Architecture & Construction Keynote

Architecture Management

Karen Hunt, Director,
Rational Architecture Management Software

Scott Darlington, Product Manager,
Enterprise Architecture Management
Agenda

- Fundamentals of the Rational software strategy
- The Rational Architecture Management portfolio at a glance
- Evolution of Architecture Management
- How the AM portfolio enables development and business success
  - Countering complexity with the powers of abstraction, automation, and governance
  - Using visual construction tools for maximum productivity
  - Realizing the value of asset-based development and governance
  - Leveraging a new foundation for more effective collaboration
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Fundamentals of the Rational Software Strategy

- **Enabling governance**
  - For oversight and accountability

- **Delivering flexible architectures**
  - For agility and modularity

- **Leveraging communities**
  - For collaboration and insight

**GOAL:** Delivering value in support of business outcomes

- Custom definitions of...
  - Ship Early
  - Ship Often
  - Listen to Your Customers

Enables
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Rational Software Portfolio

Integrated Delivery Platform for Systems through Software

- Process & Product / Portfolio Management
  - Requirements management
    - Architecture management
  - Change & release management
  - Quality management

Open standards, partner ecosystem & community innovation

Specialized global sales and services
Architecture and construction
Model, design, and rapidly build resilient architectures for SOA, systems, and applications

Create and manage software delivery requirements
Rational RequisitePro
Rational Software Modeler
Telelogic Doors

Requirements Analyst

Create business process model
WebSphere Business Modeler
Telelogic System Architect

Business Analyst

Collaborate, trace, and reconcile

Create architectural model from business process model and automate tasks
Rational Software Architect
Rational Asset Manager
Telelogic Rhapsody
Telelogic Tau

Software Architect

Create and integrate existing services
Rational Application Developer
Rational Developer for System z
Rational Business Developer Extension
Rational Asset Manager
Telelogic Rhapsody

Developer

Open standards, partner ecosystem & community innovation
Specialized global sales and services
IBM Acquires Telelogic AB
Transforming Technical Systems Development for Unique Value

- Primary strength in IT Development
  - Leading products
  - Vertical industry penetration
  - Investment power
  - Global leadership in Research & Development
  - Organizational transformation expertise
  - Geographical reach and organizational access

- Primary strength in Systems Development
  - Leading products:
    - Requirements Management
    - Enterprise Architecture
    - Systems and embedded software tools
  - Industry specific solutions including:
    - Aerospace & Defense
    - Automotive
    - Telecomm
Our Vision for Technical Systems

Building Innovative Systems and Products that Rely on Software

The lines between “IT” and “systems” development get blurred, more integrated

Enabling clients to utilize system engineering and architectural frameworks to create, manage and implement architectures that integrate systems with IT/back-office environments.

Extending the capability of IBM and our business partners to provide comprehensive product lifecycle management.

Delivering an end-to-end, open, extensible, standards-based platform for systems and software lifecycle management.

Systems engineering & architectural frameworks
Enterprise & industry architectures

Product lifecycle management
Integrating software, mechanical and electronics

Software
Systems and Software Delivery Platform

- DEVELOPMENT -

Electronic EDA tool vendors

Mechanical MCAD tool vendors
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What is Enterprise Architecture?

IBM:

“The Enterprise Architecture discipline defines and maintains the architecture models, governance, and transition initiatives needed to effectively coordinate semi-autonomous groups towards common business and/or IT goals.”

Gartner:

“Enterprise architecture is the process of translating business vision and strategy into effective enterprise change by creating, communicating and improving the key principles and models that describe the enterprise’s future state and enable its evolution.”

Wikipedia:

“Enterprise architecture is the organizing logic for business processes and IT infrastructure reflecting the integration and standardization requirements of the firm’s operating model. Practitioners are called enterprise architects.”

1. Enterprise Architecture in the era of On-Demand, IBM Academy of Technology Study, October 2004
2. Short form, Gartner Defines the term ‘Enterprise Architecture’, Anne Lapkin, Gartner, July 12, 2006
Enterprise Architecture
Telelogic System Architect

Capabilities
► Out-of-the-box multiple method support with industry proven frameworks and standards
► Superior analysis and reporting
► Web enablement for the extended team
► Customizable and extensible for your EA process
► Optimization of business process and strategy

Benefits
► Create an IT organization in line with business strategies and processes
► Clear picture of the entire organization for corporate leaders
► Understand the impact of change before significant resource & expenditure are incurred
► Ensure that SOA implementations match business expectations

Gartner puts Telelogic System Architect in Leader Quadrant in EA Magic Quadrant Report
Coming This Year …

► Overall: Expanded enterprise workflow

► Enterprise change management
  ▪ Manage changes of business models and tasks, through integration with Telelogic Change
  ▪ Analysis of changes to software services and business processes

► Enterprise SOA management
  ▪ Automated transformations and mappings between work products in System Architect and Telelogic Tau
  ▪ Synchronize IT implementations with business objectives
    – Data modeling (ER to UML)
    – Business analysis to application development (BPMN to UML)

New

An Introduction to Enterprise Architecture
Thurs 2:00 pm
What are customers trying to do with their architectures?

- **Manage outsourcing**
  - Customer: Req'ts, specs, testing
  - Vendor: Actual architectures

- **Adhere to architectural framework**
  - Regulatory or contractual
  - DoDAF, TOGAF, etc.

- **Pass an audit**
  - Architecture & business process transparency

- **What do I already have in place?**
  - As-is analysis

- **Improve my solution architecture**
  - Find opportunities for incremental improvement

- **Manage my portfolio**
  - Application/product

- **Manage packaged applications**
  - Integrate with rest of architecture

- **Reference planning model**
  - Initiate new projects from a common starting point based on an EA model

- **Need a better Visio**
  - Go beyond basic drawings

- **SI community**
  - Leverage current projects for future business
A spectrum of EA Entry Points

Cost Reduction
- What do we have?
- Need all of it?
- Consolidate to reduce costs?
- Desire for impact analysis

Standardization
- Develop standards and recommended best practices (e.g. technology stacks, server platforms)
- Seeking repeatability
- Encourage IT evolution
- Focusing on IT scope only

Broaden Scope
- Meet business needs by linking IT to business
- Managing architectures outside IT
- Increasing focus on business architecture and business processes

Actionable EA
- Develop business strategy
- Value propositions, capabilities, resources?
- Refine into to-be
- Compare to as-is
- Create transition plan
- Execute

Organizations span a range of EA goals & scope
There’s more to an EA than “just an architecture”
“Doing the right things right”

Effective business transformation and optimization requires deep understanding of the enterprise architecture as a control point for governance, integration and project planning.

Doing the right things

Transition Planning
Are we still moving in the right direction?
These are the things we should do

Project Prioritization & Planning
Are we doing these things the way we said we want them done?

Governance
Are our target architectures still right?

Solution Development & Delivery

Enterprise Architecture Models
Building blocks, rules, patterns, constraints

This is the way things should be architected

Doing things right
Today, all too often the reality is...

Effective business transformation and optimization requires deep understanding of the enterprise architecture as a control point for governance, integration and project planning.

Today, all too often the reality is...

Effective business transformation and optimization requires deep understanding of the enterprise architecture as a control point for governance, integration and project planning.

EA often works well for business and IT decision making, but not for informing solution delivery.

Building blocks, rules, patterns, constraints

Strategy, purpose, objective, vision, etc.

Are we still moving in the right direction?

Are our target architectures still right?

Are we doing these things the way we said we want them done?

This is the way things should be architected

The Great Divide

Project Prioritization & Planning

Transition Planning

Governance

Solution Development & Delivery

Enterprise Architecture Models
Enterprise Architecture Capabilities

**Deliver in 2009**
- Capture and manage your enterprise architecture—enhanced
- Requirements traceability across System Architect and solution delivery tools via IBM requirements management tools
- Support reuse of EA assets in solution delivery
- Harvest appropriate solution assets into EA
- Support lifecycle management of reusable EA assets via RAM

**Deliver in 2010 & beyond**
- Enhanced EA governance and lifecycle management support
  - Including solution delivery interaction
- Jazz-based repository for improved linking between enterprise architecture and solution delivery tools
  - More-flexible traceability throughout lifecycle, across abstraction levels and domains of interest
Emergence of Architecture Management

- It is in this scope of managing both business and solution architectures that we see a new discipline emerging:

  **Architecture Management**
  
  The practice of dynamically managing the broad array of both business- and solution-related architectures spanning across the enterprise

- Architecture Management represents the steady-state of practicing against an actionable EA
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We all work with abstractions...

Pseudocode

Agile Architecture with Rational Software Architect v7
Thurs 4:45 pm

Which approach best meets your needs?
The Rational Software Architecture Family:

- Rational Software Architect
- Rational Systems Developer
- Rational Software Modeler

Leverage
- Requirements
- Business models
- Information models
- “Business Driven Development for Architected SOA”

Manage implementations
“Design Contract Management Protocols”

Elaborate and manage solutions with abstractions, traceability, impact analysis, ...
- Risk Management
- Productivity
- Repeatability
- Reuse
- Quality
- Compliance
- Stakeholder Communication

Manage
- Models
- Patterns
- Transformations
... as reusable assets
“Asset-Based Development”

Automate with patterns and transformations
“Patterns Based Engineering”

Add implementation details

Managing architectural change across the iterative development lifecycle
Coming This Year …

► Overall: Improved tool and process usability and scalability

► Patterns-based development
  - Enhanced model to model authoring tools, guidance

► Design contract management protocols
  - Enhanced visual edit, transformation, reconciliation capabilities
  - Support for new domains (JPA, EJB3)

► BDD for Architected SOA
  - Enhanced SOA transformations
  - Support for latest WBM and WID versions
  - Improved WID interoperability

► Bridging the gap between development and operations
  - Operational and Deployment Modeling

► Asset based development
  - RAM support for software and deployment architectures

RSA pedestal in Rational Lab (Solution Center)
Come This Year …

- **Overall: Advances in Systems and Software Engineering**
  - Breakthroughs in software asset reuse
    - Enabling projects to get the benefits of MDD and asset reuse
  - Advances in Systems Engineering
    - Express systems designs in a more straightforward way while validating the design is correct
    - Organize and communicate information more effectively
    - First SysML product with virtual prototyping capabilities

- **Rhapsody Eclipse Plug-In**

- **Extended Defense Industry Support**
  - System Architect and Rhapsody interface
  - Net-Centric Operations support
  - MODAF

- **Rhapsody Eclipse Plug-In**
  - Develop or debug in code or model in one integrated environment
Topology Lifecycle

- **Discover**: 
  - Solution Architect
  - Software IT Architect
  - IT Architect

- **Extract**: 
  - IT Architect
  - Topology [Datacenter A]
  - Topology [Datacenter B]

- **Apply**: 
  - Topology [template]
  - Services

- **Compose**: 
  - Topology [analysis]

- **Realize**: 
  - Topology [deployment]
  - Components

- **Deploy**: 
  - Deployer
  - “to-be” topologies
  - “as-is” topologies

- **Business Processes**: 
  - Identify
  - Implement

- **IT Architect**: 
  - Solution Architect
  - Software IT Architect
  - IT Architect

- **Services**: 
  - “as-is” Business Processes
  - “to-be” Business Processes

- **Topology**: 
  - [Datacenter A]
  - [Datacenter B]
Topology Lifecycle – Staged Delivery

Stage 1
- Modeling
- Analysis
- Constraints
- Templates

Stage 2
- Script generation
- Provisioning
- Discovery

New for RSA 7.5!

Future Direction
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RAD increases efficiency and shortens the development and test cycle

- Understand and communicate about implementations with visual editors
- Refactor, rename, enhance
- Analyze with static analysis rules and line level code coverage
- Accelerate development with annotation based programming and quickfixes
- Unit test with WebSphere Integrations
- Performance
- Quality
- Usability
- Integration

Enabling rapid, iterative development cycles
RAD accelerates development for IBM middleware

Web 2.0
Extend SOA and Java EE assets with

SOA
Discover, generate, deploy and test Web Services to

Java EE 5
Quickly develop and test Java EE 5 applications, with annotation based programming and integrated WebSphere support

What’s coming in RAD 7.5?
Support for Eclipse 3.4
Support for JEE5
Visualization support for WAS 7.0: JEE5 and EJB 3.0
Web standards: WebServices, JPA, AJAX support, JSF my Faces and DOJO
Portlet JSR tools: JSR 286
Documentation improvements
Collaboration through integration with Rational Team Concert

Evans Data 2008 IDE User Choice Award

Collaborative Portal
Rapid visual design of portal and portlets, and testing with WebSphere Portal
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What is needed to govern the systems and software asset lifecycle from development through deployment?

**Scalable, Flexible, Enterprise-Level Solution**

- **Customize Workflow**
  - Repository to catalog flexibly organize and search for assets
  - Customizable workflow & policies to automate the process of managing the asset lifecycle

- **Impact Assessment**
  - Flexible solution for capturing relationships between assets for impact analysis

- **Audit and Report**
  - Reporting on key metrics to support planning and assessment

Integrates with your design environment including other existing repositories (Development Environment, Software Configuration Management, Change Management and Product Line Management)
Rational Asset Manager v7.1
Connecting business and software delivery teams with asset traceability

- Locate, communicate and trace assets across teams spanning business to deployment
- Understand model dependencies with context-aware update of models from WebSphere Business Modeler and Rational Software Architect
- Ensures assets are reviewed and can be deployed with Tivoli CCMDB integration
- Automate asset artifact versioning with Rational Team Concert integration, ClearCase, CVS,
- Scalable Web 2.0 application for business and rich client for developers supports Organizationally Distributed Development

- Support SOA Initiatives
  - Improve overall SOA Governance with easy discovery, storage, deployment of services
- Ensure Asset Governance by enabling consistent policy enforcement across teams
  - Implement, administer and report on policies
Rational Asset Manager Usage Templates

Usage Templates
- Reuse
- Governance
- Impact Analysis & Traceability
- Broker
- SOA / Services
- Catalog
- Business Intelligence
- Asset Planning & Roadmap

Governance
- Coordinate and control assets, intellectual property, determining what is shared, versioned, and visible for others to use
- Where observed - common across all customer categories

Impact Analysis and Traceability
- Understand the relationships and impact of assets, such as the relationship amongst development time assets and the relationship to infrastructure assets
- Creating a map of the key assets of the enterprise
- Understanding a change, such as a new version or retirement of asset
- Where observed - Systems Integrators, Banking, Insurance, Utilities
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RTC Views Integrated into RAD / RSA

Develop in RAD and RSA perspectives (Modeling, Java EE, ...)

Manage your workload in the ‘Team Central’ and ‘My Work’ views

Work with your development artifacts in the ‘Team Artifacts’ view
- code
- models
- diagrams
- metadata
...

Use Jazz change management constructs and work flows
- change sets
- suspend/resume
- server workspaces, ...

...
Leveraging Rational Team Concert for Collaborative Debugging

With RAD/RSA and RTC you can share live debug sessions between team members
Summary

- Architecture Management is evolving to make the vision of Enterprise Architecture a reality

- Rational’s Architecture Management Software provides the tools for you to:
  - Model software and deployment architectures
  - Construct applications using visual construction tools for maximum productivity
  - Manage and govern the resulting assets for maximum reuse

… all evolving to supporting a collaborative environment based on Jazz Technology
Collaborate with us

Design Partner Program
Lab Advocacy Program
Board of Advisors
Voice of the Customer Events
Rational Software Development Conference
jazz.net
developerWorks
Beta Programs
RFE Community
Rational User Groups
Customer Acceleration Program

Learn more at www.ibm.com/software/rational/collaborate
QUESTIONS
THANK YOU

Learn more at:

- IBM Rational software
- IBM Rational Software Delivery Platform
- Process and portfolio management
- Change and release management
- Quality management
- Architecture management

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