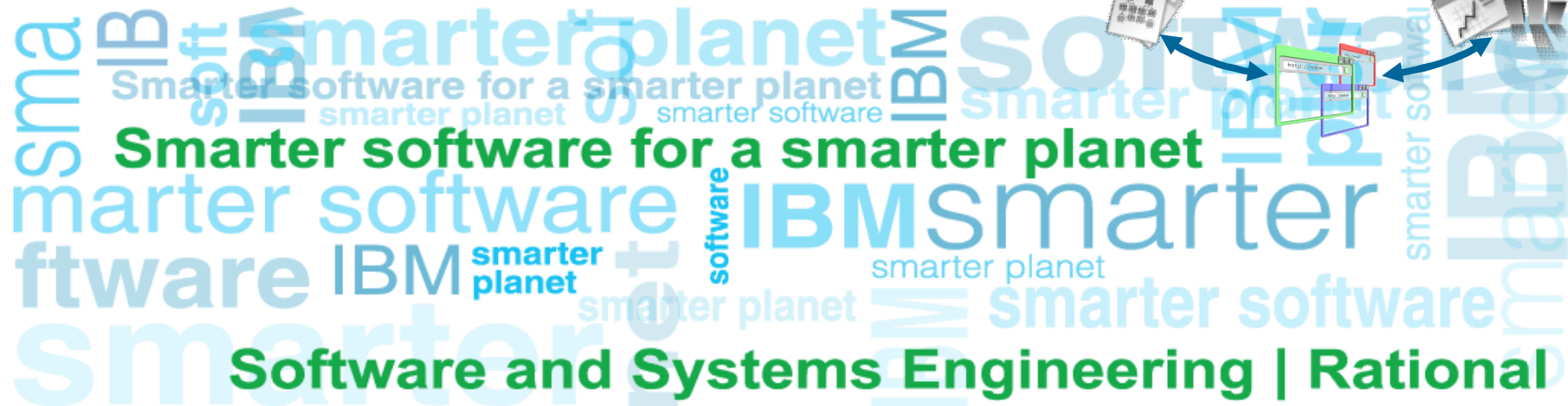
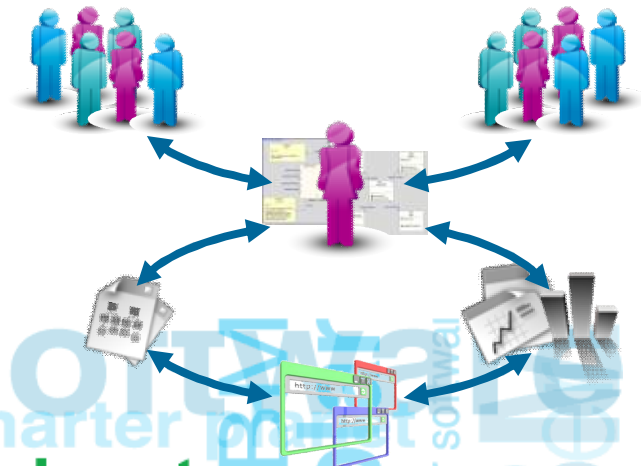
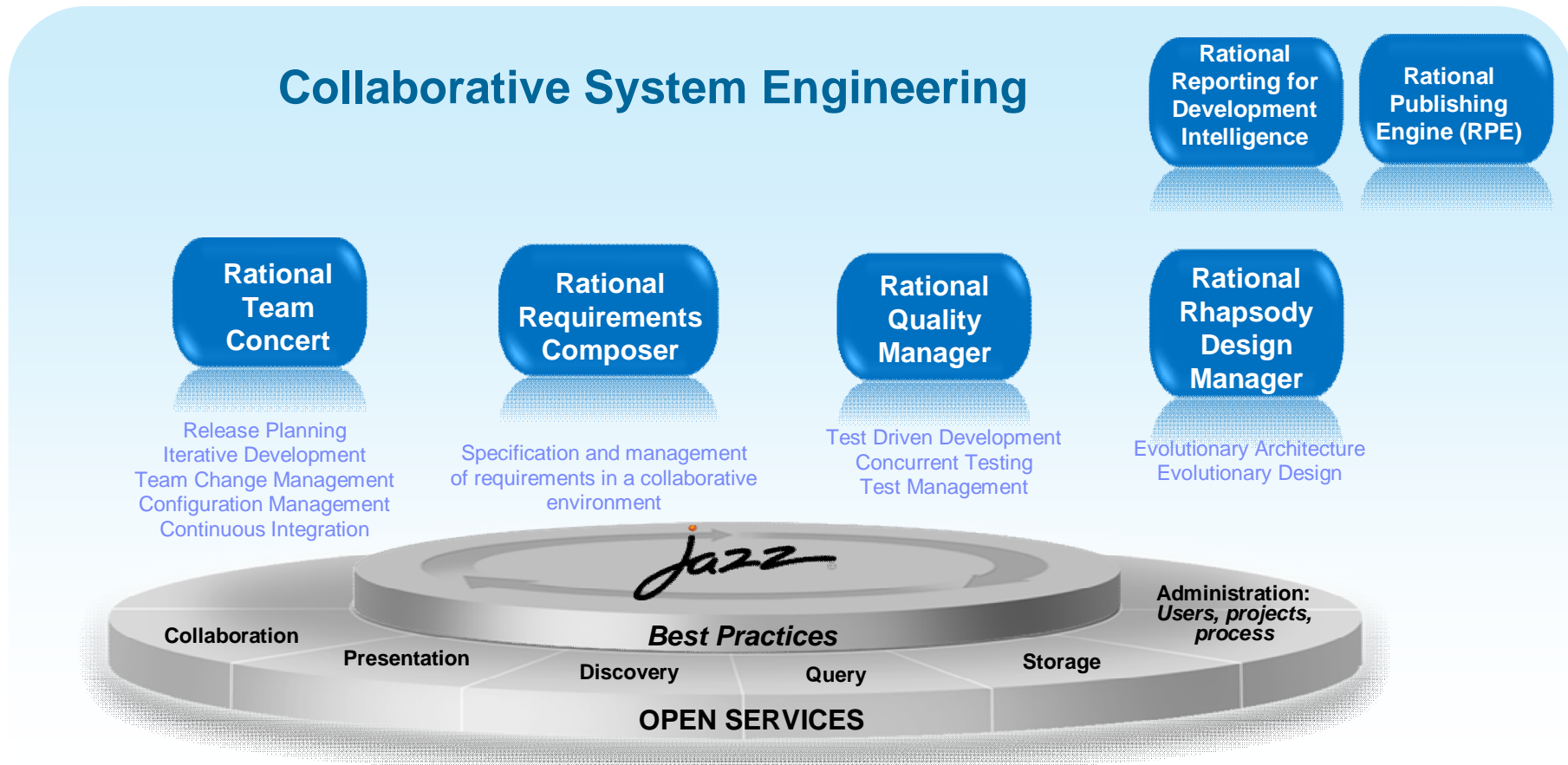


La modélisation au cœur de la collaboration

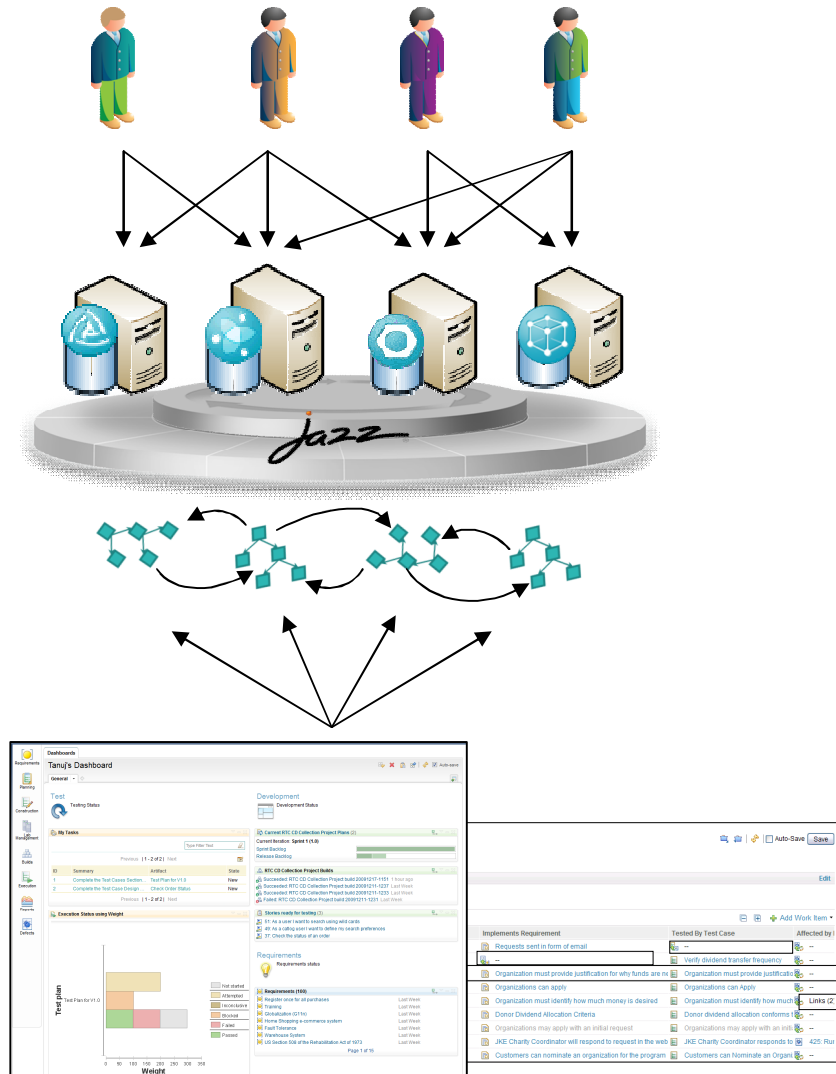
Vincent Trébuchon – IBM Rational
vincent.trebuchon@fr.ibm.com



Rational Rhapsody Design Manager



Jazz-based « Collaboration »



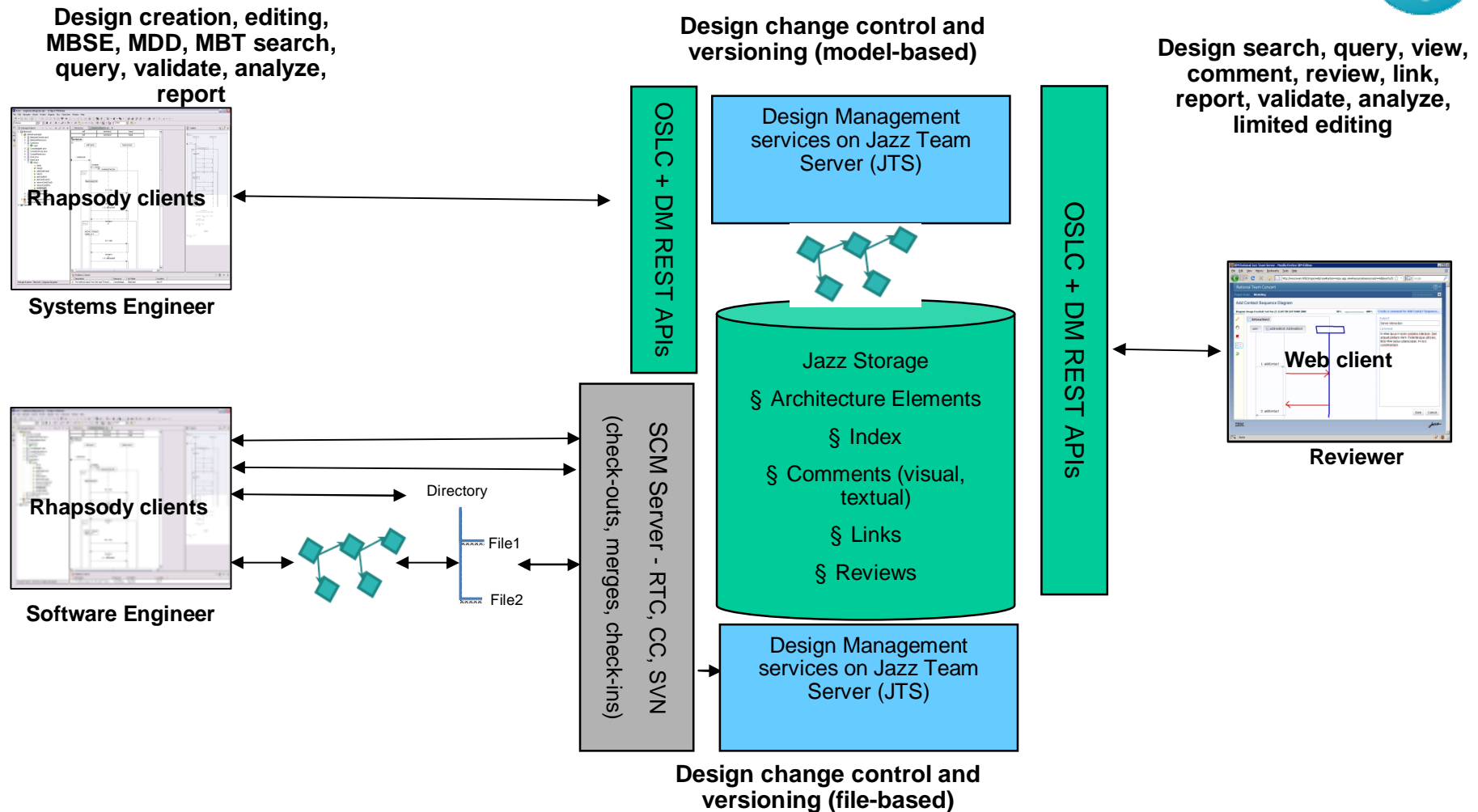
- Users :
 - Roles / Licenses : R/W Cross-tools permissions

- Tools :
 - Web resources : Web Interfaces
 - Linked Data / OSLC : « Right Context »
 - Rich Hovers
 - Cross-tools Creation/Selection dialogs

- Collaboration :
 - Traceability matrix
 - Mashup dashboards
 - Cross-reporting



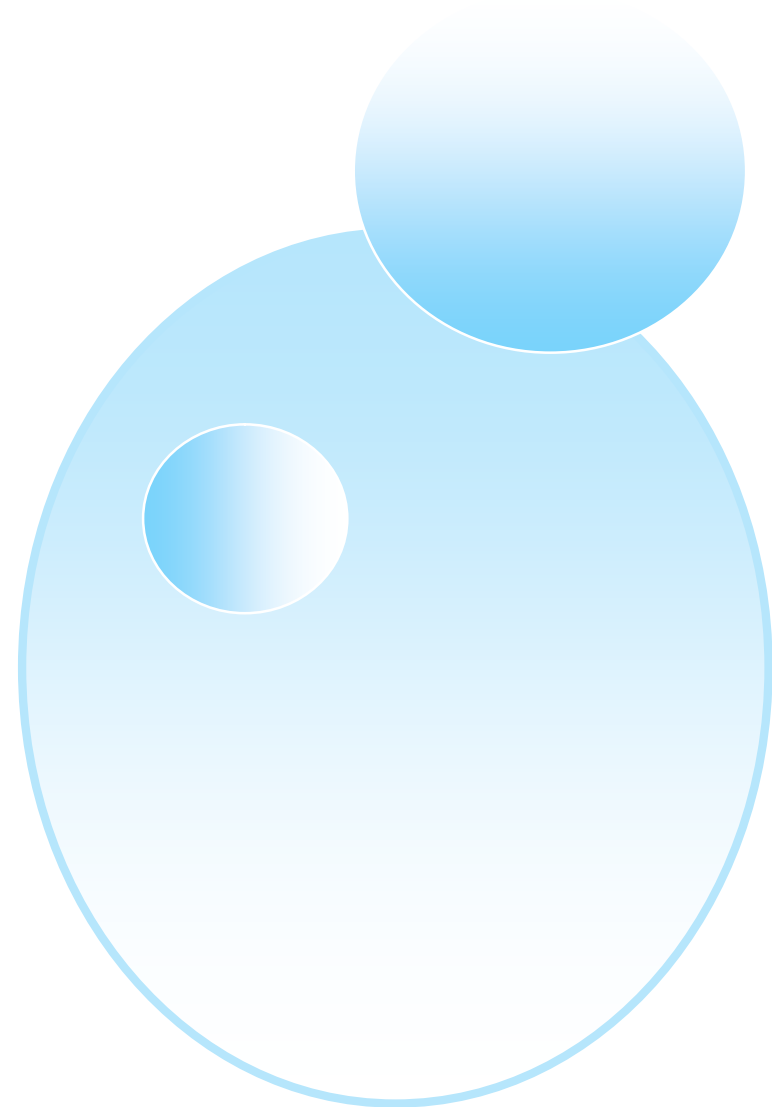
Work together with SCM and DM model management



- Systems Engineers work directly from the database for design change control and versioning
- Software Engineers work with their Software Configuration Management system for design change control and versioning

Outline

- Complexity and Design
- Design Challenges
- Collaborative Design Management
 - Central Design Hub built on Jazz
 - Linking Designs with OSLC
 - Search and Analysis
 - Stakeholder collaboration
 - Document generation and reporting
- Rhapsody Client Integration
- Get involved on Jazz.net

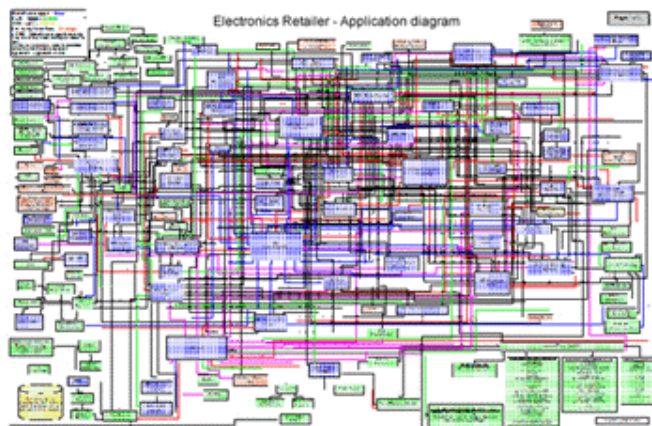


Complexity is the biggest challenge facing organizations today!

“Today’s complexity is only expected to rise, and more than half of CEOs doubt their ability to manage it.”

IBM 2010 Global CEO Study: 1500 face-to-face interviews, Companies of all sizes across 60 countries, representing 33 industries. ([IBM CEO study](#))

Whether IT or device-based, software-based applications continue to grow in size and complexity. Globally distributed and diverse teams, outsourcing and supply chain dependencies lead to increased challenges in the timely launch of competitive products and services.



Organizations struggle to balance agility and complexity.

It's not enough to manage development, the design process itself must become more streamlined and efficient.

Design is critical to tackling complexity ...

Customers use design tools today to:

- ▶ Simplify application and systems complexity
- ▶ Analyze software and systems for defects, impact analysis, and potential reuse
- ▶ Document and communicate to stakeholders

Estimates Of Relative Costs For Repair Of Generic Defects

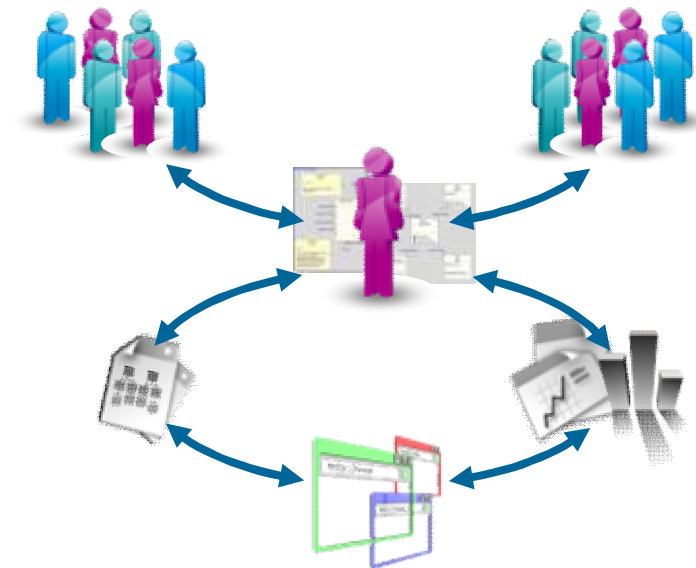
Design and architecture	Implementation	Integration test	Customer beta test	Post product release
1X	5X	10X	15X	30X

X is a normalized unit of cost and can be expressed in terms of person-hours, dollars, etc.

- However design tools often focus on the practitioner and lack team integration
 - Teams cannot easily share designs and get feedback from stakeholders
 - Linking designs to other lifecycle artifacts is difficult, leading to a lack of traceability and understanding of the impact of changes
 - Difficult finding information for reuse
 - It takes too much time to create reports across multiple designs and lifecycle elements for specifications, communication, regulatory compliance, and auditing
 - Design reviews are challenging because they rely on static documents that get disconnected from the design

What is Design Management?

- ✓ **Design Management** integrates systems engineering and software design into the lifecycle
- ✓ Design Management helps teams to:
 - **Collaborate and iterate** on their software and systems designs
 - Produce **better quality designs with less time**
 - **Integrate designs and design process** with the rest of the lifecycle
- ✓ **Rational Rhapsody** is extended with design management capabilities
 - Enabling seamless **software and system engineering integration** scenarios
 - **Extending** the reach of design and architecture into the **wider engineering community**



Collaborative Design Management

Enhance cross-team collaboration on software and systems design

Central Design Hub

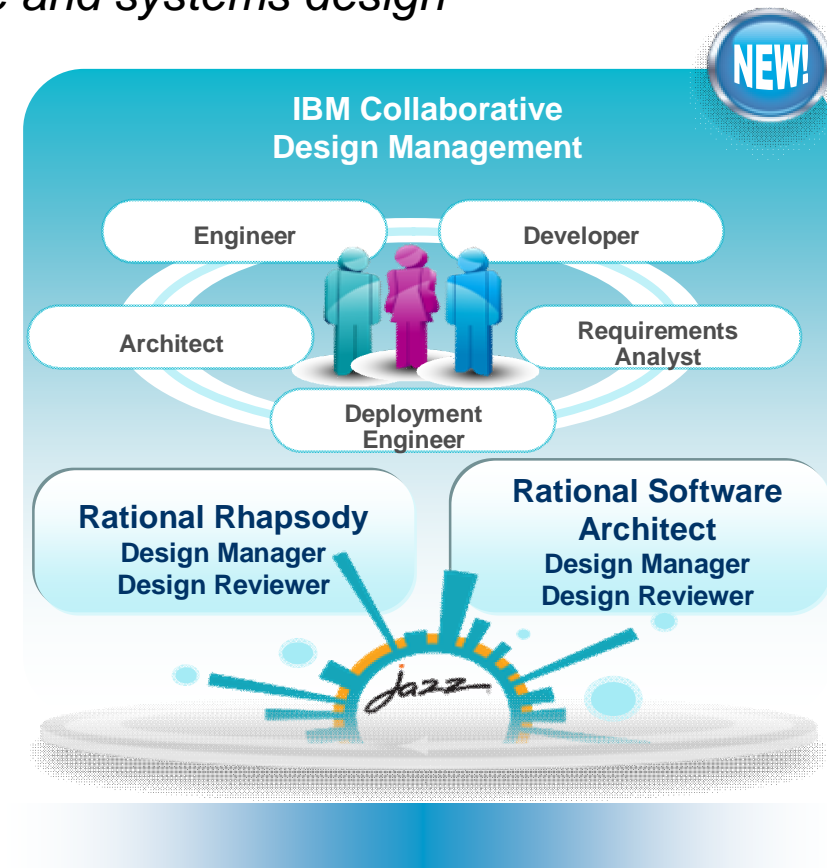
- ✓ *Enterprise-wide design storage for search, review, analysis, and reuse*
- ✓ *Links design elements to lifecycle artifacts*
- ✓ *Navigate and visualize relationships*
- ✓ *Simplify design collaboration through Jazz-based model management*

Stakeholder Collaboration

- ✓ *Automated design reviews at all stages of development*
- ✓ *Intuitive extended team web client for broader access to designs*
- ✓ *Unify requirements and design with single-source of truth workflow utilizing OSLC*

Document Generation and Reporting

- ✓ *Create documents directly from the development lifecycle*
- ✓ *Draw from information and assets linked through OSLC*

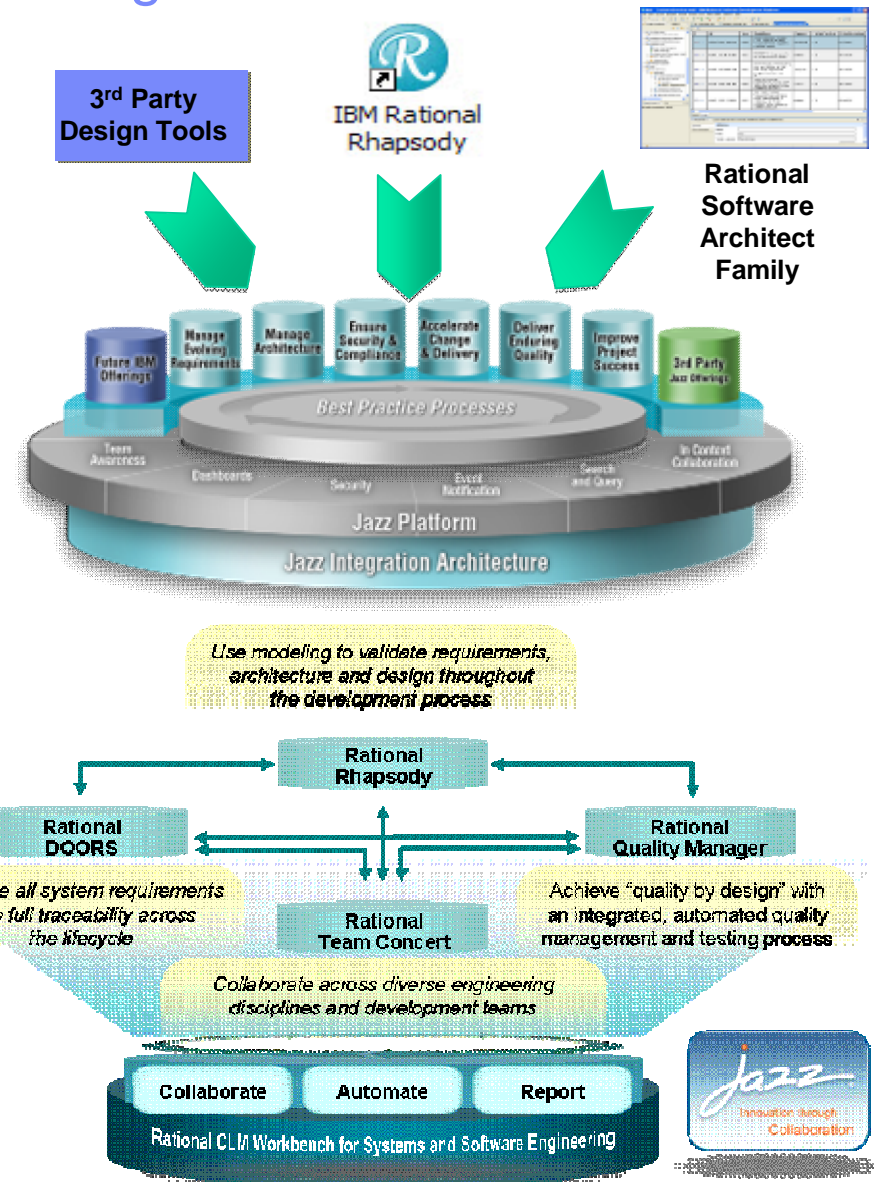


"The ability to review and comment on models from the Web client encourages feedback from a wide array of stakeholders... leading to faster consensus and improved quality of solution designs."

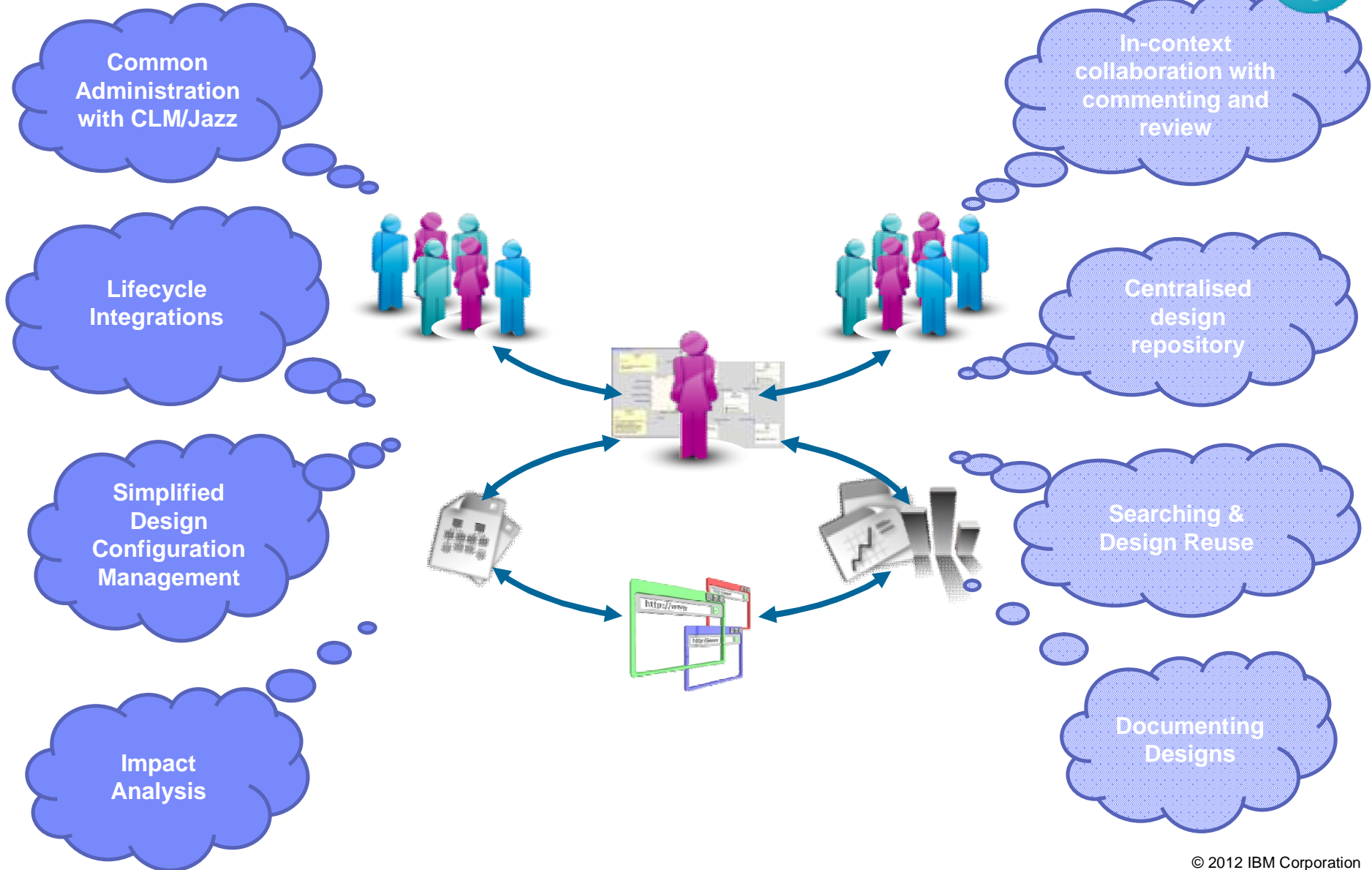
– Lars Tufvesson, Sellegi

Rhapsody and Collaborative Design Management

- Rhapsody has been extended with these Collaborative Design Management capabilities
 - ▶ Continuing the integration of the architecture domain (MBSE) into IBM's systems engineering solution
 - ▶ Enabling seamless software and system engineering integration scenarios
 - ▶ Extending the reach of design and architecture into the wider engineering community
 - ▶ Enhancing existing Rhapsody design capabilities of with new team capabilities
- ▶ Design Management project on jazz.net
 - ▶ Brings design management capabilities to the Jazz platform
 - ▶ Built as a set of design management services that can be used with any design tool
 - ▶ Enabling an ecosystem around software and systems design



Rhapsody Design Management 4.0



Rhapsody Design Management: A Closer Look

Planning

- Integrated planning
- Effort estimation & progress tracking task boards
- Out of the box process templates: formal or agile

Project Transparency

- Customizable web based dashboards
- Metrics and reports
- Project milestone tracking and status

Work Items

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

Design Management

- Design change tracking
- Configuration management
- Design documents
- Searching and design reuse
- Impact Analysis

Collaboration

- Commenting and markup
- Reviews
- Reporting
- Email notification
- Include Mathworks Simulink models

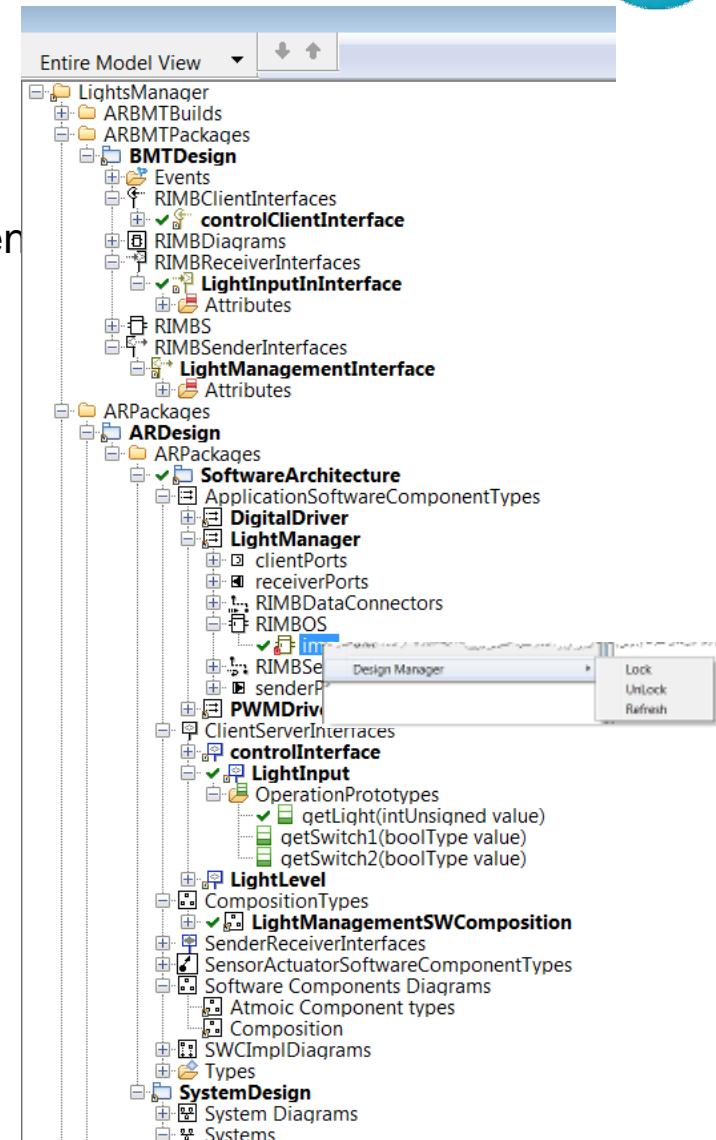
Lifecycle

- Central repository for design related artifacts
- Role-based access control
- Common user administration with Jazz products
- Lifecycle projects with design
- Traceability between designs and requirements, work items, and quality artifacts
- Reporting and analysis across the lifecycle
- Dashboards across the lifecycle



Simplified Design Collaboration

- **Server Based Model Management**
- Designs **directly editable on Jazz** from Rhapsody client
- Locking, versioning, history, and **change control** on **individual model elements**
- **Parallel workspaces** and snapshots
- Changes grouped into **change sets**
- **Design reviews** on private changes prior to sharing





Design Management and Collaboration

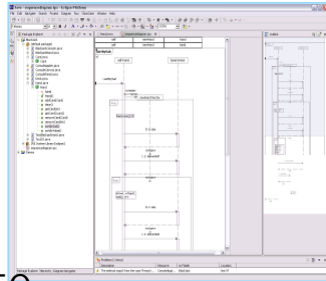
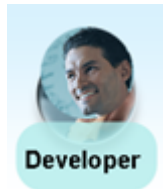
Requirements Server
DOORS / RRC

Change Management Server
RTC *Jazz*

Quality Server
RQM *Jazz*

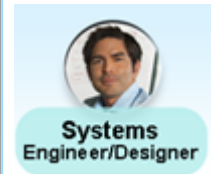
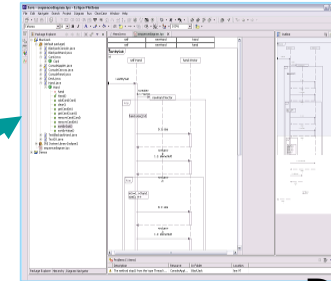
OSLC

DM Team Server
 ■ Models
 ■ Cross Lifecycle links
 ■ Comments & Markups
 ■ Reviews *Jazz*



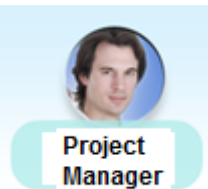
Design Collaborate Manage Link

Rhapsody Client

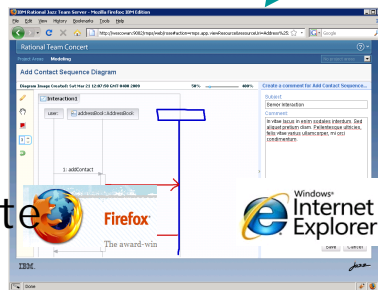


Rhapsody Client

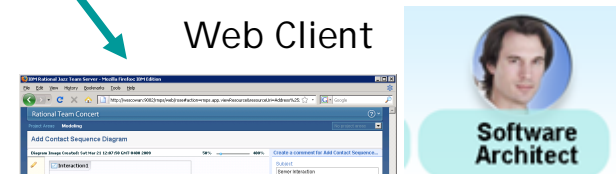
Design Collaborate Manage Link



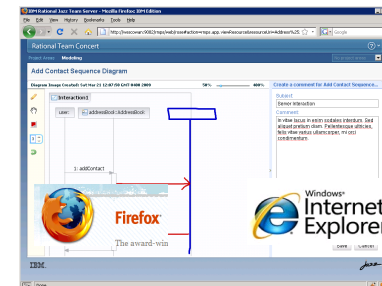
Web Client



Review Collaborate Link



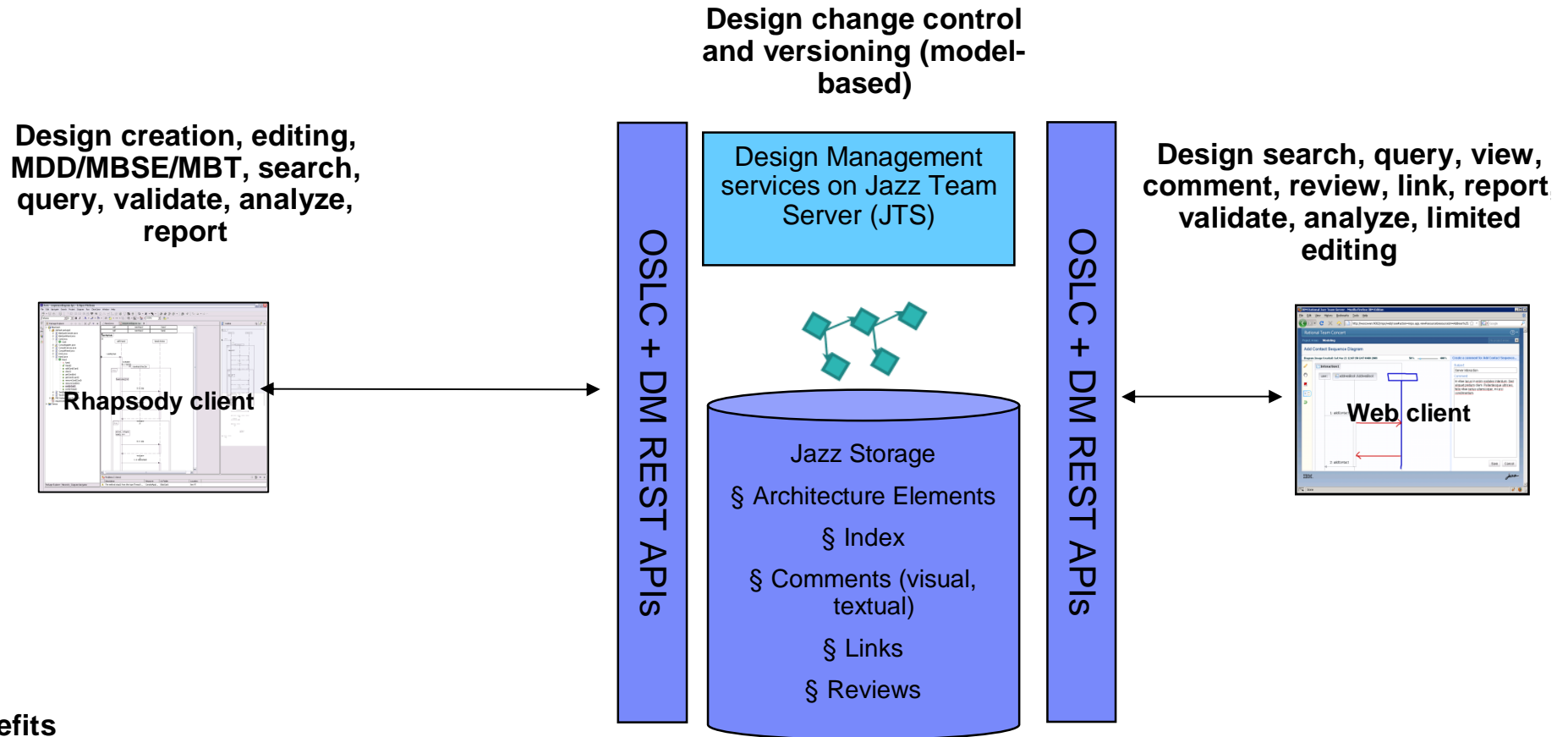
Web Client



Review Collaborate Link



Server Based Model Management

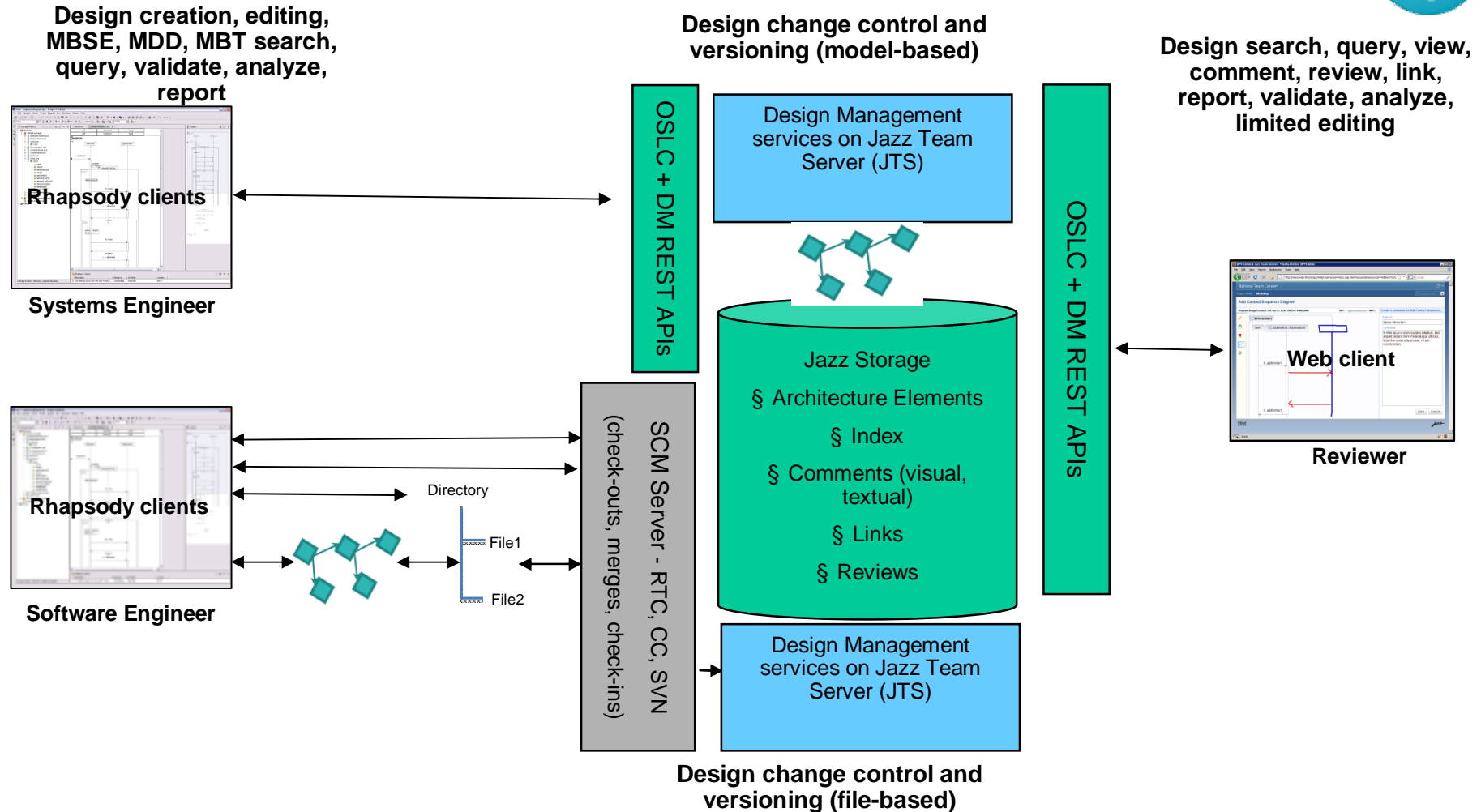


Benefits

- Direct editing of designs and change control on server providing a more simplified environment
- Change control (locking, history) at the model resource level providing more granularity
- No duplication or design synchronization issues
- Use of SCM still available for users who need more powerful change control capabilities (i.e. Software Engineers)



Work together with SCM and DM model management

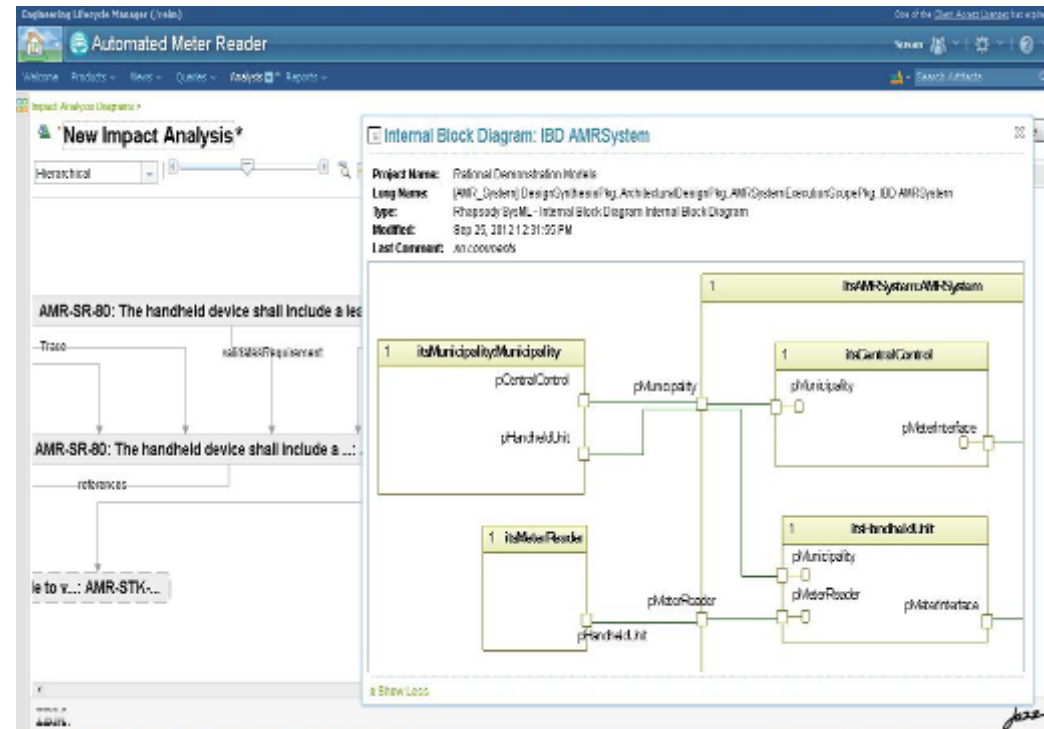


- Systems Engineers work directly from the database for design change control and versioning
- Software Engineers work with their Software Configuration Management system for design change control and versioning



Systems and Software Engineering Lifecycle Integrations

- Bi-directional **traceability** between requirements (RRC & DOORS) and design
 - Alternative to Rhapsody Gateway
- Stakeholders can **easily find designs**
- Understand the **impact of changes** to requirements or designs
- Single source of truth for SysML requirements – **no duplication** of information





Design and Lifecycle Traceability Scenarios

- Design and Requirements

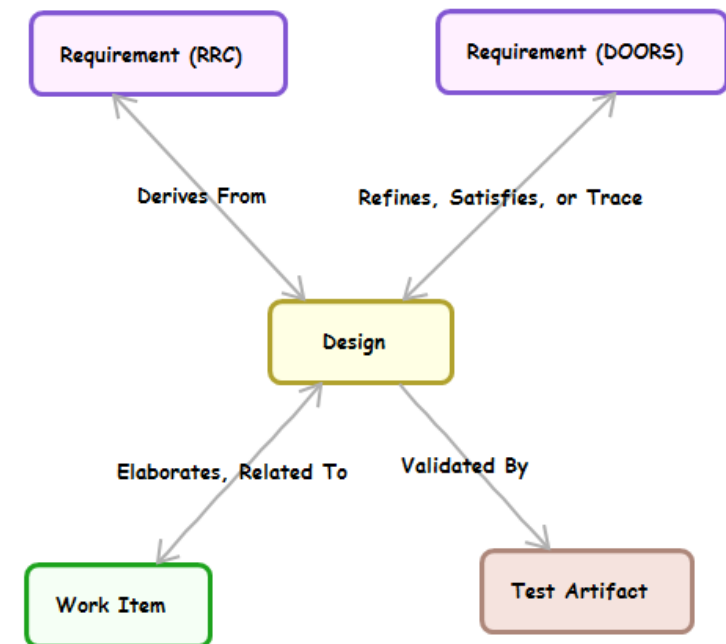
- **Analysis**: link designs that provide the next level of details for requirements
- **Coverage**: link designs that implement requirements to ensure coverage

- Design and Change Management (Work Items)

- **Planning**: link design tasks to related designs
- **Design Changes**: link design change sets to related work items
- **Implementation**: link implementation tasks to related designs making it easier for developers to find designs
- **Defects**: link design defects back to defective design

- Designs and Test Artifacts (one-way only)

- **Test coverage of designs**: Link from designs to test artifacts that validate the design to ensure test coverage



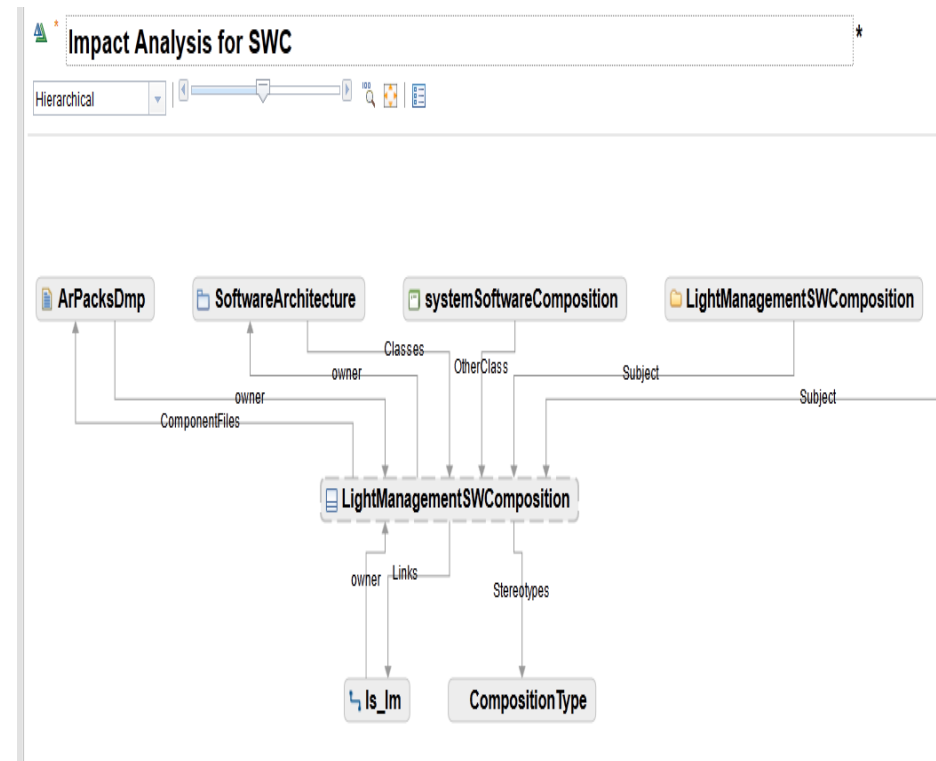
Impact Analysis – Design Centric View



- New graphical impact analysis diagram
 - Includes both **design** and **OSLC** linked artifacts

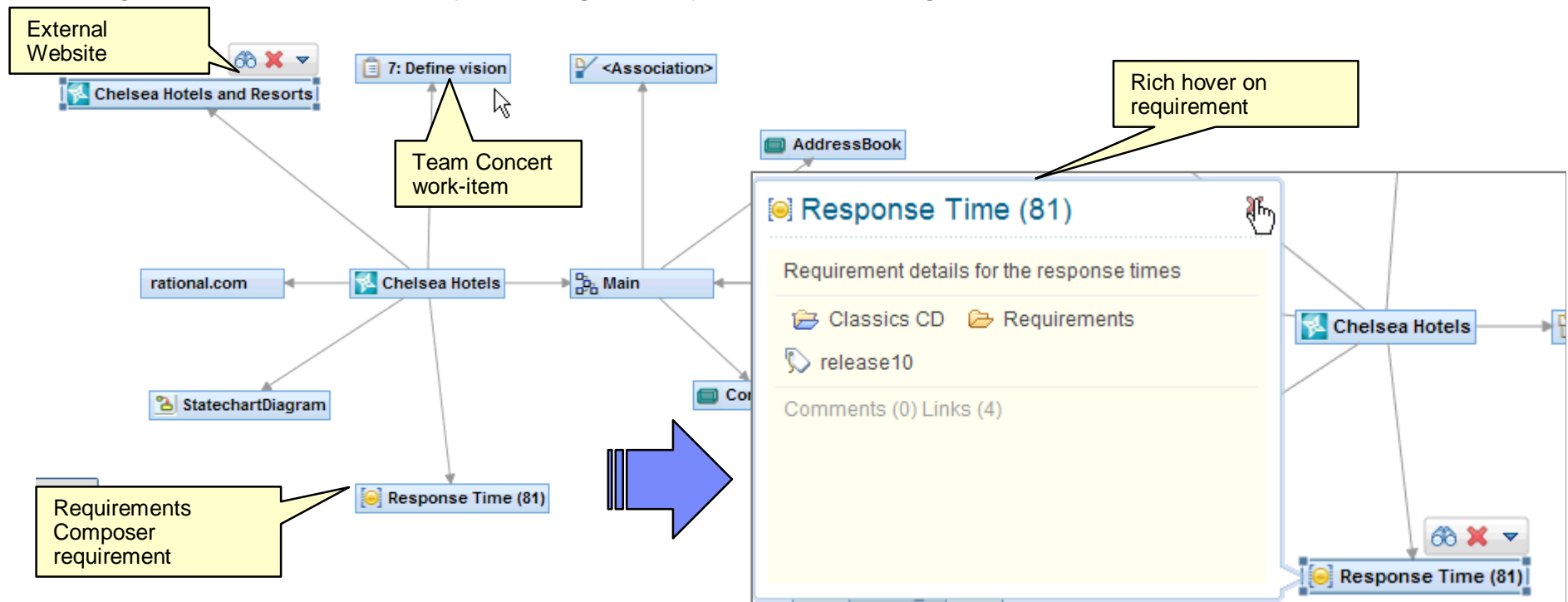
- **Analysis Configuration** defines the parameters for the analysis
 - **Upstream** level, **downstream** level, which links types to include
 - Can be used be shared by multiple analysis

- **Analysis** applies the configuration to a selected element to perform the impact analysis
 - Add and remove elements from impact analysis diagram
 - Save and re-run at a later time



Viewing traceability links in Design Manager

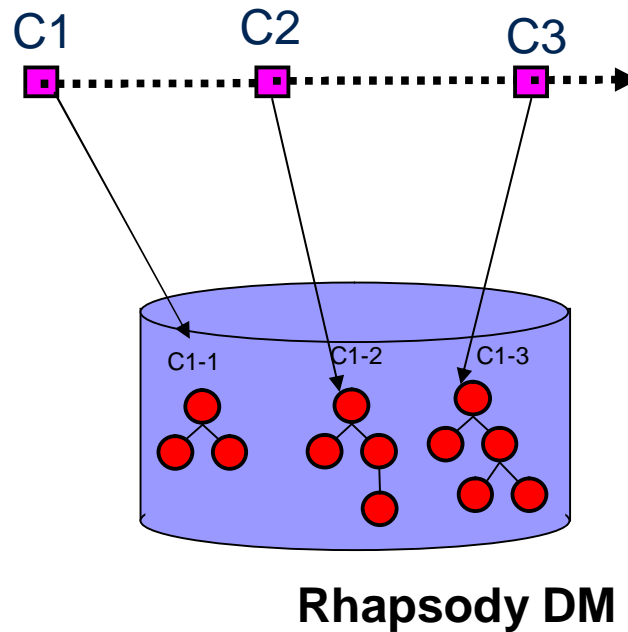
- Relationship diagram shows linked elements to help impact analysis
- Interactively “grow” a diagram of relationships
- Every relationship (link) managed by the model elements can be explored, including relationships to resources external to Design Manager.
- Manage the relationships by filtering in only the interesting





Jazz Platform Common Configuration Service (VVC)

- Jazz based version management
- All Jazz resources can be configured together by the service regardless of the application
- Configurations realize baselines (snapshots), streams product variants (workspaces)

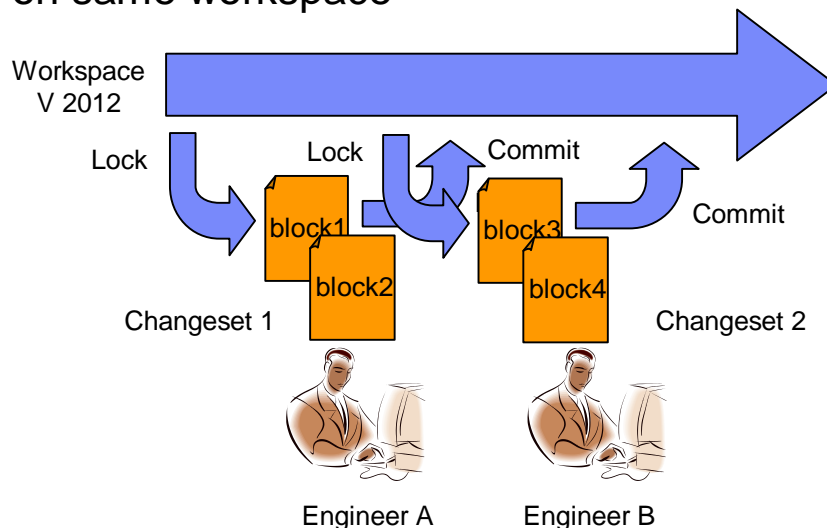




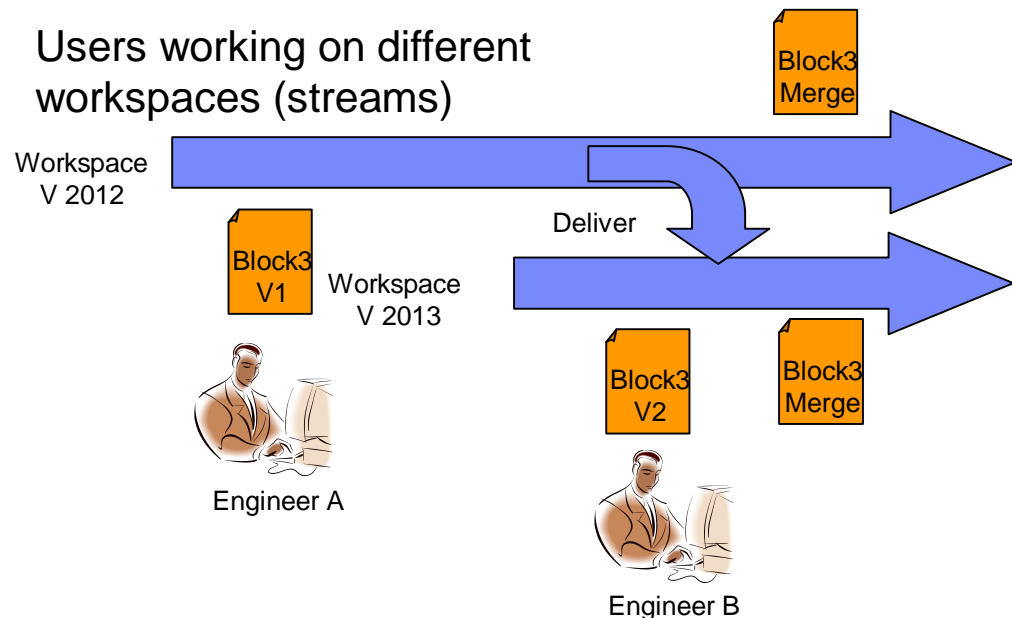
Collaborative work: Workspaces, Change Sets

- Workspaces: a shared evolving configuration of the system
 - Workspaces are defined based on a set of dimensions, e.g. product model year
 - Workspaces have may have relationships that determine propagation of changes
- Changesets: transactions made by individual users which consist a set of resources
 - Changesets can be associated with certain workitems and can be reviewed
- Snapshot: an immutable workspace (“baseline”)
- Working in “publish mode” is also supported

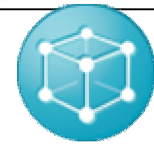
Users collaborating on same workspace



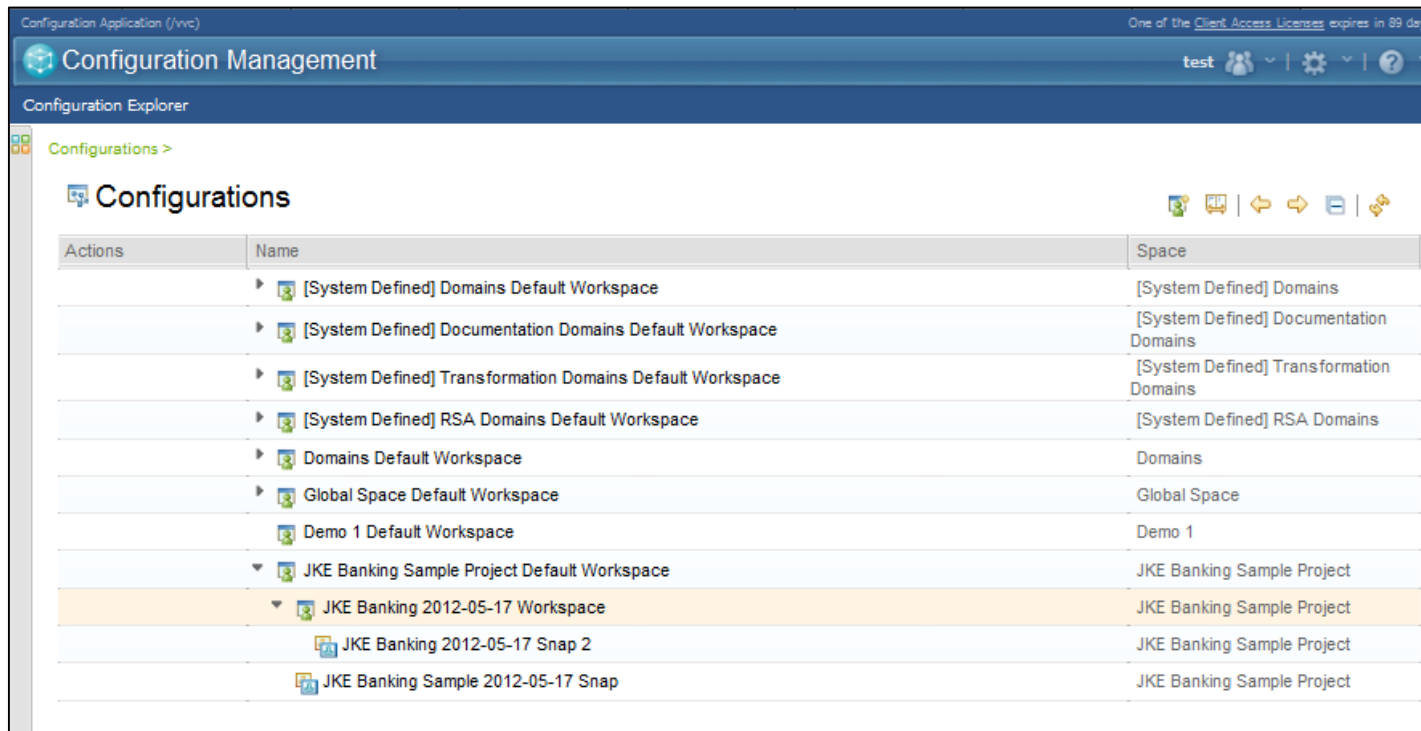
Users working on different workspaces (streams)



Introduction to DM Workspaces and Configurations



- New configuration application maintains workspaces and snapshots for model elements
- A group of Configurations is called a **Configuration Space**
- Multiple project areas can be connected to the same Space and share Configurations
- A **Workspace Configuration** is one where users can modify each resource
- A **Snapshot Configuration** is one where users can only view versions for each resource



Configuration Application (/vnc) One of the Client Access Licenses expires in 89 days

Configuration Management test

Configuration Explorer

Configurations >

Configurations

Actions	Name	Space
	▶ [System Defined] Domains Default Workspace	[System Defined] Domains
	▶ [System Defined] Documentation Domains Default Workspace	[System Defined] Documentation Domains
	▶ [System Defined] Transformation Domains Default Workspace	[System Defined] Transformation Domains
	▶ [System Defined] RSA Domains Default Workspace	[System Defined] RSA Domains
	▶ Domains Default Workspace	Domains
	▶ Global Space Default Workspace	Global Space
	▶ Demo 1 Default Workspace	Demo 1
	▼ JKE Banking Sample Project Default Workspace	JKE Banking Sample Project
	▼ JKE Banking 2012-05-17 Workspace	JKE Banking Sample Project
	▶ JKE Banking 2012-05-17 Snap 2	JKE Banking Sample Project
	▶ JKE Banking Sample 2012-05-17 Snap	JKE Banking Sample Project



Finding Existing Diagrams

- Quick search across project areas
- Query-based searching on design types and semantics

The screenshot shows the Design Management (dm) interface for the 'JKE Banking Sample Project'. A query named 'JKE Query' is displayed with the following configuration:

- Name:** match - String JKE
- Type:** Is exact - pack
 - Package (uml)
 - PackageImport (uml)
 - PackageMerge (uml)
 - PackageableElement (uml)

The 'Add Condition' panel is visible, showing options for Property Value, Type, Created By, Creation Date, Link, Modified By, Modified Date, and Name. The 'Sorting Options' section is set to 'Ascending' with 'qualifiedName (uml)' selected.

The 'Quick Search' dialog box is shown with the search term 'service'. The search scope is set to 'Selected type' with 'class' selected from the dropdown menu. The search scope is also set to 'All Projects on this Server'.

Search across: All types
 Selected type: class

Search In: All Projects on this Server
 This Project
 Selected Project

Design Collaboration

Collaborating with Stakeholders in the Context of Designs

Different types of design collaboration may be required depending on the amount of formality required:

Formalization



Design Collaboration

- Ongoing stakeholder involvement in the design process.
- Starts early in the process and stakeholder input helps to shape the evolution of the design.
- Improve quality and gain stakeholder buy-in

Informal Design Reviews

- Gather feedback from stakeholders on a specific set of designs at a point in time such as a milestone.
- Review occurs over a limited period of time.
- Does not typically require formal signoff on designs.

Formal Design Reviews

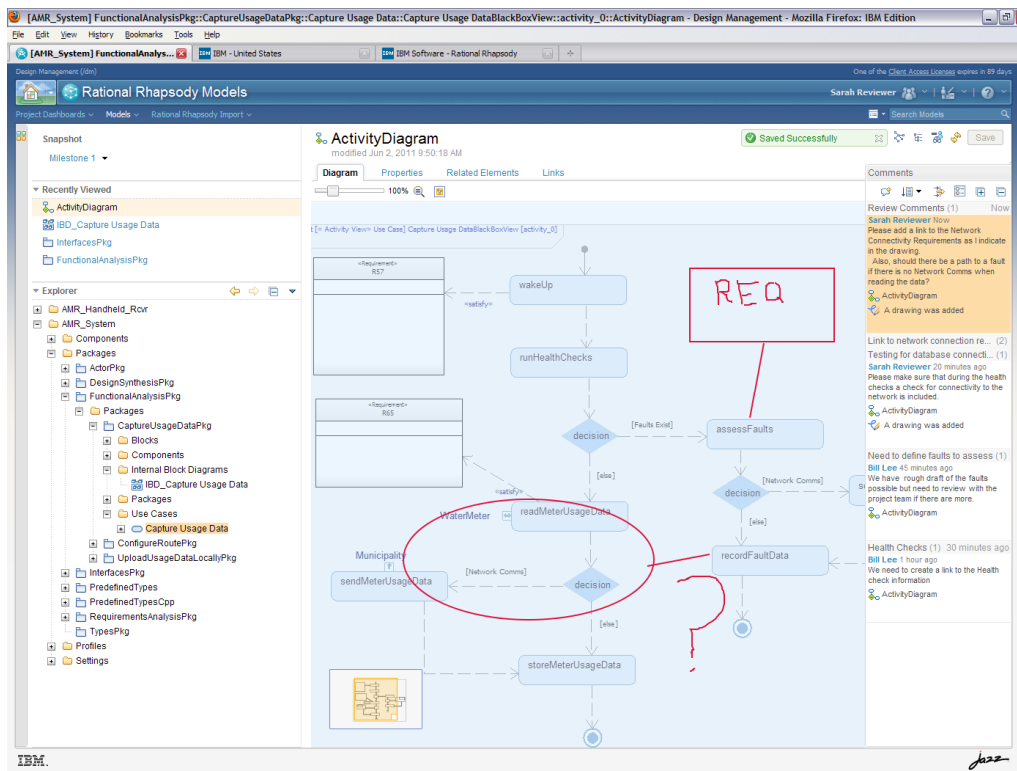
- Obtain approval for designs or identify issues that must be resolved before approval can be given.
- Review occurs over a limited period of time
- Requires tracking of formal signoff on designs.



Cost of change increases

Design Collaboration - Commenting

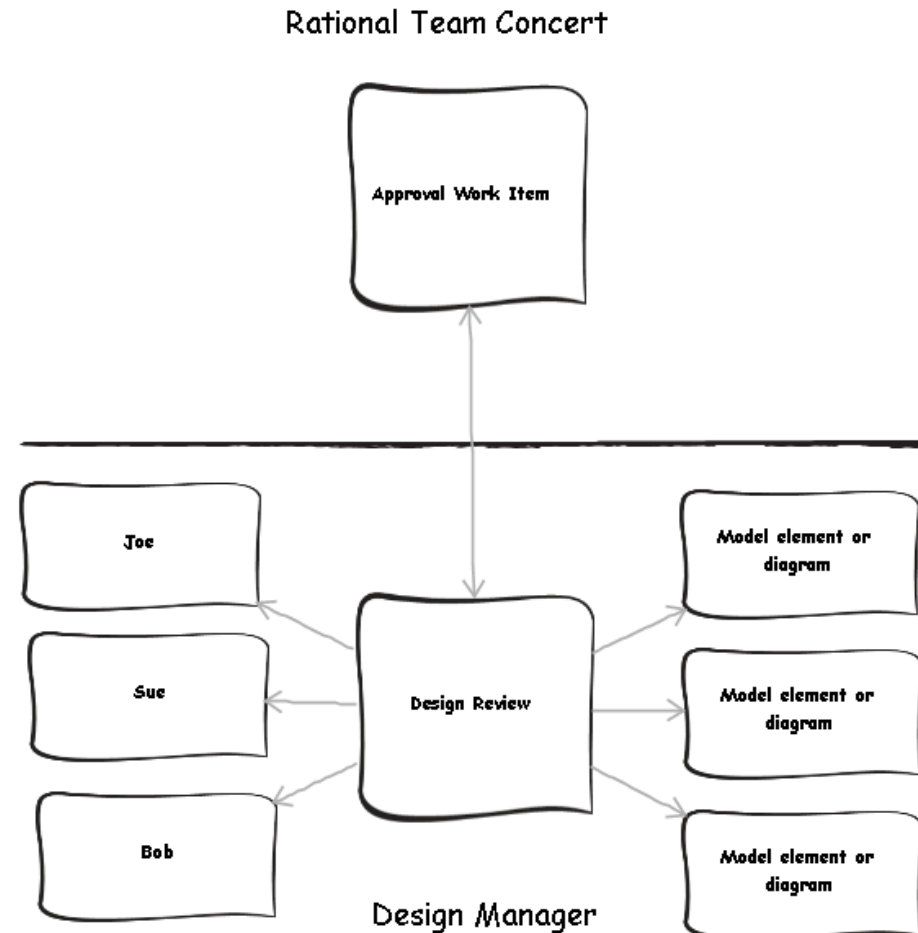
- Comments can be created on any Design Manager resource
 - Textual (plain text) or graphical (SVG graphics overlaid on diagram)
 - Comments have an author and time and are associated with a snapshot
- Organized into discussions
- Accessible from either the Web client, Rhapsody, or Rational Publishing Engine



Comments can be sorted and filtered based on snapshot, user, and time

Design Reviews

- Design review created in Design Manager specifying participants and resources to be reviewed
- Reviewers attach comments and markup to designs
- [Optional] Work item created in RTC and linked to design review to track formal design approvals
- [Optional] Design comments that require follow-up action created as work items in RTC and linked back to design review



Design Reviews

- Design Manager allows you to quickly setup design reviews and gather feedback.
- Users notified via email of the review and can access their reviews from the dashboard
- Design Manager tracks progress of design review

When & Why
 Who
 What

The screenshot shows the 'MyReview' interface in Design Manager. It includes a progress bar with stages: Draft, Start Review, In progress, Reviewed, and Finalized. The 'Overview' tab is active, showing fields for Name (MyReview), Due (Apr 1, 2011), and Instructions (Please Review). Below this are two tables: 'Participants' and 'Resources'.

Name	Role	Review results	Completed	Actions
Julian Jones	Reviewer	0 ✓ 0 ✗ 2 ⌚	0%	
jim conallen	Reviewer	0 ✓ 0 ✗ 2 ⌚	0%	

Name	Description	Actions
Main	Main Diagram	
JKEClientApp	Application Interface	

Rational Rhapsody Design Manager Web Client

The screenshot displays the Rational Rhapsody Design Manager Web Client interface. The main window shows an activity diagram titled "ActivityDiagram" with a "Comments" panel on the right. The diagram includes elements like "wakeUp", "runHealthChecks", "decision", "assessFaults", "readMeterUsageData", "recordFaultData", and "storeMeterUsageData". A red box labeled "REQ" is drawn on the diagram, and a red circle highlights a decision node. The "Comments" panel contains several entries with user names and timestamps, such as "Sarah Reviewer" and "Bill Lee".

View design over web

Collaborate with stakeholders with commenting

Browse design information

Mark-up diagrams to elaborate comments

Collaborative development in Rhapsody client

The screenshot displays the IBM Rational Rhapsody SysML client interface. The main window shows a list of reviews for the project 'Automated Meter Reader Sys'. A callout points to the 'Create or view reviews' button. Another callout points to the 'View design comments' section, which shows a comment from Pete: 'Upload leak data (1) Should this use case also include the uploading of leak?'. A third callout points to the search bar, which is used to search across design projects. A fourth callout points to the 'View details of design review' section, which shows the details of a review titled 'Get leak diagnostic data review', including its name, due date, instructions, participants, and resources.

View design comments

Create or view reviews

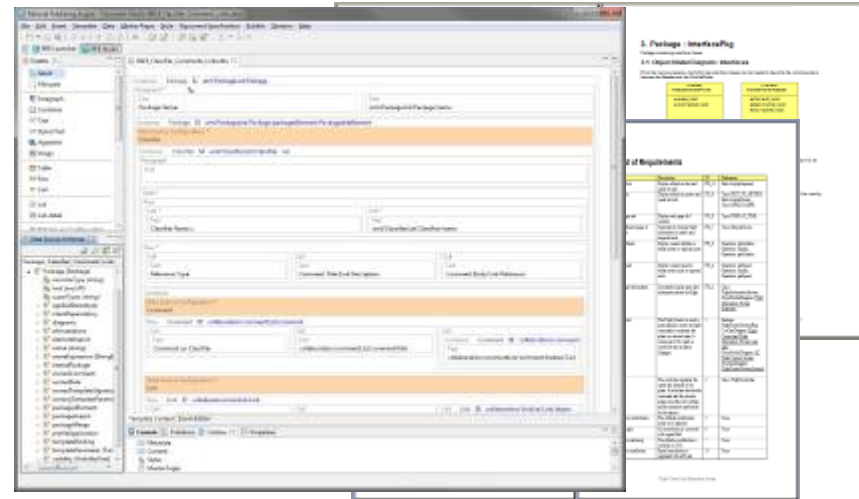
Search across design projects

View details of design review

Multi-discipline Document Generation and Reporting

Satisfy regulatory and customer demands

- ✓ *Easily create comprehensive documentation for specifications, communication, compliance and auditing*
- ✓ *Help prove compliance by including OSLC link information and design review information*



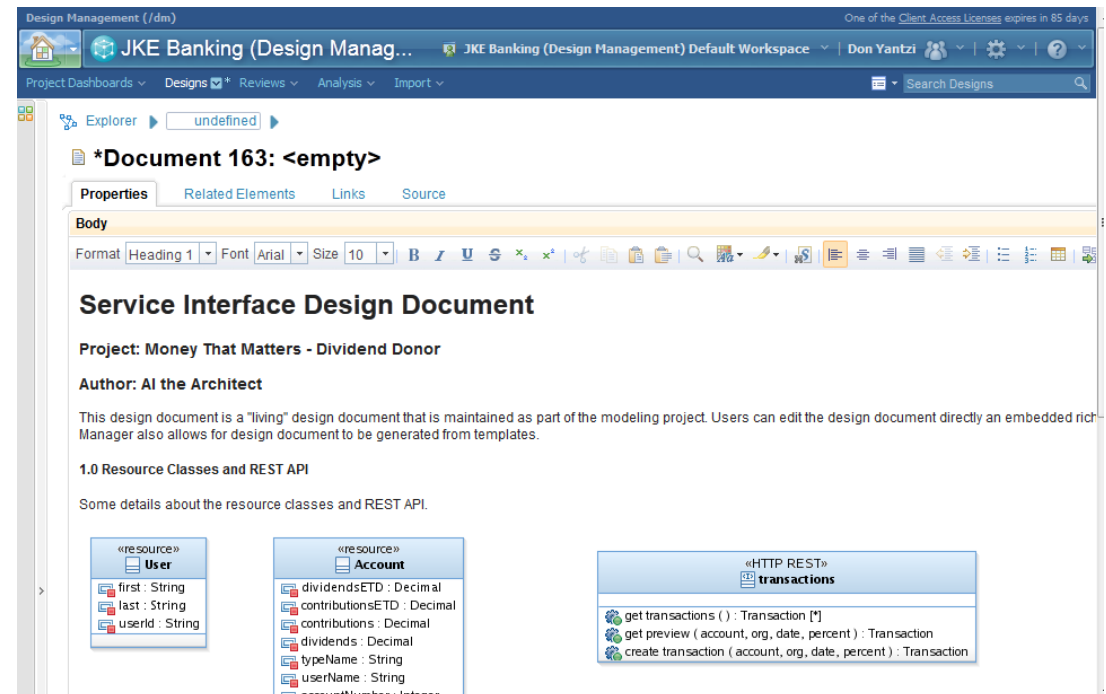
- **Teams must document for specifications, communication, regulatory compliance, and auditing, but...**
 - × Documents need to contain information from different domains (requirements, design, change management); individual products have separate reporting solutions
 - × Existing solutions are difficult to use for designs and limited in the types of information they can access
- **With Rhapsody Design Manager and Rational Publishing Engine...**
 - Users create templates and generate documents and reports pulling data from all relevant sources using open interfaces
 - Documents can show the impact of design changes on other lifecycle resources leveraging the OSLC linking data
 - Reports can also include design comments

Document Your Designs



- Generate **documents from templates**
 - Author templates with RPE Document Studio
 - Configure and generate documents from templates in Design Manager

- Create **living design documents**
 - Rich text documents with embedded design links
 - Add to any design project
 - Keep current as designs change
 - Editable from the Web client
 - All the features of Design Management: linking, change control, searching, commenting, and design reviews

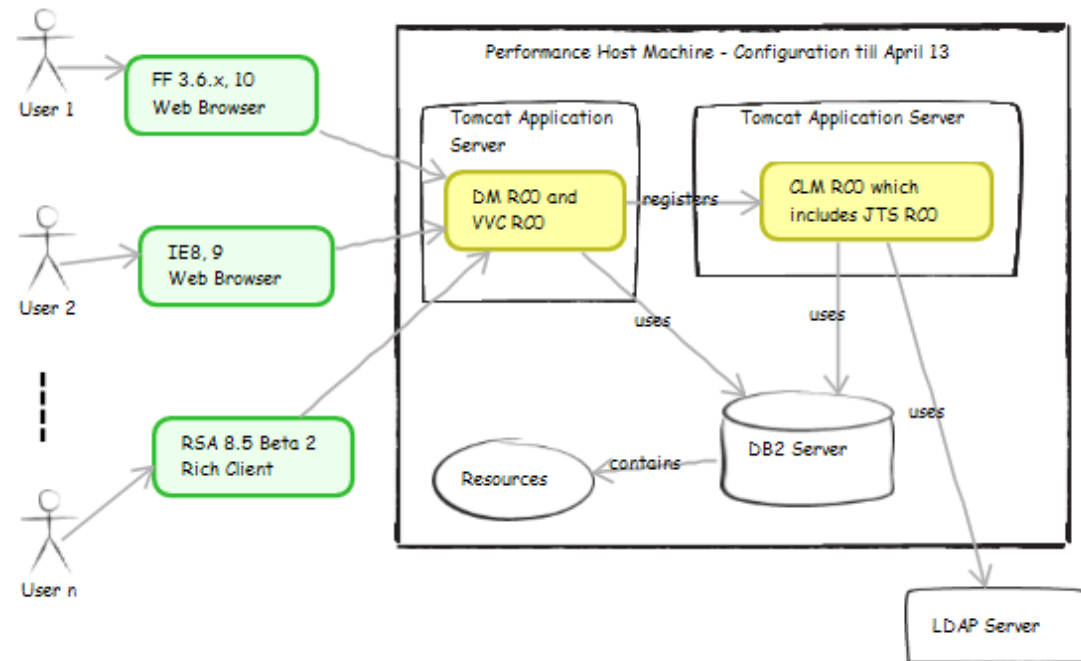


Design Sketching

Quickly capture and collaborate on ideas



- Sketches are simple, independent diagrams
- Add to any design project
- Editable from the Web client
- All the features of Design Management: linking, change control, searching, commenting, and design reviews



Dashboards

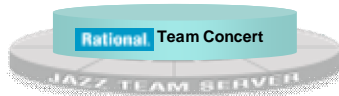
- Design Manager supports standard Jazz dashboards
- Provides an easy way to stay on top of ongoing activities
- Dashboard widgets
 - Recent Links
 - Reviews
 - Most Comments
 - Recent Comments
 - Validation
- Mix and match Design Manager widgets with widgets from RTC, RRC, or RQM
- Mini Dashboard provides quick access to dashboard from any location

The screenshot displays the Rational Collaborative Architecture Management (RCAM) interface for the JKE Banking project. The dashboard is organized into several sections:

- Header:** Architecture Management (/rmps) and JKE Banking.
- Navigation:** Project Dashboards, Models, and Rational Software Architect Import.
- Main Content:**
 - Welcome to Rational Collaborative Architecture Management:** A central message box explaining the tool's capabilities: "Rational Collaborative Architecture Management allows you to share, review, and collaborate on architecture models." It lists features like viewing diagrams, searching for architectural entities, and querying references.
 - Reviews (0) My Reviews:** A section indicating "No results available."
 - Recent Links (8) Past Week:** A list of links to various architectural models, such as "47: SWT Exception" and "13: Donors can choose to support an organization".
- Right Sidebar:**
 - Recent Comments (4) Past Week:** A list of recent comments from users like jim conallen.
 - Top Resources (7):** A list of top resources, including "Start up client (4)".
 - Validation (0):** A section indicating "No results available."
 - JKE Banking (Change Management) Events:** A list of events related to change management, such as "SWT Exception (47) 10 minutes ago" and "* a new defect regarding range (84) 3 hours".

Collaborative Design Management User Roles

Rhapsody Design Manager 4.0



Design Reviewer

For extended team members who need to access models and designs

Contributor New!

For extended team members who need to access to design and also change and configuration management

Design Manager

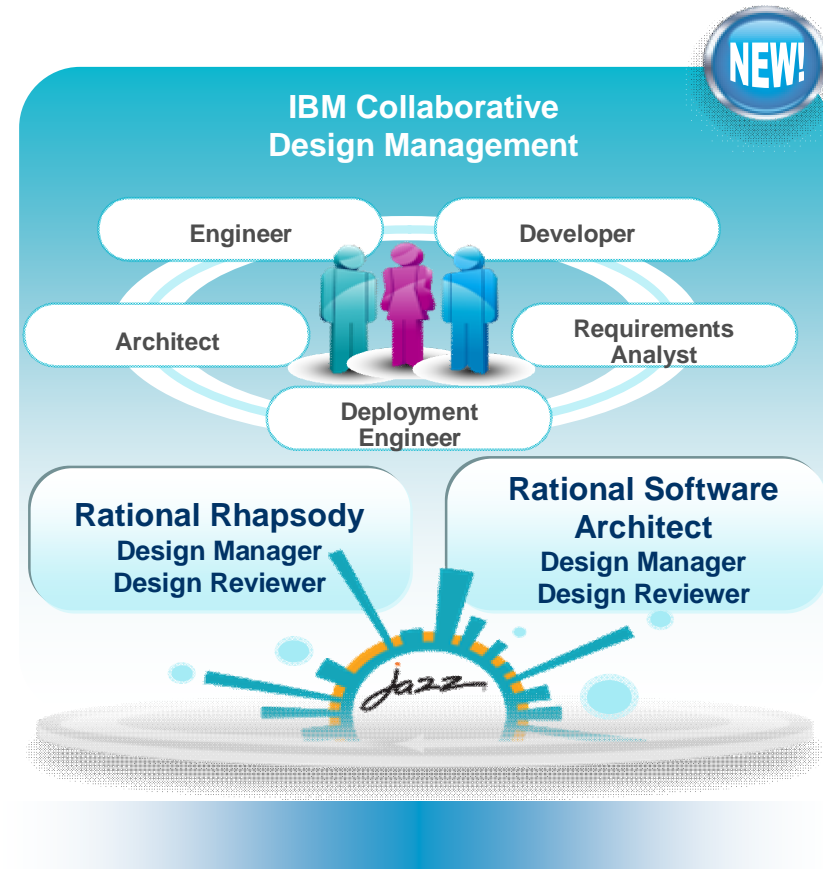
For design practitioners using Rhapsody to create models and designs

	Design Reviewer	Contributor	Design Manager
View and search designs	✓	✓	✓
View and create design links	✓	✓	✓
Impact analysis diagram	✓	✓	✓
Dashboards	✓	✓	✓
Generate Documents (reports)	✓	✓	✓
Create, update modify work items		✓	✓
Report Customization		✓	✓
Planning: agile, formal, hybrid		✓	✓
Setup Design Reviews			✓
Import designs (including Mathworks Simulink)			✓
Write Access to Design Resources			✓
Design Workspace Management			✓
Edit Design Documents			✓
Create Sketches			✓
Create design baselines			✓

Rhapsody Contributor is the same functionality as CLM Contributor license capabilities, i.e. Rational Team Concert Contributor, Contributor and Design Manager are user based roles that are available for both Rational Rhapsody Design Manager and Rational Software Architect Design Manager. Design Reviewer is only available with Rational Rhapsody Design Manager

Collaborative Design Management Offerings

- ✓ *Rhapsody Design Manager provides Collaborative Design Management for the Rational Rhapsody Family*
- ✓ *Extends Rhapsody's existing design authoring capabilities with enhanced team collaboration*
- ✓ *Connects Rhapsody into the Jazz platform, so teams can collaborate in the context of designs*
- ✓ *Team capability offered through Design Manager and Design Reviewer user roles*
- ✓ *Users access through either Web client or desktop client with Design Management client installed*



"We are excited about the capabilities in Collaborative Design Management We see it playing a significant role in our development process because it allows us to transition away from our home grown solutions in that area to standardized Rational products."

Hans-Peter Berger, Department Head, Application Development Infrastructure, GAD

Get Involved on Jazz.net

jazz.net/products/design-management/

- Technology initiative to...
 - ✓ *Bring design management capabilities to Jazz*
 - ✓ *Provide a collection of design management services that can be used by any design tool*
 - ✓ *Involve the community in defining the services needed for design management*
- You can participate
 - ✓ [Learn more](#)
 - ✓ [Register on jazz.net](#)
 - ✓ [Download and try it out](#)
 - ✓ [Ask questions and give feedback](#)
 - ✓ [View plans and dashboards](#)
 - ✓ [Report defects and request enhancements](#)

Rational Software Architect Design Manager & Rational Rhapsody Design Manager
Analysis | Design change management | Lifecycle traceability

[Download 4.0 Release](#)
September 7, 2012

Overview | Downloads | What's happening

September 7 - RSA Design Manager 4.0 and Rhapsody Design Manager 4.0 are now available!

Good designs. Better outcomes.

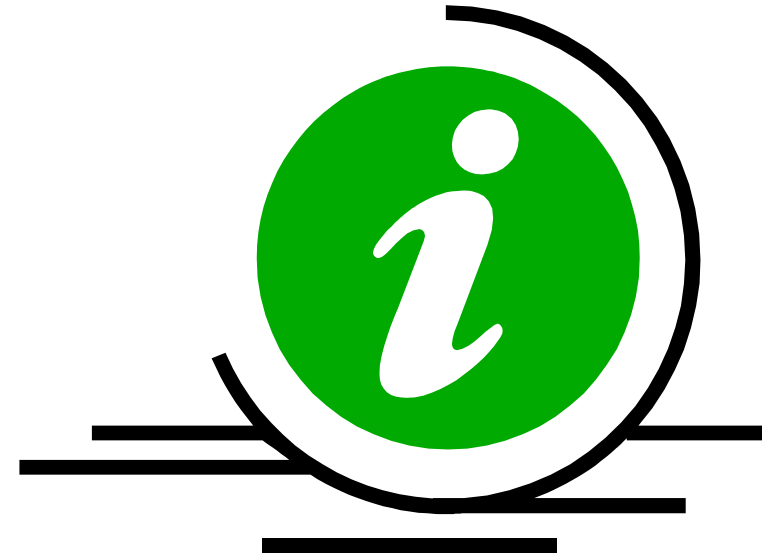
Use the Design Management capabilities to architect, design, and develop software and systems in an iterative and collaborative way. Share designs, stay current with others, and understand downstream impacts of design changes.

Two options: Rational Rhapsody Design Manager for systems and embedded software engineers, or Rational Software Architect Design Manager for most software designers.

[Features >](#)

Resources

- [Rhapsody Product Page](#)
- Rhapsody Design Manager
 - [Rhapsody Design Manager product page](#)
 - [developerWorks](#) or [YouTube](#) demo
 - [Webcast: Collaborative Design Management Powered by Jazz](#)
 - [Rhapsody Design Manager Solution Brief](#)
 - [Design Management on Jazz.net](#)



QUESTIONS



Learn more at:

- [IBM Rational software](#)
- [IBM Rational Software Delivery Platform](#)
- [Process and portfolio management](#)
- [Change and release management](#)
- [Quality management](#)
- [Architecture management](#)
- [Rational trial downloads](#)
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