# IBM Innovate 2012

Revolutionizing Design with
IBM Rational Software Architect (RSA) and
RSA Design Manager

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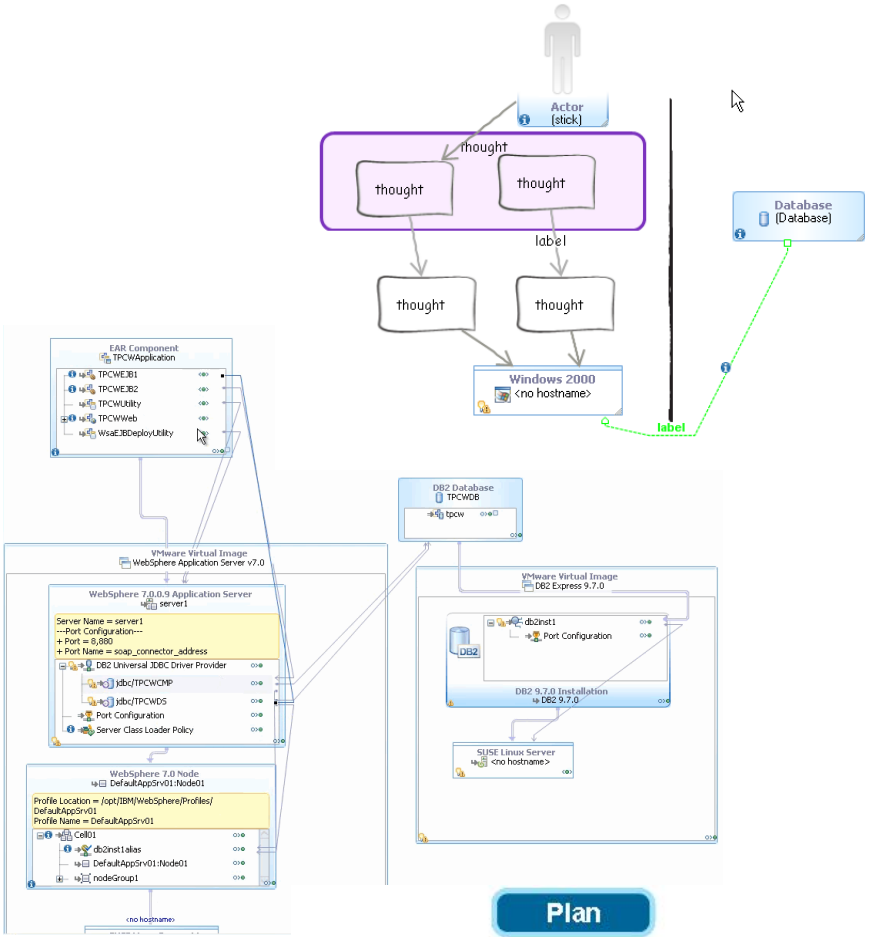
# Agenda

- Introduction
  - RSA
  - Design Management
- DM 4.0 Architecture
- DM and VVC
- Importing Designs into DM
- Design resources managed in RSA DM
- Design Collaboration
- Integrating design resources with other lifecycle resources
- Change sets in RSA client
- Impact analysis and traceability

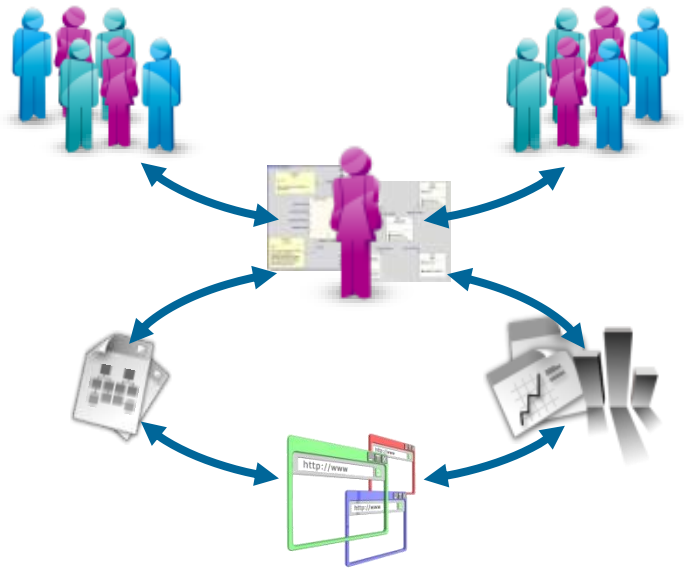
# IBM Rational Software Architect

- **Agile Sketching** provides free form modeling capability enabling Agile development. Teams can quickly sketch out thoughts and convert to UML as more formality is needed.
- Software modeling and **Model Driven Development with UML** allowing teams to communicate designs and generate code. Support for a variety of domains including UML2, BPMN2, Java/JEE and more)
- Analyze and walk through scenarios before implementation with **model simulation** that animates and simulates functionality and behavior.
- **BPMN2** tooling allows business plans and goals to be directly incorporated into application architecture and design and the interchange of BPMN2 with other tools like WebSphere Lombardi and Rational System Architect
- **Service modeling and SOA Support** allows architects to visualize SOA functionality plus guidance on process and pitfalls of candidate service identification and service and solution specification.
- Model software deployments and generate automation workflows from deployment plans for Rational BuildForge or Rational Automation Framework for WebSphere (RAFW) with **Deployment Planning and Automation**



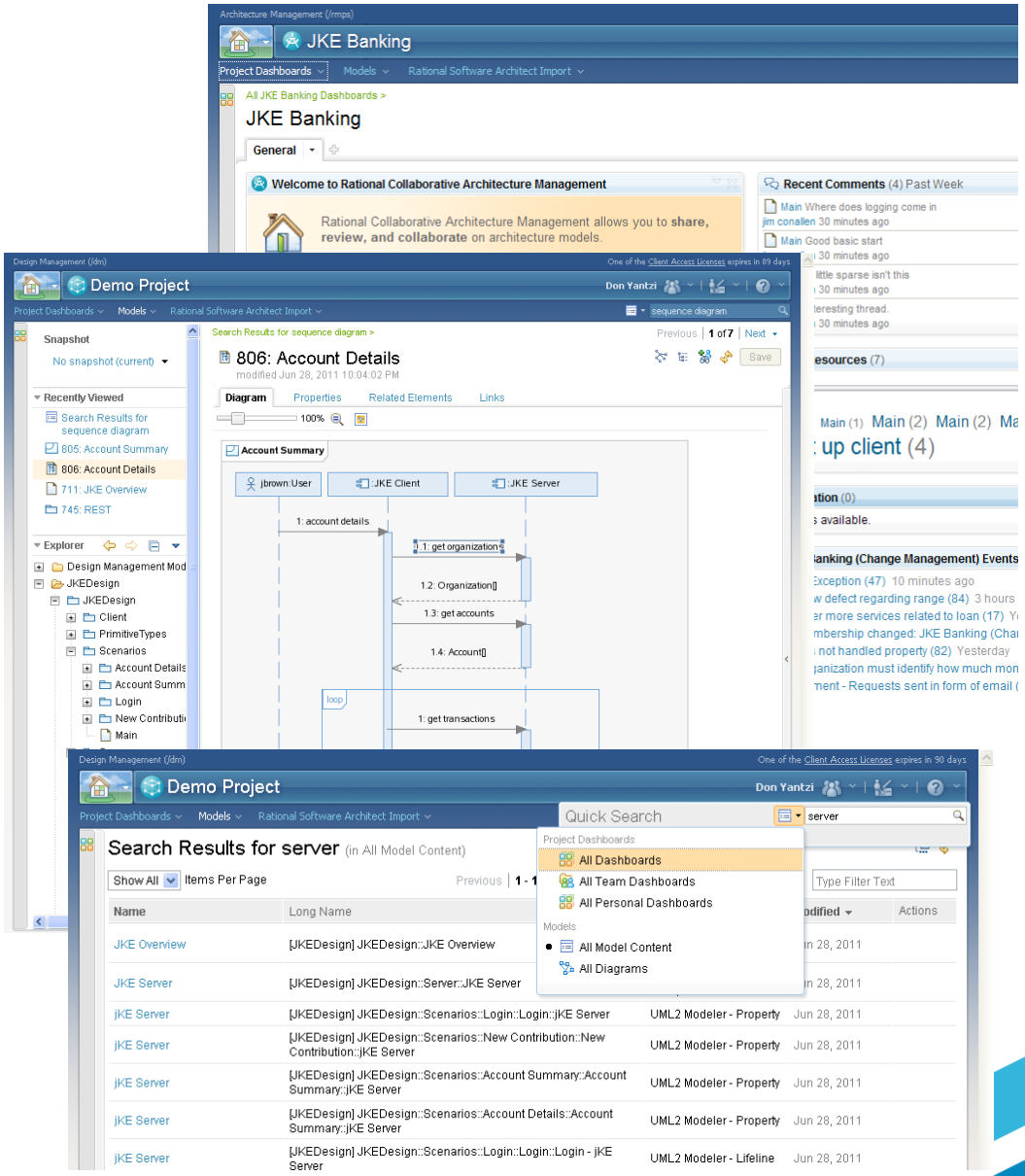
# Design Management

- ✓ **Design Management** is an ALM and discipline that integrates software design into the lifecycle
- ✓ Just like requirements management, change & configuration management, and quality management
- ✓ **Rational Software Architect** is IBM Rational's industry leading software design solutions
- ✓ Design Management capabilities have been added to RSA product to enhance its design capabilities with **new team collaboration and lifecycle capabilities**



# Design Management

- Increase **team knowledge** through an enterprise and system-wide software design repository
- Analysts, testers, and other extended team members can **access designs through a Web client**
- Designs become URL addressable
- Search across all of the organizations existing designs to **discover knowledge**
- Stay connected with ongoing design activities via **dashboards**
- Navigate designs and **visualize relationships**



Beta

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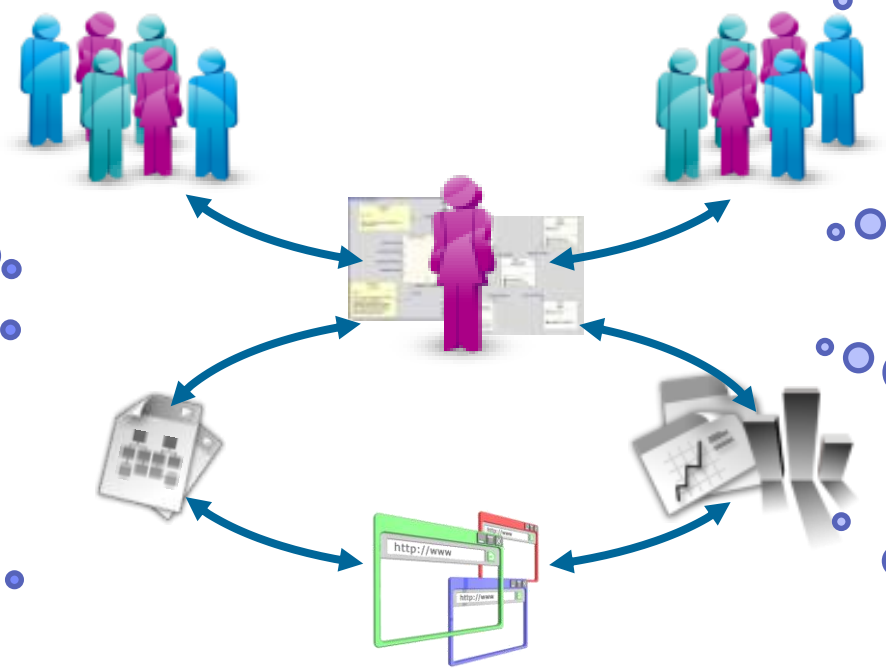
# RSA Design Management 4.0

Common Administration with CLM

Lifecycle Integrations

Simplified Design Configuration Management

Impact Analysis




In-context collaboration with commenting and review

Centralised design repository

Searching & Design Reuse

Documenting Designs



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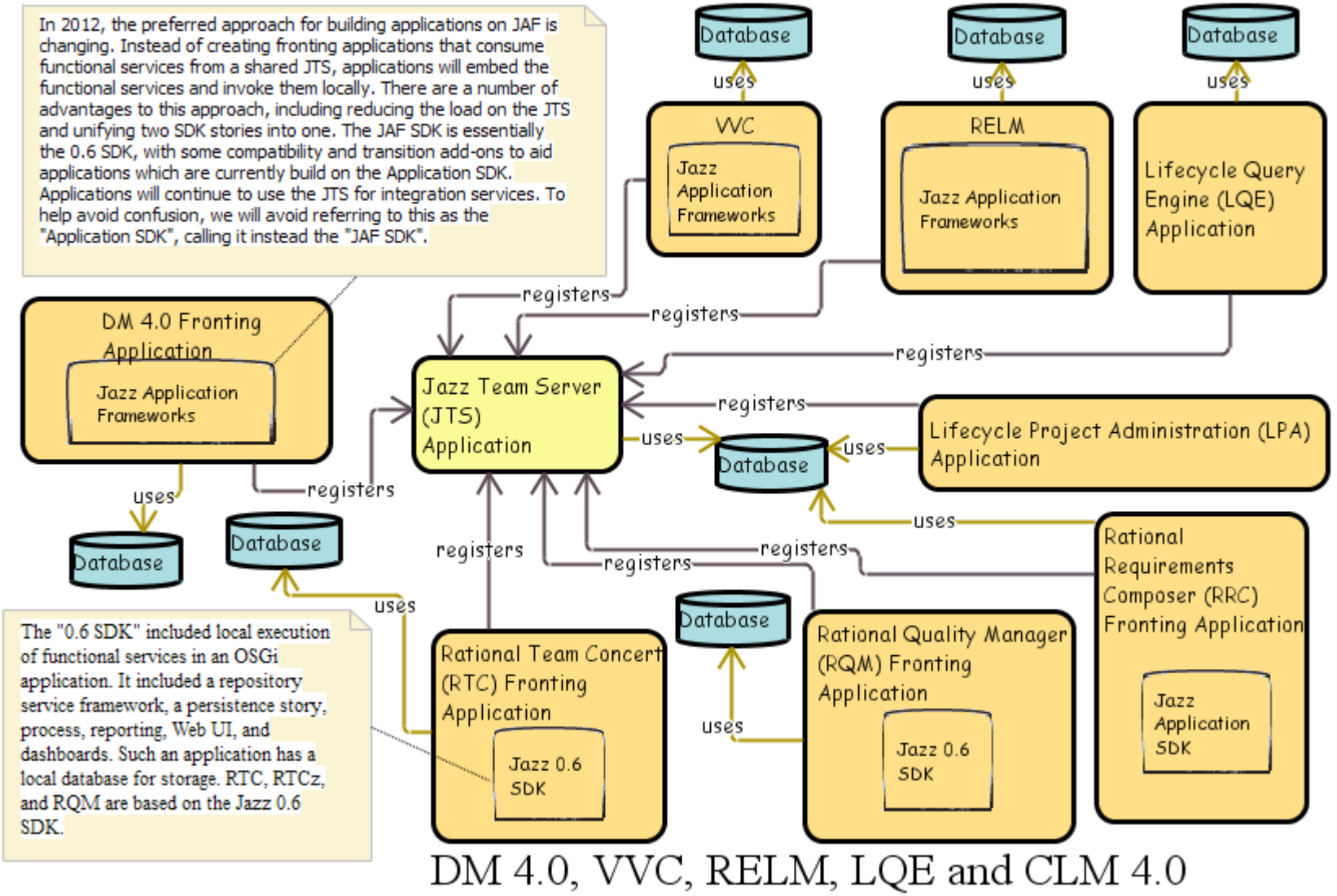
# DM 4.0 architecture

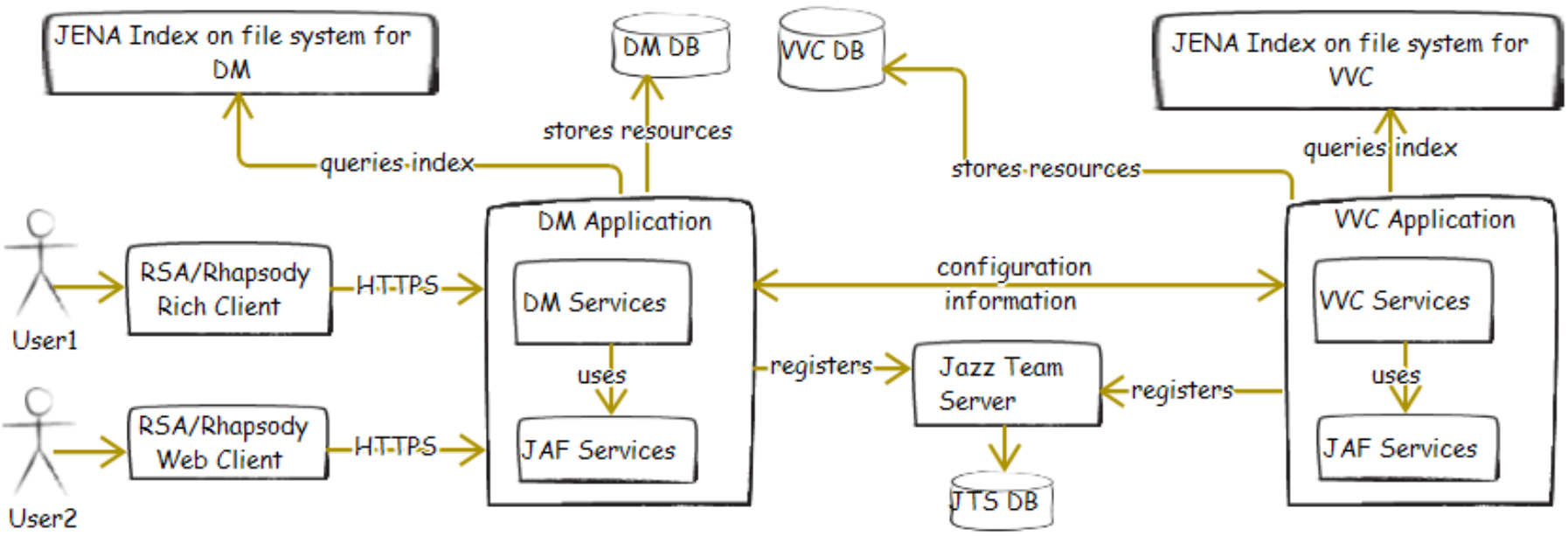



DM 4.0, VVC, RELM, LQE and CLM 4.0

# DM Workspaces and VVC

- VVC maintains versions for Jazz resources (model elements)
- A unique set of versions is called a **Configuration**
- A group of Configurations is called a **Configuration Space** (or Space for short)
  - Spaces allow you to group together related Configurations
  - Each DM project area can be associated with a Space
  - Multiple Project Areas can be related to the same Space and therefore share Configurations
- A **Workspace Configuration** (or Workspace for short) is one where users can modify the set of versions for each resource.
- A **Snapshot Configuration** (or Snapshot for short) is one where users can only view the set of versions for each resource.

# DM 4.0 and VVC 4.0 - Application Interactions

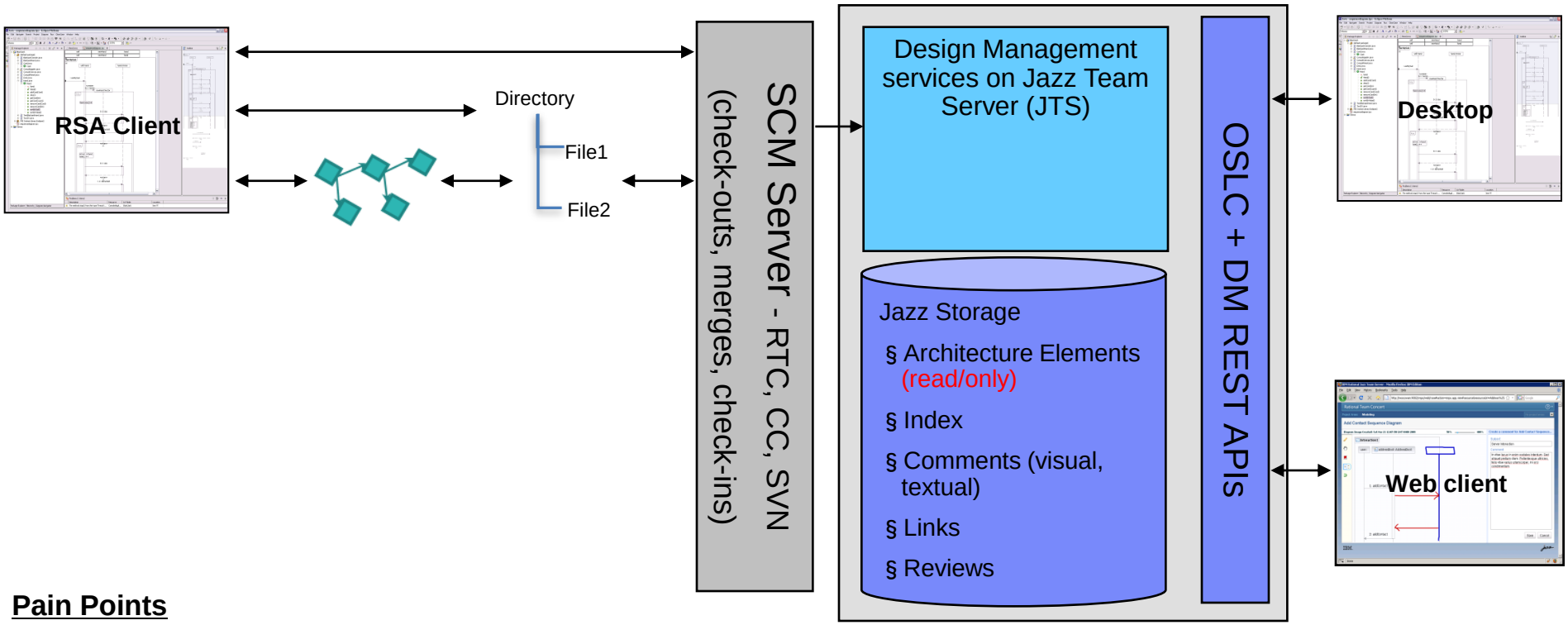


# Design Management – Importing Designs

**Creation, editing, MDD, search, query, validate, analyze, report**

**Design change control and versioning (file-based)**

**Design search, query, view, comment, review, link, report, validate, analyze**




**Pain Points**

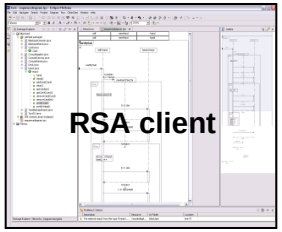
- Mapping models into files for persistence and change control
- Comparing and merging changes in file-based SCMs
- Two steps process to get models into DM (check-into SCM then import into DM)

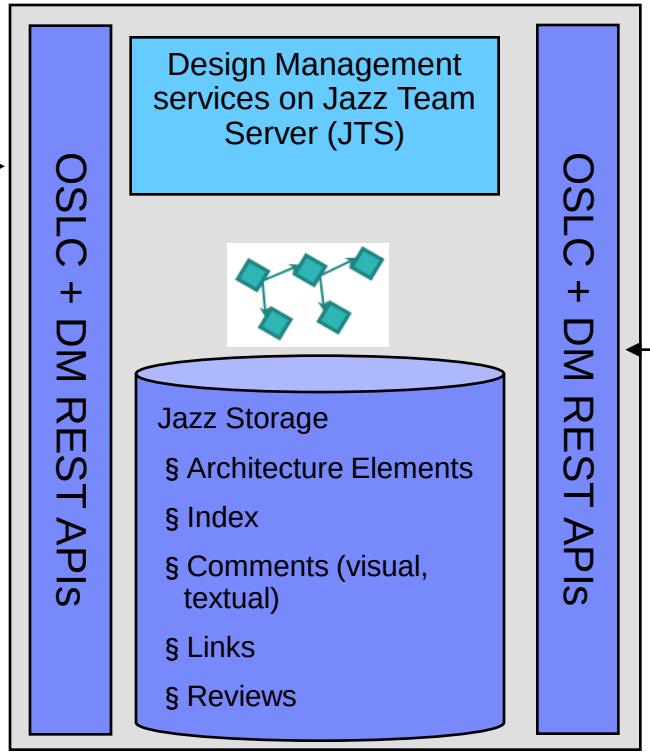
# Design Configuration Management

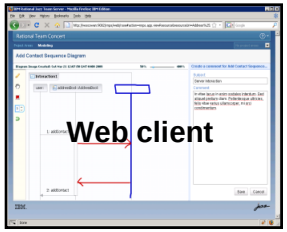
**Design creation, editing, MDD, search, query, validate, analyze, report**

**Design change control and versioning (model-based)**

**Design search, query, view, comment, review, link, report, validate, analyze**



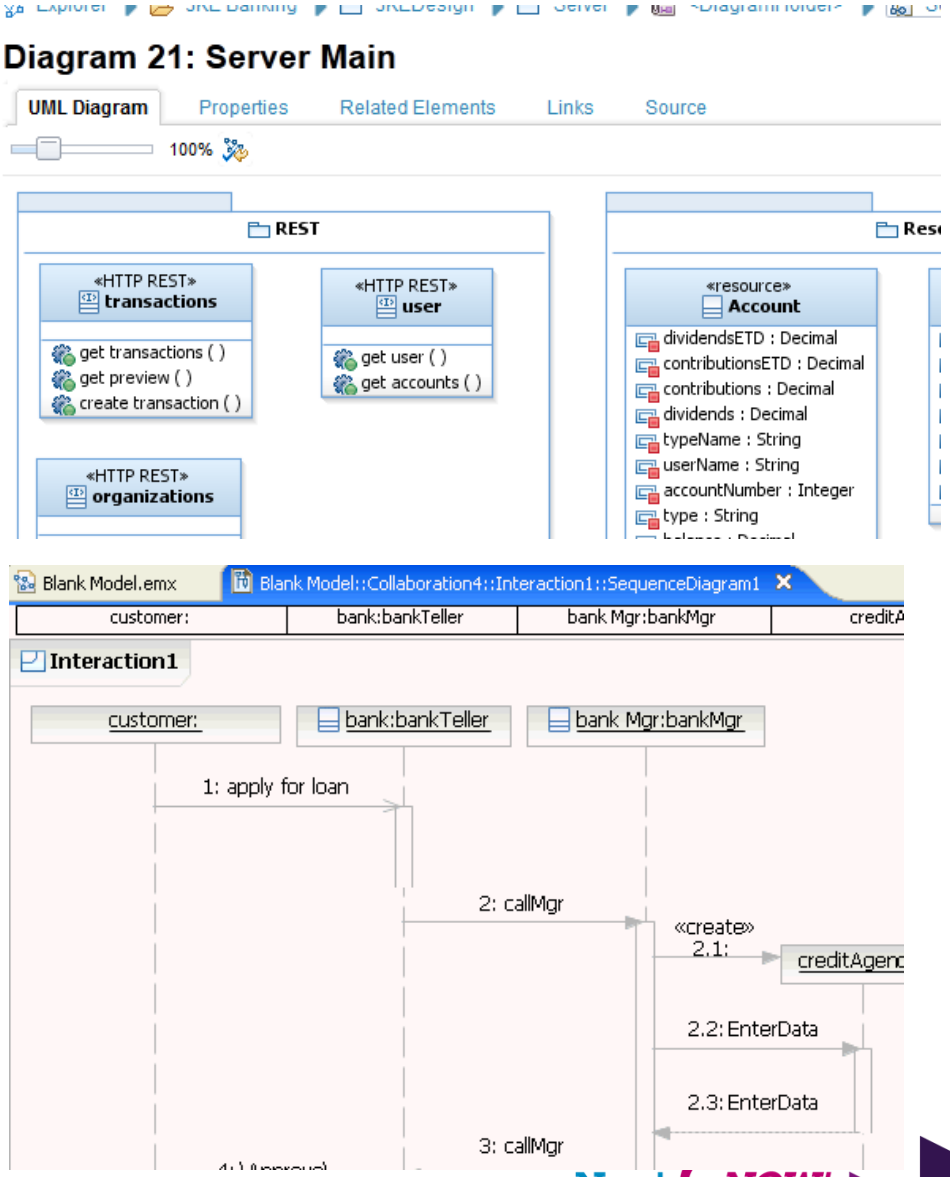




**Benefits**

- 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 and
- No duplication or design synchronization issues
- Use of SCM still available for users who need more powerful change control capabilities

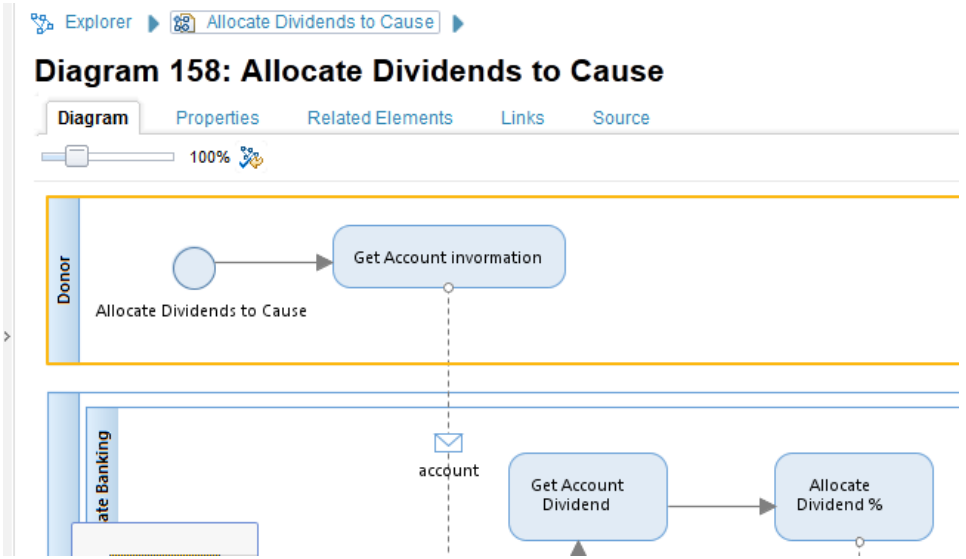
# Designs Managed in RSA DM

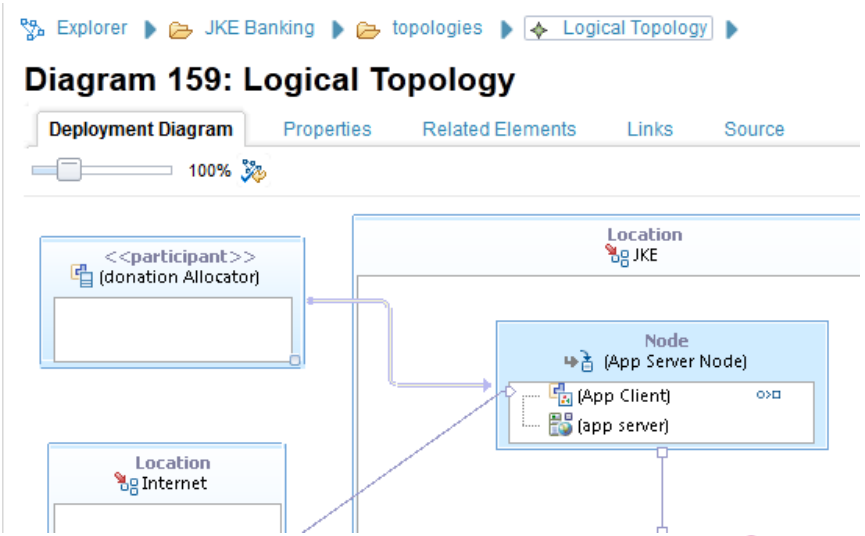
- RSA Created Resources - UML
  - Use-case models provide detailed information about the behaviors of the system or software application that you are developing. ***Use-case diagrams and activity diagrams***
  - The analysis models describe the structure of the system or application that you are modeling. It consists of ***class diagrams and sequence diagrams*** that describe the logical implementation of the functional requirements that you identified in the use case model.
  - The design model builds on the analysis model by describing, in greater detail, the structure of the system and how the system will be implemented. In the design model, packages contain the design elements of the system, such as design classes, interfaces, and design subsystems, that evolve from the analysis classes. Within each package, ***sequence diagrams*** illustrate how the objects in the classes interact, ***state machine diagrams*** to model the dynamic behavior in classes, ***component diagrams*** to describe the software architecture of the system



# Designs Managed in RSA DM

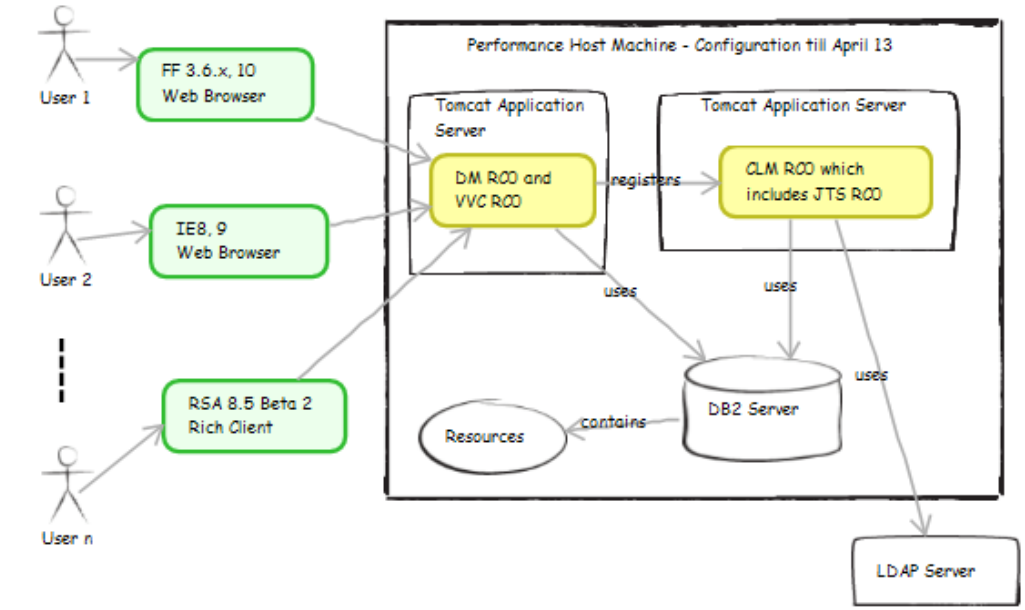
- RSA Created Resources
  - BPMN
    - You can use ***Business Process Model Notation (BPMN) diagrams*** to create graphical representations of internal business processes and collaborations with other business processes.
  - Topology
    - You can use ***deployment diagrams*** to model the physical layout or topology of a system. Deployment diagrams describe the configuration of runtime processing nodes and the artifacts that are deployed on them.

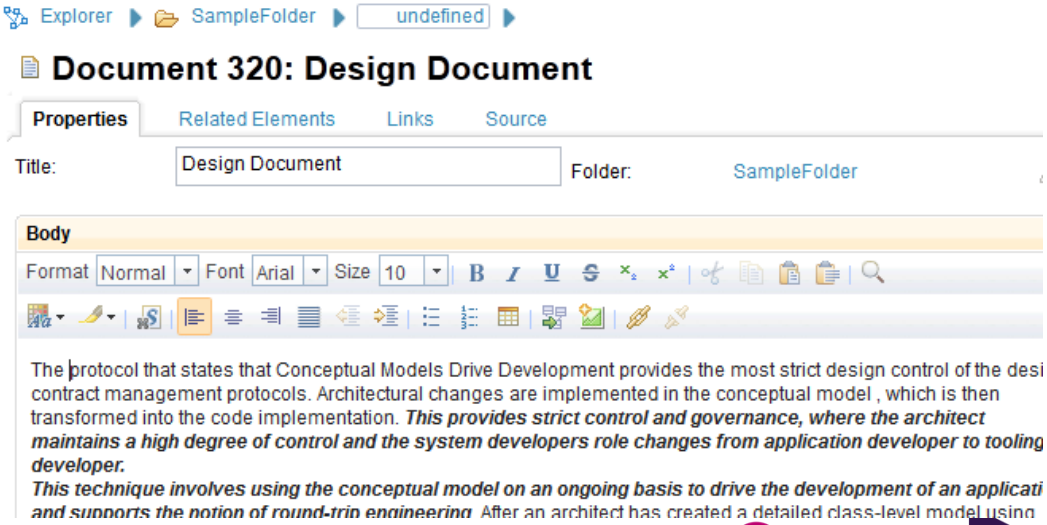


# Designs Managed in RSA DM

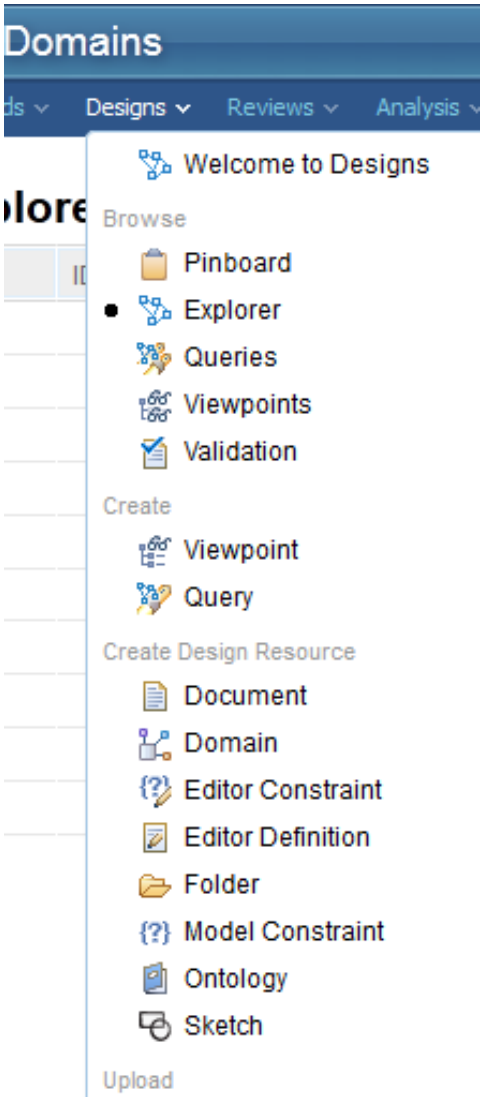
- RSA DM Created Resources
  - Sketch
    - Sketches are simple, independent diagrams. Sketches can illustrate any technology-related or business-related interaction at a high level of abstraction.
  - Rich Text
    - Documents are rich-text artifacts that you use to capture text-based content. Document capabilities include controls for text styles, paragraph justification and indentation, bullets, and links.

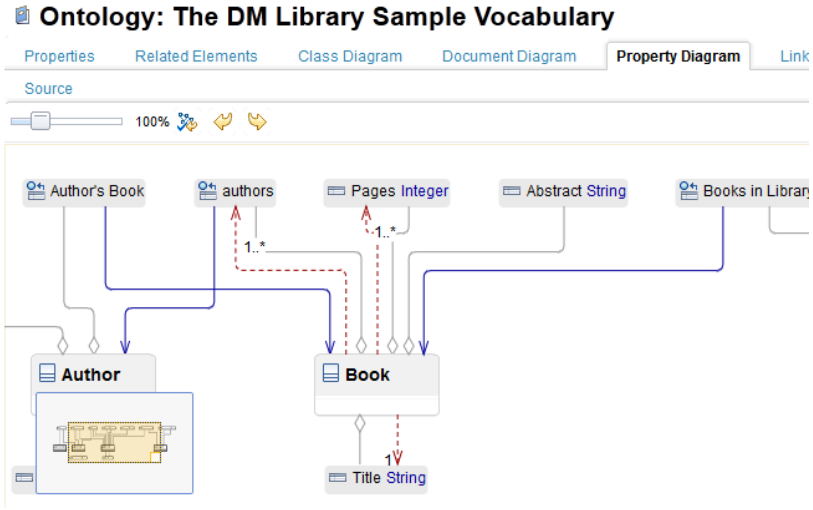


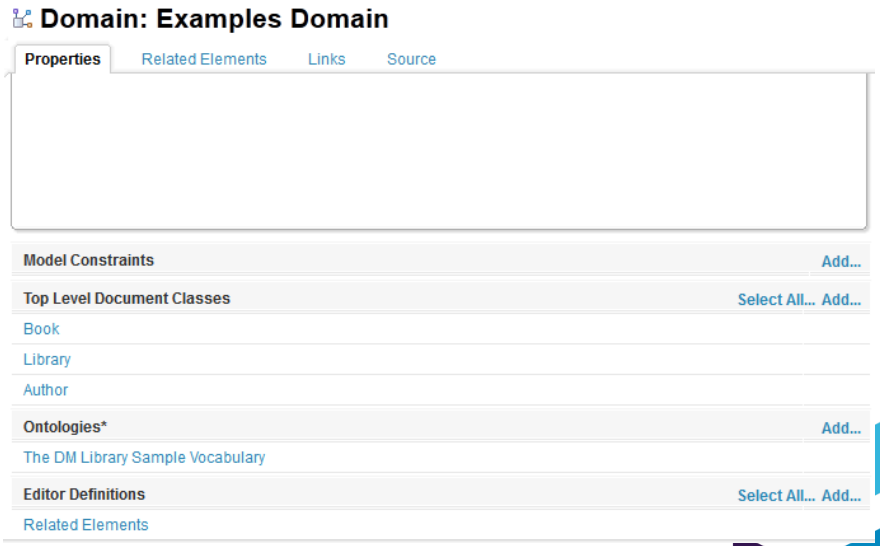



# Designs Managed in RSA DM

- RSA DM Custom Resources
  - Define ontology of resources
  - Form based editing
  - First class resources, linkable, comment-able, reviewable



# 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.

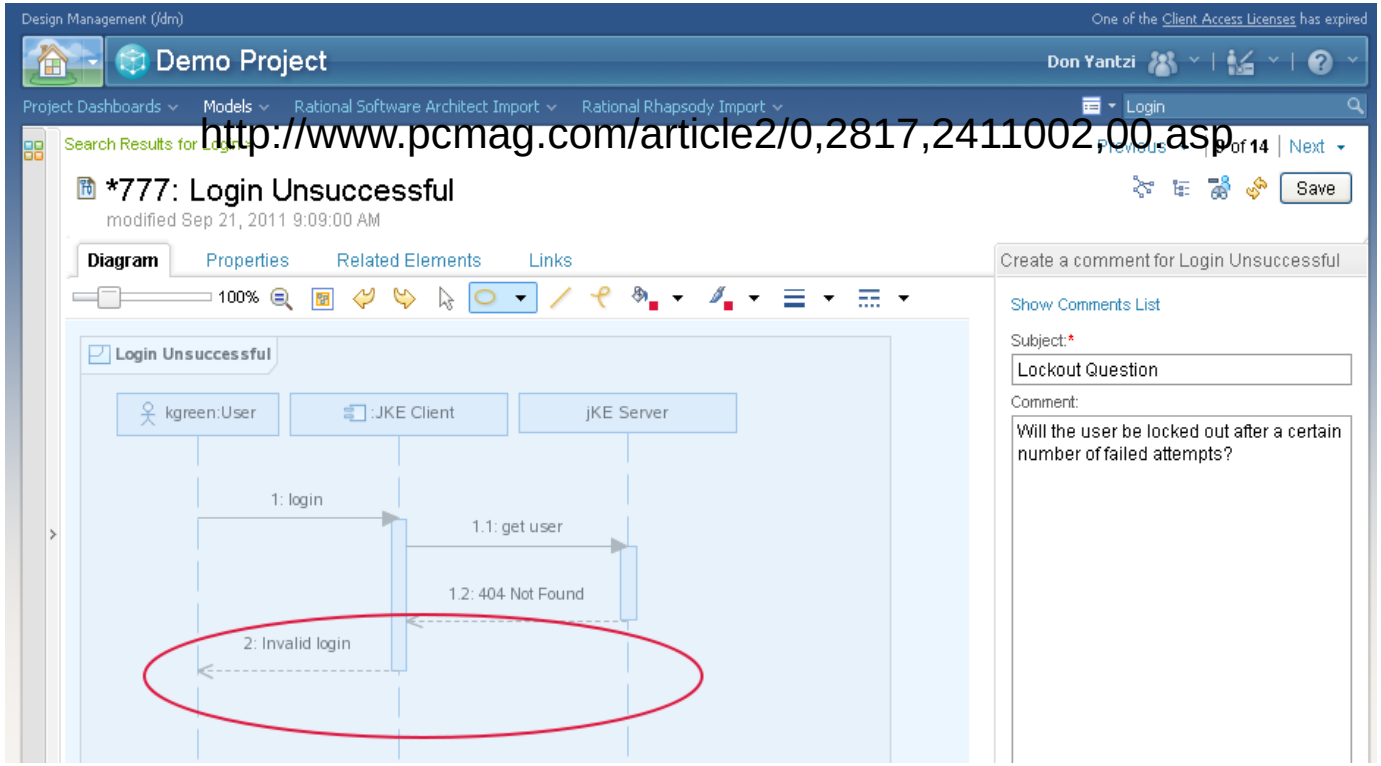
### Formal Design Reviews

- 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.

→ ***Time, effort, & costs increase***

# Design Collaboration

- Engaging team members in the design process with Web client access to designs
- Improve quality with in-context design collaboration through commenting and visual markup
- Automate manual and time consuming design reviews with a more guided process
- Comments can be posted and accessed from Web client and RSA desktop client




http://www.pcmag.com/article2/0,2817,2411002,00.asp

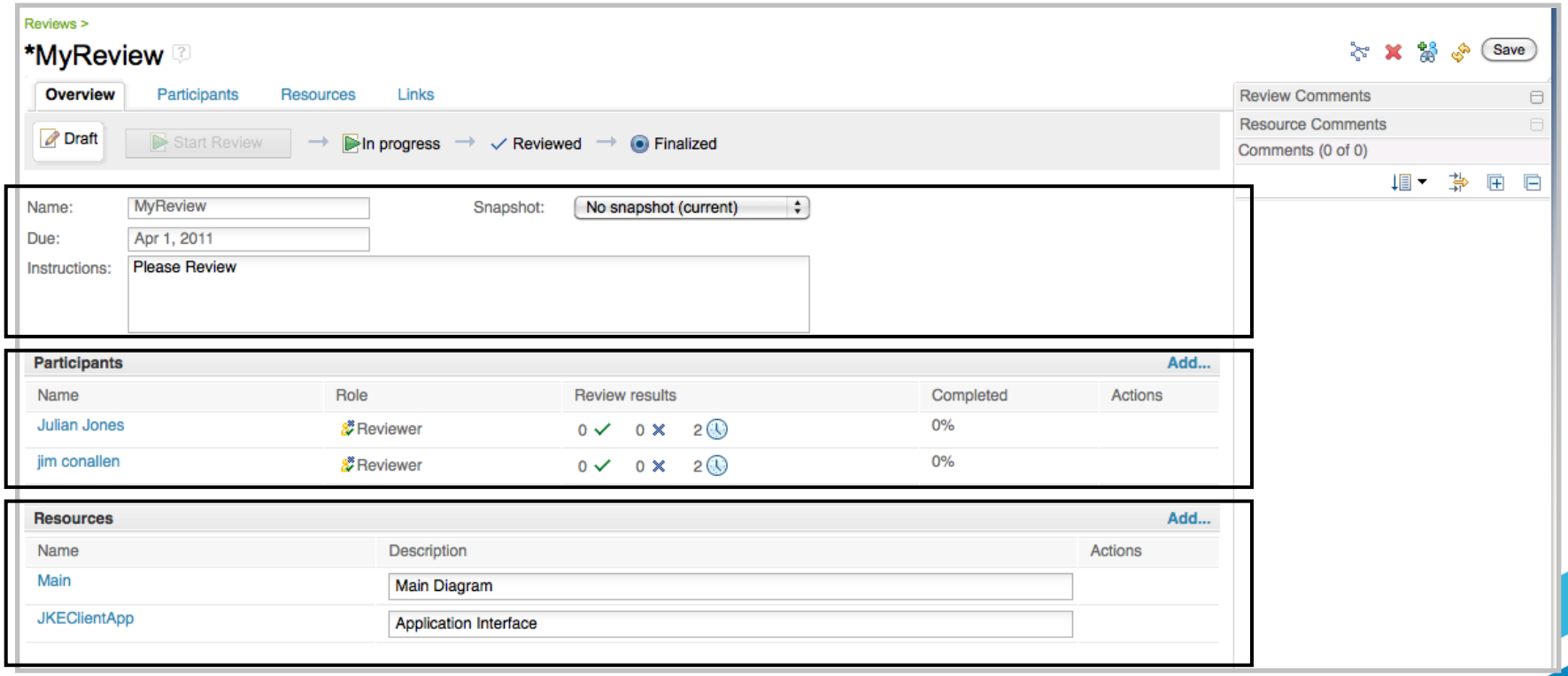
# Automate Design Reviews

- Automate manual and time consuming design reviews
- Users notified via email of the review and access their reviews from the dashboard
- Design Manager tracks progress of design review
- Link review to Team Concert work items for more formalized approvals

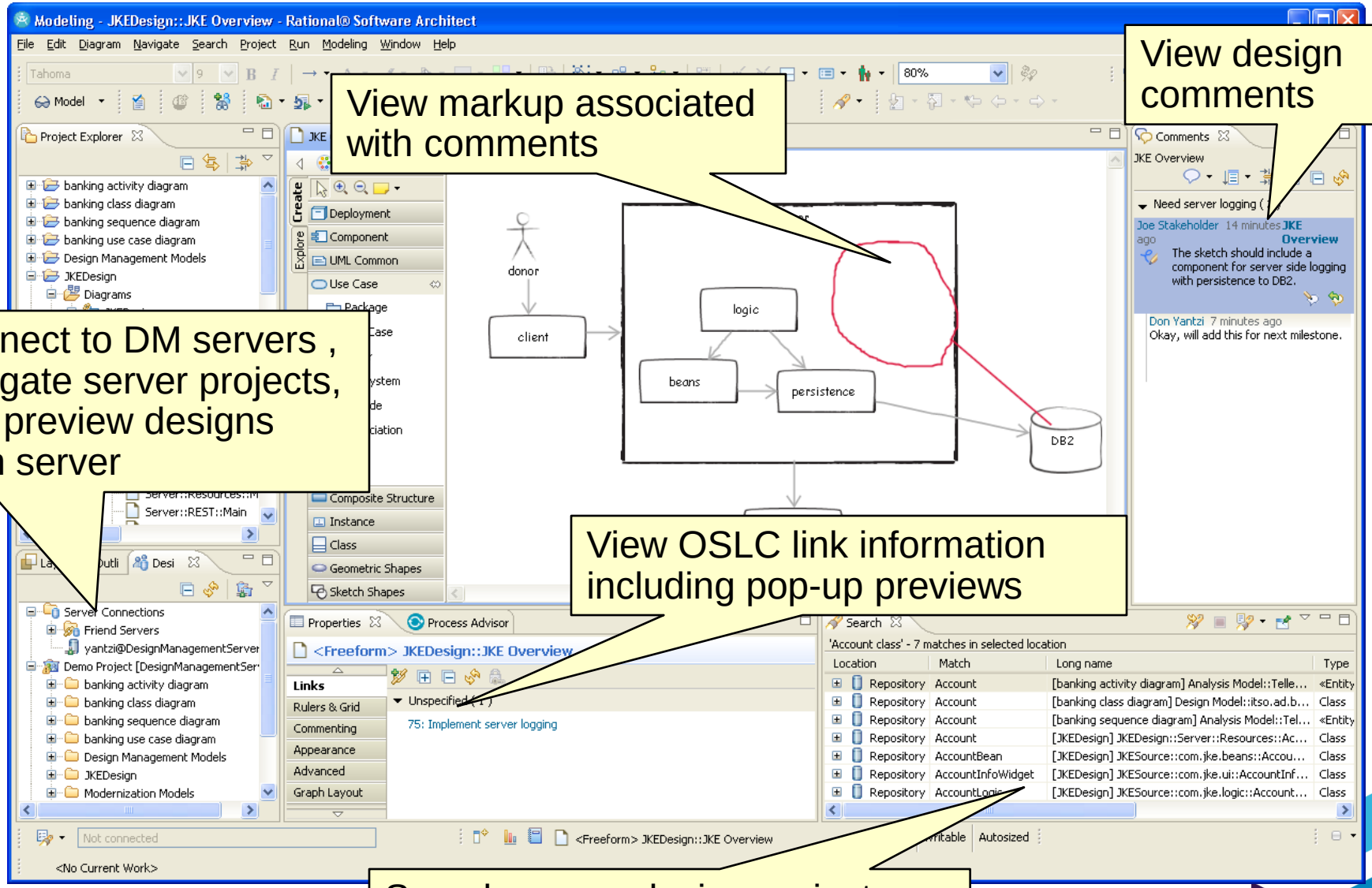
When & Why

Who

What

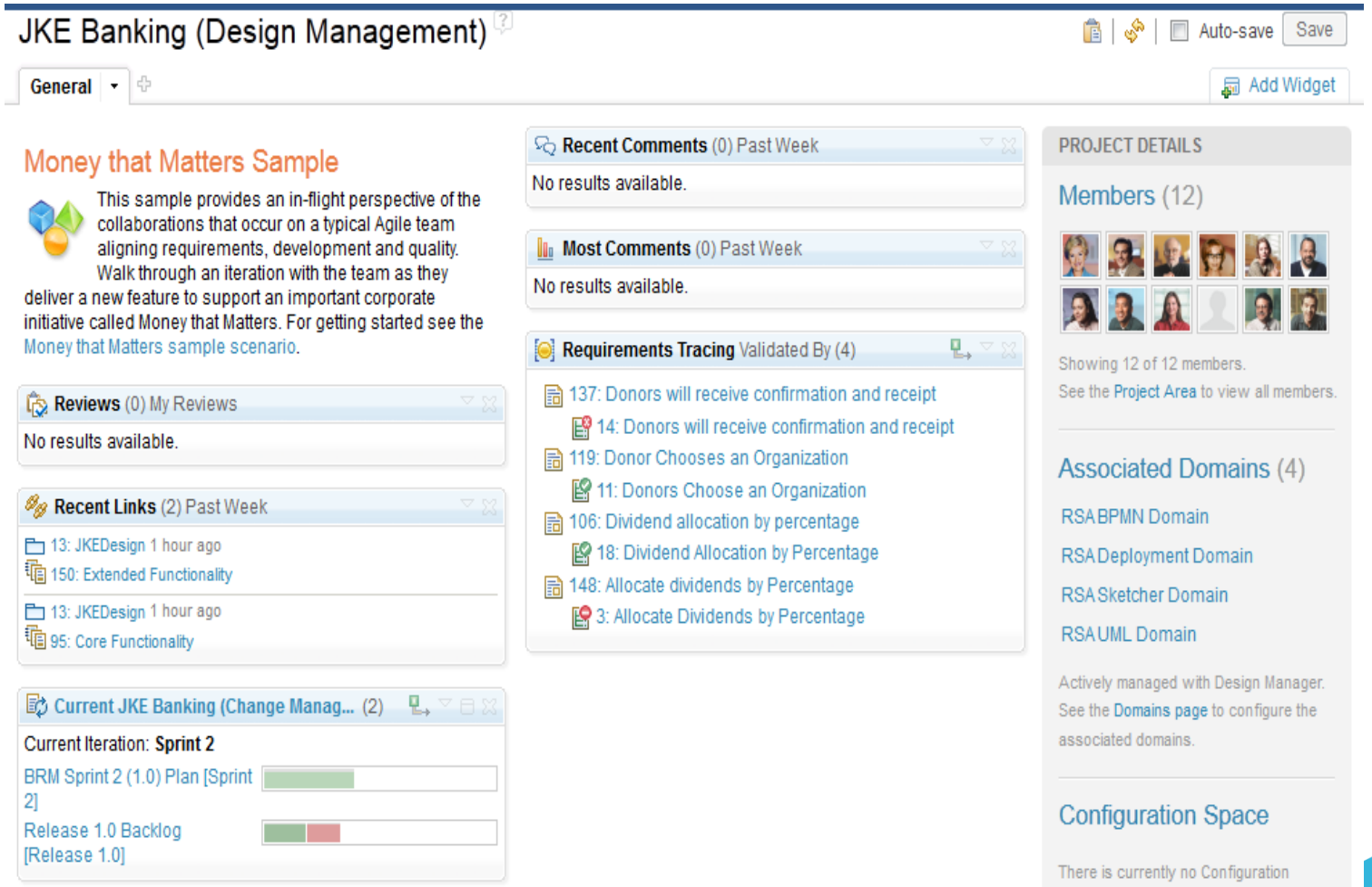


# Collaborative development in RSA Desktop Client



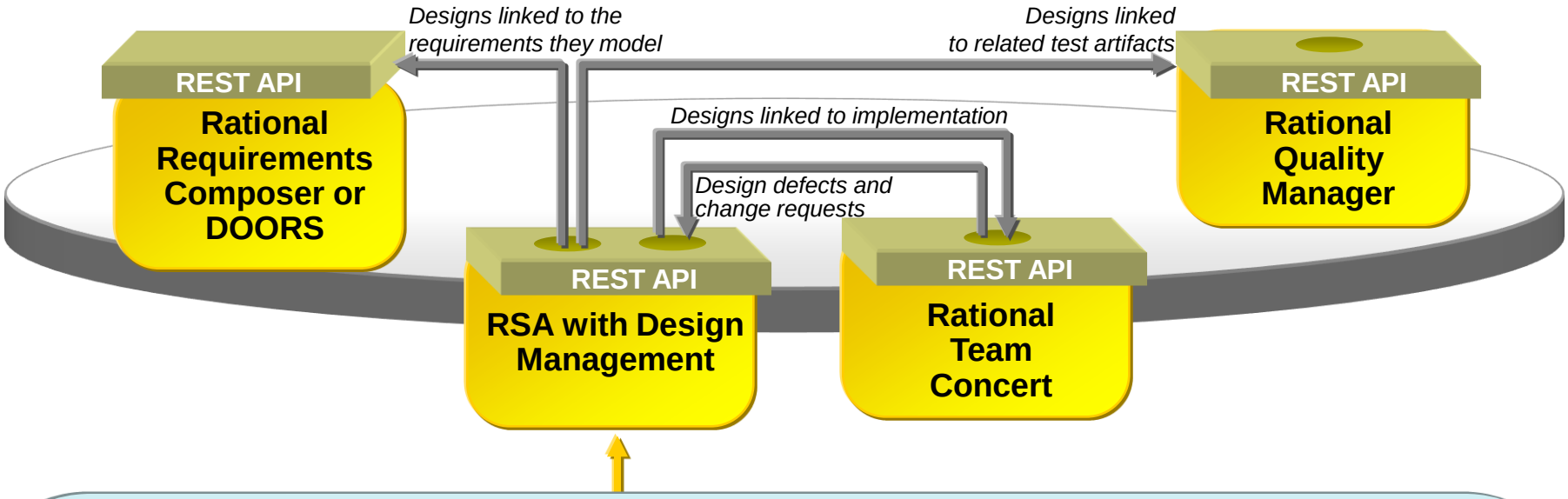
# Dashboards

- Dashboards provide a quick way to stay on top of project activity
- DM dashboard viewlets for collaboration (recent links, comments, most active, design reviews)
- Create mashup dashboards with viewlets from CLM & DM applications



# Lifecycle Traceability

*Integrating Software Designs with the Application Lifecycle*

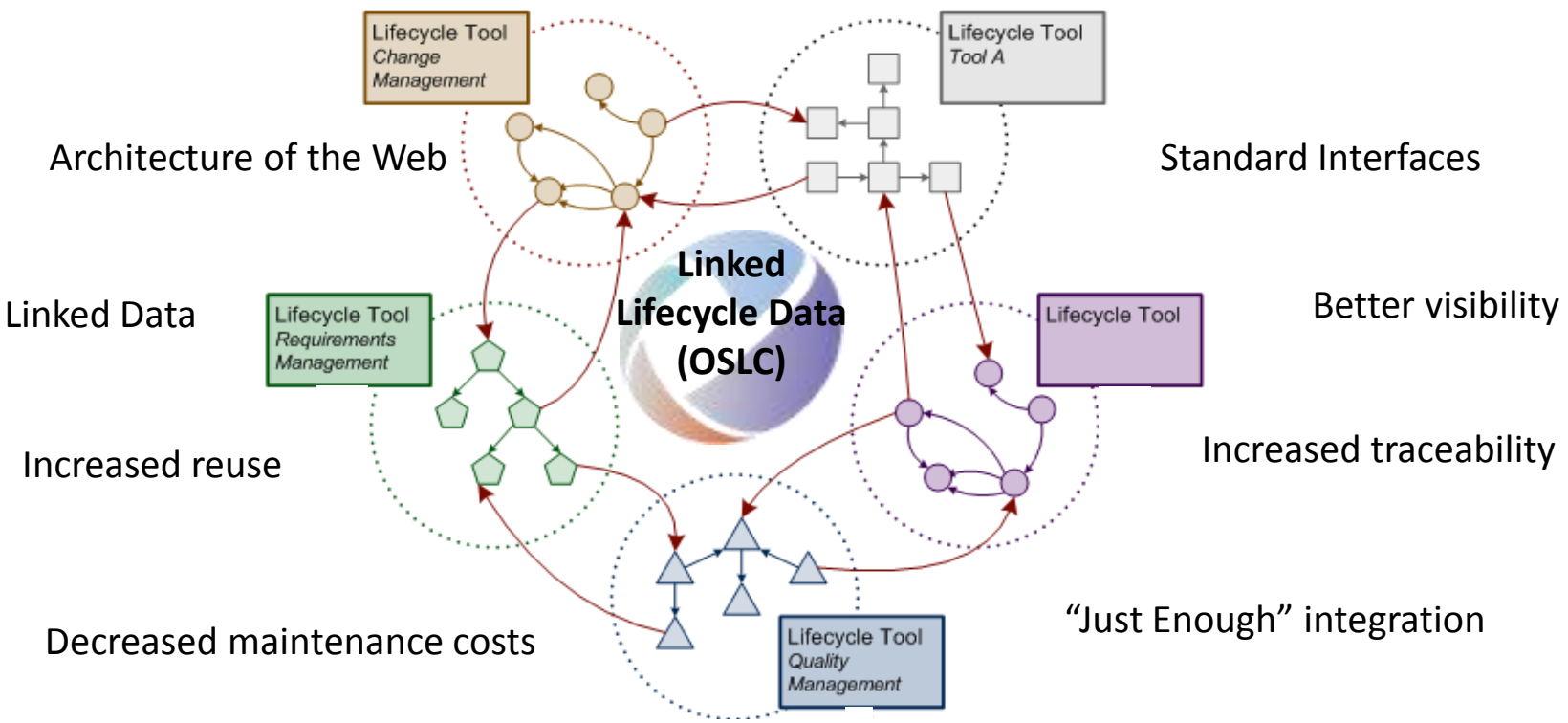



**Architect**

- Link designs to other lifecycle artifacts and model elements
- Link designs to requirements, work items, and test artifacts
- Keep stakeholders informed on how their work relates to designs
- Understand impact of design changes
- Ensure traceability through the lifecycle

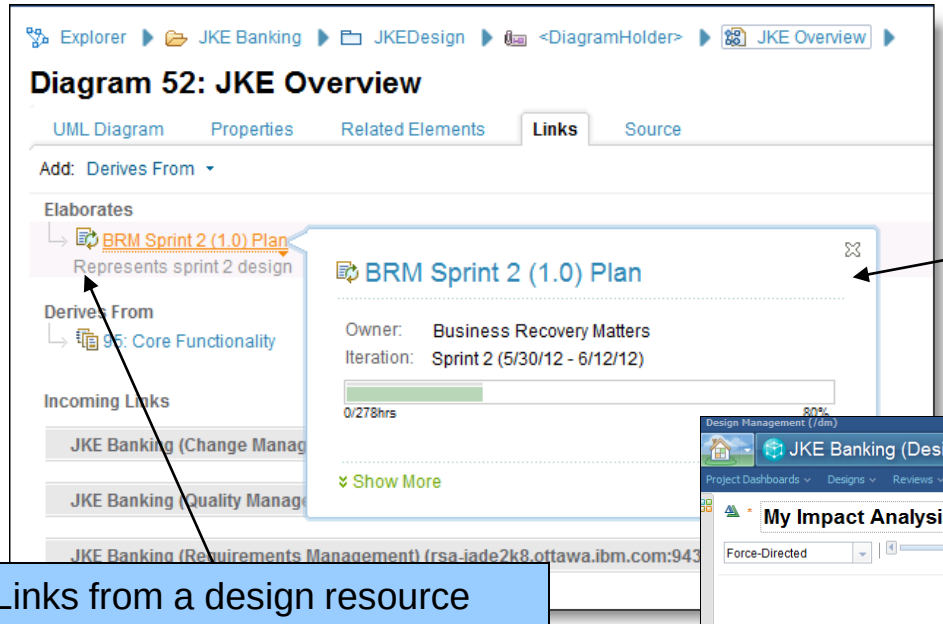
# OSLC's Innovative Solution

Users can work across the integration without leaving their favorite tool



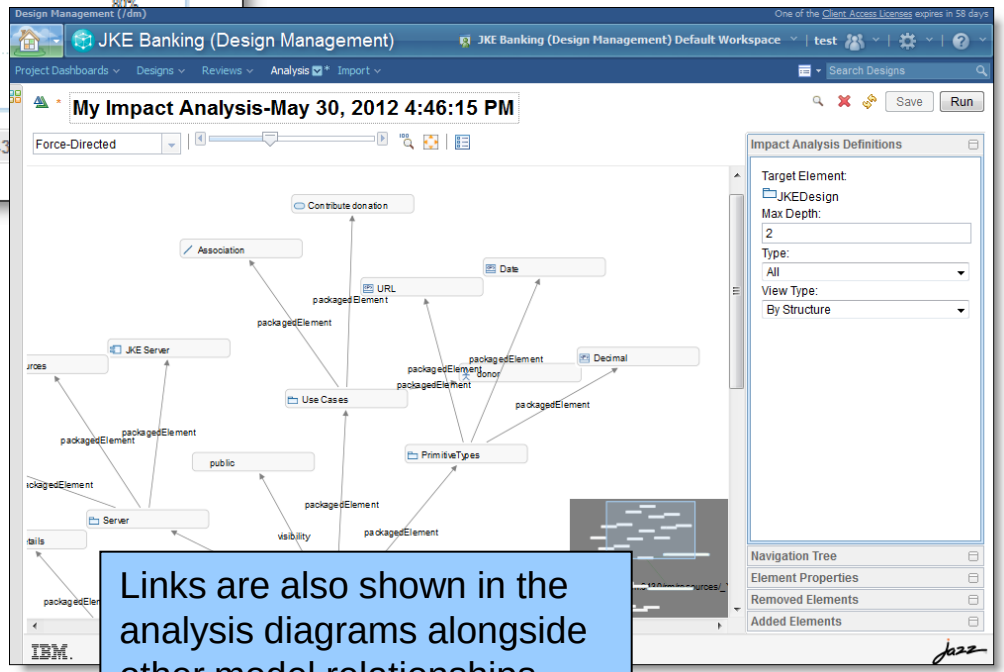

***Links to where the data lives as opposed to copying and synchronizing***

# Linking Designs to Lifecycle Artifacts



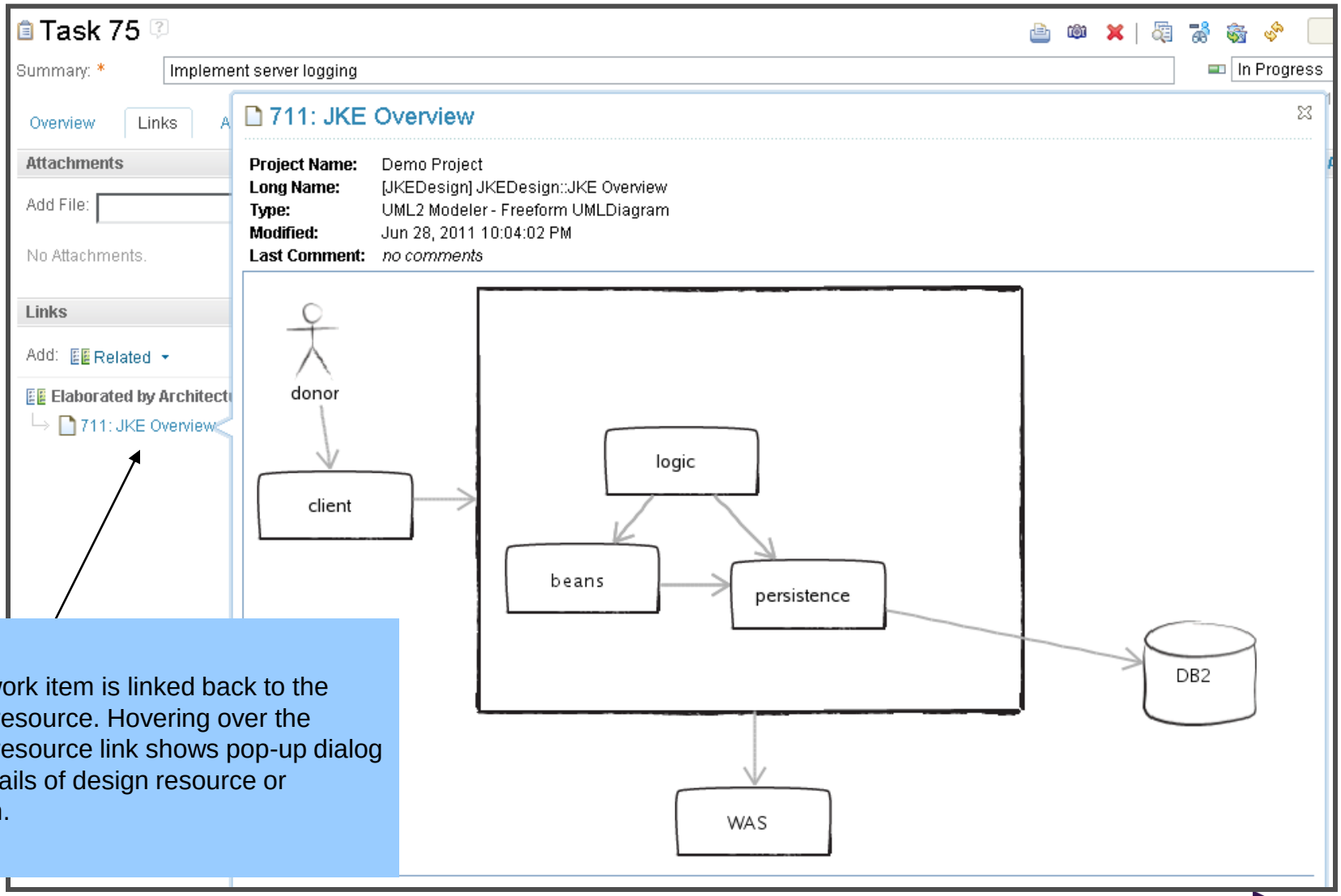

Compact rendering available for requirements, work items, and test artifacts

Links from a design resource can be viewed on the Links tab in the Web client and properties view in RSA




Links are also shown in the analysis diagrams alongside other model relationships

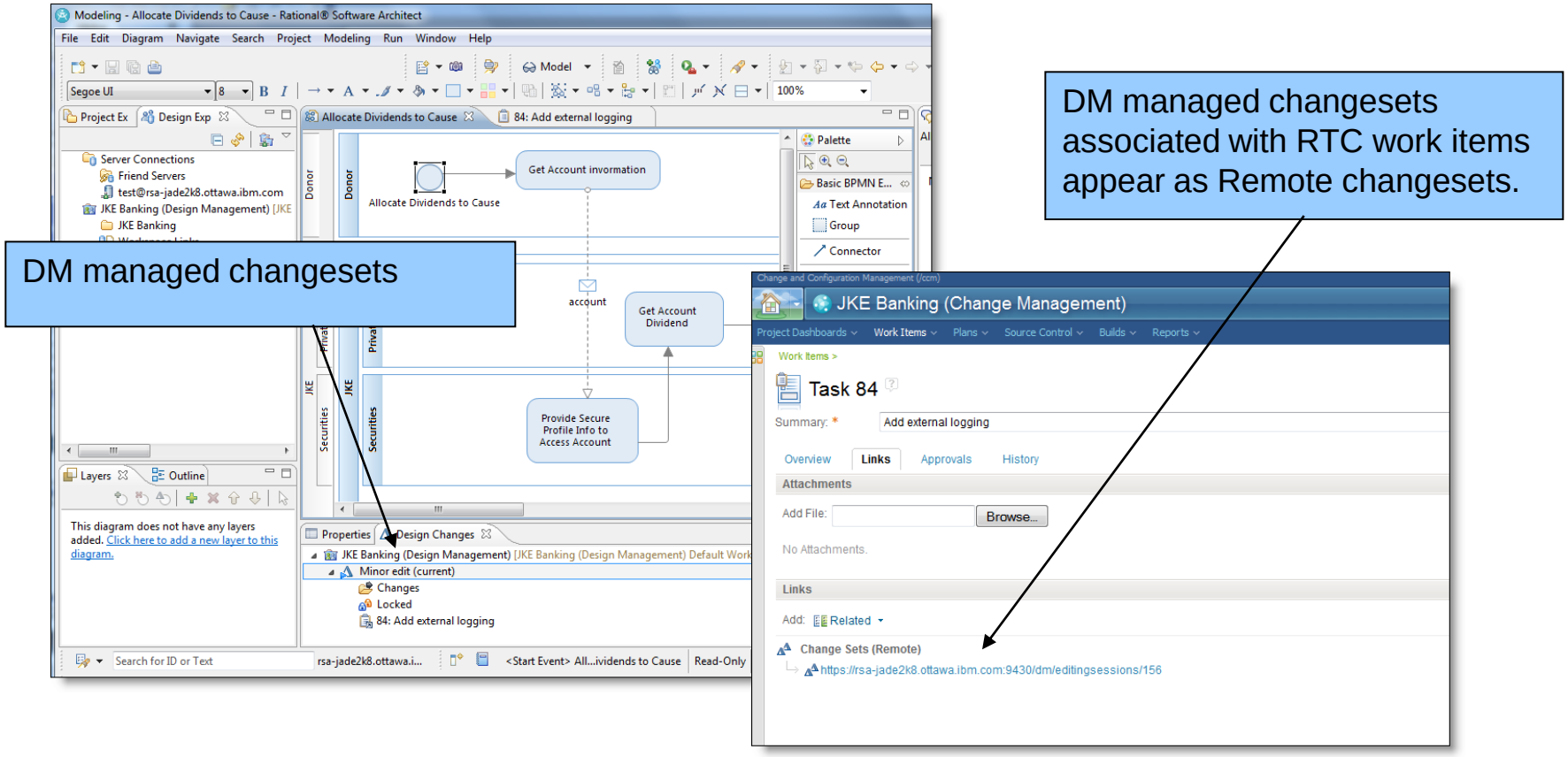
# Viewing Designs from an Work Item




Same work item is linked back to the design resource. Hovering over the design resource link shows pop-up dialog with details of design resource or diagram.

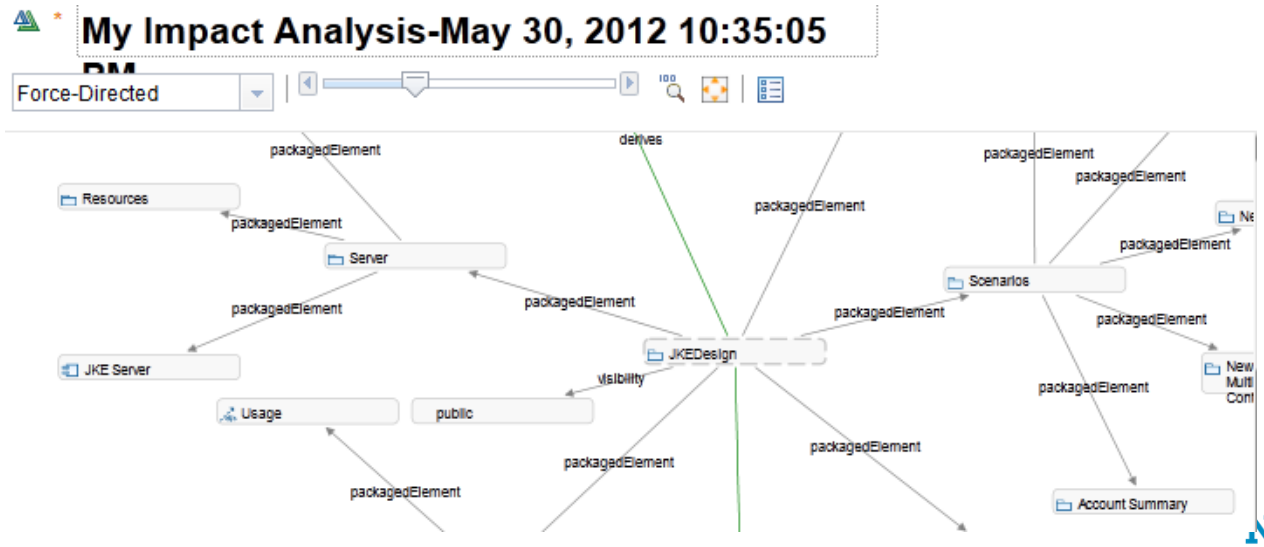
# RSA Client and Changesets

- Changes made to RSA UML resources are organized into changesets that can be associated with RTC work items.



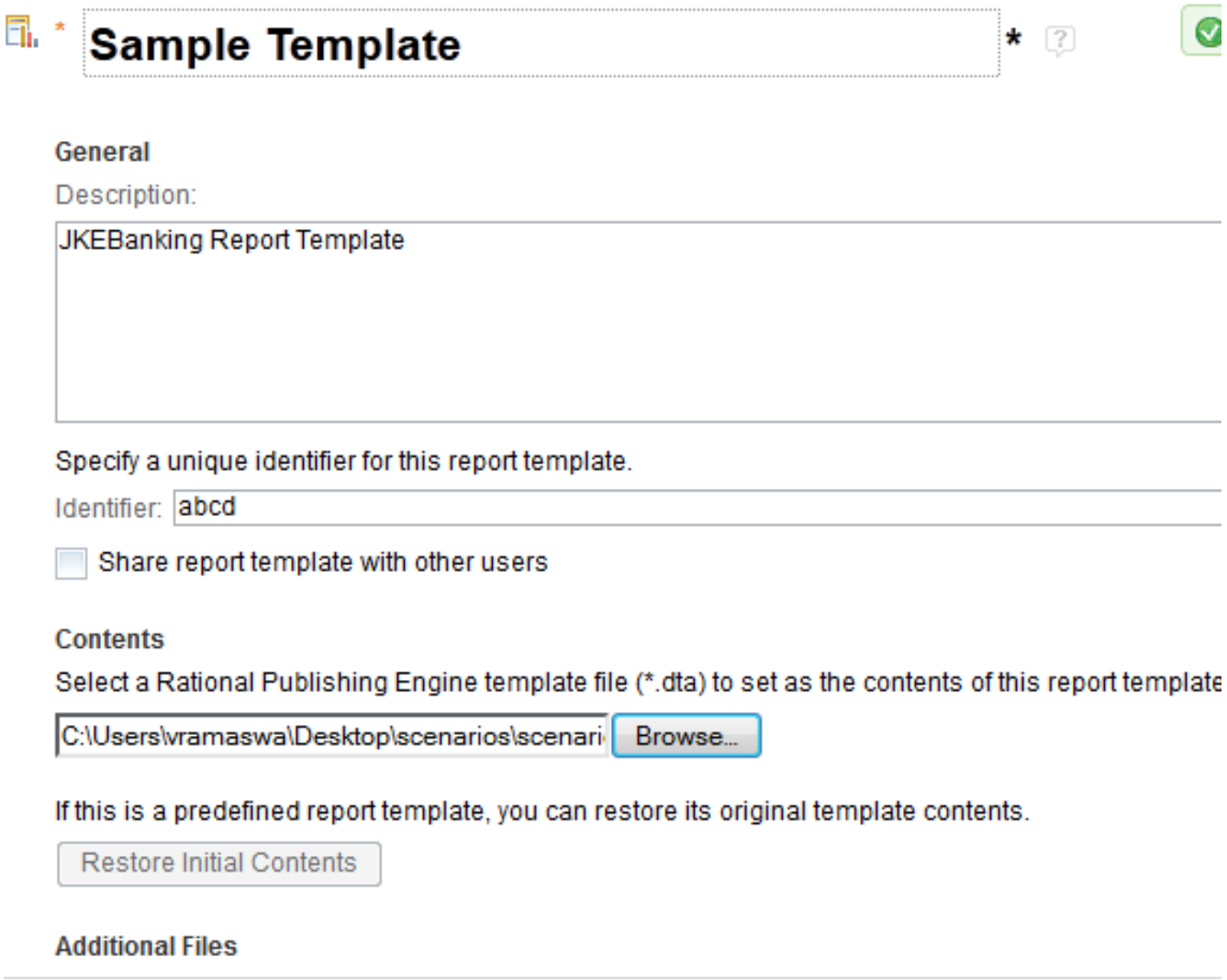
# Impact Analysis and Traceability

- Impact Analysis
  - You can use traceability and impact analysis capabilities to examine model element relationships, to clarify their purpose, or to minimize the risk of change. You can query model elements for trace relationships to discover how the elements in a model are related and you can view and explore the results of traceability queries in a diagram.
  - Main Use cases
    - User creates impact analysis diagram based on a target element
    - User interactively reviews diagram, pruning, preserving and adding elements
  - Additional Use cases
    - User creates an impact analysis configuration



# Impact Analysis and Traceability

- Reports
  - Reports can group and aggregate the information to help you draw conclusions about the model.
  - You can use the reporting feature to generate reports to help you analyze models, profiles, or package. You control the contents of the report, and can choose the file format.

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