

# I Didn't Know Rational Software Architect Could Do That!

*Sandeep Katoch*



## Please note the following

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM's sole discretion.

Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision.

The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.

Performance is based on measurements and projections using standard IBM benchmarks in a controlled environment. The actual throughput or performance that any user will experience will vary depending upon many factors, including considerations such as the amount of multiprogramming in the user's job stream, the I/O configuration, the storage configuration, and the workload processed. Therefore, no assurance can be given that an individual user will achieve results similar to those stated here.

# Outline

- Sketch | Collaborate | Iterate
- Designing for the Web
- Get your stuff deployed [*correctly*]
- Being productive
- Q&A [*but don't wait until the end*]

# Software Design

*Good Designs. Better Outcomes.*

## Goals

- Communicating designs with distributed teams
- Reducing complexity through standardization

Becoming more agile

- Reducing risk
- Regulatory compliance

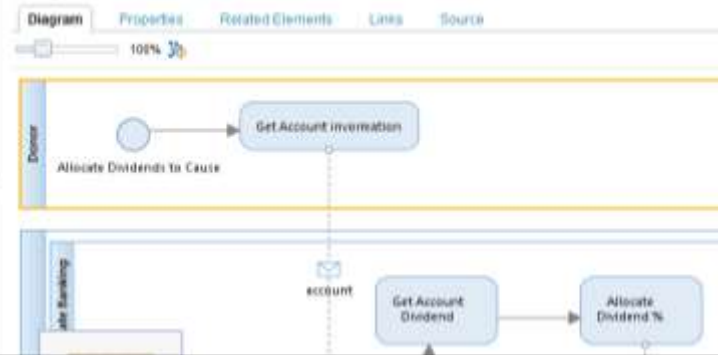
*Iterative and collaborative software design* helps teams achieve these goals through:

- A higher level of abstraction to evaluate alternatives and arrive at the **best and simplest solution**
- **Improved quality** with early analysis, validation, and generated implementation artifacts
- Blueprints of IT systems that foster **communication and informed decisions on changes**

# Pick The Right Tool For the Job

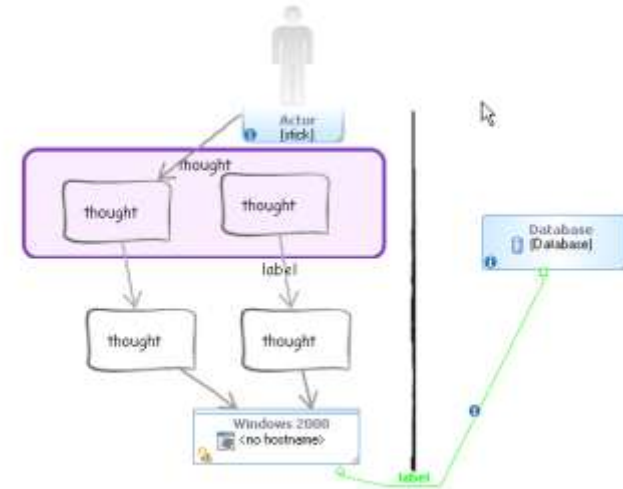
*Rational Software Architect is more than UML (but it's that too!)*

Diagram 158: Allocate Dividends to Cause



Agile Sketching

Rich text documents

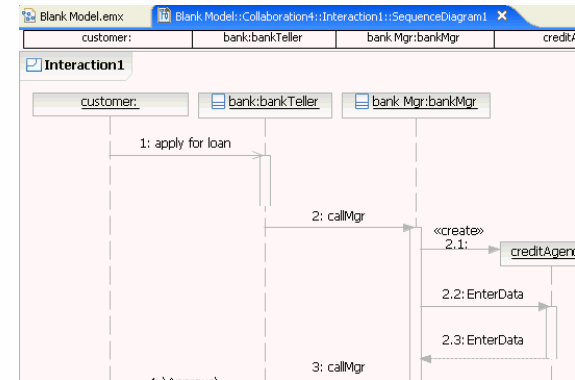
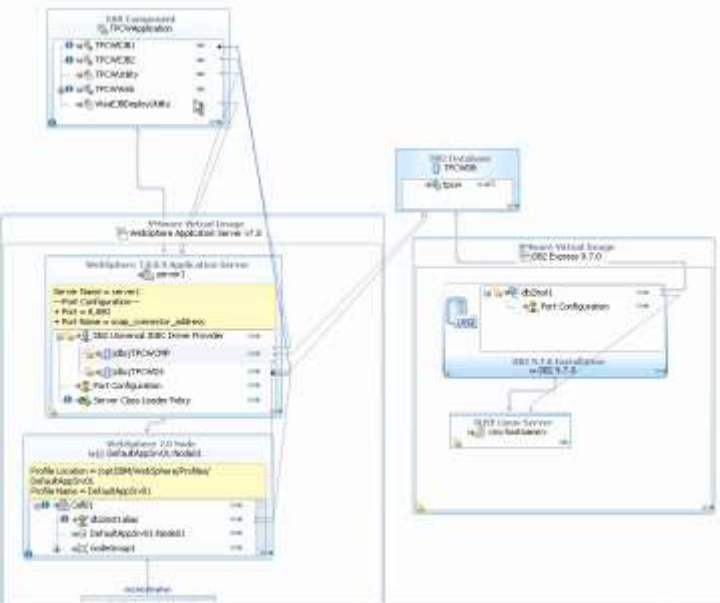


Business Process Model Notation (BPMN)

UML

Framework Extensions

Deployment Topologies

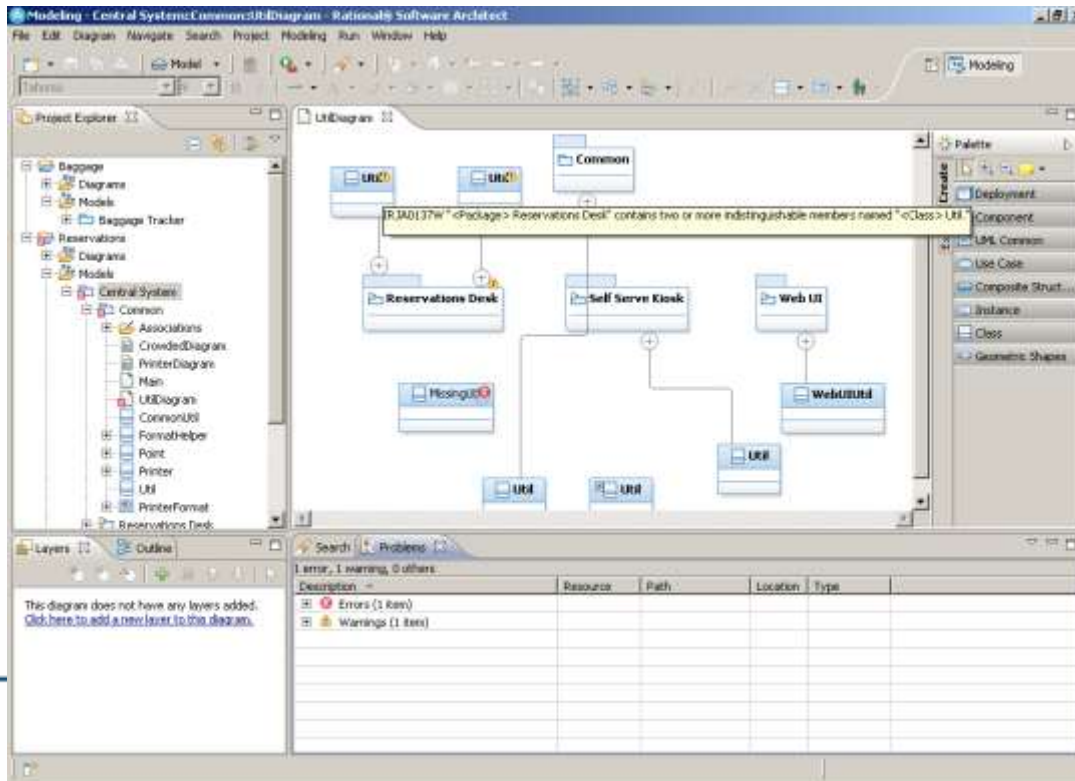
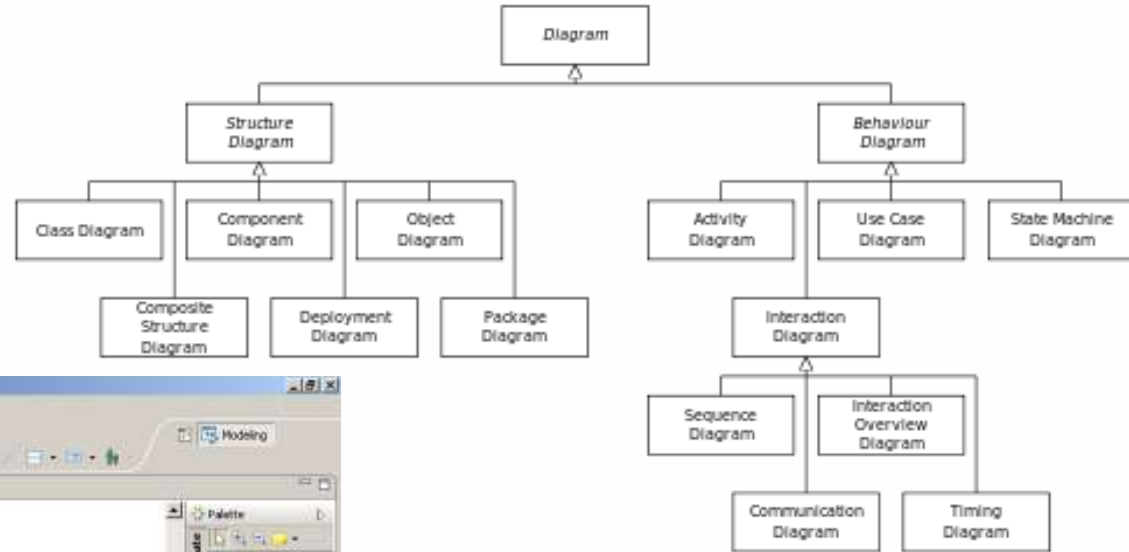


# Comprehensive UML Support

UML 2.4 support (new in RSA 9.0)

Support for all diagram types

Extensive forward & reverse transformations



Rich visual diagram capabilities including layers, themes, & rich text

Model validation and repair

Model simulation

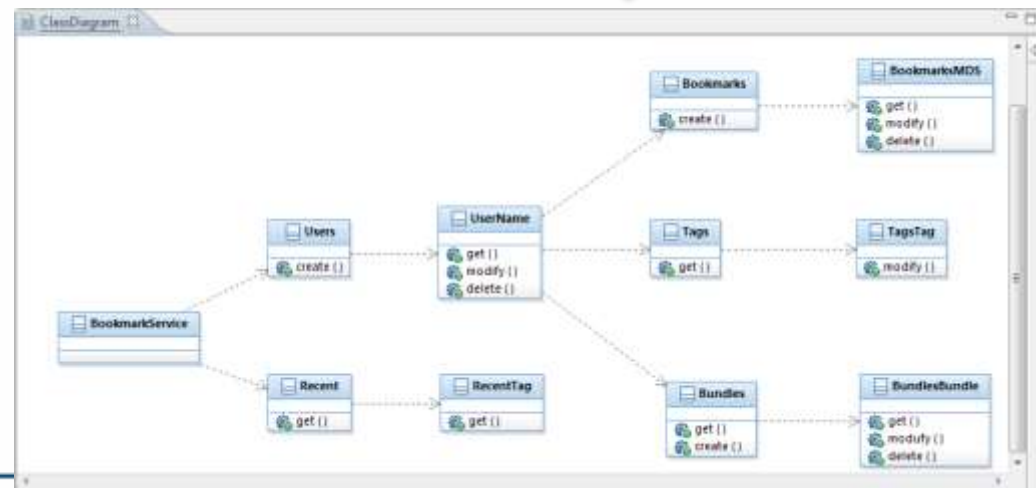
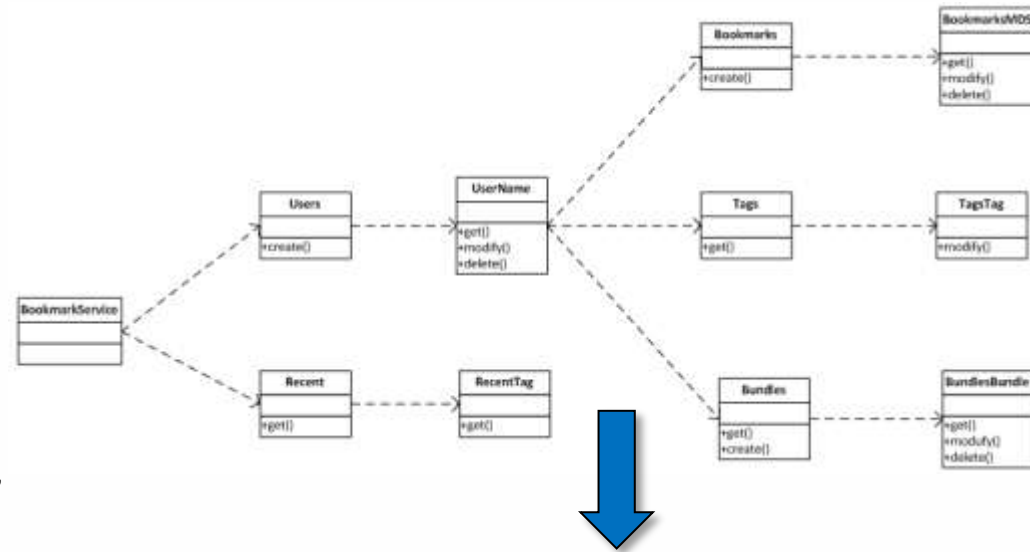
Extensible – profiles & transformations

# Outline

- **Sketch | Collaborate | Iterate**
- Designing for the Web
- Get your stuff deployed [correctly]
- Being productive
- Q&A (but don't wait until the end)

# Don't Start From Scratch!

- Import from Visio
  - Class diagrams, use case diagrams, and network diagrams
  - BPMN diagrams and activity diagrams (new in RSA 9.0)
- Reverse engineer:
  - XSD, WSDL, Java, C/C++, REST, Struts, Spring, Hibernate
- Interchange:
  - UML models via XMI
  - BPMN2
- Migrate from other modeling tools via partner offering

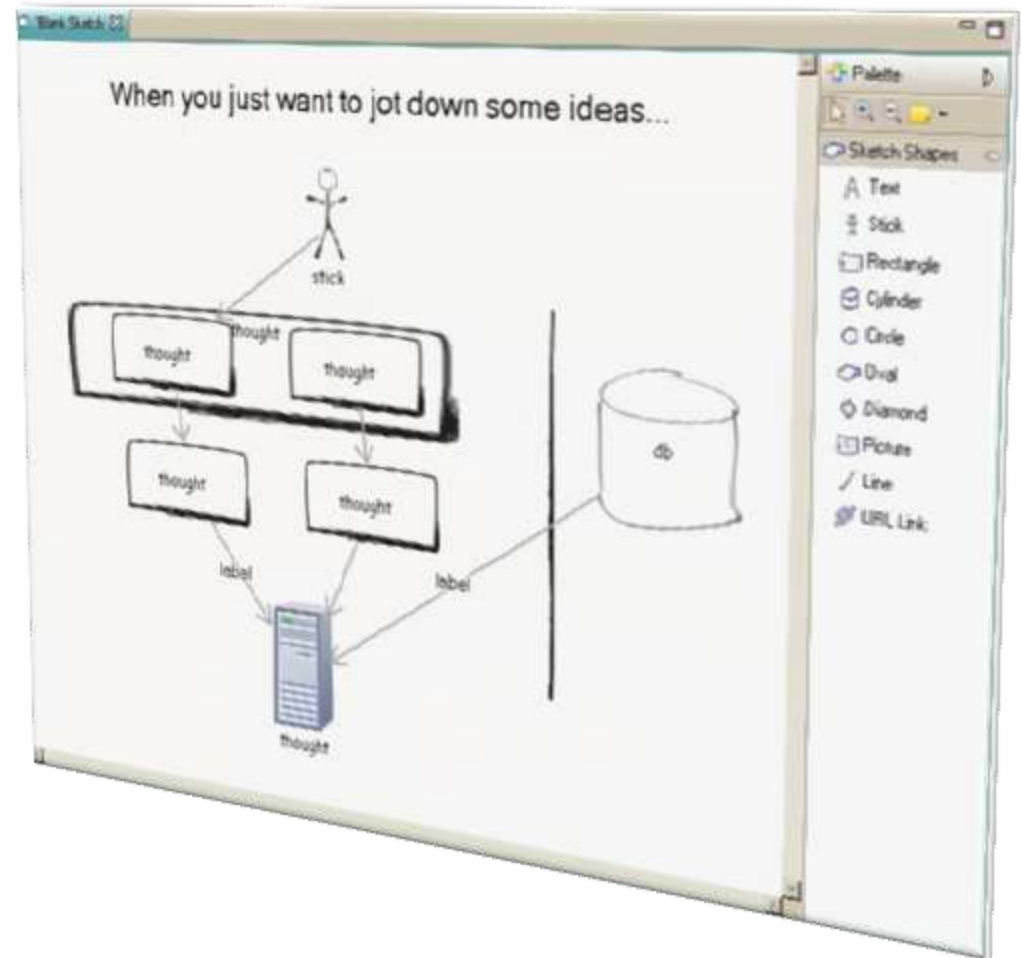




# Sketch

## *Quickly capture initial design ideas*

- Work at “think speed” – focus on design and not model semantics or diagram formatting
- Actionable whiteboard
- Intuitive palette tools
  - Create grids of shapes or different shape types just by dragging the mouse
  - Containment by drawing overtop
  - Draw a link or create a link
- Standalone sketching or embedded in UML & Topology diagrams



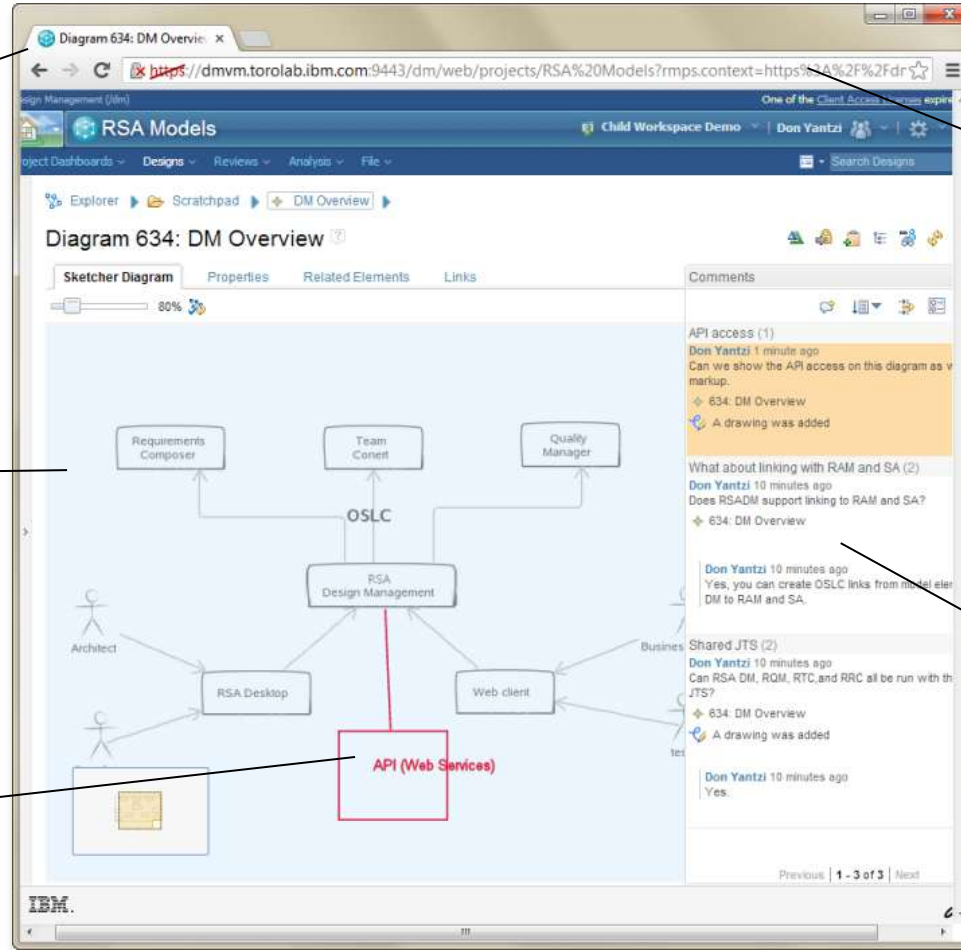
# Communicate & Collaborate

*Design Management brings the rest of the team onboard*

Anyone can access designs using Web client

All RSA model types supported

Clarify your comments with visual markup



Quickly share with peers and stakeholders -- designs are URL addressable.

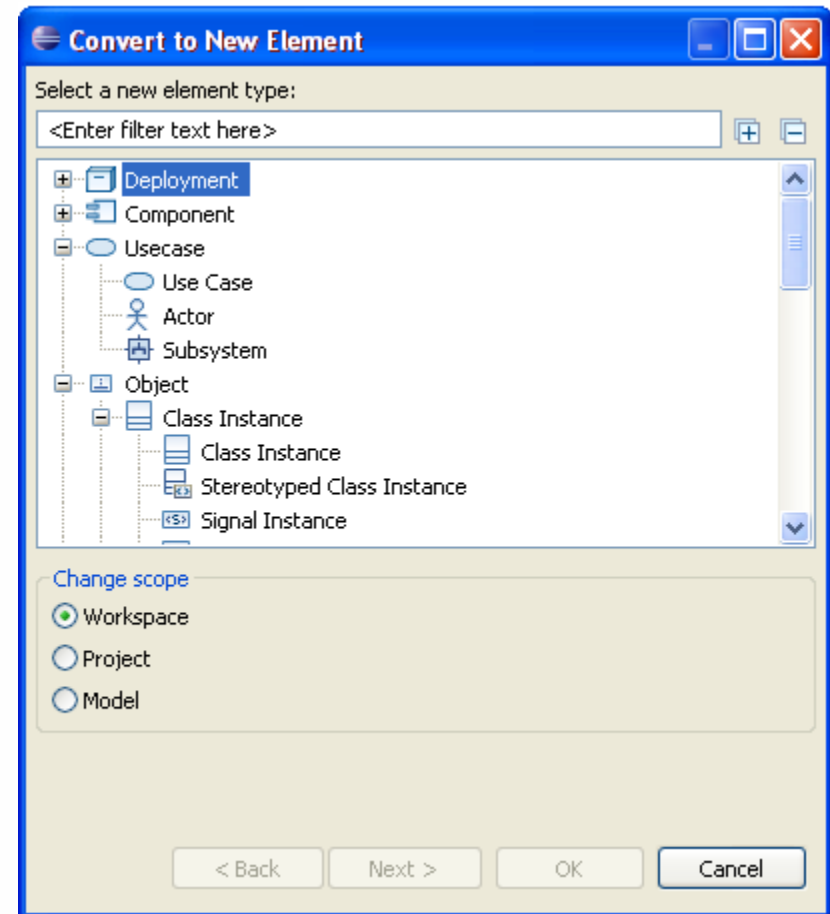
Have discussions in the context of the design

# Iterate

*Q: Is your initial sketch beginning to reach its limits and now needs more details?*

*A: Convert sketches to UML models to capture the next level of details [if & when needed]*

- More generically, RSA can convert one element type to another
- Useful for refactoring designs:
  - UML Class should be an Interface
  - BPMN Task should be BPMN User Task
- Ability to review if data loss will occur:
  - If relationships have to be deleted
  - If features that are not supported by the new element



# Demo

**Innovate2013**  
The IBM Technical Summit



# Outline

- Sketch | Collaborate | Iterate
- **Designing for the Web**
- Get your stuff deployed [correctly]
- Being productive
- Q&A (but don't wait until the end)

# Modeling for Web Frameworks

## Goals

- \* Understand existing implementations through reverse engineering
- \* Analyze & collaborate on new designs to arrive at the best solution
  - \* Communicate designs to developers and other stakeholders
- \* Accelerate implementation time by generating code and configuration files
  - \* Document designs for better reuse

## Supported Frameworks

REST Services  
Struts  
Spring  
Hibernate

## What's Included

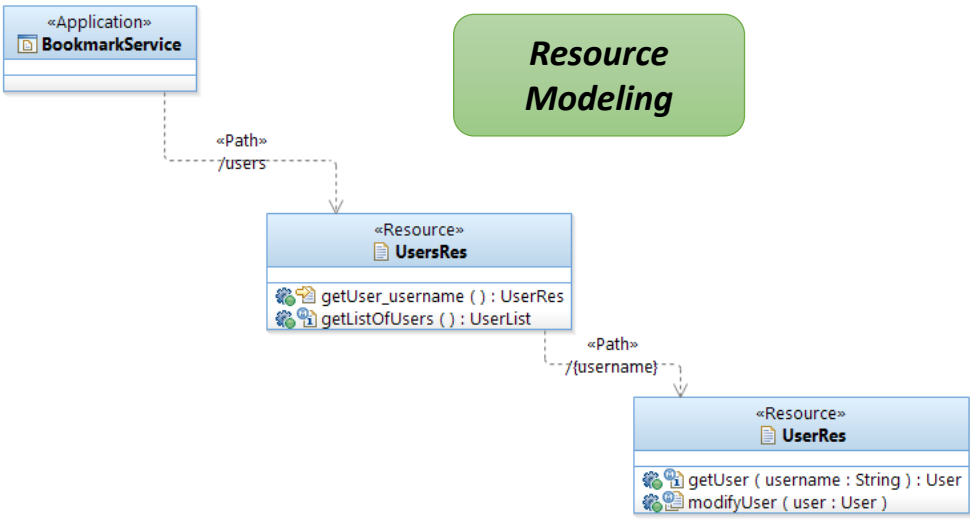
UML profiles for domain specific details  
Palette entries  
Code generation  
Reverse engineering  
*... plus all of RSA's other capabilities!*

# Demo

**Innovate2013**  
The IBM Technical Summit

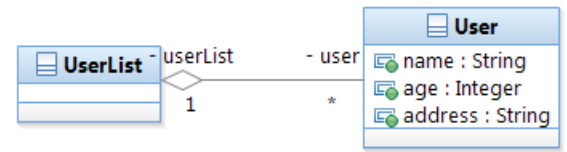


# REST Service Modeling

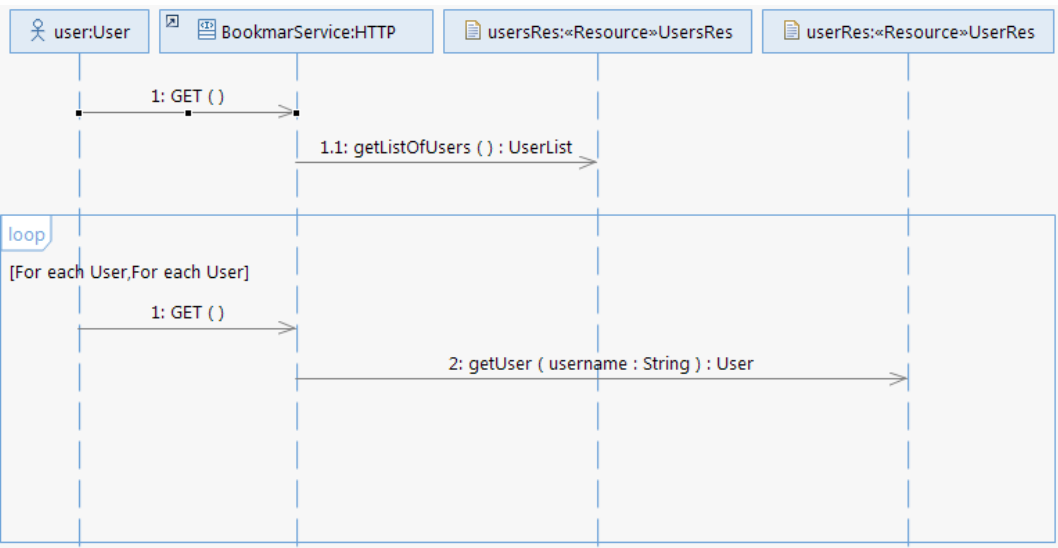


**Resource Modeling**

**Data Modeling**



Using JAXB to support XML and JSON data



**Scenario Modeling**

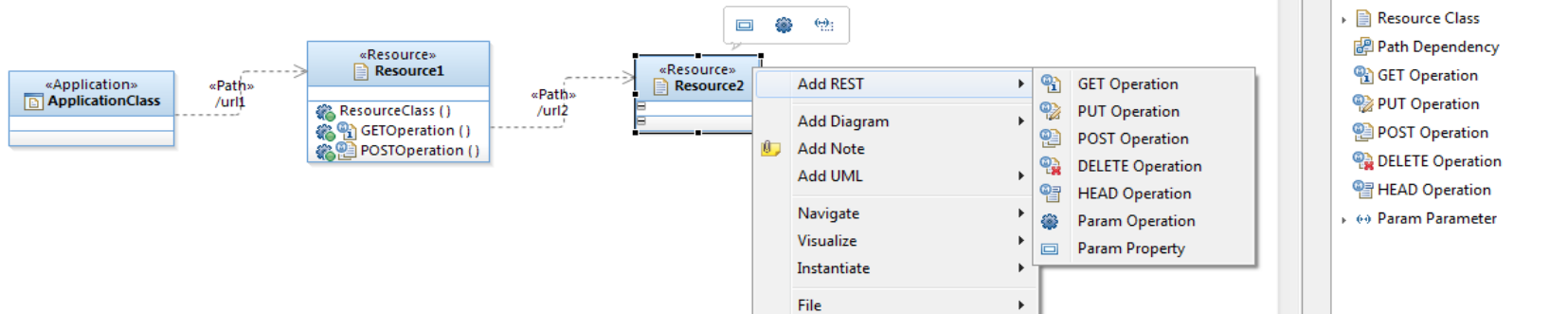
HTTP header and error code support





# REST Support in Freeform Diagrams

## Palette entries & context sensitive actions



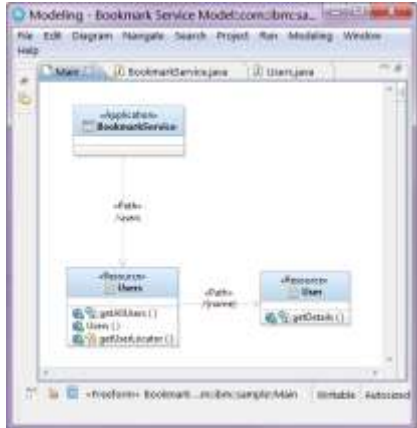
## Property editors to capture domain specific implementation

The screenshot shows the property editor for a PUT operation. The editor is titled '<Operation> <PUT> PUTOperation ()'. It has a sidebar with tabs for General, Parameters, Exceptions, Stereotypes, Documentation, Constraints, Relationships, Advanced, and REST. The REST tab is selected. The editor contains fields for 'Produces' (text/html), 'Consumes' (text/plain), 'Return codes' (200 OK), 'Content' (Status-OK), and 'Description' (Successful HTTP request).

# Code Generation with REST Service Modeling

1

Model RESTful Service in RSA

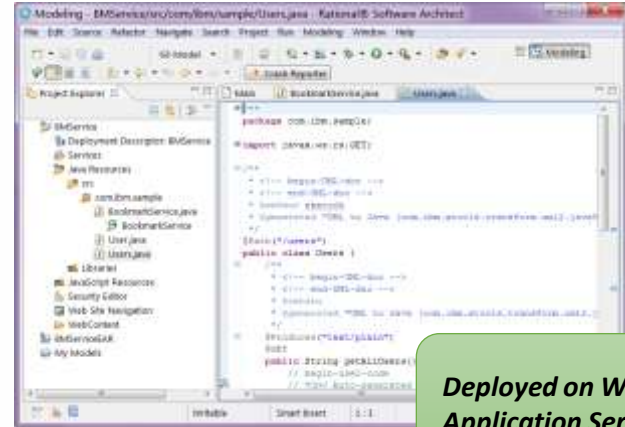


2

Generate JAX-RS based Web Service

3

Generate JAXB classes from Data Model



Deployed on WebSphere Application Server

4

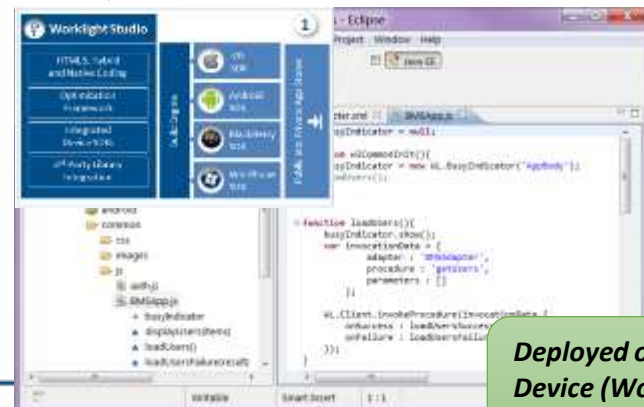
Generate Worklight Adapter \*



Deployed on Worklight Server

5

Generate Worklight Client Stub \*



Deployed on Mobile Device (Worklight Device Runtime)

# Demo

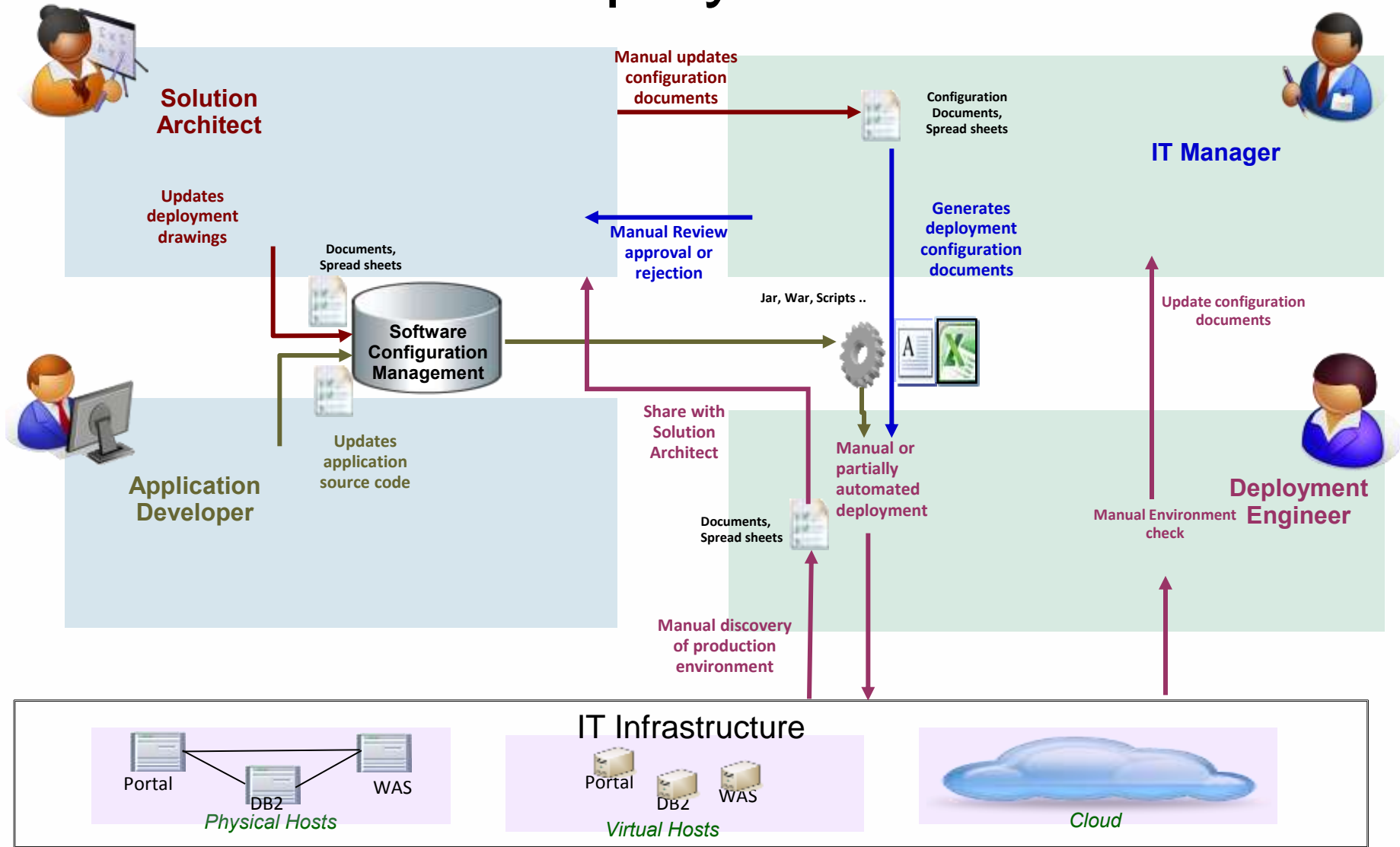
**Innovate2013**  
The IBM Technical Summit



# Outline

- Sketch | Collaborate | Iterate
- Designing for the Web
- **Get your stuff deployed [correctly]**
- Being productive
- Q&A (but don't wait until the end)

# Stressed About Deployment?

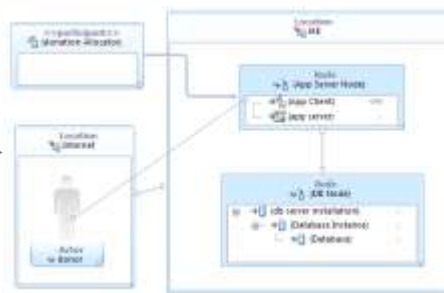


# Deployment Planning

*Successful deployments through improved communication*

Solution architect creates application topology specifying components, dependencies, and deployment requirements.

Deployment engineer collaborates with architect on topology using Design Manager.



**Solution Architect**

Rational Software Architect

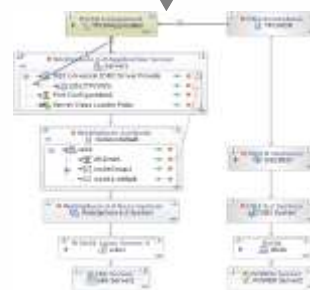


**Deployment Engineer**

Rational Software Architect

Discover existing infrastructure from Tivoli Application Dependency Discovery Manager (TADDM) and plan data center changes!

Deployment engineer creates deployment topology and binds application topology to it.

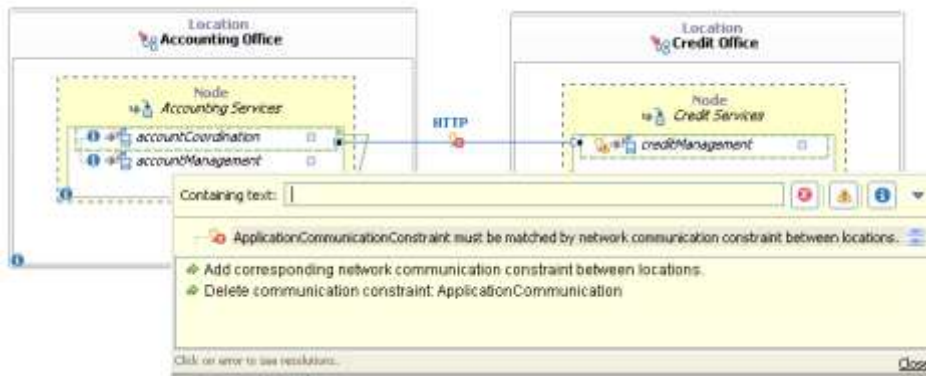
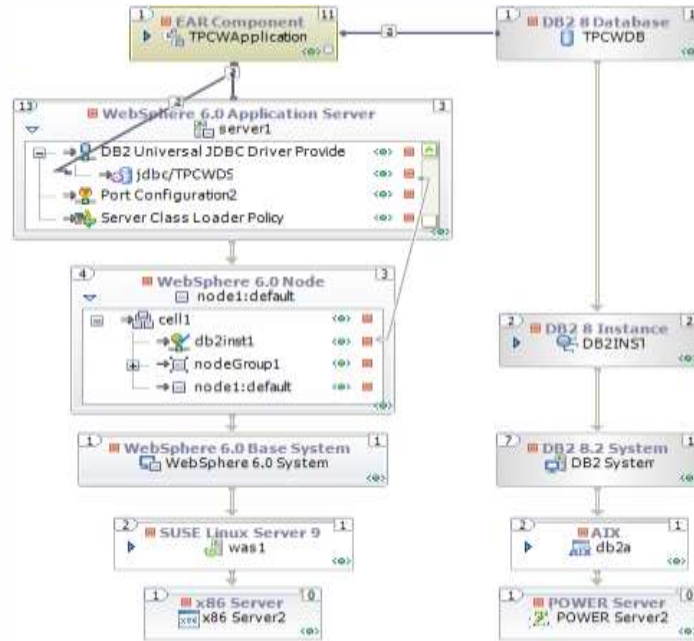


# Tools to Help

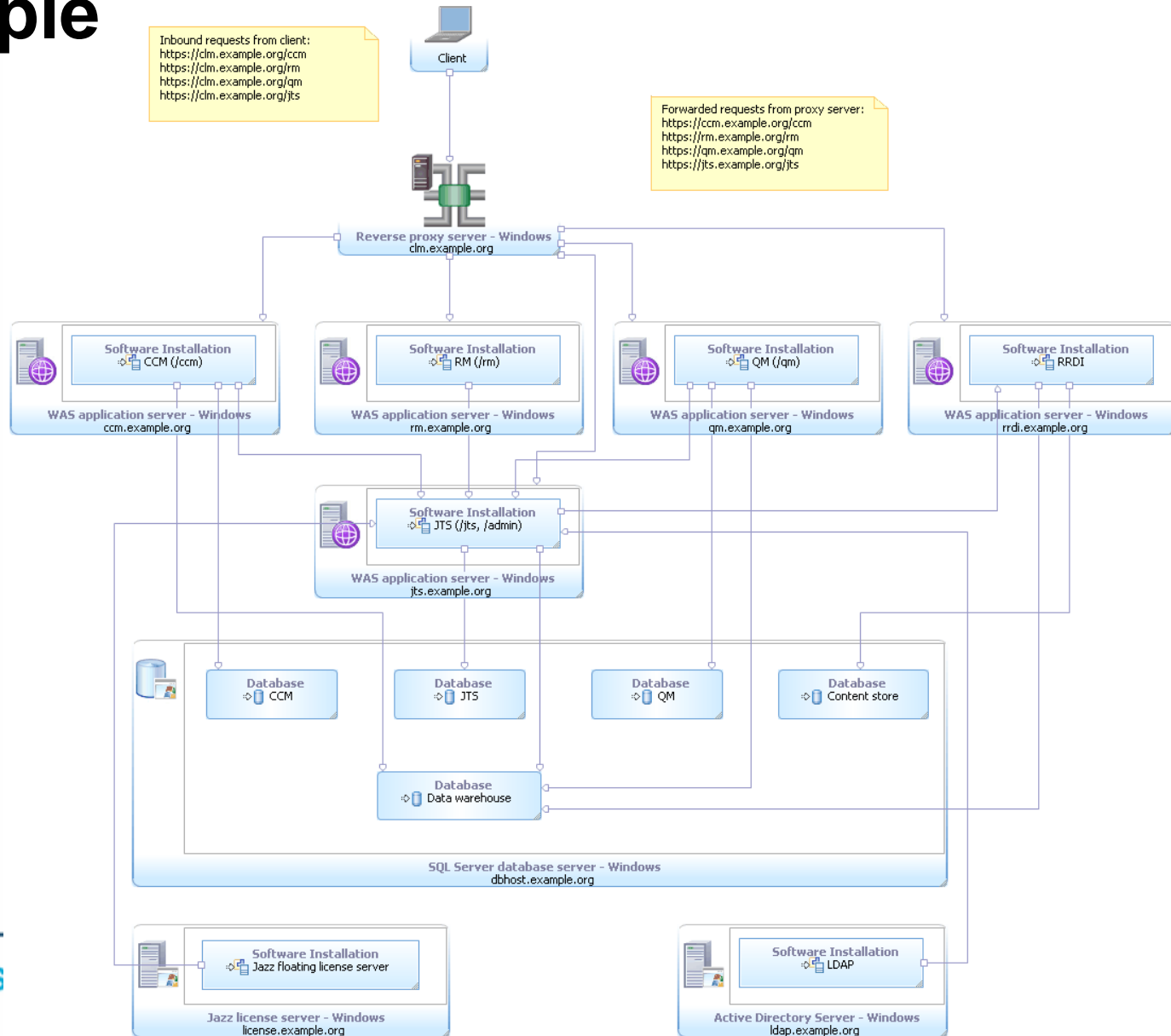
20+ domains out of the box with ability to add customized technology domains

Rich visual editing + property views to capture details and constraints.

Continuous validation ensures deployment environment matches application requirements



# Collaborative Lifecycle Management Example

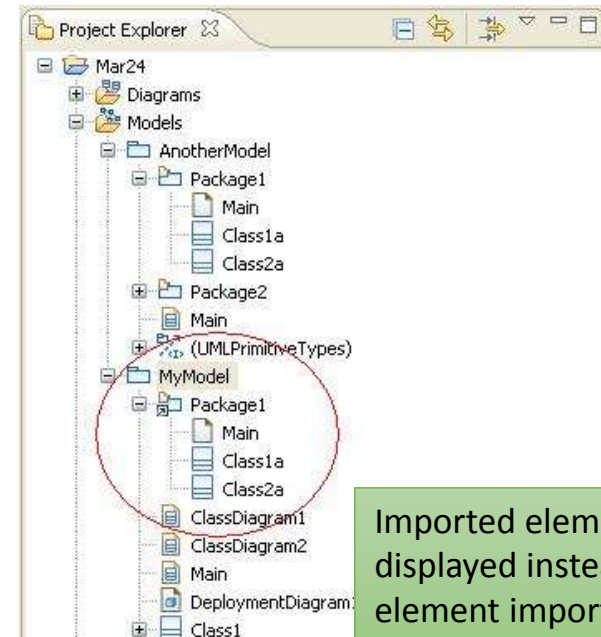
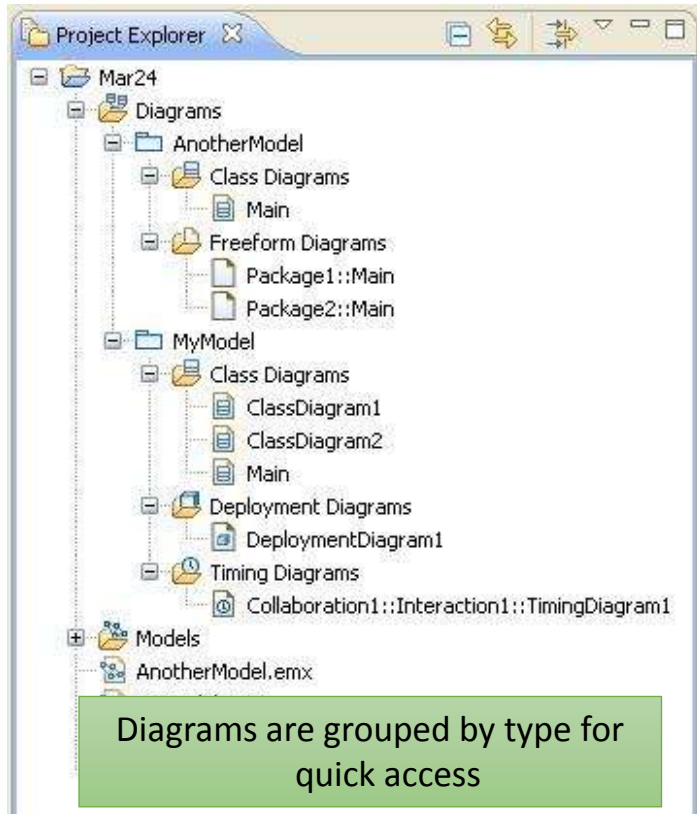




# Outline

- Sketch | Collaborate | Iterate
- Designing for the Web
- Get your stuff deployed [correctly]
- **Being productive**
- Q&A (but don't wait until the end)

# Project Explorer & Navigation



# Pop up Property Dialogs

The screenshot shows the Rational Software Architect interface. The main window displays a WSDL diagram with several elements: «ServiceInterface, WSDL» Donation Management (Accept Funds), «WSDL» Dividend Allocation (Allocate Dividends to Cause), and «ServiceInterface» Dividend Allocation (Allocate Dividends to Cause). A pop-up dialog is open over the «WSDL» Dividend Allocation element, showing its properties: Name (Dividend Allocation), Visibility (Public), Abstract (unchecked), Leaf (unchecked), and Repository (Resource Number: 198). A green callout box points to the dialog with the text: "Handy when working in full screen editing mode – select item and press Alt + Enter to get access to all properties!". The bottom status bar shows "Not connected" and "<No Current Work>".

- Element properties available through a pop-up dialog in addition to properties view
- Available from diagrams and Project Explorer
- Alt + Enter keyboard shortcut

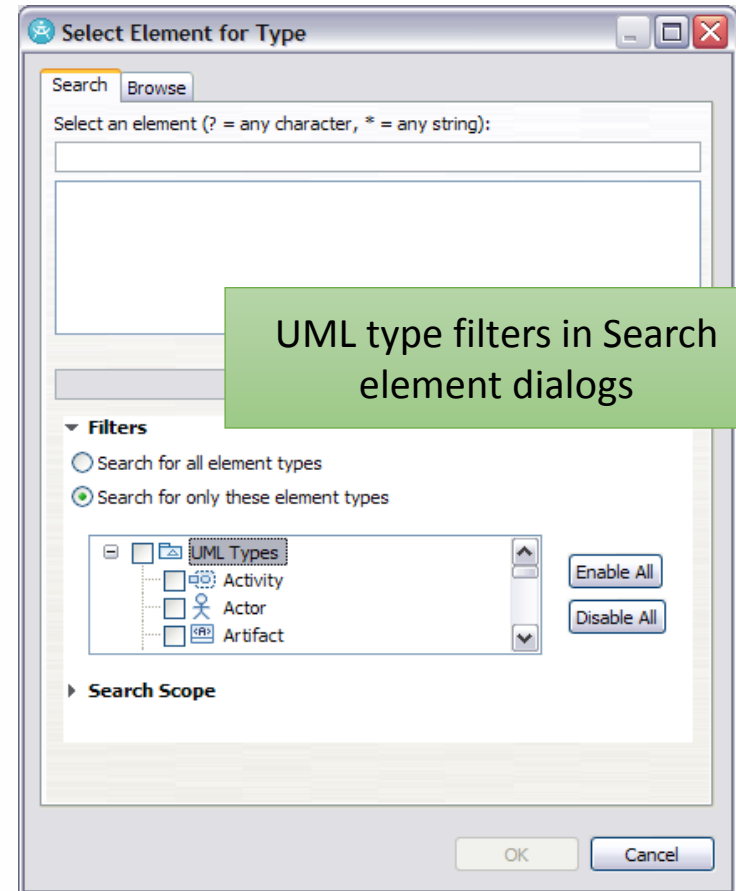
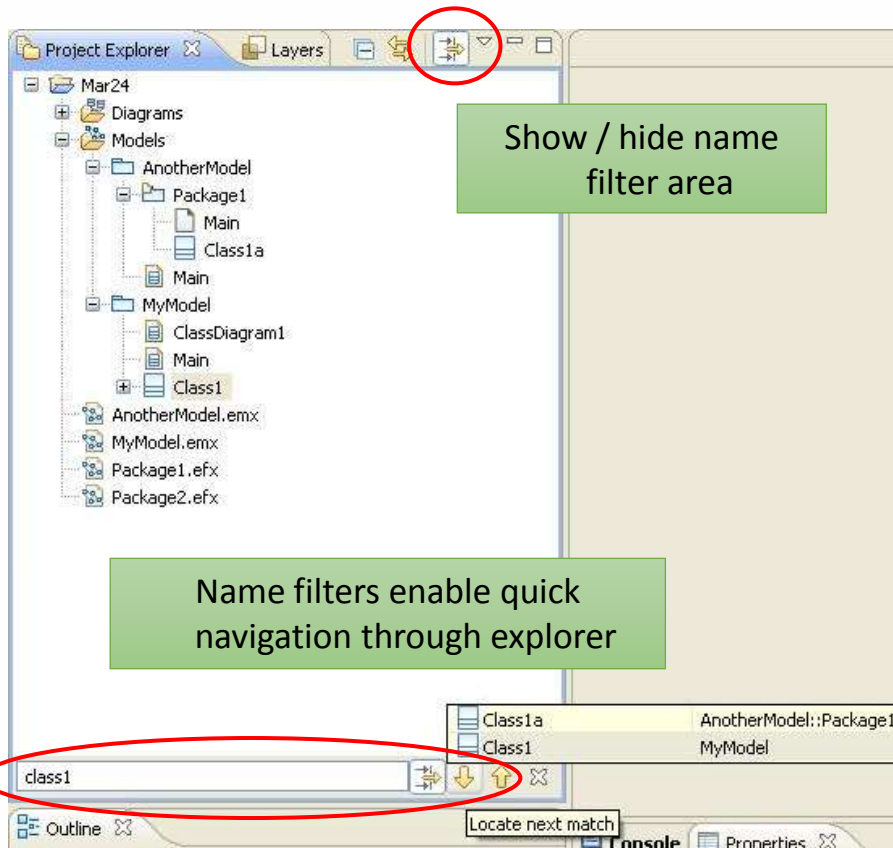
# Find What You're Looking For

The screenshot shows the Rational Software Architect interface with a search dialog open. The search string is 'util' and the scope is 'Reservations Working Set'. The search results are displayed in a table below the dialog.

Location	Match	Long name	Type	Resource
Workspace	CommonUtil	Central System::Common::CommonUtil	Class	/Reservations/Blank Pac
Workspace	Util	Central System::Common::Util	Class	/Reservations/Blank Pac
Referer	UtilDiagram	Central System::Common::UtilDiagram	Shape on diagram	/Reservations/Blank Pac
Workspace	Util	Central System::Util	Class	/Reservations/Blank Pac

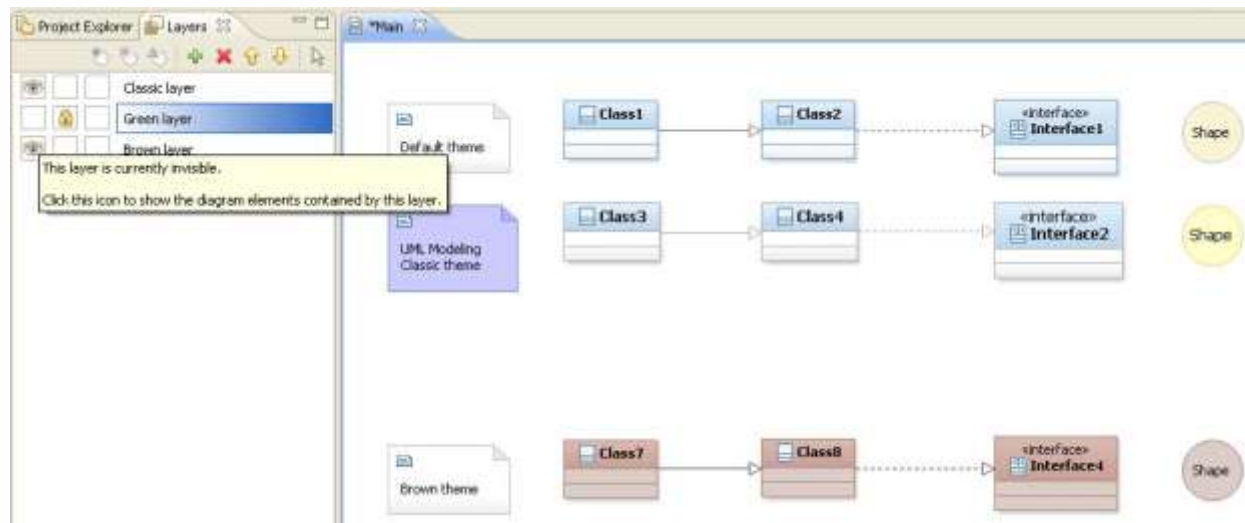
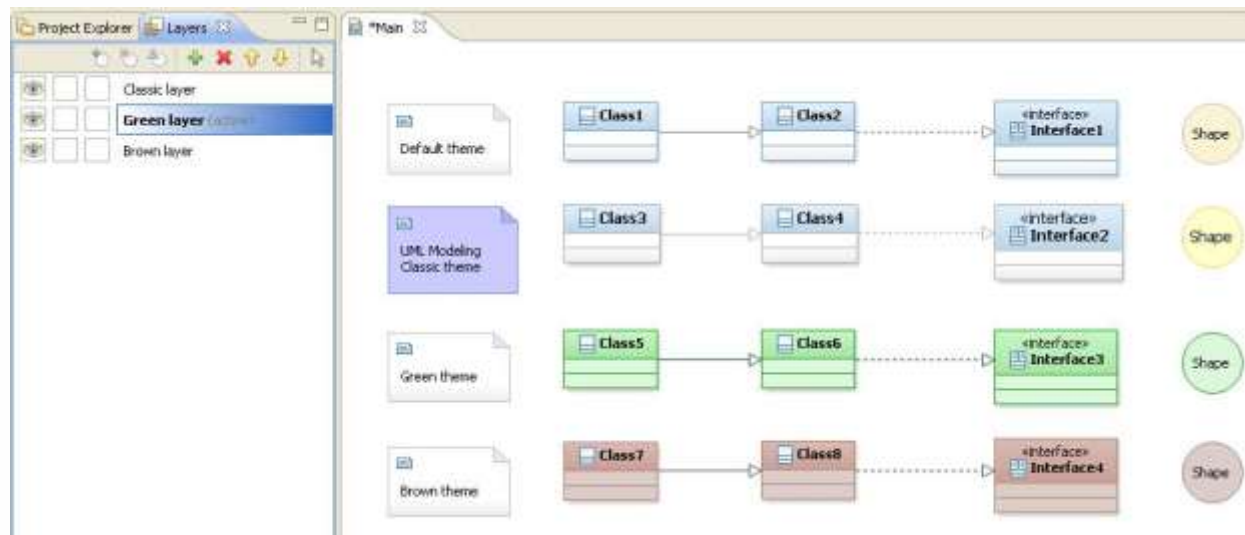
- Modified Date and Resource columns
- Expand results to show references
- Drag and drop search results onto diagram

# Find What You're Looking For



# Layers

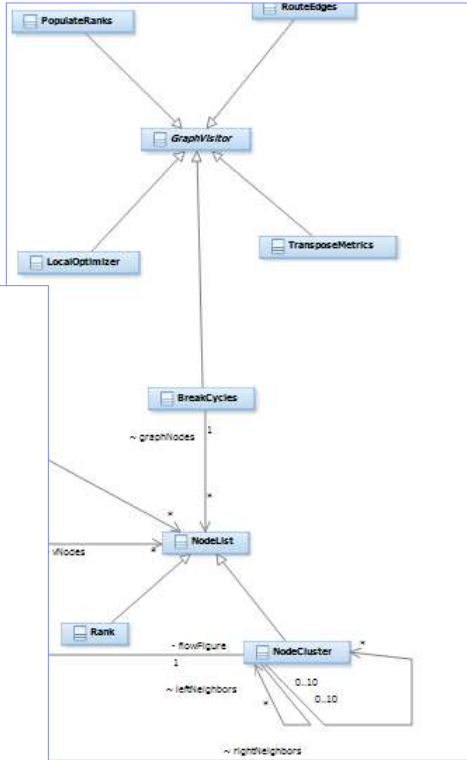
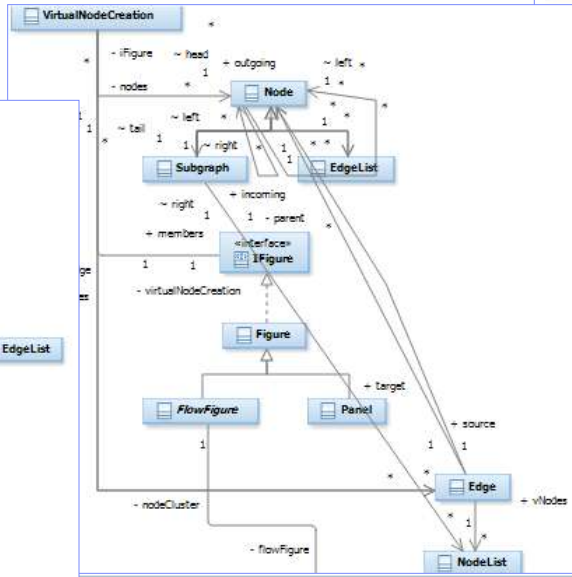
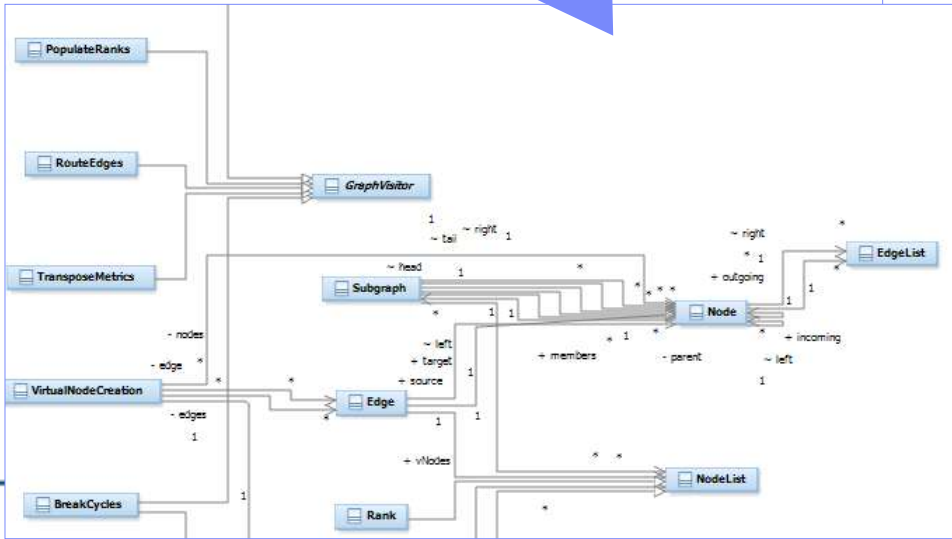
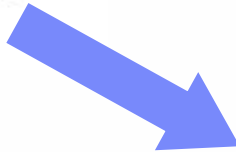
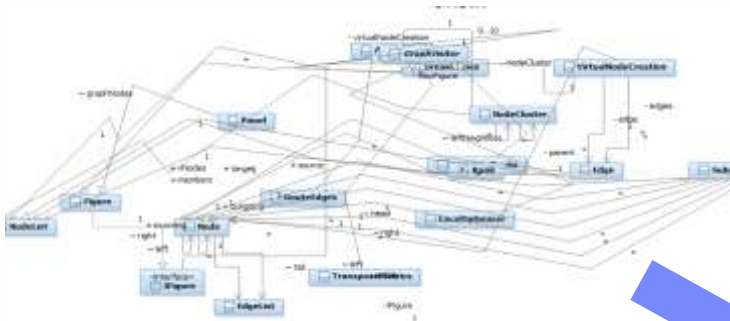
- Show/hide layers to simplify diagrams without deleting elements or creating new diagrams
- Locking / unlocking layers to prevent editing
- Selecting all elements on layer quickly
- Reordering layers to reorder the z-order of shapes



# Enhanced diagram layout

*Incorporated IBM ILOG JViews Graph Layout for Eclipse*

15 graph layouts,  
7 link layouts,  
& label layout



# Summary

Rational Software Architect is...

... more than just UML (although it has that too)

... connected into Jazz

... easier to use & more productive than every.

Rethink the way you use RSA!



# Questions

**Innovate2013**  
The IBM Technical Summit



# Acknowledgements and

**Availability:** References in this presentation to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates.

The workshops, sessions and materials have been prepared by IBM or the session speakers and reflect their own views. They are provided for informational purposes only, and are neither intended to, nor shall have the effect of being, legal or other guidance or advice to any participant. While efforts were made to verify the completeness and accuracy of the information contained in this presentation, it is provided AS-IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, this presentation or any other materials. Nothing contained in this presentation is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software.

All customer examples described are presented as illustrations of how those customers have used IBM products and the results they may have achieved. Actual environmental costs and performance characteristics may vary by customer. Nothing contained in these materials is intended to, nor shall have the effect of, stating or implying that any activities undertaken by you will result in any specific sales, revenue growth or other results.

© Copyright IBM Corporation 2013. All rights reserved.

– U.S. Government Users Restricted Rights - Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

IBM, the IBM logo, ibm.com, Rational, the Rational logo, Telelogic, the Telelogic logo, Green Hat, the Green Hat logo, and other IBM products and services are trademarks or registered trademarks of International Business Machines Corporation in the United States, other countries, or both. If these and other IBM trademarked terms are marked on their first occurrence in this information with a trademark symbol (® or ™), these symbols indicate U.S. registered or common law trademarks owned by IBM at the time this information was published. Such trademarks may also be registered or common law trademarks in other countries. A current list of IBM trademarks is available on the Web at “Copyright and trademark information” at [www.ibm.com/legal/copytrade.shtml](http://www.ibm.com/legal/copytrade.shtml)

Other company, product, or service names may be trademarks or service marks of others.

# Thank You

© Copyright IBM Corporation 2013. All rights reserved. The information contained in these materials is provided for informational purposes only, and is provided AS IS without warranty of any kind, express or implied. IBM shall not be responsible for any damages arising out of the use of, or otherwise related to, these materials. Nothing contained in these materials is intended to, nor shall have the effect of, creating any warranties or representations from IBM or its suppliers or licensors, or altering the terms and conditions of the applicable license agreement governing the use of IBM software. References in these materials to IBM products, programs, or services do not imply that they will be available in all countries in which IBM operates. Product release dates and/or capabilities referenced in these materials may change at any time at IBM's sole discretion based on market opportunities or other factors, and are not intended to be a commitment to future product or feature availability in any way. IBM, the IBM logo, Rational, the Rational logo, Telelogic, the Telelogic logo, and other IBM products and services are trademarks of the International Business Machines Corporation, in the United States, other countries or both. Other company, product, or service names may be trademarks or service marks of others.

**Innovate2013**  
The IBM Technical Summit

