



IBM Innovate 2011  
Collaborative Design Management  
using IBM Rational Software Architect  
and Rhapsody

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IBM Software

# Innovate2011

The Premier Event for Software and Systems Innovation



Software. Everywhere.

August 9-11, Bangalore | August 11, Delhi



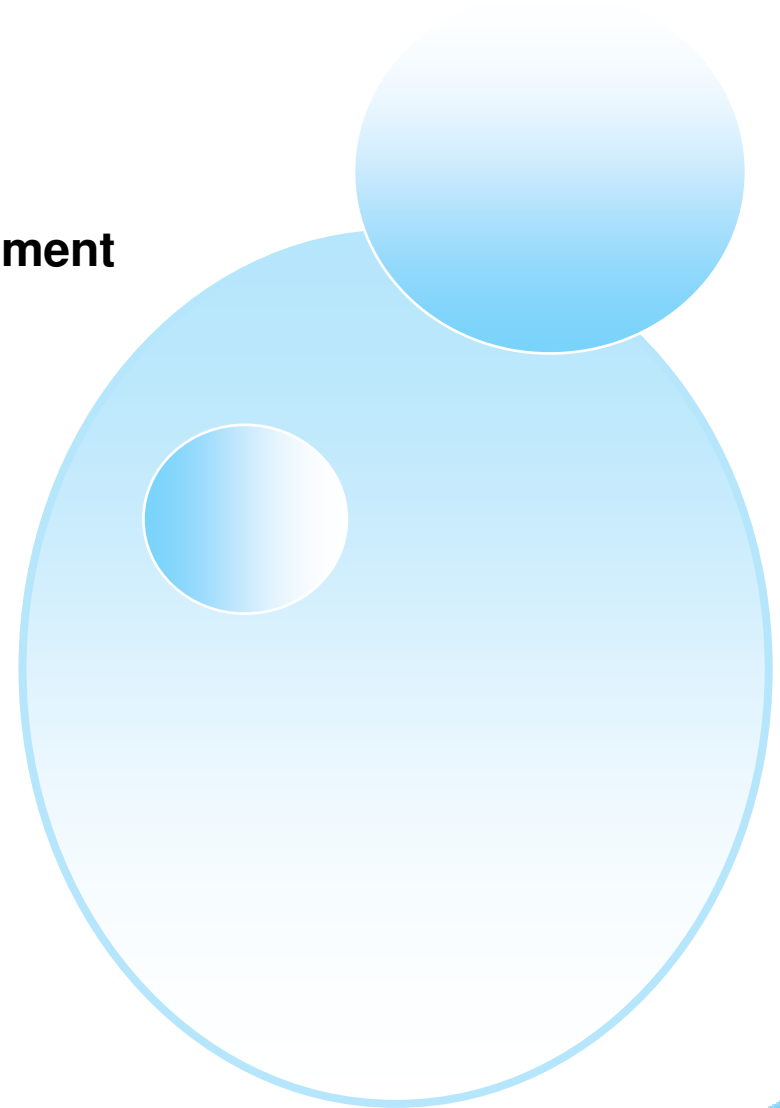
## **Please Note:**

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## Agenda

- **Introducing Collaborative Design Management**
- How is it built?
- Features/Demonstration
- A look to the future
- Q & A

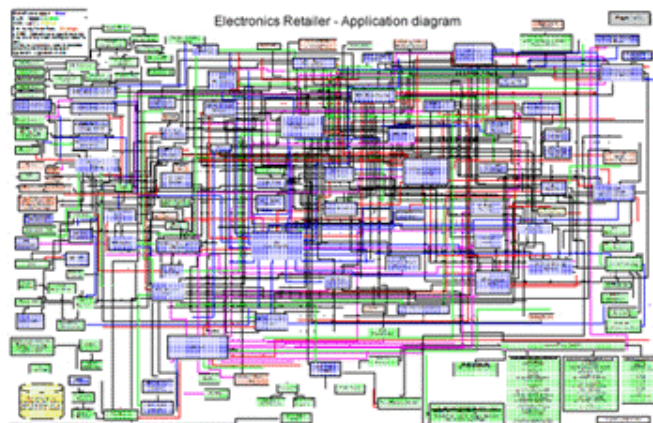


## Complexity is the biggest challenge facing organizations today!

***“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

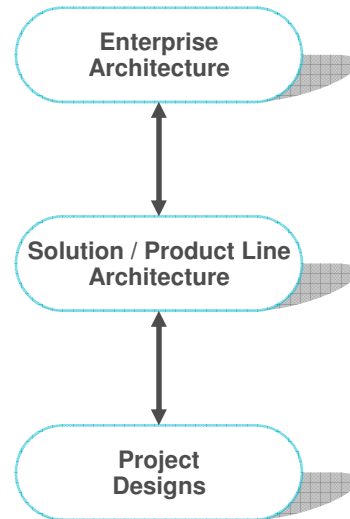
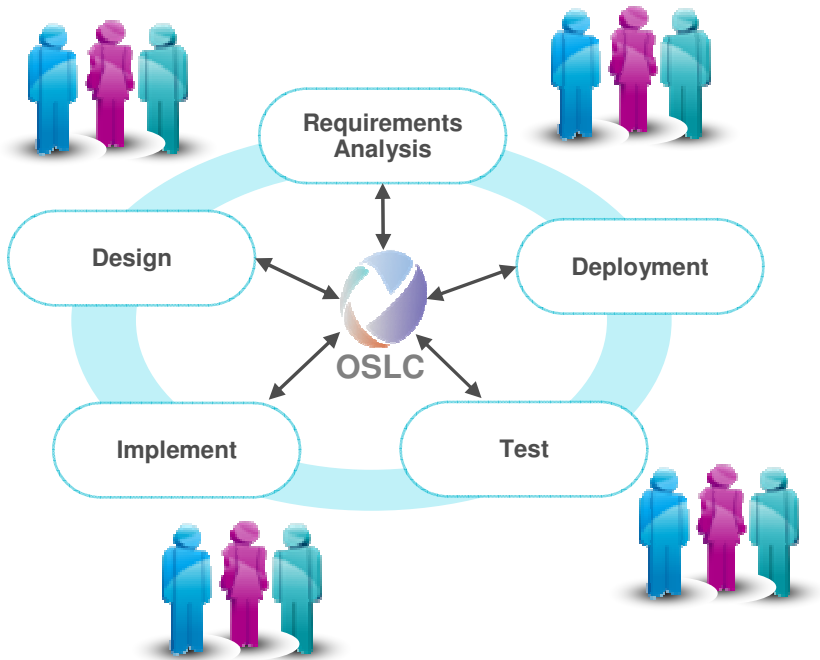
- ▶ Teams cannot easily **share designs and get feedback** from stakeholders
- ▶ Linking designs to other lifecycle artifacts is difficult, leading to a **lack of traceability and understanding of the impact** of changes
- ▶ Difficult **finding information** for reuse
- ▶ It takes too much time to create **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

# Collaborative Design Management Vision

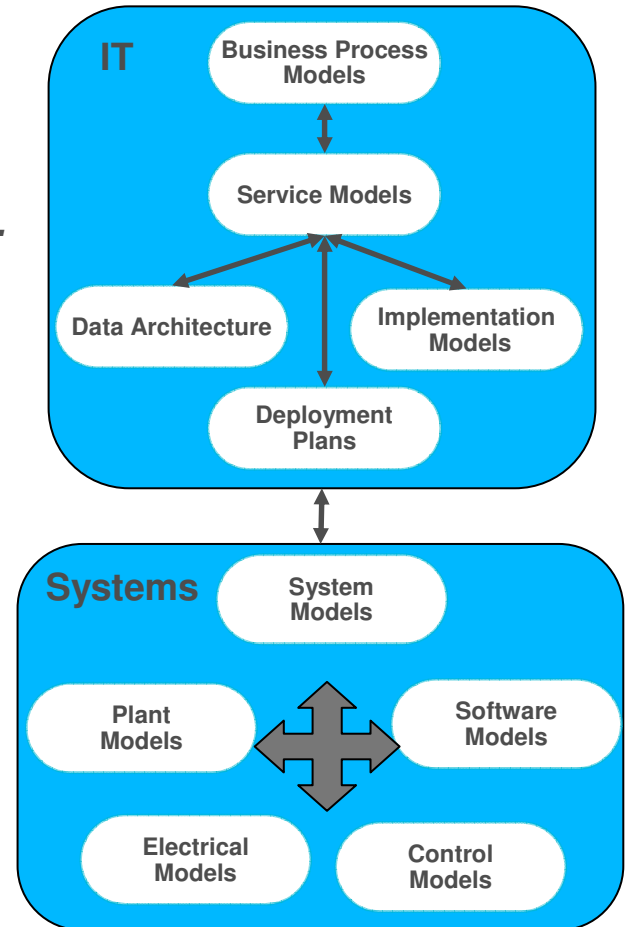
*Integrating and collaborating on designs across...*

*...the application and engineering lifecycles...*

*...levels of abstraction...*



*...and domains.*



**Enabling better collaboration, automation, reporting, and agility while reducing complexity and risk.**

# Collaborative Design Management

## *Engaging teams around the lifecycle*

### **Engage all stakeholders in the design process**

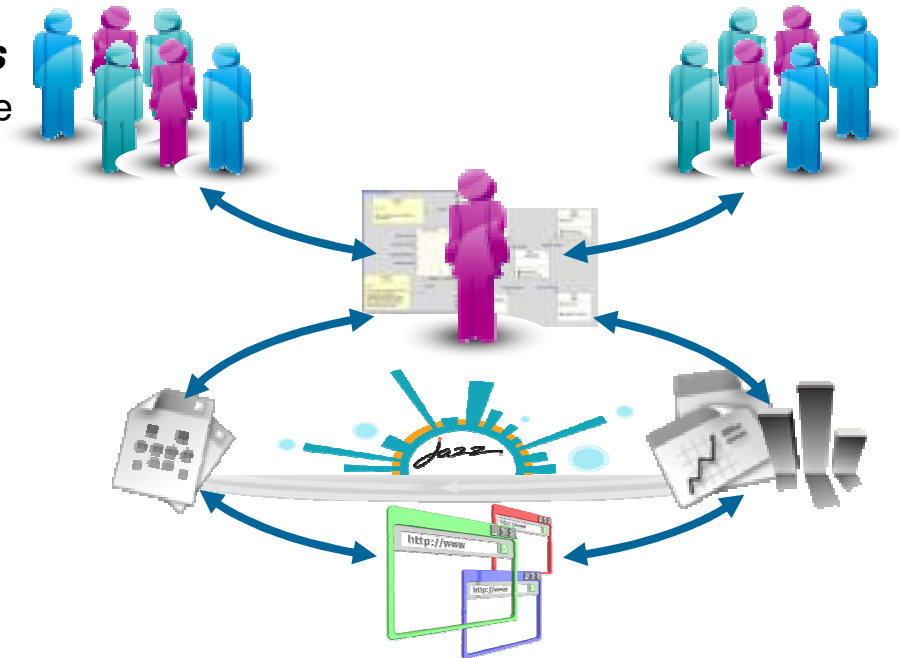
- ✓ Stakeholders better understand how their efforts relate to the overall design
- ✓ Quality is improved through automated reviews and team-wide trace analysis

### **Unify designs across domains and supply chains**

- ✓ Knowledge transfer increased through a system-wide design repository
- ✓ Real and potential impact of design changes easily analyzed and understood

### **Accelerate project delivery**

- ✓ Decision-making sped up through readily accessible information
- ✓ Reduced iteration times through direct stakeholder involvement in designs
- ✓ Regulatory demands satisfied with design process traceability and multi-discipline reporting



***"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

## Collaborative Design Management

*Enhance cross-team collaboration on software and systems design*



### Central Design Hub

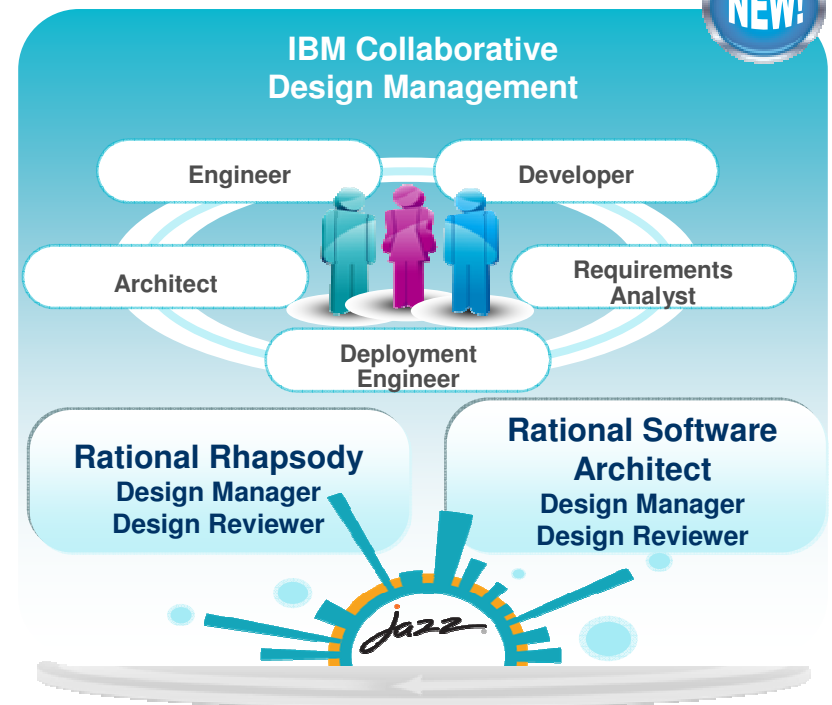
- ✓ Enterprise-wide design storage for search, review, analysis, and reuse
- ✓ Links design elements to lifecycle artifacts
- ✓ Navigate and visualize relationships

### Stakeholder Collaboration

- ✓ Automated design reviews at all stages of development
- ✓ Intuitive extended team web client for broader access to designs

### Document Generation and Reporting

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



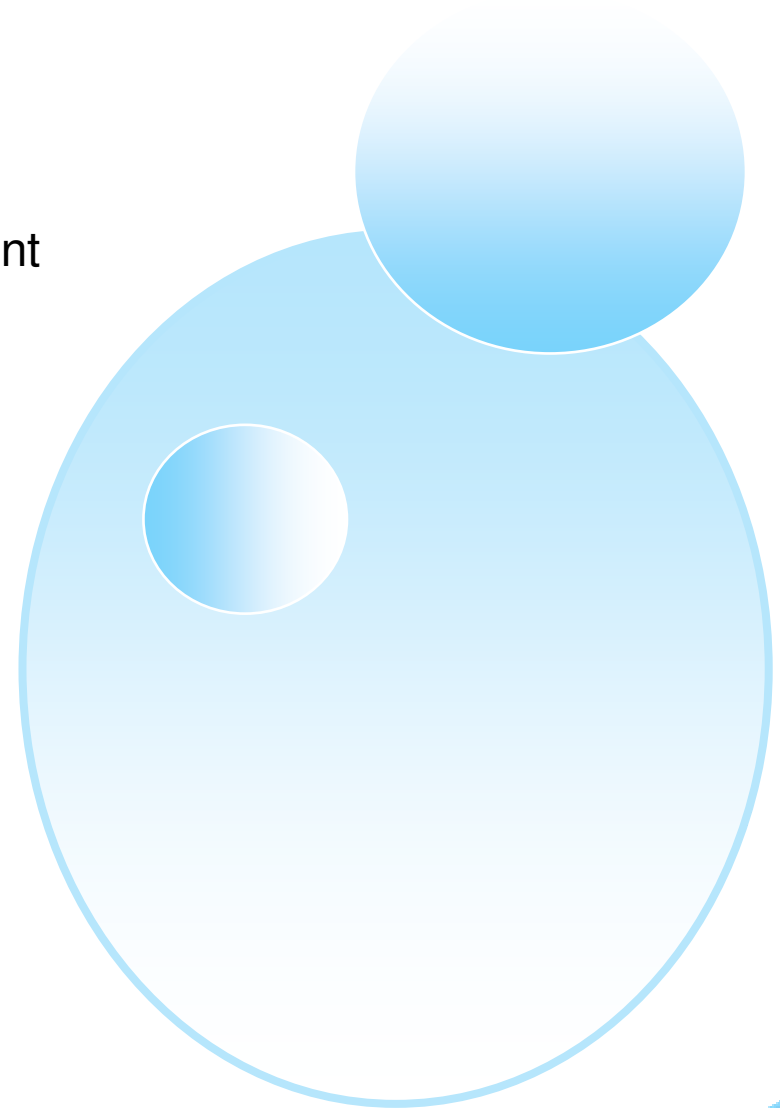
*“The ability to review and comment on models from the Web client encourages feedback from a wide array of stakeholders... leading to faster consensus and improved quality of solution designs.”*

*– Lars Tufvesson, Sellegi*

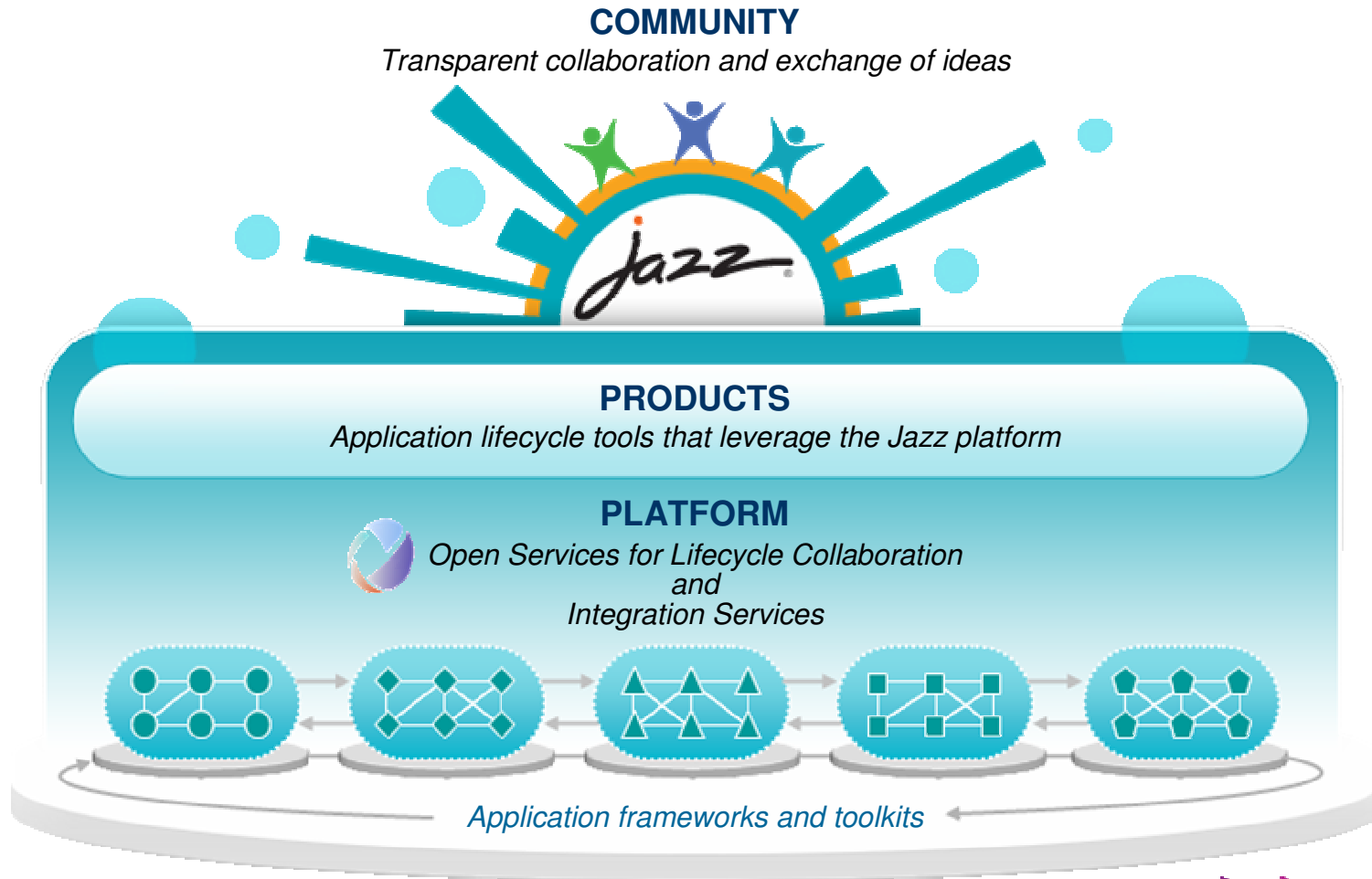


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# Jazz provides open collaboration across the software and systems lifecycle



# Open Services for Lifecycle Collaboration

*Simplifying collaboration across the software delivery lifecycle*



Open Services  
for Lifecycle  
Collaboration

Open interfaces. Open possibilities.

An industry initiative for making it easier to use software delivery tools in combination.

## Current Membership Includes

BigLever	General Motors
Boeing	IBM
EADS	Northrop Grumman
Ericsson	Siemens

### Barriers to sharing resources across the software lifecycle

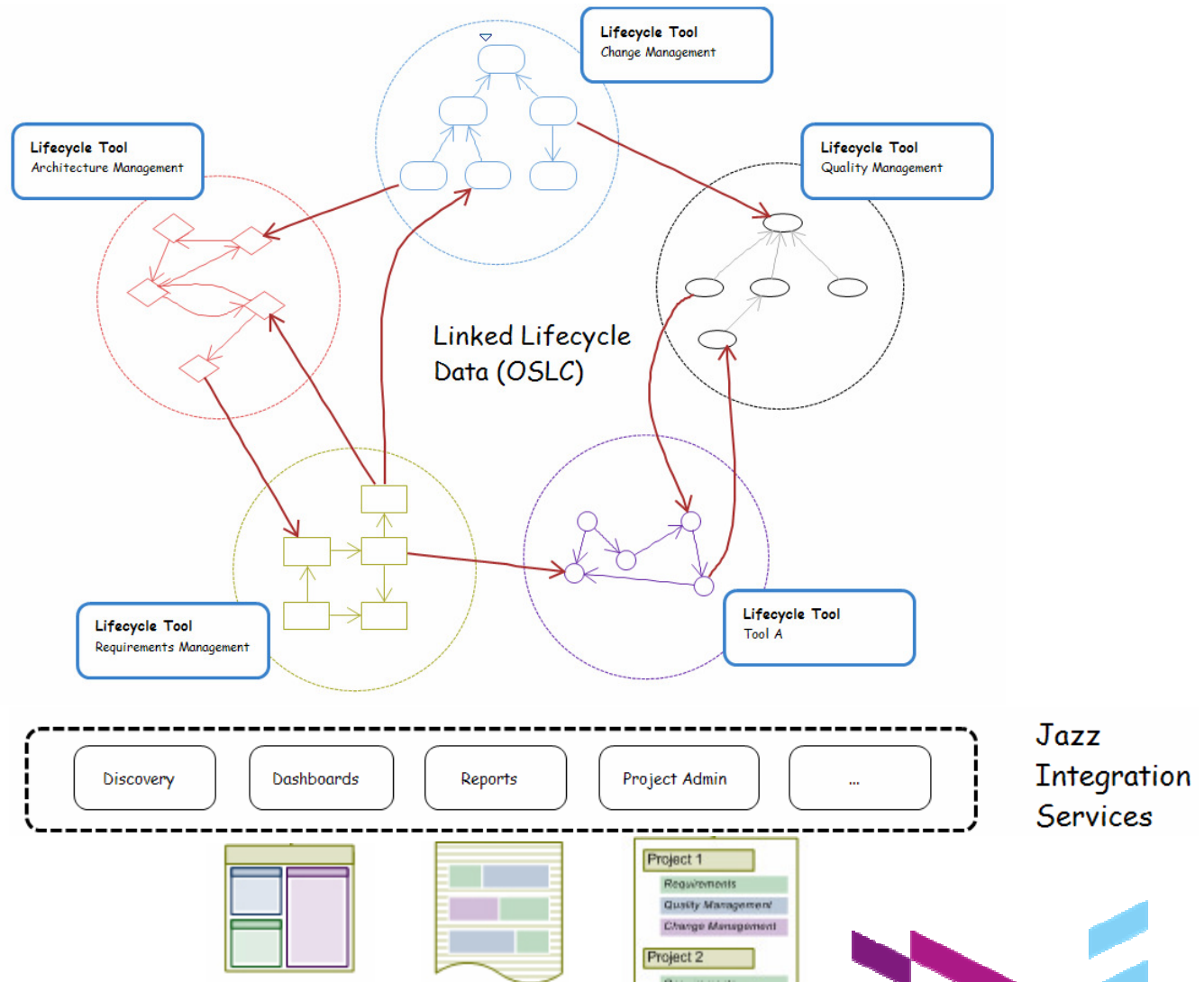
- ▶ Multiple vendors, open source projects, and in-house tools
- ▶ Private vocabularies, formats and stores
- ▶ Entanglement of tools and data

### The Open Services initiative is

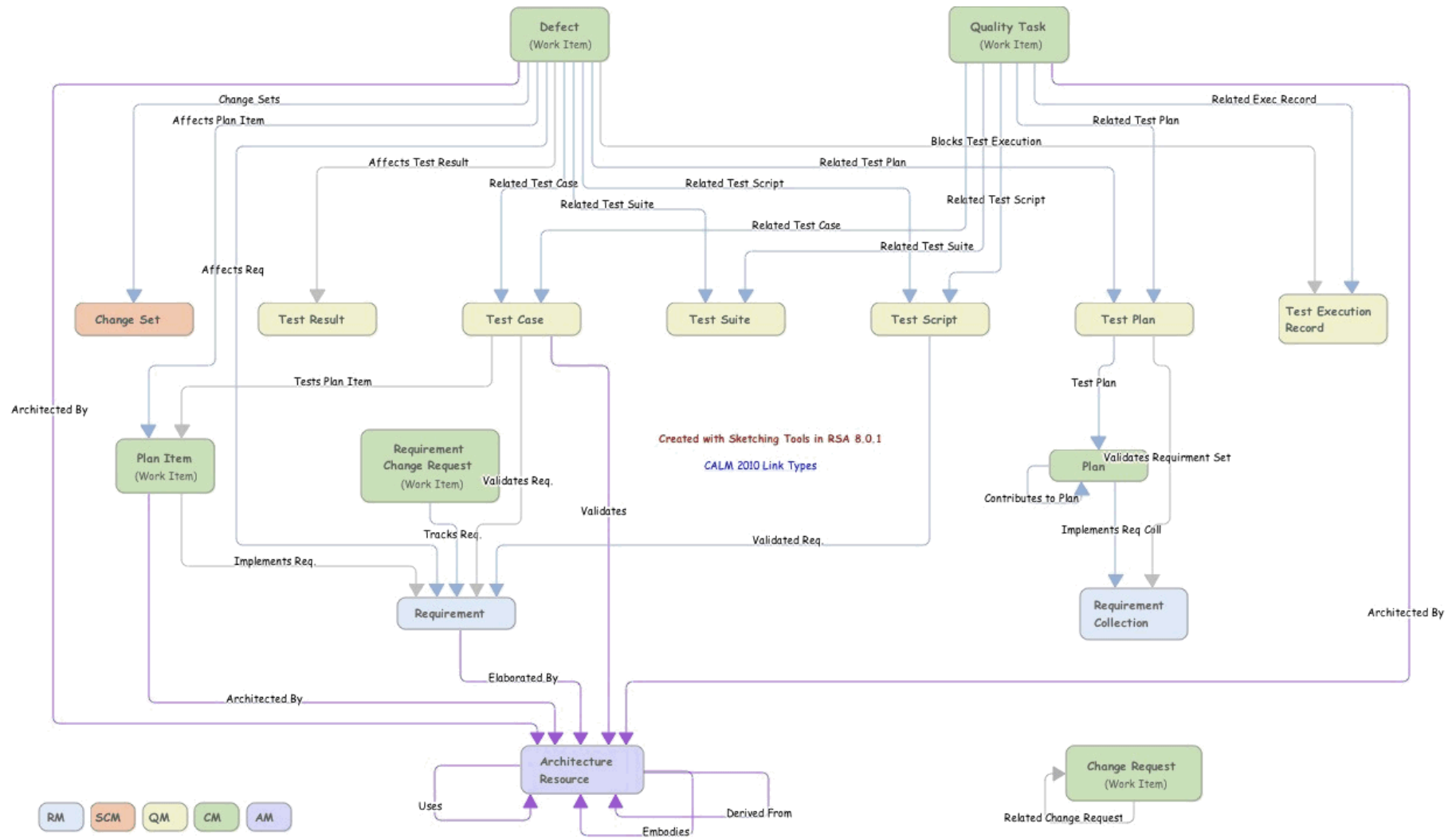
- *Building* a community of software vendors, open source projects, integrators, and corporate IT teams, operating at [open-services.net](http://open-services.net)
- *Creating* public specifications of resources and services for sharing the things that software teams rely on, like change requests, test cases, defects, requirements and user stories
- *Delivering* loosely coupled resource formats and services with “just enough” standardization

# OSLC and Jazz: An open architecture for lifecycle tool integration

- ▶ Built for the 21<sup>st</sup> century: designed using Web architectural principles, implemented with Web technologies
- ▶ Realistic: recognizes that customers will not replace their current investments wholesale
- ▶ Pragmatic: allows tools and services to be upgraded independently, without sacrificing rich integration
- ▶ Open: supports the requirement to have a variety of tools from different sources



# Linked Resources



# Get Involved on Jazz.net

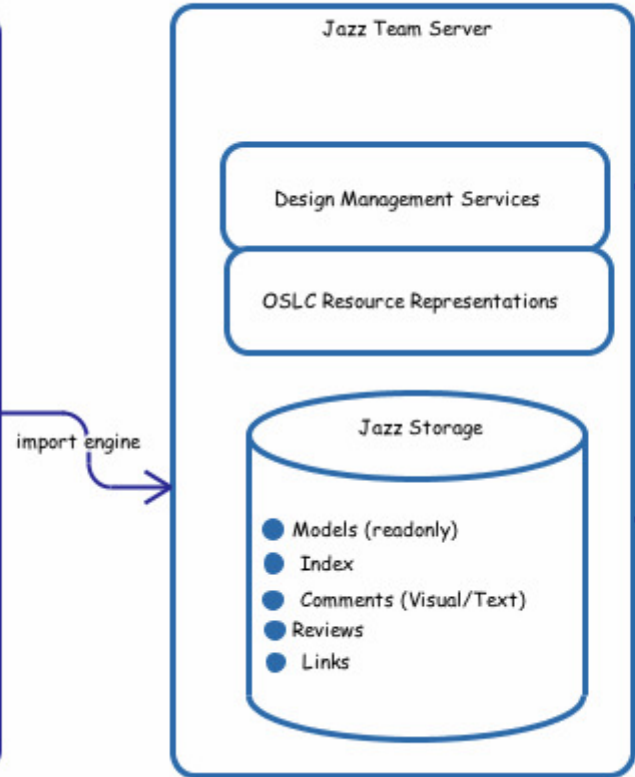
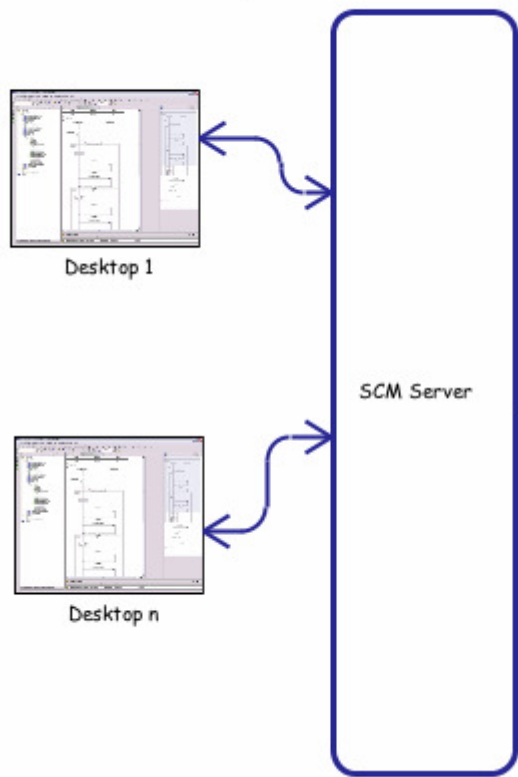
[jazz.net/projects/design-management](http://jazz.net/projects/design-management)

- 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](#)

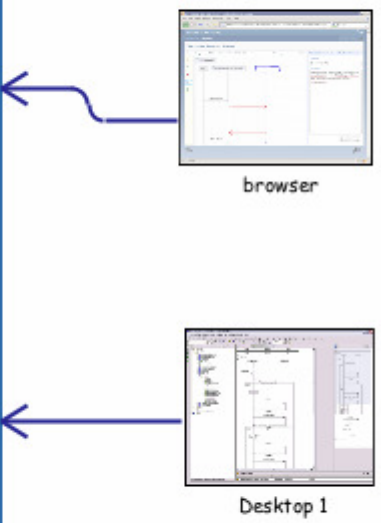
The screenshot shows the Jazz.net community site. At the top, there's a navigation menu and a login area. The main banner reads "Collaborative software and systems design" and includes a call to action: "Start to break down the architecture, engineering, and development silos. Connect your software and systems designs with the entire team and collaborate using new design management services for Jazz." Below this, there are several sections: "Jazz Team Blog" with three entries (e.g., "New project at Jazz.net: Design Management"), "New from Our Library", "In the News", and "Testimonials".

# RSA/Rhapsody Design Manager

Model creation, editing, ...

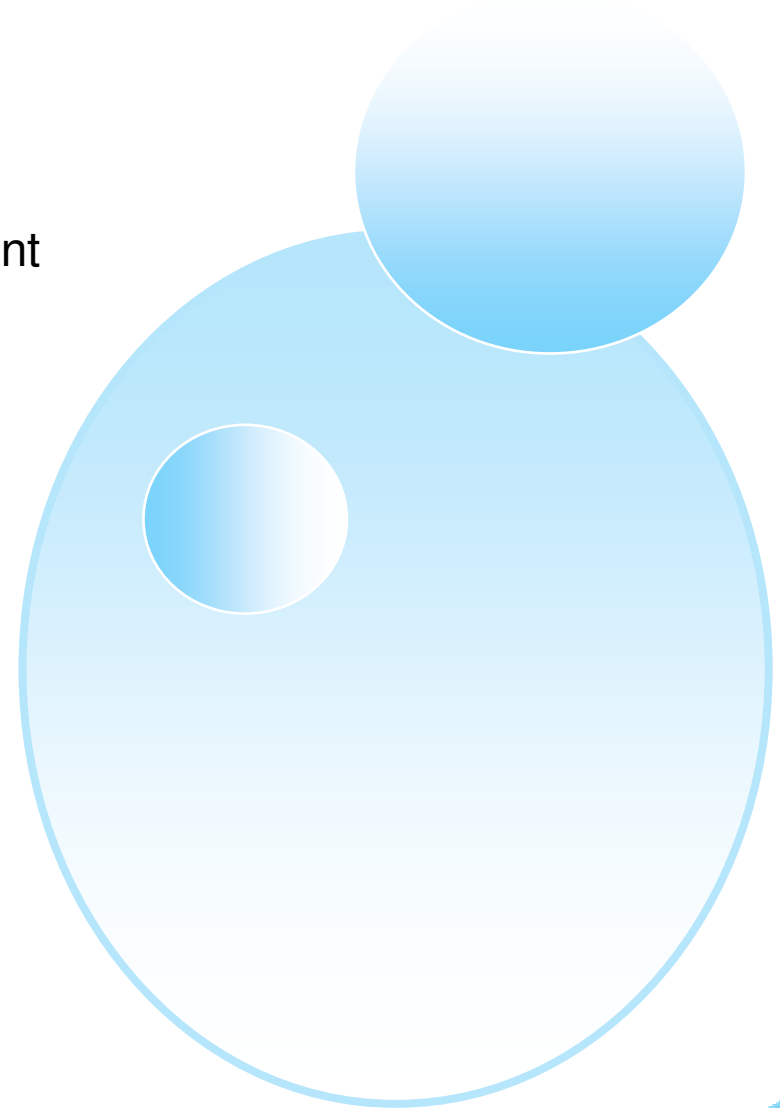


Model search, browse, comment, review, link, report, validate



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# Searching and Browsing

- Explorer Tree designed to manage very large trees
- Text Search is a full text search (name, description, type)
- When a element is in context, predefined searches show related elements
  - ▶ Referenced elements
  - ▶ Referenced diagrams
  - ▶ Referencing diagrams

	Long Name	Type
[Address Book] Design::addressbook::<Association>	[Address Book] Design::addressbook::<Association>	UML2 Modeler - Association
[Address Book] Design::addressbook::AddressBook::contacts	[Address Book] Design::addressbook::AddressBook::contacts	UML2 Modeler - Property
[Address Book] Design::addressbook::Contact	[Address Book] Design::addressbook::Contact	UML2 Modeler - Class
[Address Book] Design::addressbook::AddressBook	[Address Book] Design::addressbook::AddressBook	UML2 Modeler - Class

## Browser diagram rendering

- All DM resources can be viewed in a web browser
- Diagrams are rendered lazily, and cached between publishes.
- Diagrams can be navigated through
- Elements in diagrams can be selected and their properties shown in a popup dialog.

Main modified Feb 16, 2010 2:40:13 PM

Diagram Properties Related Elements Other Links



AddressBook modified Feb 16, 2010 2:40:12 PM

Properties Related Elements Other Links

**General**

Name:

Visibility:  Public  Private  Protected  Package

Abstract:

Leaf:

**Stereotypes**

Keywords:

Applied Stereotypes:

Stereotype	Profile	Required

Stereotype Properties:

Property	Value

**Documentation**

# Commenting

- Comments can be created on any DM resource.
  - ▶ Textual (plain text)
  - ▶ Graphical
- Organized in discussions (nested replies)

The screenshot shows a software development environment with a class diagram. The diagram features two classes: **AddressBook** and **Contact**. **AddressBook** has methods `addContact()` and `removeContact()`. **Contact** has attributes `name` and `phoneNumber`, and methods `setName()` and `setPhoneNumber()`. A relationship labeled `- contacts` exists between them, with a multiplicity of `1` at the **AddressBook** end and `*` at the **Contact** end.

Handwritten red annotations are present: a large scribble across the diagram, and two boxes at the bottom with lines pointing to the diagram.

The interface includes a top bar with 'Settings', 'Search Models', and a 'Saved Successfully' notification. Below the diagram are tabs for 'Diagram', 'Properties', 'Related Elements', and 'Other Links'. A 'Comments (3 of 3)' panel on the right shows a discussion:

- Needs more detail (3)** Now
- admin1** 5 minutes ago: this diagram needs more detailed information in it to qualify as an example diagram.
- Add some more content, and then we'll use it in the demo.
- test** 1 minute ago: Ok, but where should I place the content?
- admin1** Now: Use this area down here. You can even add a sequence diagram if it will fit. [Edit](#) [Reply](#)

# Review

- DM allows users to quickly create reviews and gather review comments from the team

Reviews >

**\*MyReview** ?

Overview **Participants** Resources Links

Draft Start Review → In progress → Reviewed → Finalized

Name:  Snapshot:

Due:

Instructions:

**Participants** Add...

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

**Resources** Add...

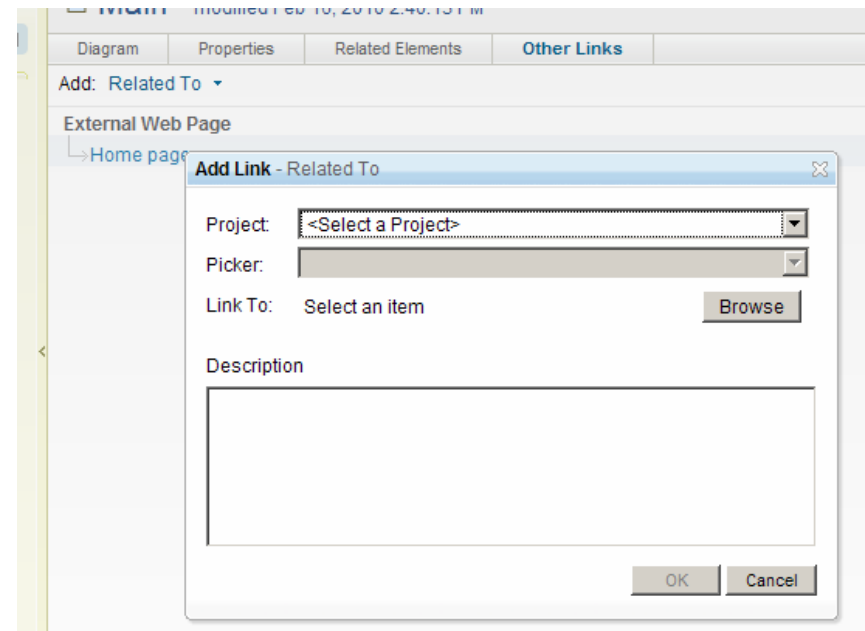
Name	Description	Actions
Main	<input type="text" value="Main Diagram"/>	
JKEClientApp	<input type="text" value="Application Interface"/>	

Review Comments  
Resource Comments  
Comments (0 of 0)

Save

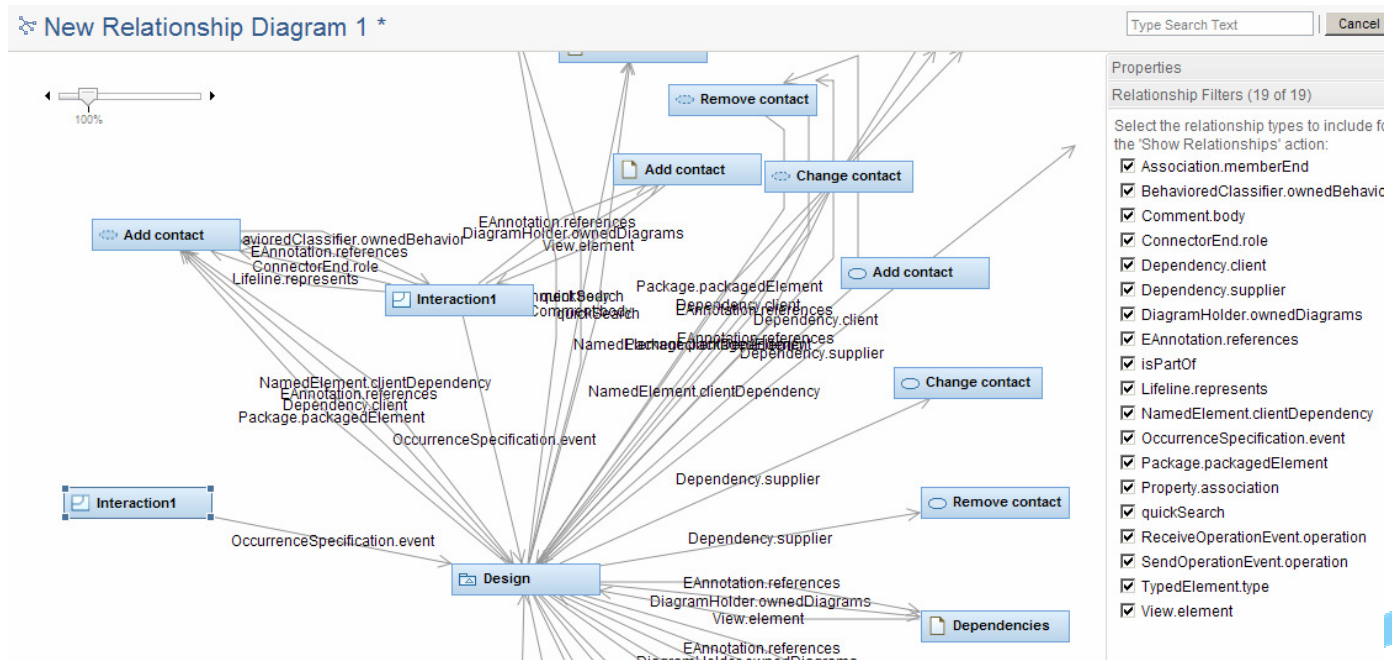
## ALM and OSLC Linking

- DM allows users to create “links” to other resources including those managed by other Jazz and OSLC servers.
- DM also allows captures and manages a simple description on links.
- DM uses resource pickers from the applications it is selecting a resource from. It also provides a resource picker to applications that want find an element to link to that it manages.
- Links appear in the user interface on a separate page, and are grouped by type.
- Projects control what types of links can be created (including custom types).



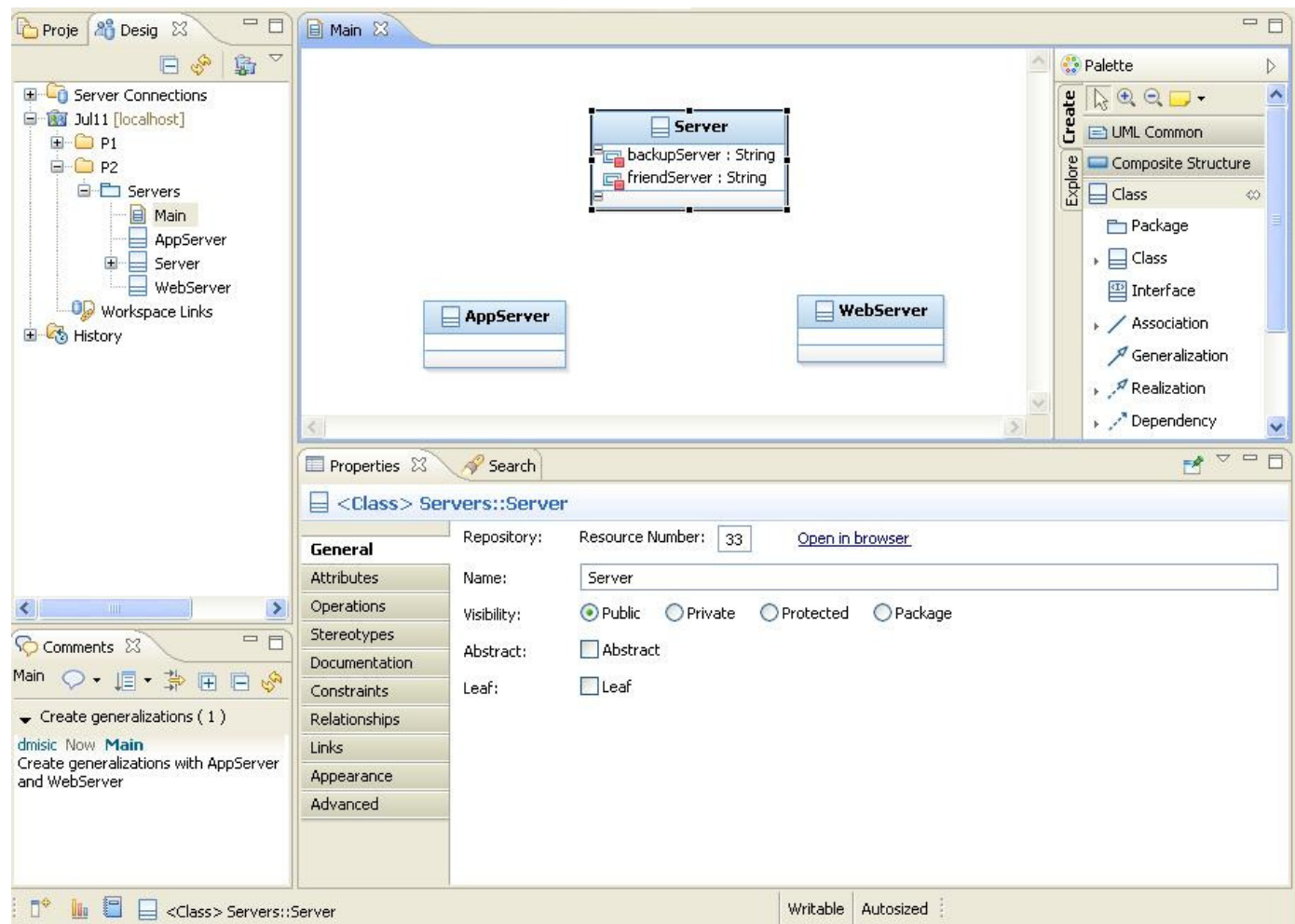
# Relationship Diagrams

- Interactively “grow” a diagram of relationships
- Every relationship (link) managed by the model elements can be explored, including relationships to resources external to DM.
- Manage the relationships by filtering in only the interesting ones.



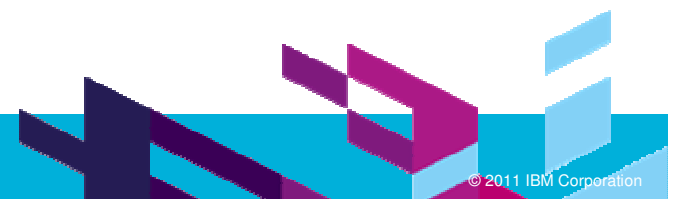
## Rich Clients

- DM allows access through rich clients (RSA and Rapshody)





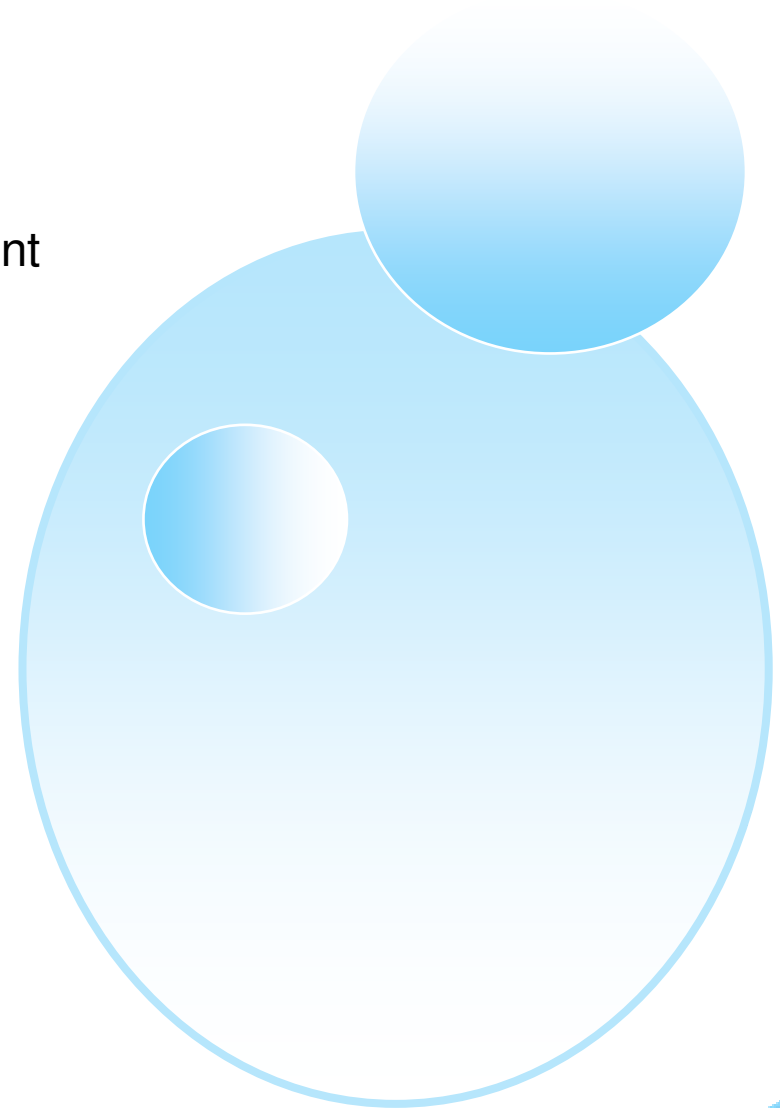
[www.ibm.com/software/rational](http://www.ibm.com/software/rational)



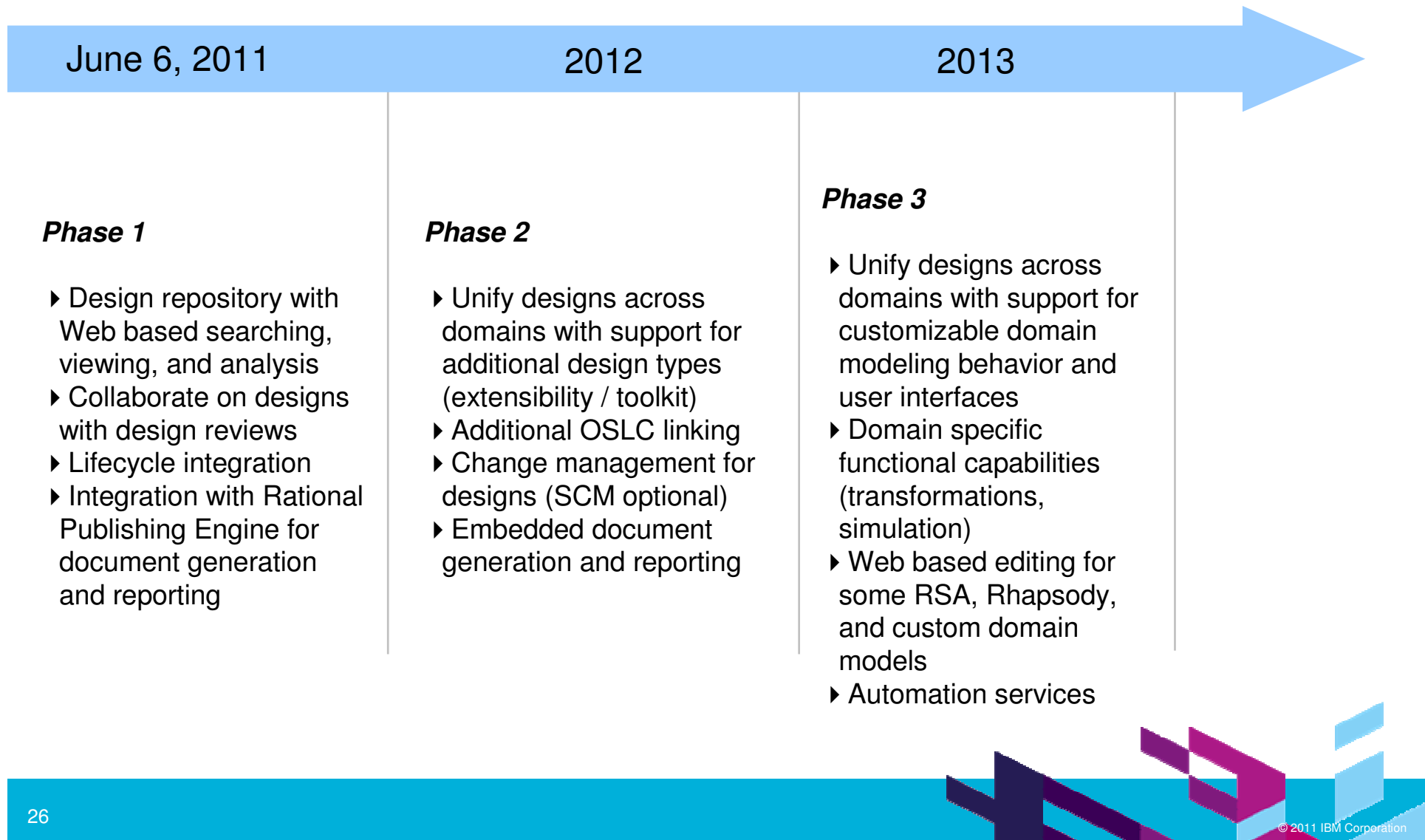


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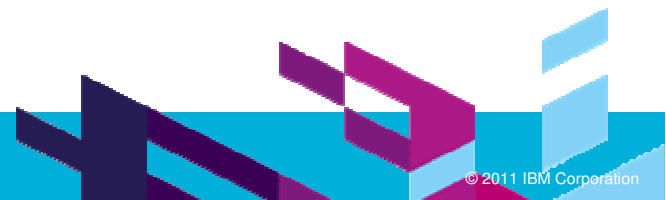


# Collaborative Design Management Roadmap



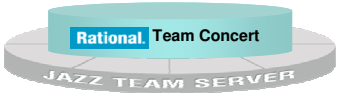
# QUESTIONS

[www.ibm.com/software/rational](http://www.ibm.com/software/rational)



# Collaborative Design Management User Roles

## Rational Software Architect Design Manager 3.0 & Rhapsody Design Manager 3.0



	Design Reviewer	Design Manager
	For extended team members who need to access and collaborate on models and designs	For design practitioners using RSA or Rhapsody to create models and designs
View and search designs	✓	✓
Attach comments and markup	✓	✓
View designs in dependency diagram	✓	✓
View and create design links	✓	✓
Dashboards	✓	✓
Import designs directly from RSA or Rhapsody workspace		✓
Import designs from SCM		✓
Setup design reviews		✓
Create design baselines		✓

*\*Design Reviewer and Design Manger roles are available in both Rational Software Architect Design Manager and Rhapsody Design Manager.*



[www.ibm.com/software/rational](http://www.ibm.com/software/rational)

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