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Architecture, Design and Construction *using the* ***IBM Rational*** ***Software Delivery Platform***

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IBM developerWorks **Live!**

Architecture, Design and Construction

Rational software

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Agenda

- Introduction
- IBM Rational Software Modeler
- IBM Rational Application Developer
- IBM Rational Software Architect
- IBM Rational Systems Developer
- Resources and wrap-up

A break after an hour and a half or so

Demos

- Throughout the day, we'll demo how to build models and applications, and we'll show the variety of capabilities of the IBM Rational software delivery tools.

Where We Are

- Introduction
- IBM Rational Software Modeler
- IBM Rational Application Developer
- IBM Rational Software Architect
- IBM Rational Systems Developer
- Resources and wrap-up

The Imperative

An **On Demand Business** is an enterprise whose business processes — integrated end to end across the company and with key partners, suppliers and customers — can respond with speed to any customer demand, market opportunity or external threat.



Software Delivery Challenges for On Demand Business



On Demand Business focus

- Responsiveness as a key competency
- Effectiveness of people as a critical success factor
- Revenue growth with cost containment

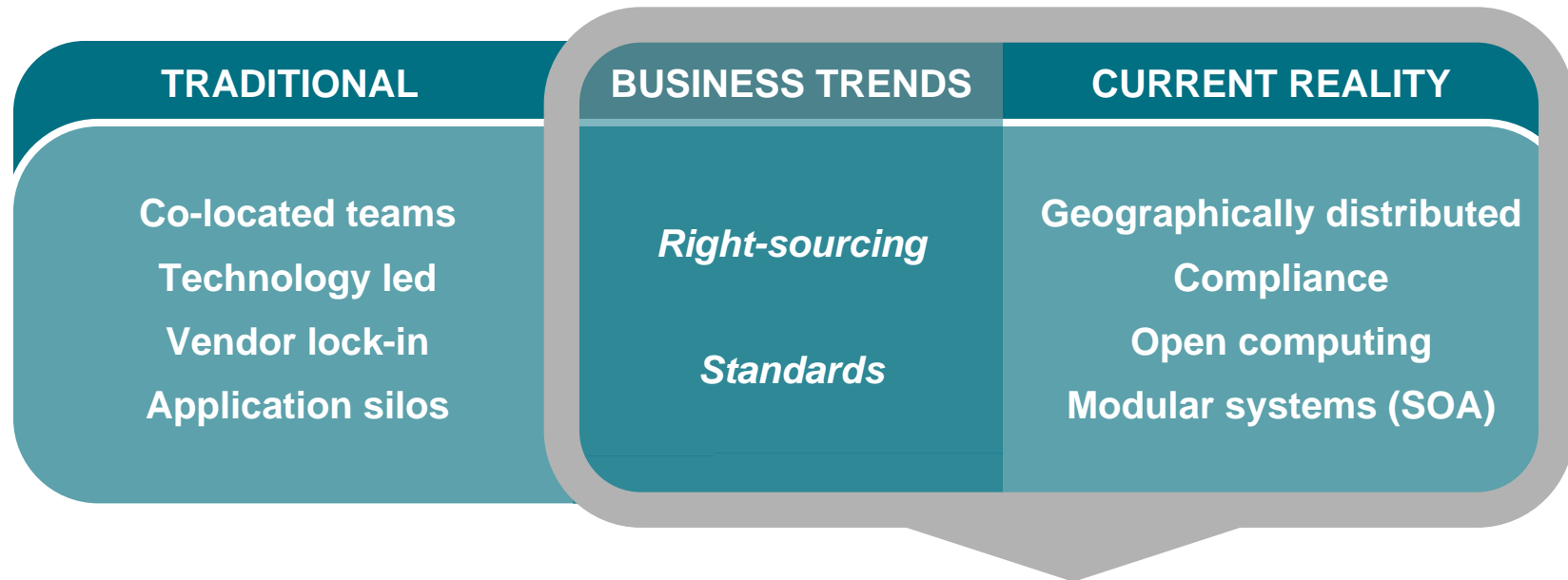


Software delivery challenges¹

- Keeping software projects aligned with changing business priorities
- Delivering better business results within the constraints of current investments and skill sets
- Effectively managing business and technical risk

¹ IBM Rational research, November 2005

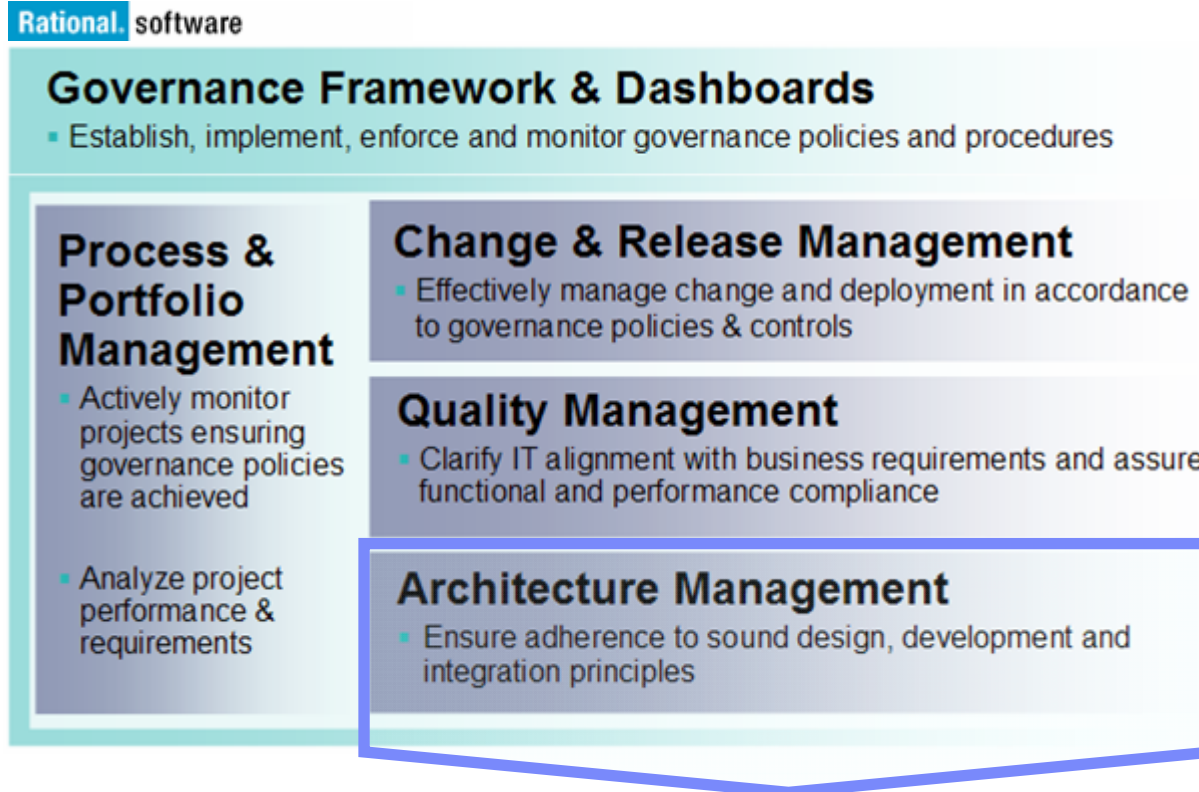
Evolving Software and Systems Delivery



Business Driven Development

Enabling organizations to *govern* the business process of software and systems development

IBM Rational Software Delivery Platform ...



***Delivering new capabilities
to empower development teams
to deliver the “A” in SOA***

IBM Rational Software Delivery Platform

GOVERNANCE DASHBOARD

Solutions for geographically distributed development, compliance, SOA

Process & portfolio management

- IBM Rational® Portfolio Manager
- IBM Rational Method Composer
- Best practices content (IBM Rational Unified Process® IBM Tivoli Unified Process®, Portfolio Management)

Requirements & analysis

- IBM WebSphere® Business Modeler
- IBM Rational RequisitePro®
- IBM Rational Software Architect
- IBM Rational Software Modeler
- IBM Rational Data Architect

Architecture management

- IBM Rational Software Architect
- IBM Rational Software Modeler
- IBM Rational Application Developer
- IBM Rational Systems Developer
- IBM WebSphere Integration Developer

Quality management

- IBM Rational Performance Tester
- IBM Rational Functional Tester
- IBM Rational Manual Tester
- IBM Rational PurifyPlus

Change & release management

- IBM Rational ClearCase®
- IBM Rational ClearQuest®
- IBM Rational Team Unifying Platform™
- IBM Tivoli Provisioning Manager
- IBM Tivoli Configuration Manager
- IBM Tivoli Intelligent Orchestrator

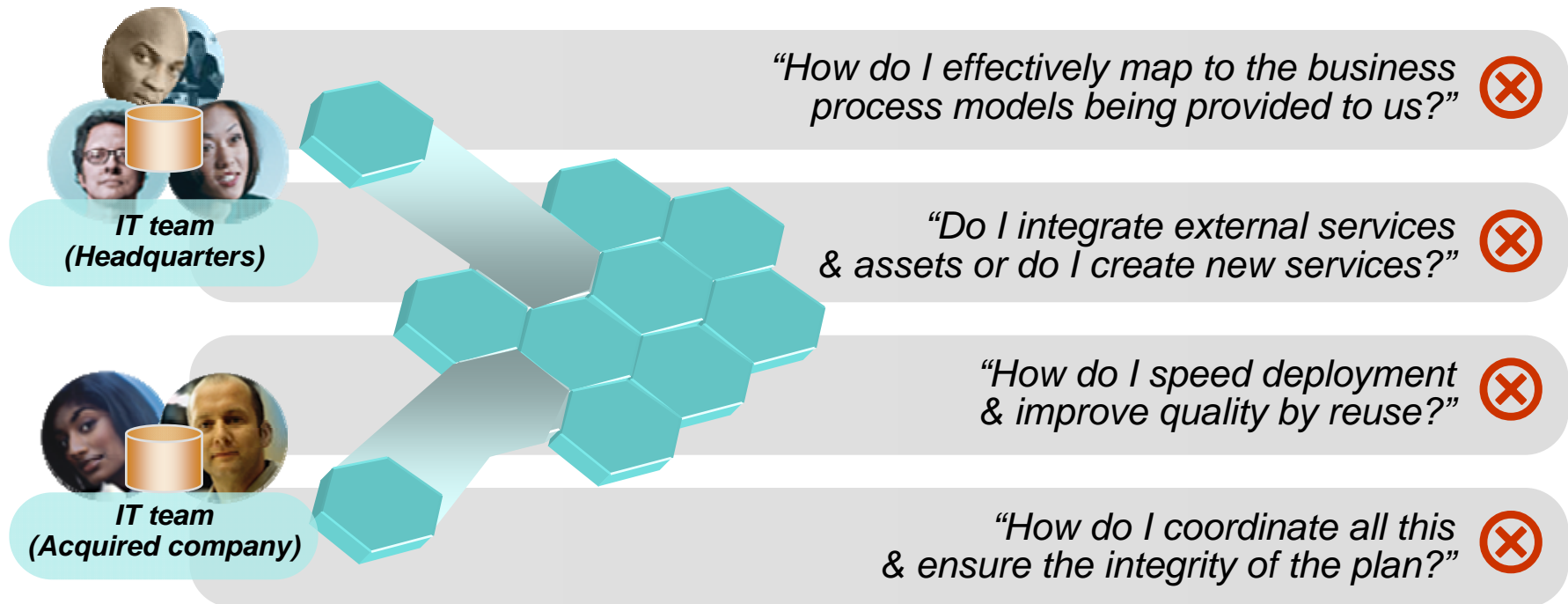
Partner ecosystem & open computing

Eclipse™, Linux®, Microsoft® Windows®, UNIX®, IBM z/OS®

Challenge: A Structured Approach to Service Reuse

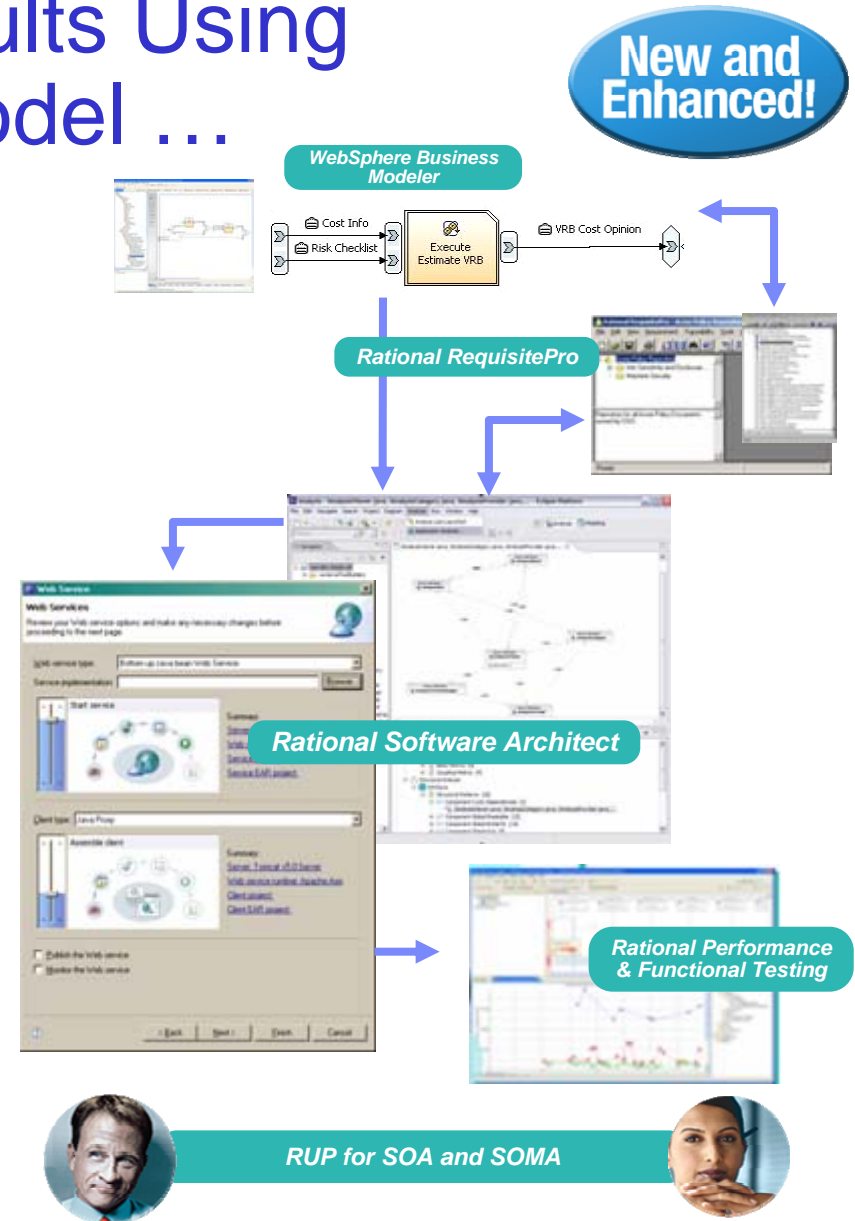
Scenario: *Large department store chain acquires a specialty retailer*

Parent company needs to revamp and consolidate their credit checking service but maintain niche customer front-end. Ad hoc SOA initiatives ongoing at headquarters and an acquired company located overseas.



Solution: Speed SOA Results Using a Services Architecture Model ...

- ✓ Drive efficiency with integration between software requirements and business models
- ✓ Improve design of a services architecture
 - ▶ Rational Unified Process guidance (RUP for SOMA)
 - ▶ UML Profiles for enterprise level Web service design
- ✓ Automated service creation from models
 - ▶ Improved service implementation tools
- ✓ Speed deployment and quality by synthesizing multi-tier workloads
 - ▶ Support for composite SOA service testing
- ✓ Integration with SOA Governance infrastructure
 - ▶ Process guidance and best practices
 - ▶ Rational Method Composer SOA Plug-in

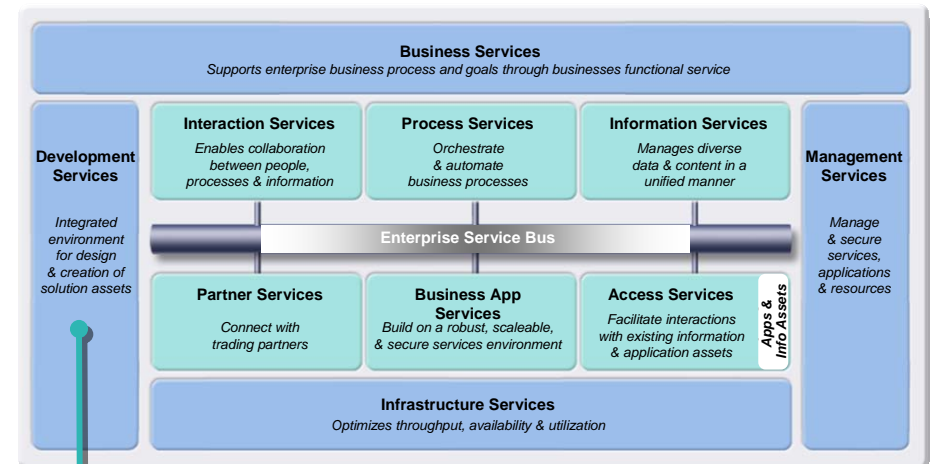


Solution: Speed SOA Results Using a Services Architecture Model



Benefits

- ▶ More robust and scalable development of SOA
- ▶ Create more consistent code with higher quality
- ▶ Enables a Model-Driven Architecture style of development
- ▶ Better understanding of as-built architecture and its evolution

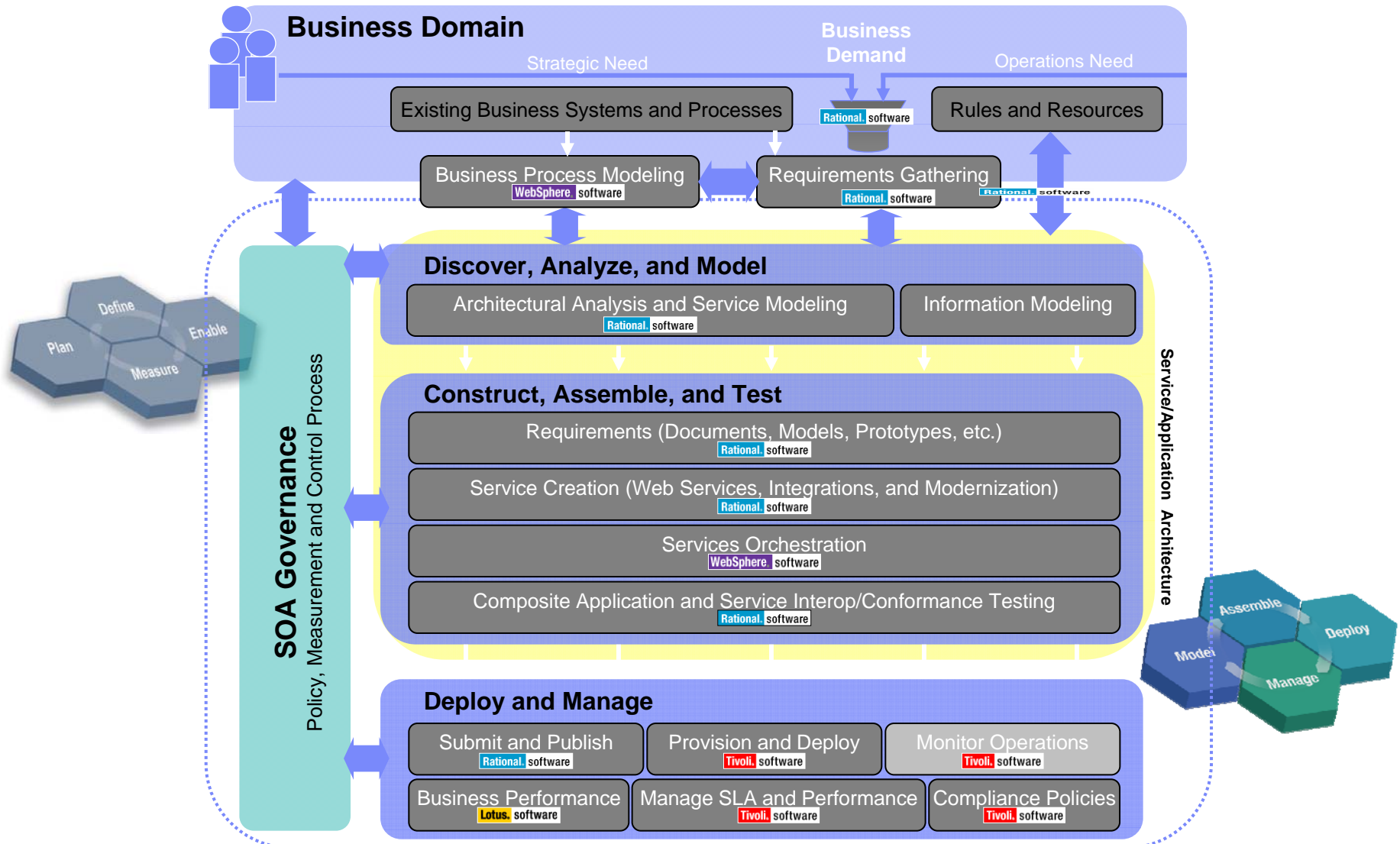


IBM Rational Software Architect

Key features

- ▶ Included: Enhanced SOA capabilities
 - UML Profile for Software Services
 - RSA SOA template model used to create new models with the software services profile applied. Template also contains a basic model structure and a library of reusable model elements.
 - SOA best practices in Process Advisor

SOA Applied to Software Delivery



Challenge: Leveraging Open Source Innovation for Enterprise Software Development

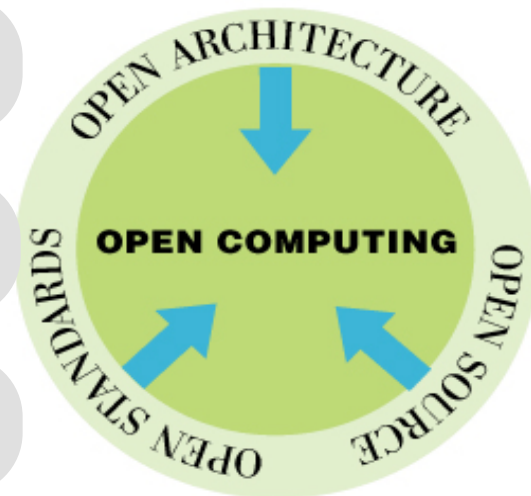
Scenario: Software developer needs flexibility to choose development environments for multiple projects.

Customer needs to manage and maintain a heterogeneous development environment while taking advantage of the innovation provided by open source to remain at the forefront of their industry.

⊗ “How do I provide only the tools that my developers need?”

⊗ “How do I ensure quality support for my open source environment?”

⊗ “How can I leverage the open source tools I already have?”



Solution: Flexibility and Consumability Leveraging Eclipse Open Source



- **Drive the best ROI from open source & industry standard investments**

- ▶ Eclipse Elite Technical Support serves broader mix of practitioners — from expert community leaders to enterprise architects
- ▶ Rational desktop v7 offerings based on Eclipse 3.2 & Callisto
- ▶ JDK 5 support
- ▶ UML 2.1 support



- 142 member companies
- Over 1 million downloads
- 507,000 Callisto downloads



- **Support for latest IBM Runtimes**

- ▶ WebSphere Application Server v6.1
- ▶ WebSphere Portal Server v6



Solution: Open Computing

Introducing IBM Rational Elite Support for Eclipse

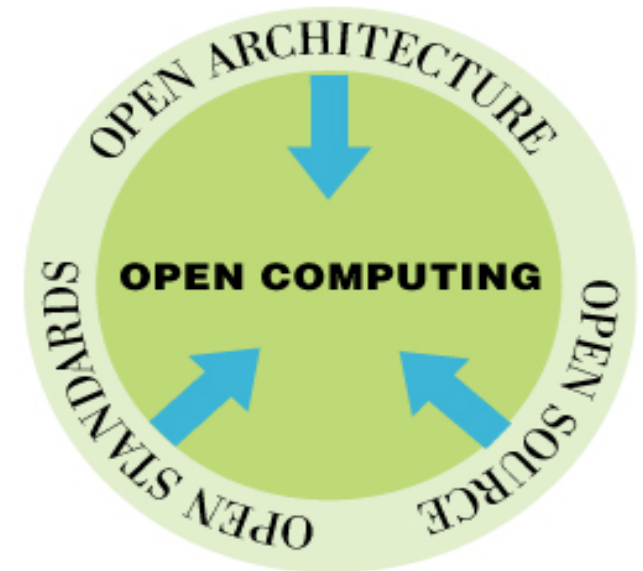


■ Benefits

- ▶ Broader commercial vendor support for latest release of Eclipse
- ▶ Flexibility to rely on the open source community for supporting expert users on the base Eclipse platform, or purchase commercial support for new and emerging skill level staff
- ▶ Reduces in-house support costs

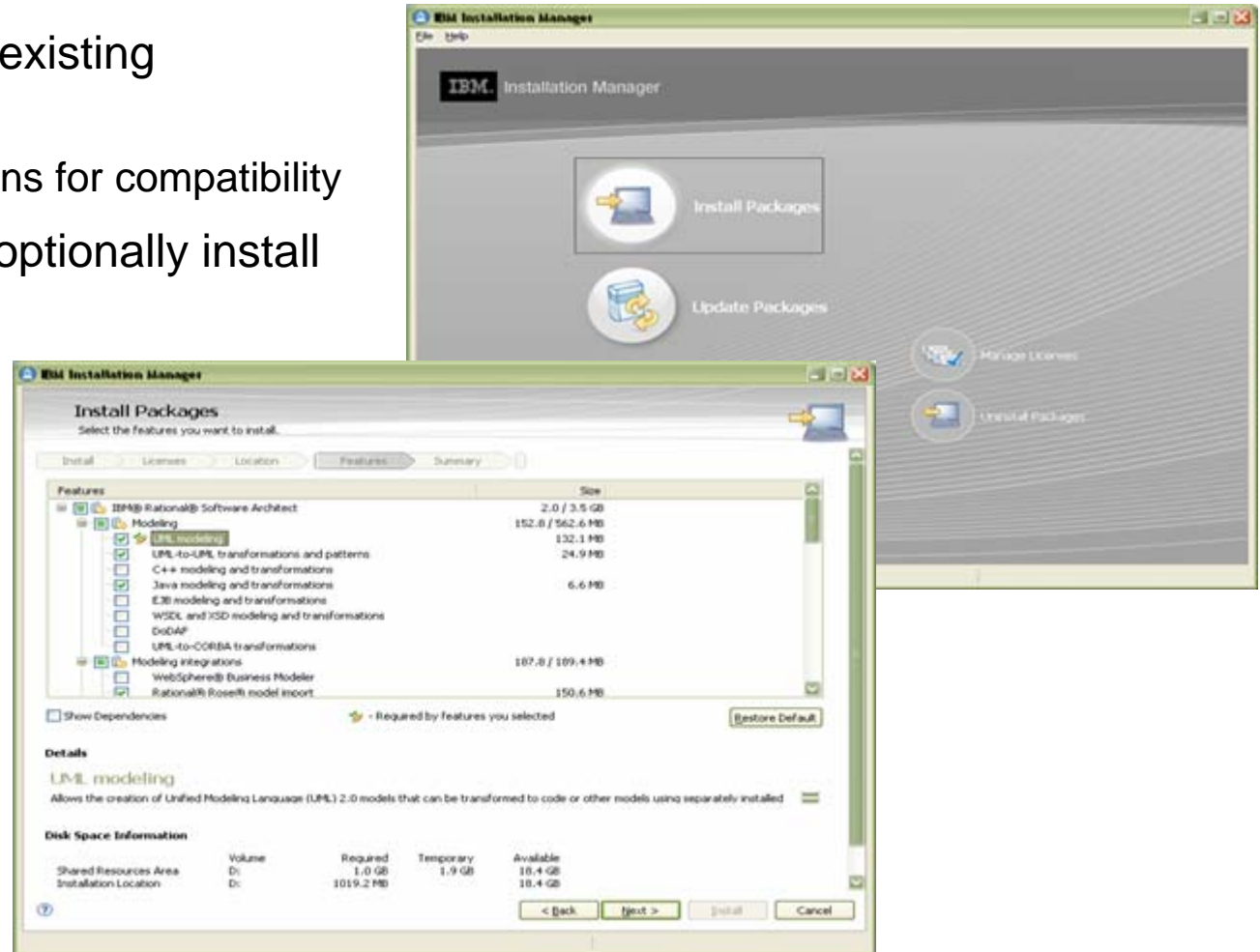
■ Key features

- ▶ Supports customer's own qualified Eclipse environment
- ▶ Support-only offering (i.e., not an Eclipse or tools distribution)
- ▶ Phone support at no additional cost
- ▶ Defect fixes
- ▶ Equivalent to IBM commercial product support



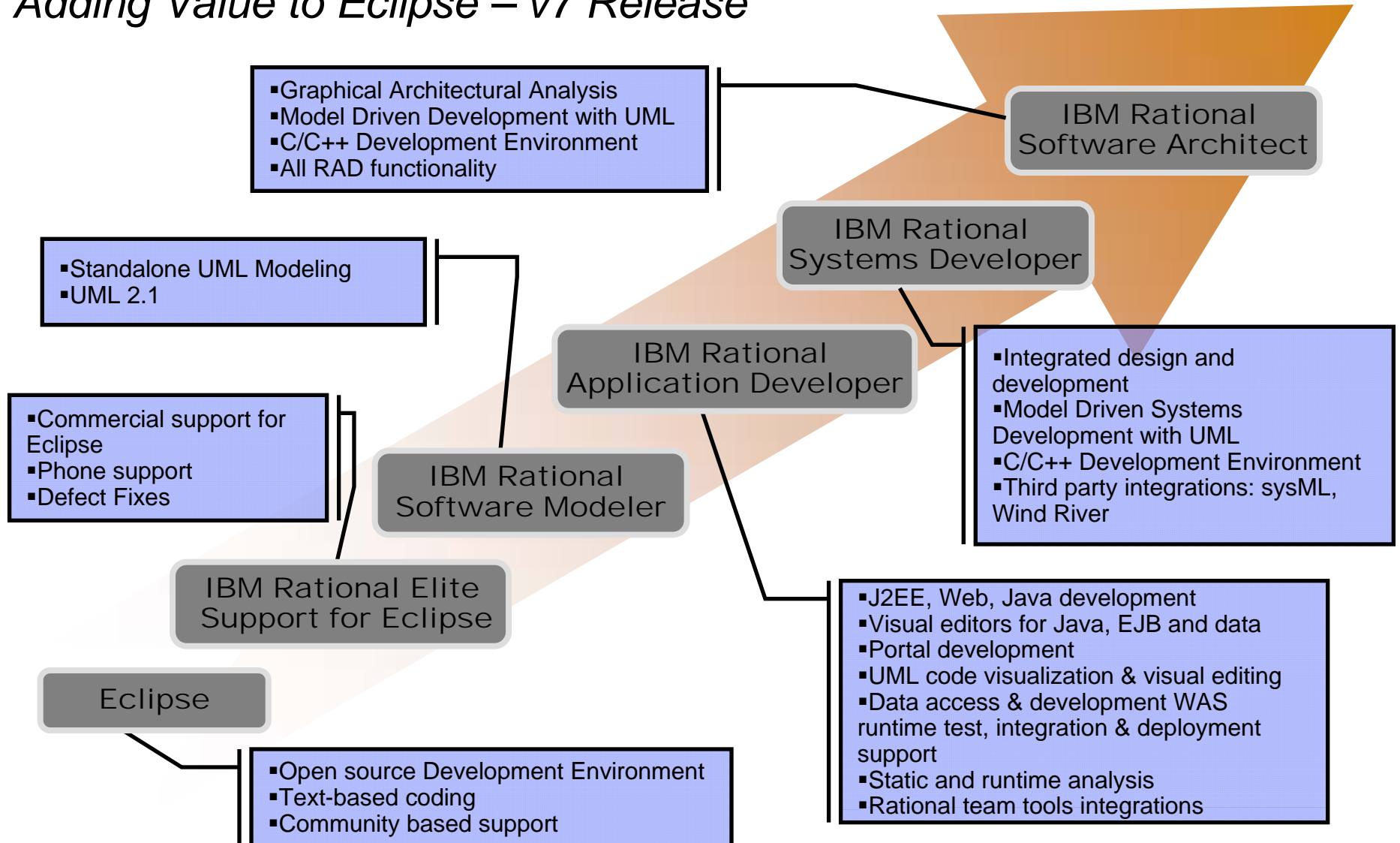
Solution: Making Product Installation and Deployment Easier

- Optionally install into existing Eclipse environment
 - ▶ Checks plug-in versions for compatibility
- Smaller “features” to optionally install
- Managed updates
- No re-installation from trial to product



IBM Rational Architecture, Design and Construction Offerings

Adding Value to Eclipse – v7 Release

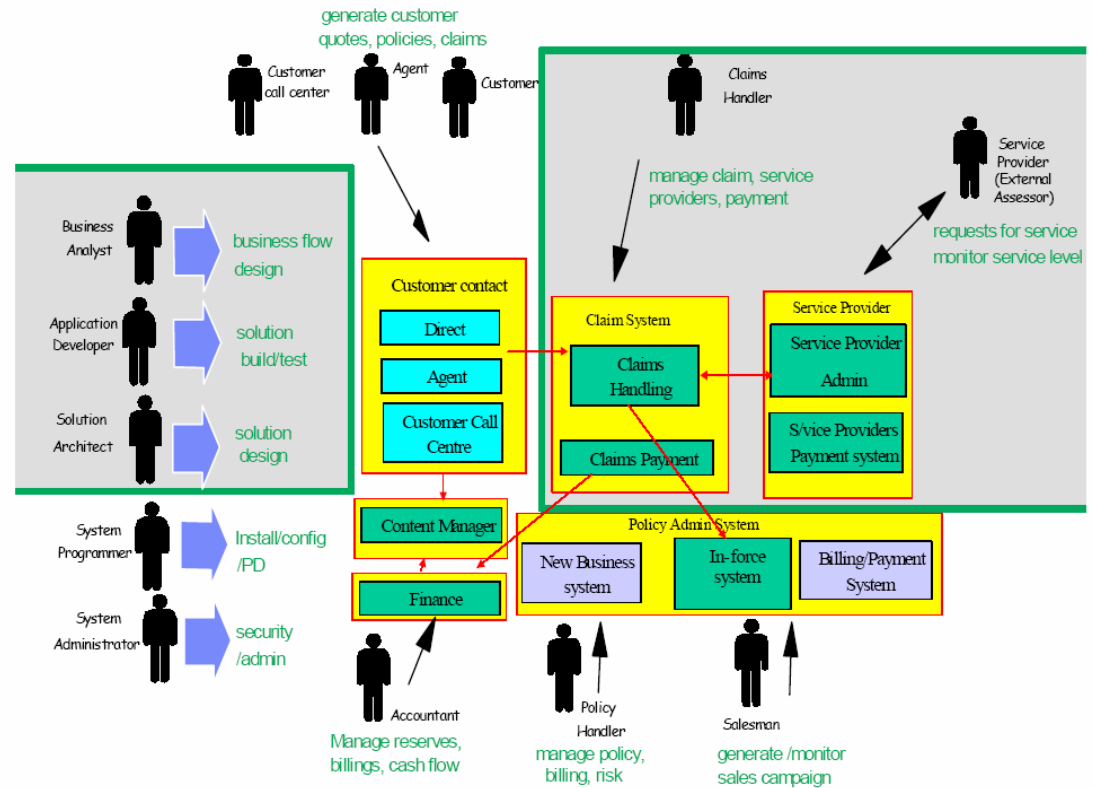


Where We Are

- Introduction
- **IBM Rational Software Modeler**
- IBM Rational Application Developer
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- Resources and wrap-up

The Challenges of Software Development

- Ever-increasing complexity in the operational environments
 - ▶ C/C++, Java, .Net
 - ▶ Web, Handhelds, disconnected
 - ▶ Legacy integration, modernizing
- Ever-expanding choices to make on development solutions
 - ▶ Programming Languages, scripting Languages
 - ▶ IDE's, testing tools
- Ever-changing nature how software gets created
 - ▶ Globally development teams
 - ▶ Outsourcing
 - ▶ Compliance and Regulations



**More Layers,
More Servers,
More Frameworks,
More “Moving Parts”,
More Complexity**

Modeling: The Key to Managing Software Complexity

- Modeling is the standard approach in engineering to
 - ▶ Manage Complexity
 - ▶ Mitigate Risk
- Software development is the same as every other kind of engineering in this respect

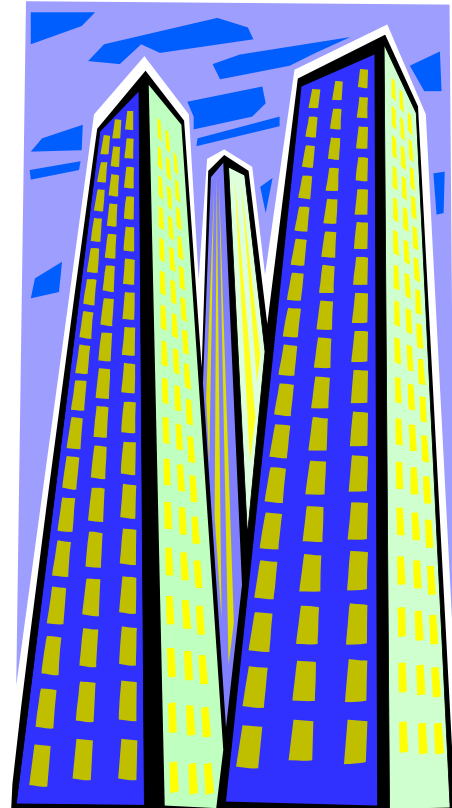
Well, maybe you shouldn't



But then, maybe you should

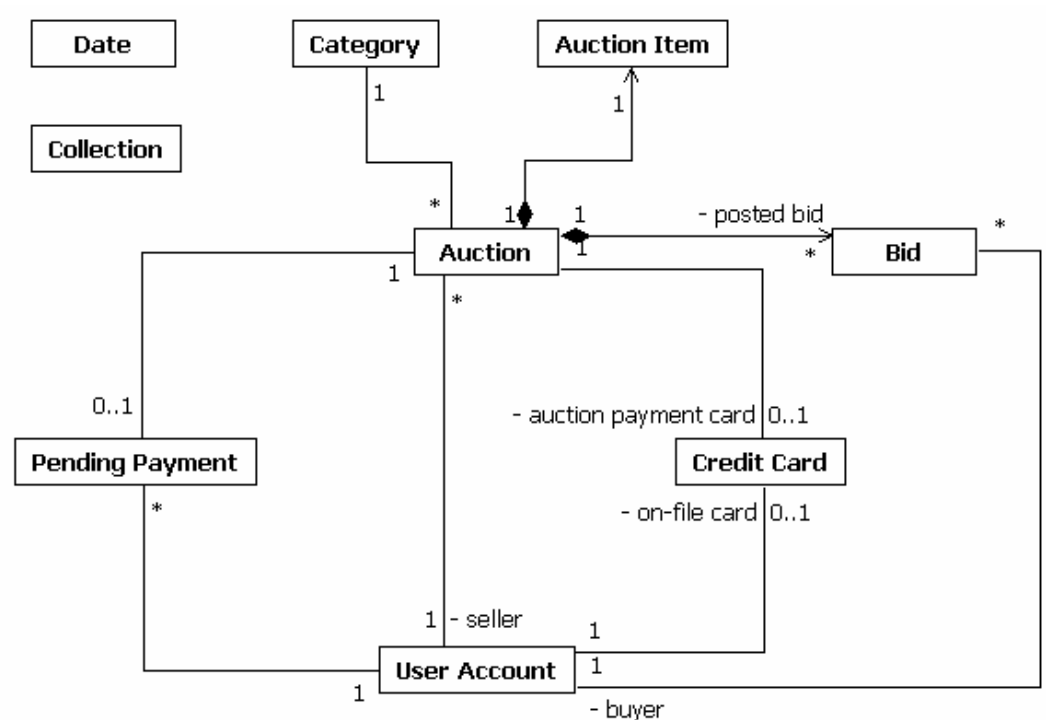


Maybe you have to

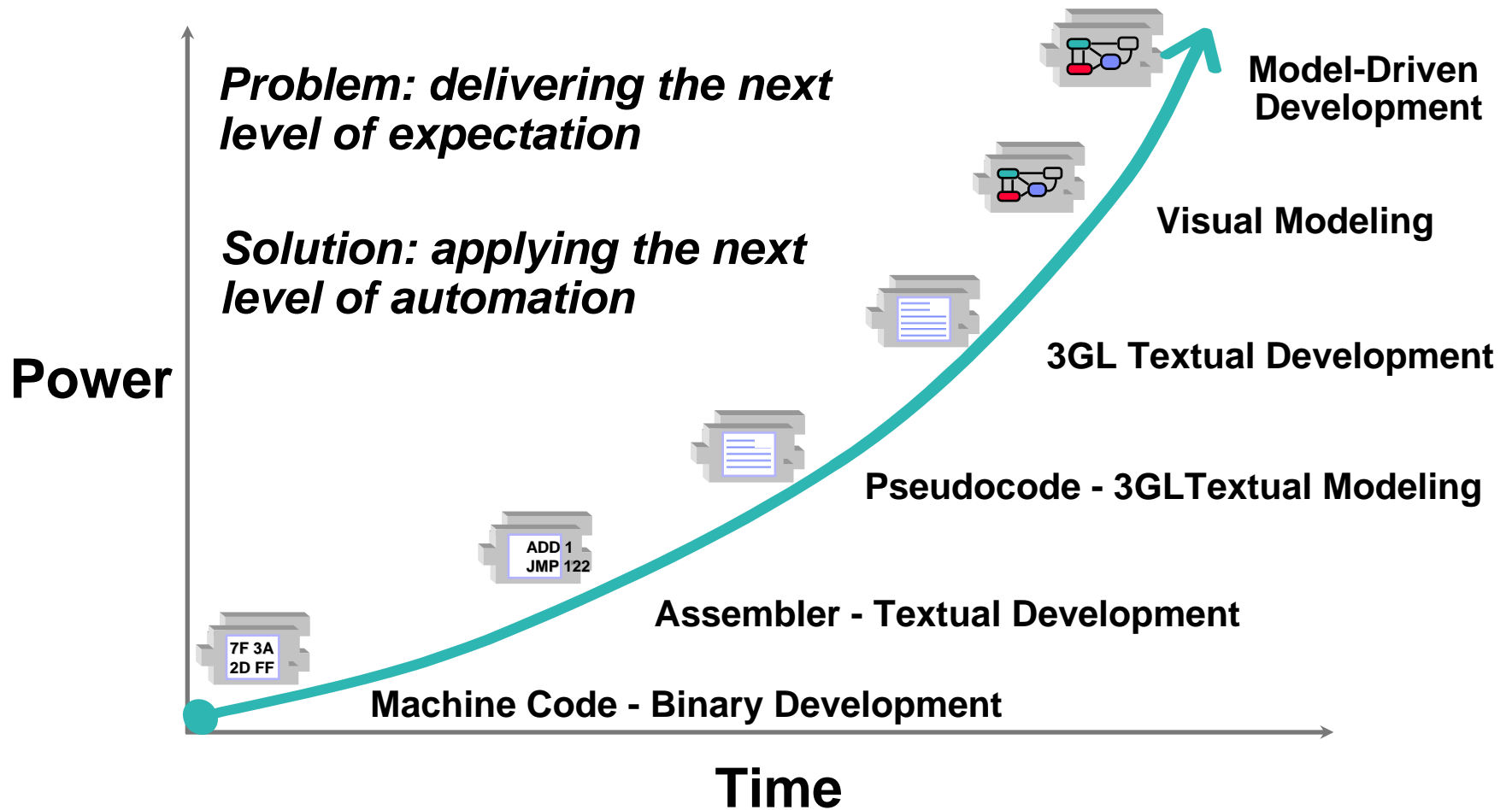


Models

- Abstract representations of
 - ▶ Business logic
 - ▶ Architecture
 - ▶ Design
 - ▶ Reusable assets
- Allow multiple viewpoints to be expressed independently
- Enable
 - ▶ Manipulation
 - ▶ Reasoning
 - ▶ Logical consistency checks
 - ▶ Automation
- More cost efficient

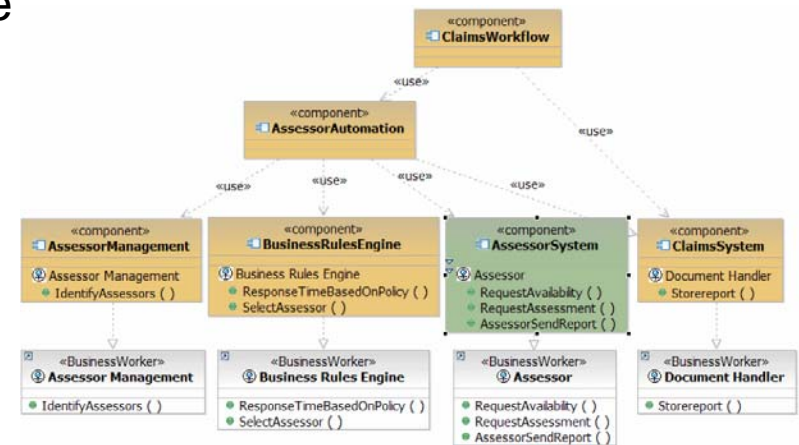
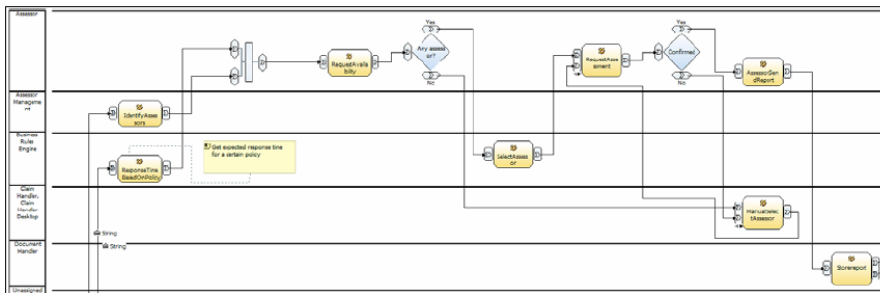


The Evolution of Software Development



What is Model-Driven Development (MDD)?

- The encapsulation of business logic and industry best practices into models
- The use of these models for application development, code generation, testing, and maintenance



- Modeling helps you work at higher levels of *abstraction*
- Higher levels of abstraction lead to higher *productivity*

Different Stakeholders, Different Models

- ▶ Business Model
 - Visualization of business processes
- ▶ Use Case Model
 - Visualization of functional requirements
- ▶ Analysis Model
 - “What” the system must do to realize the functional requirements
- ▶ User Experience Model
 - Visualization of user interaction with the system
- ▶ Design Model
 - “How” the system will realize the functional requirements
- ▶ Data Model
 - Visualization of persistent storage
- ▶ Implementation Model
 - Visualization of the code

UML – The Language of Model-Driven Development

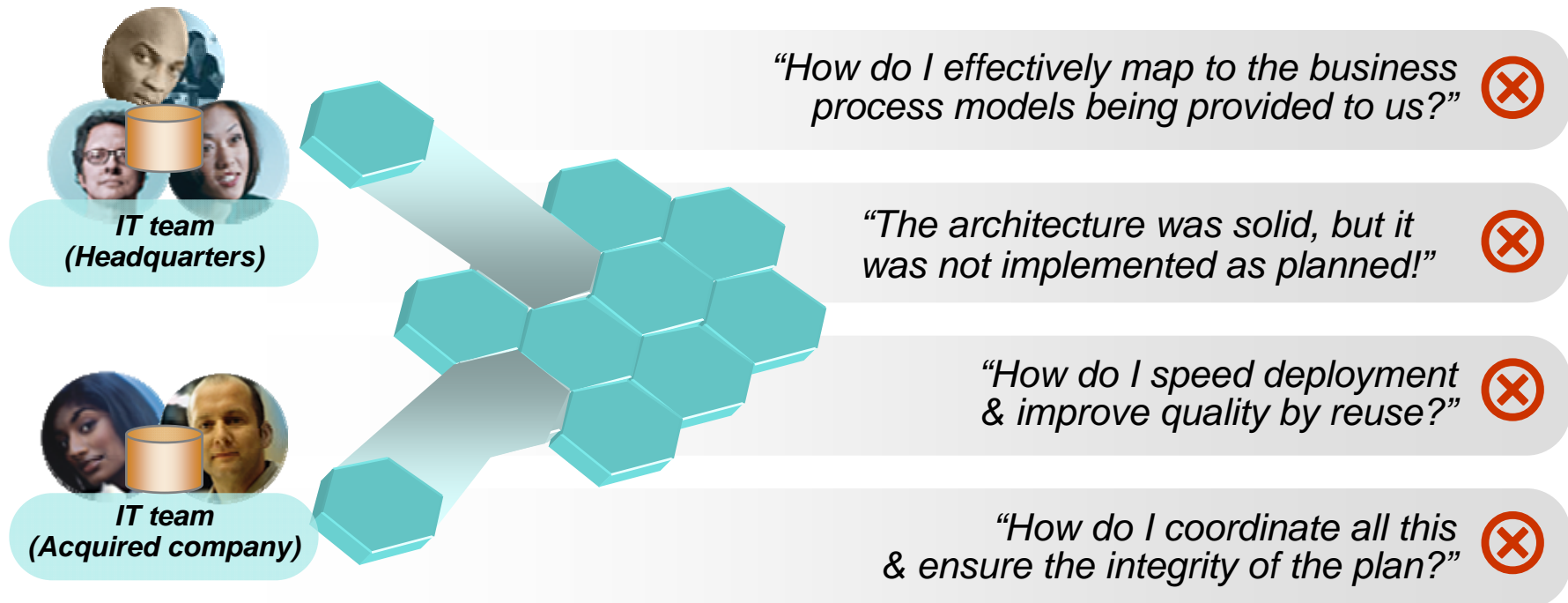


- Model-driven development is aided by a common *language* across all stakeholders
 - ▶ Unified Modeling Language (UML) is the standard language for visualizing, specifying, constructing, and documenting the artifacts of a software-intensive system
 - ▶ UML allows software architects, designers and developers to specify, visualize, construct, and document all aspects of a software system

Challenge: A Structured Approach to Architecture

Scenario: *Large department store chain acquires a specialty retailer*

Parent company needs to revamp and consolidate their credit checking application but maintain niche customer front-end. Ad hoc initiatives ongoing at headquarters and an acquired company located overseas.



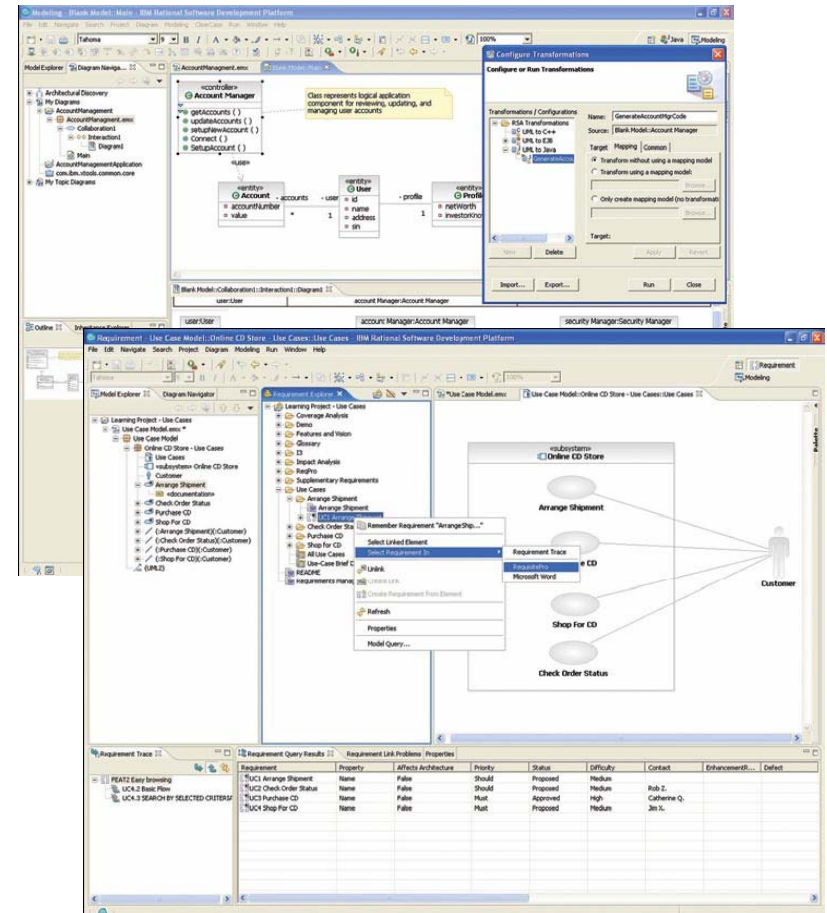
Solution: Govern the Lifecycle of Application Architecture with Modeling Support and Traceability

- ✓ **Provide technologies to enable effective communication of a design**
 - ▶ UML 2 Notation
 - ▶ Provide global access to models internally and for suppliers
- ✓ **Transformation Authoring:**
 - ▶ Tools to build transformations from model-to-model based on architecture decisions
- ✓ **Create and enforce rules which support the architecture**
 - ▶ Process Guidance
 - ▶ Visually compare model changes
 - ▶ Link requirements to design



IBM Rational Software Modeler v7.0

- Supports major architectural modeling and specification environments
- Enables easy adoption and use from a simplified and responsive user interface
- Provides an open and extensible modeling platform
- Integrates with top-line development platforms
- Automates traceability from requirements development to design



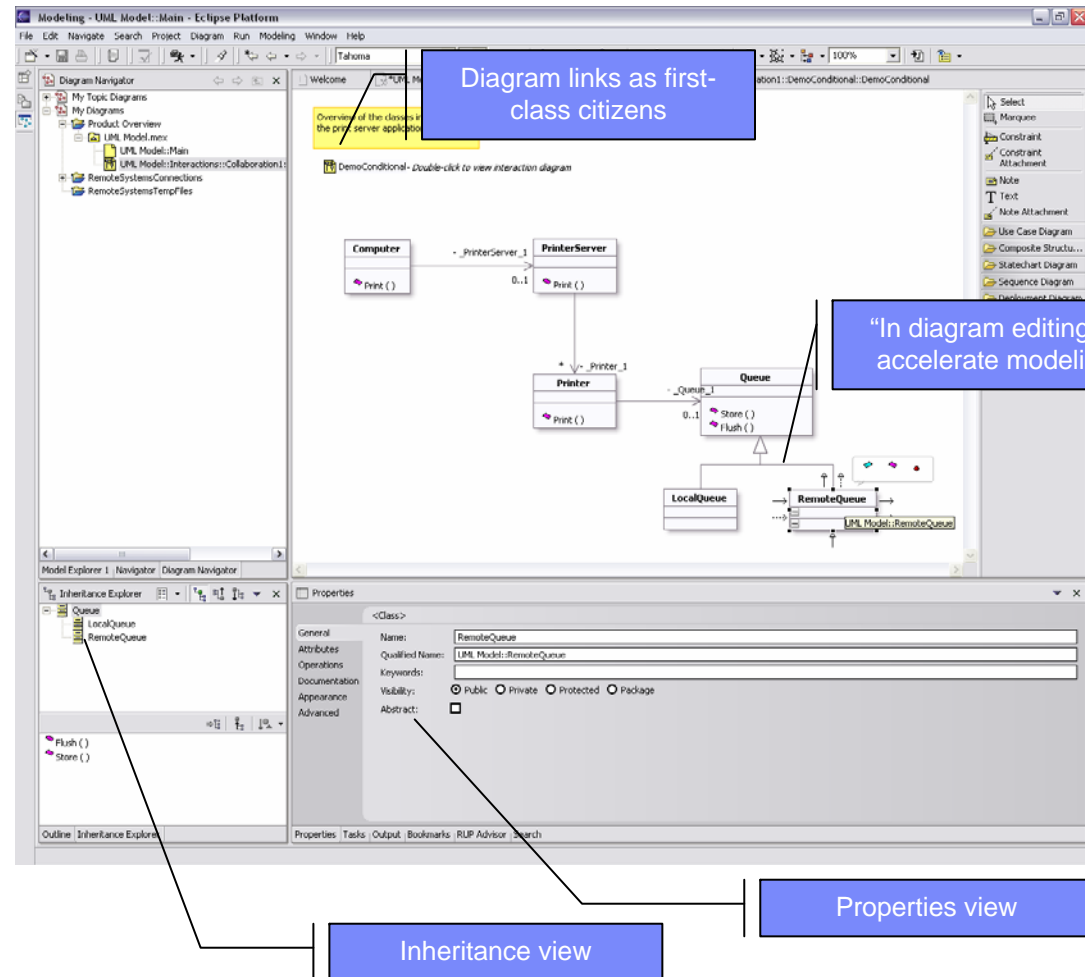
Unified Modeling Language (UML) 2.1 Support

- **Rational Software Modeler is based on the latest open standard Unified Modeling Language (UML) specification version 2.1.**
- **Supports diagramming for architectural and design specification**
 - ▶ Class, Communication, Component, Composite Structure, Deployment, Activity, Sequence, State, Object and Use Case diagram types
- **Automatic diagram generation**
- **Allows you to capture and communicate all aspects of an application architecture using a standard notation that is recognized by many different stakeholders.**



Modeling Assistance

- **Visual modeling with content assistance**
 - ▶ Guides you with action bars, connection handles, context-sensitive content suggestions, task-specific modeling cheat sheets, extensive online help, samples and tutorials to help you create well-formed models. Simplify the capture of UML models during Analysis and Design
- **Make modeling more accessible to a broader audience**
- **New custom views improve the editing experience**

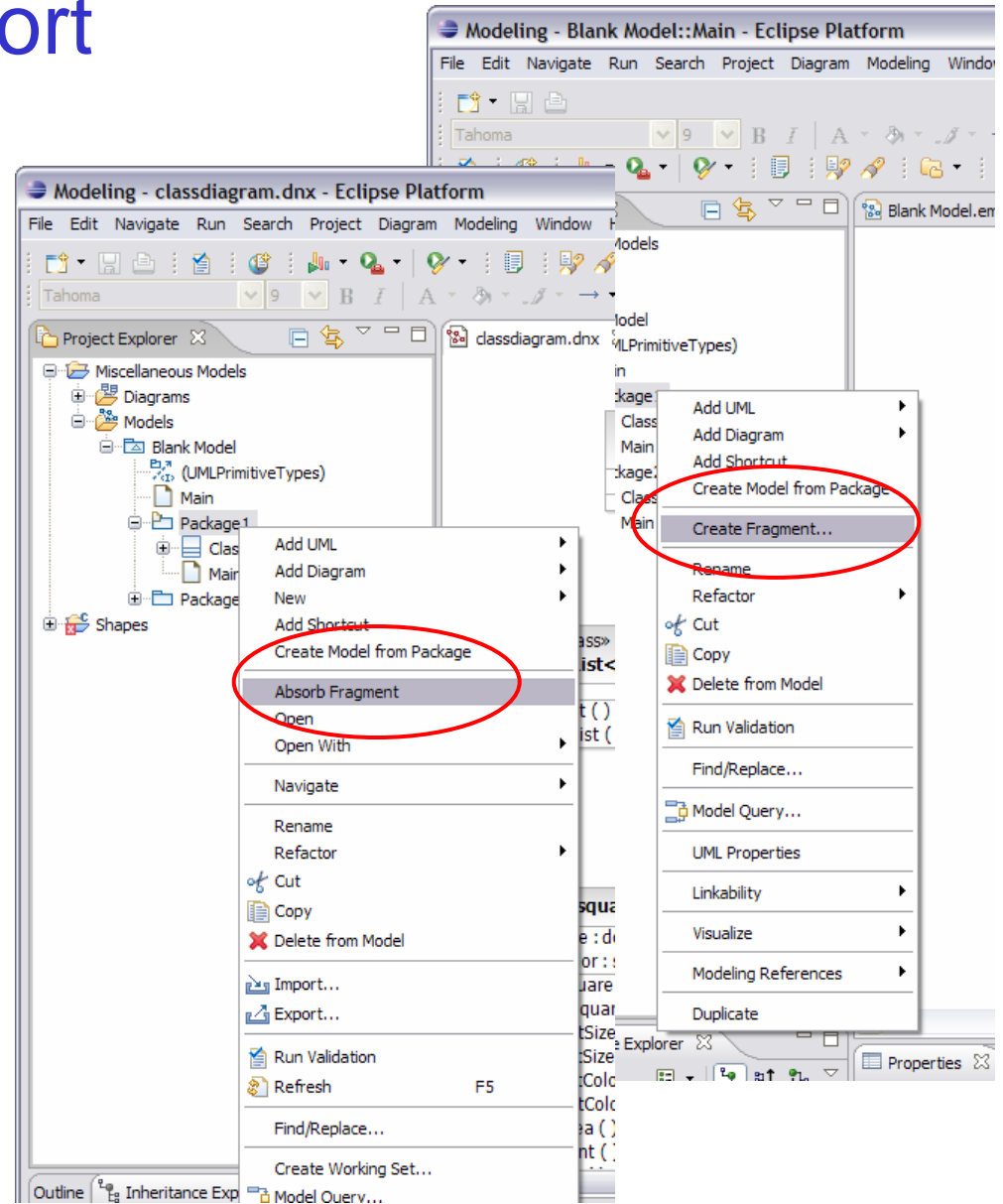


DEMO

UML Modeling

Model Sub-Unit Support

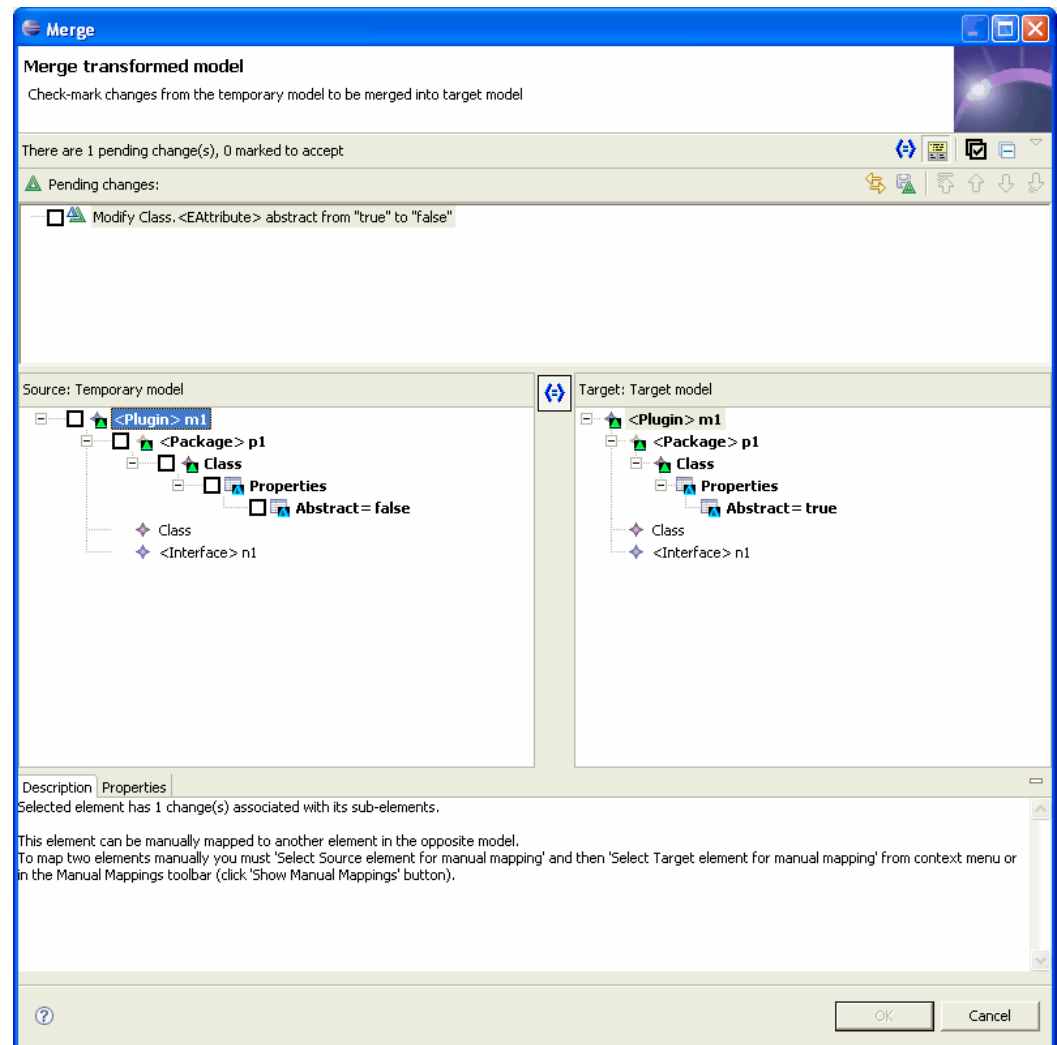
- **Create model fragments (Sub-units) from existing model elements (packages & classes)**
 - ▶ Allows for independence of physical structure from logical structure
- **Model fragments can be version controlled**
 - ▶ Provides for better team development support
- **Model fragments can also be absorbed back into a model at a later point**



Model Fuse

New and Enhanced!

- **Merge two arbitrary models into one**
 - ▶ Compares by qualified name instead of identity
 - ▶ If only add deltas are encountered, it will run silently
- **Manual matching allows model trees to be realigned where the user knows a match should exist**



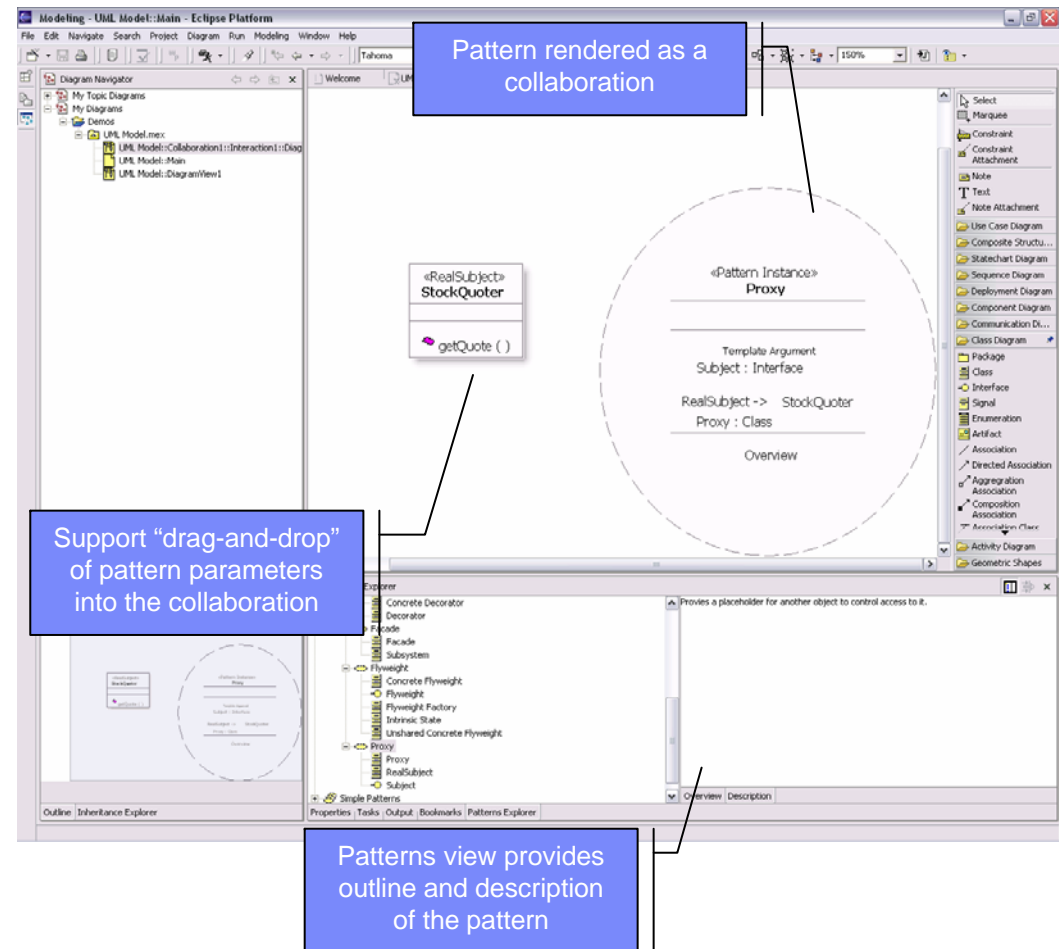


DEMO

Model Fuse

Patterns

- **Applying Patterns is very simple**
 - ▶ Evolution of pattern experience based on lessons learned
- **Pattern-authoring provides greater flexibility using Open API**
- **All Gang of Four design patterns provided**
- **Additional patterns provided via RAS repository on IBM developerWorks**



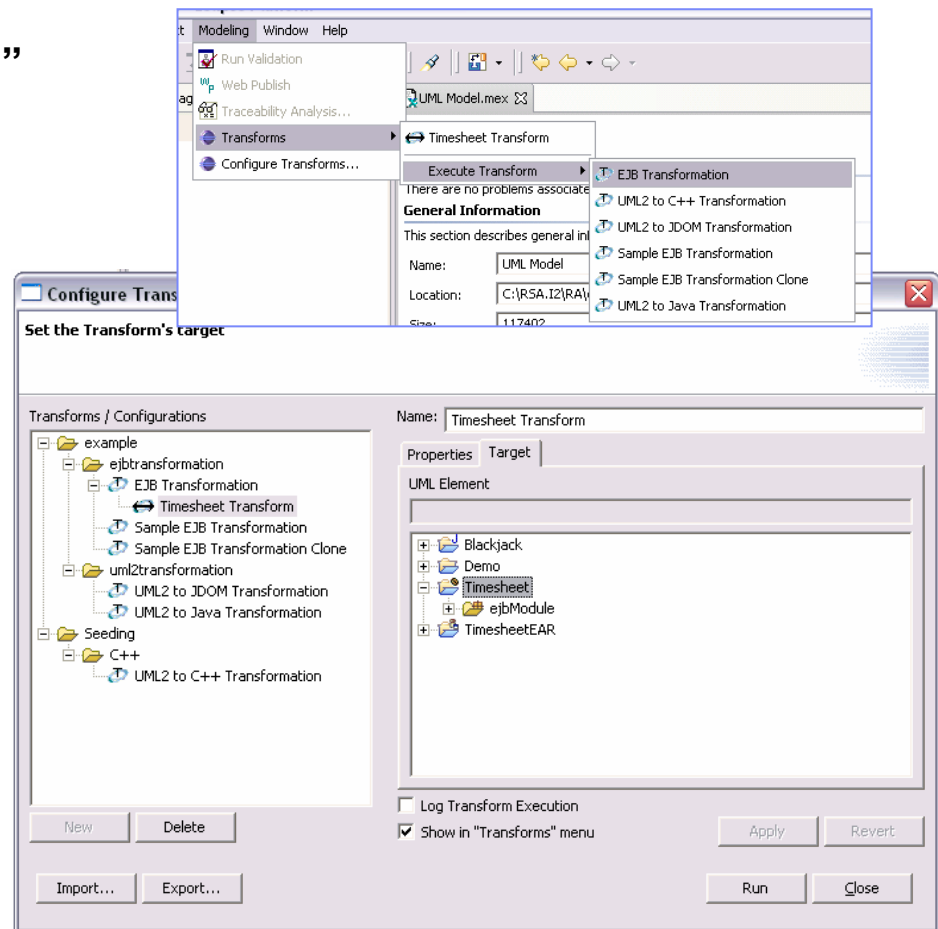


DEMO

Patterns

Transformations

- **Transformations are optimal for “batch” style computationally intensive operations**
 - ▶ Model-to-model
 - ▶ Model-to-code
- **Transformations may be updated via RAS repository hosted on IBM developerWorks**
 - ▶ Examples:
 - Web Services transformations
 - XSD transformations
- **Transformation Engine based on JET2**



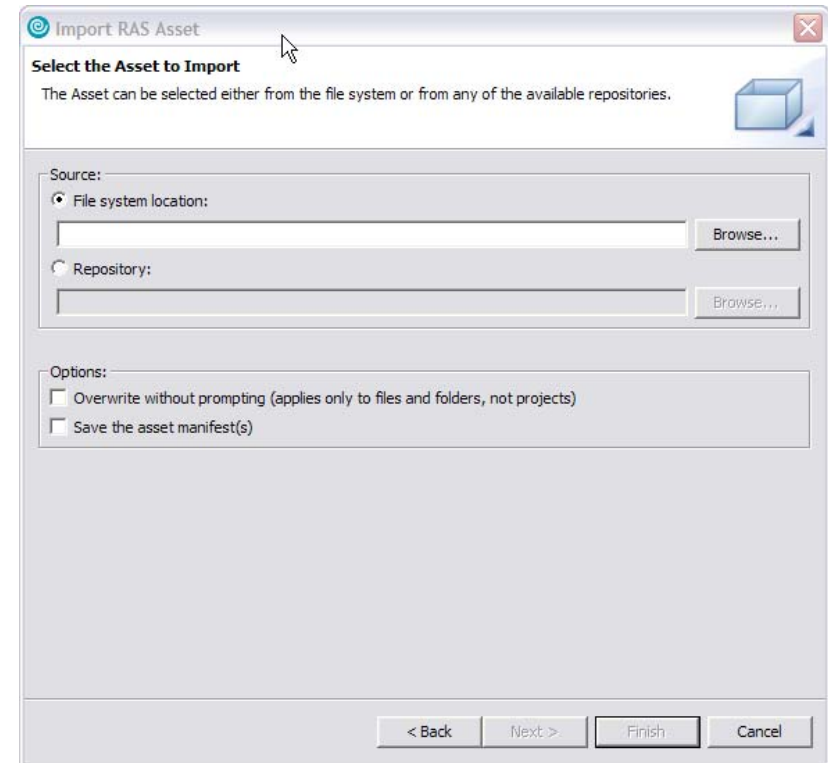


DEMO

Transformations

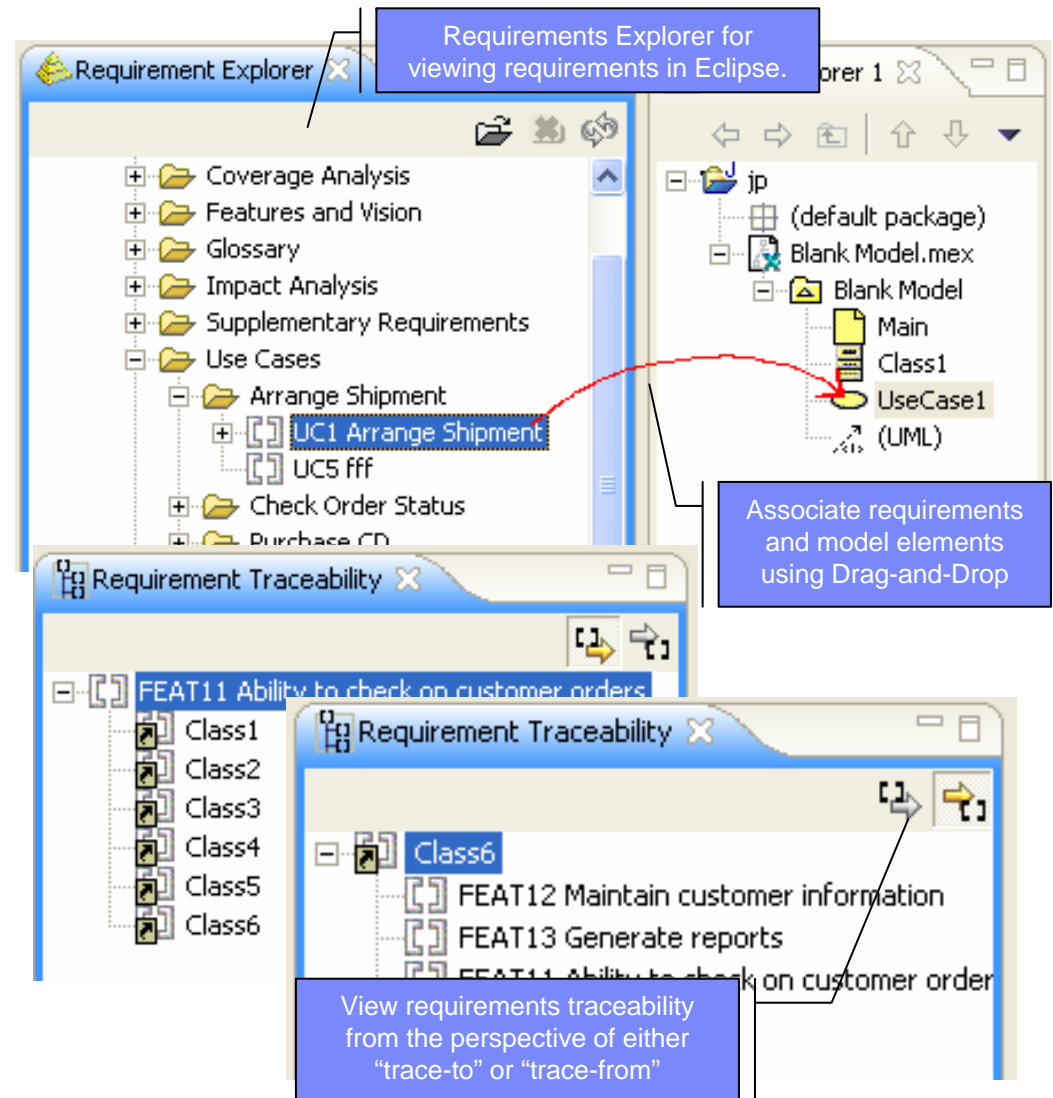
Reusable Assets

- **Asset browser for accessing reusable assets**
 - ▶ Supports the OMG Reusable Asset Specification initiative and assists users who are browsing repositories that contain reusable assets.
 - ▶ Repositories can be structured so that assets can be found easily.
 - ▶ Provides a Reusable Asset Browser for browsing and importing assets from a repository
 - ▶ Users can package model and development artifacts into a RAS bundle



Lifecycle Integration

- **Traceability links established from the requirements stage through the design stage**
 - ▶ Assist users in querying design models for traceability relationships between the requirements and the analysis/design elements in models.
- **Requirements perspective for browsing requirements in Rational RequisitePro software and creating links to model elements**
 - ▶ Simplifies the creation of traceability links from the requirements stage through the design stage
 - ▶ Open and browse multiple RequisitePro projects
 - ▶ See requirements, packages, and views
 - ▶ Associate requirements with model elements via drag and drop
 - ▶ Create model elements from requirements

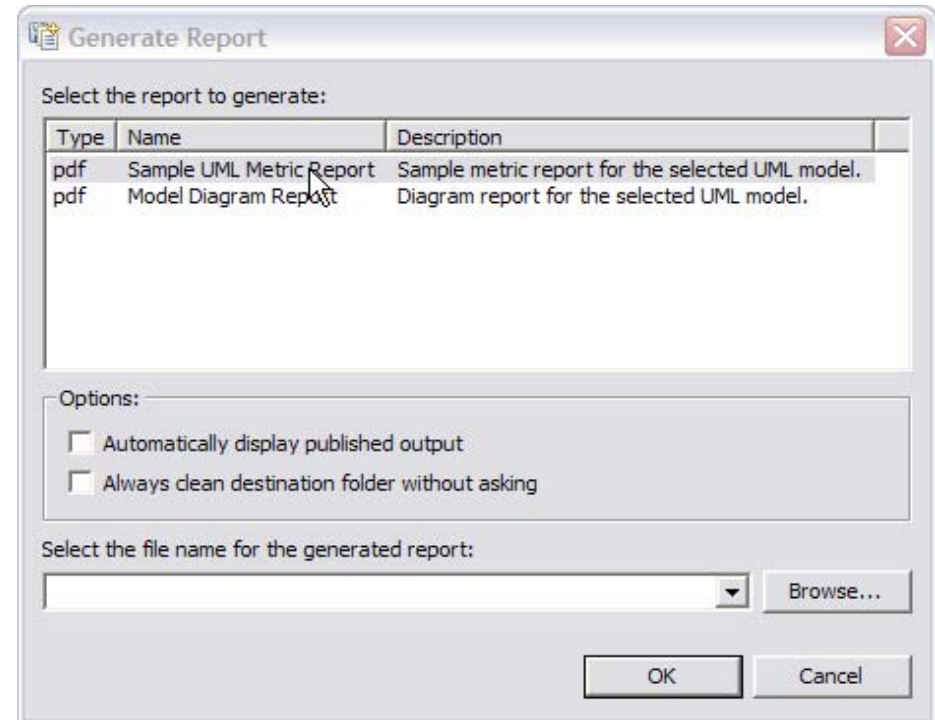


Extensibility

- **Open application program interface (API) to support customizing and extending the modeling environment**
- **UML profile creation and editing to customize the properties stored in UML models**
 - ▶ Allows organizations to develop plug-ins and customize the analysis and design tools for their environment and process. Supports the creation of an ecosystem allowing vendors to develop integrations.
- **Comprehensive extensibility infrastructure for creating specialized extensions to the product**
 - ▶ Leverages Open Source API and frameworks (UML 2.1, EMF, GEF)
 - ▶ Extension points for UI, menu, layout, command management, query
 - ▶ Extensions created in Java using Eclipse plug-ins
 - ▶ “Pluglet” support for lightweight scripting using Java
 - ▶ Provides User assistance using wizards and samples

Report Generation

- **Rational Software Modeler provides extensive reporting capabilities:**
 - ▶ Create reports and documentation that can be reviewed by team members or other stakeholders.
 - ▶ HTML, Portable Document Format (PDF) and XML reports generated from UML designs
 - ▶ Supports custom queries for report generation
 - ▶ Traceability reporting
 - ▶ Extensive printing options
 - ▶ Integration with IBM Rational SoDA



Extensive Team Development Capabilities

- **Team support with multimodel support, compare merge and software configuration management (SCM) integrations**
 - ▶ Provides all the capabilities required for distributed teams to design and develop applications.
- **Extensive team development facilitates parallel development via support for CVS and Rational ClearCase.**
 - ▶ Allows merging of models at model semantic level—not raw XML / text.
 - ▶ Compare and merge at the visual diagram level
 - ▶ Models can be refactored, easily partitioned and reassembled.

Summary: IBM Rational Software Modeler v7.0

- Supports major architectural modeling and specification environments
- Enables easy adoption and use from a simplified and responsive user interface
- Provides an open and extensible modeling platform
- Supports the development of custom meta-models
- Integrates with top-line development platforms
- Automates traceability from requirements development to design



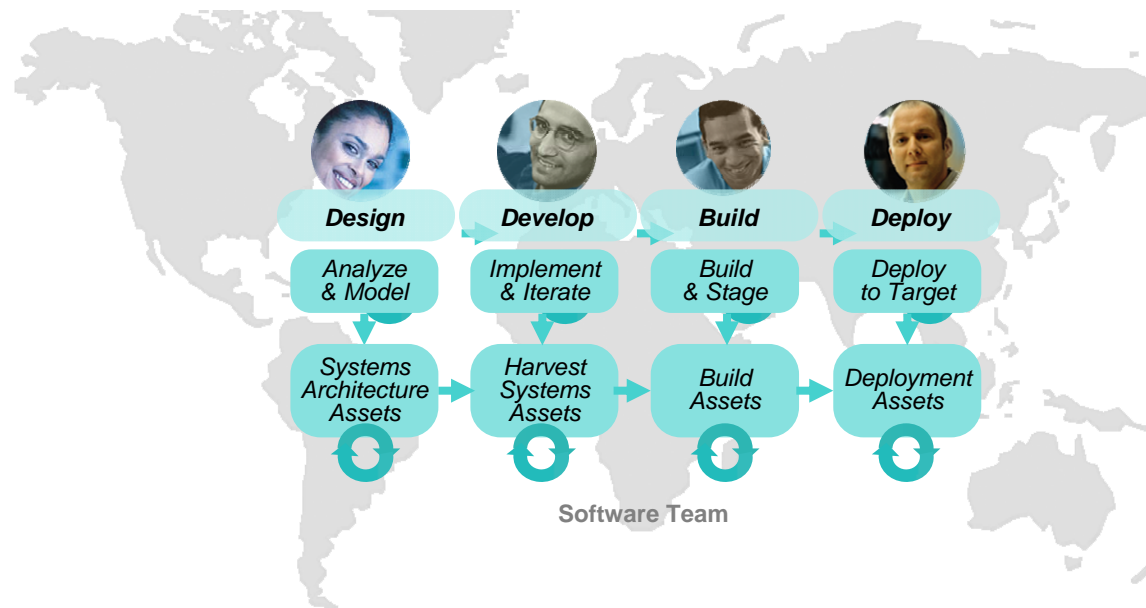
Where We Are

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Challenge: A Structured Approach to Application Development ...


Scenario: Software developer needs flexibility to develop applications for multiple projects.


Needs to manage and maintain a heterogeneous development environment while delivering high quality applications taking advantage of industry standards and best practices





Challenge: A Structured Approach to Application Development

 *“How can I effectively build scalable Java/J2EE applications or Web Services?”*


“How can I control costly re-development of my applications and reduce the number of defects?” 

 *“How can I improve application design, quality and performance?”*

“How do we work with applications that are more complex than ever despite the difficulty in finding skilled resources?” 

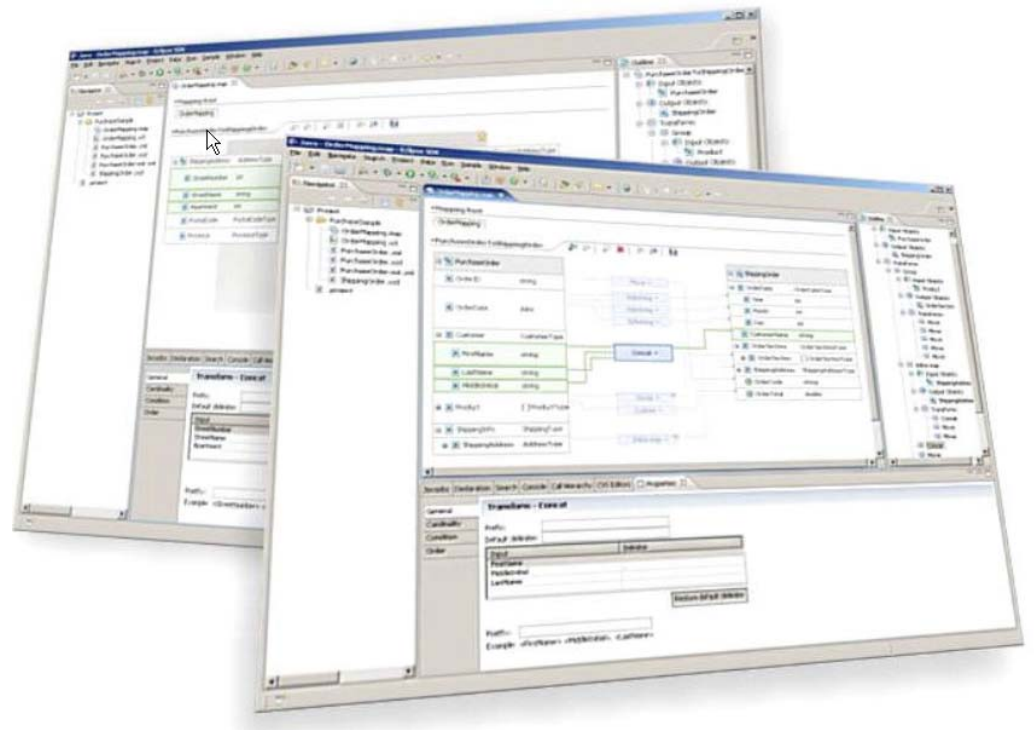
 *“How do I create reusable assets, so that I don’t have to reinvent the wheel every time I build an application?”*

“How do I deliver interoperable applications based on industry standards?” 

 *“How do I coordinate all this & ensure the integrity of the plan?”*

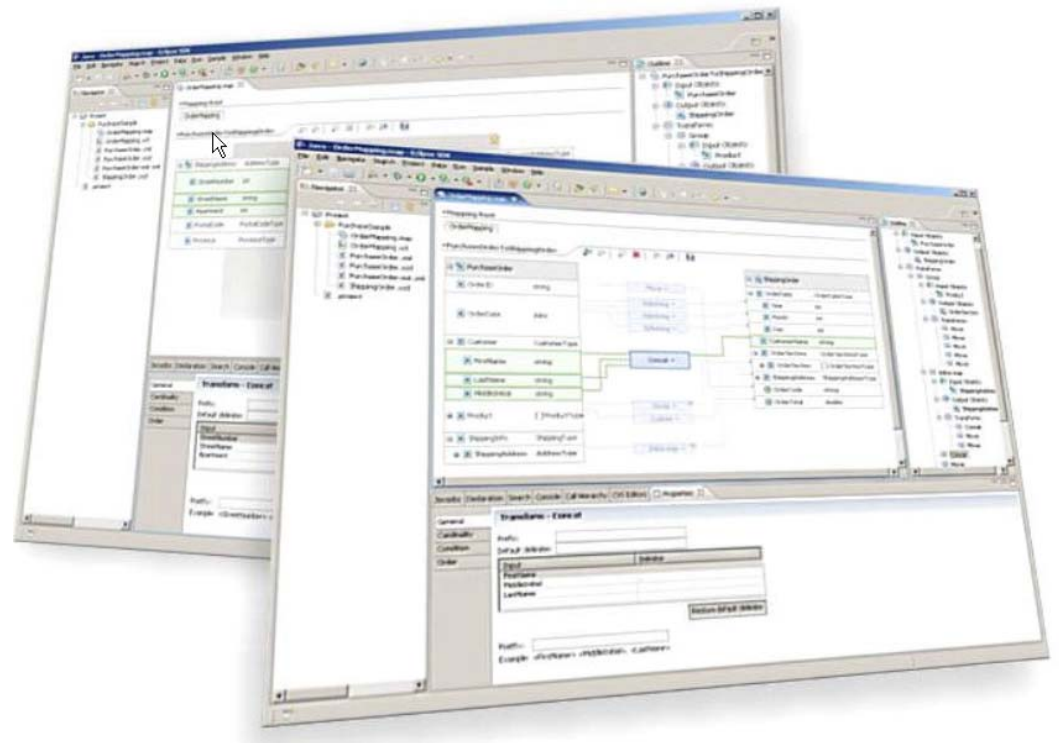
IBM Rational Application Developer v7.0 ...

- ✓ Accelerate J2EE, portal, Web Services and SOA application development using rapid application development tools and visual development techniques
- ✓ Increase flexibility through Eclipse 3.2 support that helps extend the development environment and granular installation options
- ✓ Shorten the Java learning curve through visual design that updates code, point-and-click database connectivity, visual portal development techniques and more
- ✓ Improve code-level design and share designs with distributed teams using UML visual modeling tools



IBM Rational Application Developer v7.0

- ✓ Integrate your business applications with WS-I compliant Web services and service-oriented architectures
- ✓ Collaborate and share assets across the team using built-in Rational ClearCase LT version control
- ✓ Improve code quality with automated tools that apply coding standards and perform runtime analysis
- ✓ Integrated and optimized for IBM WebSphere Application Server and IBM WebSphere Portal Server products



IBM Rational Application Developer Key Features ...

- **Web application development**
 - ▶ Web Site Design, Templates, Styles, Themes and Fragments
 - ▶ Drag & Drop Page Design and Construction
 - ▶ Point & Click Database Access
 - ▶ Event-driven programming model
- **J2EE application development**
 - ▶ Tools to easily build and test J2EE components with built-in test environments
- **Rich Client development**
 - ▶ JavaServer Faces, Struts and Faces Client Components for HTML client
 - ▶ SWING, AWT, SWT support for Java client
- **Web Services development**
 - ▶ Easily consume and produce Web services from a variety of sources
- **XML application development**

IBM Rational Application Developer

Key Features

- **Visual application development**
 - ▶ Visualize and graphically edit code and objects
 - ▶ UML Visualization of objects for enhanced understanding and productivity
- **Portal & Portlet application development**
 - ▶ Visual Portal and Portlet Designer with built-in portal test environment
- **Code quality tools**
 - ▶ Automated Code Review
 - ▶ Runtime Analysis and Profiling
- **Software Development Process**
 - ▶ RUP Configuration for J2EE
- **Web report development**
 - ▶ Included Crystal Reports development environment
 - ▶ Native Java Reporting Component
 - ▶ Embedded Report Designer

Drag and Drop Web Site and Page Design

Web Site Design

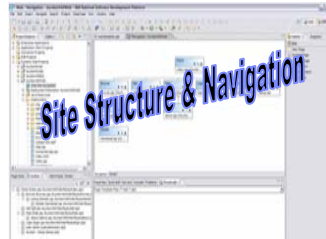
- ▶ Web Site Structure and Navigation
- ▶ Page Flow Diagrams
- ▶ Styles and Themes
- ▶ Page Templates and Fragments

User Interface Design

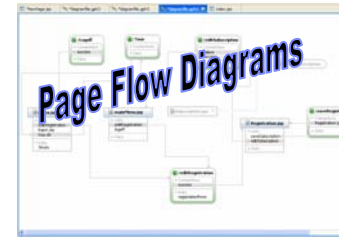
- ▶ Web pages
- ▶ Portlets/Portal pages
- ▶ GUI
- ▶ Mobile

User Interface Components

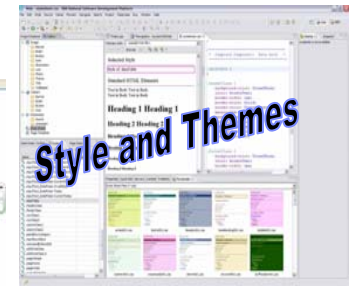
- ▶ HTML, JSP
- ▶ JavaServer Faces, Faces Client, Portlet
- ▶ Crystal Report Faces, Struts
- ▶ Swing, AWT, SWT
- ▶ Data (SDO & EGL)



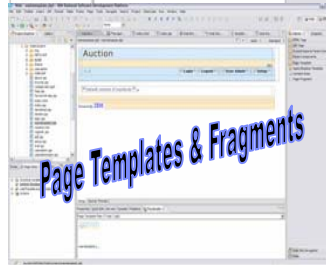
Site Structure & Navigation



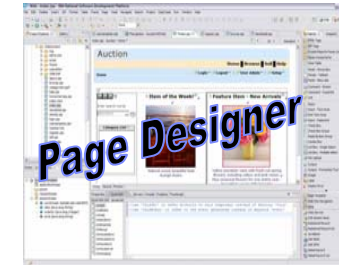
Page Flow Diagrams



Style and Themes



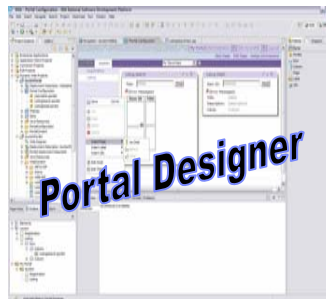
Page Templates & Fragments



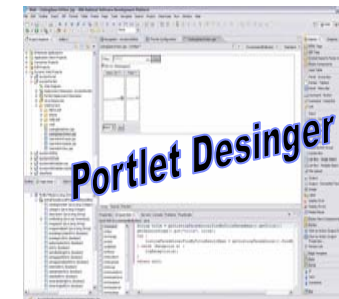
Page Designer



UI Components



Portal Designer



Portlet Designer



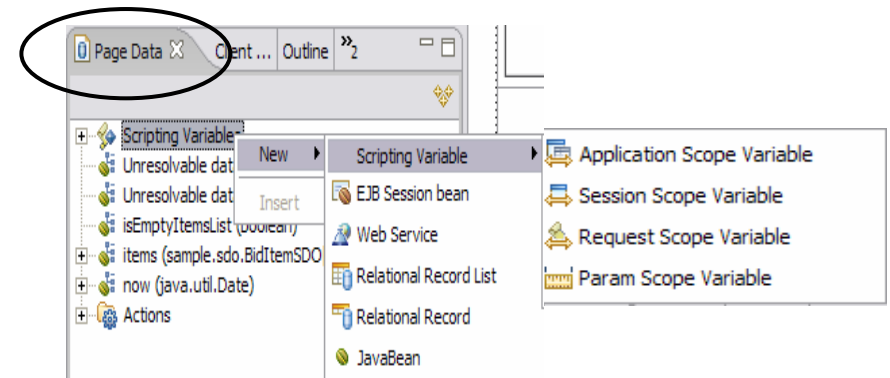
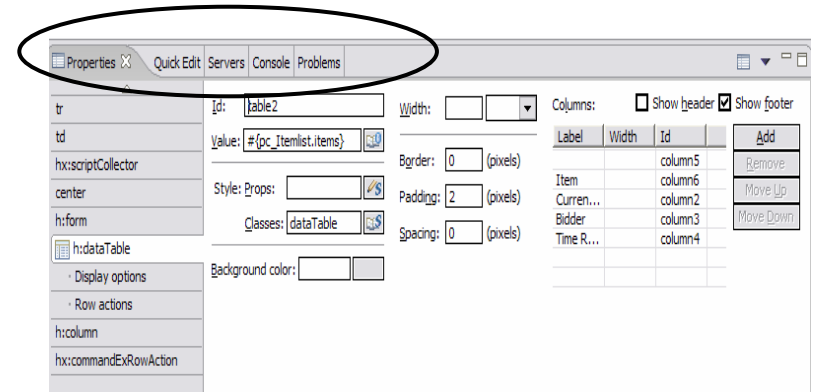
Client GUI Designer

JavaServer Faces (JSF)

- Standards based Web Application framework
 - ▶ Plug-and-play other JSF components easily
 - ▶ Library of modern User Interface components
 - ▶ Extensible
 - ▶ IDEs which support JSF will greatly simplify Web Application development
- Targeted for Web Application developers with little Java background
 - ▶ Reduces the skill level required to develop rich Web applications
- Event driven architecture
 - ▶ Server-Side Rich UI components respond to client events
- UI components are decoupled from its rendering
 - ▶ Allows for other technology (e.g. WML, etc) to be used
- Designed for use with tools to increase productivity
 - ▶ Reduces the skill level required to develop complex Web Application
 - ▶ Eliminates much of the hand-coding involved with integrating web applications into back-end systems

JSF Support in IBM Rational Application Developer

- **Visual development of JSF-based pages using Page Designer**
 - ▶ Built-in Component Property Editor
 - ▶ Built-in tools simplify/automate event handling
 - ▶ Built-in tools simplify page navigation
- **Web Diagram Tool to visually layout the flow of a JSF-based Web Application**
- **Automatic code generation for data validation, formatting and CRUD functions for data access**
- **Data abstraction objects for easy data connectivity (Service Data Objects)**
 - ▶ Relational databases, EJBs, Web Services
 - ▶ Data objects can be bound easily to user interface components

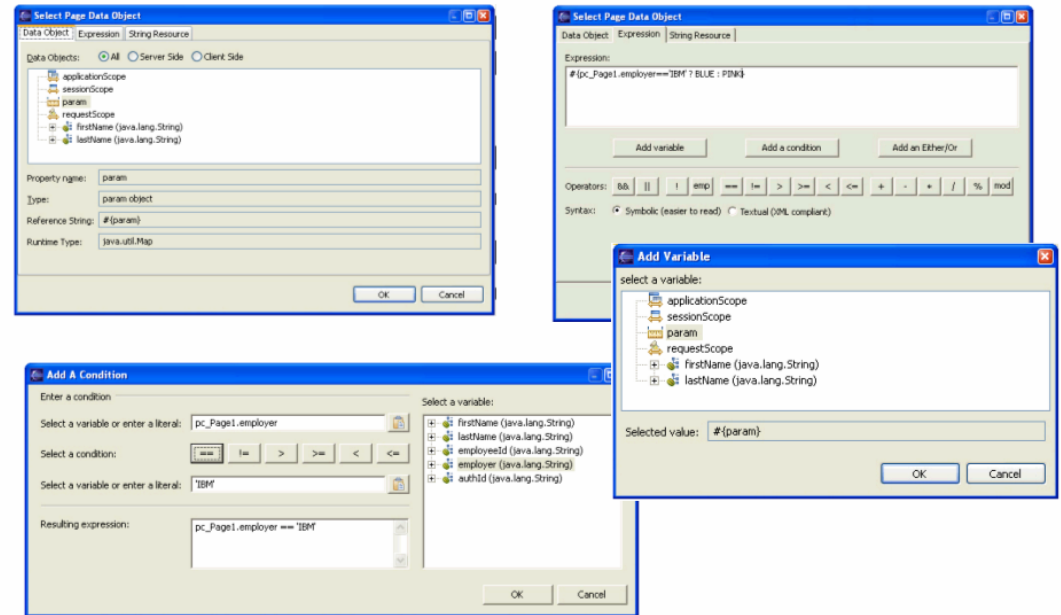


JSF Development in v7.0

New and Enhanced!

- **Managed beans in Page Data view**
- **Greatly improved code generation**
- **Better options to suppress page code**
- **Support multiple Faces-config files**
- **Better third party component support**
- **Support for runtime page templates with Tiles**
- **Large improvements in JWL JSF components**
 - ▶ New components- “insta-form”,
 - ▶ Tree and graph to work without “client data”
 - ▶ Addition of back channel support (AJAX)
 - ▶ Continue to refine existing components based on customer feedback

New Binding / expression dialog

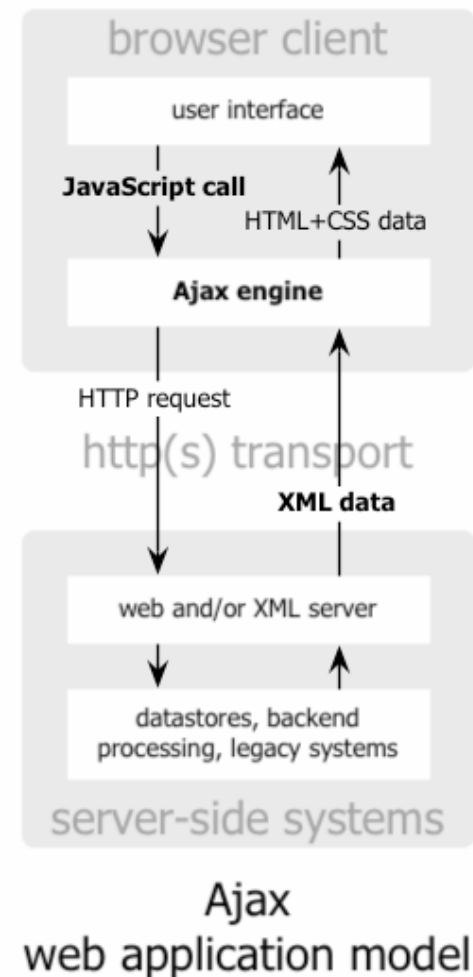


AJAX Support in v7.0

Asynchronous JavaScript And XML

New!

- **JSF components introduce common AJAX behaviors**
 - ▶ Scrolling data tables with no page refresh
 - ▶ Dependent combo/list behavior
 - ▶ Dynamic Tree component
 - ▶ Tab panels that populate when the page is displayed
 - ▶ Dynamic menus
 - ▶ Type ahead fields
 - ▶ Popup dialogs
- **Partial refresh of any part of the JSF page is supported through AJAX**
- **Eclipse AJAX Tools Framework (ATF) will work with RAD**
 - ▶ Not shipped in RAD - can be downloaded and installed into RAD



DEMO

AJAX

from the developerWorks article:

JSF and Ajax: Web 2.0 application made easy with Rational Application Developer V7 by Yury Kats

http://www-128.ibm.com/developerworks/rational/library/06/1205_kats_rad2/

Rich Client Application Development

Visual Editor for Java GUI Development

Visual beans that are Swing, SWT, or AWT components, or subclasses of these components, are shown in the Design view with their graphical representation

Source view of the Visual beans. Design and Source View are kept in sync.

Bind visual components to data objects provided by Web services, enterprise beans, and Java beans.

Drag and Drop Swing, SWT and AWT controls from the palette on to the design view.

```
private javax.swing.JButton getApplyButton() {
    if(applyButton == null){
        applyButton = new javax.swing.JButton();
        applyButton.setAction(getUpdateUserSDOAction());
        applyButton.setText("Apply");
        applyButton.setIcon(new ImageIcon(getClass().getResource("/com/ibm/sample/auction/useradmin/d...
    }
    return applyButton;
}
```

■ Design, Deploy, Debug, Test and Preview Java GUI applications

- ▶ Drag and Drop GUI Development
- ▶ Data binding wizards
- ▶ Applications and Applet support
- ▶ Automatic source code generation and synchronization
- ▶ Test and debug run-time behavior
- ▶ Custom component support

Web Services Development

- **Consume**
 - ▶ UDDI Explorer can browse UDDI registry to locate existing web services
 - ▶ WSDL Explorer can test Web Services
 - ▶ Generate Java Proxy for existing web services
- **Produce**
 - ▶ Wizard to create new Web Services from JavaBeans, EJBs, databases, etc.
 - ▶ Publish Web Services to UDDI registry
 - ▶ Visual WSDL Editor
- **Test and Deploy**
 - ▶ Deploy Web Service to WebSphere for testing
 - ▶ Built-in test client for immediately testing local/remote Web Services
 - ▶ UDDI Test Registry can be created locally
- **Support**
 - ▶ Web Services Engine supporting JAX-RPC JSR 101 & JSR 109
 - ▶ WS-I Basic Support – validate a Web Services against WS-I Basic Profile
 - ▶ WS-Security support (XML Digital Signature, XML Encryption)

Web Services Development in v7.0

- **Usability**
 - ▶ Simplification in the Web Services Wizards
 - ▶ Server startup
 - ▶ Improved skeleton merge for Top down Web Service creation
 - ▶ Simplified views for editing WSDL and XML Schema
 - ▶ Remote WSDL validation
- **Complex Schema support with SDO (based on EMF SDO v1)**
 - ▶ An alternative to JAX-RPC
- **Refactoring support for XSD**
- **Ant task support**

The screenshot displays the 'Web Service' wizard in the IBM Rational Software Delivery Platform. The wizard is titled 'Web Service' and contains the following sections:

- Web service type:** Bottom up Java bean Web Service
- Service implementation:** [Browse...]
- Start service:** A diagram showing a service being started, with a summary of links: [Server: Tomcat v5.0 Server](#), [Web service runtime: Apache Axis](#), [Service project:](#), and [Service EAR project:](#)
- Client type:** Java Proxy
- Assemble client:** A diagram showing a client being assembled, with a summary of links: [Server: Tomcat v5.0 Server](#), [Web service runtime: Apache Axis](#), [Client project:](#), and [Client EAR project:](#)
- Options:**
 - Publish the Web service
 - Monitor the Web service
- Navigation:** < Back, Next >, Finish, Cancel

Below the wizard, the 'Components.xsd' editor is visible, showing a complex type definition for 'Distribution' with the following attributes:

Attribute	Value
id	string
code	string
Amount	Amounts
Ledger	LedgerId
GLEntity	GLEntity
Business	OrganizationalUnit
CostCenter	CostCenter
ProfitCenter	ProfitCenter
Fund	Fund
Project	Project
UserArea	UserArea

The 'Properties' window at the bottom shows the 'complexType' definition for 'Distribution':

Property	Value
Name:	Distribution
Inherit From:	anyType
Inherit By:	restriction

DEMO

Web Services

Database and Data Access Development

■ Connect to existing databases

- ▶ Cloudscape
- ▶ DB2 Universal database for Linux, UNIX, and Windows
- ▶ DB2 Universal database for iSeries
- ▶ DB2 Universal database for z/OS
- ▶ Informix
- ▶ Microsoft SQL Server
- ▶ Oracle
- ▶ Sybase Adaptive Server Enterprise

■ Database Definition

- ▶ Import existing database objects
- ▶ Create and modify databases, schemas, tables and views
- ▶ Create, update, compile, deploy and test DB2 stored procedures and user-defined functions
- ▶ Create, update, compile, deploy and test user-defined functions that can invoke Web services
- ▶ Create, edit and execute SQL statements (select, update, insert, delete) using SQL query wizard
- ▶ Create, edit and execute existing SQL DDL scripts on local or remote databases
- ▶ View table sample data (up to 1000) rows

■ XML based data access

- ▶ Process data using XML
- ▶ Wizards and Frameworks to generate XML from SQL
- ▶ Update tables using an XML document or XMLToSQL class

■ Java Beans based data access

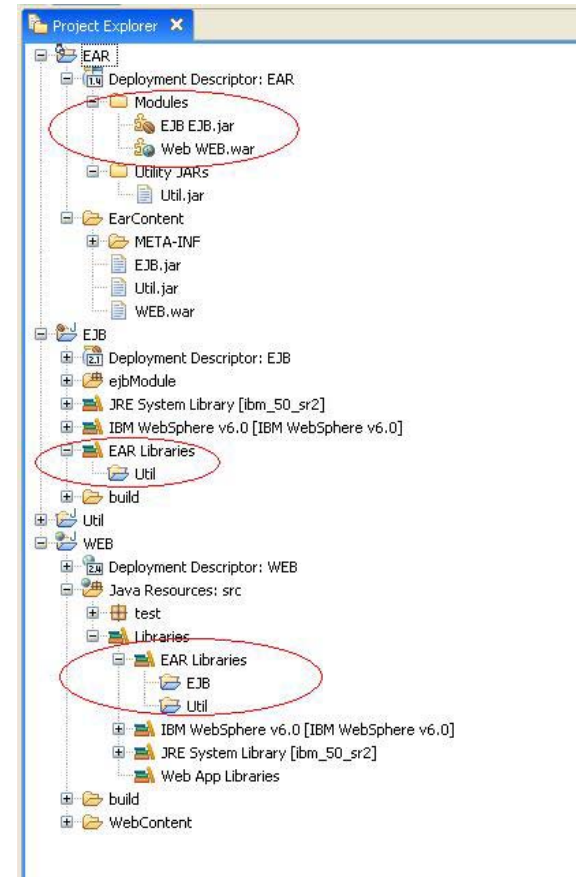
- ▶ Simplified programming interface avoids JDBC interfaces and provides reusable DB beans
- ▶ Wizards and framework to generate db beans that executes a SQL statements or invokes stored procedures

■ SQLJ applications

- ▶ An SQLJ editor with SQLJ statement syntax highlighting
- ▶ An SQLJ translator that translates SQLJ files to pure Java files and produces SQLJ serialized profiles
- ▶ An SQLJ debugger that enables you to debug SQLJ files directly
- ▶ Built-in customization when developing applications for DB2 UDB

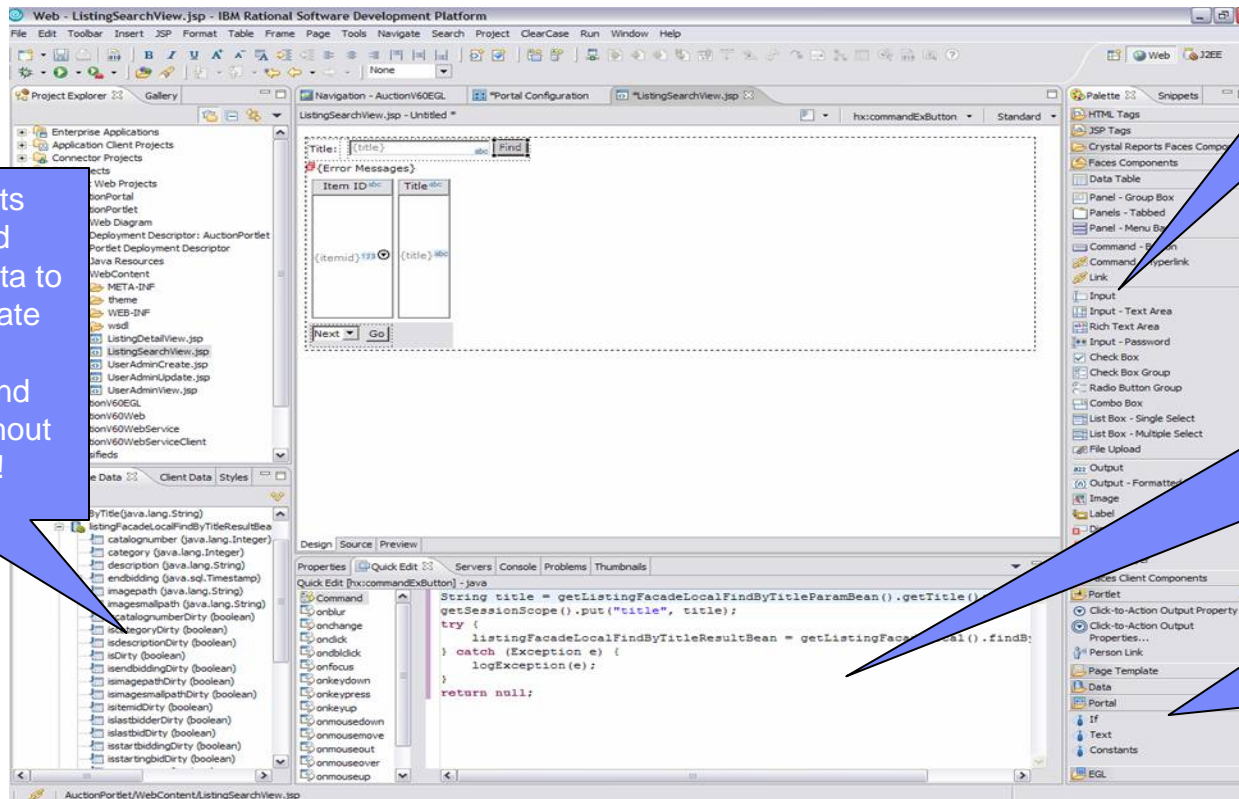
J2EE Flexibility in Rational Application Developer

- **Concurrent support for J2EE 1.2, J2EE 1.3 and 1.4 projects**
 - ▶ Easy project migration
- **Supports EJB 1.1, 2.0 and 2.1 EJBs**
 - ▶ **EJB 2.1 support includes:**
 - Web service support
 - ▶ **EJB 2.0 support includes:**
 - Message-driven beans
 - Container Managed Persistence
 - Local interfaces
 - Container Managed relationships
 - EJB Query Language
 - ▶ **EJB 3.0 support in alpha**
- **Support for multiple database vendor/schema versions**
- **Support for WebSphere Application Server Version 5.1, 6 and 6.1 Configurations and Instances**
 - ▶ Take advantage of libraries/features available in a specific server version



Visual Portlet Development

The Data View lets you configure and drag and drop data to automatically create data bound UI. SDO accesses and updates data without writing any code!



Construct pages by dragging and dropping rich web components from a customizable Palette

The Quick Edit View allows scripting of client or server side events in Java or Java Script. Code assist writes the code for you!

Add Click-2-Action and People Awareness capability by dragging and dropping these components

▪ Design, Deploy, Debug, Test and Preview Portlets

- Portlet project wizard to create basic portlets, JSF portlets, and Struts portlets
- Web services client Portlet
- Portlet project support for the IBM portlet API and the JSR 168 portlet API
- Testing and debugging of portlets within the workbench using the WebSphere Portal Test Environment or a remote server
- Click-to-Action

Visual Portal Development

Visual Them and Skin Editing

Visualize and Customize Portal page

Drag and Drop a Page, Portlet, Label, Row or Column to Layout your Portal Page

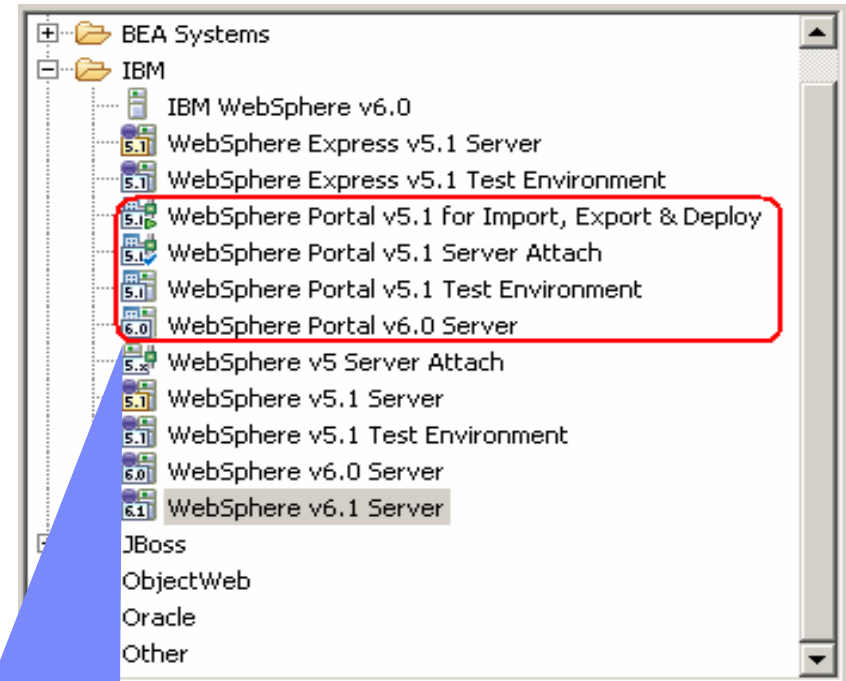
▪ Design, Deploy, Debug and Test Portal Applications

- WYSIWYG Portal Designer for designing portal page (layout, navigation links)
- Import/Deployment wizards for Portal Page
- Visual Themes and Skins development
- Built-in Portal Test Environment

Portal Tool Features in v7.0

New!

- Websphere Portal v6 Support
- Streamlined Portlet Wizard
- Co-operative Portlet Wizard
- Enhanced Credential Vault Support
- JSR 168 Support for WAS 6.1
- Consumption of Web Services for Remote Portlets
- Enhanced Business Process Portlet Support

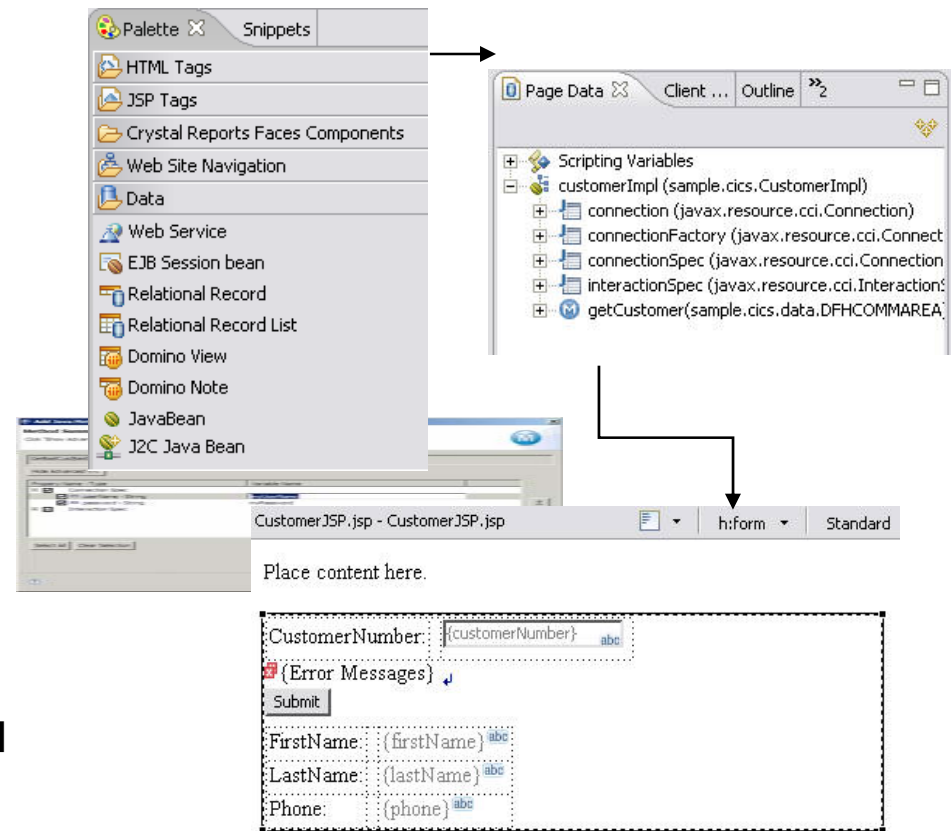


- Single server type, WebSphere Portal v6.0.

J2C Tools in v7.0

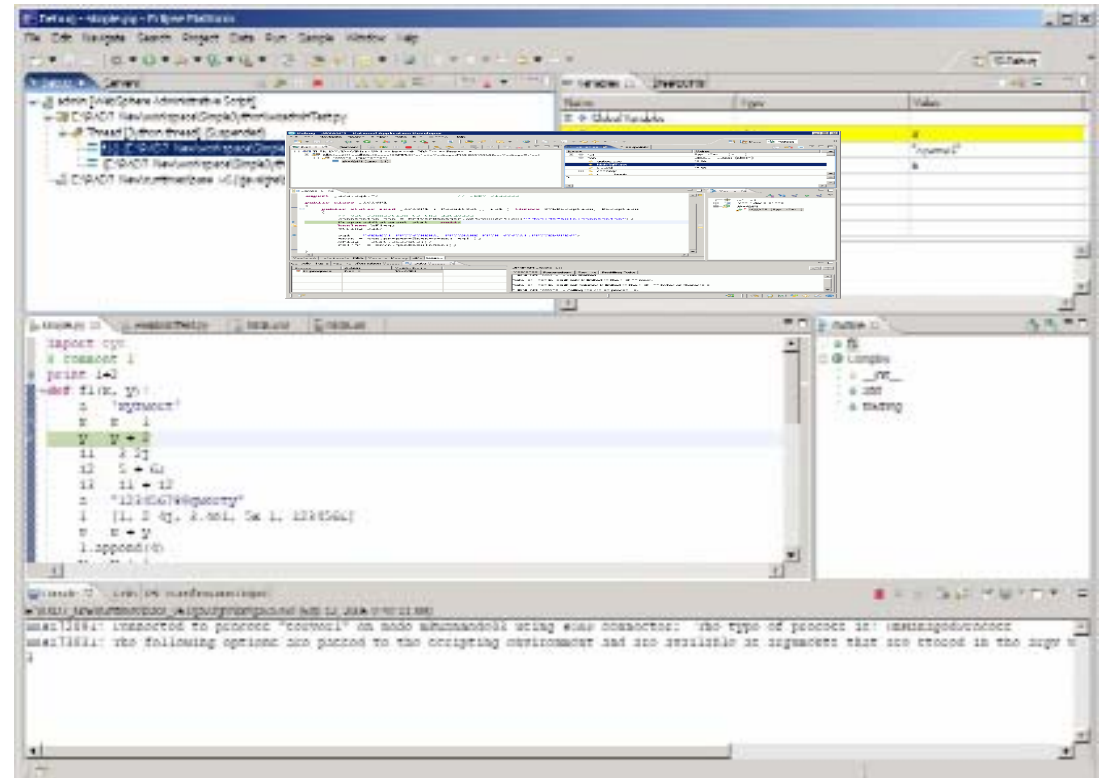
New and Enhanced!

- **Page Designer integration**
 - ▶ Palette entry for J2C Java beans for drag and drop
- **Enhanced Editing Support**
 - ▶ Wizard based guidance to expose J2C InteractionSpec properties as input arguments
 - E.g.. User name, password
- **Wizard Session Recording**
 - ▶ Creates an Ant build file that captures the user interaction with the J2C Wizards to allow command line based regeneration of J2C Java Beans and the Language Data Beans
- **PL/I added to COBOL and C as supported native languages**



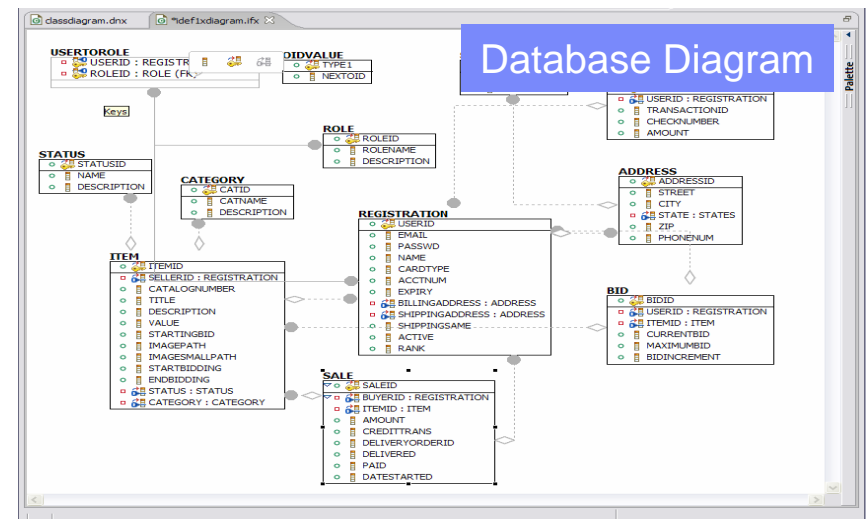
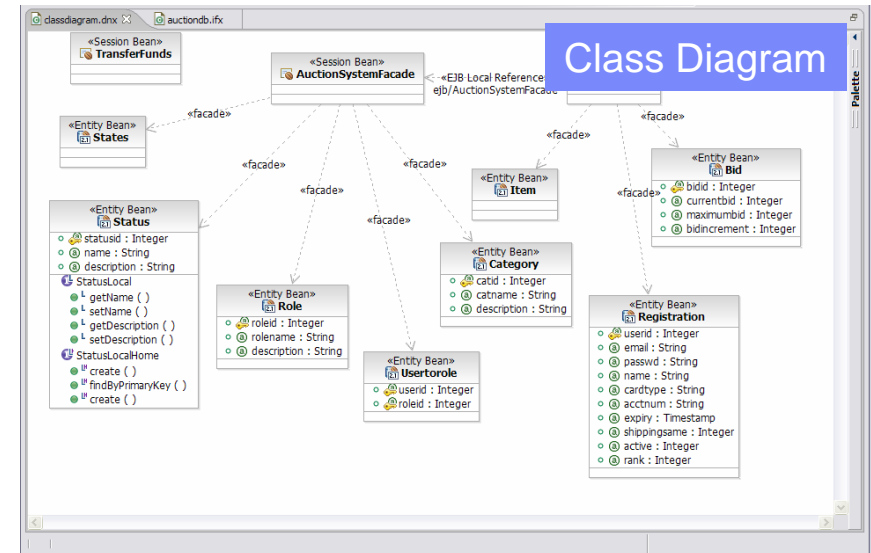
Debug Tools in v7.0

- **New Debugger for WebSphere Jython Scripts**
- **Support for DB2 V9 Stored Procedure Debug**
 - ▶ Java and SQL Stored procedures
- **New “Show Running Threads” filter**
 - ▶ To only display suspended threads



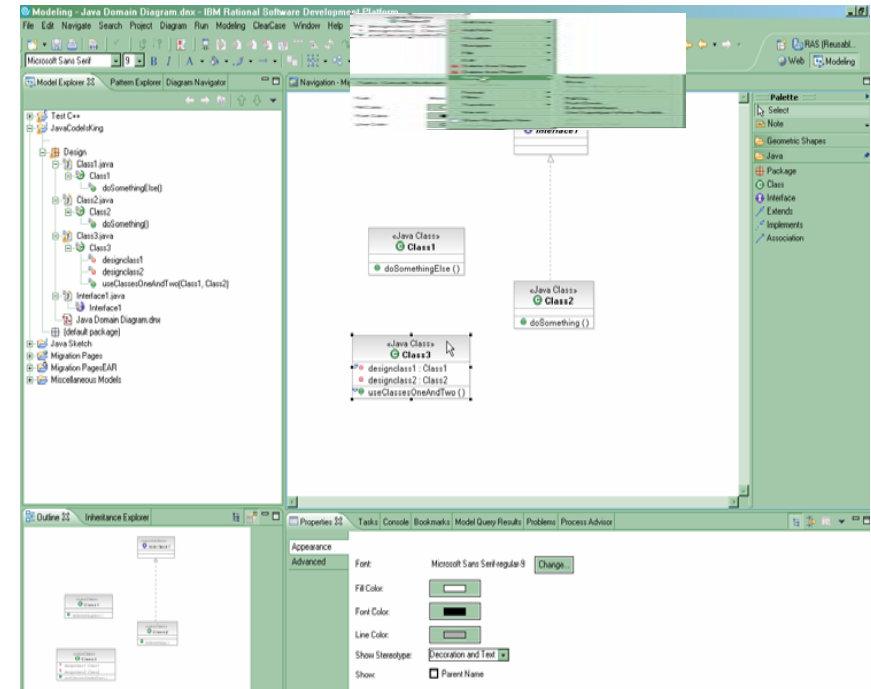
UML Visual Modeling

- **UML Class diagram editing for Java, Enterprise Java Beans, and Database objects**
 - ▶ Uses stylized UML notation to provide abstract views of Java, EJB, and database objects to simplify the development and understanding of new and existing applications.
- **IE and IDEF diagram editor for Database objects (ER Modeling)**
 - ▶ Use IE and IDEF notations to simplify the development and understanding of database applications.



Java Modeling in v7.0

- Java 5 support (annotations, generics, enums, static import, varargs...)
- Operation signature preference (UML or Java)
- Ability to depict classes in external jars
- Java developer tools available from diagram context menus (source, open type)
- Inline editing of java fields and methods (with optional invocation of refactoring)
- Many additional properties added to properties view
 - ▶ Properties view tabs for packages, classes, interfaces, fields & methods
- Option to create field's type using import statement instead of fully qualified name
- Improved collection support



DEMO

Java Modeling

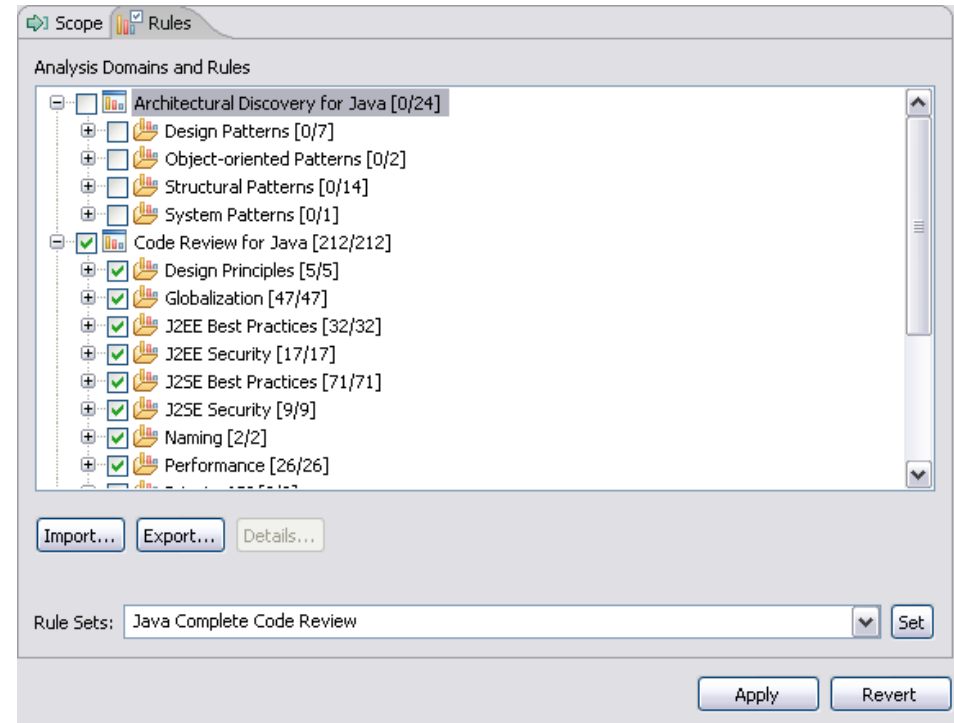
Process Guidance

- **Rational Unified Process for Developers provides dynamic process guidance**
 - ▶ Process guidance and user assistance is provided dynamically as the user works with the tool.
- **Tool Mentors provide guidance for activities**
- **User customizable views with user defined content**

The screenshot displays the Rational Unified Process (RUP) interface. The main window is titled "Process Browser" and shows a tree view of process elements on the left, including "Manager", "Analyst", "Analysts", "Business Architect", "Business Designer", "Business-Process Analyst", "Requirements Specifier", "Stakeholder", "System Analyst", "Disciplines", and "Work Products". The right pane shows details for the "Role: System Analyst", including a description and "Relationships". A "Search" dialog is open in the foreground, showing a search query and a list of results under "Tool Mentors". A "Process Advisor" window is also visible, providing context-sensitive guidance. Callout boxes highlight key features: "Improved navigation of RUP" points to the Process Browser tree; "Process Advisor provides context sensitive guidance" points to the Process Advisor window; and "Search is integrated with Eclipse search" points to the Search dialog.

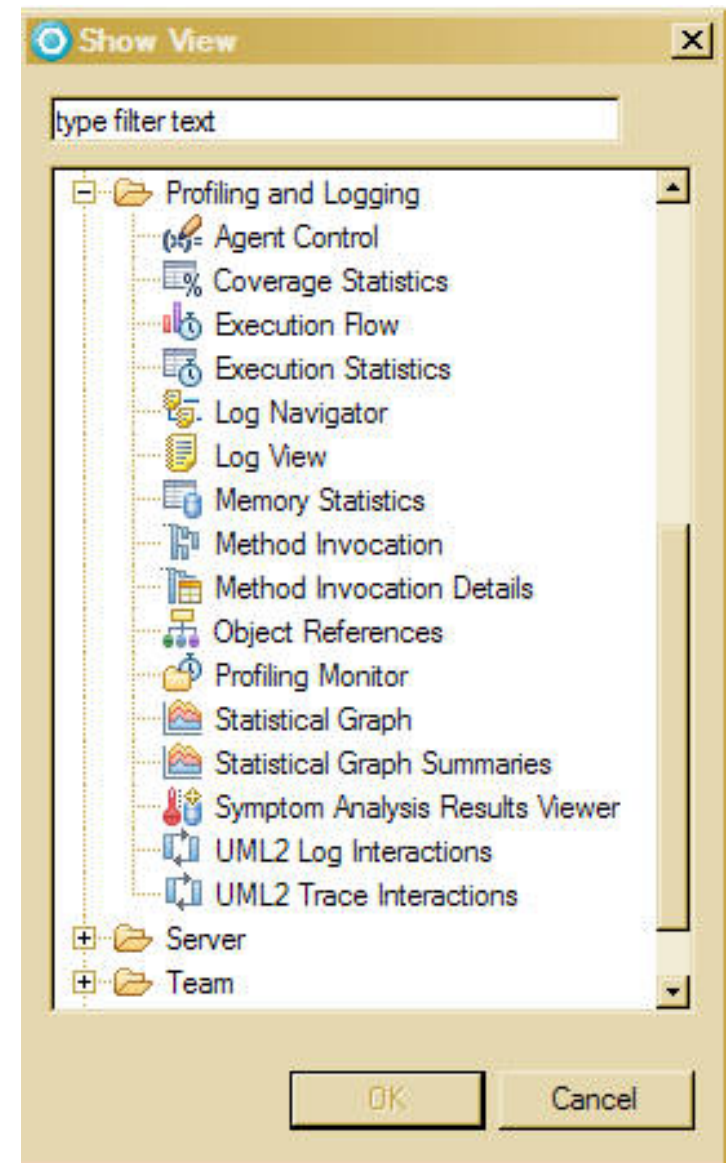
Code Quality Assurance

- Analyze Project/Workspace to find problems of various types:
 - ▶ Design Principles
 - ▶ Globalization
 - ▶ J2EE & J2SE Best Practices
 - ▶ J2EE & J2SE Security
 - ▶ Naming
 - ▶ Performance
 - ▶ Private API
- Produce interactive reports with violations and metrics
- Provides explanations, examples, and quick fixes for problems
- Allow users to create, enable and disable validation rules
- Allow users to create their own rules based on rule templates
 - ▶ Complete Code Review (200+ rules)
 - ▶ Quick Code Review (34 rules)



Runtime Analysis

- Built-in tools helps developer isolate and fix performance problems
- Advanced features including:
 - ✓ Execution Stats
 - ✓ Log Navigator and View
 - ✓ Memory Stats
 - ✓ Method Invocation
 - ✓ Object References
 - ✓ Profiling Monitor
 - ✓ Statistical Graph and Graph Summaries
 - ✓ Statistical Data
 - ✓ UML Sequence Diagram
 - ✓ UML Log Interactions
 - ✓ UML Trace Interactions
 - ✓ Static and Dynamic Probe Kit
 - ✓ Probe Kit Editor
 - ✓ J2EE Request Profiler
 - ✓ PI-Agent
 - ✓ RAC Security Extension
- Profiling tools can seamlessly trace across multiple servers



Summary: IBM Rational Application Developer v7.0

- Web application development
- J2EE application development
- Rich Client development
- Web Services development
- Visual application development
- Portal and Portlet application development
- Code quality tools
- Software development process guidance



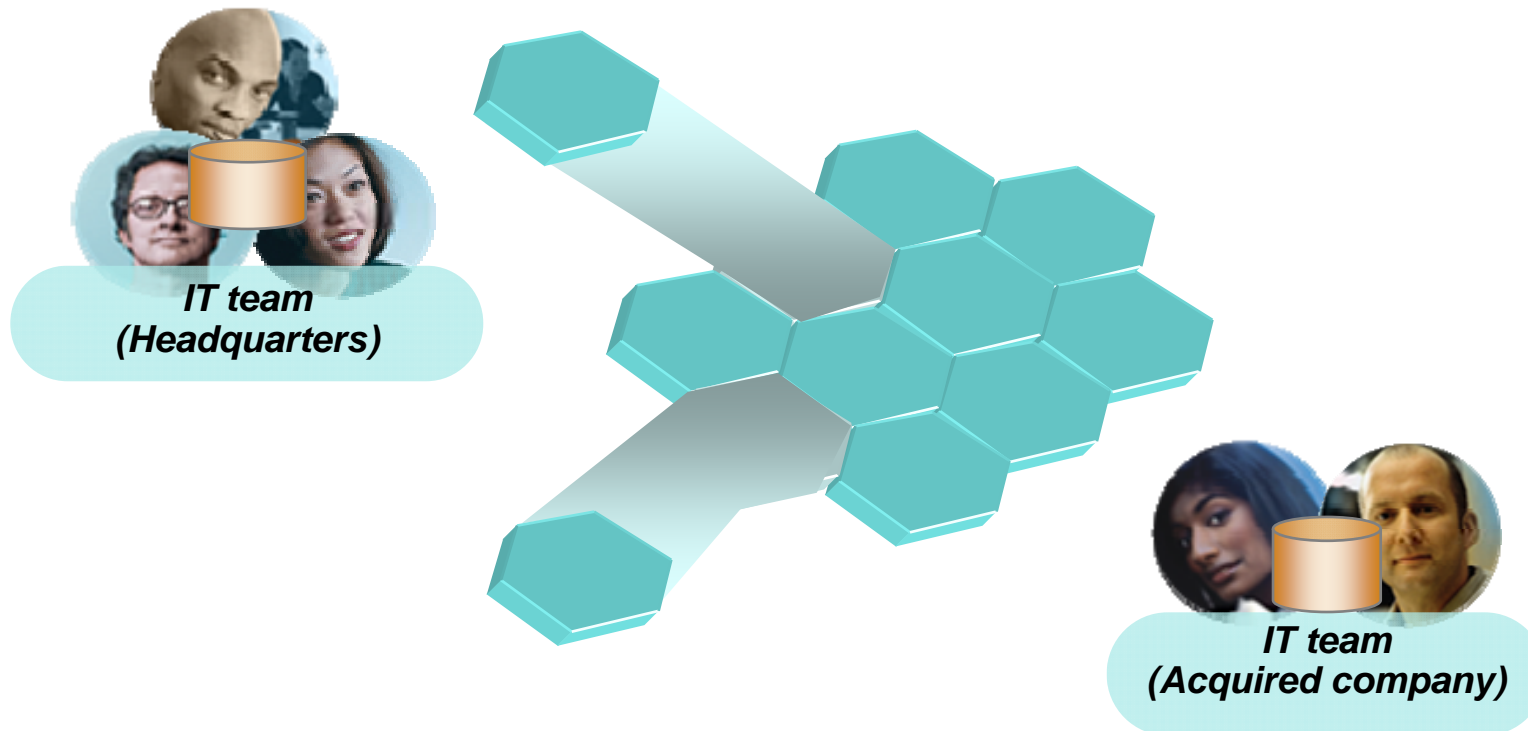
Where We Are

- Introduction
- IBM Rational Software Modeler
- IBM Rational Application Developer
- **IBM Rational Software Architect**
- IBM Rational Systems Developer
- Resources and wrap-up


Challenge: A Structured Approach to Architecture ...


Scenario: Large department store chain acquires a specialty retailer

Parent company needs to revamp and consolidate their credit checking application but maintain niche customer front-end. Ad hoc initiatives ongoing at headquarters and an acquired company located overseas.





Challenge: A Structured Approach to Architecture

 *“How do I effectively map to the business process models being provided to us?”*


“We did not find our tangles until late in the project – but they were there from the beginning .” 


 *“The architecture was solid, but it was not implemented as planned!”*

“How can we learn about the architecture of existing implementations or frameworks?” 

 *“How do I speed deployment & improve quality by reuse?”*

“How Do I deliver interoperable applications based on industry standards?” 

 *“How do I coordinate all this & ensure the integrity of the plan?”*

“How do I work with applications that are more complex than ever?” 

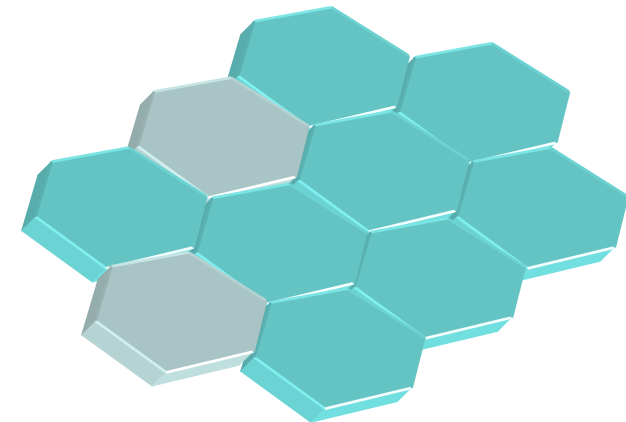
Solution: Govern the Lifecycle of Application Architecture with Modeling Support and Traceability ...

Provide technologies to enable effective communication of a design

- ▶ UML 2 Notation
- ▶ Integrate the architecture artifacts into the development environment
- ▶ Provide global access to models internally and for suppliers

✓ Transformations:

- ▶ Generate source code based on architecture decisions
- ▶ Tools to build transformations from model-to-model or model-to-code based on architecture decisions



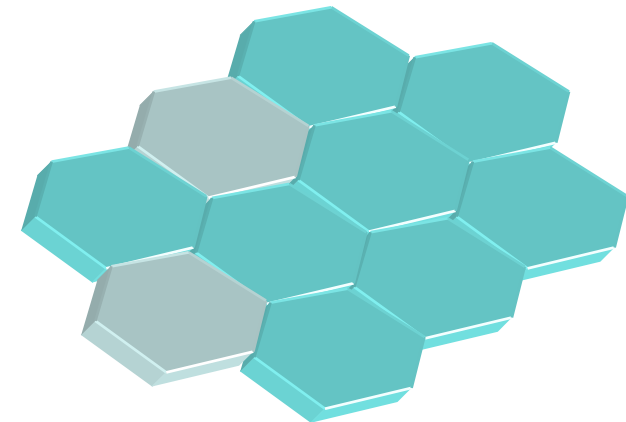
Solution: Govern the Lifecycle of Application Architecture with Modeling Support and Traceability

✓ **Create and enforce rules which support the architecture**

- ▶ Process Guidance
- ▶ Visually compare model changes
- ▶ Link requirements to design
- ▶ Architectural analysis

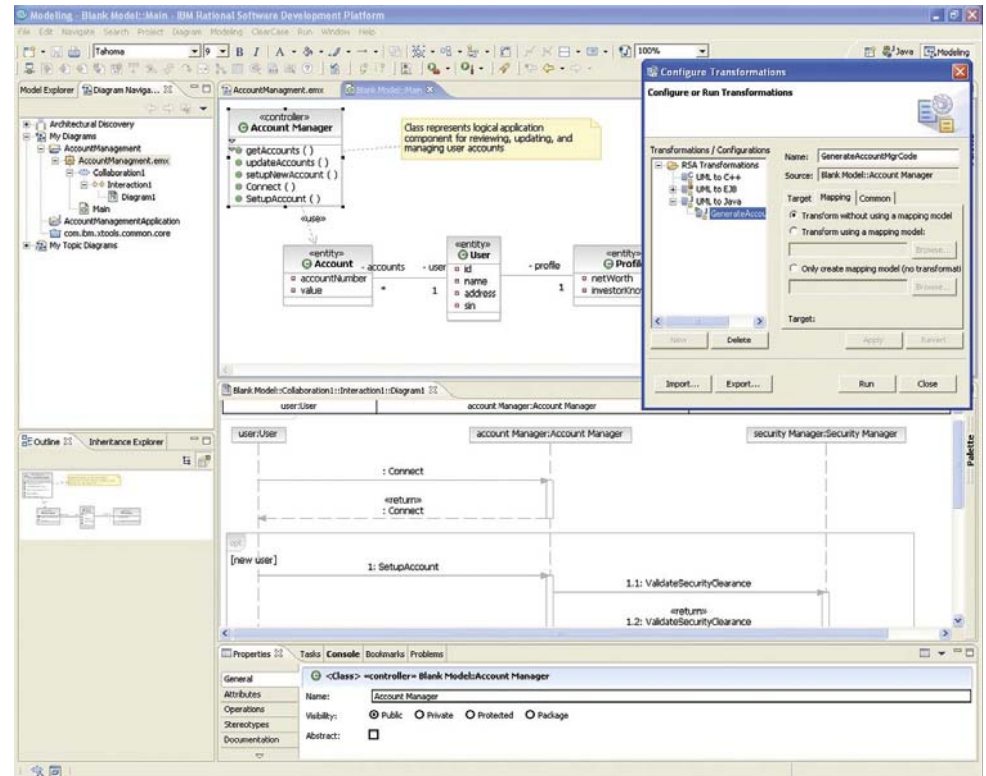
✓ **Accelerate application development**

- ▶ Not just the coding
- ▶ Developers can spend more time ensuring robustness and quality of application
 - Visual Editors
 - Code Analysis



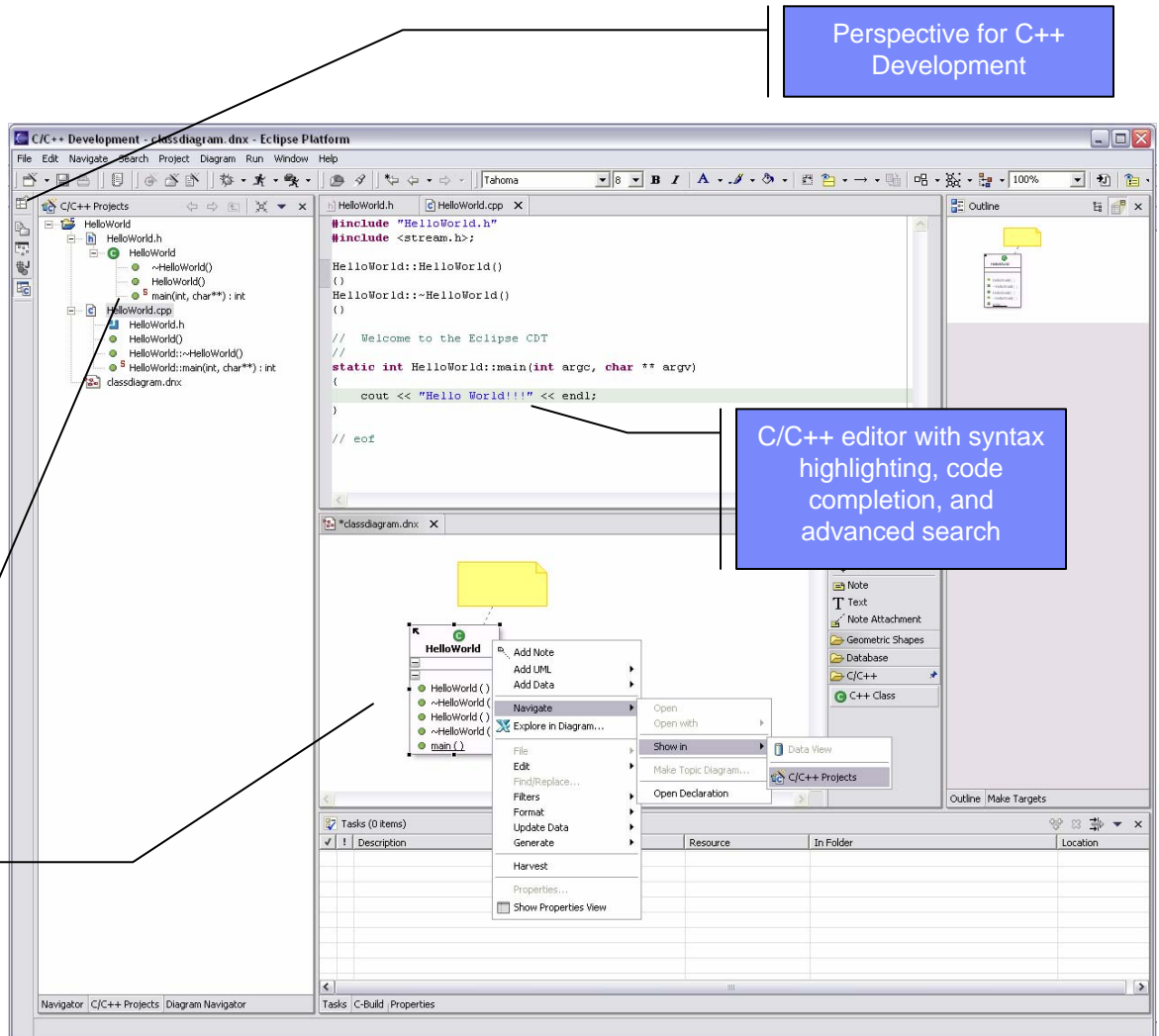
IBM Rational Software Architect v7.0

- **IBM Rational Software Architect is an integrated design and development tool.**
- Leverages model-driven development with the UML for creating well-architected applications and services.
- Develop applications and Web services more productively than ever
- Exploit the latest in modeling language technology and leverage an open and extensible modeling platform
- Review and control the structure of Java and service-oriented applications
- Simplifies the design and development tool solution by integrating with other facets of the lifecycle



C/C++ Development Environment

- **C/C++ development environment with syntax highlighting editor and customizable build and debugger framework**
 - ▶ Users can develop their C++ applications in the same environment that is used for developing with other languages like Java and XML.



C/C++ project hierarchical tree view

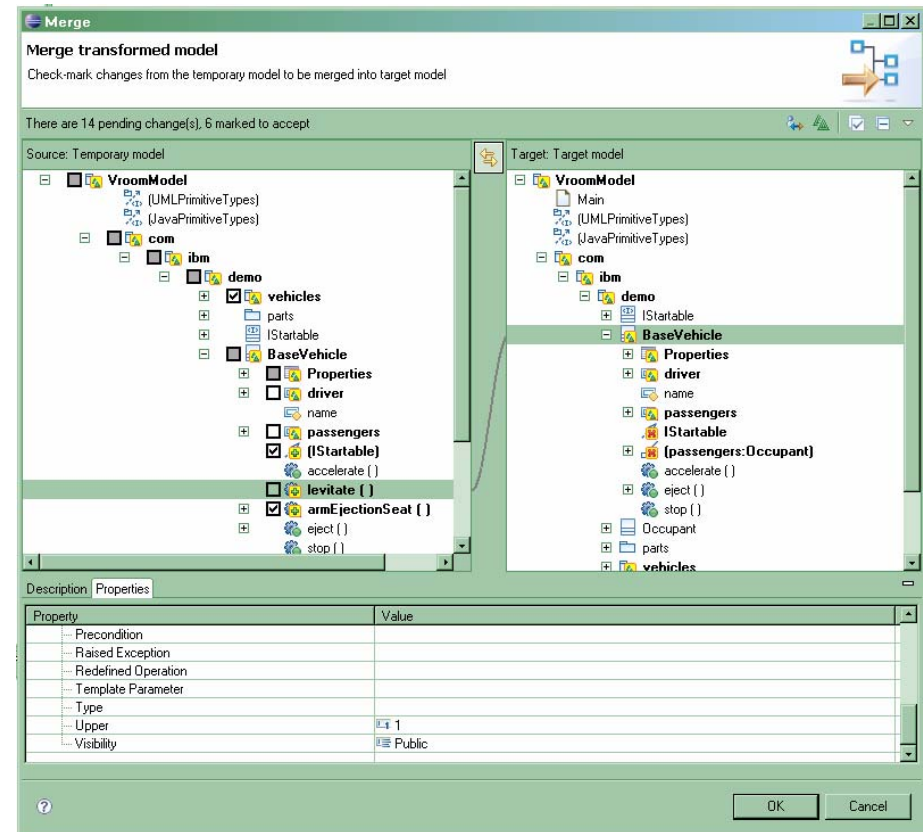
UML class diagram visualization of C/C++ classes and structs

Perspective for C++ Development

C/C++ editor with syntax highlighting, code completion, and advanced search

Model-Code Reconciliation and Reverse Transformations

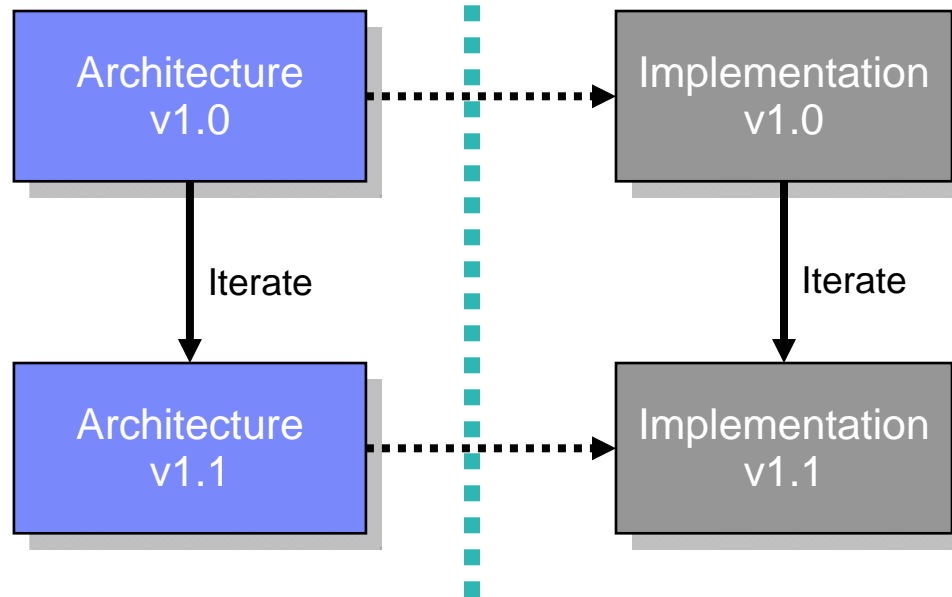
- **Benefits:**
 - Allow globally distributed teams to work on design and implementation and reconcile results
- **Enhanced Diff/Merge capabilities in Version 7.0**
 - Transform code to model
 - Reconcile models
 - Merge resulting model
 - Forward transform model to code
- **Reverse Engineering for code-to-model transformation**
 - Reverse transformations for Java, C++



Architectural Governance Scenario ...

Architecture Team

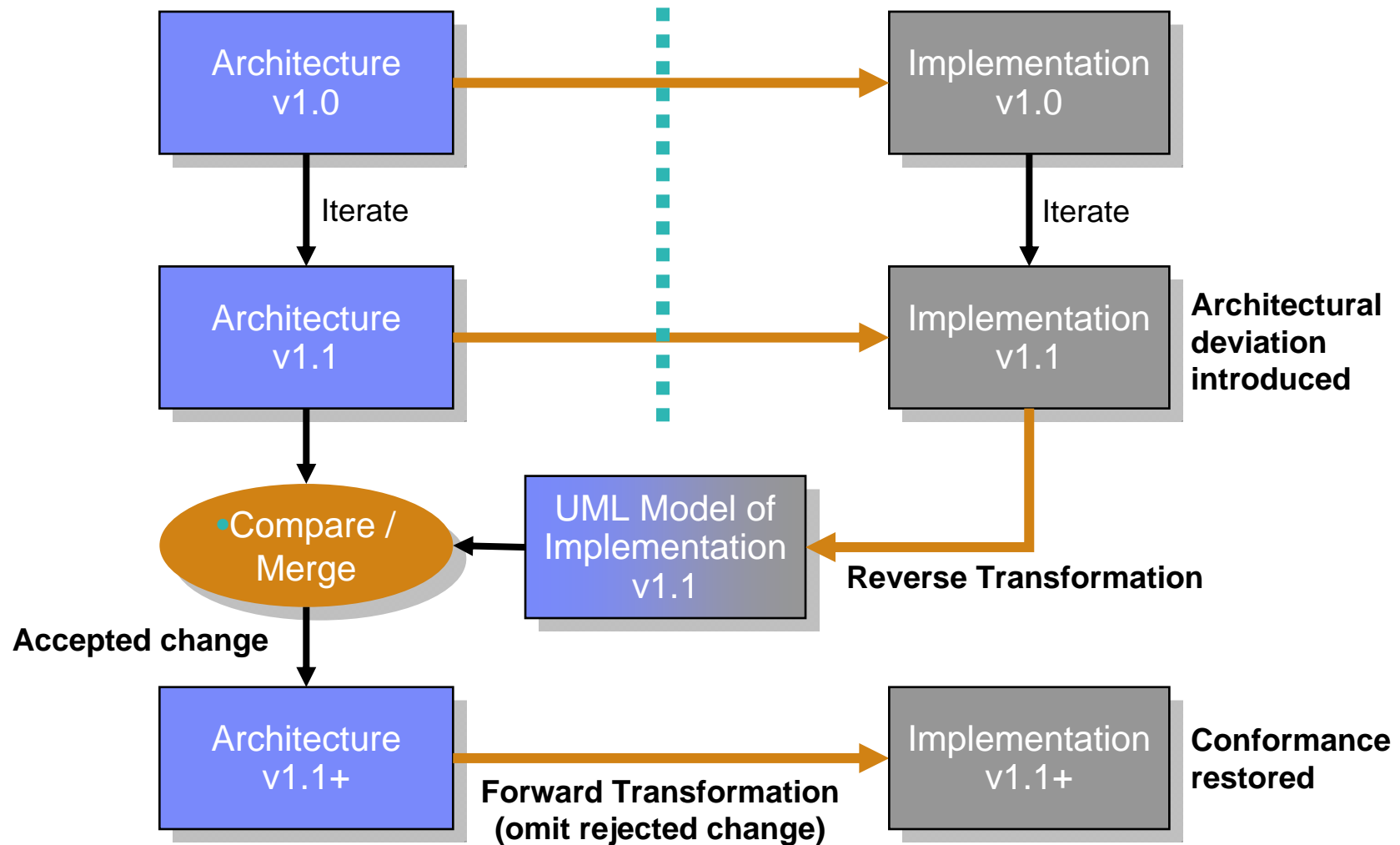
Implementation Team



Geography,
subcontract,
or corporate culture

- Will implementation conform to specification?
- How do you account for both changing over time?

Architectural Governance Scenario





DEMO

Reverse Transformation

Architectural Analysis, Discovery, and Control

- **Architecture discovery for J2EE and J2SE**
 - ▶ High-level software visualization
- **Application architecture is reflected in the running code**
 - ▶ Analyzing code can help assess its maintainability
- **Govern the architecture with the assistance of rules**
 - ▶ Template-based rule authoring
- **Anti-pattern and pattern detection**
 - ▶ Detection of cyclic dependencies, hubs, breakable, etc.
 - ▶ Wizard assisted automated quick-fix

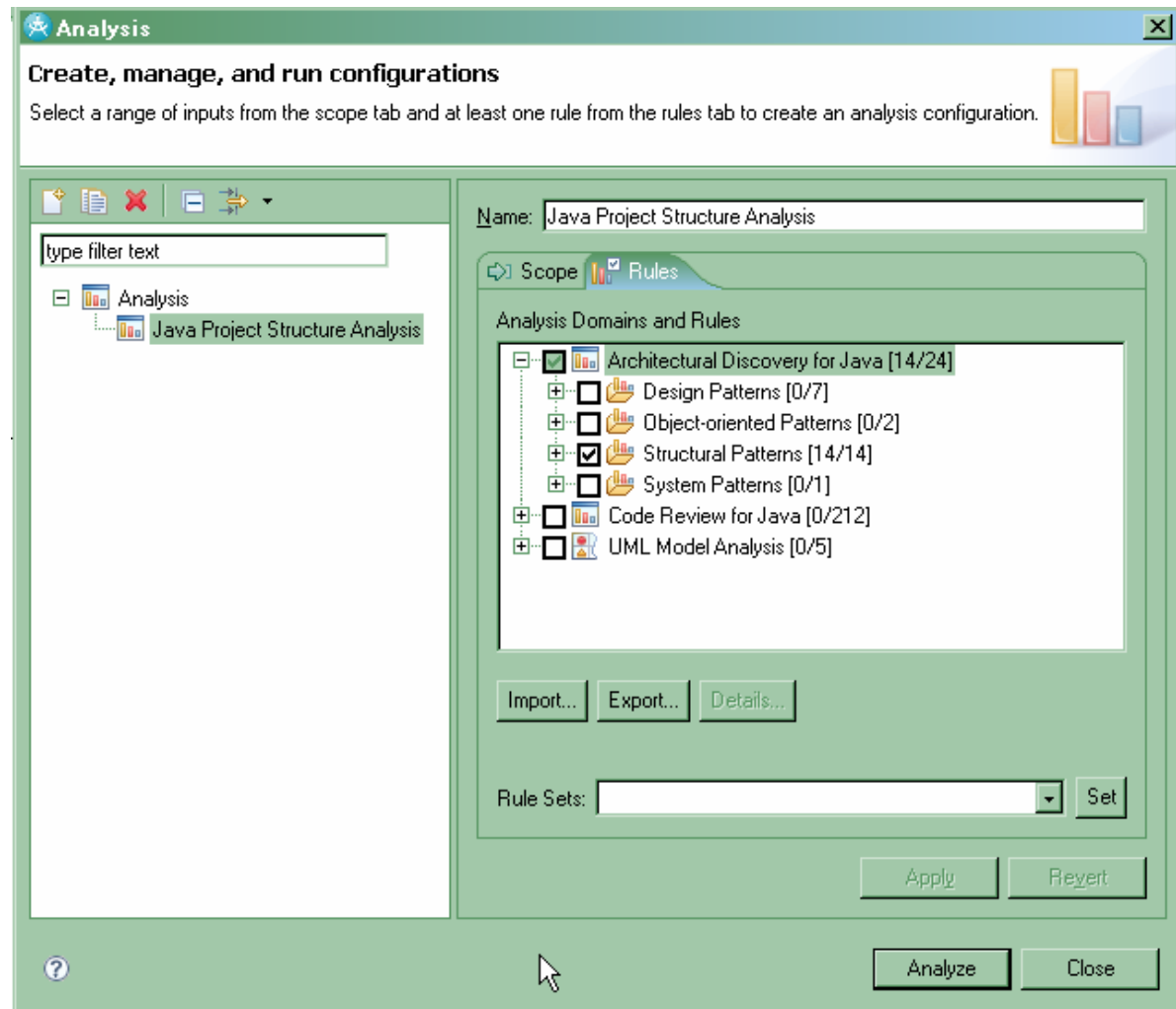
The screenshot displays the IBM Rational Software Delivery Platform interface, illustrating architectural analysis, discovery, and control. The interface is divided into several panes:

- Diagram Navigator:** Shows a tree view of architectural topics, including Component (9), Global Breakable (26), Global Butterfly (51), Global Hub (25), Implementation Dependency (2), Local Breakable (7), Local Butterfly (14), Local Hub (2), CommonCorePlugin, Service, Tangle (3), Unused (45), Package (8), OOP Diagrams (2), Packages (16), My Diagrams, Java Project, src, com, ibm, classdiagram.dnx, deploymentdiagram.dnx, Modeling Project, UML Model.mex, com.ibm.xttools/ClassDiagram, and My Topic Dia.
- Automatic generation of "topic" diagrams based on the results of the code analysis:** A central diagram showing a network of nodes (e.g., item.jsp, product.jsp, customer.jsp, CatalogHelper, Cloudscape CatalogDAO, Generic CatalogDAO, CatalogDAO, CatalogEJB, xml, Item) connected by dashed lines, representing dependencies and relationships.
- Patterns and anti-patterns are rendered in the diagram editor. Navigation to detailed code is supported:** A detailed view of a diagram element, showing a hierarchical structure of nodes and edges.
- Code Review: JUnit:** A pane displaying a list of detected issues, including:
 - Globalization:Character (Score 20)
 - Globalization:String (Score 122)
 - [Unresolved] Assert.java:270 Avoid using + operator
 - [Unresolved] Assert.java:271 Avoid using + operator
 - [Unresolved] Assert.java:277 Avoid using + operator
 - [Unresolved] Assert.java:278 Avoid using + operator
 - [Unresolved] Assert.java:288 Avoid using + operator
 - [Unresolved] Assert.java:289 Avoid using + operator
 - [Unresolved] Assert.java:79 Avoid using Sting equals
 - [Unresolved] ComparisonFailure.java:38 Avoid using String charAt
 - [Unresolved] ComparisonFailure.java:38 Avoid using String charAt
 - [Unresolved] ComparisonFailure.java:44 Avoid using String charAt
 - [Unresolved] ComparisonFailure.java:44 Avoid using String charAt
 - [Unresolved] Failure.java:57 Avoid using + operator
 - [Unresolved] Failure.java:58 Avoid using + operator
- Code review pane providing a report of detected issues. Report is inclusive of J2EE detailed code analysis results:** A pane displaying a list of detected issues, including:
 - Globalization:Character (Score 20)
 - Globalization:String (Score 122)
 - [Unresolved] Assert.java:270 Avoid using + operator
 - [Unresolved] Assert.java:271 Avoid using + operator
 - [Unresolved] Assert.java:277 Avoid using + operator
 - [Unresolved] Assert.java:278 Avoid using + operator
 - [Unresolved] Assert.java:288 Avoid using + operator
 - [Unresolved] Assert.java:289 Avoid using + operator
 - [Unresolved] Assert.java:79 Avoid using Sting equals
 - [Unresolved] ComparisonFailure.java:38 Avoid using String charAt
 - [Unresolved] ComparisonFailure.java:38 Avoid using String charAt
 - [Unresolved] ComparisonFailure.java:44 Avoid using String charAt
 - [Unresolved] ComparisonFailure.java:44 Avoid using String charAt
 - [Unresolved] Failure.java:57 Avoid using + operator
 - [Unresolved] Failure.java:58 Avoid using + operator
- "Details View" providing an overview and avoidance guidance for anti-patterns:** A pane displaying a detailed view of a diagram element, showing a hierarchical structure of nodes and edges.

All Analysis Types in Common GUI

New and Enhanced!

- Architectural analysis, code review, model analysis all access from Run→Analysis...
- Create unlimited number of configurations
- Configuration runs a defined set of rules against a defined scope (workspace, working set, or project)
- Engine-agnostic – any rule set or rule engine can be easily bound in
- Configurations can be tailored and exported for use by others as a standard



Process Guidance

- **RUP configuration for Software Architects with context-sensitive and dynamic process guidance**
 - ▶ Process guidance and user assistance is provided dynamically as the user works with the tool.
 - ▶ Includes guidance for SOA and UML2
- **Tool Mentors provide guidance for activities**
- **User customizable views with user defined content**

Improved navigation of RUP

Process Browser

Query: [] Search Scope...

Process Views

Getting Started Role Sets RUP SOMA Team

Manager

Analyst

Analysts

- Business Architect
- Business Designer
- Business-Process Analyst
- Requirements Specifier
- Stakeholder
- System Analyst

Disciplines

Work Products

Search

Process Search Data Model Search File Search

Search query (* = any string, ? = any character):

Scope

- Method Content
- Role
- Task
- Work Product
- Guidance
- Process
- Activity
- General Content

Properties Tasks Console Bookmarks

uml class' - 48 matches

Tool Mentors

- Tool Mentor: Creating a Service Model using RSA
- Tool Mentor: Designing and Modeling Databases Using Rational Rose Data Modeler
- Tool Mentor: Designing Databases Using Rational XDE Developer.
- Tool Mentor: Designing Subsystems Using Rational XDE Developer
- Tool Mentor: Documenting the Process View Using Rational Rose
- Tool Mentor: Generating Elements from a Model Using Rational Rose
- Tool Mentor: Identify Business Goals Using Rational RequisitePro
- Tool Mentor: Identifying Design Elements Using Rational XDE Developer
- Tool Mentor: Performing Use-Case Analysis Using Rational XDE Developer

Work Products

Tasks

Process Advisor provides context sensitive guidance

Search is integrated with Eclipse search

Summary: IBM Rational Software Architect v7.0

- **IBM Rational Software Architect is an integrated design and development tool.**
- Leverages model-driven development with the UML for creating well-architected applications and services.
- Develop applications and Web services more productively than ever
- Exploit the latest in modeling language technology and leverage an open and extensible modeling platform
- Review and control the structure of Java and service-oriented applications
- Simplifies the design and development tool solution by integrating with other facets of the lifecycle



Where We Are

- Introduction
- IBM Rational Software Modeler
- IBM Rational Application Developer
- IBM Rational Software Architect
- **IBM Rational Systems Developer**
- Resources and wrap-up

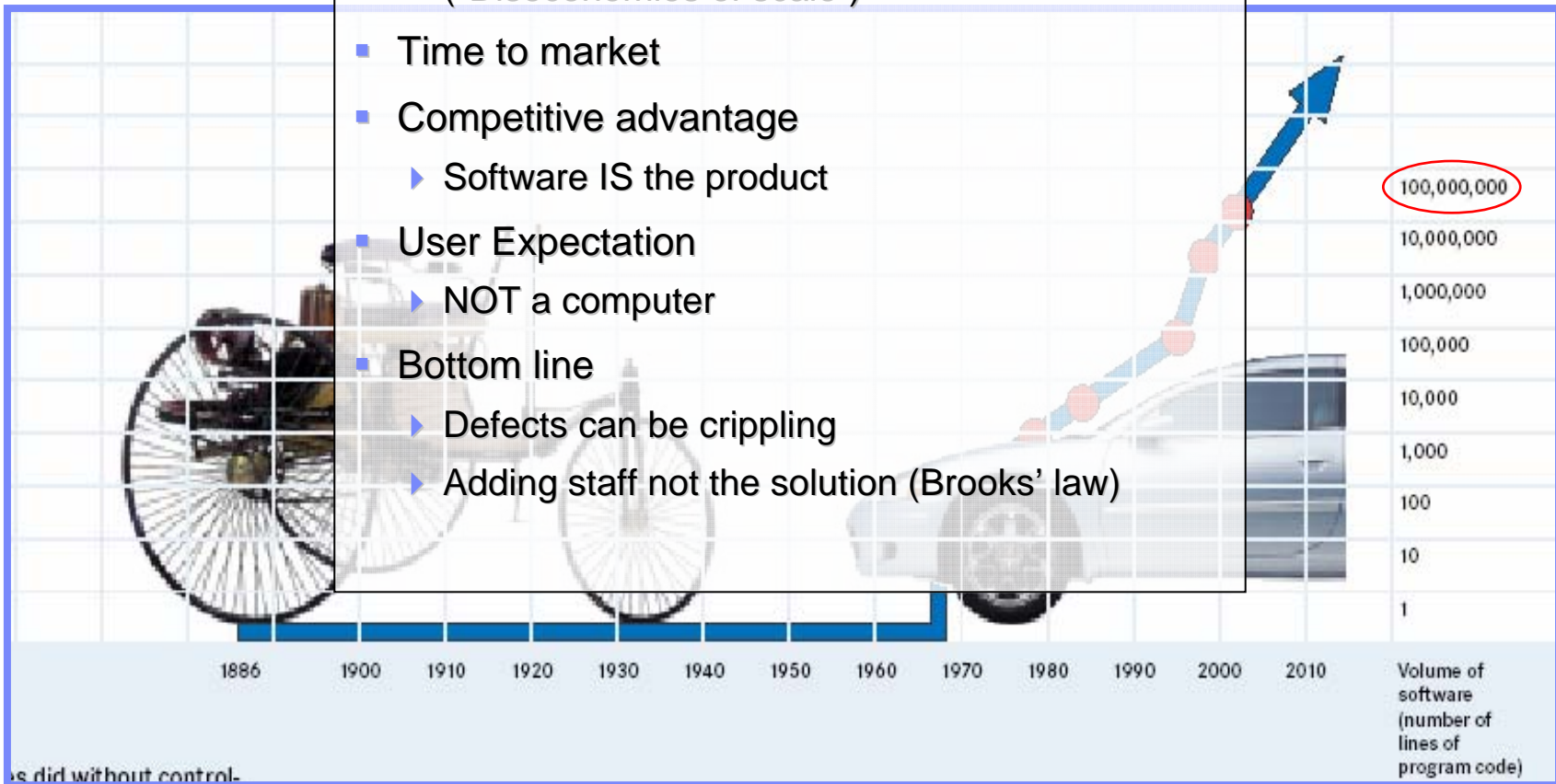
Evolution of Systems Development

- Business environment changes
 - ▶ Device is just one part of a larger solution (e.g., iPod, Tivo, Blackberry)
 - Awareness of role in broader solution
 - Working closely with customers and partners
- Technology changes
 - ▶ Complex mixture of technologies
 - Need both device-optimized and enterprise-scale technologies
 - ▶ Integration and interoperability are mandatory
 - Increasing standardization (e.g., XML)
 - ▶ Increased role of “Systems” modeling (e.g., SysML, SOA, BPM)

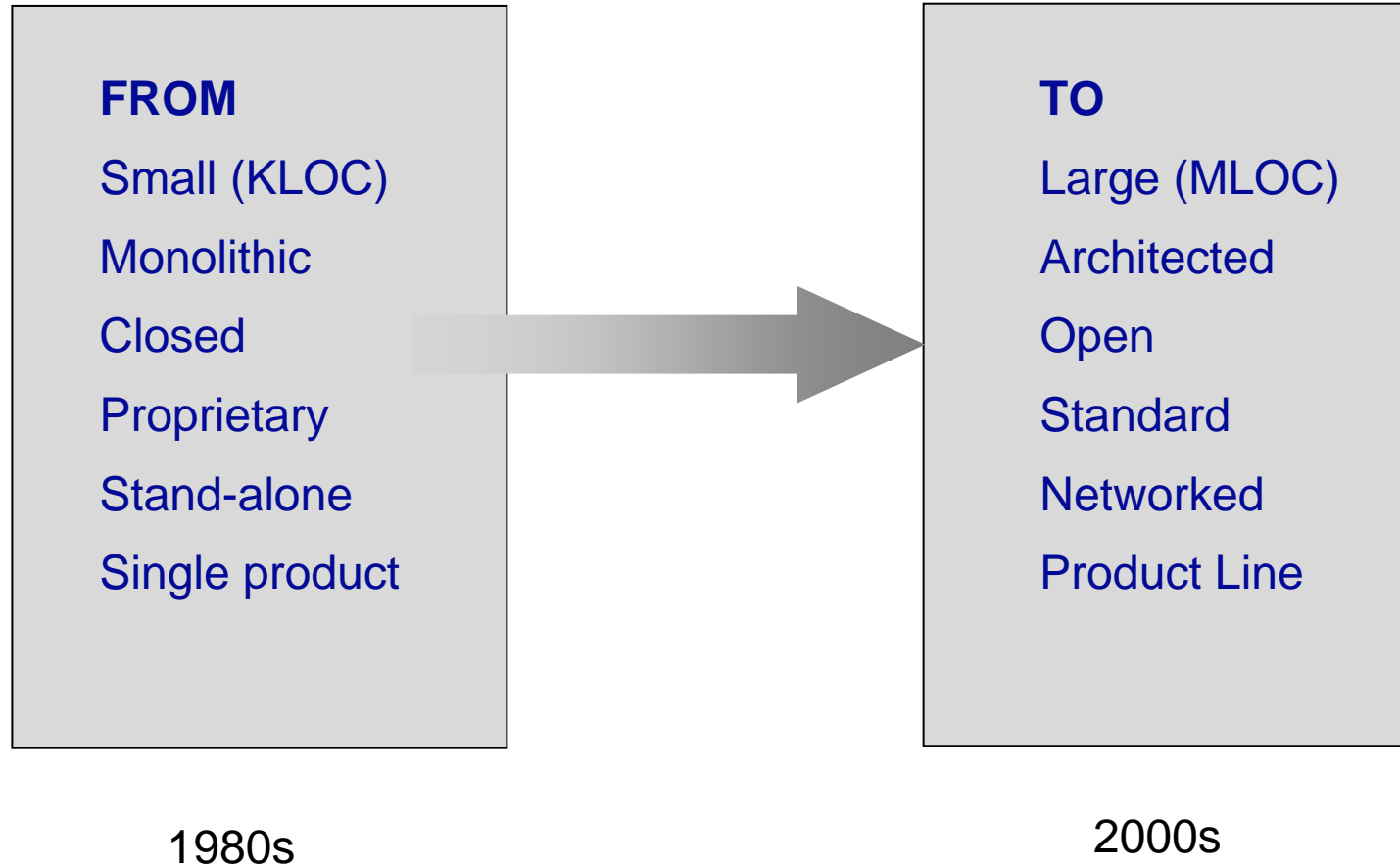


Importance of Tools in Systems Development

- Complexity
 - ▶ Scale causes productivity drop (“Diseconomies of scale”)
- Time to market
- Competitive advantage
 - ▶ Software IS the product
- User Expectation
 - ▶ NOT a computer
- Bottom line
 - ▶ Defects can be crippling
 - ▶ Adding staff not the solution (Brooks’ law)



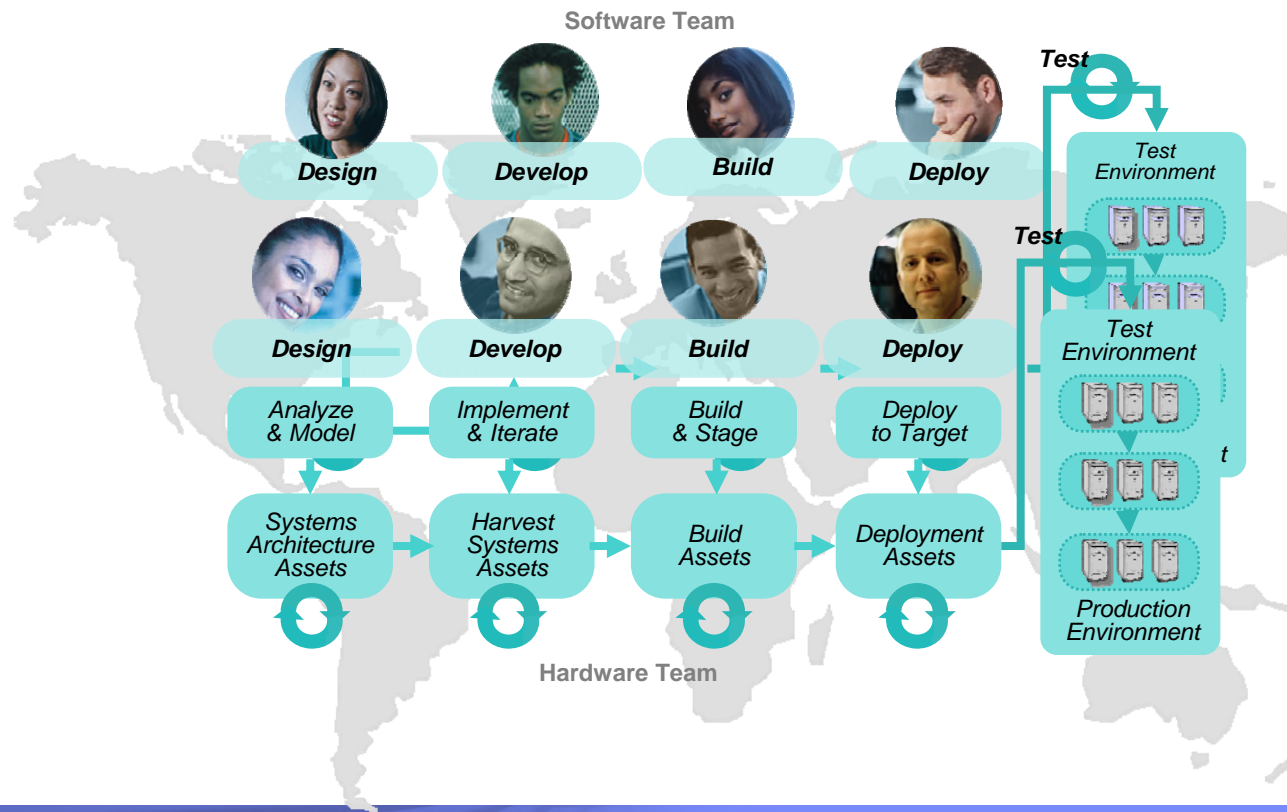
Example: Defense Industry Software Evolution



Challenge: Increasing Complexity of Systems Development ...

Scenario: Large aerospace company is developing a new aircraft

Needs to manage and coordinate across hardware/software development activities occurring internally and through subcontractors. Systems engineering and development initiatives are geographically distributed between vendors.



Challenge: Increasing Complexity of Systems Development

⊗ “How do I govern my systems engineering efforts?”

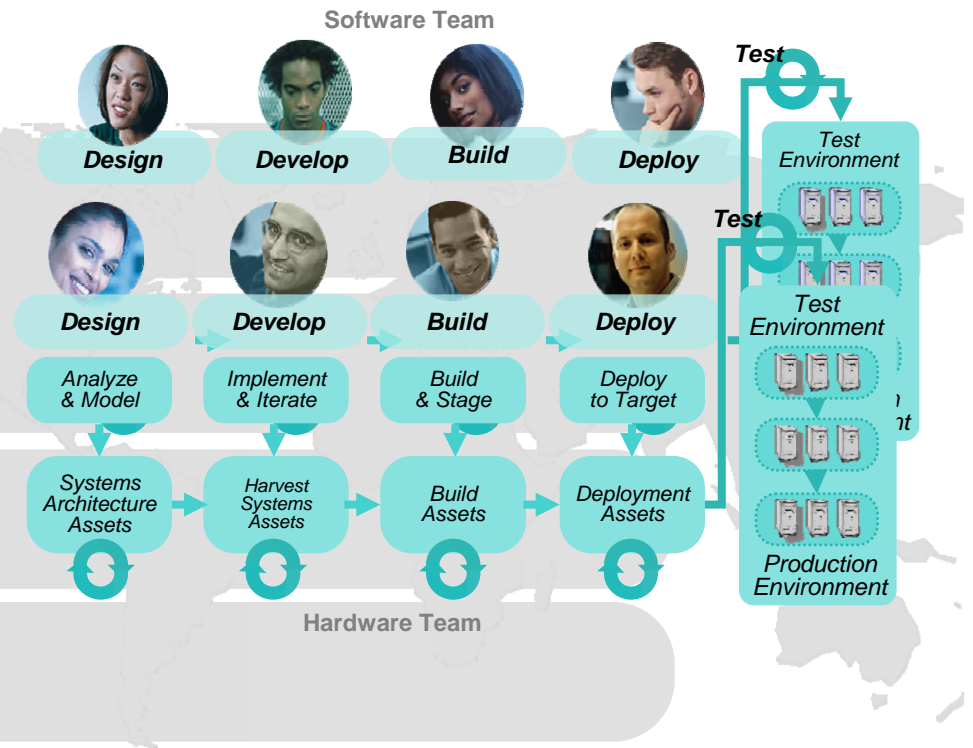
⊗ “The architecture was solid, but it was not implemented as planned!”

⊗ “How do I maintain hardware linkages with my software design?”

⊗ “How do I coordinate across the HW & SW team?”

⊗ “We did not find our tangles until late in the project – but they were there from the beginning.”

⊗ “How do I ensure compliance with industry & engineering standards across all aspects of my systems?”



Solution: Govern the Lifecycle of Systems Architecture with Systems Modeling Support and Traceability ...

- ✓ Provide technologies to enable effective communication of a design
 - ▶ UML 2 Notation
 - ▶ Integrate the architecture artifacts into the development environment
 - ▶ Provide global access to artifacts internally and for suppliers

- ✓ Provide an automated means for discovering architecture
 - ▶ Look for Anti-Patterns
 - ▶ Visualize complexity

- ✓ Generate source-code based on architecture decisions

- ✓ Create and enforce rules which support the architecture
 - ▶ Process Guidance
 - ▶ Code rules
 - ▶ Visually compare model changes
 - ▶ Link requirements to design



Solution: Govern the Lifecycle of Systems Architecture with Systems Modeling Support and Traceability

- ✓ Link hardware and software teams with single modeling approach
 - ▶ Ability to meld systems and software modeling through SysML and UML support

- ✓ Architectural traceability and ease of compliance to systems standards
 - ▶ Model-code reconciliation for C++
 - ▶ Manage systems of systems: DoDAF work products to sub-systems

- ✓ Improved ROI by leveraging open standards and Eclipse extensible framework e.g., Wind River WorkBench

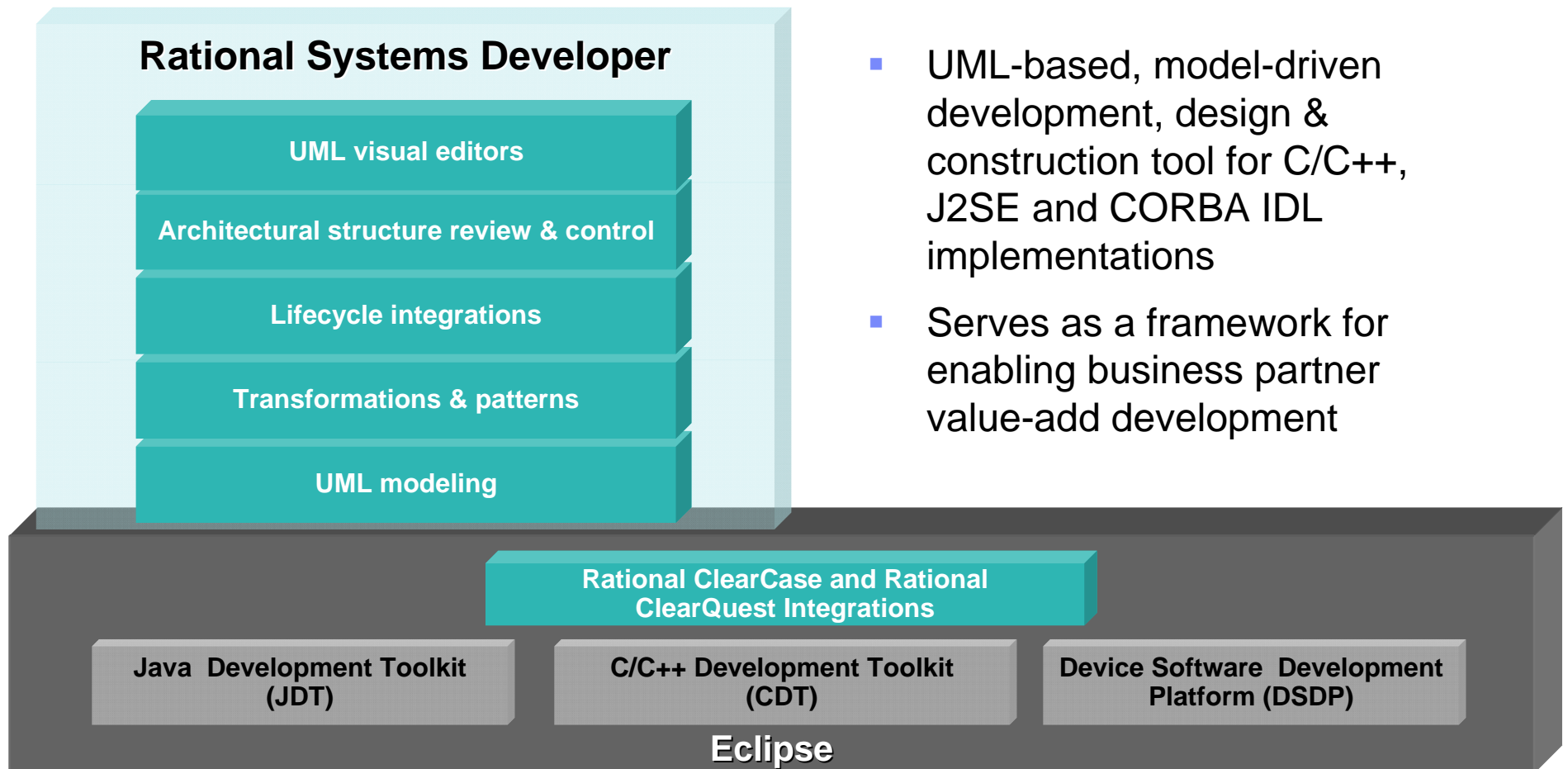
- ✓ Integration with Model Driven System Development Best Practices



IBM Rational Systems Developer v7.0

Leveraging the Eclipse platform...

to provide a complete lifecycle solution for systems development

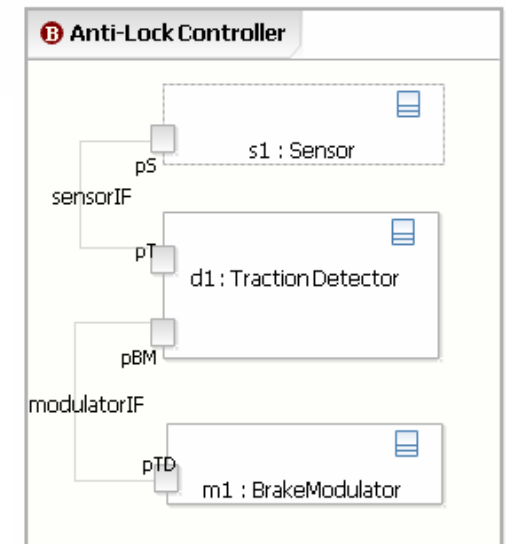
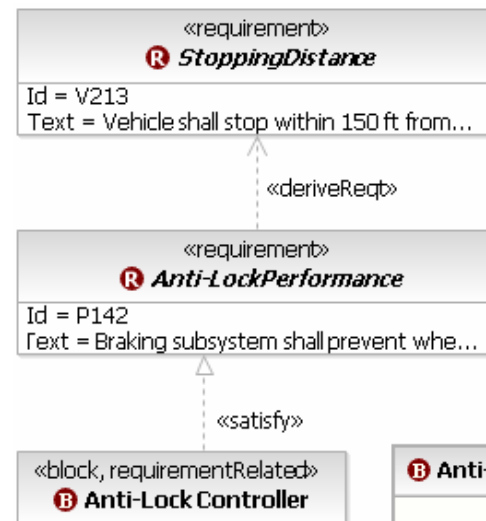


SysML and Simulation Toolkits

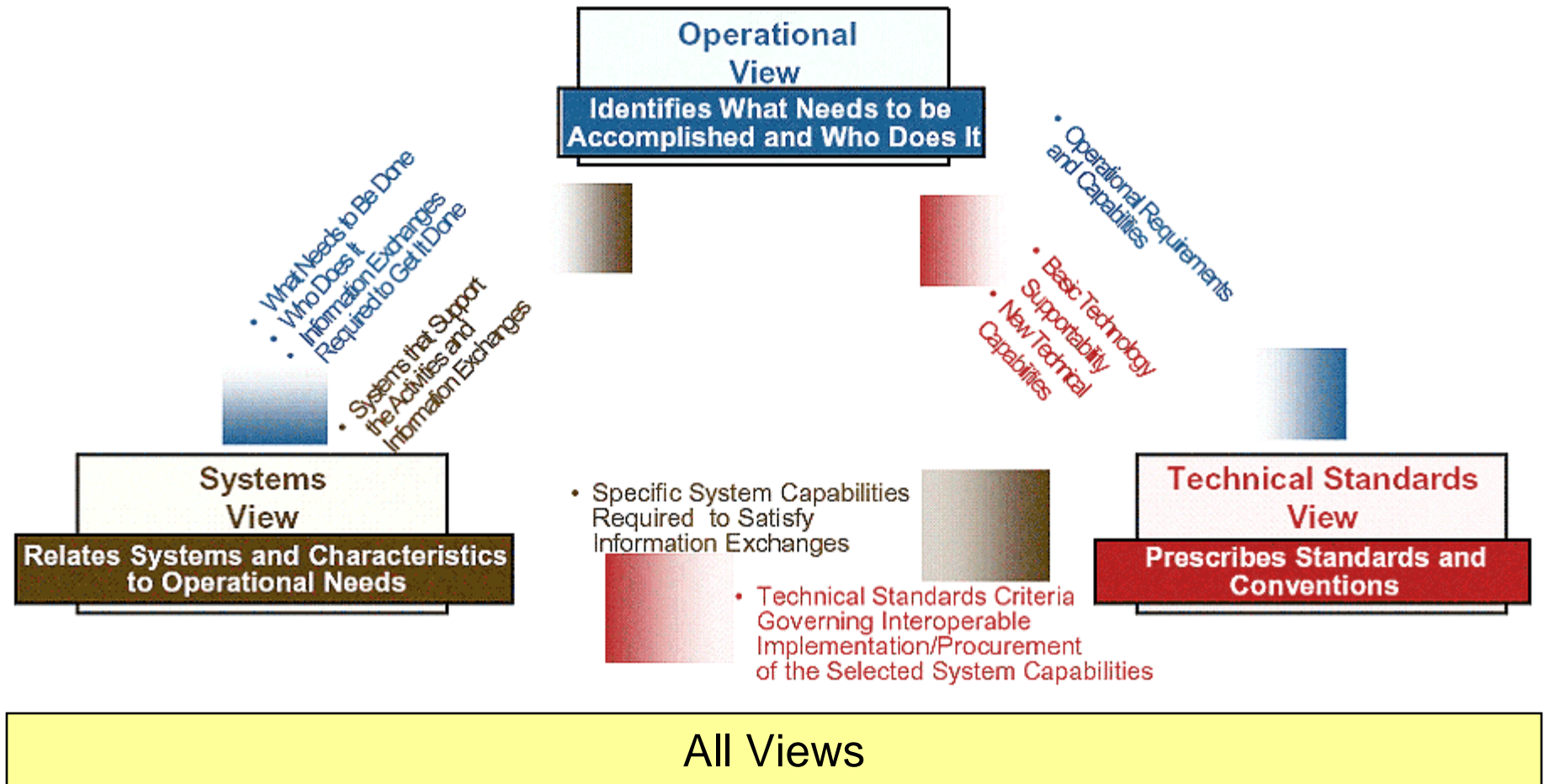
Embedded
plus



- Provides SysML 1.0 language support for modeling broad range of systems including hardware, software, data, personnel, procedures, and facilities.
- Sophisticated query and validation mechanisms for ensuring completeness and accuracy of SysML models.
- SysML Requirement integration with Requisite Pro and Telelogic DOORS®.
- Execute and simulate UML and SysML models to validate architectures before building system.
- Common environment reduces communication gap between systems and software engineers.



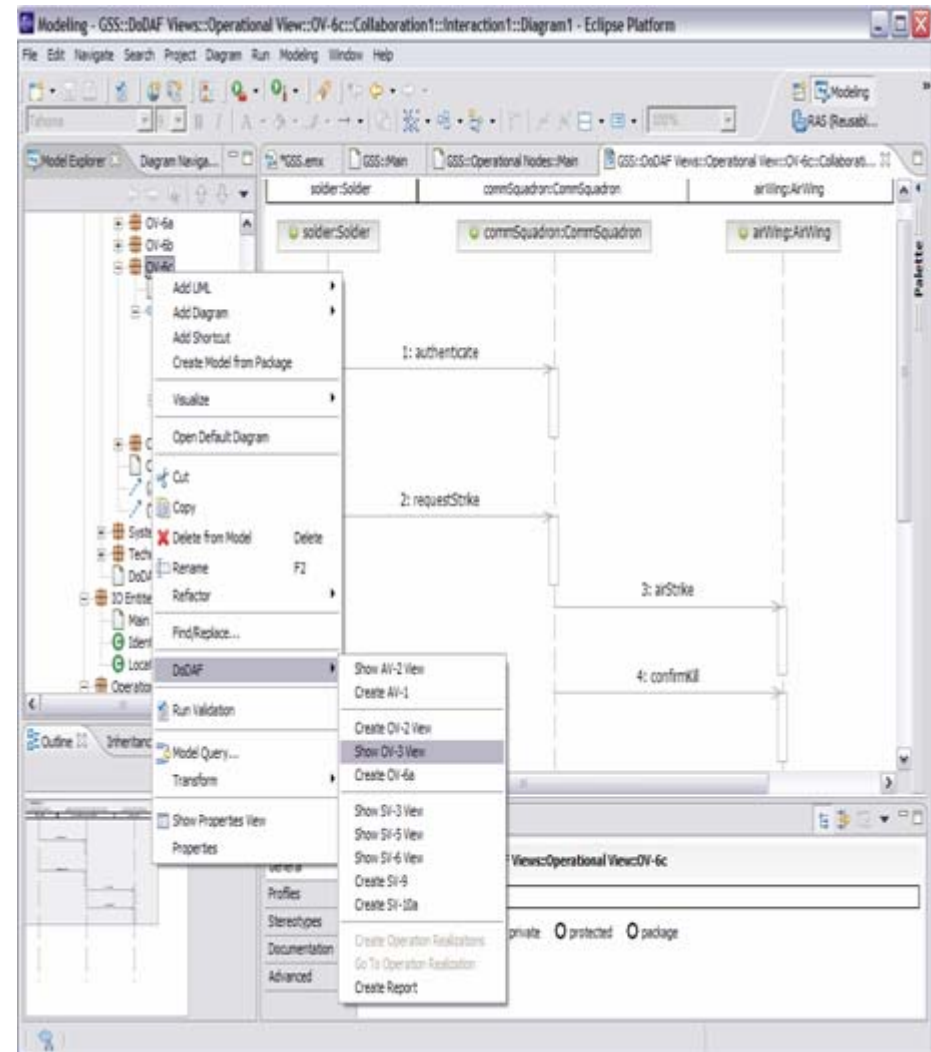
DoDAF: One Architecture – Four Views



Source: DoDAF Volume I

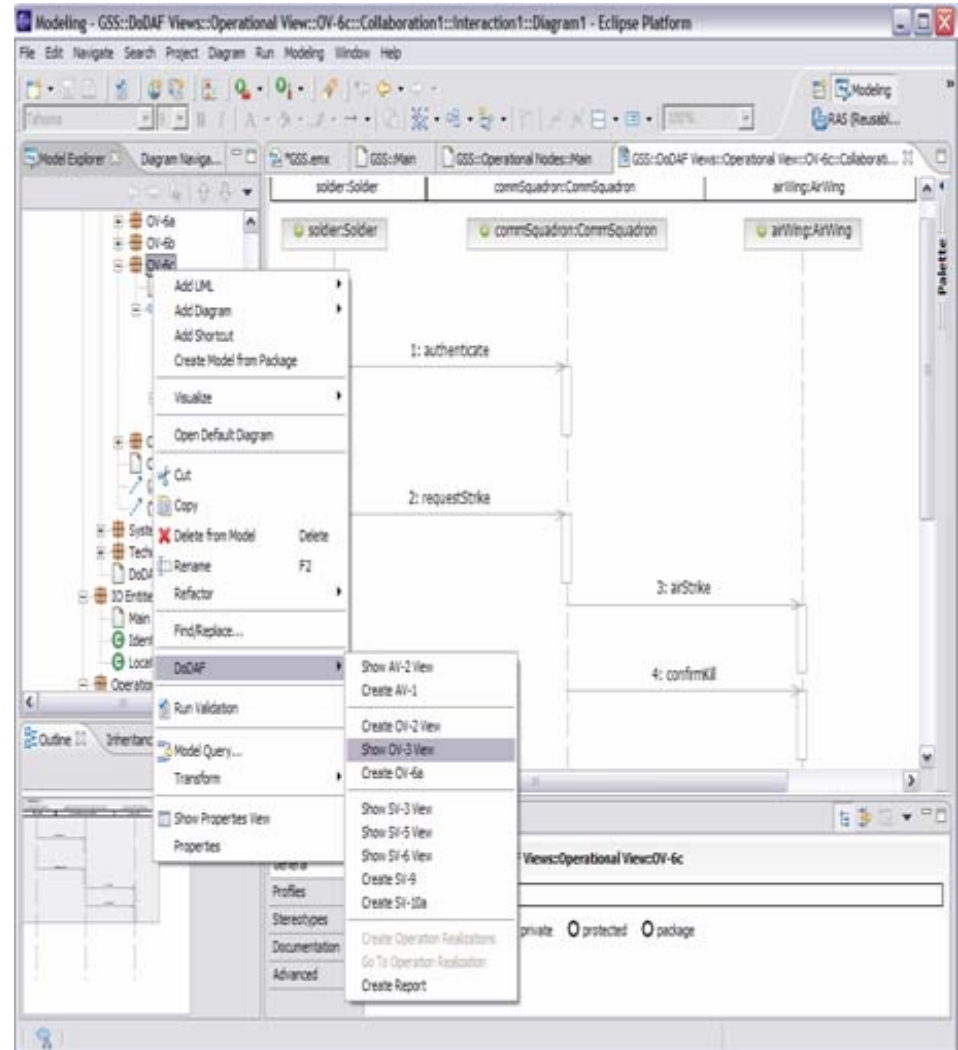
DoDAF Benefits in Rational Systems Developer

- Identify, classify and harvest DoDAF content in the form of reusable assets
- Automated Matrix Creation to ensure consistency
 - ▶ AV-2, OV-3, SV-3, SV-4, SV-5, SV-6
- Reporting of all DoDAF views
 - ▶ Generated to Word document
- Import custom graphics (OV-1)
- DoDAF Model Framework for Work Products/Views
- Integrated Model Creation and Execution (OV-6b)
 - ▶ Create executable architectures using UML 2.0 and architecture validation via Ready For Rational Partner (RFRP) Pathfinder Solutions Pathmate products



DoDAF Support in v7.0

- Eclipse/EMF 3.2 support with UML 2.1
- Included with RSD base install
- SV-5 supports either Activity-to-Function or Function-to-Activity mapping
- Multi-language UI support
- Context Sensitive help for DoDAF Views
- Diagram layout enhancements
- Usability enhancements
- Automated Report generation support for MS Office XP and 2000



Process Guidance

- Integration with Rational Unified Process for Systems Engineering (RUP-SE)
- Tool Mentors provide guidance for activities
- User customizable views with user defined content

The screenshot displays the RUP Navigator interface. On the left, a tree view shows the 'System Analyst' role selected. The main pane shows a 'Role: System Analyst' page with a description and a diagram of responsibilities. A search window is open in the foreground, showing search results for 'use case actor'. The RUP Advisor window is also open, displaying context-sensitive guidance for the selected role and search results.

Improved navigation of RUP

RUP Advisor provides context sensitive guidance

Search is integrated with Eclipse search

Summary: IBM Rational Systems Developer v7.0

- **Architecture Support**
 - ▶ Java, J2SE, C++
 - ▶ UML2 Modeling
 - ▶ Architecture Discovery via Application Analysis
 - ▶ Patterns and Transformations

- **Team Environment**
 - ▶ Enhanced Compare / Merge
 - ▶ Integrated RequisitePro Views
 - ▶ Process Advisor
 - ▶ ClearCaseLT included
 - CC and CQ fully integrated

- **Open Platform**
 - ▶ Based on Eclipse 3.2 Shell
 - ▶ Broad support for third-party tools
 - ▶ Testing and Team tools work together



Where We Are

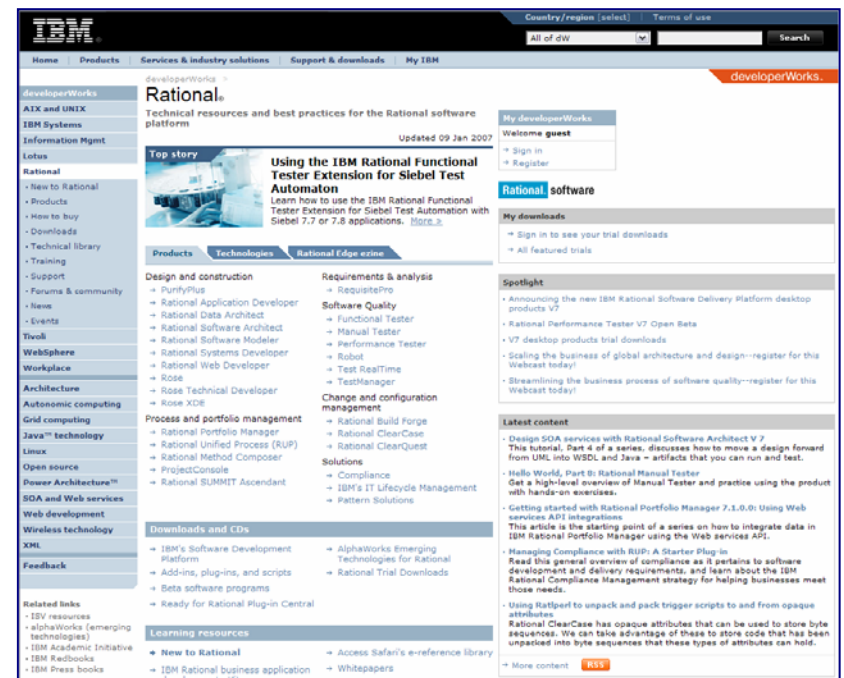
- Introduction
- IBM Rational Software Modeler
- IBM Rational Application Developer
- IBM Rational Software Architect
- IBM Rational Systems Developer
- Resources and wrap-up

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Useful Links

- EJB 3.0 Technology Preview
 - ▶ <https://www14.software.ibm.com/iwm/web/cc/earlyprograms/websphere/was61ejb3/>
- Pattern Repository
 - ▶ <http://www.ibm.com/developerworks/rational/products/patternsolutions/assets.html>
- IBM Redbook: Building SOA Solutions Using the Rational SDP
 - ▶ <http://www.redbooks.ibm.com/redpieces/abstracts/sg247356.html>

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It's easier than ever to develop more efficient IT services, applications and infrastructure. The software architect kit from IBM provides a collection of materials that can help you use IBM Rational tools to more closely align your key IT initiatives with the needs of your business.

Kit contents include:

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- ▶ Webcast: Architecting Your Service-Oriented Architecture Application
- ▶ Demos covering the kit themes
- ▶ Whitepaper: Value of Modeling
- ▶ Links to trials & Architecture, SOA and Rational zones on developerWorks.

ibm.com/developerworks/architecture/kits/archkit1/

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Systems teams have a new way to improve product quality and communication: The new IBM Rational Systems Development Solution eKit. Download the complimentary eKit for access to educational white papers, customer examples, tutorials, informative Webcasts, and best practices for designing, building and managing systems. From start to finish, at every stage in your projects, Rational Systems Development Solution can help your company reach its full potential. Download today and start building better systems faster.



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2007 Planned Briefings



IBM Middleware on Linux
Information on Demand Live!: Building the Next Generation of Database Applications
Architecture, Design & Construction using the IBM Rational Software Delivery Platform
Effective Software Testing: Tools and Strategies for Project Success
Open Community Tools: An Open Stack Development Platform
Open Source Development: Tools and Open standards
Eclipse: Empowering the Universal Platform
Achieving Enterprise Application Security
The developer and the IBM Environment
Rational's Business Developer Extension
Accelerating Global Software Delivery
SOA Governance: Implementing the IBM method
Rational vs Mercury
Rational vs Microsoft
Collaboration with Lotus
Get Started on SOA with WebSphere's Proven, Flexible Entry Points
Experience the Power of Information Management Solutions
A fresh look at the mainframe

2007 Briefings ...



- **Achieving Enterprise Application Security:** This briefing covers application security end-to-end. It covers the goals of application security with a review of basic security concepts and shows how the basics are applied to building of security stacks, to add additional layers of defense, using Java / J2EE as the programming language and environment to illustrate technologies and techniques. – ½ day
- **Architecture, Design, and Construction using the IBM Rational Software Delivery Platform:** This briefing will demonstrate the latest version of the IBM Rational Software Development tools, their broad range of functionality and their use throughout the entire software development process, focusing on application modeling, design, development, coding, and testing. – ½ day
- **Eclipse: Empowering the Universal Platform:** This briefing takes a deep dive into some of the most important and feature rich projects that the Eclipse community is developing. From multi-language support to plug-in development, it shows how Eclipse has evolved into a universal platform complete software development.– ½ day
- **Effective Software Testing:** Focus on variety and thoroughness of IBM Rational's Software Quality solutions and best practices and demonstrates the framework and tools needed in software testing as a strategic business advantage. – ½ day

2007 Briefings ...



- **IBM Middleware On Linux:** This briefing includes an overview of Linux as the premier open computing platform and the value it brings to any business. It introduces key IBM middleware products that run on Linux with a focus of products in the development space. – ½ day
- **Information on Demand Live! - Building the Next Generation of Database Applications:** A demonstration of IBM Information Management tools & services available to support rapid development of integrated solutions for managing expanding volumes of data by efficiently handling XML and relational data with ease to build agile applications faster. – 1 day
- **Open Community Tools: An Open Stack Development Platform:** This briefing explores the innovation of Open Source solutions available from IBM and illustrate the power and flexibility of IBM's Open Community development tools.– ½ day
- **Open Source Development: Tools and Open Standards:** Focus on IBM's role in "Open" source tools and Open standards – ½ day briefing/workshop

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2007 Briefings



- **Accelerating Global Software Delivery:** This briefing provides an overview of the need for Business Driven Development in addressing topics including Software delivery challenges, Compliance and Monitoring. It introduces the IBM Rational Software Development Platform's team products and focuses on their value of providing the development team's capability to better manage value, maintain flexibility, and control risk and change – ½ day
- **SOA Governance: Implementing the IBM Method:** Provides an in-depth look at Service Oriented Architecture governance, from the basics to the business case focusing on IBM Rational's tools for the designing and constructing of an SOA governance framework to span the entire application development lifecycle – ½ day

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Host Scott Laningham runs down developerWorks content highlights for the week and interviews authors, editors, and other developerWorks contributors in an entertaining 5-8 minute podcast. To listen to a podcast audio stream, just click on the arrow icon. To download the MP3 to your desktop, right-click the segment name and select **Save Link As**.

Podcast	Date
This week on developerWorks -- 23 Jan 2007 We get an update from Lotusphere 2007 and a look at a new HelloWorld tutorial on Rational Application Developer. (See Scott Laningham's blog for this week's show notes .) Listen	23 Jan 2007
This week on developerWorks -- 16 Jan 2007 Kurt Sittner, IBM program director for emerging technologies, talks about his new article series on measuring project health in The Rational Edge. (See Scott Laningham's blog for this week's show notes .) Listen	16 Jan 2007

developerWorks Interviews

developerWorks Interviews are conversations with a broad range of technical leaders, both inside and outside IBM, who offer their expert insights and discuss technology innovation and evolution.

Podcast	Date
Open standards software and NASA's next-generation space telescope A senior software engineer and a go-to-market manager, both from IBM Rational, talk about	19 Jan 2007

Document options

- Print this page
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Across the site

- Scott Laningham's blog
- Michael O'Connell's blog
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- Downloads
- developerWorks community
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- Newsletters

Events

- Technical briefings
- Webcasts

100% 1:14 PM Monday 1/29/2007

ibm.com/developerworks/podcast/

On Demand Demos - developerWorks

The screenshot shows a Microsoft Internet Explorer browser window displaying the IBM developerWorks website. The address bar shows the URL: <http://www-128.ibm.com/developerworks/offers/lp/demos/>. The page title is "On demand demos".

The main content area features a list of categories with expandable arrows:

- Information Management
- IBM Workplace
- Java
- Linux
- Open source
- Rational
- Sample IT projects
- Web services

Below the categories, there is a paragraph: "IBM on demand demos are quick product walkthroughs, ranging from installation and setup demos for beginners, to advanced functionality for experienced developers. Watch and learn about the latest technologies and product functions."

The "Information Management" section is expanded, showing a list of demos:

- Building a Service-Oriented Application Using ActiveGrid LAMP Studio and DB2® Express-C
- Embedded Database Development using Cloudscape™ and Java™
- Database Tooling with WebSphere® Studio Application Developer and Cloudscape, Part 1
- Database Tooling with WebSphere® Studio Application Developer and Cloudscape, Part 2
- Database Tooling with WebSphere® Studio Application Developer and Cloudscape, Part 3
- Install DB2 Personal Developer Edition
- Install IBM® Cloudscape on Apple Macintosh OS X
- Install IBM Cloudscape on Red Hat Linux®
- Install IBM Cloudscape on Windows™
- Using IBM Cloudscape Utilities

The "IBM Workplace" section is also visible but not expanded.

On the right side of the page, there are several utility boxes:

- Document options:** Print this page, E-mail this page
- Resources:** Downloads, Tutorials, Software evaluation kits, Technical events and webcasts
- Special offers:**
 - New! Evaluate Rational V7 desktop products
 - Certification prep: Package and deploy J2EE apps
 - Join IBM microNews and get the weekly newsletter free

The bottom of the browser window shows the Windows taskbar with the start button, several application icons, and the system tray displaying the time as 1:25 PM on Monday, 1/29/2007.

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alphaWorks
Emerging technologies

Updated 29 Jan 2007

Featured technologies

Many Eyes
A service that combines information visualization with social software, enabling collaborative visualization by groups of users. [More](#).

PHP for z/OS: A port of the PHP scripting language to the z/OS platform.

Service Integration Bus Performance: A tool that provides a quick and easy way to view the messaging performance statistics for WebSphere Application Server (6+) and WebSphere Enterprise Service Bus.

IBM SMI-S-Based Storage Device Simulator: An SMI-S-based simulation tool for facilitating the testing of management applications for heterogeneous storage devices.

IBM CIM Provider Certification Tool: A CIM-based certifier for facilitating the verification of CIM providers.

Theseos Query Engine for Traceability Networks: A demonstration of a technology that allows supply chains to track items quickly and efficiently without compromising confidentiality and control of participating organizations.

IBM Cell Broadband Engine Software Development Kit: A complete Cell BE development environment, including Linux kernel for Cell BE blades, Linux support libraries, tool chains, system simulator, source code for libraries and samples, and a new, fully-integrated installation. Version 2.0 provides additional libraries and improved compiler tools.

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Global Rational User Group Community

Rational Software Global User Group Community - Microsoft Internet Explorer

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GRUG
Global Rational User Group Community

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Take our Poll

Which of the following types of open source tools do members of your development organization use on a regular basis?

- Integrated Development Environment (e.g. Eclipse, emacs, Mono, NetBeans, SunOne, etc.)
- Modeling (e.g. ArgoUML, Napkin, Omondo, Poseidon, Violet, UMLet, etc.)
- Performance Testing (e.g. JMeter, OpenSTA, MS Appl. Center Test, etc.)

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Member Name: Rob Robason, V; Performance Optimization Engineer

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