The Requirements New Groove: Iterative Definition & Composition Techniques in Jazz

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Rational. software

RDM05

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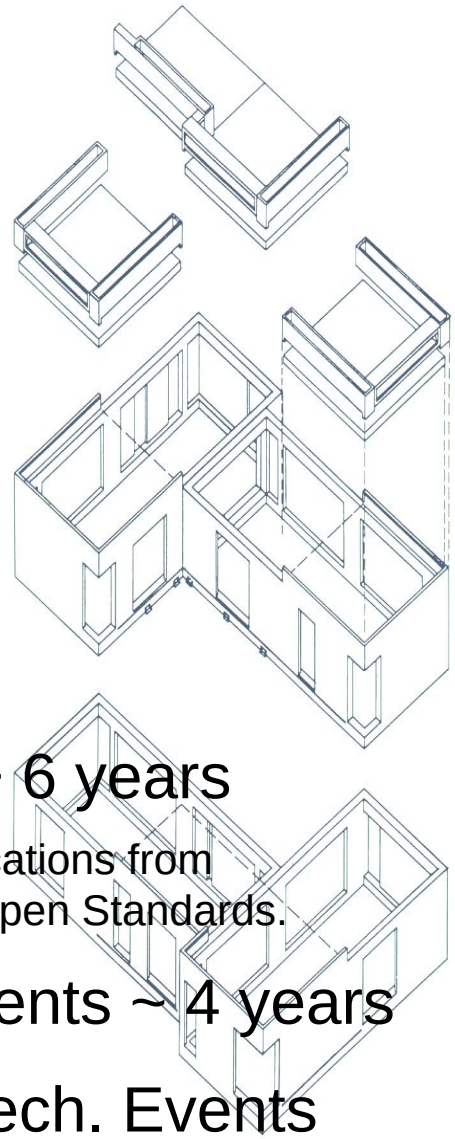
About me…



- 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

- Collaborative software development vs. Jazz
- The requirements challenge
- Introducing Rational Requirements Composer
- Iterative requirements
- 5 recommended steps to make it happen
- Rational Requirements Composer usage tips
- Demonstrations

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 a***dapts 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…

The requirements challenge

- Do we really know the true needs early in the project?
- Can the customer really ‘sign-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 exemplify 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?*

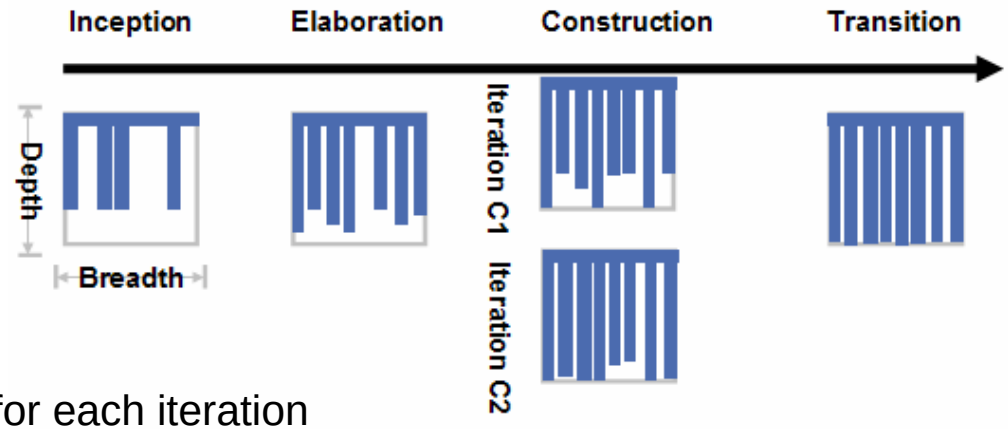
Introducing Requirements Composer

- 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 towards 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!

Iterative requirements

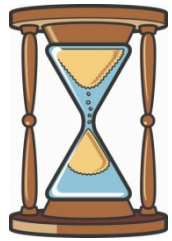


- Enable early user feedback
  - The aim is to have something tangible for each iteration
- Focus on the business and technical risks first
  - Early mitigation = less flux later on
- Testing and integration are continuous
  - Easier/less costly to fix defects earlier
- We don't (and can't) know everything 'up front'
  - Iterations serve to paint the picture incrementally
- Team learning (and therefore effectiveness) is enhanced
  - Apply lessons learned from the previous iteration to the next

Five techniques to make it happen!

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

1. Timebox



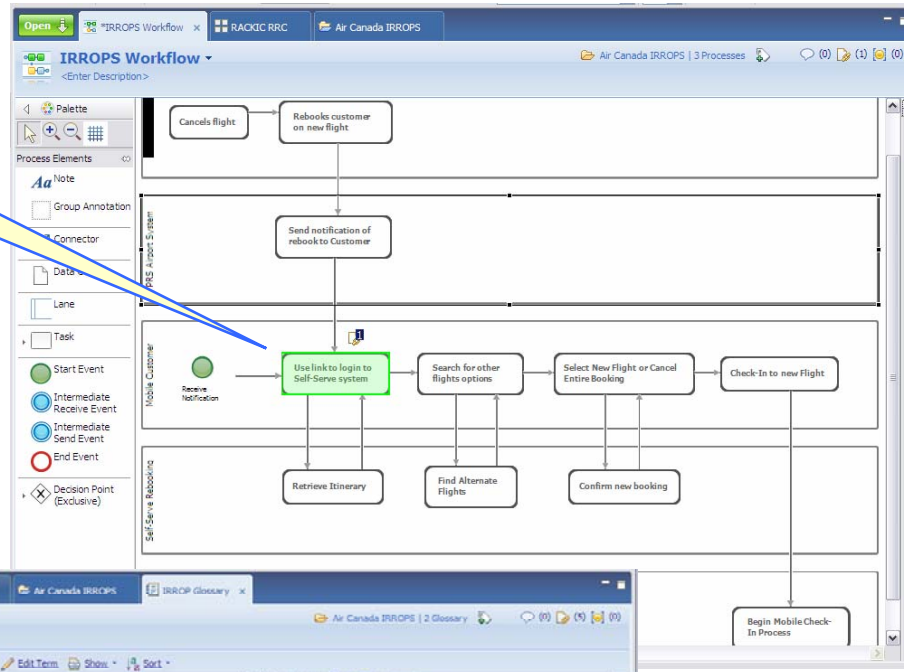
- Direction, not perfection
  - Develop requirements in phases with a time-box for each phase
  - Each requirements cycle is a short, specific time frame
- Make assumptions, then move on
  - Assumptions will either fall out of scope, or become requirements
- Don’t capture too much detail
  - Doing so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

Composing begins during the early days!

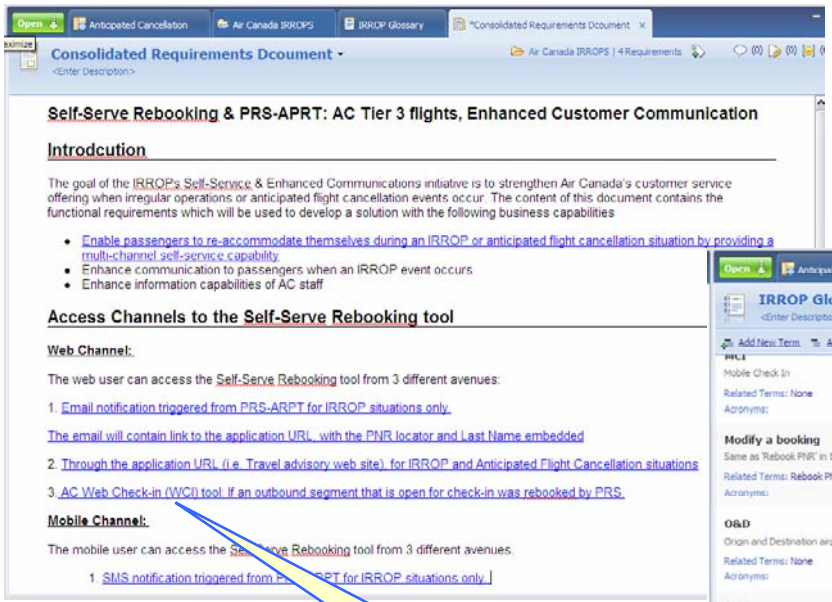
- Capturing high-level stakeholder needs
  - Vision document, Features, Solution Proposal (services), Business Requirements
- Business process sketches, glossary of terms give context
  - Related terms and synonyms are especially helpful for new team members
- Relationships are established by linking
  - Can import PowerPoint, Excel, Word, Images, and even capture e-mails in rich text
- Decisions and assumptions documented
  - So the team does not waste time revisiting again

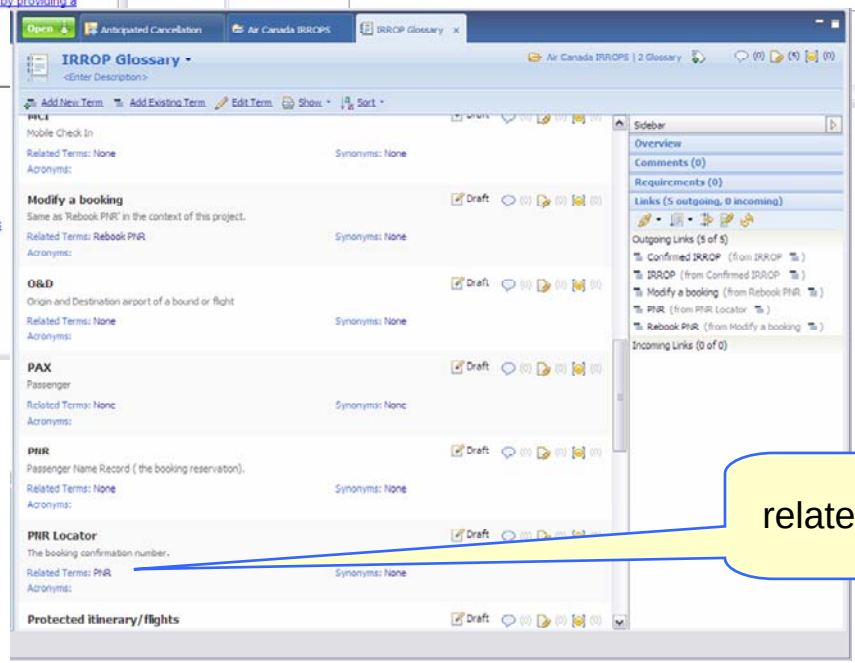
✓ Business process

highlighted comments



✓ Rich text documents





linked requirements

related terms

✓ Project glossary

Discover a new requirement and document it

Discover new requirement

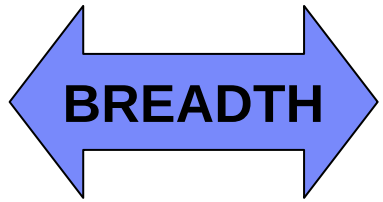
Add information to project document

Tie it to existing glossary information

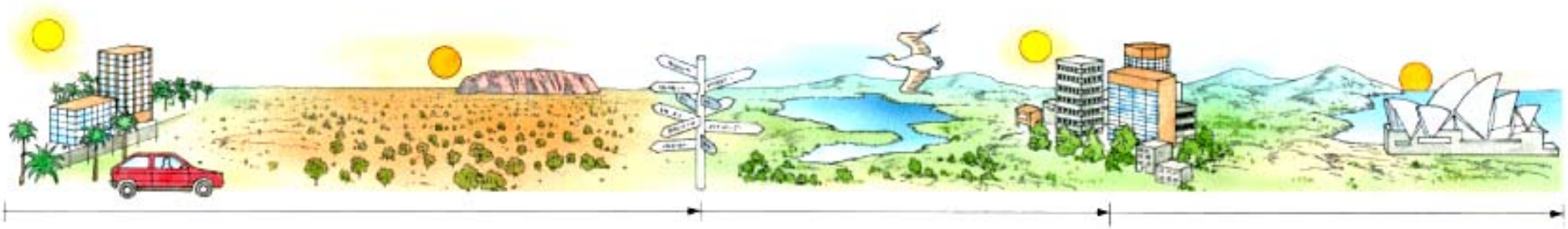
Add a comment for other project members

Identify the information with a tag

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

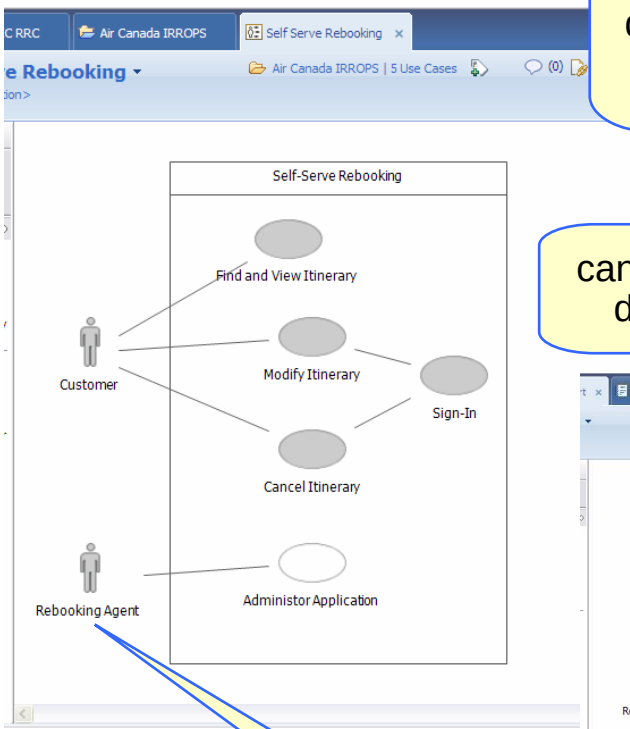


The use case model in Composer

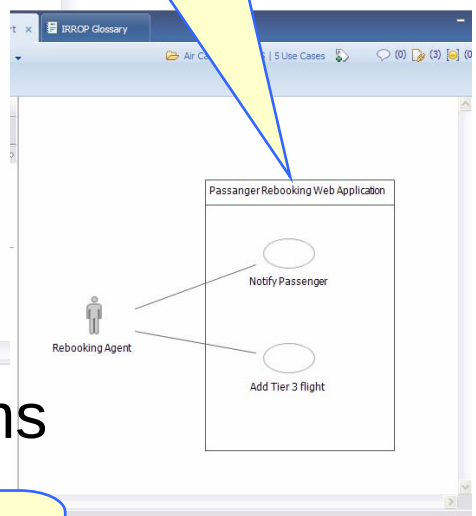
- ‘Automated’ tasks in business process model
  - Helps determine the scope of the system – black box for system use cases
- Aim is to ‘discover’ all use cases
  - Usually do not get it right the first time - need to combine or merge as needed later
- Sketch of the use case diagram
  - UML notation showing 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

✓ Use case specifications

double clicking on diagram opens use case description

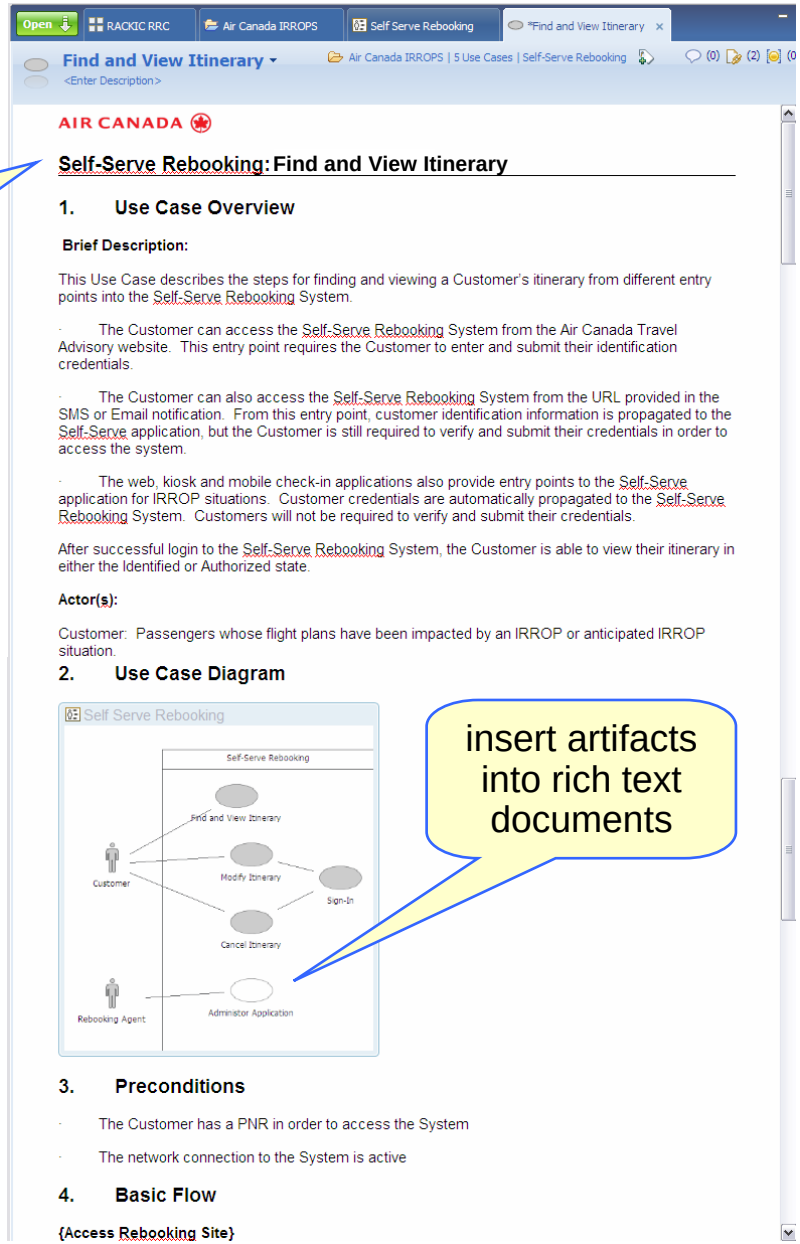


can sketch first, define later



✓ Use case diagrams

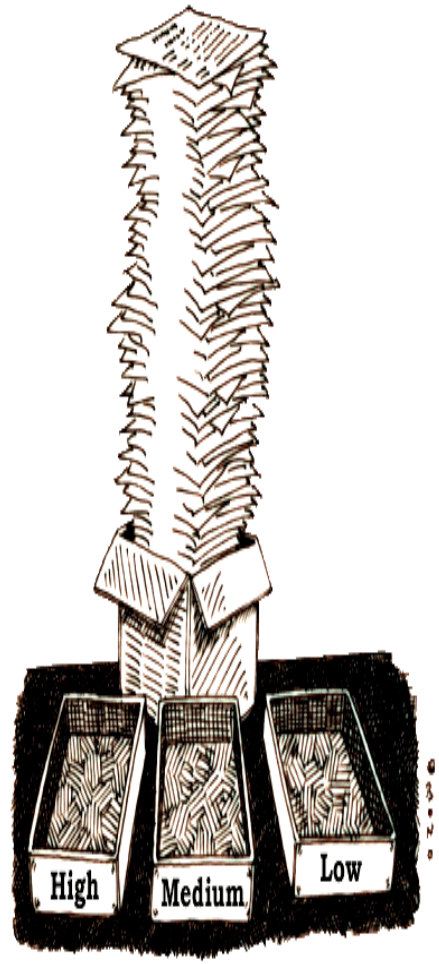
reusable components



insert artifacts into rich text documents

3. Prioritize

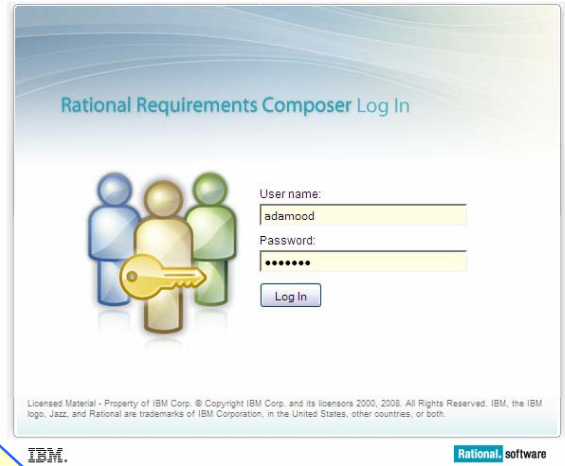
- According to RISK
  - Technical risk: working with architect to determine architectural risks
  - Business risk: good to challenge the customer
- According to BUSINESS VALUE
  - Which UCs and functions will deliver the biggest bang for the buck?
  - Pareto's Principle - **80/20 rule**
- Be ready to do it again! Will have to re-prioritize requirements in the next iteration…



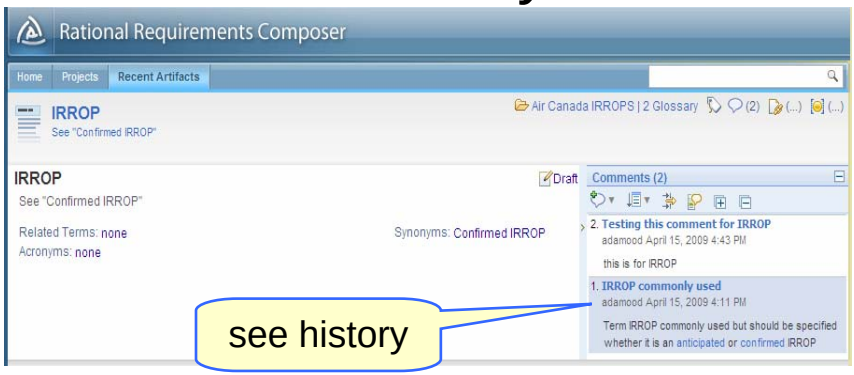
Composer can help!

- 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

- ✓ Read-only web access



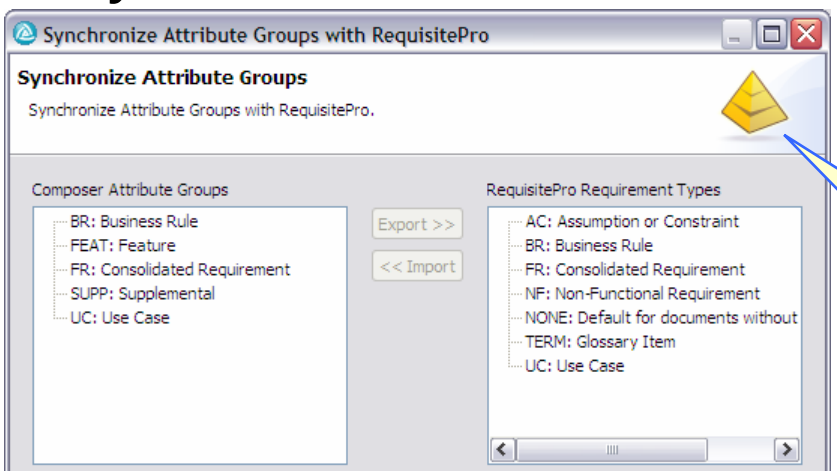
- ✓ Comment on any artifact

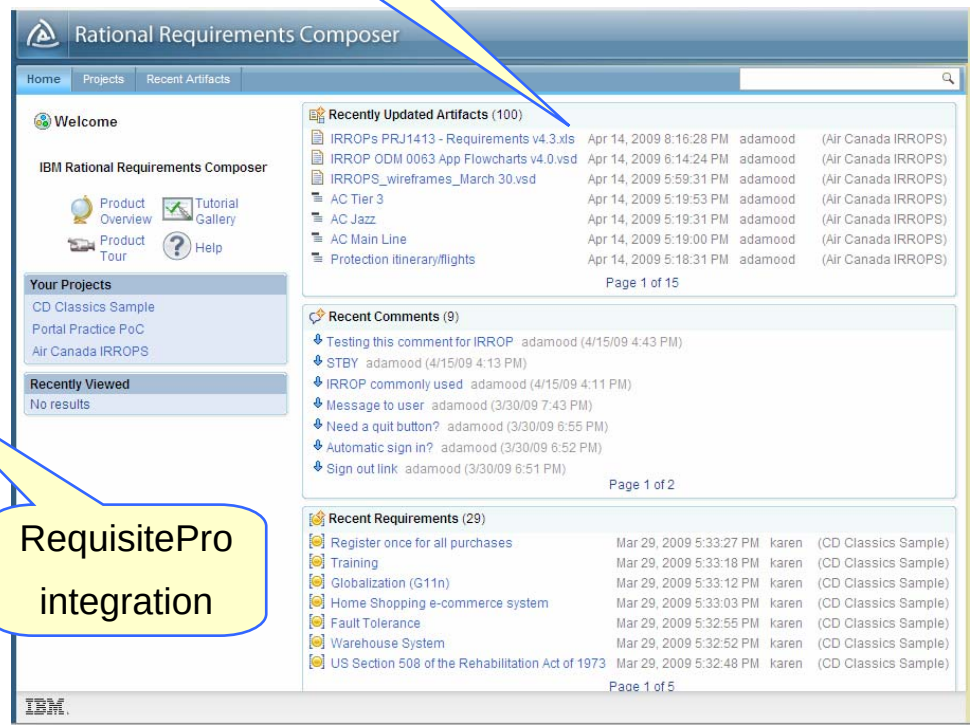


dashboard style home page: click on link to open related artifact

see history

- ✓ Synchronize attributes





RequisitePro integration

4. Go deeper

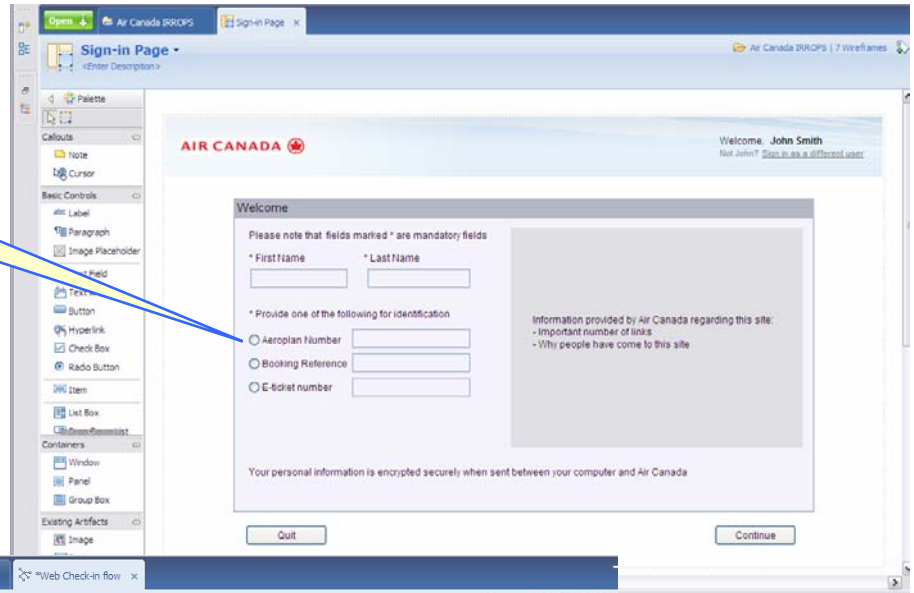
- Defining depth on the features / functions that are at the top of the list
  - The first few, highest priority UCs are addressed first – business rules & messages are referenced as well
- Moving from UC outlines to detailing all flows and major scenarios
  - Going through this process, it is not uncommon 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…

Detailing requirements in Composer

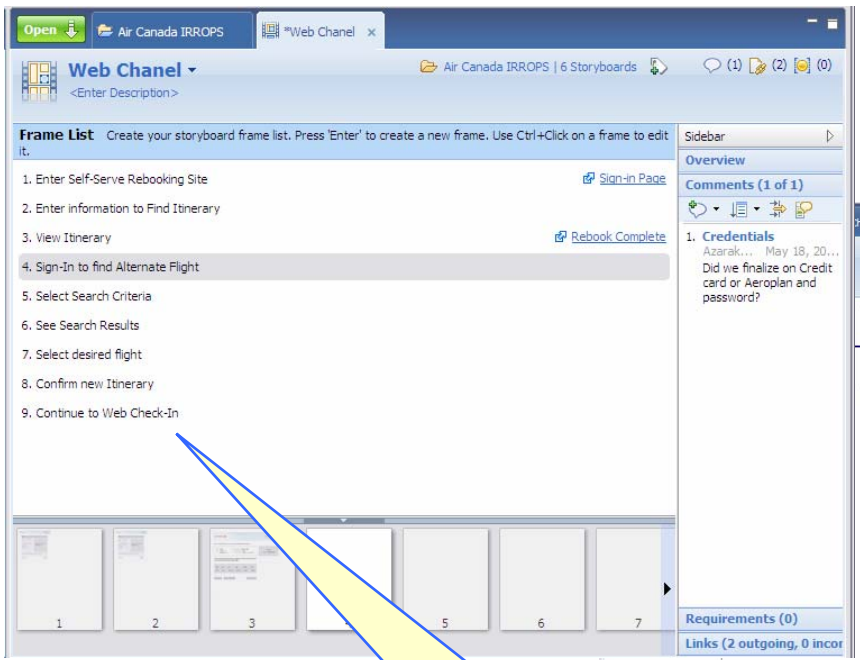
- High priority (or riskiest) use cases first
  - Business Rules are captured separately and referred to at various step in the flows
- Meaningful end to end scenarios
  - Like telling a story - great way to communicate in a way everyone can understand
- Wireframe sketches and user interface components
  - Wireframes are an excellent ‘communication vehicle’ – should be used as such ☺
- Storyboards help visualize the scenarios
  - Walking through a flow using mockups will help to ask the right questions

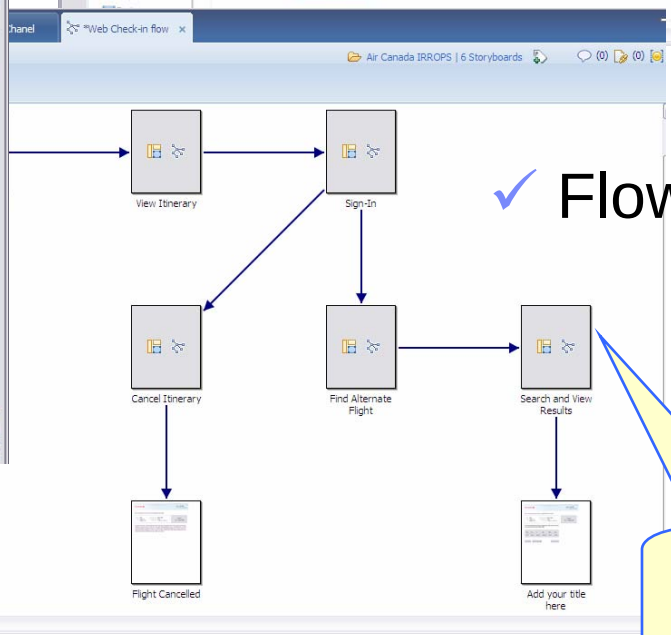
✓ Wireframes

reusable components



✓ Storyboarding





✓ Flow Diagram

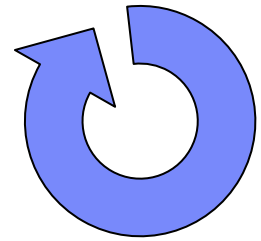
visualize step by step scenarios

wireframe placeholders

Show necessary changes to the process

See project activity and comments → Identify process changes → Create new sub-process → Link information → Tie to term in glossary

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

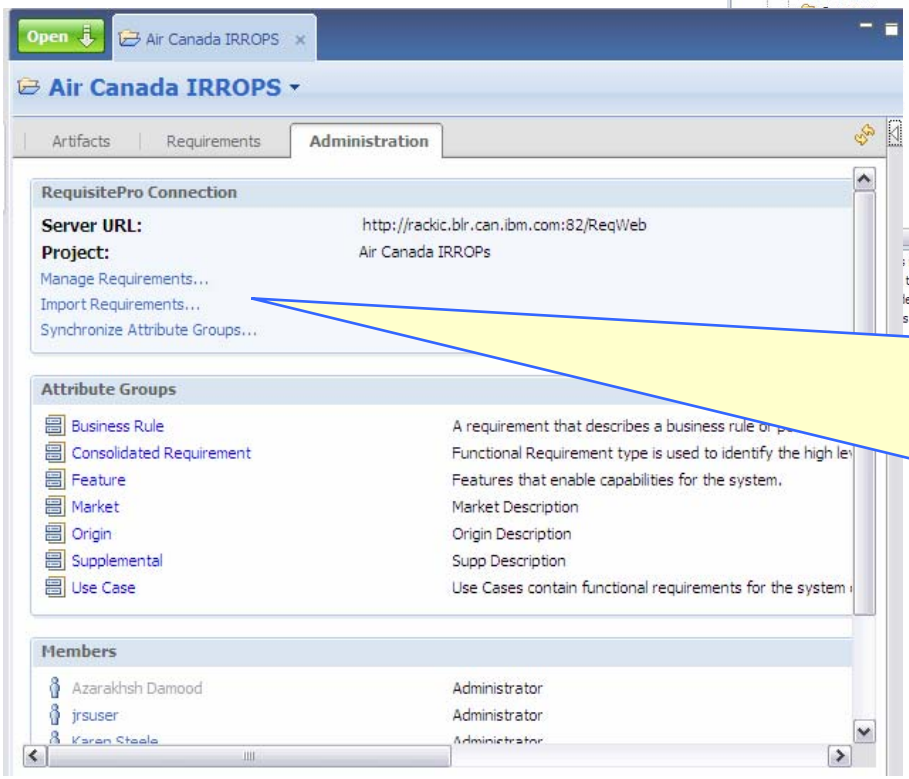
- As we repeat …consistency is key…
  - Requirements Definition Plan helps to plan upfront what will be ‘outcome’ from Composer
- Requirements created in Composer based on any artifact
  - Each requirement creates a rich text document
  - Can imbed or link other artifacts into the requirement (ie. Screenshot/wireframes)

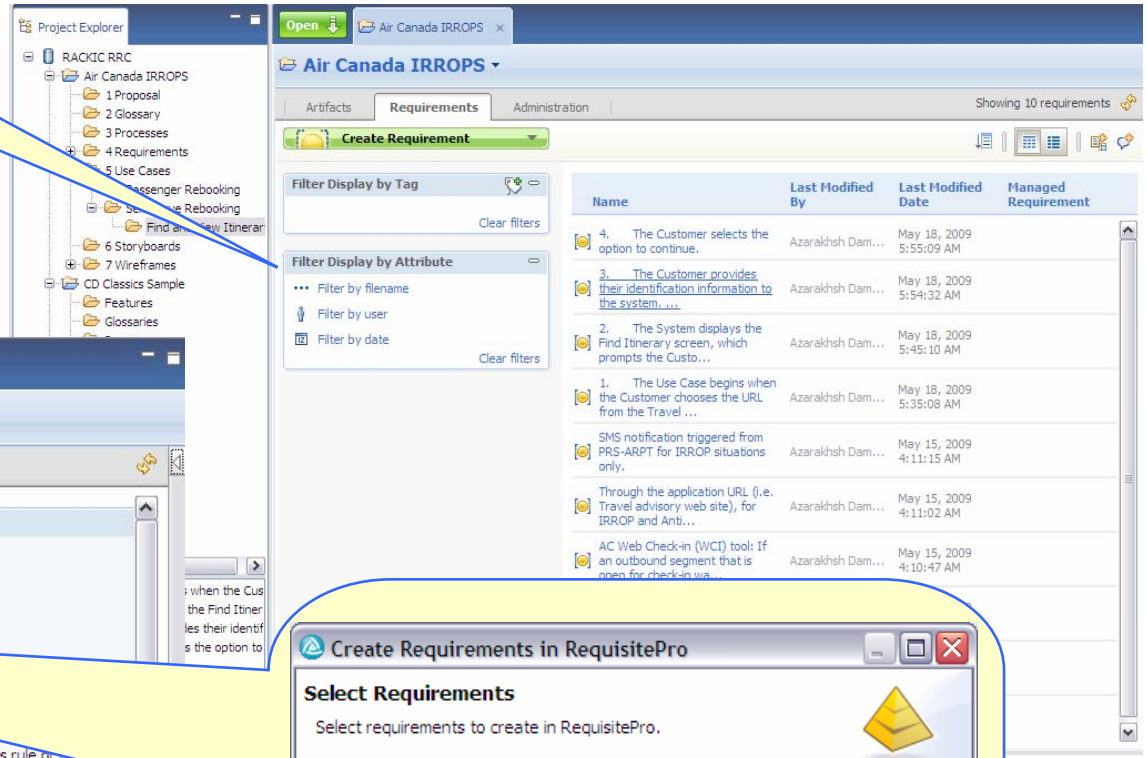
- For large projects, RequisitePro needed for management
  - RequisitePro has many features to help with more complex reporting, traceability needs
- Early lifecycle adoption identified as key success criteria
  - Requirements definition happens during proposal phase on most services engagements
- Can trace to test cases in RQM and tasks in RTC

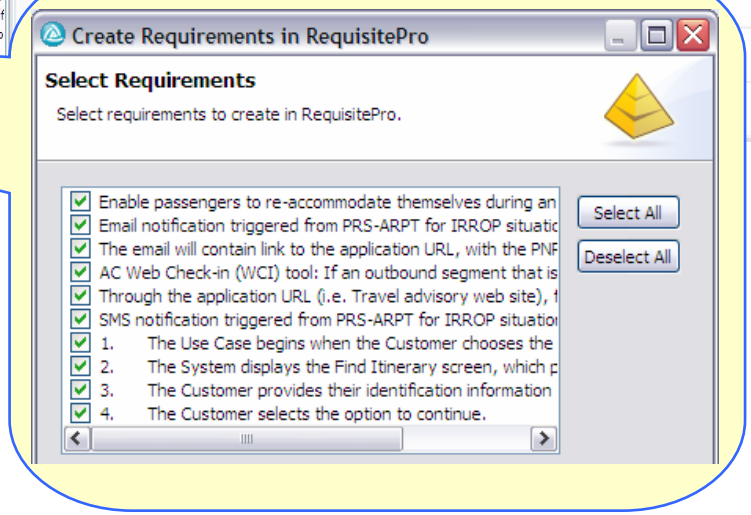
filter requirement sets by attribute

✓ Requirements Management

✓ Rational RequisitePro







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

So, I hope you are ready to …

- Try a more agile, incremental requirements definition and elaboration process on your next engagement or project
- Discover the benefits of enhanced collaboration and communication among your team (and stakeholders)
- Explore this flexible tool to provide a more complete, contextual, holistic view of your project requirements
- Find your organization's requirements' groove!

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

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