

IBM Innovate 2011 Modeling & Architecture Kickoff

Daniel Leroux
IBM Distinguished Engineer – Rational Architecture, Asset
and Design Management

IBM Software

Innovate2011

The Premier Event for Software and Systems Innovation

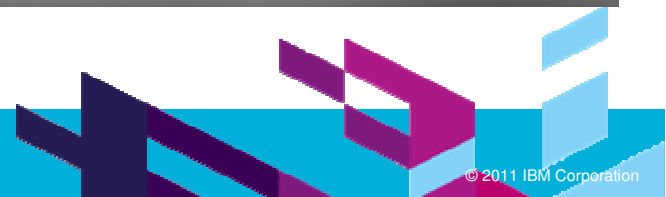


Software. Everywhere.

June 5–9 Orlando, Florida



Welcome



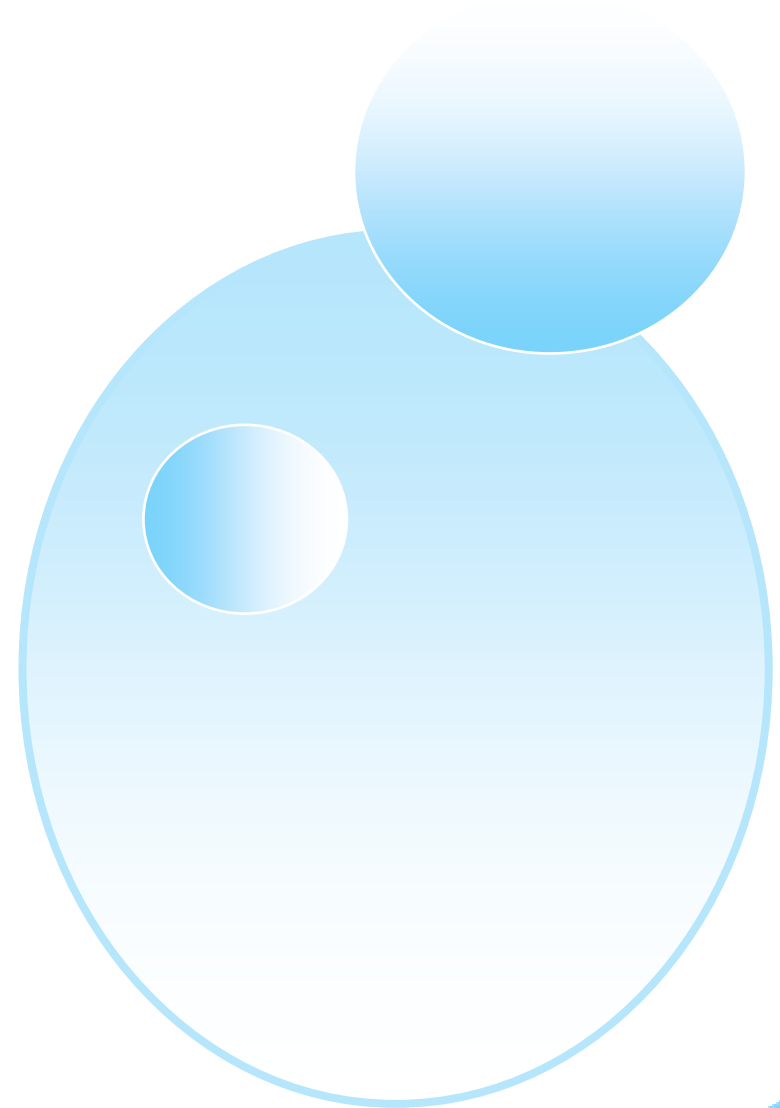
Please Note:

IBM's statements regarding its plans, directions, and intent are subject to change or withdrawal 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.

Agenda

- Rational Software Architect and Rational Rhapsody 2010/2011 Highlights
- Complexity
- Collaborative Design Management
 - ▶ Demonstration
 - ▶ Early customer feedback
- A look to the future
- Q & A



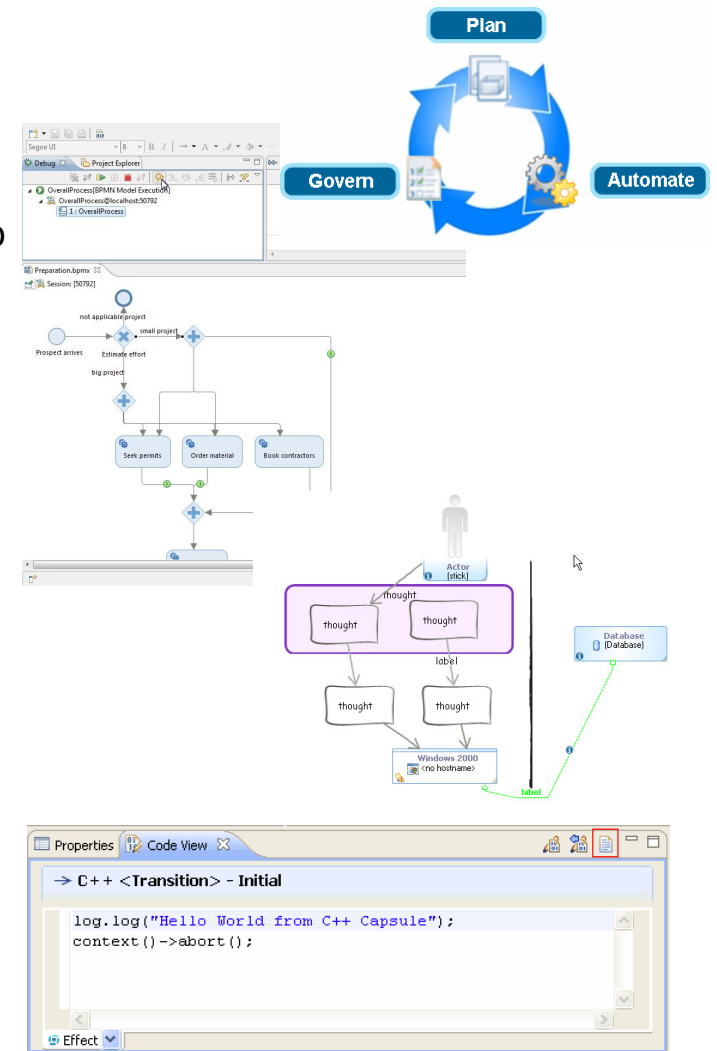
Rational Software Architect 2010/2011 Highlights (8.0-8.0.4)

▪ Rational Software Architect

- ▶ **Agile Sketcher**
- ▶ **Model Animation and Execution**
- ▶ Introduced service specification and development tools aligned to **Rational SOMA 2.9** guidance
- ▶ Create and design **services based on REST** architectural style
- ▶ Modeling JEE applications using Apache **Struts Framework**
- ▶ **Deployment Planning and Automation** and automation content pack for WAS
- ▶ RSA **Jazz** enablement via **RSA Design Manager**

▪ Rational Software Architect Real-Time Edition

- ▶ **Performance improvements** for very large real-time models
- ▶ Model Animation and **Execution support for UAL** (UML Action Language)
- ▶ **Improved Code Viewers** and better support for long code snippets
- ▶ Improvements to **Rose RT Importer** for diagram layouts
- ▶ RSA RTE **Jazz** enablement via **RSA Design Manager**



Rational Rhapsody 2010/2011 Highlights

Rational Rhapsody 7.5.2

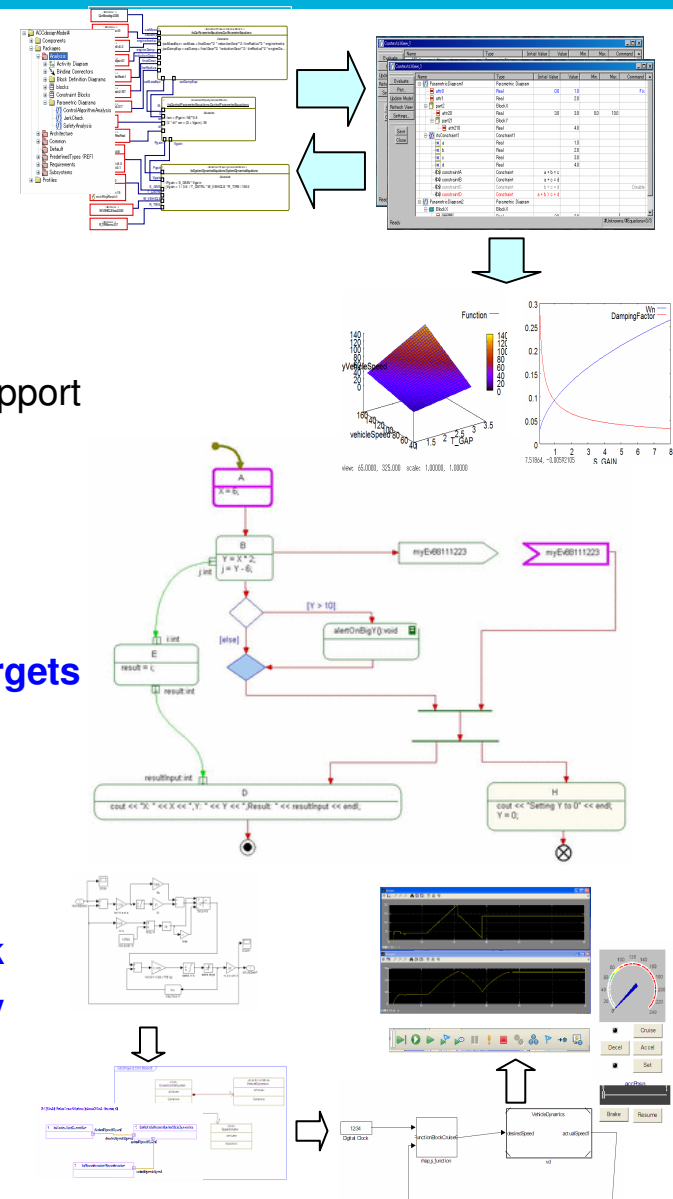
- Trade off analysis via **parametric diagram constraint evaluation**
- Automation and analysis for designs targeting **multi-core** and **C#** support
- Support for **Android**, **DDS** and **DoDAF 2.0**

Rational Rhapsody 7.5.3

- Token based activity diagram simulation**
- Enhanced software development **optimizations for constrained targets**
- Support for **AUTOSAR 4.0**
- Extended Model Driven **Testing for source code**

Introducing Rational Rhapsody 7.6

- Dynamic analysis via **co-simulation with The Mathworks Simulink**
- Software development enhancements for **high reliability** and **safety critical** systems and **automotive development**
- Support for **ARINC 653** and **AUTOSAR** process integration
- Rhapsody **Jazz** enablement via **Rhapsody Design Manager**



General Motors leverages Rational tools to develop innovative products *IBM helps GM develop smarter products like the Chevrolet Volt*



What's smart?

- Innovative electric drive system uses software and electronics to control interaction of electric motors and gasoline engine
 - “System of systems” seamlessly integrates electric drive system with powertrain and body controllers
 - >10 million lines of code in car; ~100 microprocessors

Smarter business outcomes

- Smarter products delivered in less time
 - Volt was designed & engineered in 29 months, compared to typical 5-10 year cycle for new powertrain technology

How IBM is helping GM develop smarter products

- Rational DOORS for requirements management
- Rational Rhapsody for model-driven development
- Rational Team Concert for team collaboration
- Rational Asset Manager for engineering asset management
- Rational Professional Services for technical services
- IBM Global Services for business transformation services



“The IBM Rational platform enables our globally distributed teams to collaborate in real time to develop innovative software and electronics for our vehicles. GM’s use of the Rational platform will deliver business results in efficiency, time-to-market, quality, and overall customer satisfaction.”

Eric Gassenfeit - Global Director, Electrical, Controls & Software Development, General Motors

[Link to “Volt for a Smarter Planet” video on YouTube](http://www.youtube.com/watch?v=CjjASGV36mw)
<http://www.youtube.com/watch?v=CjjASGV36mw>

IBM Global Account

Delivering software solutions at the speed of business

What's smart?

- Enabling large-scale, geographically distributed teams to work more efficiently
- Simplify design-develop-test cycles by empowering developers, and giving visibility to management

Smarter business outcomes

- 3,000 hrs saved on large-scale application for vendor and contract management
- Over \$100K cost savings due to reduced time lines, tool guidance and development accelerators

How Rational enables smarter products

- Model simulation and traceability, impact analysis, transformations and code generation
- Built-in test environments, integrations with requirements, code and quality management



“RSA has improved the development process and efficiency, along with its support for testing and code packaging, and its RTC integrations make defect management, task assignment, and version control very easy.”

iPLON

Smarter solar power solutions

What's smart?

- Remote management and control of photovoltaic systems
- Collection and analysis of power consumption data

Smarter business outcomes

- Savings of approximately €10,000 per product due to 25% defect reduction
- Reduced development time for a new product line by 60% (five months down to two months)

How Rational enables smarter products

- Model driven development to accelerate reuse of subsystems and software
- Model driven testing to improve quality and reduce product development cost

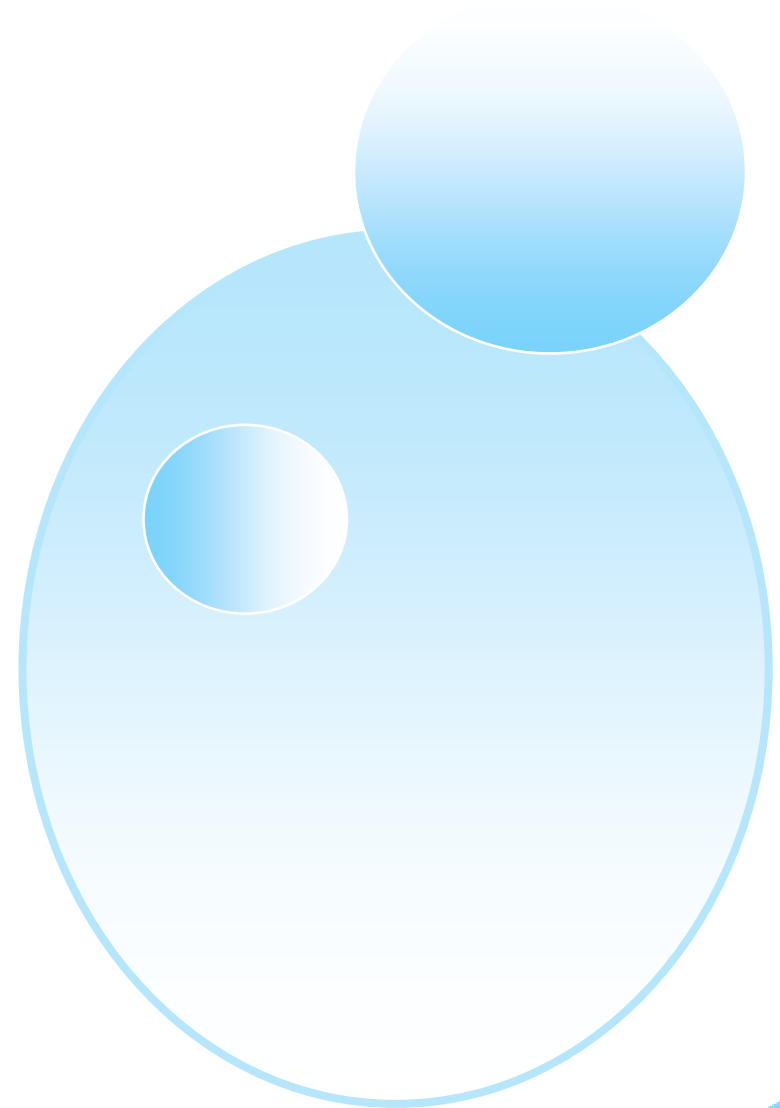
Think Rational

One of many ways Rational enables a smarter planet.

“Rational Rhapsody enables our system engineers and software developers to improve productivity, quality and communication by abstracting complex designs graphically, automating the development process and finding defects early.”

Agenda

- Rational Software Architect and Rational Rhapsody 2010/2011 Highlights
- Complexity
- Collaborative Design Management
 - ▶ Demonstration
 - ▶ Early customer feedback
- A look to the future
- Q & A

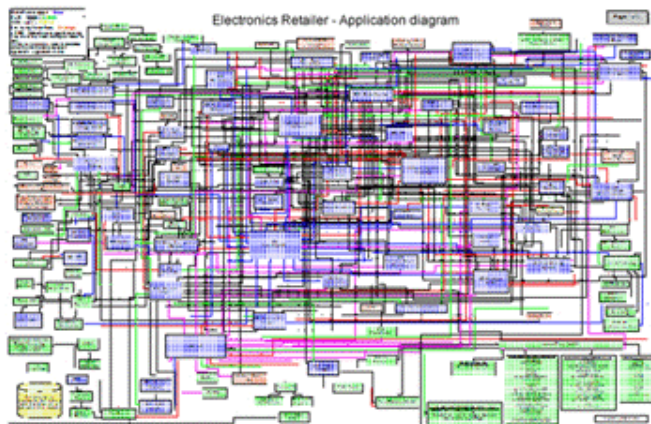


Complexity is the biggest challenge facing organizations today!

“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.

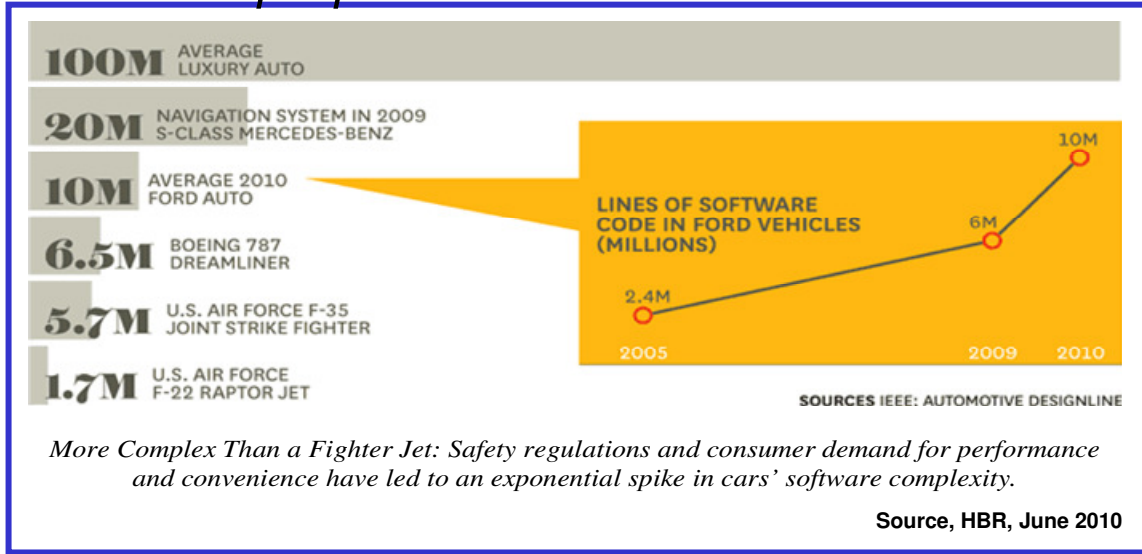


Organizations struggle to balance agility and complexity.

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

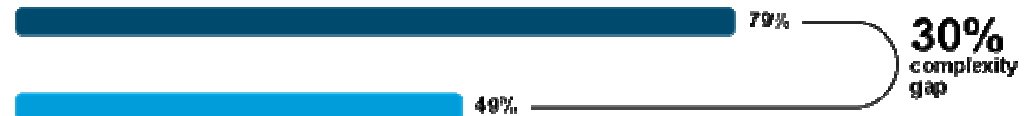
Introduction of software brings complexity

Yet few are prepared to handle it



8 in 10

CEOs anticipate significant complexity ahead.



1/2

Feel prepared to handle it

Source: 2010 IBM CEO Study

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

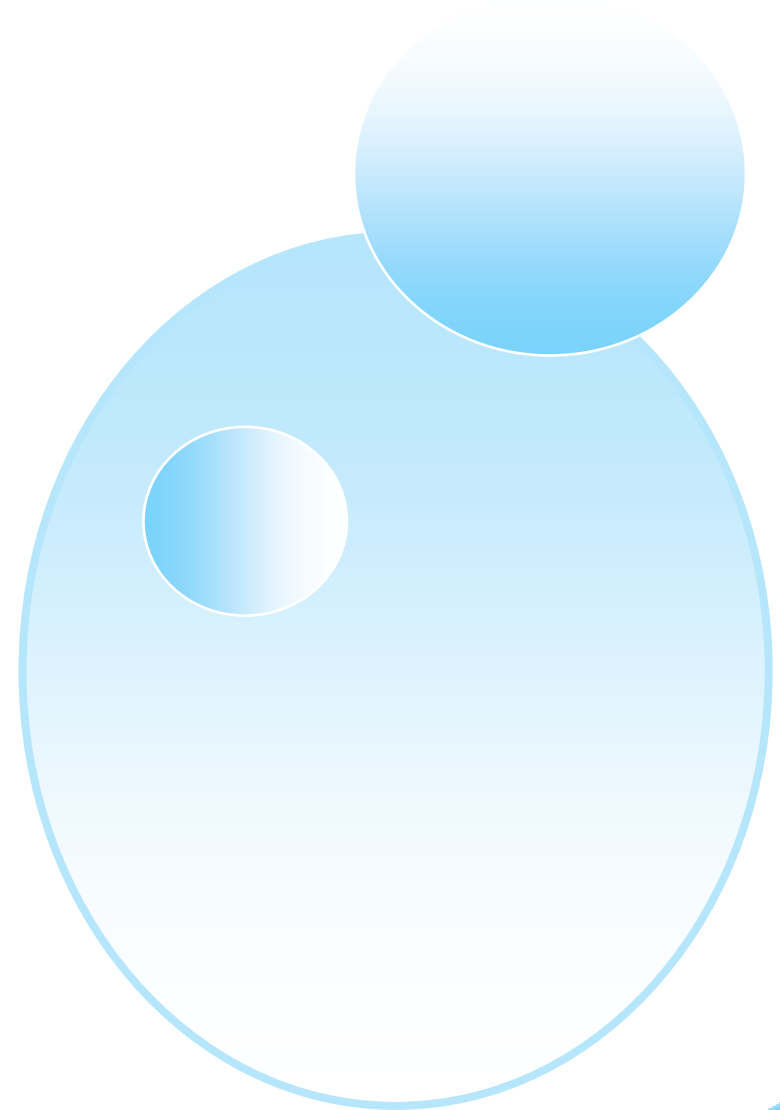
X is a normalized unit of cost and can be expressed in terms of person-hours, dollars, etc.

■ 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

Agenda

- Rational Software Architect and Rational Rhapsody 2010/2011 Highlights
- Complexity
- Collaborative Design Management
 - ▶ Demonstration
 - ▶ Early customer feedback
- A look to the future
- Q & A



Collaborative Design Management

Engaging teams around the lifecycle

Engage all stakeholders in the design process

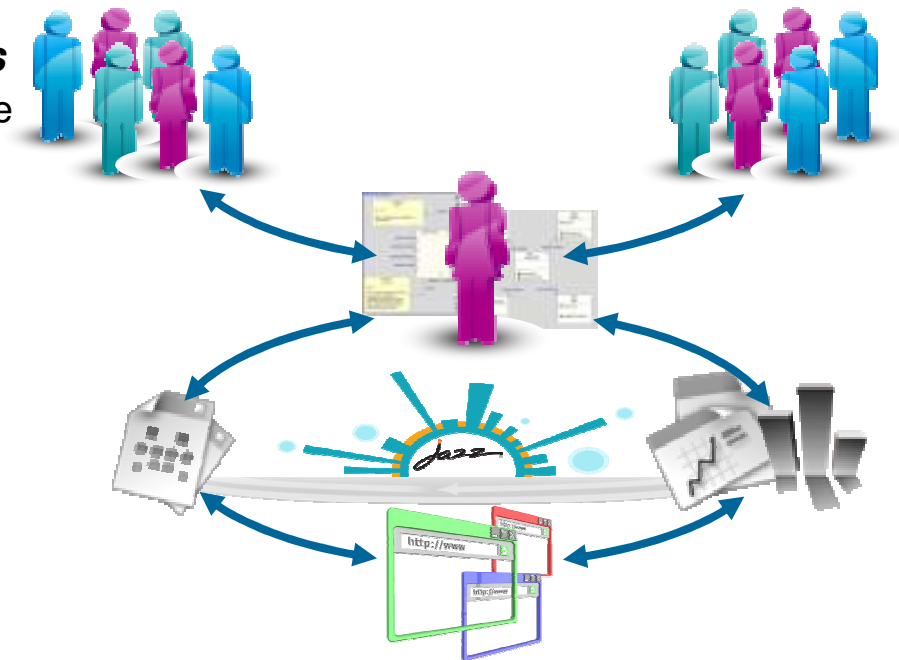
- ✓ Stakeholders better understand how their efforts relate to the overall design
- ✓ Quality is improved through automated reviews and team-wide trace analysis

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

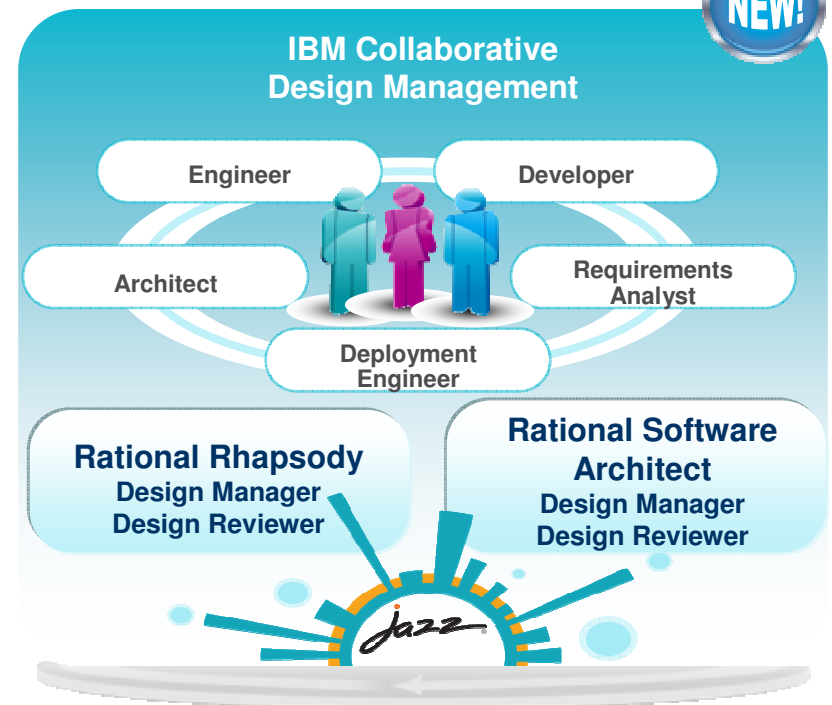
- ✓ Enterprise-wide design storage for search, review, analysis, and reuse
- ✓ Links design elements to lifecycle artifacts
- ✓ Navigate and visualize relationships

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

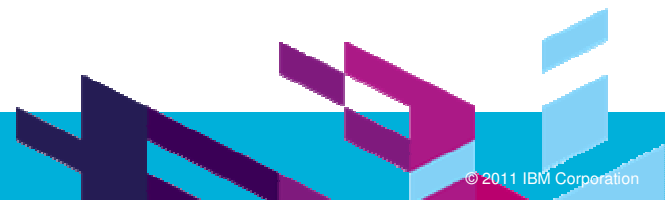


"The ability to review and comment on models from the Web client encourages feedback from a wide array of stakeholders... leading to faster consensus and improved quality of solution designs."

– Lars Tufvesson, Sellegi

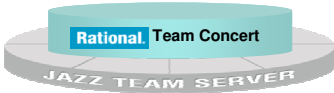


www.ibm.com/software/rational



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		✓

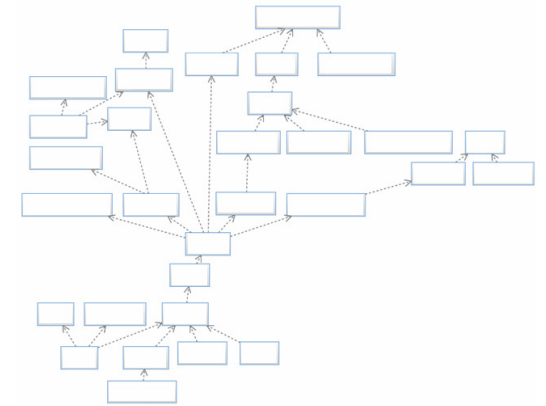
**Design Reviewer and Design Manger roles are available in both Rational Software Architect Design Manager and Rhapsody Design Manager.*

Let's hear from some early users !



Sellegi Technologies on CDM

- Sellegi adapts RSA for use in large-scale projects
 - ▶ Customer-specific code generation
 - ▶ ACT, an add-on for RSA, for project modeling (CS-1166A)
 - ▶ Using CDM beta since early 2010
- What Sellegi likes about CDM
 - ▶ Review & comment models from any web browser
 - ▶ Transparency & choice
- What Sellegi would like to see added to CDM
 - ▶ Additional possibilities for adapting CDM to existing review processes
- CDM adds value
 - ▶ Quick feedback on recent model changes
 - ▶ Feedback from new sources
- CDM saves money
 - ▶ Reviews are easier to do
 - ▶ Exact savings varies from project to project



Sellegi

www.sellegi.se

SODIUS on CDM

- SODIUS improves the engineering processes for designing complex systems
 - ▶ Integration of 3rd party applications into Jazz
 - ▶ Rules-based code and document generation
- What SodiUS likes about CDM
 - ▶ Ability to share architectural models online via a web browser
 - ▶ Review and comment on model changes in a collaborative environment
 - ▶ Comments are directly linked and visible with model elements
- CDM value-added
 - ▶ Centralized location for design information
 - ▶ Always synchronized review information with the design
 - ▶ Works well in a team environment, instant notification of model changes
 - ▶ Low footprint for client installation
- What SodiUS would like to see
 - ▶ SDK to open up the publishing of third-party models into CDM
 - ▶ Ability to compare snapshots and generate review reports
 - ▶ Interfaces to existing review processes

sodiUS[®]
together. toward. today.

Our experiences thus far with Collaborative Design Management



Lifecycle Tools and Methodology Practice

- Optimizing project success for our customers with the best tools, teams, processes and practices. Leading partner at delivering successful WebSphere projects using Rational tools for success.
- Rational Software Architect is great for expressing powerful designs. Jazz tools optimize team velocity across the SDLC – but not for design!
- Invited to the Collaborative Design Management beta – a solution?
- Yes!: Automated publish ✓ Review tracking ✓ In-line feedback ✓ Tracing to requirements ✓ Linking to tasks ✓
- Value: 1. Designs are more “alive” 2. Sharing design takes no effort 3. Reviews take less effort 4. More certainty on coverage of design 5. More accessible for developers (and testers)
- Sharing news with our customers – a lot of interest!

ERICSSON on CDM

- > Brief Summary of Ericsson and the IBM tools used
 - Currently using RSA-RTE with Clearcase as version control system and SODA as document generator.
- > What Ericsson likes about Collaborative Design Management
 - Great tool for reviewing and publishing model based information.
 - No need for reviewers to have an RSA installation therefore allowing a wider audience to review model information.
 - Ability to pinpoint selected model elements for reviews
 - Scheduled imports makes it possible to keep the published content continuously up to date.

ERICSSON on CDM

- › What Ericsson would like to see added to CDM
 - Full support for RSA-RTE artifact (e.g. protocols..)
 - Improvements in filtering functions to improve usability:
 - Addition of review formality. Possibility to mark in a formal way that:
 - Usability improvements
 - Performance optimizations
- › What value does CDM provide to Ericsson?
 - Increased quality of specifications by improving the review quality of model based specifications.
 - Greatly simplified access to model based specifications by using web publishing

Early Customer Feedback

“The reviewing capability is exactly what I have been missing in a modeling tool for the last 10 years.”

“The ability to view Rhapsody models in a browser rather than requiring a Rhapsody client application is a significant capability.”

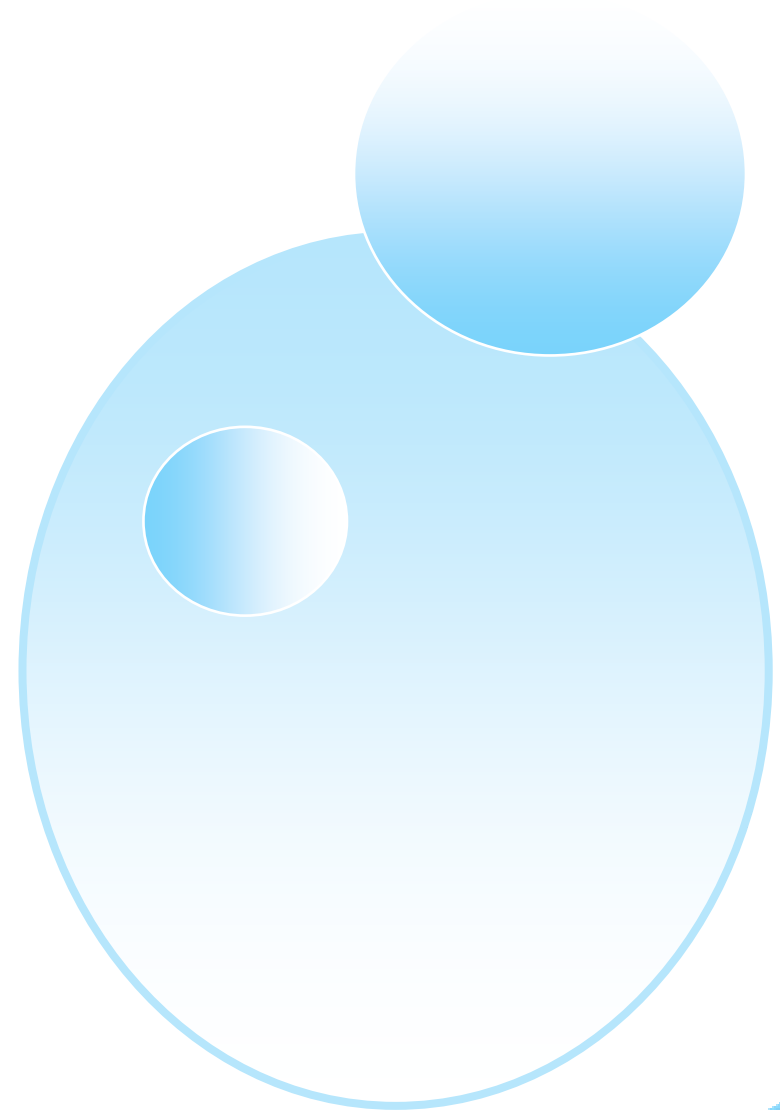
“The review part of RSA Design Manager increases the model review efficiency and quality.”

“For system engineering tasks the combined usage of Rhapsody and DOORS is essential for effective and coherent systems design. The introduction of the Collaborative Design Management based on the JAZZ technology is a valuable step to make this information available to the system design team, suppliers and customers.”

“Collaborative Design Management provides the capabilities needed to mature an organization’s IT assets by facilitating the sharing of information and ideas in a collaborative working environment.”

Agenda

- Rational Software Architect and Rational Rhapsody 2010/2011 Highlights
- Complexity
- Collaborative Design Management
 - ▶ Demonstration
 - ▶ Early customer feedback
- [A look to the future](#)
- Q & A



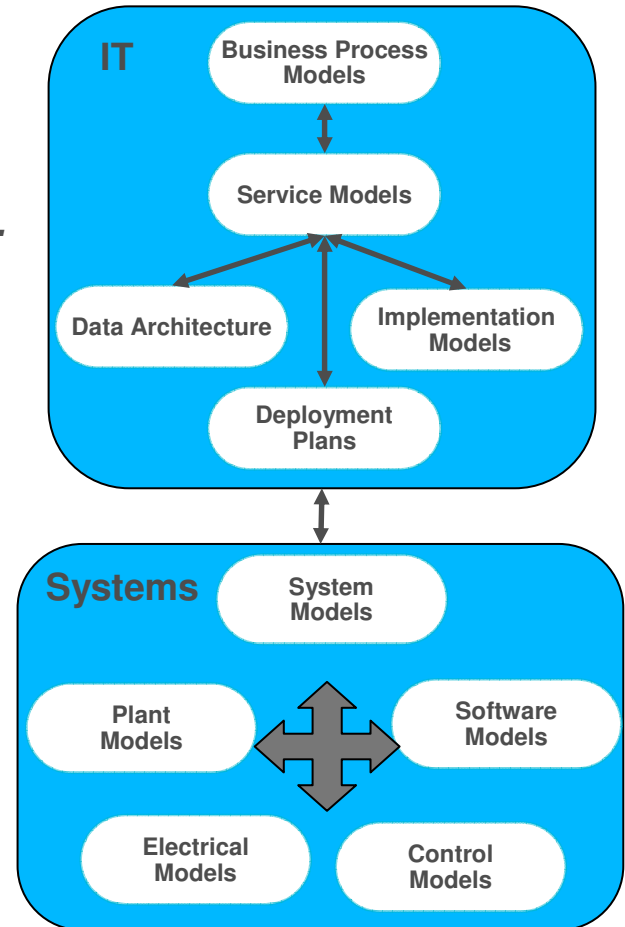
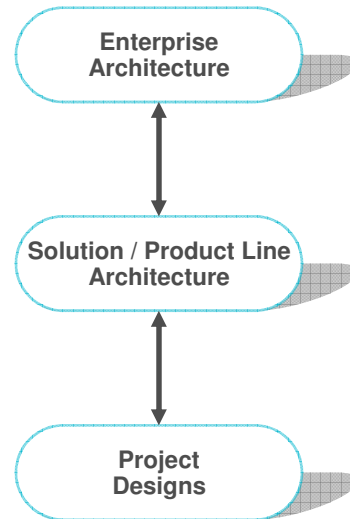
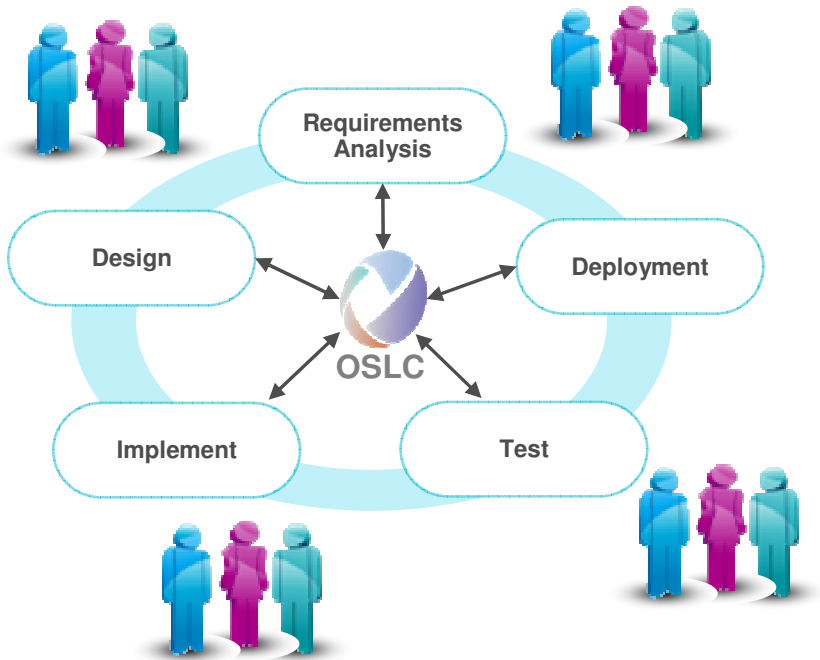
Collaborative Design Management Vision

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.

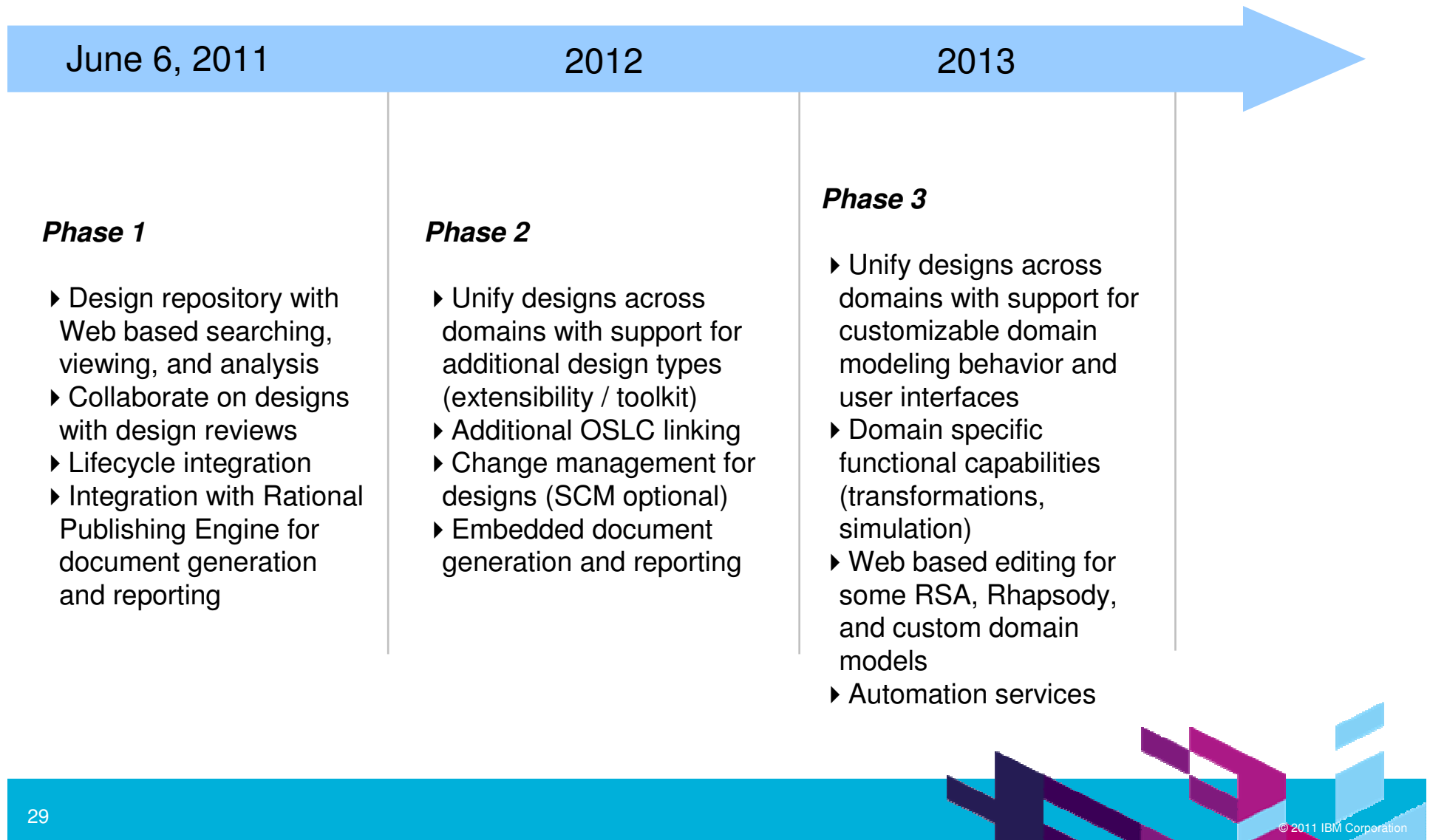
Get Involved on Jazz.net

jazz.net/projects/design-management

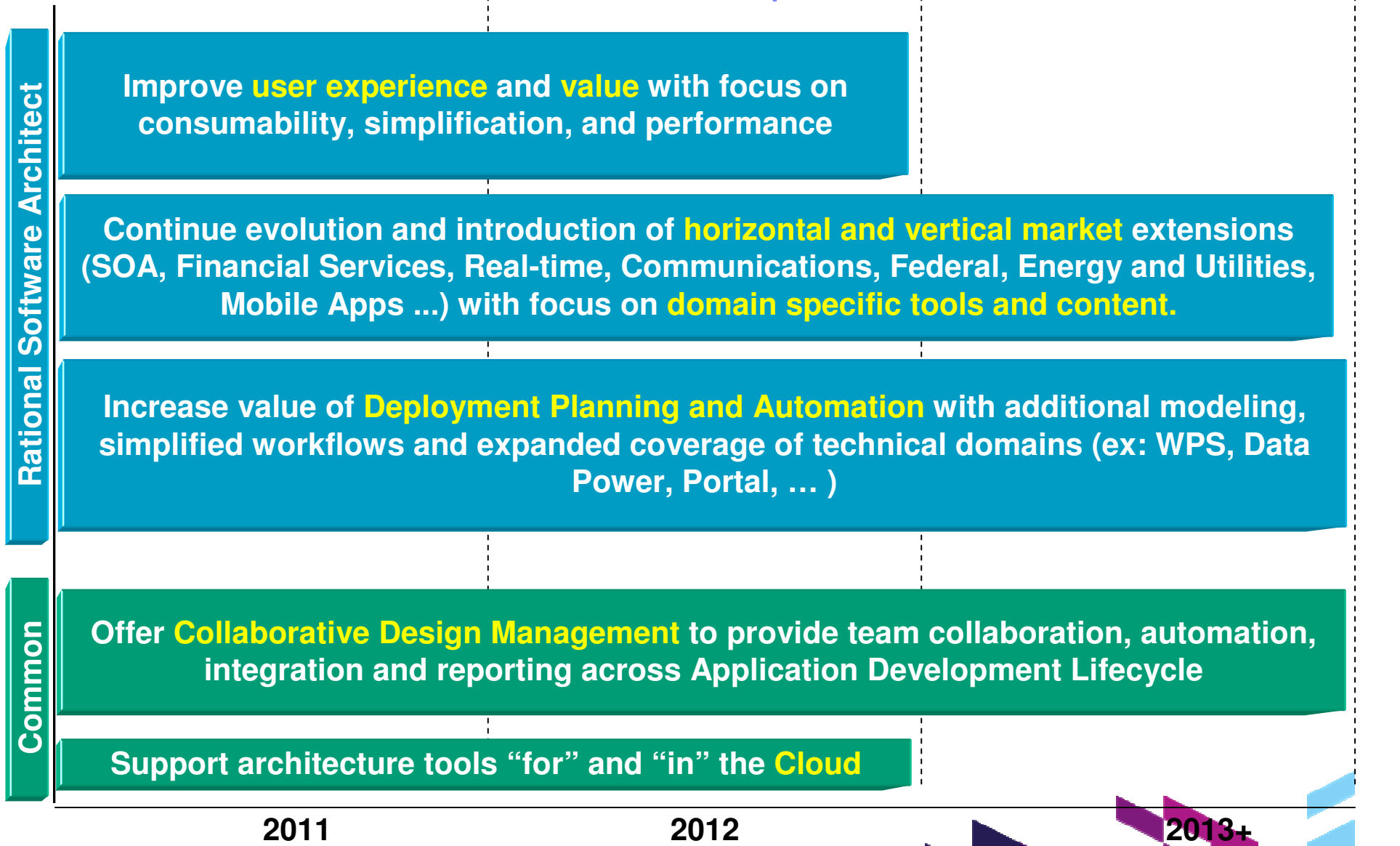
- Technology initiative to...
 - ✓ *Bring design management capabilities to Jazz*
 - ✓ *Provide a collection of design management services that can be used by any design tool*
 - ✓ *Involve the community in defining the services needed for design management*

- 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](#)

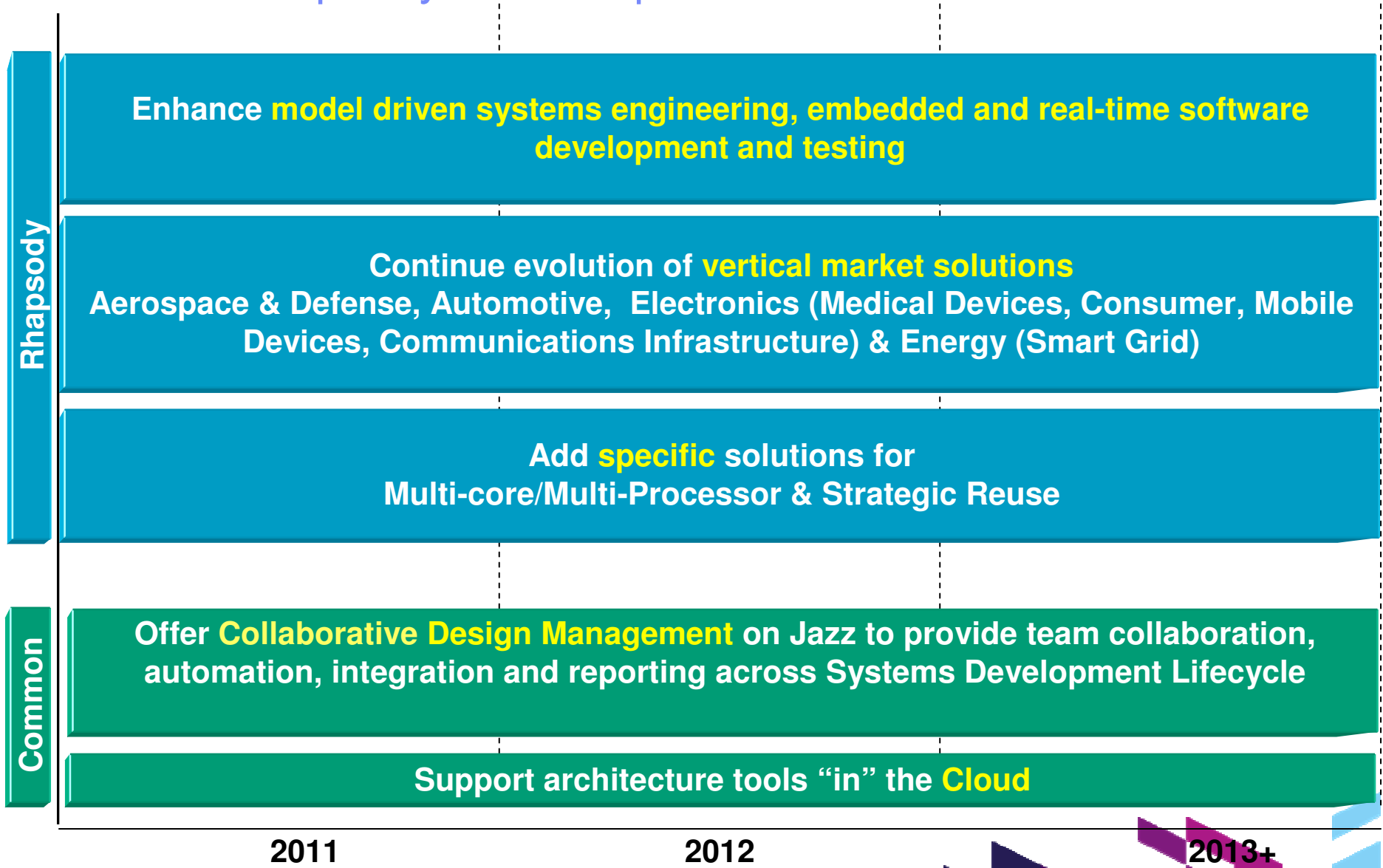
Collaborative Design Management Roadmap



Rational Software Architect roadmap themes

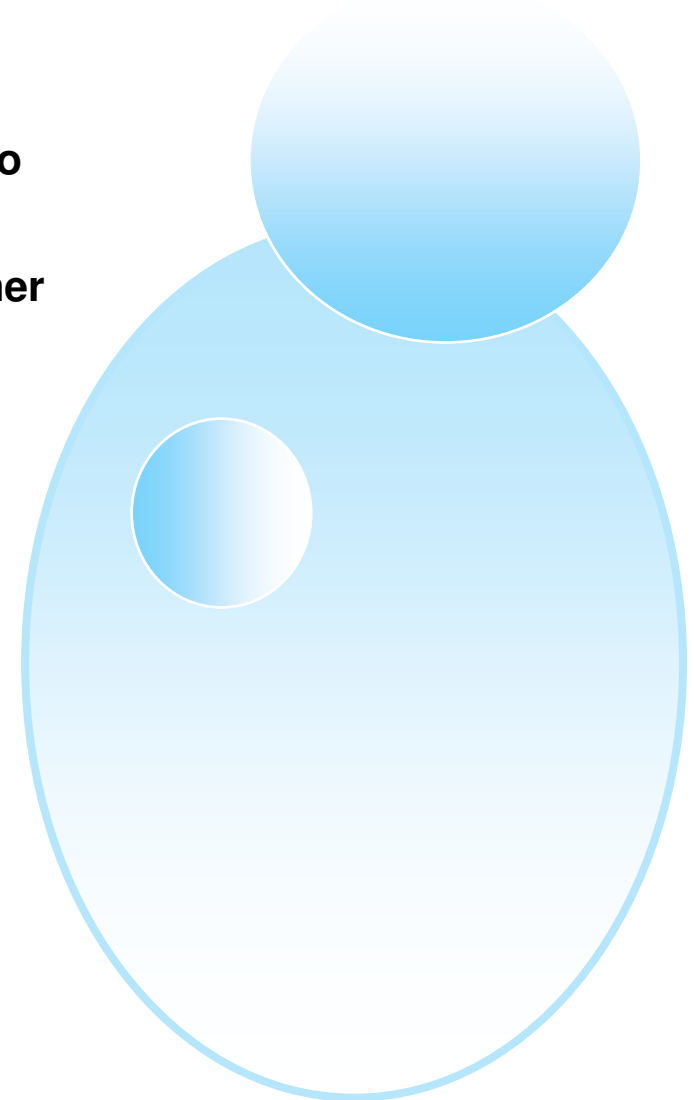


Rational Rhapsody Roadmap Themes



Summary

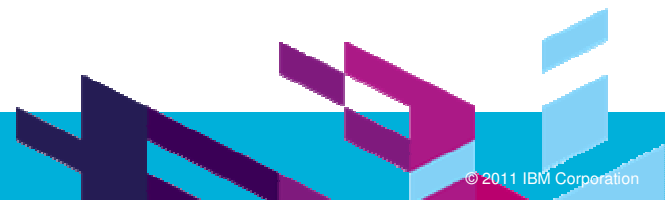
- **Complexity is increasing**
- **RSA and Rhapsody desktop solutions go a long way to addressing it**
- **Collaborative Design Management takes it a step further by allowing teams to collaborate on designs and integrating RSA and Rhapsody with the application lifecycle through Jazz and OSLC**
- **Improves agility and innovation, reduces risk**
- **Learn More**
 - ▶ **See RSA Design Manager and Rhapsody Design Manager in the Solution Center**
 - ▶ **Attend other MAC sessions**
 - **Collaborative Design Management using Rational Software Architect and Rhapsody**
 - **IBM Rational Software Architect sessions**
 - **Deployment Planning and Automation sessions**
 - **Rational Application Developer sessions**
 - **IBM Rational Rhapsody sessions in Systems track**



QUESTIONS



www.ibm.com/software/rational

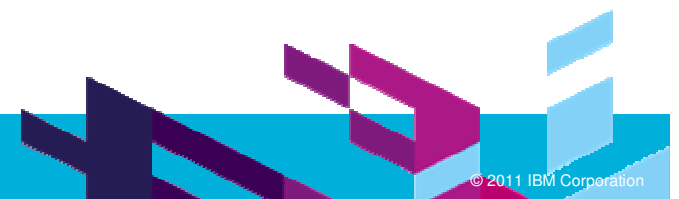


Daily iPod Touch giveaway

- Complete your session surveys online each day at a conference kiosk or on your Innovate 2011 Portal!
- Each day that you complete all of that day's session surveys, your name will be entered to win the daily IPOD touch!
- On Wednesday be sure to complete your full conference evaluation to receive your free conference t-shirt!

SPONSORED BY

AllianceTech
Intelligent EVENTS





www.ibm.com/software/rational

© Copyright IBM Corporation 2011. 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.