

Real Teams. Real Insights. Real Results.

# Requirements Management for Systems

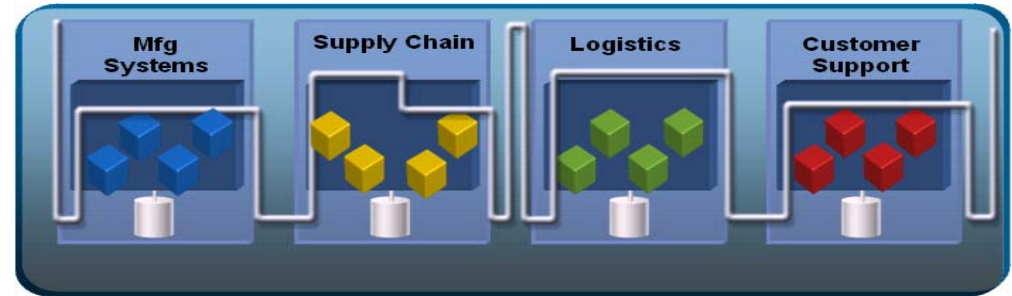
Richard Crisp

Director, Requirements and Quality Management

IBM RATIONAL  
SOFTWARE CONFERENCE 2009

INNOVATION 2009: TELELOGIC  
USER GROUP CONFERENCE

# What are you delivering?



The screenshot shows the IBM website homepage with the following elements:

- Header:** IBM logo, navigation menu (Home, Solutions, Services, Products, Support & downloads, My IBM), and a search bar.
- Main Content:**
  - Headline: "Make it. Sell it. Make it smarter." with the subtext "As the products get smarter, so will the manufacturers."
  - Call to action: "→ See why smart products are evidence of a smarter planet"
  - Graphic: A stylized gear-like logo composed of blue and purple segments.
  - Text: "What's so smart about smart manufacturing?" and "Does your business run on instinct or intelligence?"
  - Text: "Products, services and community support for growing businesses"
- Footer:**
  - Section: "Learn about" with "Featured topics" including "Strategies and innovation to master change in new economy" and "Build telecom customer loyalty with innovative services".
  - Section: "Shop for" with "What IBM can do for..." including "Industries", "Government", "K-12 and higher education", and "Small and medium business".
  - Section: "Develop & deploy" with "A smarter planet", "CIOs", "Developers", and "IBM Business Partners".
  - Section: "Get support" with "Investors", "Journalists", and "Job seekers".
  - Section: "My IBM links" with "Make better decisions in today's economy" and a "Read ForwardView" link.
  - Bottom navigation: "About IBM", "Privacy", "Contact", "Terms of use", "Accessibility", "IBM Feeds".

# Why RM?

Better project governance

Cope with complexity

More agility

Better project efficiency

Control project scope

Get to market faster

More stakeholder engagement

Better requirements validation

Deliver what the customer needs

Prove contractual completeness

Manage subcontractor value chain

Lower risk of project failure

Manage change

Meet compliance mandates

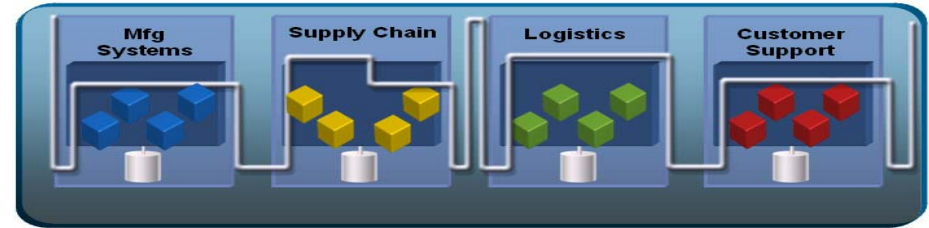


# The RM marketplace moves in two directions



## Systems Domain

- Key Drivers
  - Increasing complexity
  - Innovation from more embedded software
  - Need faster time to market
- Market response
  - Aspire to Product Line Engineering
  - Complex sub-contractor scenarios
  - Getting it right the first time
- Rational strategic focus
  - Product Lifecycle Management (PLM)
  - Product Line Engineering (PLE)

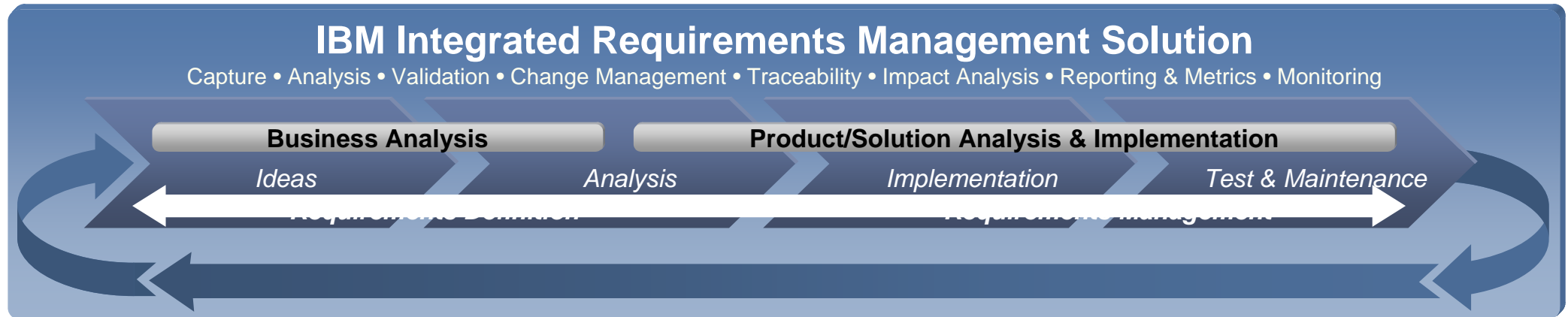


## IT Domain

- Key drivers
  - Lower cost / do more with less
  - Better meet customer needs
  - Need faster time to market
- Market response
  - Aspire to agility
  - Business-driven development
- Rational strategic focus
  - “More agile” across the lifecycle

# A “requirements view” across the lifecycle

*For Programs, Projects, Products, Systems and Systems-of-Systems*



- Traceability - manage compliance (at every level)
  - Improve ability and efficiency in managing change
- Reduce defects and cost of recall / in-service modifications
- Quality improvements – higher user satisfaction
- Cope with higher complexity
- Common repository – use the latest versions and know where they are
- Use of attributes provide for reporting
- Supply chain
  - ▶ better visibility of solution and compliance to customer requirements
  - ▶ easier validation of deliverable(s)
- Reduce the need for re-training when staff move projects

# The Future of DOORS.....

## The usual disclaimer

- This presentation includes comments on future product direction and strategy
- Plans are based on best information available and may change in future
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**Information**

# Agenda

- What's just been released?
  - DOORS Web Access 1.2
  - DOORS 9.2
  - Integrations
    - Rational Quality Manager
    - Microsoft Team Foundation Server
- What's in the future?
  - DOORS Web Access 1.3
  - DOORS Web Access 1.4
  - DOORS 10 & DWA 2



# Release Schedule

**DOORS Gold**  
**Major**  
**(9.0)**  
**DOORS**  
**Web Access**  
**1.0**

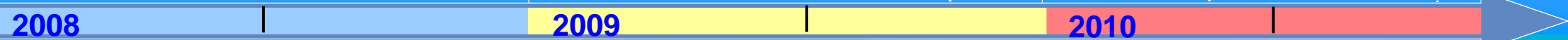
**DOORS Aqua**  
**Minor**  
**(9.1)**  
**DOORS**  
**Web Access**  
**1.1**

**DOORS Platinum**  
**Minor**  
**(9.2)**  
**DOORS**  
**Web Access**  
**1.2**

**DOORS**  
**Web Access**  
**1.3**

**DOORS**  
**Web Access**  
**Discovery**

**DOORS Topaz**  
**“DOORS On Jazz”**  
**Major - (10)**  
**DOORS**  
**Web Access**  
**Vantage**



# An introduction to DOORS Web Access (DWA)

- The DOORS Web Access Solution
  - DWA combines the best Web browser tool paradigms for easy adoption and increase user productivity for general requirements management activities
- Distributed Collaboration
  - Extend requirements management for virtual workgroups collaborating on a central requirements database
  - No need to physically move data around globally and synchronize databases
  - Allow you to work without installing software
- Wider Adoption of Requirements Management Across Enterprise
  - Requirements can be easily created/edited through commercial web browsers
  - Fast, efficient global access and editing with comprehensive data security
  - Document displayed in desired sections through configured views
  - Requirements linking and tracing for RM impact analysis



# Edit Requirements Through DOORS Web Access

Project members are able to:

- Work using the **edit** profile
- Use **edit controls** against any accessible object
- Have automatic **shared access control**
- Provide **access** through HTTP URLs
- Print full **module** views
- **Quickly** navigate within a module

The screenshot displays the Rational DOORS Web Access interface in Mozilla Firefox. The browser title is "Rational DOORS Web Access - Mozilla Firefox". The address bar shows "http://www.ibm.com/rdwa.jsp#". The page header includes "IBM Rational DOORS Web Access" and user information: "User: demo\_user, Current language: English (United States), Package: Edit Logout". Navigation links for "Goto URL", "Layout", "Package", and "Help" are visible.

Two main panels are shown:

- Stakeholder Requirements:** A table listing requirements with columns for "Id" and "Text". A requirement with ID "TRN-CSR" is highlighted, and a red box labeled "Edit Indicator" points to a pencil icon in the right margin of that row.
- \*System Requirements:** A detailed view of a requirement titled "1.2.4 Clutch Controls". It includes a bar chart showing performance metrics (10 kph and 30 kph) and a text description: "The car's clutch controls will be functional by standard footwear." A red box labeled "Edit Controls" points to a toolbar with icons for editing, deleting, and other actions.

At the bottom of the interface, a copyright notice reads: "© Copyright IBM Corporation 2007, 2009. All Rights Reserved. Version 1.2.0.0 (Build 412)".

## How Does DOORS Web Access Enable Development Teams?

- Major features included in DWA 1.2
  - Complete read/edit access to requirements in a DOORS database
    - Complete edit access to all attributes (access rights permitting)
  - View requirements, pictures, OLE objects, and tables
  - View module baselines
  - Easy navigation for globally distributed teams
  - Participate in reviews using DOORS Discussions
    - Create new discussions
    - Contribute comments to existing discussions
  - Load and view existing DOORS “module views”
  - Search within modules
  - Print requirements
  - Traverse and trace links between modules



***DOORS customers have waited years for an easier way to access DOORS data and DOORS Web Access has finally delivered***  
*The Rational DOORS Family*

## Candidate Features for DWA 1.3 (Q4 2009)

- DOORS data creation through a web browser
  - Users will be able to act as authors in existing requirements documents
  - Create new requirements objects
  - Organise requirements modules
  - Link creation for traceability
- Change bar identification
- Enhanced Concurrent User Support
  - Server support to allow more concurrent users on the DOORS Web Access system



*The following release for DOORS Web Access is planned for November 2009  
The Rational DOORS Family*

# DOORS Web Access Value to Customers

## Customer Value

- Quickly and easily provide the user community **access to requirements** through a standard web browser
- **Increases** requirements communication and collaboration
- Users have an easy web friendly method of **reviewing requirements**
- Easy **edit access** for a requirements development process
- Ensure geographically **distributed teams** are up to date with the latest project requirements
- **Traceability analysis** to help identify areas of risk
- **Enhances quality** by increasing the visibility of business objectives, customer needs, technical specifications, and regulations
- **Promote requirements** discussions between business users, developers, systems engineers and business analysts
- **Establish requirements** review with signed off requirements for development and other project teams



Visit our Website

# Where Can You Get DOORS Web Access?

## **Commercially Available Versions**

DWA 1.0 released with DOORS 9.0 (25<sup>th</sup> July 08)

DWA 1.1 released with DOORS 9.1 (1<sup>st</sup> Nov 08)

DWA 1.2 released with DOORS 9.2 (2<sup>nd</sup> June 09)

DWA 1.3 to be released with DOORS 9.2.02 (November 09)

## **Available Public Materials (Online)**

DOORS Web Access Landing Page

Data Sheet

Auto Demo (4 Min)

Global Access Evaluation Server



## DOORS 9.2, released June 2<sup>nd</sup> 2009

- Three release themes
  - Integration between DOORS and Rational Quality Manager
    - Test team can now work against the same DOORS requirements as development
    - DOORS users can monitor progress of testing against the original requirements
  - Requirements Interchange Format
    - An open environment for requirements exchange between RM tools
    - Support for DOORS specific information to make this stronger DOORS-DOORS than DOORS to a competitive solution
  - Japanese Translation
    - DOORS additionally supplied with a Japanese translated user interface



# Branding

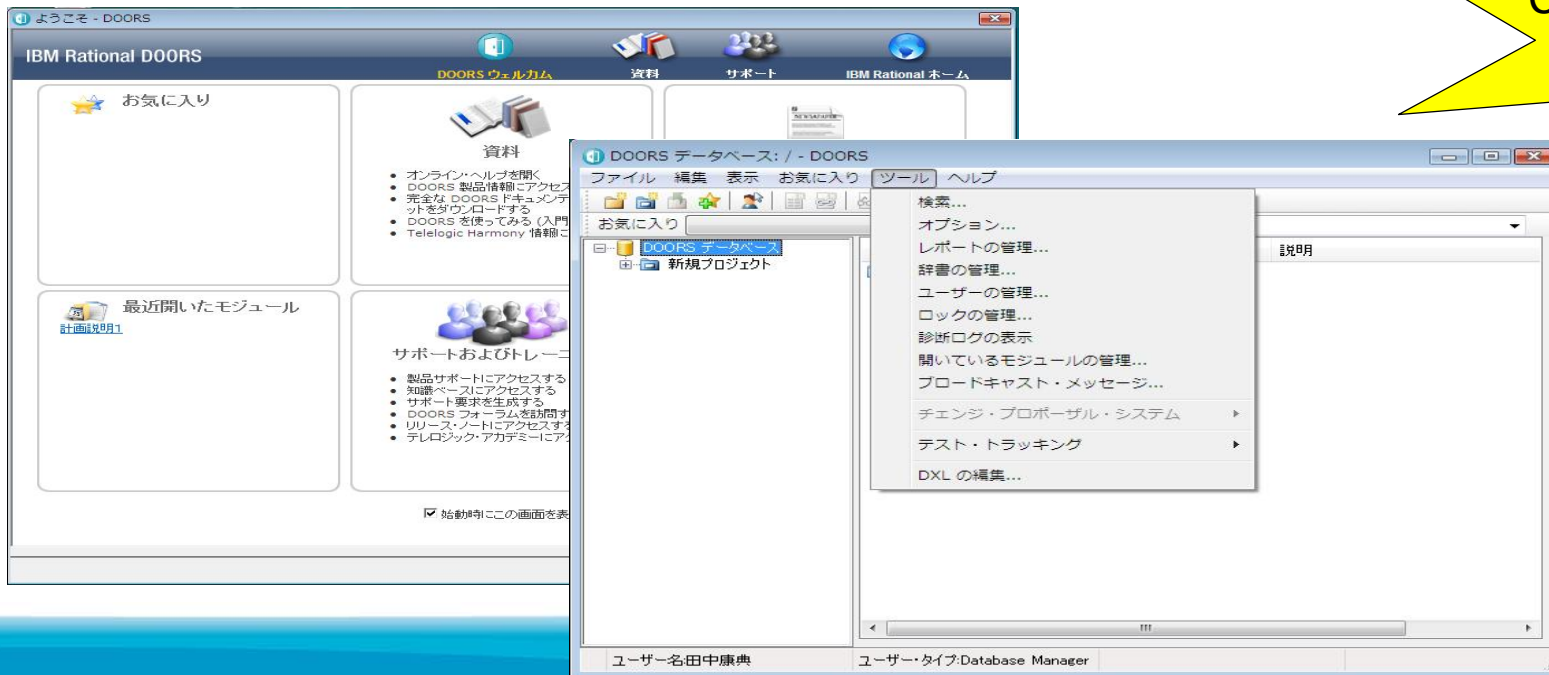
IBM Rational  
DOORS 9.2

- Welcome to IBM Rational DOORS
  - Full branding now encompasses IBM Rational trademarks



# Japanese translated version of DOORS & DWA

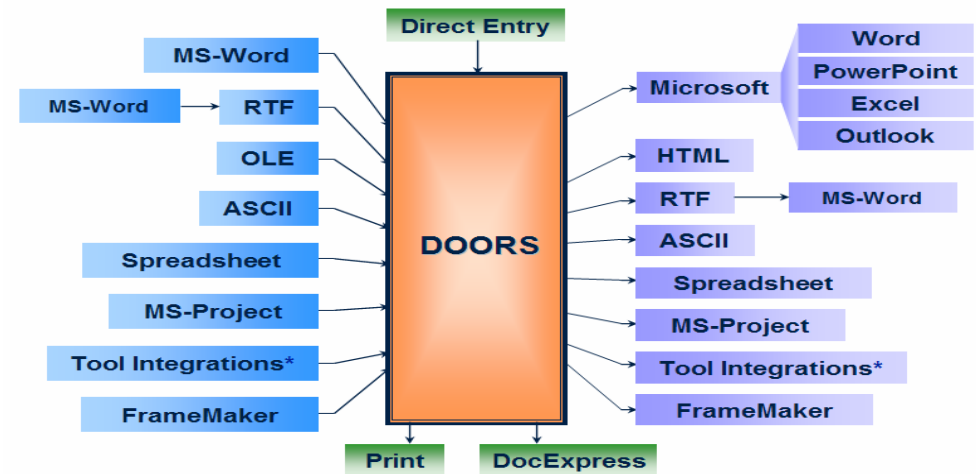
- Available on the same day of release as the English version
- Translated product, help and documentation
- Scope for translation into other languages in the future (Chinese expected later in 2009)



News flash!  
Chinese translation expected  
by the end of 2009

# Today's DOORS Data Exchange Options

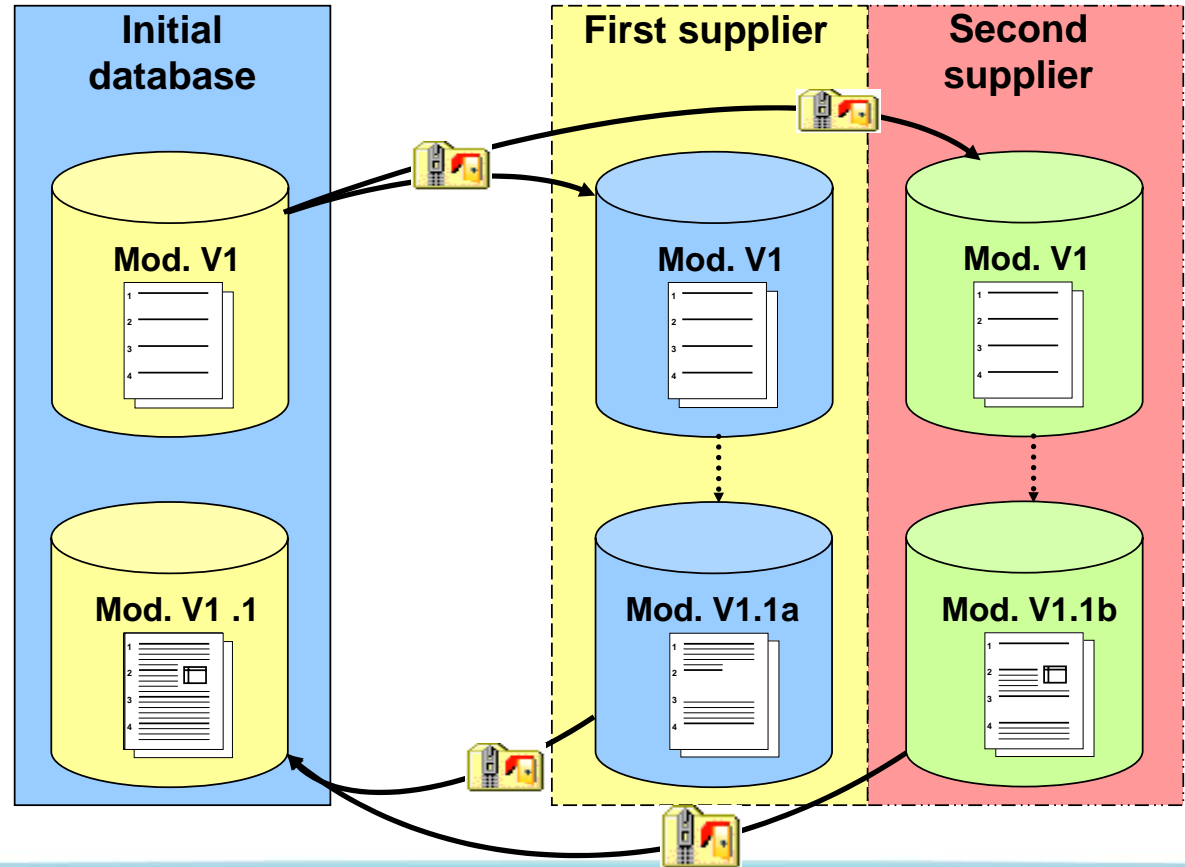
- One of DOORS strengths is its communication of data
  - Principal focus on import and export
  - Or data exchange, limited two tow databases, master and supplier
- Existing interfaces include
  - Word Export/Import
  - Partition/Rejoin
  - Archive/Restore
  - CSV/TSV round trip
  - DXL based data Exchange Tools
    - Some internal to IBM
    - Others produced by partners
    - Several produced by customers



**There is a need to support more complex exchange scenarios**

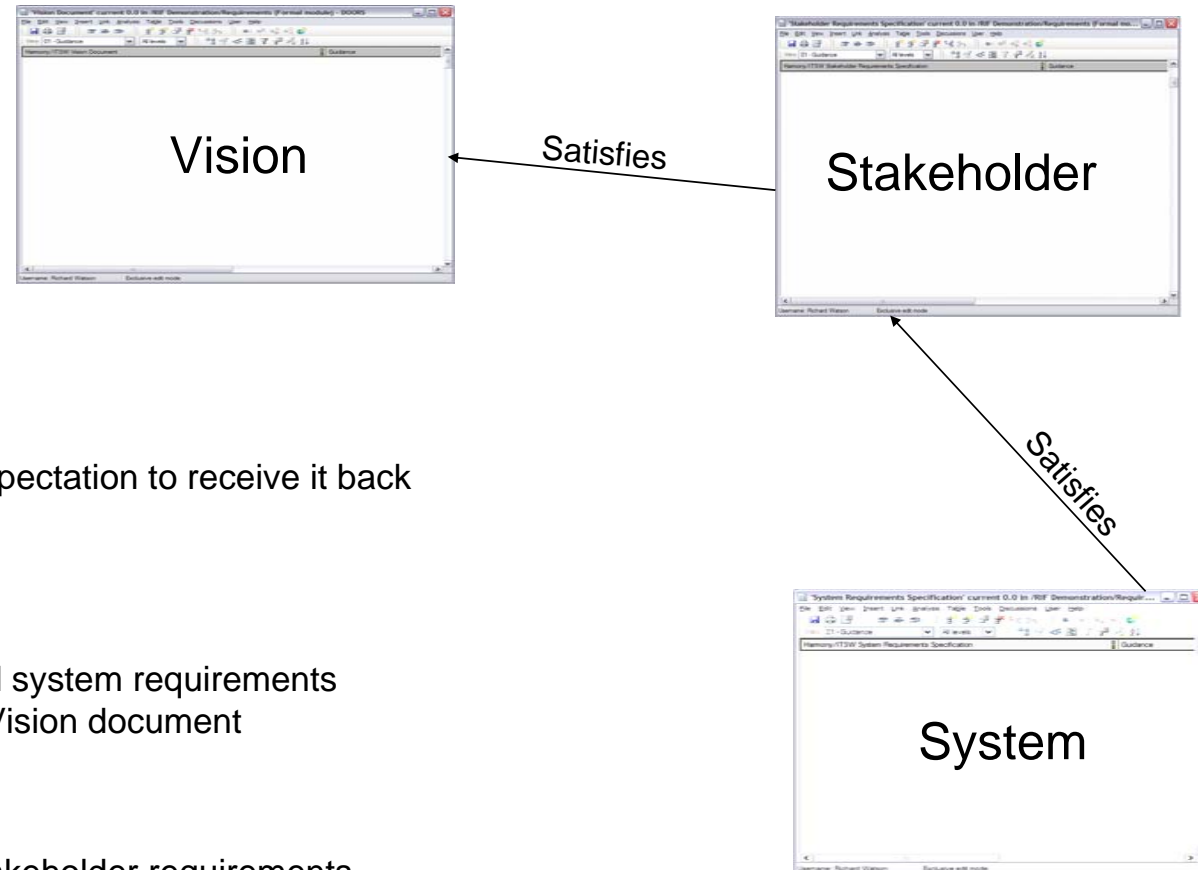
## DOORS 9.2 introduces native support for RIF

- Built in component of DOORS
  - Support for multiple modules
  - Links
  - Delegated Data Control
    - Control modification of requirements
    - Control modification of attributes
- Step 1:
  - Distribute data to multiple databases
- Step 2:
  - Concurrent working on data
- Step 3:
  - Managed merge of data with resolution for overlapping data



# Let's take an example

- Example RIF packages could include
  - *Export*
    - Client shares vision data with a colleague
    - **No Locks** – Export Vision document with no expectation to receive it back
  - *Supplier1*
    - Client exchanges information with supplier
    - **Read Only** – Supplier reads Vision document
    - **Lock all data** – Supplier develops Stakeholder and system requirements  
Supplier creates links back to the Vision document
  - *Sub-supplier*
    - Supplier exchanges information with sub-suppliers
    - **Lock attributes** – Sub-suppliers give feedback on stakeholder requirements
    - **Lock objects** – Sub-suppliers develop sections of the System requirements



# Administration

- Scalability – server connection limits
  - Upper limit boundary set to protect against resource consumption (file handles)

|         | Concurrent user threshold |
|---------|---------------------------|
| Windows | 450                       |
| Solaris | 180                       |
| Linux   | 900                       |
| HPUX    | 360                       |

- Note: These numbers do not reflect upper usage figures constrained by other server resources

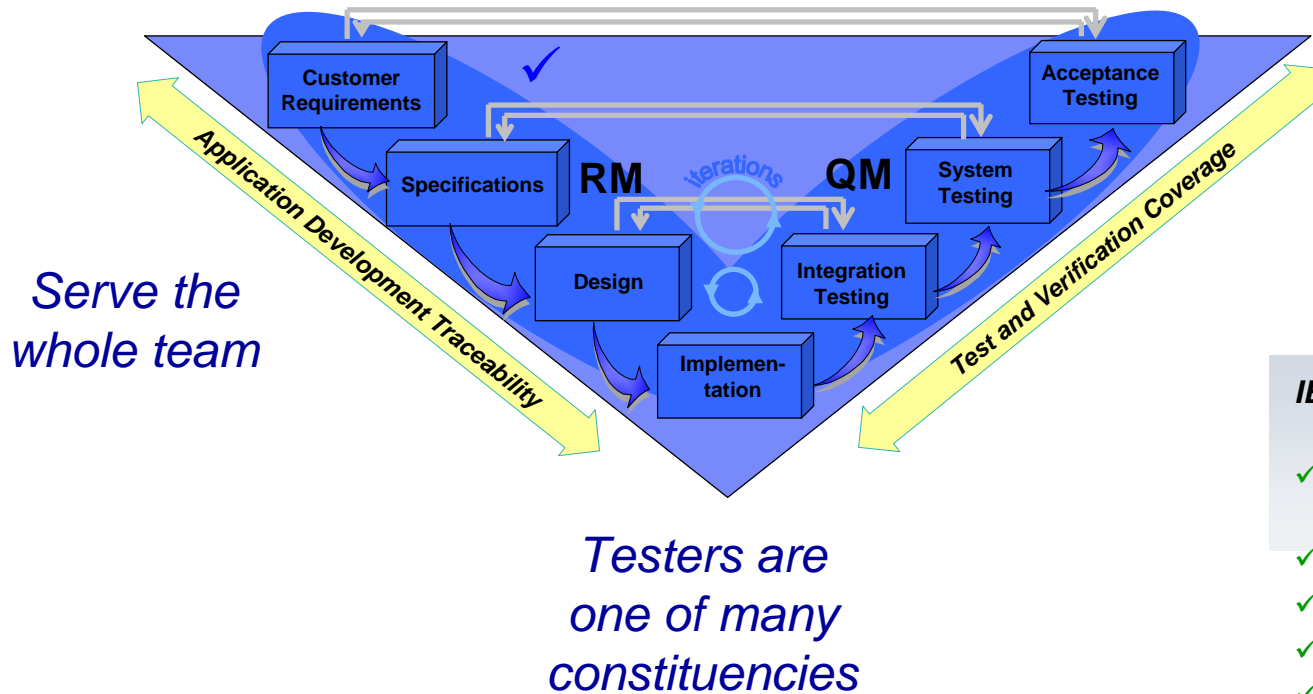
- License policy change
  - Each instance of DOORS will consume its own DOORS license
  - Mainly Impacting DOORS server side integrations

# Administration

- 2-factor authentication, extending the Rational Directory Server (TDS, RDS)
  - Business security demands from IT increasing. DOORS authentication is not enough
  - DOORS now provides support for multiple levels of authentication before you are able to gain access to DOORS data.
  - Support for local user-id
    - Tie your DOORS credentials to a local user ID.
    - Log in to DOORS only possible after authentication to local O/S with defined ID
  - Support for Radius servers
    - Strengthened 2-factor authentication possible by supporting Radius technology to request a second login ID
    - E.g. digi-pass pin code

# RM/QM: IBM Offers A Unique Solution

Entire Lifecycle Collaboration and Traceability



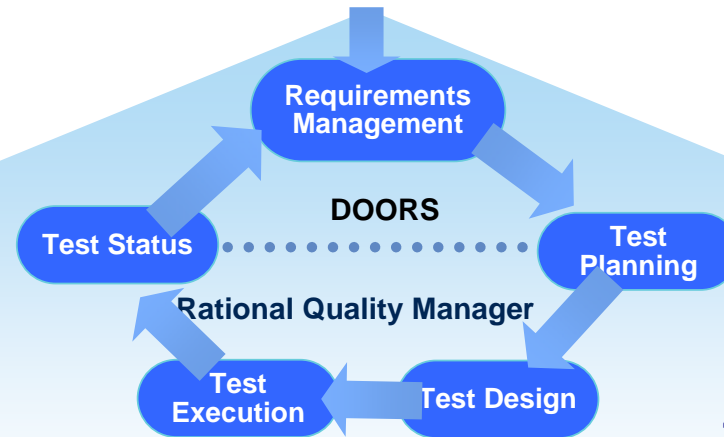
## IBM's full life cycle coverage and traceability solution

- ✓ Common set of clear requirements shared by team
- ✓ Don't miss out critical requirements
- ✓ Assess requirements change impact
- ✓ Identify most critical requirements to test
- ✓ Prove compliance (audit-ability)



# An integration between DOORS and RQM

Supplied with DOORS 9.2, June 2nd 2009



## 1. Plan Tests Early

- Plan tests for each requirement as the requirement is written.

## 2. Conduct Tests Early

- Perform tests as early as possible in the development process.

## 3. Relate Tests to Requirements

- Trace tests back to the requirements they are design to check.

## 4. Relate Defects to Requirements

- Trace defects back to the requirements that they show are not satisfied.

## 5. Measure Progress against Requirements

- Set targets and measure the progress of testing in terms of those requirements that are shown to be satisfied or are not satisfied.

## Why DOORS and Team Foundation Server?

- Track development progress and quality

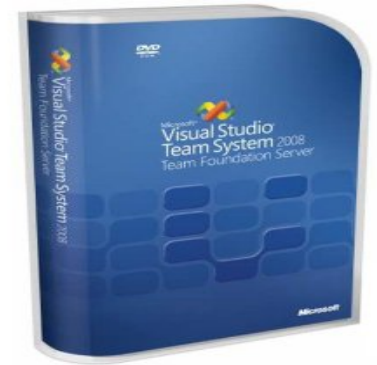
- Implement everything you are supposed to



- Spot changes, respond quickly
- Pass an audit

# Rational DOORS for MS Team Foundation Server Add On

- DOORS for Microsoft TFS Integration
  - Allows users to drive their Visual Studio development from requirements managed in DOORS
  - Create active external links which are traceable and navigable between requirements held in DOORS and Work Items held in TFS
  - Allows users to develop within their usual working environments
- DOORS for Requirements Management
- Visual Studio for Development
- External IBM Site
  - <http://www-01.ibm.com/software/awdtools/doors/features/MTFS.html>



***Link DOORS requirements to task related work items through the DOORS TFS Add On***

*Rational DOORS Family*

# DOORS Requirements Linked to VS Work-Items

## DOORS using TFS Interface

The screenshot shows the DOORS application interface. The main window displays a list of requirements, with requirement 1.8.2 highlighted. The 'External Links' section for this requirement shows a link to a TFS work item with a 'Suspect' status. A red circle highlights this section. Another red circle highlights the 'External Link Properties' dialog box, showing the 'Status' field set to 'Draft' and 'TFS Suspect Flag' set to 'Active'.

## MS Visual Studio

The screenshot shows the Microsoft Visual Studio interface. The 'Edit Link' dialog box is open, showing details for a DOORS link. A red circle highlights the 'Imported DOORS Attributes' dialog box, which displays a table of attributes. The 'Status' attribute is highlighted in red, indicating a 'Suspect' status.

| Attribute        | Value   |
|------------------|---|
| URL              | doors://IBM-DEESF/2E316-36600/Version=23pro         |
| Module           | Stakeholder Requirements                            |
| Object Id        | TRN-CSR-112   |
| Short Text       | A warning triangle shall be supplied with...        |
| Last Modified By | Administrator                                       |
| Last Modified On | 15 February 2009                                    |
| Comment          | An orange warning triangle shall be provided out... |

- VS work items can be linked to DOORS requirements
- Data can be displayed and synchronised from VS/DOORS
- Modified DOORS requirements in will show as suspect (red flagged)

Real Teams. Real Insights. Real Results.

# “DOORS on Jazz phase 1”

Richard Crisp

Director, Requirements and Quality Management

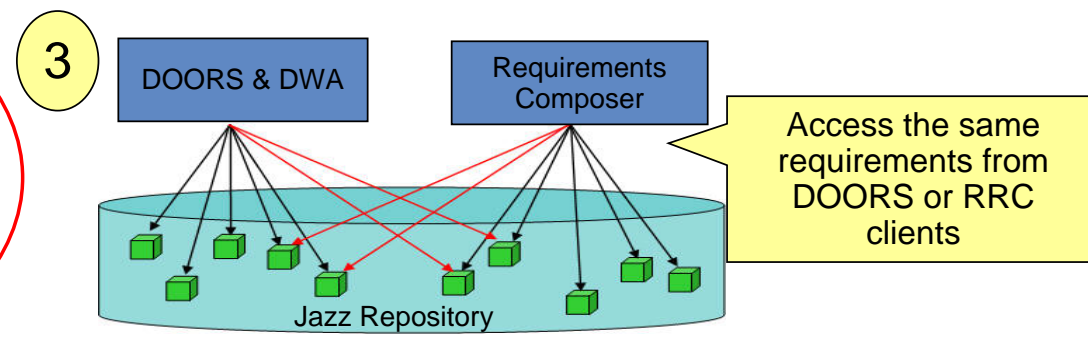
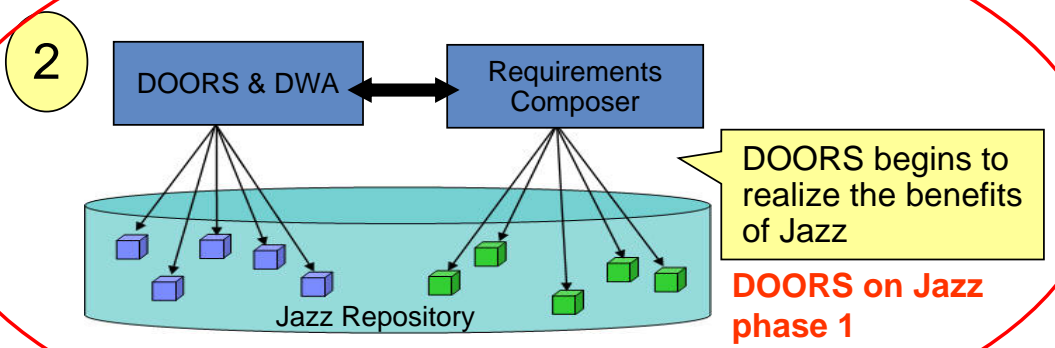
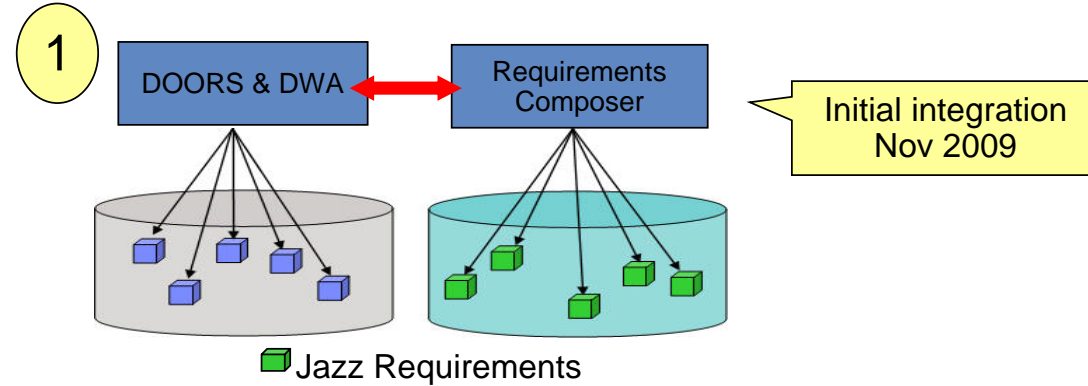
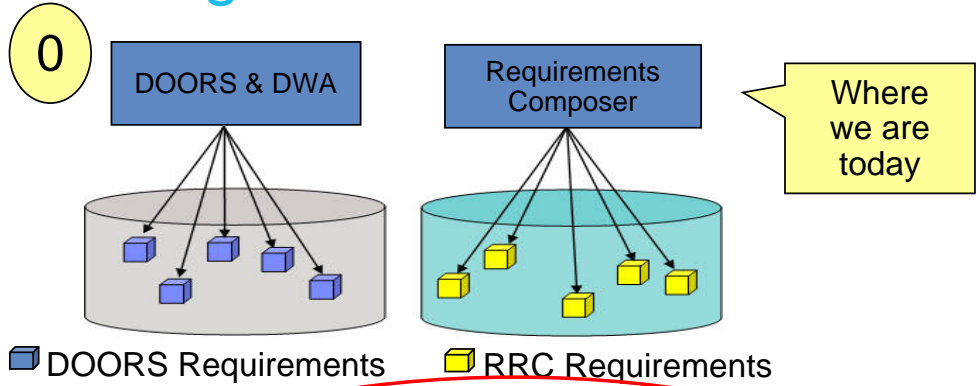
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## Release schedule

- H2 2009, Major release, DOORS 10 - “DOORS on Jazz”
  - First increment for DOORS Data stored on the Jazz Framework
  - Further integrations to IBM Rational Products (RTC, ClearQuest)
  - Built in document generation
    - Limited version of Rational Publishing Engine
    - Pre-defined templates
  - Support for IPV6 networks
  - Stronger support for SSL
- Additional candidates:
  - Support for Live backups
  - Further product translations

# Evolving to the Jazz Platform



2010

# Why move the DOORS server data?

## Scalability, Reliability, Availability

- Industry standard storage
  - Support for Derby, DB2, Oracle
  - Stronger support for backup/disaster recovery
- Scalability
  - User performance comparable to DOORS
  - Utilization of multi-threaded server operating system
    - Consistency of performance across increasing user load
- Support for IT infrastructures
  - Recognized standard server technologies for ease of deployment
    - J2EE app server and deployment options
    - Stronger support for HTTPS across interfaces to support IT Security
- Availability
  - Planned downtime of server reduced compared with previous versions of DOORS
  - 24x7 working without the need to disconnect for backups
- Reliability and Redundancy
  - Support for duplex servers with failover for single point failure



# Moving towards a services orientated (SOA) Integration Framework

- REST style provision of a Services Orientated Integration framework for DOORS data
  - [http://en.wikipedia.org/wiki/Representational\\_State\\_Transfer](http://en.wikipedia.org/wiki/Representational_State_Transfer)
  - Initial version planned Q4 2009, with RRC integration
- Support for OSLC – Open Services Lifecycle Collaboration
  - <http://www.open-services.net>
  - Offers domain specific services on top of REST
  - Plan to offer RM services
  - Plan to consume CM services – to give integrations to Change, CQ and RTC of functional parity with each other
- Client side integration
  - DOORS client continues with the same technology as in DOORS 9.x
  - DXL functionality protected

# OSLC Integration Strategy

## Open Services for Lifecycle Collaboration

Present standard RM services and consume other



DOORS Server

DOORS Data



DOORS Clients



Present standard CM services and consume other



Any Rational CM Product



Present standard ADC services and consume other



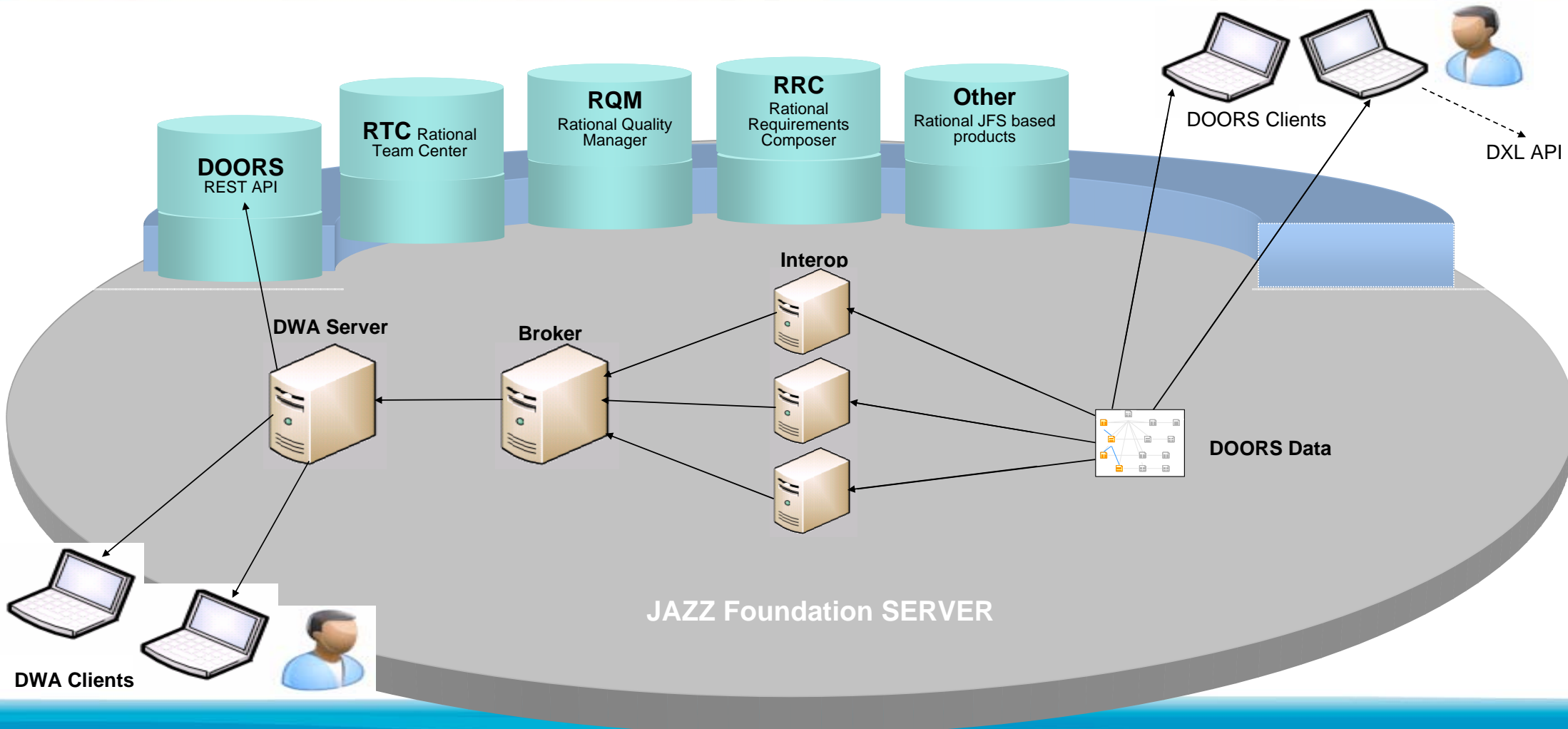
Any Rational Modelling Product



# Generic CM integration to Change, RTC and ClearQuest

- Offer integrations to change, ClearQuest and RTC that have functional parity
  - Convert existing DOORS-Change interface to be generic
  - Develop to support OSLC as much as possible
  - Supply as part of the DOORS install and offering
- What do we get?
  - Requirement/Change Request traceability
    - Requirements driven development: Create implementation requests from requirements and monitor development progress alongside the requirements
    - Requirement defect tracking: Associate a defect with a requirement to investigate a possible change to the requirement
  - Requirements Change Management
    - Manage the change process of DOORS requirements using a CM tool

# Increments to reach "DOORS on Jazz"



# Questions



Thank You

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