IBM SOA Summit

*Informations valorisées et SOA, le couple gagnant.

IBM SOA Summit

IBM

Rational Asset Manager

Manage your SOA development assets

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IBM Rational Software

What is a Software Asset?

A Software Asset is

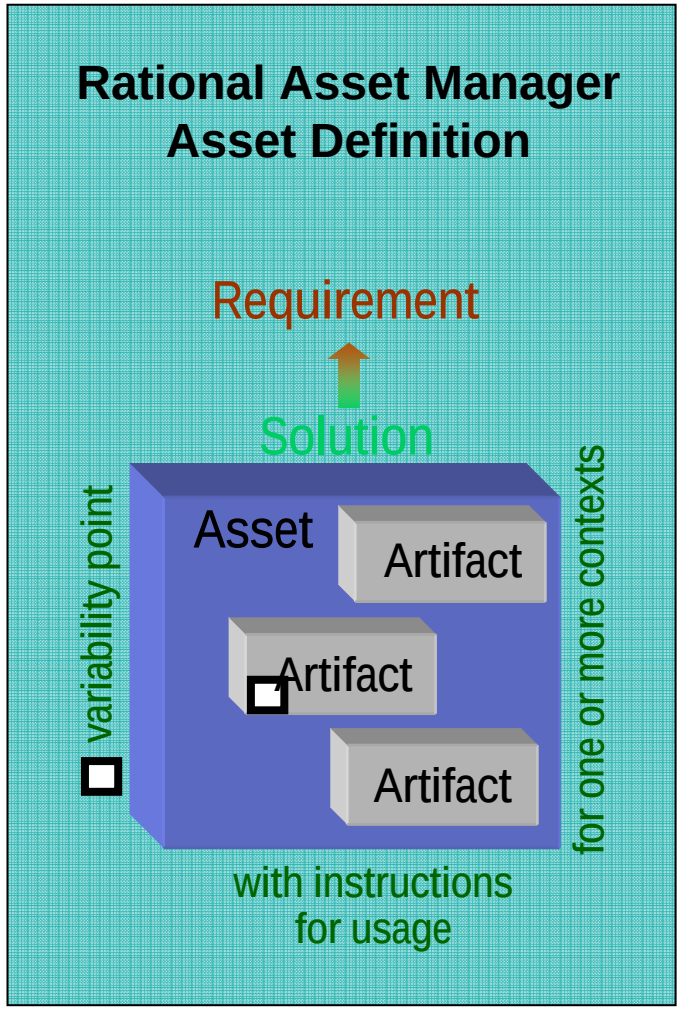
- ✓ a collection of Artifacts
- ✓ which provides a solution to a requirement or business/mission need
  - for one or more contexts
  - with instructions for usage
  - and variability points

What are Artifacts?

- ✓ Workproducts from the software process
  - Requirements, Designs & Models (including enterprise and systems architecture), Source code, Data, Tests, User Interfaces, Documentation, Service Interfaces, Estimates and so on…

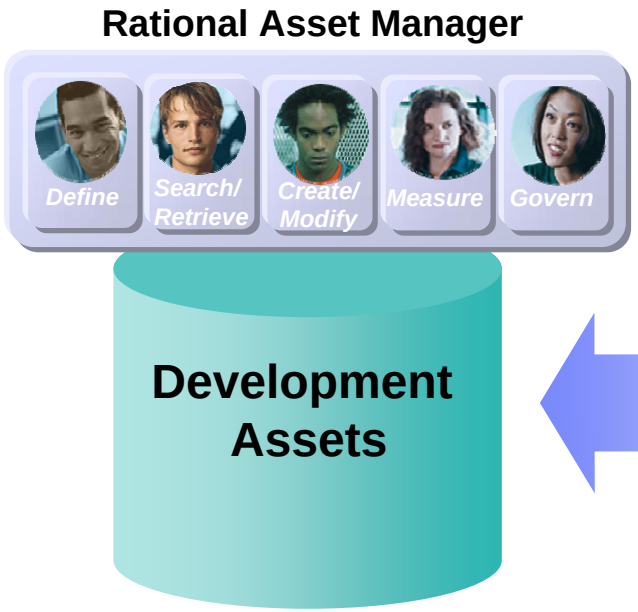
Kinds of assets

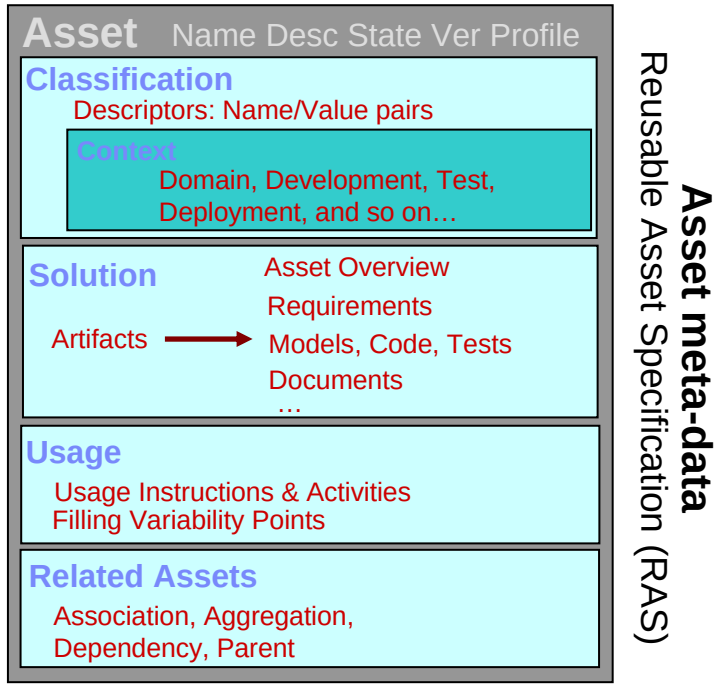
- ✓ Applications, components, patterns, software that runs systems or products, services, frameworks, templates, …



What is Asset Management?

Software Asset Management is all of the infrastructure and processes necessary for the effective management, control and protection of the software assets within an organization, throughout all stages of their software and systems lifecycle





Asset Management Challenges

Software Reuse

- ✓ How are my software assets being used? What cost savings are there?
- ✓ How can I make sure that my developers have the right, high quality asset easily available?
- ✓ How can my team collaborate and reuse software assets across the systems and software engineering lifecycle?

Open Source Management

- ✓ What open source is in use across my company?
- ✓ Are the legal approvals in place for all use of it? Is my exposure managed?

Governance

- ✓ How do I prescribe and enforce the use of certain architectural standards?
- ✓ How do I link my project portfolio to my software assets and architecture?

SOA transformation for Systems and IT

- ✓ How do I control what projects can create new or access existing service assets?
- ✓ What assets in my environment use this service?
- ✓ How do I ensure alignment with architecture, standards and business goals?
- ✓ How do I reuse architecture for systems (SoA for Systems) across the enterprise?

Reduce development costs, accelerate time to market and improve quality by reusing existing trusted assets with IBM Rational Asset Manager

SOA Program Lead

Software Architect

Compliance Manager

CIO/CTO

Improve software quality while reducing development cost and time

- ✓ Manage and facilitate reuse of software assets

Securely promote cross project communication of reusable assets

- ✓ Avoid duplication by facilitate reusable asset sharing across multi-platform projects with role based asset access and a workflow to manage the update and delivery of assets

Manage compliance and govern architectural integrity and development assets

- ✓ Enforce and monitor integrity of development assets with a definable, enforceable and auditable process

Accelerate service delivery with easy discovery and federation and improve overall SOA lifecycle management

- ✓ Manage service dependencies and easily locate existing assets to prevent duplicate service efforts

Reduce development costs and accelerate time to market by facilitating reuse with IBM Rational Asset Manager

Introducing Rational Asset Manager

Rational Asset Manager

Asset Administrator

Define

Analyst
Developer
Architect
Tester

Search/ Retrieve Assets

Analyst
Developer
Architect
Tester

Create/ Modify Assets

Project Manager
Reviewer
Approver

Measure

Project Manager
CTO/CIO

Govern

Rational Asset Manager is a collaborative software and systems development asset management solution that gives organizations the ability to identify, manage and govern the design, and development of Service-Oriented Architecture initiatives or other development assets.

Rational Asset Manager (RAM) Overview

RAM is a development asset management repository

- ✓Uses the Reusable Asset Specification to *define, create and modify assets*
- ✓Provides asset type specific *search & governance*
- ✓*Measures* asset reuse in development

Handles any kind of asset

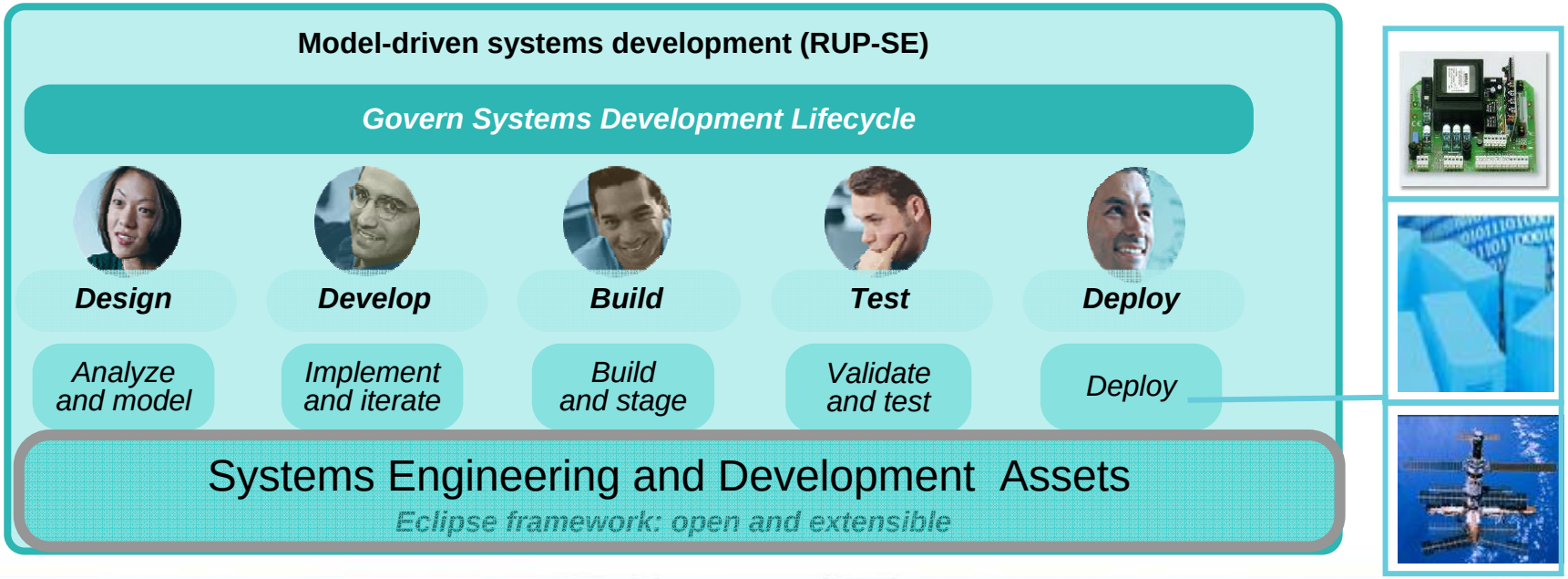
- ✓Applications, components, patterns, software that runs systems and products, services, frameworks, templates, …

Benefits:

- ✓Reduce software development, systems development and operational costs
- ✓Improve quality by facilitating the reuse of approved & proven assets
- ✓Integrated with other IBM Rational and SWG tools

Accelerating Systems Engineering and Development Lifecycle Assets

- Systems Requirements
- Enterprise Architecture (with DoDAF)
- Systems Architecture (SysML),
- Software Models (UML)
- Source code (e.g. device code)
- Tests Assets (test cases, test scripts, manual scripts)
- Build Assets
- Documentation



Rational Asset Manager Features / Roadmap

Asset upload, download, update, packaging

- ✓ Asset Types, categorization, attributes and relationships between assets are all supported

Security and access control

- ✓ Fine-grained permissions based on groups, roles, users, asset types

Search

- ✓ Search using categories/facets/keywords
- ✓ File contents search, text, word, & power point, ear, war, zip files

Workflow & Review Boards

- ✓ Basic review/approval flow built in with configuration

Metrics and reporting

- ✓ Record usage, feedback
- ✓ Export delimited file

Collaboration

- ✓ Discussions, Email and RSS

User interface

- ✓ Eclipse client
- ✓ Web UI

Process guidance

- ✓ Asset-based development guidance in Rational Method Composer

Create and update asset versions

- ✓ ClearCase, ClearQuest & WebSphere Service Registry

- Team-level Development-time Asset Repository
- RUP Asset-based Development plugin
- developerWorks Asset Repository with SOA Assets

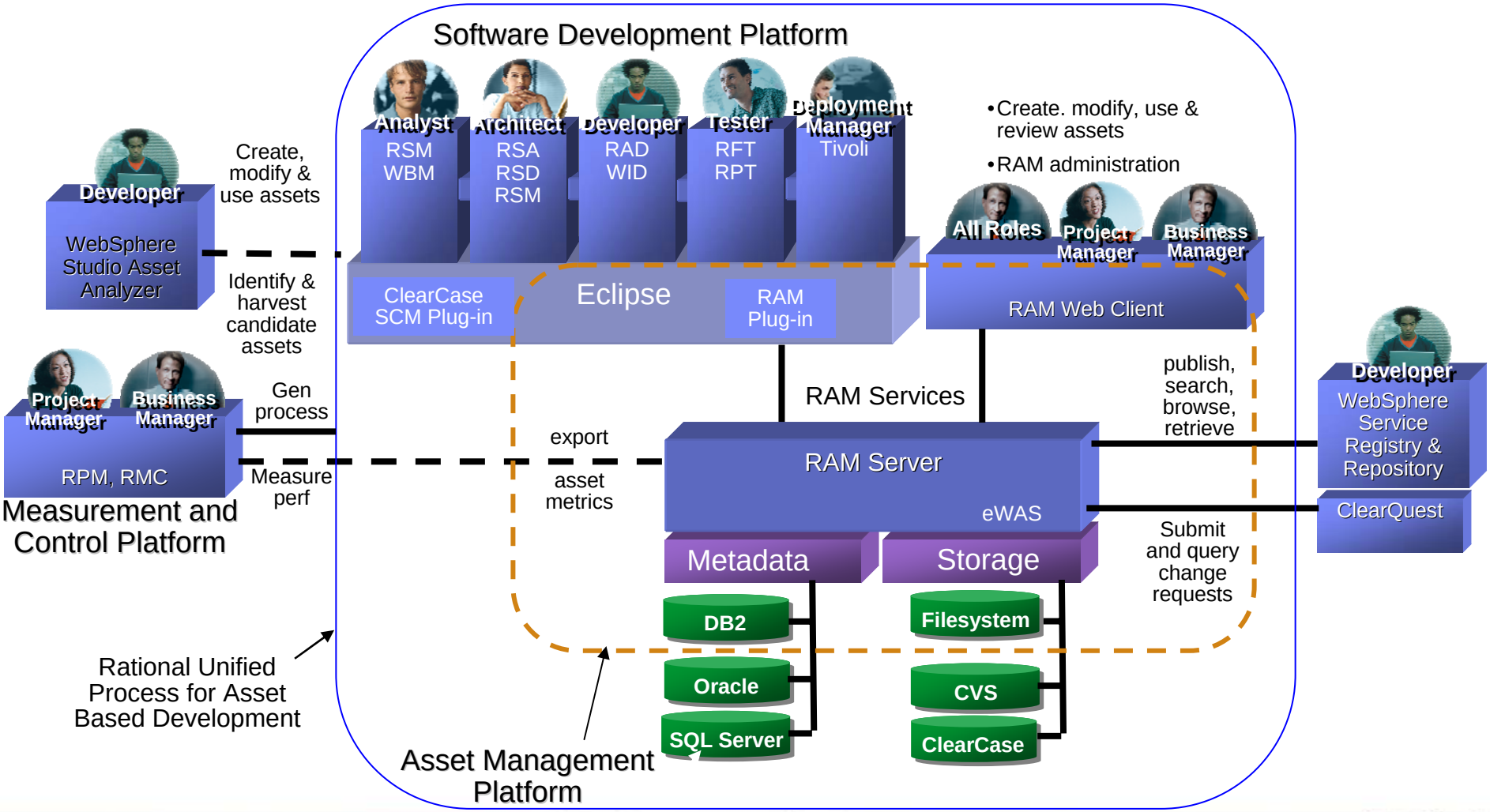
Dec 2006

2007

- Enterprise-level Development-time Asset Repository integrated with next generation team platform

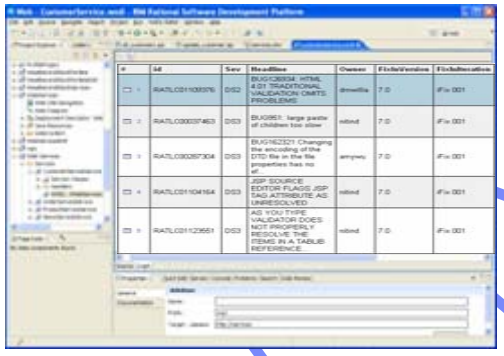
2008

Rational Asset Manager (RAM) Architecture



RAM integrations with Rational team products

RAM works seamlessly with Rational's class leading team products!



- **Develop code in a team environment**
- **Create and package assets**
- **Search for and reuse assets**
- **Track and fix problems**

Seamlessly! All in the same IDE!

Develop and Share Code

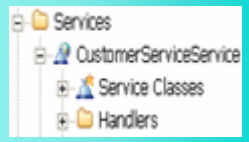
Track and fix problems

Package and Consume Assets

Store or reference Assets

Rational Asset Manager (RAM)

ClearCase



ClearQuest

Integrated Asset Level Defects and Review Process

IBM Rational ClearCase and IBM Rational ClearQuest

Proven Software Configuration Management and Software Change Management

IBM Rational ClearCase

Manage an control software assets

- Version control
- Automated workspace management
- Activity-based change management
- Parallel development support
- Baseline management
- Transparent, real-time access to files and directories
- Support for disconnected usage
- Build auditing
- User authentication and audit trails

IBM Rational ClearQuest

Automate and control development processes

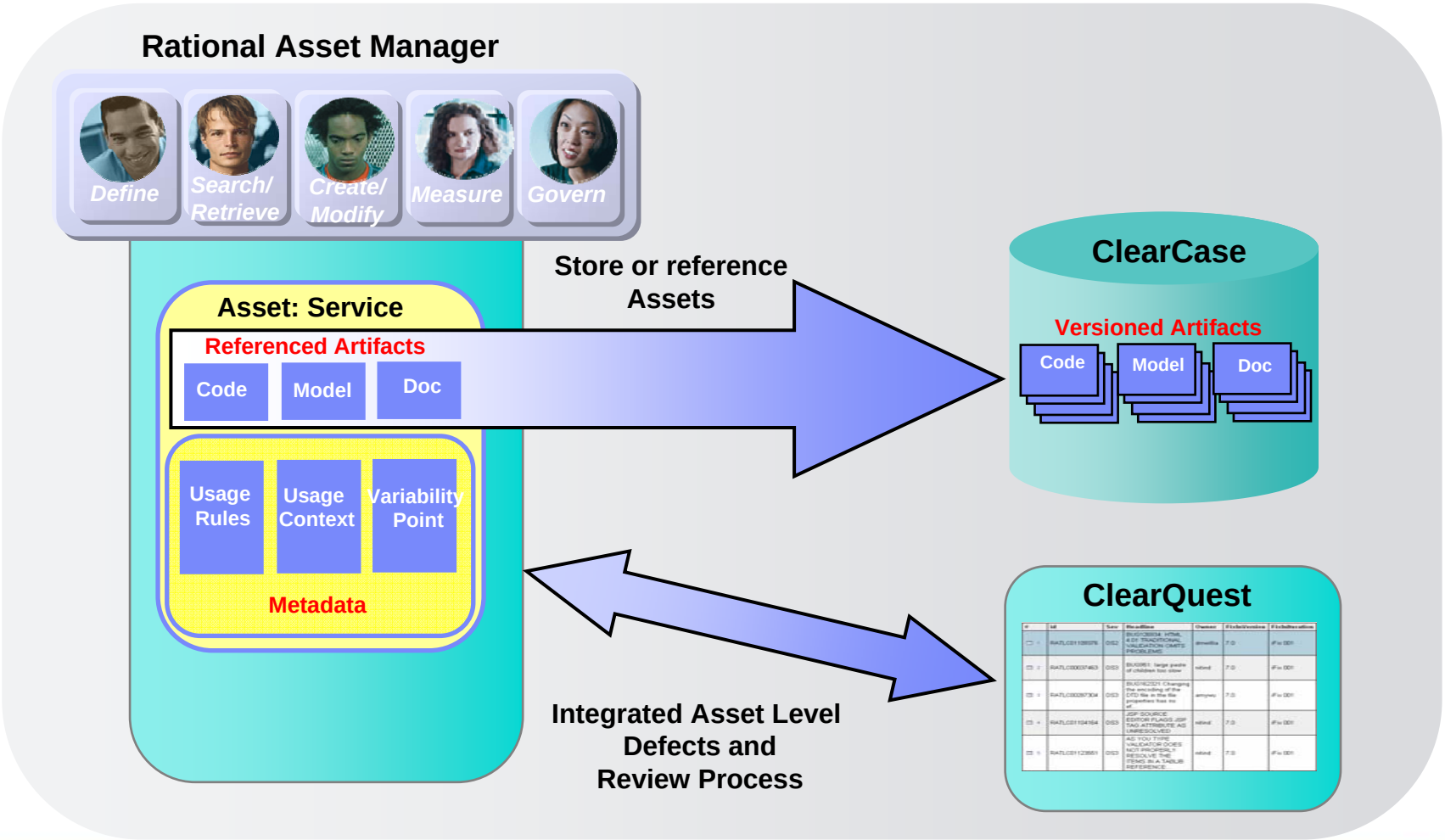
- Process automation
- Defect and change tracking
- End-to-end project visibility
- Lifecycle traceability
- Enterprise quality management
- Integrated development, testing and deployment
- Electronic signatures, user authentication, user authorization and audit trails

Accelerate software delivery

Make global teams more efficient

Govern end-to-end software processes

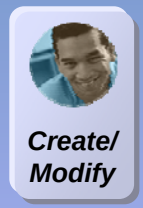
Example: RAM integrations with ClearCase and ClearQuest



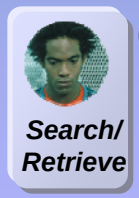
Example: RAM Define, Create, Modify and Review Asset Interactions

Service Development

(4) Manager reviews and approves asset using a customizable development workflow ClearQuest. RAM enforces asset types and relationships.



(3) Developer creates, modifies or learns about assets in Eclipse workspace using RAM with ClearCase & ClearQuest

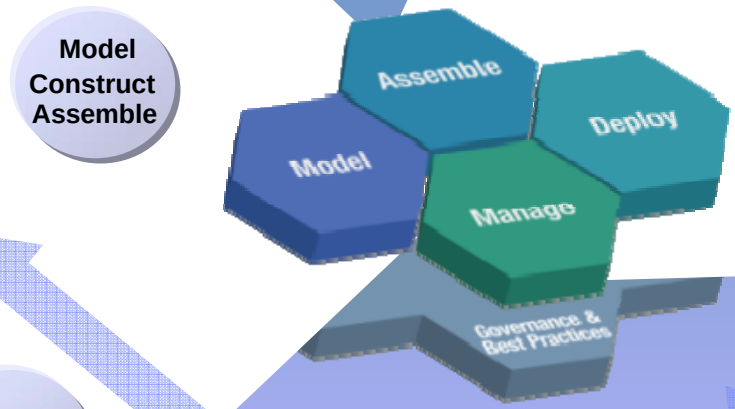


(2) Developer searches RAM for assets to reuse

(1) Architect defines asset types, categorizations and review boards in RAM for asset reuse (this include enterprise and systems architecture)

(5) Technical manager publishes service asset interface from RAM to WSRR

Service Deployment



(6) RAM links WSRR services to versioned asset details & artifacts

(7) RAM discovers WSRR services and classifications for asset reuse

Diapositive 15

SM9

- This slide is applicable to the systems space as long as we do not talk about web services in this....also BuidForge/Build assets needs to be highlighted in this scenario

-Services in the systems world are components.which can be your models, code etc..

This can be SoA for Systems....the deploy will just be to a piece of hardware..e.g. a chip or tank.

-Added enterprise and systems architecture to this also under (1)

Swati Moran; 12/04/2007

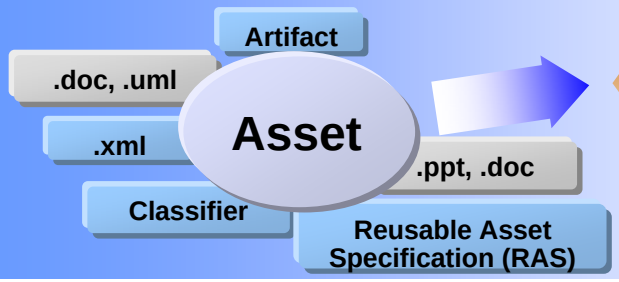
RAM and WSRR Functionality

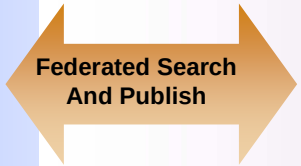
Development-time
➢ **Design / Architecture Governance**

Rational Asset Manager

Manages information that is useful for developing, re-using and managing all types of *reusable assets*

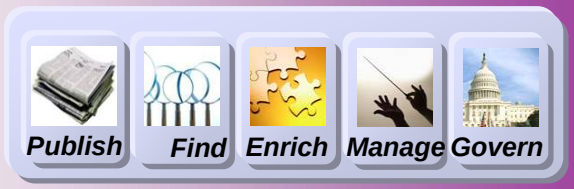
- ✓Define asset types
- ✓Creates and manage all types of assets
- ✓Provide asset traceability and details
- ✓Collaborate on asset development





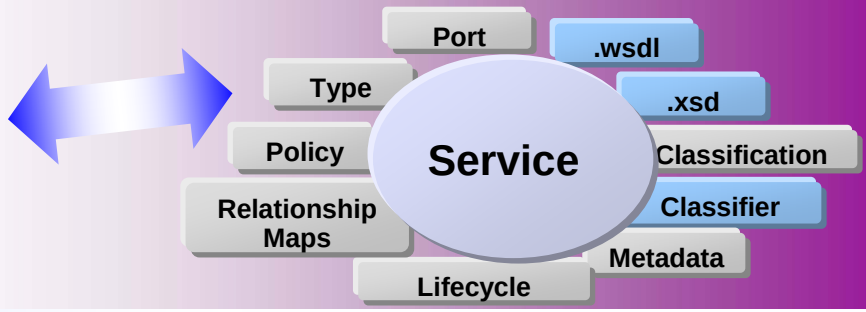
Deployed / Run-time
➢ **Service Lifecycle Governance**

WebSphere Service Registry and Repository

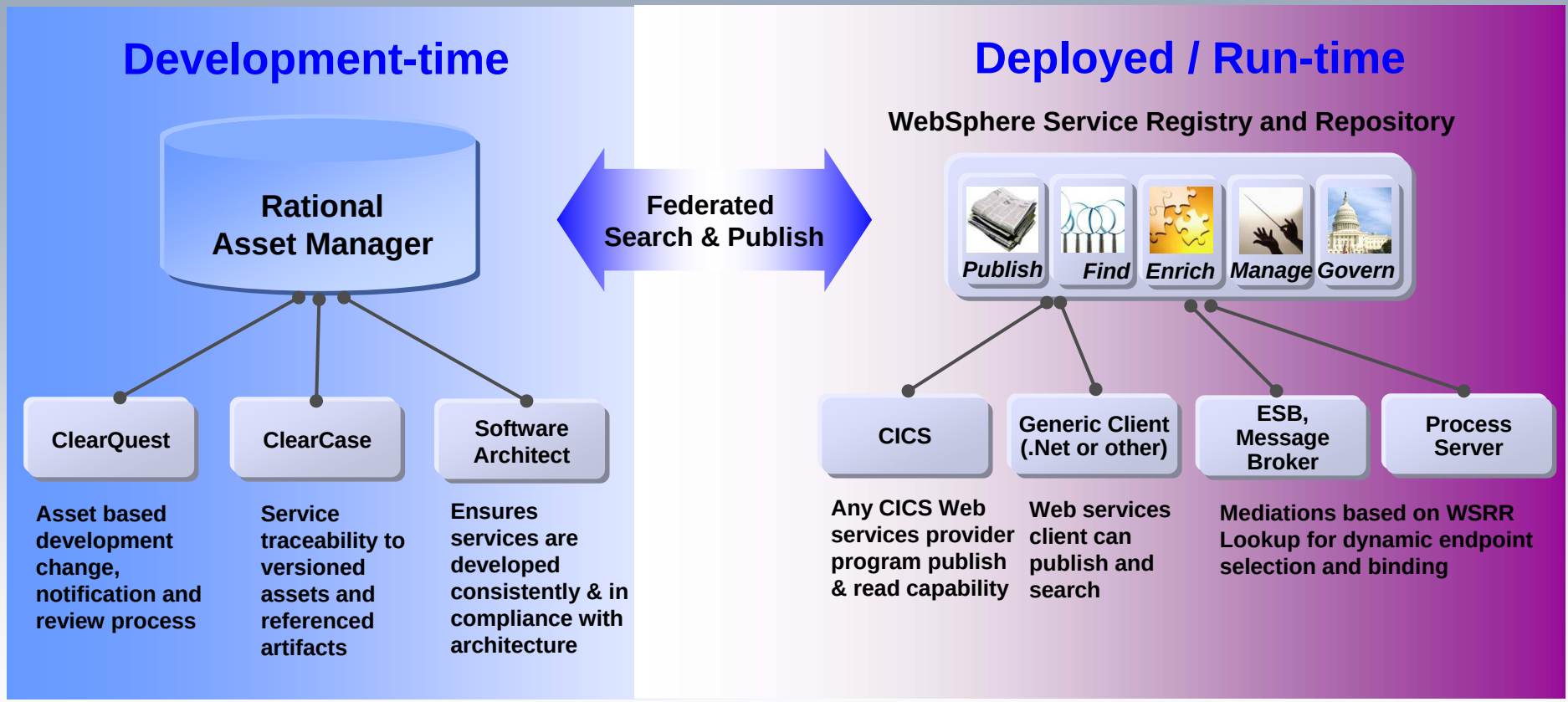


Manages information that is useful for the runtime operation, management and development use of *services*

- ✓Select service endpoints dynamically in a SOA runtime
- ✓Govern runtime changes to service metadata
- ✓Set and get runtime policies for service execution
- ✓Get deployed service details like endpoints, relationships and service definitions



Benefits - Bridging Development and Runtime Services with RAM and WSRR



- Not every deployed service is a reusable asset and not every reusable asset is a deployed service
- Managing development of assets vs. operational metadata for services
- A service is one of many types of assets managed by Rational Asset Manager

Screenshots for Scenarios

Scenario 1: ***Configuring the repository***

Scenario 2: ***Search or evaluate an asset***

Scenario 3: ***Retrieve and use an asset***

Scenario 4: ***Create and package asset***

Scenario 5: ***Submit asset***

Scenario 6: ***Review and approve asset***

Scenario 7: ***Measure asset activity***

Scenario 8: ***Modify and create new asset version***

Note: the screenshots in these charts are for the RAM Web UI
the RAM Eclipse UI experience will be slightly different

Scenario 1: Configuring the repository for projects

Before getting started with the green thread, the Teamspace Administrator configures the repository

- ✓ Create Teamspaces, Roles and Access Control
- ✓ Create Categories
- ✓ Create Asset Types
- ✓ Create Review Processes
- ✓ Define Your Asset Mgmt Processes
- ✓ Connect Asset Mgmt Processes To Assets

Teamspace Admin

Create Teamspaces, Roles & Access Control

Business Analyst

Analyst Teamspace

Access Control: search, read, browse, download, update all assets in Analyst Teamspace

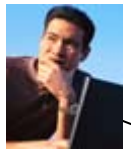
Teamspace Admin

Access Control: full entitlement across all assets in all Teamspaces

Claims Processing Teamspace

Architect/ Developer

Access Control: search, read, browse, download, update all assets in Claims Processing and Analyst Teamspace



Asset Owner

Reviewer

Service Dev Teamspace

Access Control: search, read, browse, download, update all assets in Service Dev Teamspace

IT Operations

Access Control: search, read, browse, download, update all assets in Service Dev Teamspace

Review Board Teamspace

Review Board

Access Control: search, read, browse, review all assets across all Teamspaces

A Teamspace is a collection of users, their roles and entitlements, and their assets and review processes

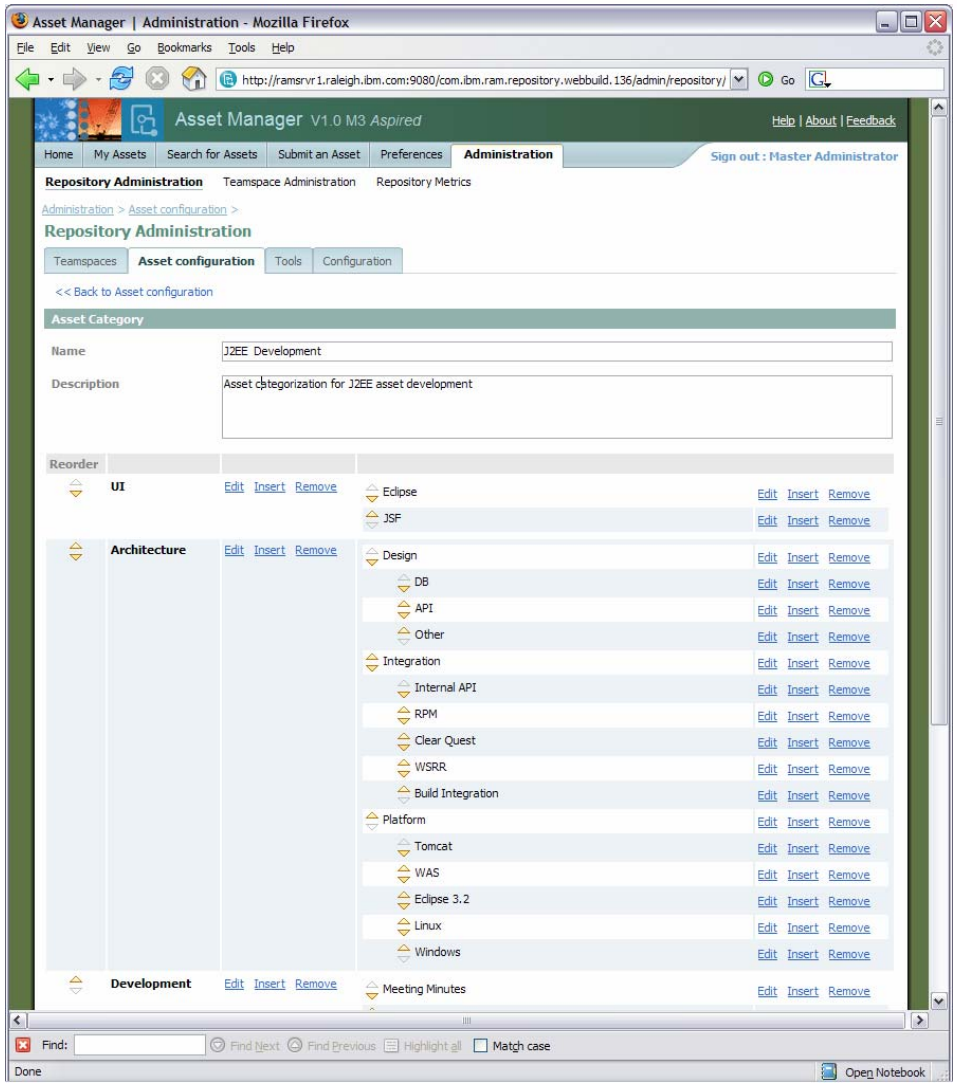
Create Categories

- Categories for Asset classification are configured via the RAM Web UI or an XML file
- Assets can belong to any number of categories
- Categories can be used for faceted search, browsing, and access control

Create a taxonomy for Insurance

Insurance

- ✓ Financial Reporting
  - Stockholders Equity
  - Financial Position
  - Income Statement
- ✓ Health Insurance
  - Public
    - Claims Processing
    - Tax
    - Social Security
  - Private
    - Mandatory
    - Employment Group
    - Community Rated
    - Risk Rated



Asset Types

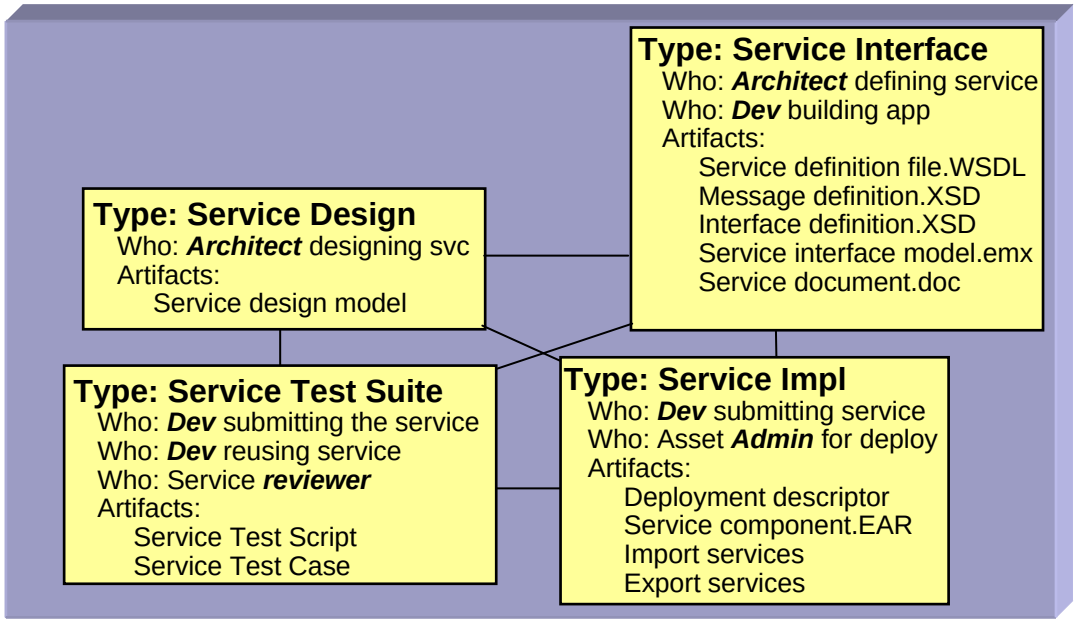
Asset Types can be created to handle any asset

An Asset type specify:

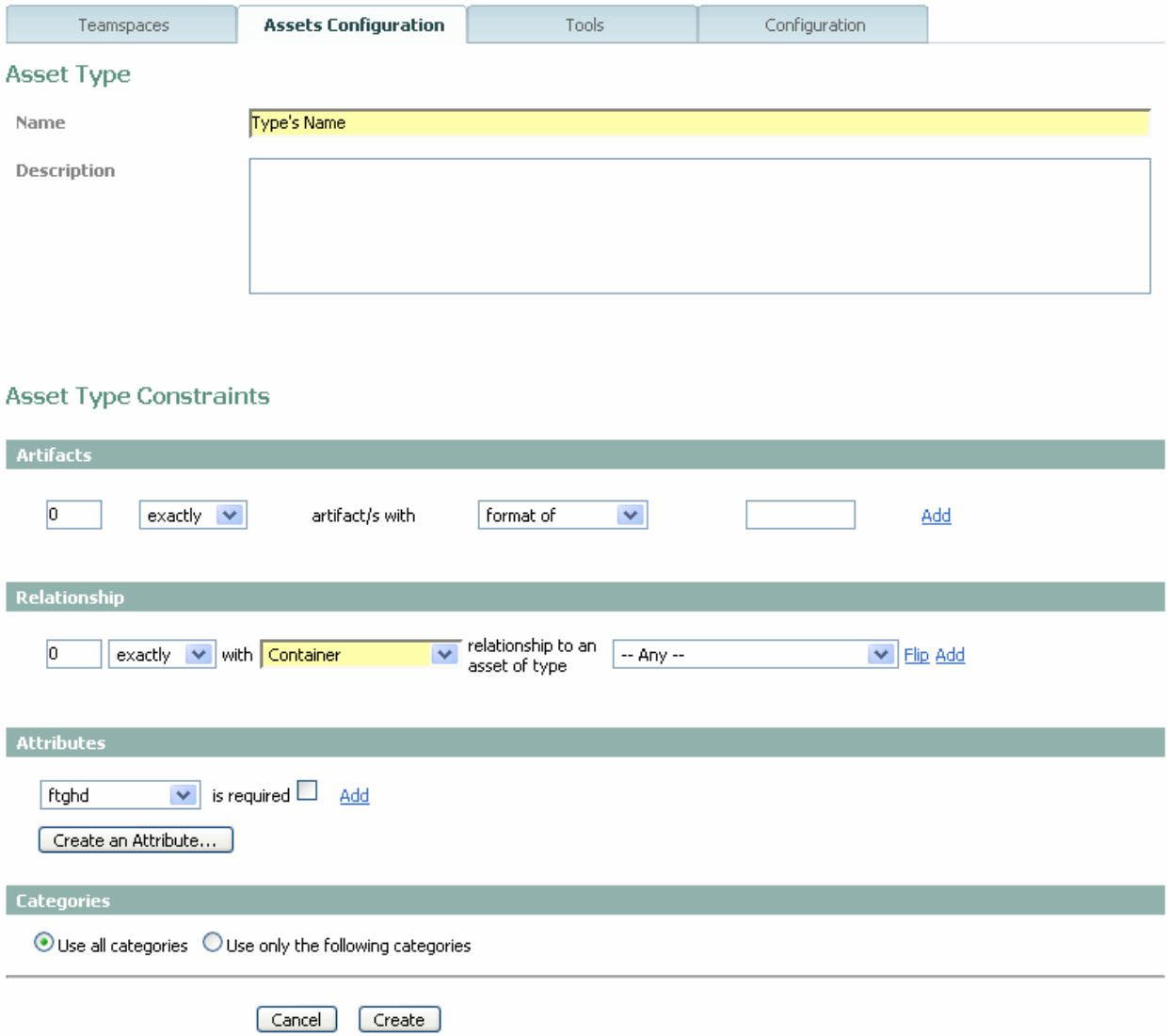
- ✓ Type name, description
- ✓ Required artifacts
- ✓ Required relationships
- ✓ Attributes (optional or required)
- ✓ Which categories are allowed

Validation of asset type constraints will be run on asset submission

Example Asset Types representing a Service

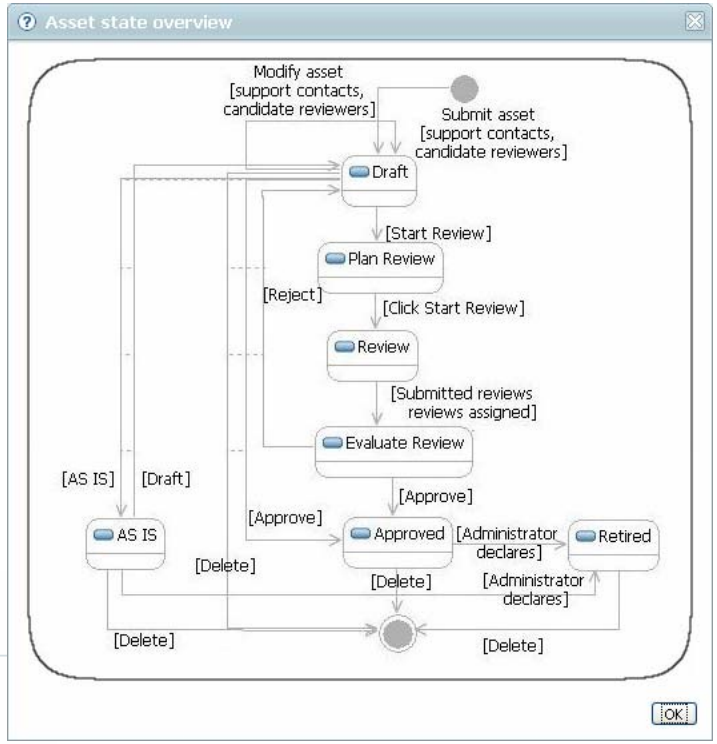


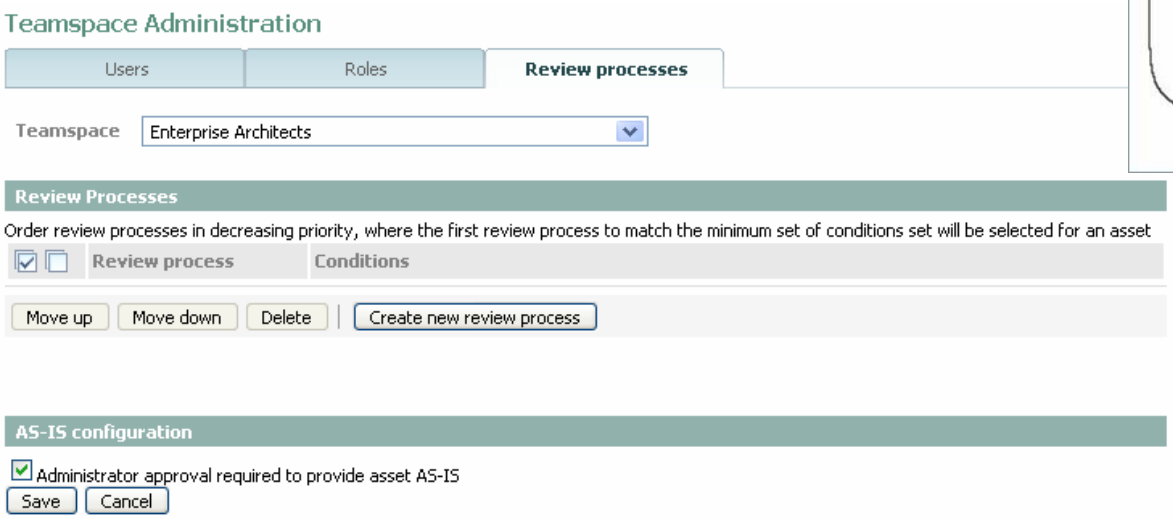
Creating an Asset Type in RAM



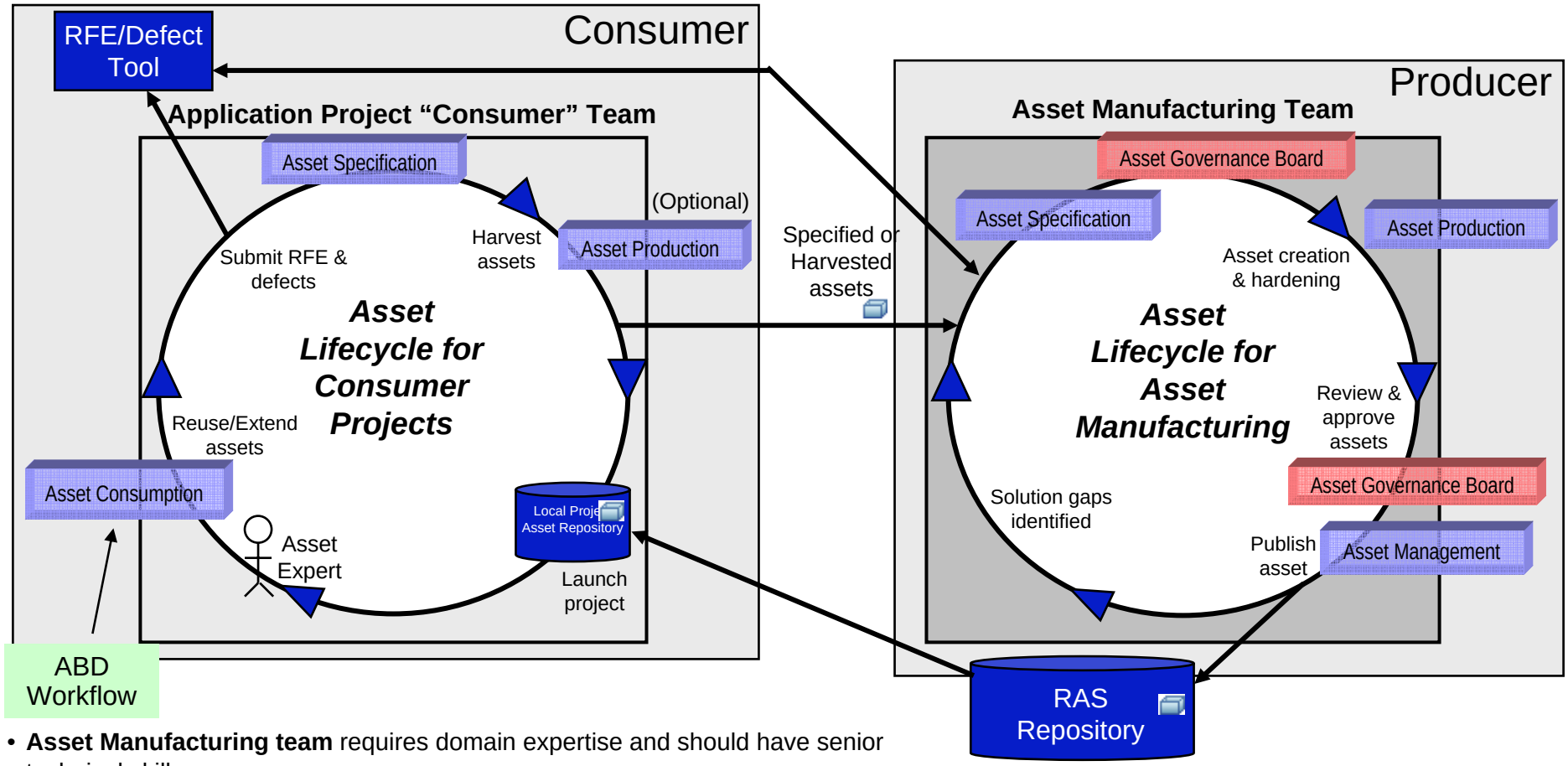
Asset Review Process

- **Teamspace administrator can set up review processes per asset type and category**
- **Review processes can be customized**
- **Review boards and individual reviewers supported**
- **AS-IS state supported**
- **Notifications are sent automatically to reviewers**





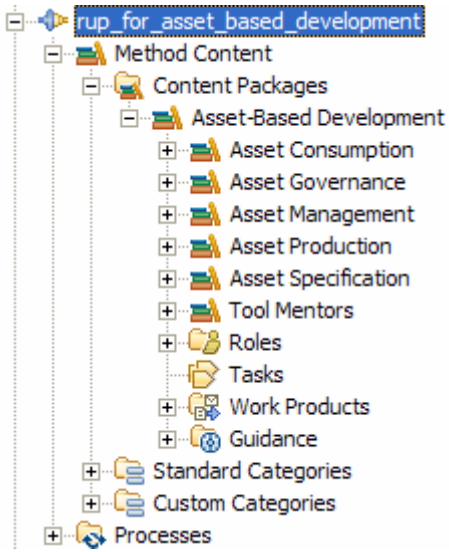
Define Your Asset Management Processes



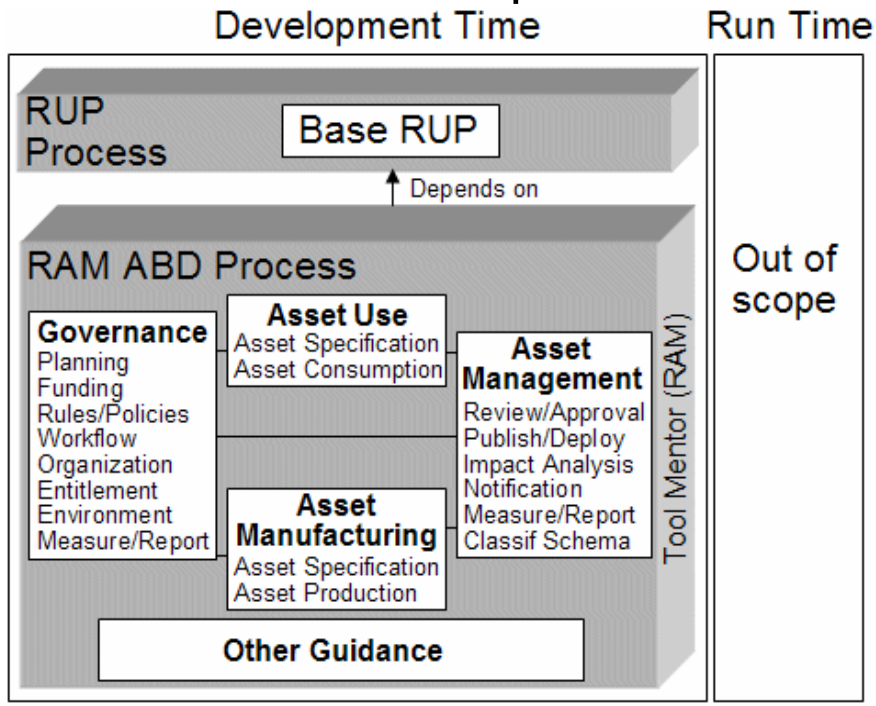
- **Asset Manufacturing team** requires domain expertise and should have senior technical skills
- **Asset Consumer team** requires domain expertise and needs the proposed assets
- **Asset Governance Board** needs review and testing skills, and should have a manager that gives final approval to the proposed assets

Process Being Captured in RMC for RAM

Structure In RMC



Content Scope



Connect Asset Mgmt Processes To Assets

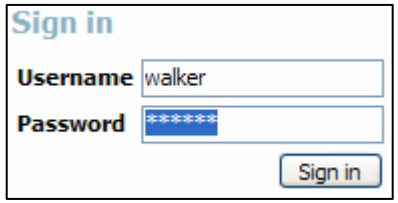
Using RMC-published process, click asset link

Services Layer

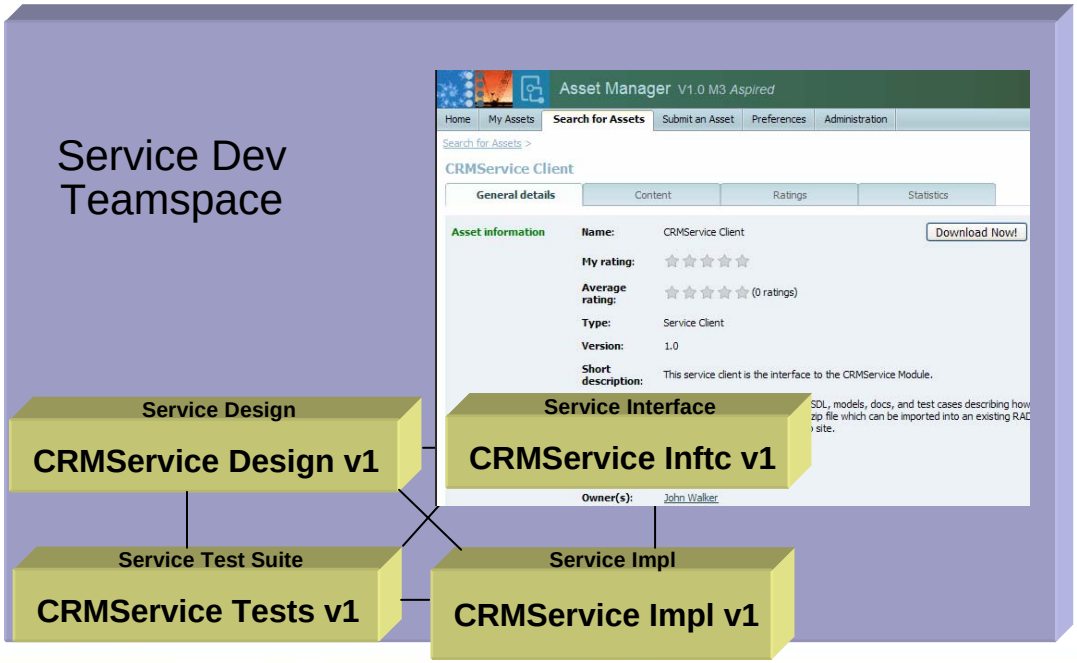
Browse and use the following assets for the Services layer.

Claims Service Client - http://127.0.0.1:8080/com.ibm.ram.repository.web/assetDetail/generalD

Authenticate



Browse, download asset from RAM Web UI



Scenario 2 : Search or evaluate an asset

Description

- ✓Analyst/Architect/Developer … do the following:
  - enters keywords to search for assets
  - navigate the classification schema/facets evaluating the result list

Customer pain points

- ✓effort to find asset
  - where to look, context and narrow it down to relevant candidates, inconsistent meta data
- ✓effort to evaluate asset
  - which assets that apply to the problem they are trying to solve
  - assets that are applicable to their team, role, project or architecture component
  - inconsistent packaging
- ✓control access to asset

RAM Eclipse or Web client

Analyst

Entitled access

RAM Eclipse or Web client

Architect

Entitled access

RAM Eclipse or Web client

Developer

Entitled access

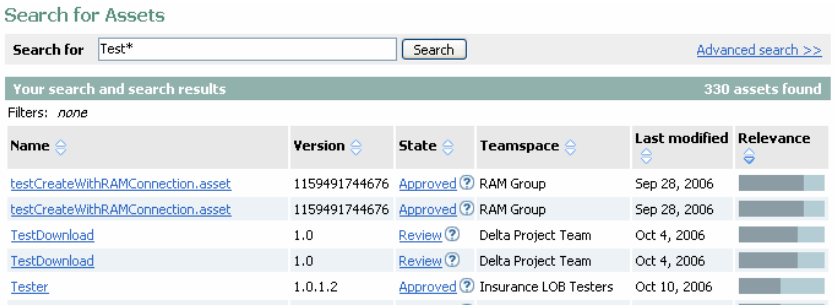
Scenario 2: Search or evaluate an asset

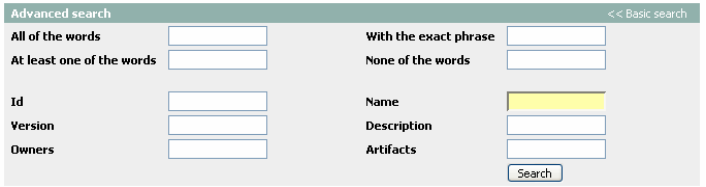
Search

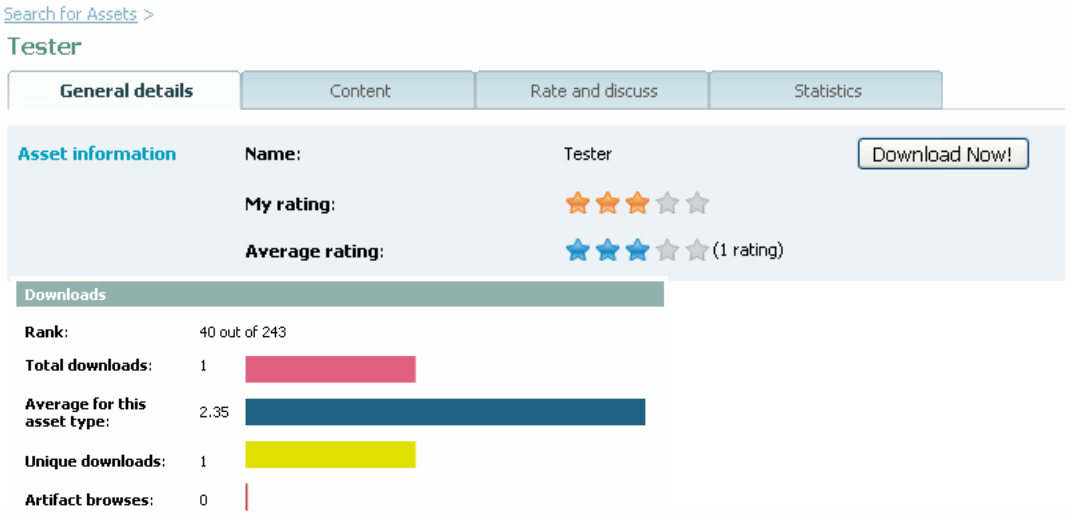
- ✓ Search using categories, facets, keywords
- ✓ Indexed for fast retrieval
- ✓ Web or Rich client

Evaluate

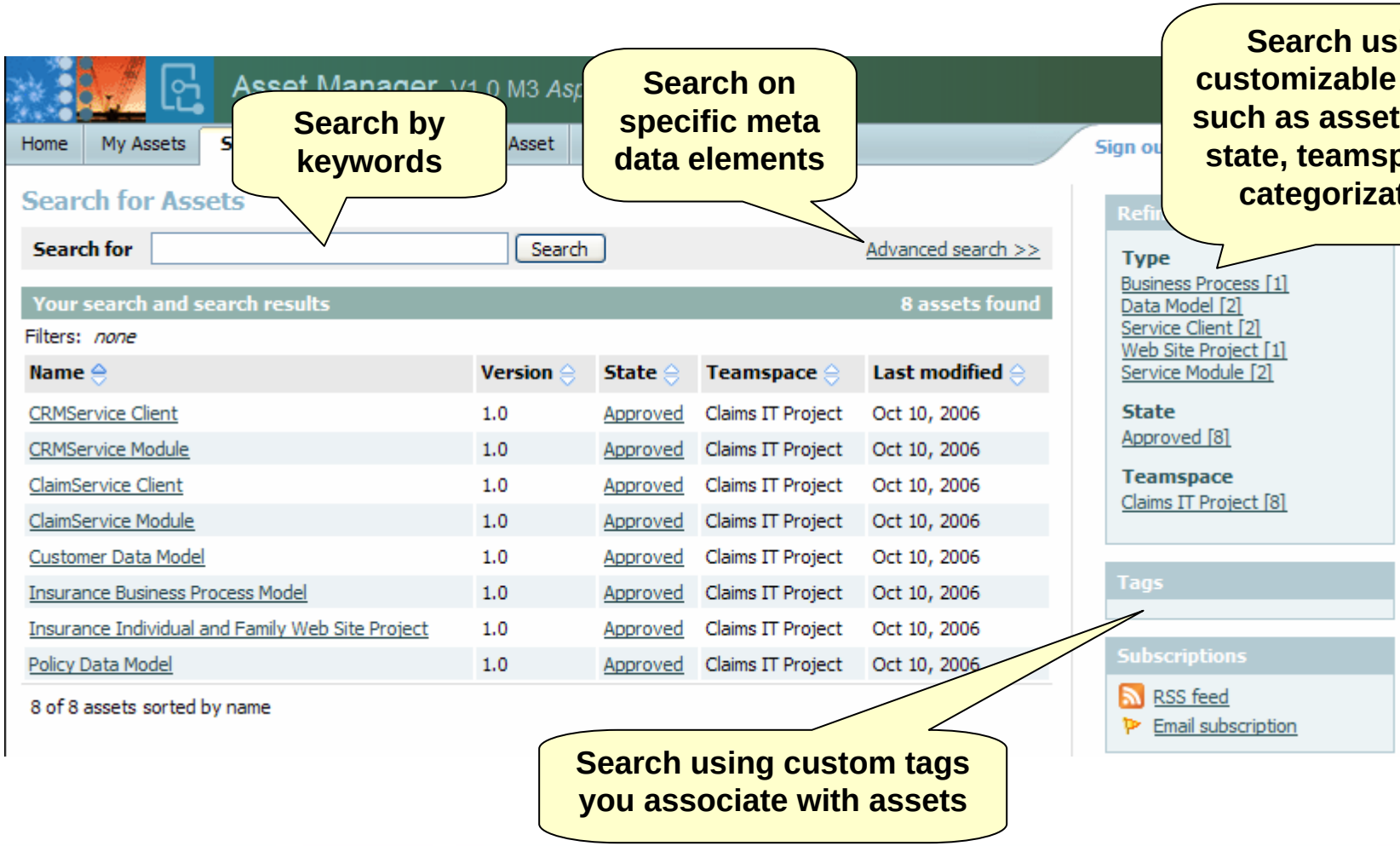
- ✓ Can browse the asset to the artifact level
- ✓ Ratings, feedback, and statistics help in asset evaluation
- ✓ Download in 1 click- Web or Rich Client
- ✓ Rich client integration inserts the asset directly into an Eclipse based IDE



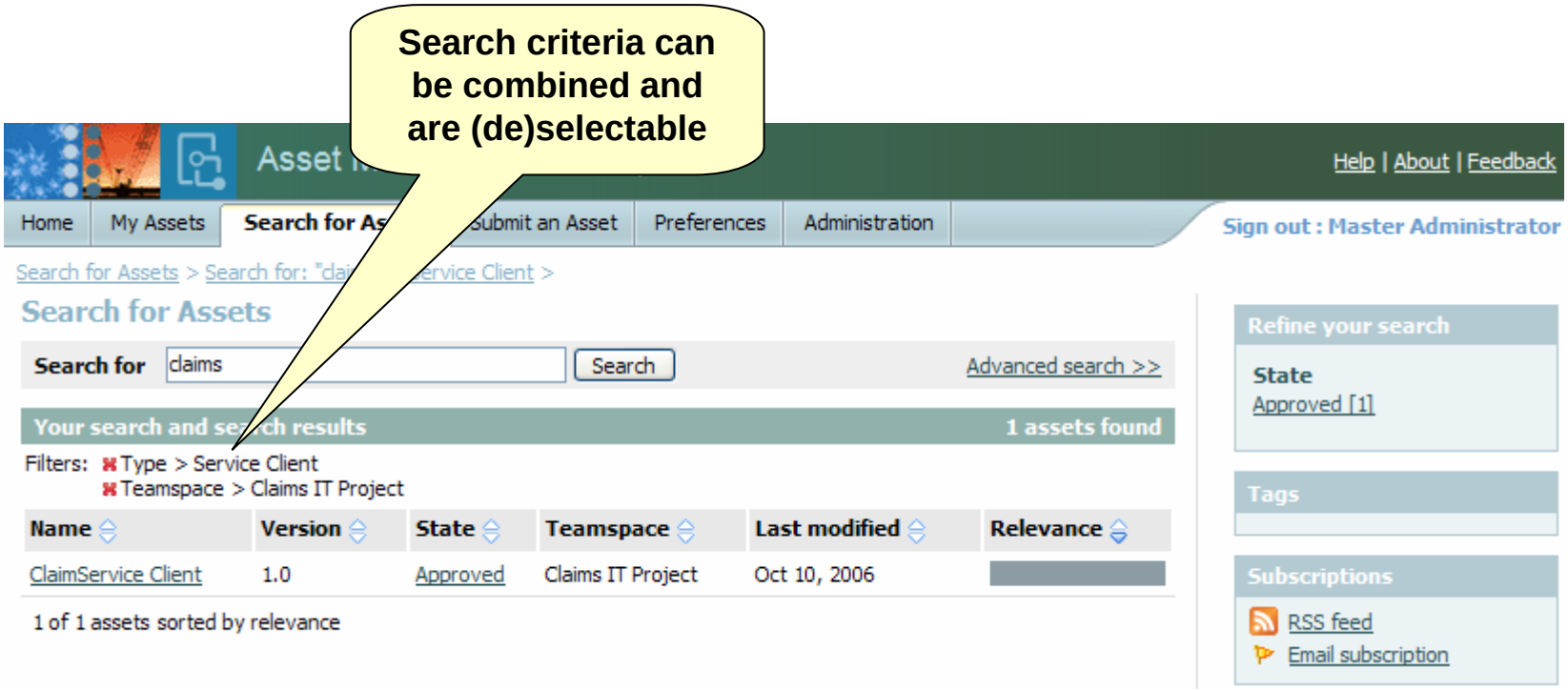




Scenario 2 : Search or evaluate an asset – RAM Web UI



Scenario 2 : Search or evaluate an asset – RAM Web UI



Scenario 3 : Retrieve and use an asset

Description

- ✓Analyst/Architect/Developer… do the following:
  - indicate the intended use of the asset (further evaluation, or actual use)
  - add the asset to their product/project
  - import the asset into their IDE workspace

Pain points

- ✓don't know how to get started to use the asset
- ✓how and where asset is putting artifacts in my workspace
- ✓difficult to determine who is using the asset and where it is being used
- ✓Inability to plan or implement fix or feature - lack of notification when a new asset is available or has changed
- ✓difficult to get support - who is responsible for maintaining the asset or where to get help
- ✓determine which projects, products and assets are impacted by changes to software and non-software related artifacts

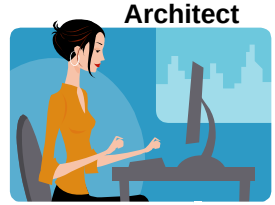
RAM Eclipse or Web client

Analyst

Entitled access

RAM Eclipse or Web client

Architect



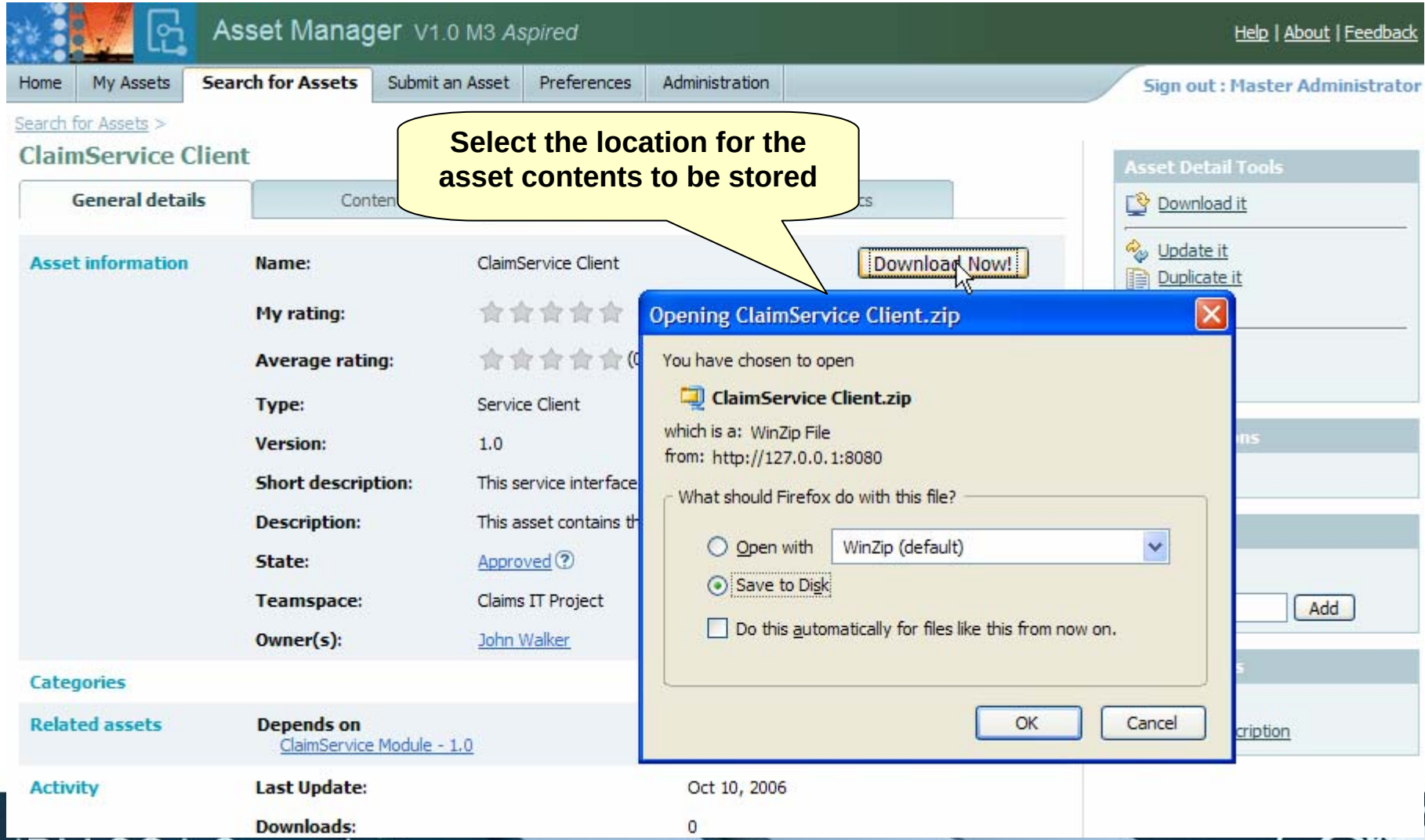
Entitled access

RAM Eclipse or Web client

Developer

Entitled access

Scenario 3 : Retrieve and use an asset – RAM Web UI



Scenario 4 : Create and package asset

Description

- ✓Analyst/Architect/Developer… do the following:
  - create artifacts for the asset in RAM
  - select the artifacts to be included in the asset
  - enter meta data & classification information

Pain points

- ✓ Create
  - Identifying candidate assets
  - Harvesting asset artifacts
  - Without understanding context for reuse
- ✓Package
  - inconsistent organization for assets, the information captured, their classification, and entitlements so that they can be used by others.
  - Time consuming to package
  - Don’t know how to package assets
  - Different packaging needs differ depending on product.

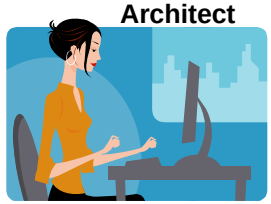
RAM Eclipse or Web client

Analyst

Entitled access

RAM Eclipse or Web client

Architect



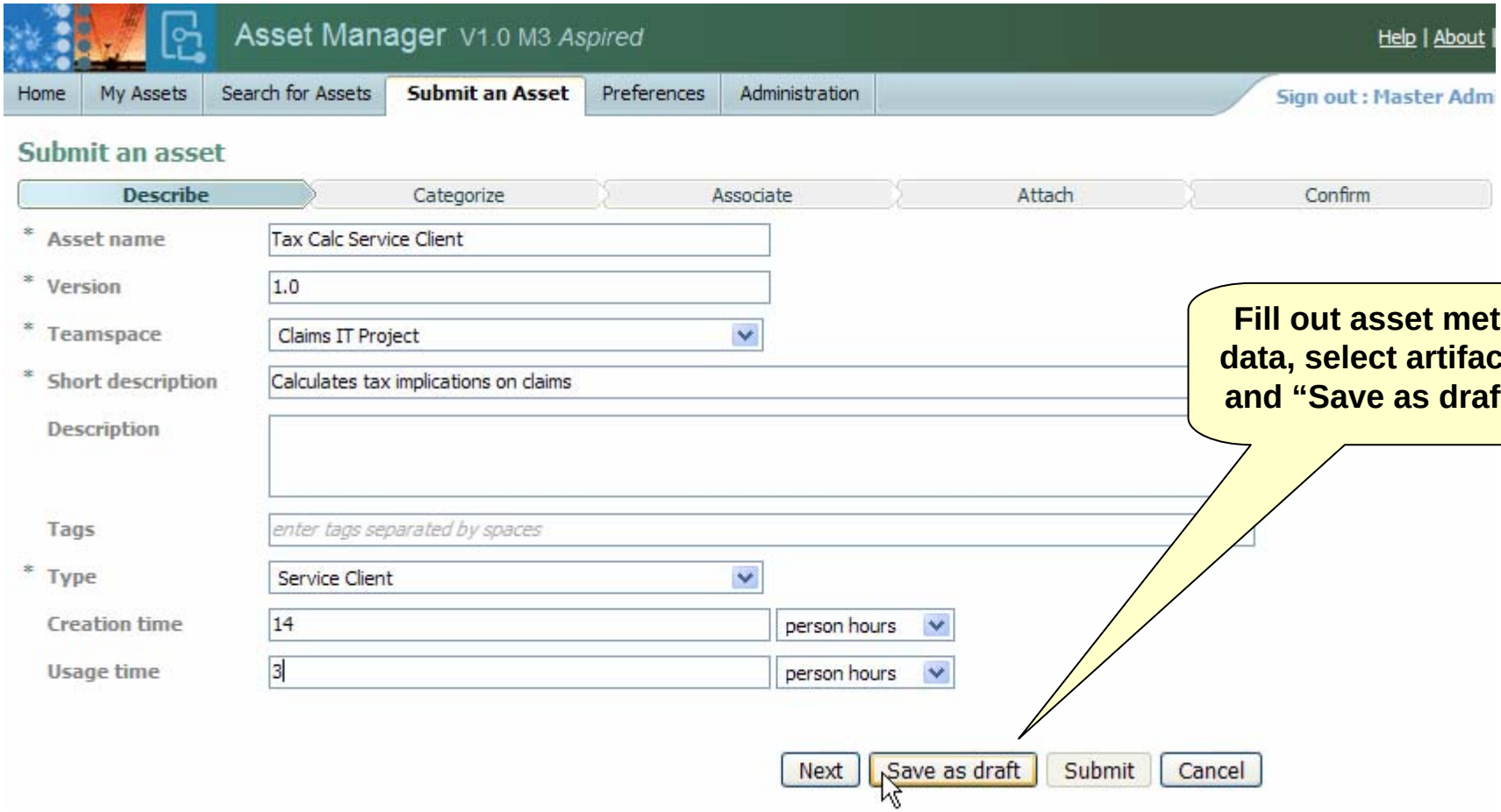
Entitled access

RAM Eclipse or Web client

Developer

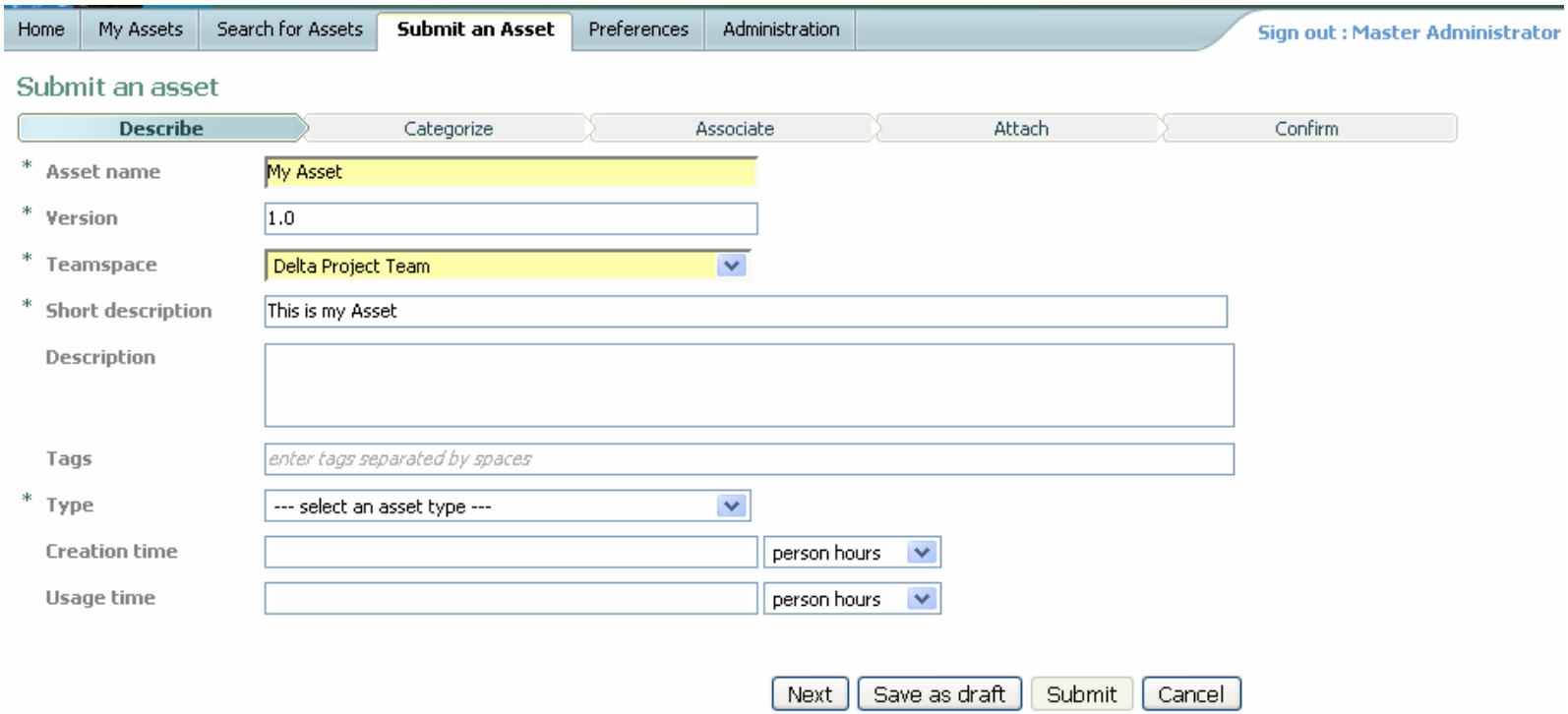
Entitled access

Scenario 4 : Create and package asset – RAM Web UI



Scenario 4: Create and package an asset – RAM Web UI

- **Chose type, categories, relationships and files to upload**
- **Can specify additional tags for searching**
- **Wizard guides the user based on how the Asset type is defined**



Scenario 5 : Submit asset

Description

- ✓Analyst/Architect/Developer… do the following:
  - •create an entry for the asset in RAM
  - •refine meta-data & define asset entitlement

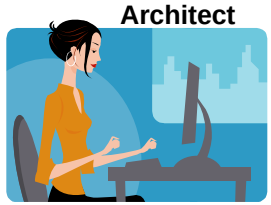
Pain points

- ✓ Inconsistent organization for assets, the information captured, their classification, and entitlements so that they can be used by others.
- ✓Manually storing and manages assets
- ✓Inconsistent registering of assets
- ✓Different packaging needs differ depending on product.
- ✓Team members don't know when there are new assets or updates
- ✓Difficult to understand asset technical context, inter-relationships and dependencies because it isn't defined or communicated

RAM Eclipse or Web client

Entitled access

RAM Eclipse or Web client

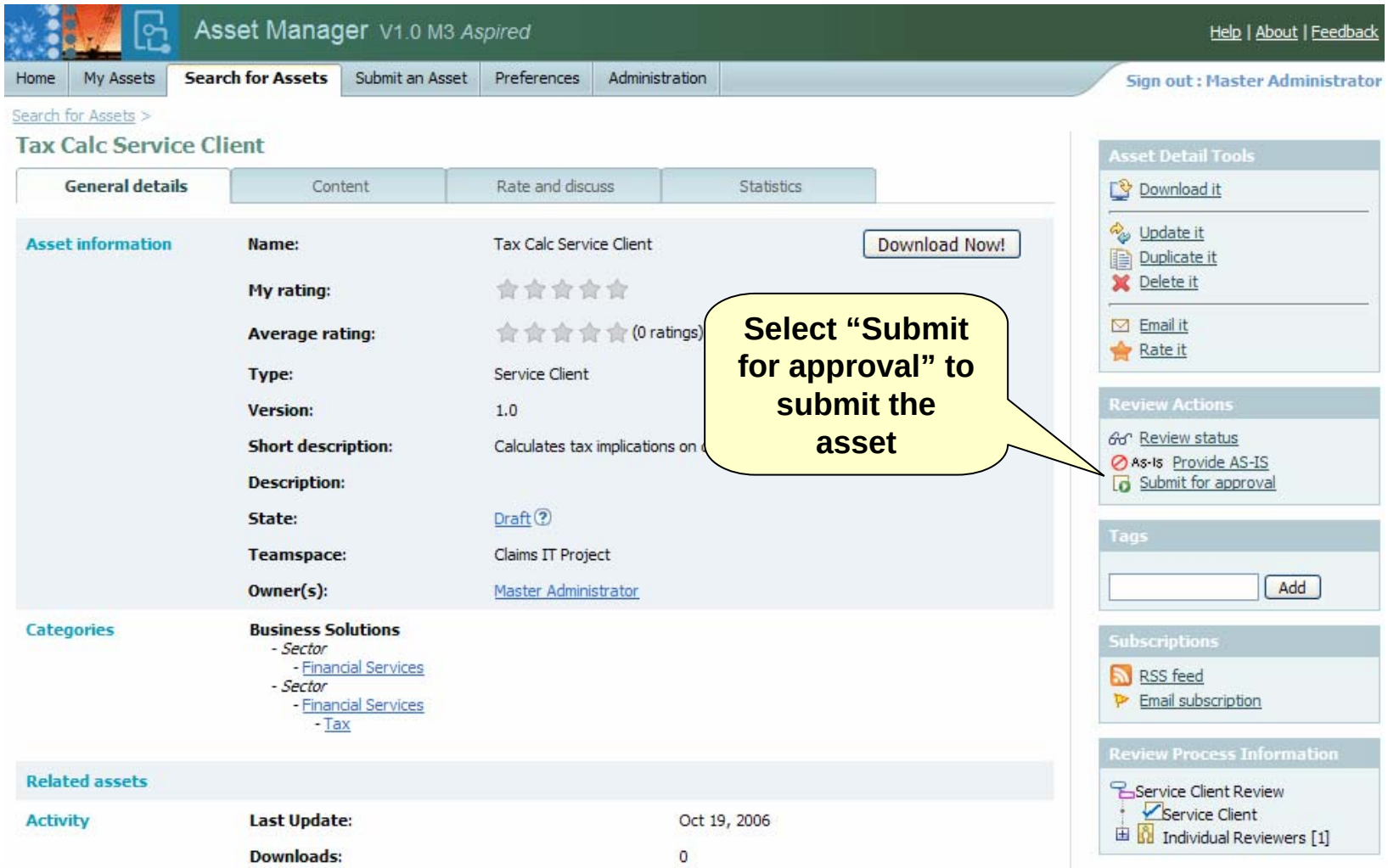


Entitled access

RAM Eclipse or Web client

Entitled access

Scenario 5 : Submit asset – RAM Web UI



Scenario 6: Review & approve asset

Description

- ✓ Review
  - Asset Manager or review board does the following:
    - determines and notifies asset reviewers
  - Asset Reviewer does the following:
    - reviews the asset
    - submit asset review
  - Asset Manager or review board approve
    - evaluates the submitted reviews
    - approves or rejects the asset for publishing
  - System notifies the submitter/author/producer/owner/reviewers

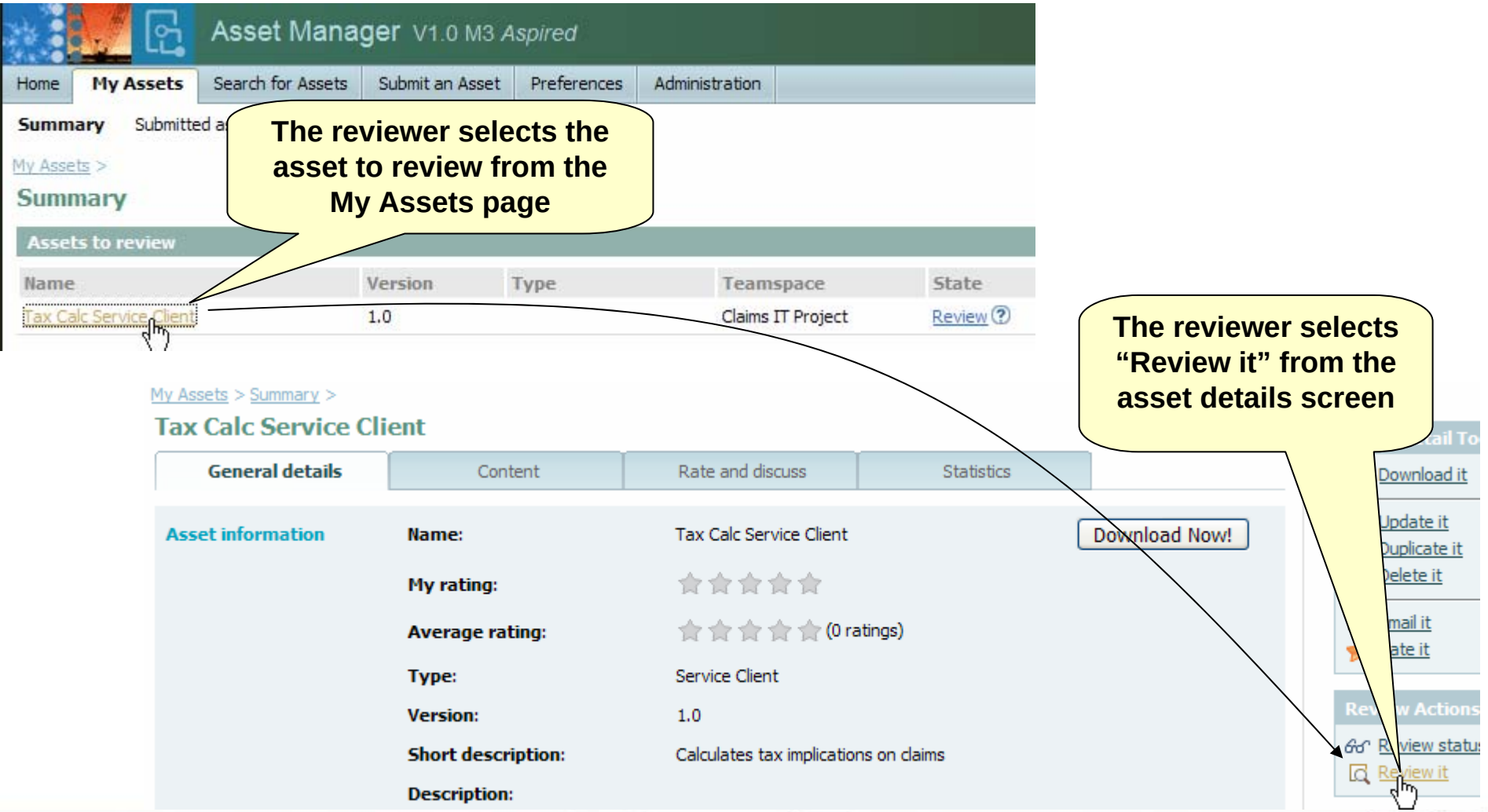
Pain points

- ✓ Needs assets which have been validated and verified for a specified context and scope of reuse
- ✓ Needs assets which have met enterprise rules, policies and governance
- ✓ Lack of awareness of where the asset is in the workflow

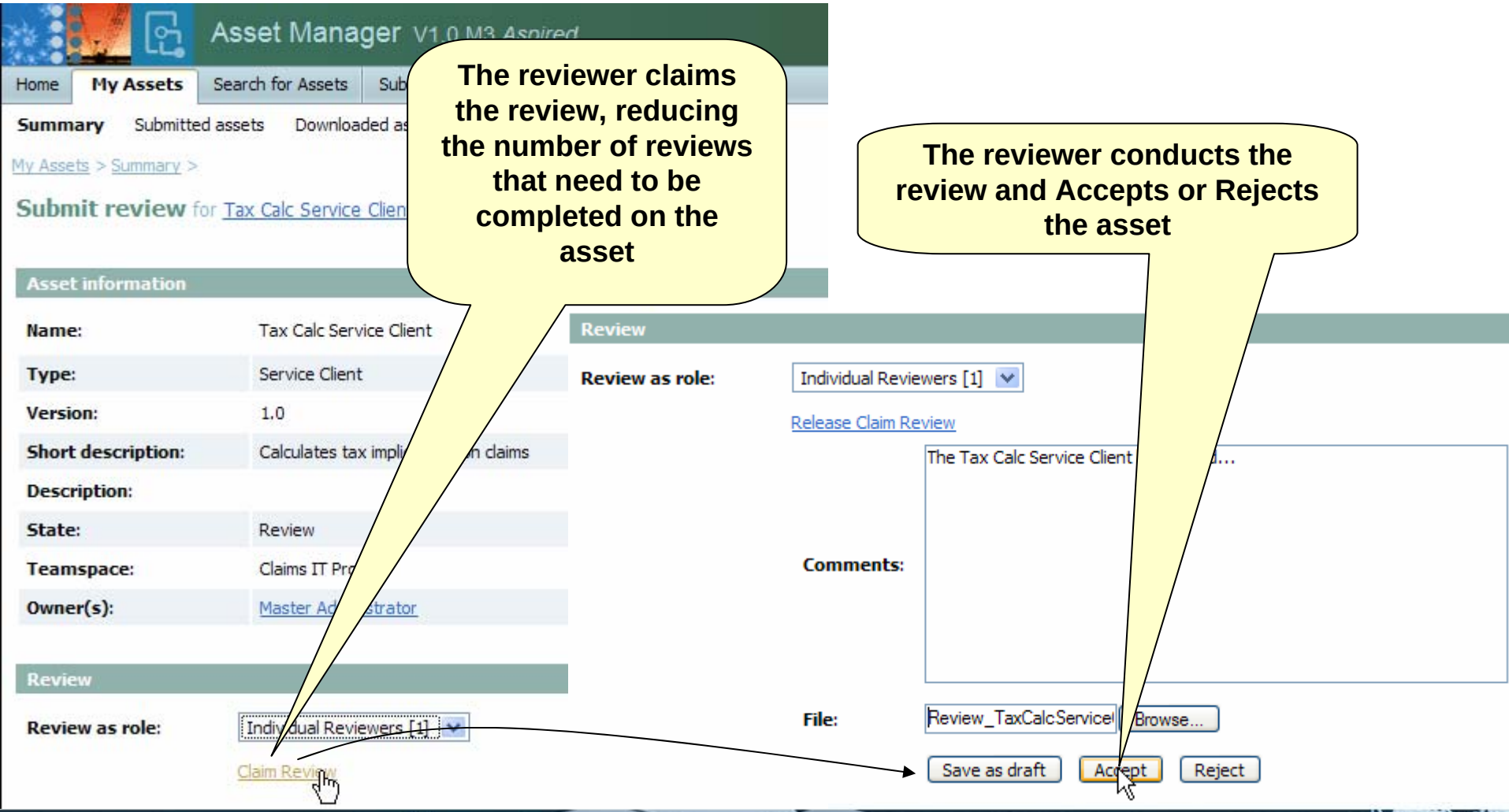
This offering will provide the ability to …

- ✓ Out of the box default workflow
- ✓ Capture review process information
- ✓ Send workflow email notification

Scenario 6: Review & approve asset – RAM Web UI



Scenario 6: Review & approve asset – RAM Web UI



Scenario 7: Measure asset activity

Description

- ✓ [Precondition] Asset submitted & may have activity
- ✓ Administrator does the following:
  - Generate metrics reports

Pain points

- ✓ Management needs to quantify activity level, benefits realized, return on investment & quality

This offering will provide the ability to …

- ✓Capture asset production effort
- ✓Capture expected reuse & actual consumption effort)
- ✓Capture downloads, submissions, approvals,
- ✓Generate derived metrics (ROI, productivity, cost savings…)
- ✓Reporting and charting metrics
- ✓To report on asset defects stored in ClearQuest

RAM Eclipse or Web client

Teamspace Administrator

Entitled access

RAM Web client

Business Manager

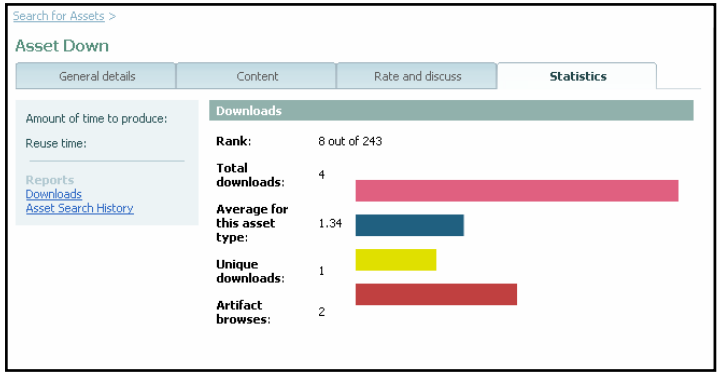
Entitled access

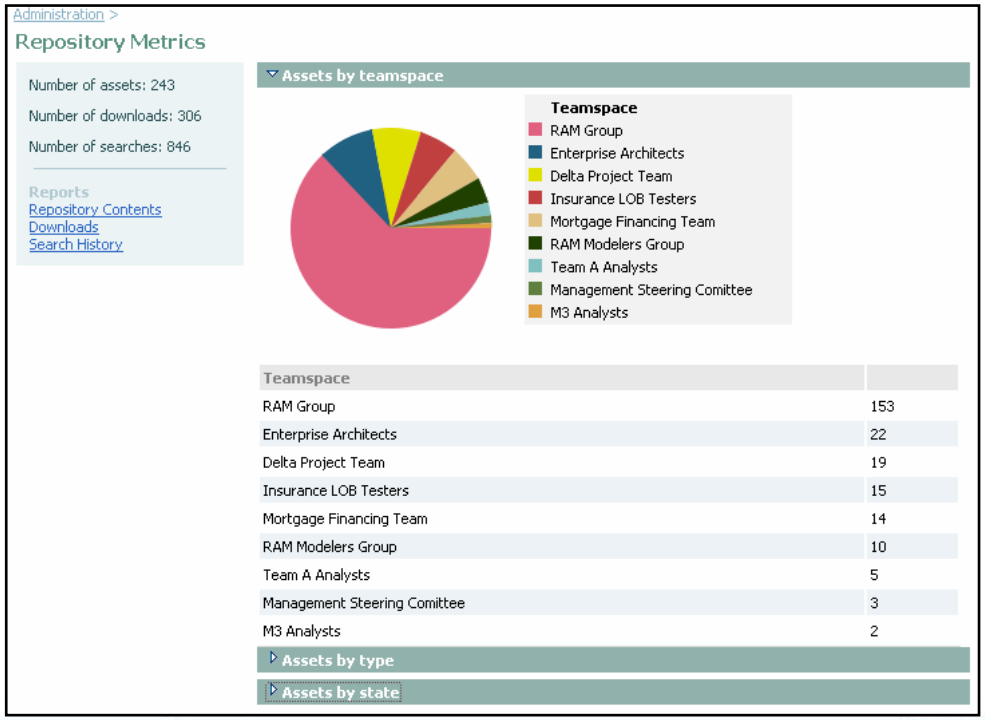
Scenario 7: Measure Asset Activity

Metrics and reporting are supported in RAM

- ✓ Asset Level Reports
  - Downloads, browses, feedback and ratings
- ✓ Repository Level Reports
  - Assets by teamspace, type, and state
  - Search History
  - Downloads

Investigating a custom reporting solution using BIRT





Scenario 8 : Modify and create new asset version

Description

- ✓ Analyst/Architect/Developer… do the following:
  - selects existing asset in RAM
  - modifies asset properties and saves changes
  - indicates if a new version is required

Customer pain points

- ✓Lack of notification when a new version of an asset is available
- ✓Difficulty tracking multiple versions of an asset
- ✓Difficulty tracking usage of different asset versions
- ✓Difficult to understand when and how assets changed and what artifacts were changed
- ✓Time wasted to setup a workspace to fix or enhance asset

This offering will provide the ability to …

- ✓Get email notification RSS feed of when there are new asset versions.
- ✓Update asset contents, descriptions, metadata and other properties
- ✓Version assets in ClearCase or CC Multisite
- ✓Create a CQ change request from RAM asset details
- ✓Report on asset usage by asset version
- ✓Have assets refer to artifacts by reference in ClearCase or CVS
- ✓Invoke an asset meta data diff between 2 versions of an asset
- ✓Recreate and populate a workspace with asset contents from ClearCase by reference or RAM.

Key technology or integration components

- ✓Optionally ClearCase, ClearQuest, CVS

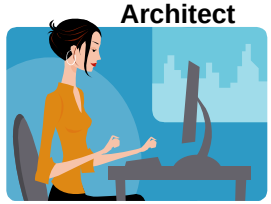
RAM Eclipse or Web client

Analyst

provided access

RAM Eclipse or Web client

Architect



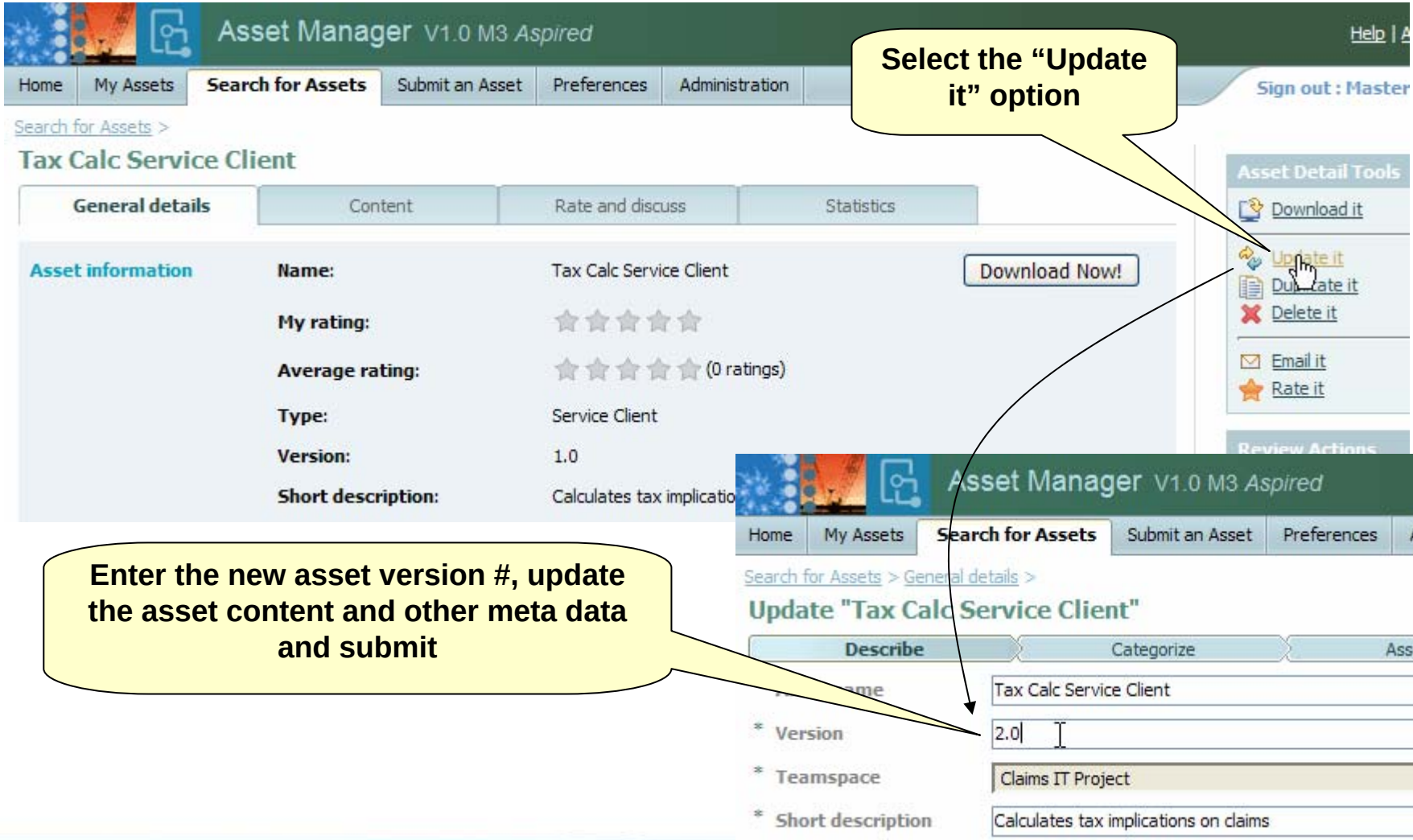
provided access

RAM Eclipse or Web client

Developer

provided access

Scenario 8 : Modify and create new asset version – RAM Web UI



Notifications

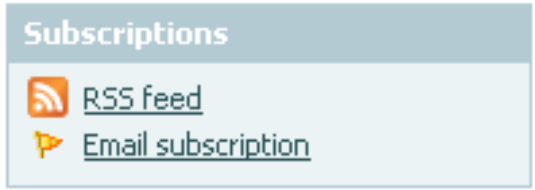
Email and RSS Notification are supported

Notifications can optionally occur when:

- ✓ An asset is submitted / updated
- ✓ Review state of an asset is changed

Search subscriptions are also supported

- ✓ Notified periodically of search results



Scenario 9 : Asset Development Process

Description

- ✓ [Precondition] Software type assets requires established software architecture & process, versioning & configuration management skills

Customer pain points

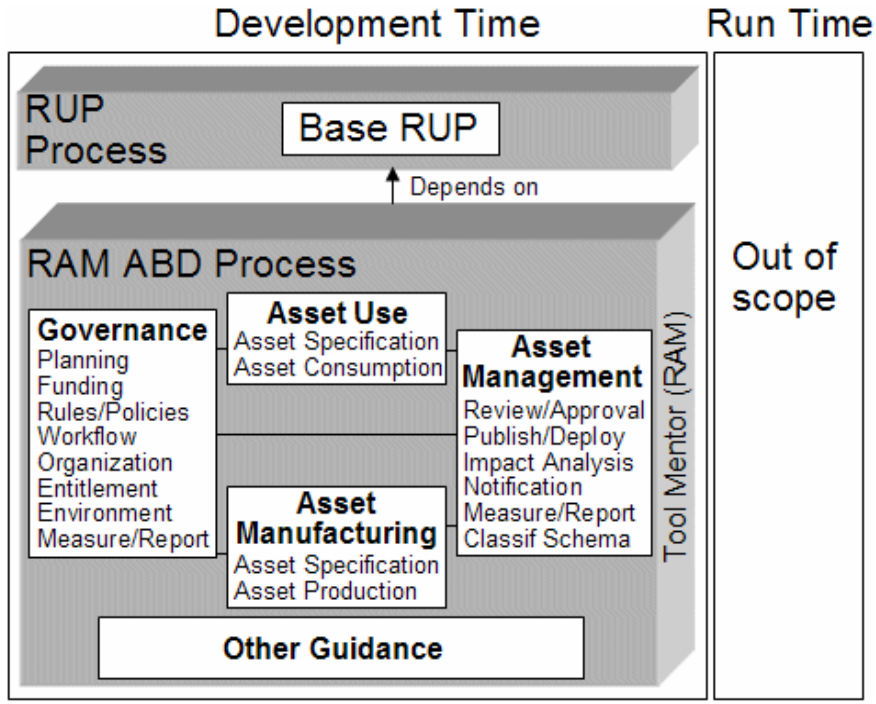
- ✓Wasted effort in reuse imitative
  - •lack of process
  - •don't know how to get started
  - •Unable to find assets for specific process step
  - •To much time spent on review

This offering will provide the ability to …

- ✓ ABD & management process guidance
- ✓Rational Method Composer – Rational Unified Process
  - •RMC RUP website
  - •RMC project
  - •Sample process templates & tutorial movies
- ✓Provide URI to applicable assets from the process step
- ✓Submit assets "as-is" for specified users

Key technology or integration components

- ✓Requires Web browser
- ✓To customize requires RMC



Scenario 10: Product Administration

Description

- ✓ Product Administrator sets up and maintains Repository Server

Customer pain points

- ✓ Total cost of ownership because of administration
- ✓ Auditing for security and regulatory purposes
- ✓ Complexity in setting up product integrations

This offering will provide the ability for …

- ✓Product administrators to:
  - •Reduce user admin cost by authenticating users using application server LDAP security context and defining access controls using groups
- ✓Repository administrators to:
  - •Import and export RAM configuration information
  - •Configure a single instance of RAM for entire enterprise
  - •Enable activity auditing
  - •Define which ClearQuest instance and ClearCase Multi-site replicas to use for asset production and consumption scenarios
  - •Configure which WSRR instances being used

RAM Web client

Teamspace Administrator

provided access

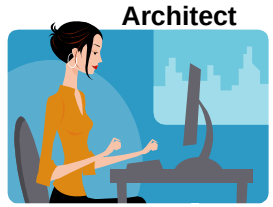
RAM Web client

Repository Administrator

provided access

Scenario 11: Service Lifecycle Governance with WebSphere Service Registry & Repository

RAM Eclipse or Web client



provided access

RAM Eclipse or Web client

provided access

Description

- ✓ [Precondition] Service deployed in WSRR
- ✓ Developer or Architect creates a new service asset or includes a deployed service in a new asset
- ✓ Administrator defines common and unique development and runtime categorizations and ACLs

Customer pain points

- ✓Difficult to determine what service artifacts were used to create or consume a service
- ✓Consistently administrate & enforce ACLs & categorizations for entire service asset lifecycle
- ✓Understand which assets that use deployed services from WSRR
- ✓Ensure traceability between service assets created with RAM and deployed in WSRR

This offering will provide the ability to …

- ✓Make WSRR deployed services available as searchable assets in RAM
- ✓Populate RAM categorizations with retrieved WSRR service classifications
- ✓Publish RAM Service Assets to WSRR using a wizard
- ✓See RAM Service Asset that are traceable to WSRR deployed services.

Summary

- **Asset reuse is becoming critical**
  - ✓ Reduce software development costs
  - ✓ Improve quality by facilitating the reuse
  - ✓ Enable Globally Distribute Development

- **Rational Asset Manager provides the tools integrated with industry leading processes required for successful asset reuse!**

Targeted Platforms

Operating Systems

- ✓ Windows XP Profession SP2
- ✓ Vista Business Edition
- ✓ Windows Server 2003 Standard Edition
- ✓ Windows Server 2003 Enterprise Edition
- ✓ SuSE Linux 10 (Intel 32 bit)
- ✓ Red Hat Linux Enterprise AS4

Database

- ✓ DB2 Enterprise Server Edition 8.2, 9.1
- ✓ Oracle 9.2.0 (9i), 10g
- ✓ SQL Server 2005

LDAP

- ✓ Microsoft Active Directory Server 2003

Integrations

- ✓ ClearCase v7.0.0.1
- ✓ ClearQuest v7.0.0.1
- ✓ WSRR v6.0.0.1
- ✓ CVS 1.11.22 or later

Browsers

- ✓ Microsoft Internet Explorer 6 SP1, 7
- ✓ FireFox 1.5.x, 2

IDE

- ✓ 3.2.1
- ✓ IBM Rational Software Development Platform products (RAD, RSA etc) v7

Application Server

- ✓ WebSphere Application Server V6.0.2 and Fix Pack 11
- ✓ WebSphere Application Server v6.1
- ✓ Tomcat v5.5
- ✓ Includes WebSphere Application Server embeddable v6.1