



IBM Rational Software Conference 2009  
As Real as It Gets!



## A Collaborative Requirements Definition and Management Solution

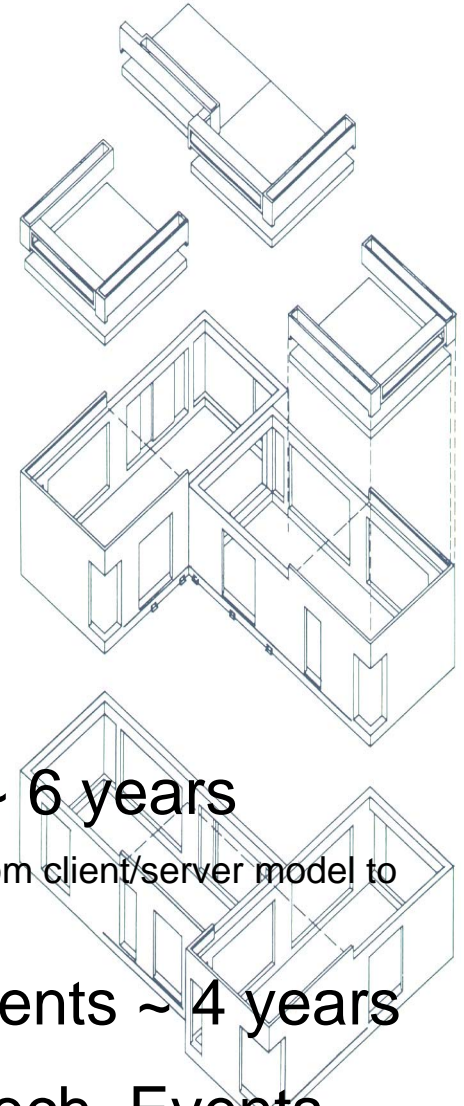
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**Rational.** software

**RDM09**

## About me...

- 22+ years in IBM
- Before that: Texas Highway Patrol ~ 7 years
  - ▶ Created DB of cases filed
  - ▶ Automated warrants procedure
- Operating Systems Development ~ 10 years
  - ▶ AS/400 / OS/400 System – Atlanta, Georgia
  - ▶ OS/2 Base Operating System – Boca Raton, Florida
  - ▶ OS/2 LAN & TCP/IP Networking – Austin, Texas
- Consultant / e-Business Solutions Designer ~ 6 years
  - ▶ Migration and transformation of client and business partner applications from client/server model to interconnected Web Applications built on Open Standards.
- Manager, developerWorks WW Technical Events ~ 4 years
- Today: Senior Manager, IBM Rational WW Tech. Events



## Agenda

- The Need to Improvise
- The Requirements Challenge
- IBM Rational Requirements Composer
- Large Systems and the Agile Challenge
- IBM Rational RequisitePro
- Throughout: Demos, Questions, Answers

## What We Need is Jazz

- “**Jazz**” a musical art form rooted in West African cultural and musical expression and in the African-American Blues tradition, with ***diverse influences over time***
- Jazz spawned subgenres, from New Orleans Dixieland (1910), to big band-swing (30’s), bebop (mid-40’s), Latin jazz ***fusions*** such as Afro-Cuban & Brazilian jazz (50’s, 60’s), then jazz-rock (70’s, 80’s).
- As Jazz spreads globally, it takes on flavors of the local & regional cultures. It ***adapts to its varied environments***; giving rise to many distinctive styles.



# Improvisation



- **Improvisational Jazz**
- **Improvisation:** The practice of making and creating, in the moment and in response to the stimulus of one's immediate environment...
  - ▶ Adaptations result in the invention of new thought patterns, new practices, new structures or symbols, and new behaviors.
- **Business improvisation** is the ability to access creativity in the moment, under pressure, and in the given environment in order to solve problems.
  - ▶ The practice necessary to achieve objectives despite unexpected events or changes.
- We need flexibility and creativity in order to succeed...

## Requirements Composition Challenges

- Do we know the true needs early in the project?
- Is the customer really 'signing-off' early on the final requirements?
- How do we determine priority?
- Where do we set the baseline?
- Do we understand the real business and technical risks?
- Does anyone ever read those 100+ page documents?



# Office Tools Exacerbate the Problem

## ■ Microsoft Word

- ▶ Track Changes, Comments, Formatting nightmares, HUGE documents

## ■ Excel spreadsheets for requirement sets

- ▶ Tabular format helps (at first) until the Tabs start to grow

## ■ Visio to model process, flows, screen designs

- ▶ Slightest change requires many manual updates to the same component

## ■ PowerPoint as communication vehicle

- ▶ Dozens of presentations to crawl through for information

## ■ No way to establish relationships and link artifacts

- ▶ Have to have endless meetings to put together the pieces

**Q:** *Have requirements evolved into what they are today in order to accommodate the functionality of the tools that are being used to represent them?*



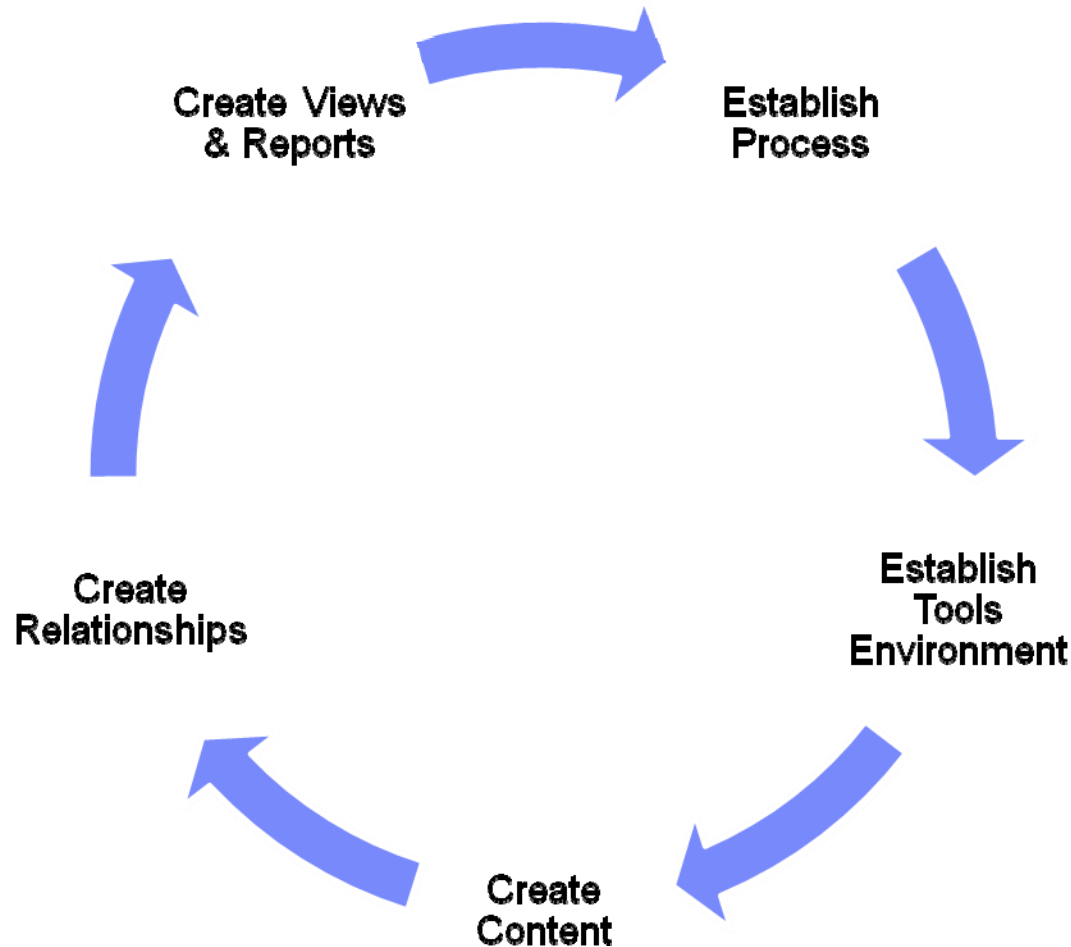
## Introducing Requirements Composer

- Music to my ears!
- A bridge across the tool silos
- Effortless communication and collaboration across project teams
- All requirements artifacts can live in the same repository and be accessed via the same requirements solution
- A way to capture, connect, organize, and understand the complex web of requirements





# Moving from Files and Documents to Requirements

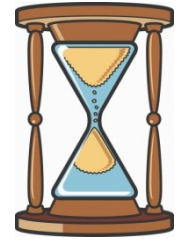


## Establish Process: 5 Steps to Agility

1. Timebox
2. Establish breadth
3. Prioritize
4. Go deeper
5. Repeat



# 1. Timebox



- **Direction, not perfection**
  - ▶ Develop requirements in phases with a time-box for each phase
  - ▶ Each requirements cycle is a short, specific time frame
- **Make assumptions, then move on**
  - ▶ Assumptions will either fall out of scope, or become requirements
- **Don't capture too much detail**
  - ▶ Doing so can lead to analysis paralysis

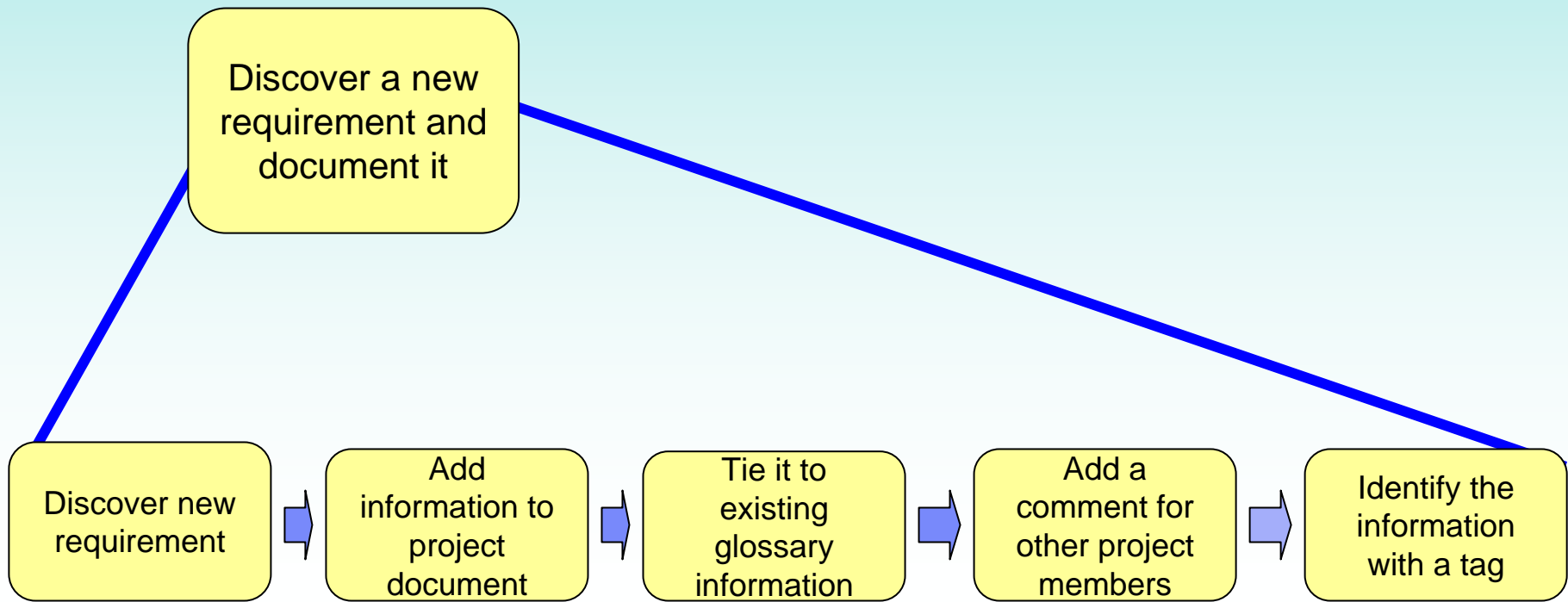


## Create Content: Moving to a More Agile Approach

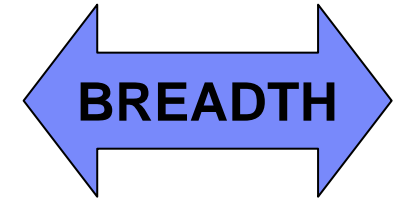
- Link documents, images, diagrams, and artifacts as they are collected and evolving
  - ▶ Create meaningful relationships across artifacts to paint the whole picture to the team
- Provide an accessible repository on the web for stakeholders to review and comment as needed
  - ▶ Invaluable to projects with GR component – less need for midnight calls!
- Resist the Giant Requirement Up Front (GRUF) temptation
  - ▶ Introduce a less rigid, more flexibility requirements process
- Emphasis on the value of modeling
  - ▶ Fewer words, more pictures is always a good thing!



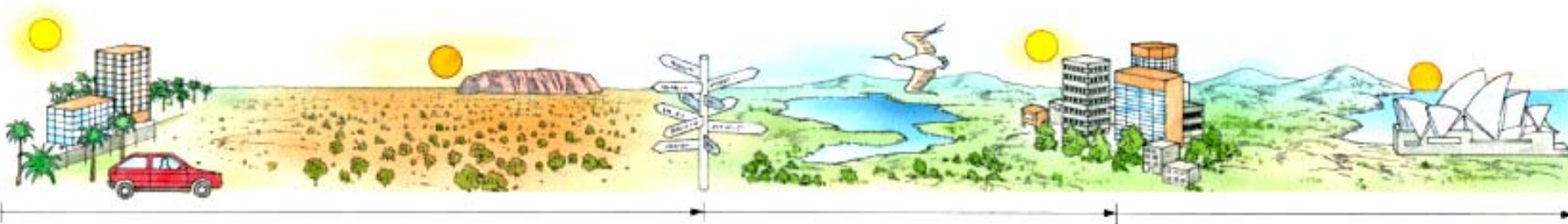
# DEMO



## 2. Establish breadth



- Understand the 'lay of the land'
- Identifying the boundary: scope of automation
  - ▶ High-level requirements covering the *entire* breadth of the system
  - ▶ Staying within the time-box: whatever gets missed here can move to the next iteration
- Begin with a list of use cases and actors
  - ▶ Aim for a complete actor and Use Case set, start with outlines, details then get added incrementally





## The use case model in Composer

- **‘Automated’ tasks in business process model**
  - ▶ Helps determine the scope of the system – black box for system use cases
  
- **Aim is to ‘discover’ all use cases**
  - ▶ Usually do not get it right the first time - need to combine or merge as needed later
  
- **Sketch of the use case diagram**
  - ▶ UML notation showing system boundary, actors & use case relationships
  - ▶ Initially start with a sketch, can turn into reusable components later
  
- **Outline of use cases and actor descriptions**
  - ▶ Use Case document template- provide brief description and identify major flows only

### 3. Prioritize

#### ■ According to RISK

- ▶ Technical risk: working with architect to determine architectural risks
- ▶ Business risk: good to challenge the customer

#### ■ According to BUSINESS VALUE

- ▶ Which UCs and functions will deliver the biggest bang for the buck?
- ▶ Pareto's Principle - **80/20 rule**

- Be ready to do it again! Will have to re-prioritize requirements in the next iteration...





## Composer can help!



- Define and set attributes (priority, difficulty, risk)
  - ▶ These will not be lost and can later be imported to RequisitePro for management
- Commenting features to communicate and help achieve consensus
  - ▶ Each stakeholder may have their own idea/agenda – facilitate difficult discussions
- Business partners, stakeholders, development teams that do not have client access can take advantage of the web
  - ▶ Easy to use and navigate as needed – can send URL links to specific artifacts
- Define a strategy for how you will use attributes and tags consistently in RRC

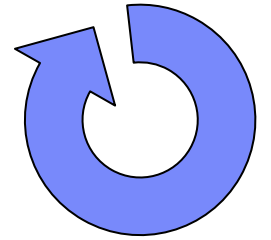
## 4. Go deeper

- Defining depth on the features / functions that are at the top of the list
  - ▶ The first few, highest priority UCs are addressed first – business rules & messages are referenced as well
- Moving from UC outlines to detailing all flows and major scenarios
  - ▶ Going through this process, it is not uncommon to discover that one UC should actually be two, or vice versa
- Scenarios are invaluable!
  - ▶ At the heart of the iterative approach, are the end to end user scenarios that can be coded and tested for that iteration...



## 5. Repeat

- The number of iterations may vary, but each time through we still follow the four previous steps
  - ▶ Timebox
  - ▶ Breadth
  - ▶ Prioritize
  - ▶ Depth
- As we iterate, the emphasis shifts away from the breadth of the system to developing more depth
  - ▶ The emphasis also begins to shift from definition to management of the existing requirement set
  - ▶ Managing change becomes a big component in later iterations



## Requirements identification and creation



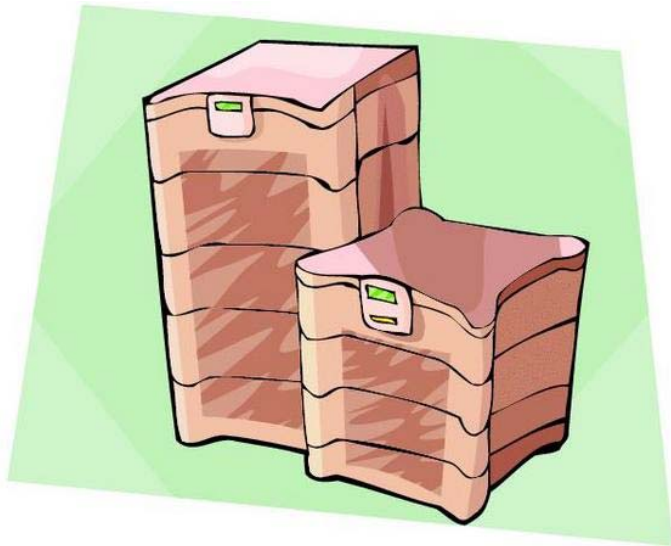
- As we repeat ...consistency is key...
  - ▶ Requirements Definition Plan helps to plan upfront what will be 'outcome' from Composer
- Requirements created in Composer based on any artifact
  - ▶ Each requirement creates a rich text document
  - ▶ Can imbed or link other artifacts into the requirement (ie. Screenshot/wireframes)
- For large projects, **RequisitePro** needed for management
  - ▶ RequisitePro has many features to help with more complex reporting, traceability needs
- Early lifecycle adoption identified as key success criteria
  - ▶ Requirements definition happens during proposal phase on most services engagements
- Can trace to test cases in RQM and tasks in RTC

## The Big RequisitePro Myth!

“RequisitePro is only suitable for small to medium sized efforts.”

## The RequisitePro Reality

Actually, it is as scalable as the hardware on which it is hosted!

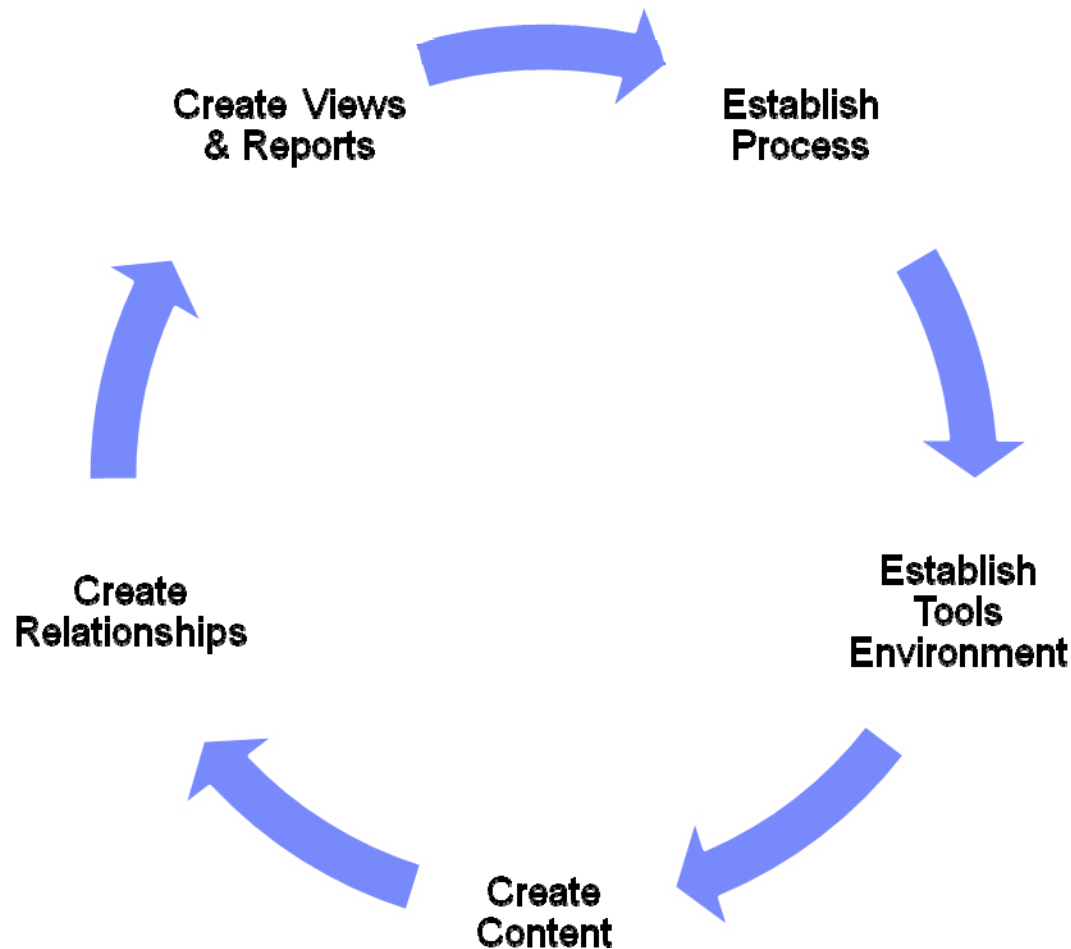


## Large Systems and the Agile Challenge

- Scaling “Agility” for large System-of-Systems
- System Engineering formality vs. “Agile” pace
- System Engineering culture vs. “Agile” culture

*We need to scale “Agile” principles to develop, deploy and maintain an extremely complex System of Systems while involving hundreds of developers, integrators, testers, deployment engineers and other engaged stakeholders.*

# Process and Consistency are Key





## Some Requirements Management Challenges

- Complex Queries
- Change / Baseline Management
- Finding Requirements and Views
- Metrics Tools



# RequisitePro 7.1 Key Enhancements

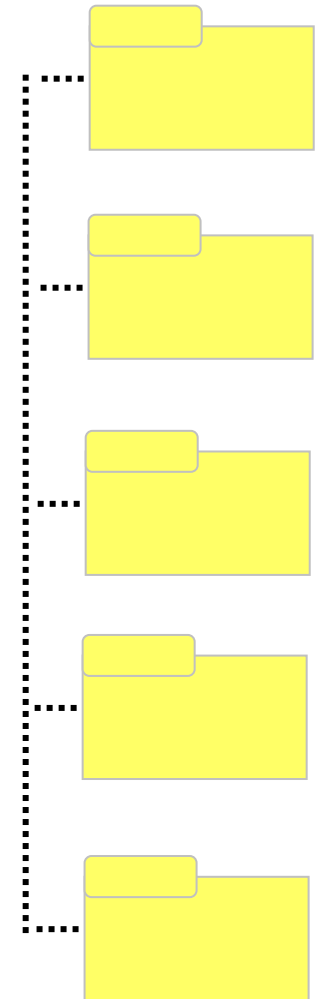
## ■ Package Security Features

- ▶ Now Package-level security enables you to control who can create children packages, requirements, reqpro documents and views inside of a package.

## ■ Business Intelligence Reporting Tools

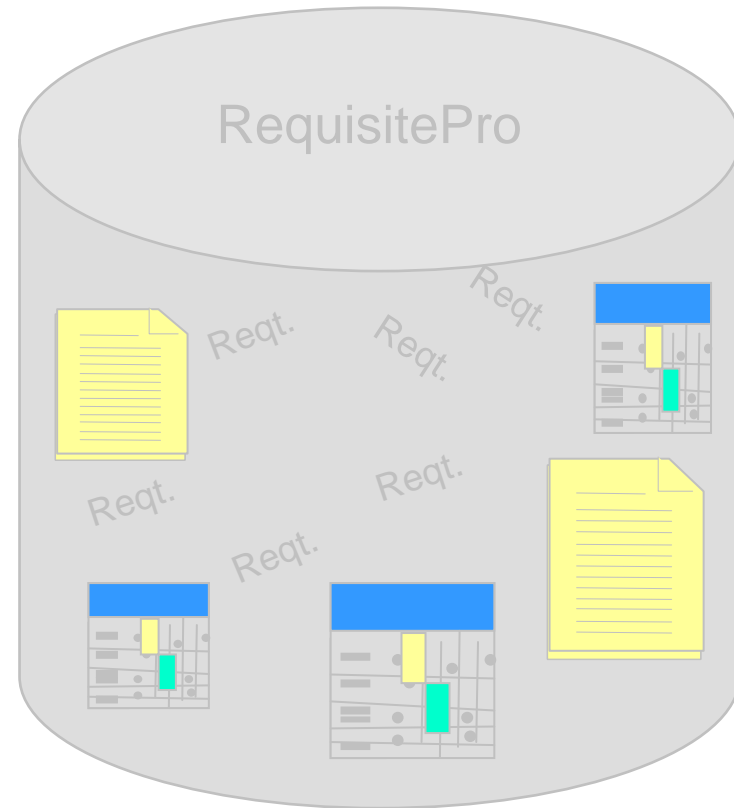
Join & aggregate data in ways not possible before

Rich set of visual components to create metrics reports.



# RequisitePro's Project Structured Repository

- Requirement Types
- Attributes
  - ▶ Default Values
  - ▶ Multi-Select Attributes
- Relationships
  - ▶ Hierarchical / Parent-Child
  - ▶ Traceability





filter requirement sets by attribute

# Requirements

## ✓ Rational RequisitePro

**Administration**

**RequisitePro Connection**

Server URL: http://rackic.blr.can.ibm.com:82/ReqWeb  
 Project: Air Canada IRROPS

**Attribute Groups**

- Business Rule: A requirement that describes a business rule or process.
- Consolidated Requirement: Functional Requirement type is used to identify the high level requirements.
- Feature: Features that enable capabilities for the system.
- Market: Market Description
- Origin: Origin Description
- Supplemental: Supp Description
- Use Case: Use Cases contain functional requirements for the system.

**Members**

- Azarakhsh Damood: Administrator
- Jrsuser: Administrator
- Karen Steele: Administrator

**Requirements**

Showing 10 requirements

**Filter Display by Attribute**

- Filter by filename
- Filter by user
- Filter by date

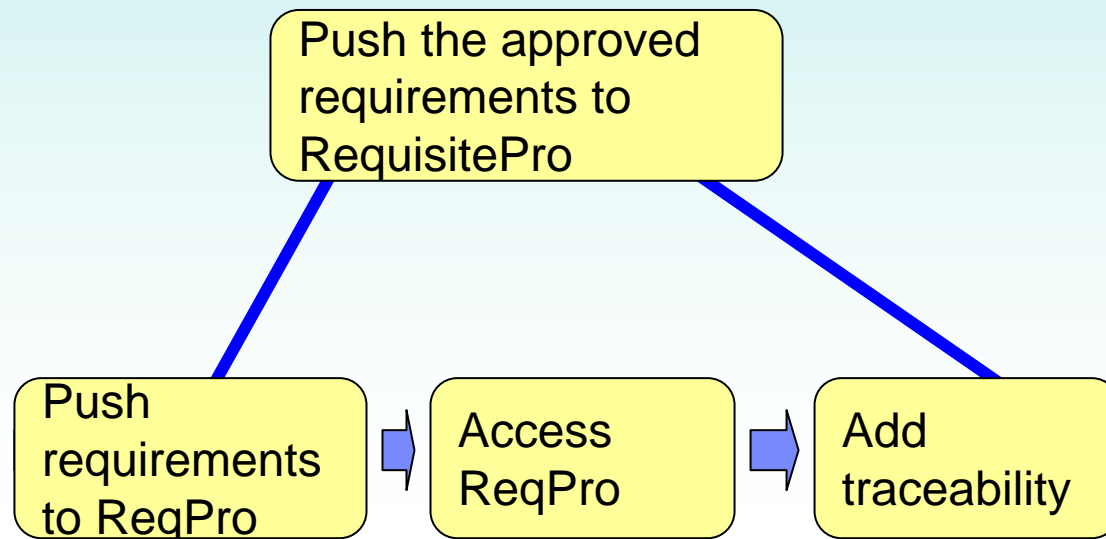
Name	Last Modified By	Last Modified Date	Managed Requirement
4. The Customer selects the option to continue.	Azarakhsh Damood	May 18, 2009 5:55:09 AM	
3. The Customer provides their identification information to the system...	Azarakhsh Damood	May 18, 2009 5:54:32 AM	
2. The System displays the Find Itinerary screen, which prompts the Customer to...	Azarakhsh Damood	May 18, 2009 5:45:10 AM	
1. The Use Case begins when the Customer chooses the URL from the Travel...	Azarakhsh Damood	May 18, 2009 5:35:08 AM	
SMS notification triggered from PRS-ARPT for IRROP situations only.	Azarakhsh Damood	May 15, 2009 4:11:15 AM	
Through the application URL (i.e. Travel advisory web site), for IRROP and Anti...	Azarakhsh Damood	May 15, 2009 4:11:02 AM	
AC Web Check-in (WCI) tool: If an outbound segment that is open for check-in wa...	Azarakhsh Damood	May 15, 2009 4:10:47 AM	

**Create Requirements in RequisitePro**

Select requirements to create in RequisitePro.

- Enable passengers to re-accommodate themselves during an
- Email notification triggered from PRS-ARPT for IRROP situatio
- The email will contain link to the application URL, with the PNF
- AC Web Check-in (WCI) tool: If an outbound segment that is
- Through the application URL (i.e. Travel advisory web site), f
- SMS notification triggered from PRS-ARPT for IRROP situatio
- 1. The Use Case begins when the Customer chooses the
- 2. The System displays the Find Itinerary screen, which p
- 3. The Customer provides their identification information
- 4. The Customer selects the option to continue.

Select All / Deselect All



## Review of Challenges

- Understanding the true needs early in the project
- Determining priority
- Understanding real business value and technical risks
- Complex queries
- Change and baseline management
- Finding requirements and views
- Metrics tools



## Review of Solutions



- Requirements Composer builds the bridge:
  - ▶ Linked requirements assets and documented collaborative team communication
  - ▶ Requirements Driven Documents **NOT** Document Driven Requirements!
- Leverage attributes & discussions
- RequisitePro is scalable!
- New ReqPro 7.1 package security features
- Business Intelligence Reporting Tools
  - ▶ Understand the Whole Process with BIRT

## Real return for our investment dollars



- Improved communication saves time, reduces rework, promotes consistency, and improves quality
  - ▶ Also speeds up the on-boarding process for new team members
- “Requirements management remains single biggest reason for project failure” according to industry reports
  - ▶ Composer embodies leading requirements practices for delivery success



# QUESTIONS

## Helpful links & resources



### ■ Rational Requirements Composer

- ▶ Information Page: <http://www-01.ibm.com/software/awdtools/rrc/>
- ▶ Rational Requirements Composer Overview Demo:  
<http://www.ibm.com/developerworks/offers/lp/demos/summary/r-rrcoverview.html>
- ▶ Rational Requirements Composer & RequisitePro Integration Demo:  
<http://www.ibm.com/developerworks/offers/lp/demos/summary/r-rrcreqpro.html>

### ■ Developer Works discussion forums

- ▶ Rational Requirements Composer Forum:  
<http://www.ibm.com/developerworks/forums/forum.jspa?forumID=1546>
- ▶ Rational RequisitePro Forum:  
<http://www.ibm.com/developerworks/forums/forum.jspa?forumID=340>

### ■ IBM Global Business Services

- ▶ [http://www-935.ibm.com/services/us/gbs/bus/html/bcs\\_index.html](http://www-935.ibm.com/services/us/gbs/bus/html/bcs_index.html)



Thank You

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