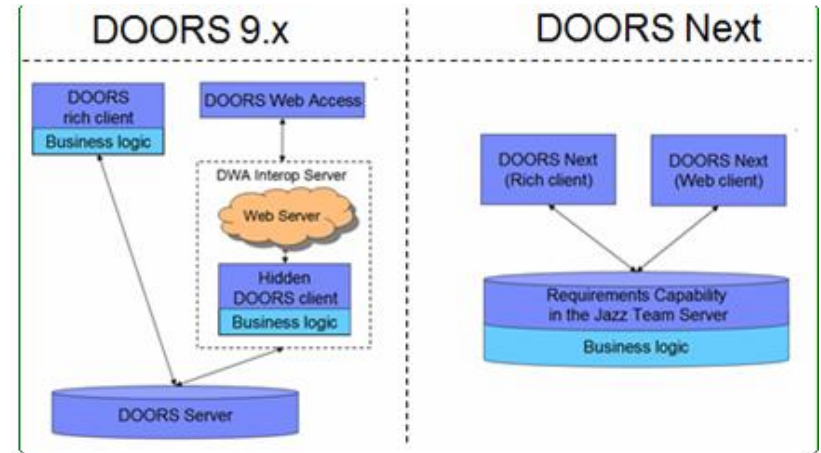
The IBM Rational DOORS project on Jazz.net is an initiative to develop a “next generation” requirements management solution for complex software and systems engineering environments. The goal of this initiative is to help engineers work more effectively across disciplines, time zones, and supply chains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

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

# Strategic investments in Requirements Management (2)

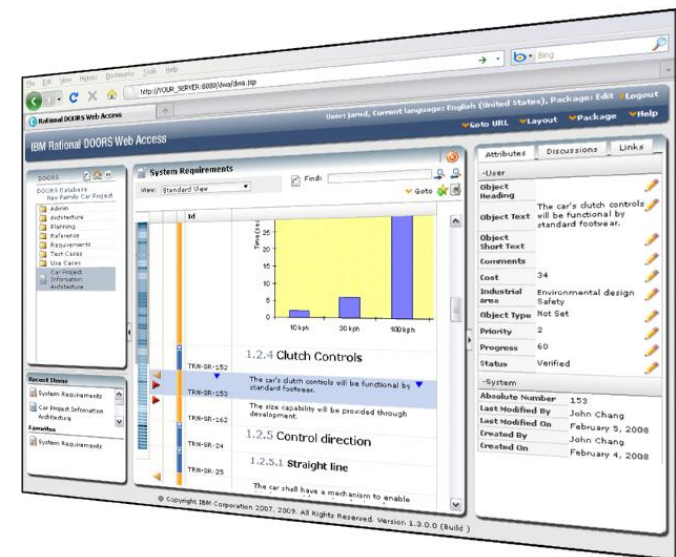
## DOORS Next Generation

- 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

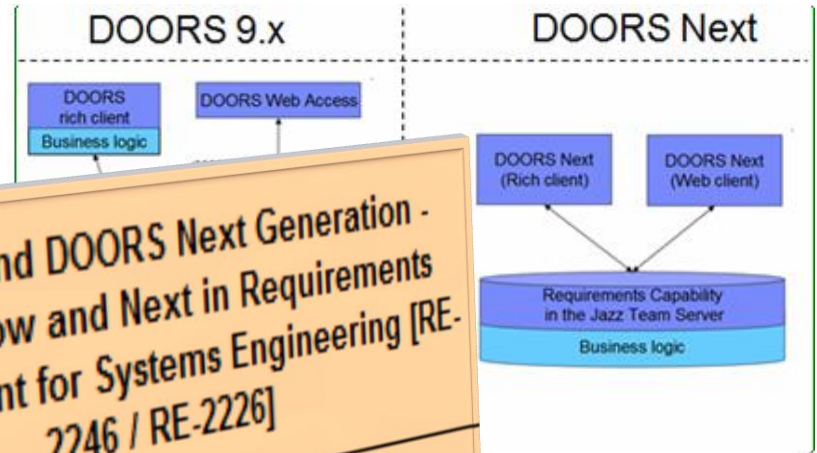
- Change notification
- Reuse, variant management,
- Configuration management at requirement level
- Lifecycle baselines
- RM OSLC and other integrations
- Migration solutions



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

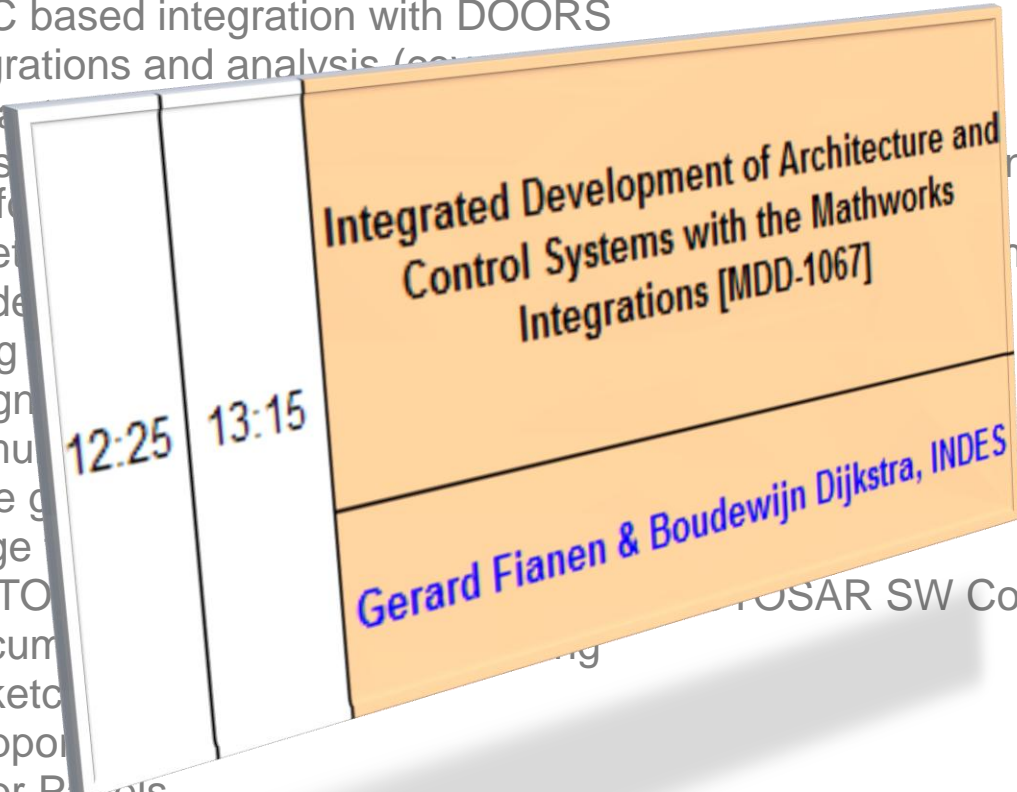
- **Highlights of new capabilities**

- 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)

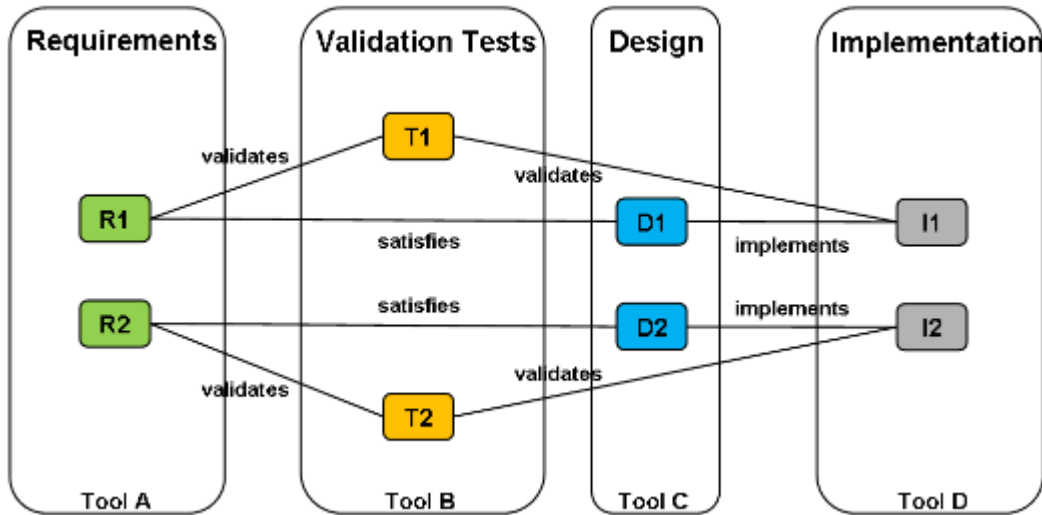
- **Highlights of new capabilities**

- 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
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# Rational Engineering Lifecycle Management – RELM (1)

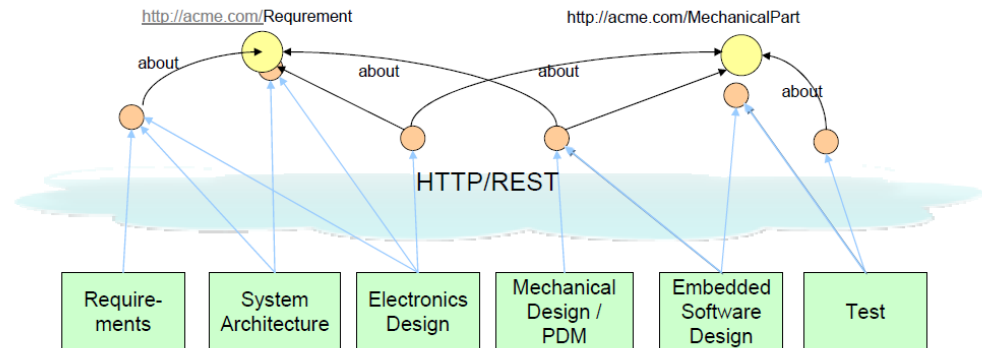
## Building a Smarter Systems Engineering Environment



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

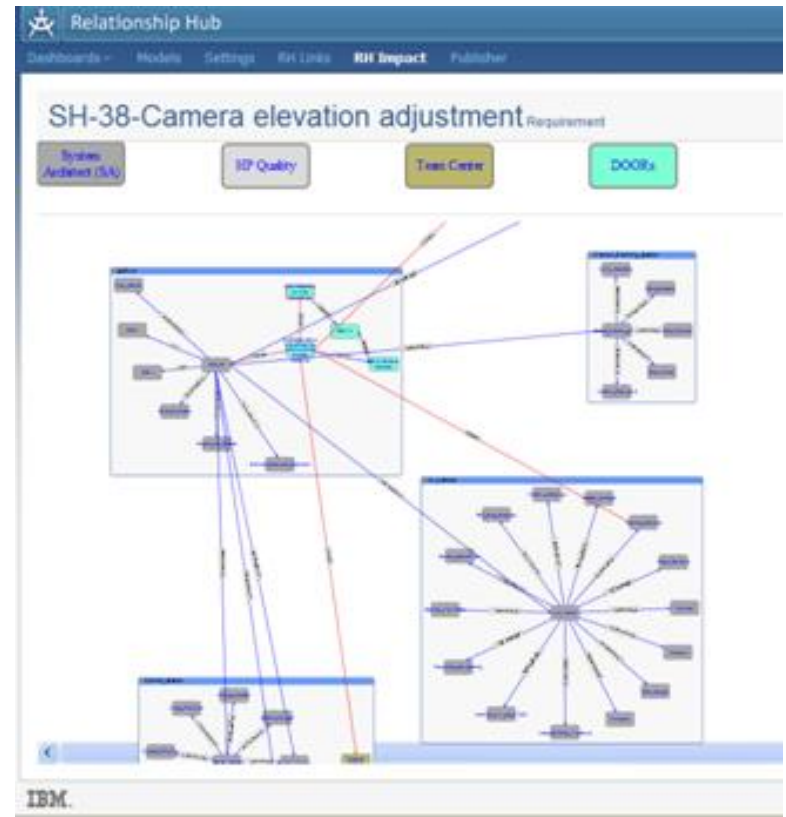
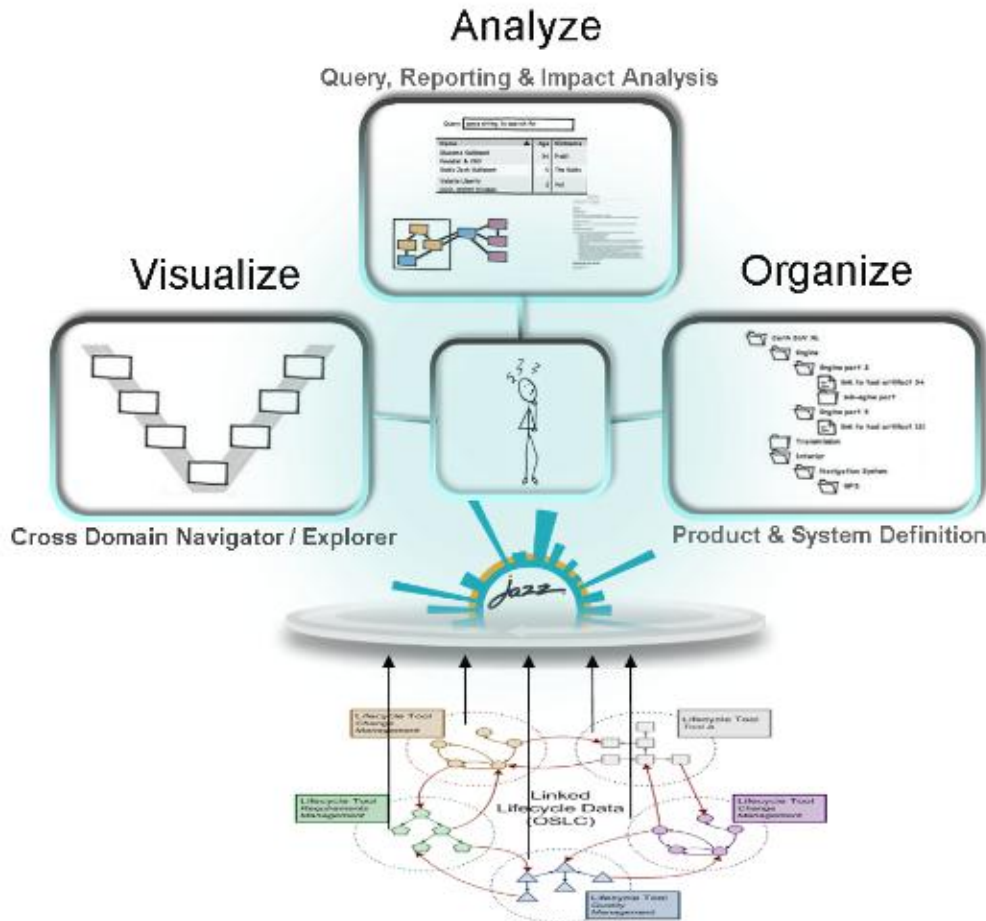
RELM helps engineering teams to visualize, analyze and organize engineering data and their relationships.

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

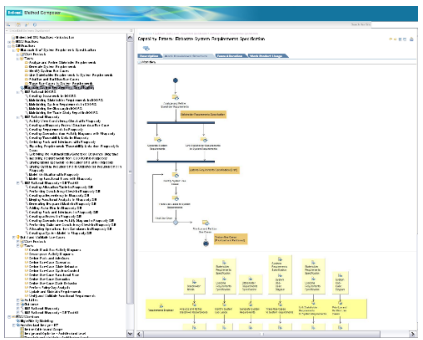


# Industry Solution Accelerators

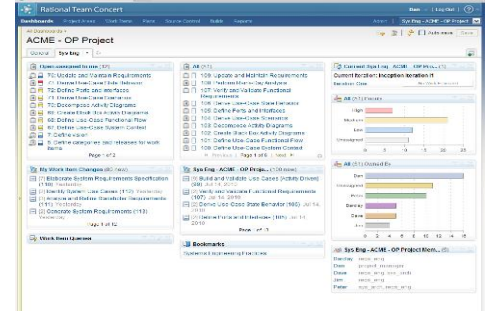
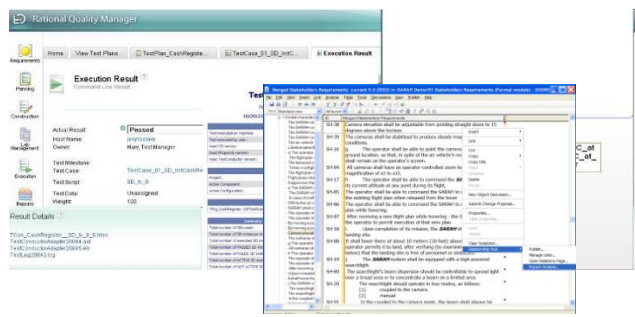
Tools, best practices, mentors, templates, services

## Dashboards

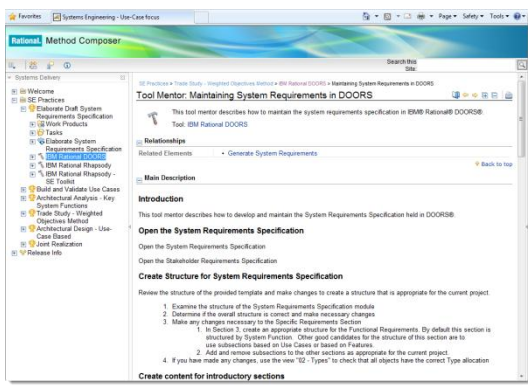
## Practice Library



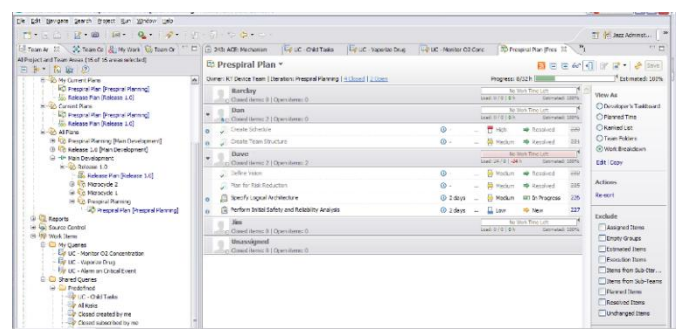
## Starting Templates



## 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

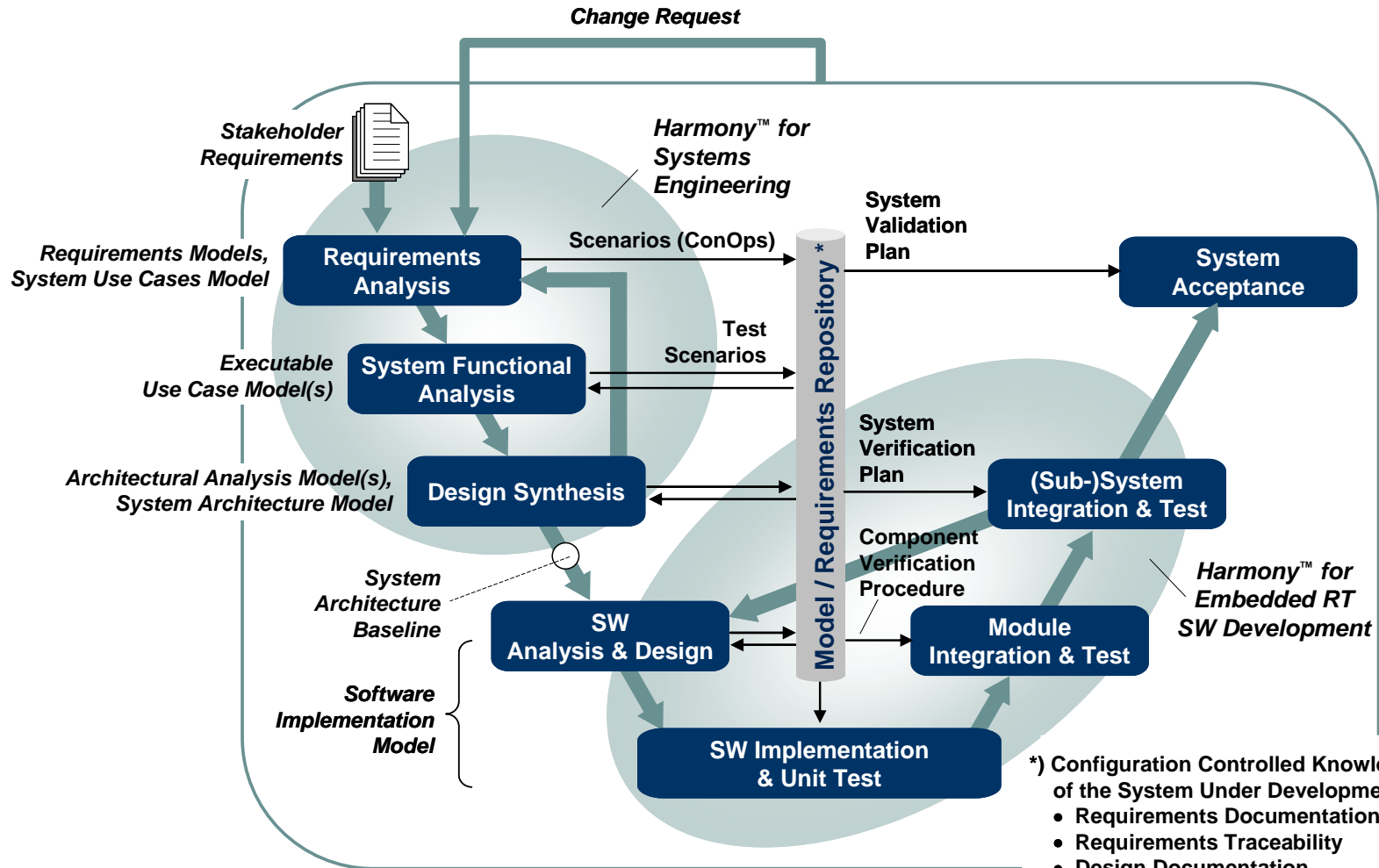


\*Planned August delivery



# 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

## 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*

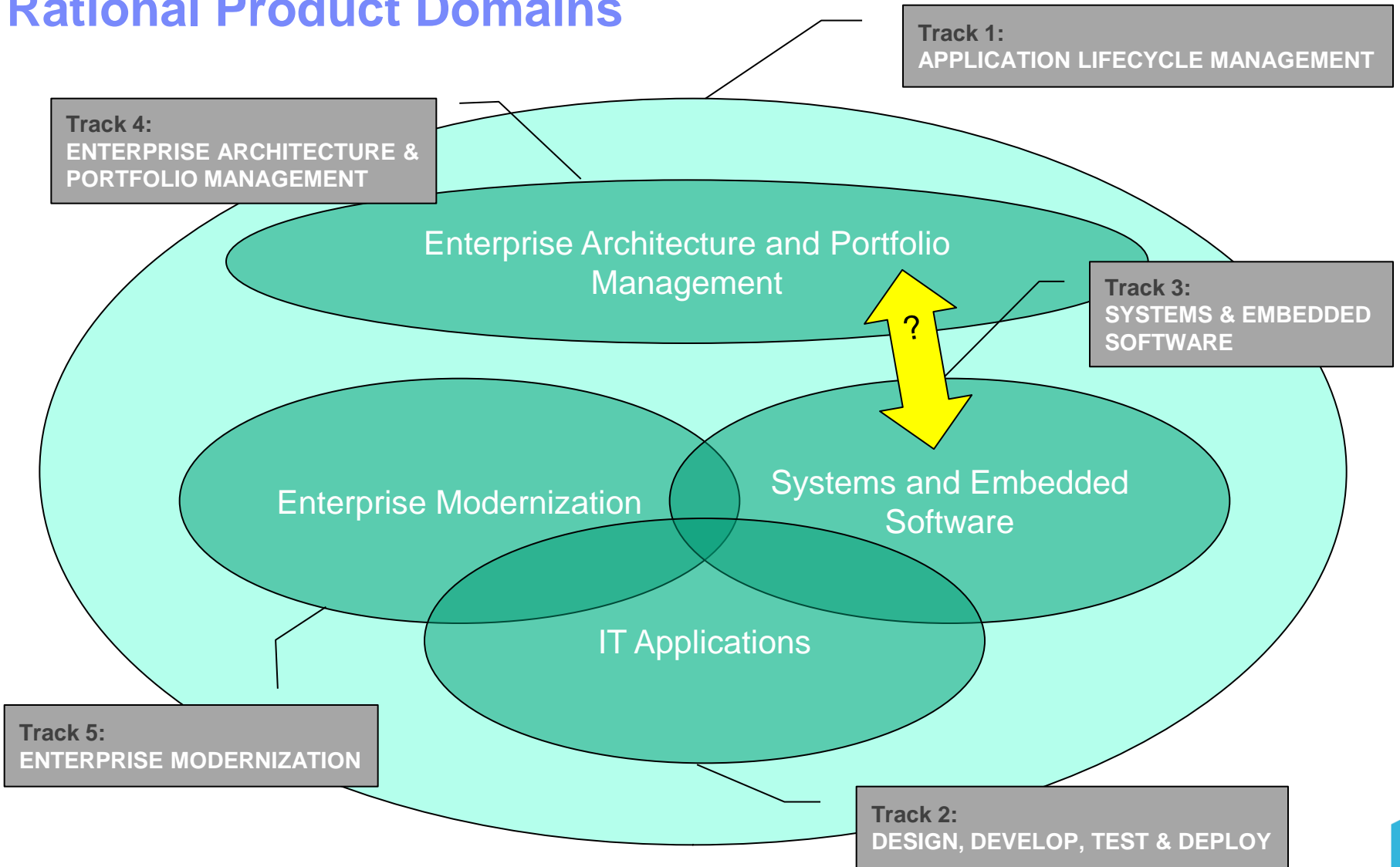
### Pre-sales assets (sales and tech sales)

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

### Post-sales (deployment) assets

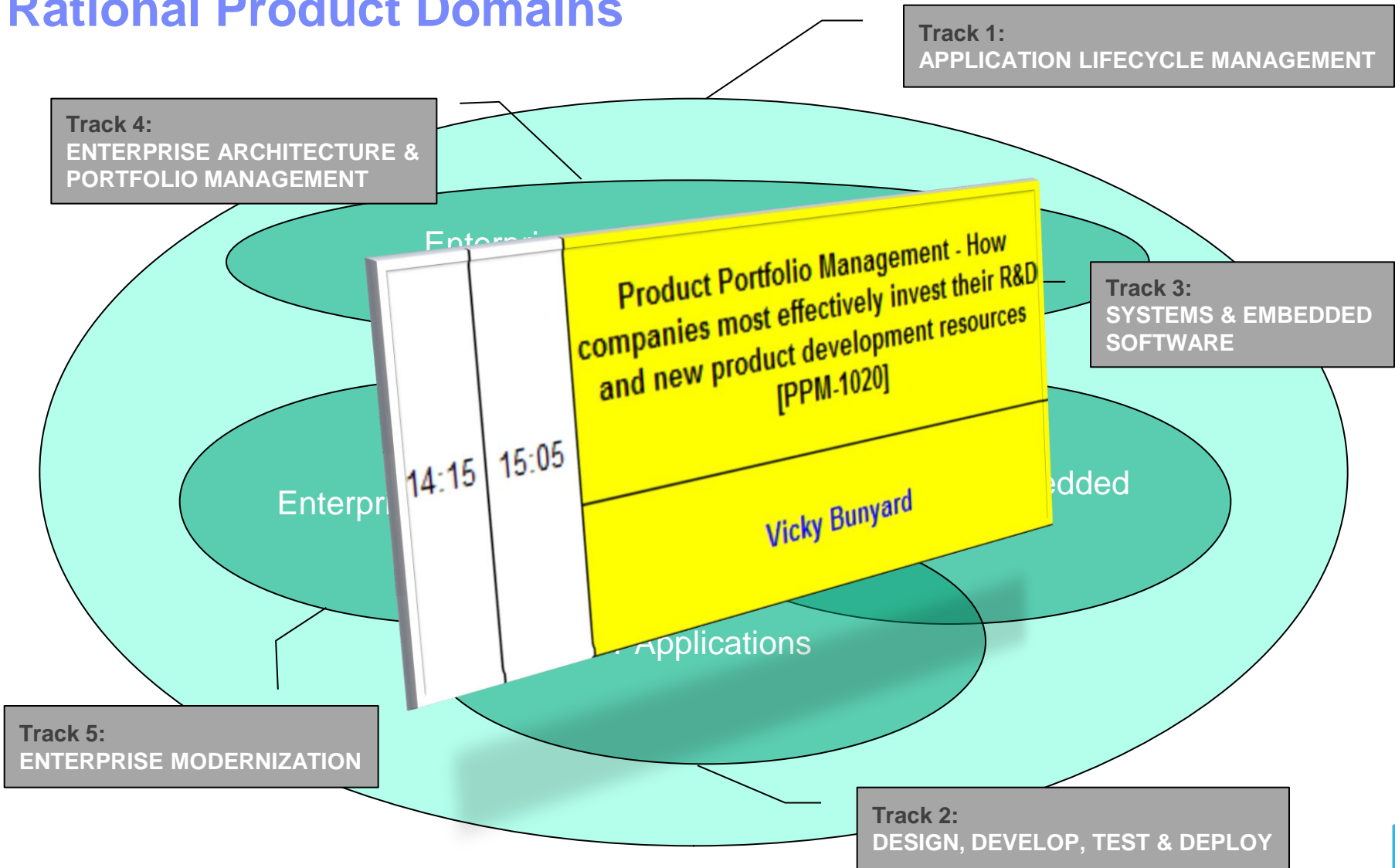
- *Practice customization guidelines to deploy solutions*
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# Rational Product Domains





# Rational Product Domains



## Don't miss out on our Customer Testimonial !!



**ProRail**

# QUESTIONS

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