Rational® software

IBM Rational Software Delivery Platform for insurance companies running the IBM System i platform.

Contents

The insurance industry and IBM System i technology

The insurance industry offers—in exchange for a fee—the promise to pay the costs of accidental damage or other negative occurrences that result in a financial burden on the insured. To effect these operations, the business of insurance relies on the effective and successful evaluation of massive amounts of data. The processing of data and the information derived from data are core parts of the business—that's why so many insurance companies have leveraged the reliable IBM System i™ platform and its predecessors for years. The System i server platform offers the integration to handle the insurance industry's diverse computer systems, and it also offers high reliability and scalability at a manageable cost.

Insurance industry challenges

The insurance industry has long seen the value of automated systems as a core part of business operations. Today insurance companies are faced with increased demands from both internal and external sources.

Regulatory demands

Rating bureaus, departments of insurance for each state in which a company does business, and other governmental agencies are placing demands on insurance companies for expanded data reporting. Some of these initiatives are small changes; others are major projects. But all are typified by deadlines that, if missed, can cause an insurance company to incur significant fines or face the threat of license revocation.

Key business initiatives

In addition to external requirements, most System i technology-based insurance companies are driven by key business executives and stakeholders to make the business system enhancements that are necessary to implement elements of the corporate business plan. These initiatives are frequently major projects that improve revenue opportunities or reduce the cost of operations.

Additional opportunities and challenges

In addition to external requirements and key business-plan-driven initiatives, business users are constantly identifying opportunities to improve or enhance business operations, reduce costs and increase the efficiency of operations.

With the recent advent and adoption of ACORD (Agent-Company Organization for Research and Development, www.acord.org) XML data interchange standards, insurance companies are being driven to improve and embrace the electronic interchange of data with their agents, regulators, banks and trading partners. Operations have shifted from overnight batch processing with electronic data interchange (EDI) to real-time exchange via Web services.

To counter offers from key competitors, insurers are looking to improve customer self-service facilities via the Web and other emerging technologies. But these efforts escort in another set of constantly changing challenges.

IT organization and insurance business challenges

It's key that insurers not only identify work in progress, but also ensure that work meets critical completion dates. And it's essential to evaluate potential work in the form of requests for IT service, prioritization and assignment of work to ensure that the demands of regulators are being met; that key business

objectives are being addressed; and that significant, lower-priority business-enhancing opportunities are not being overlooked or lost in the deluge of requirements to the IT organization.

Insurance companies using the System i platform tend to have limited IT resources to respond to a growing demand for service, new systems, enhancements and mandated changes. But in addition to managing the demand for limited resources, insurers must be certain that projects progress on time, meet stated requirements and are of a high quality with minimal defects.

The remainder of this paper will describe how the IBM Rational® Software Delivery Platform for System i solution can assist insurers in managing these challenges.

Insurance industry technical challenges
Modernization of aging systems
Most insurance companies running the System i technology platform have an existing inventory of applications, data and business processes that is rooted in RPG (Report Program Generator) language-based, green-screen applications. These applications provide necessary business function, but they are not visually appealing or easy to use for people who have been raised on Web and GUI-based applications. IBM has built a portfolio of solutions that can help insurance companies running System i technology transform their legacy applications into modern processes that can take advantage of existing applications as well as service-oriented architecture (SOA) applications.

The need for modern user interfaces

Many insurance companies are looking for solutions that can help them transform existing IBM 5250 applications, processes and data to create new business value from existing IT systems.

One of the styles of transformation is called "transforming the user experience." By replacing a green-screen interface with a point-and-click Web interface, and by improving the workflow of green-screen applications, companies can increase end-user productivity and reduce training costs. Building a Web browser interface for existing applications can also allow companies to extend applications to new users, like business partners, suppliers and customers. This transformation will usually allow companies to easily remove unnecessary screens and fields, and integrate multiple legacy applications into a single Web interface. Typically, no access or modification of source code is required.

Transforming the user experience is a tactical solution that many insurance companies running System i technology implement for 5250 applications because it's easy to deploy and has a quick return on investment (ROI). IBM has two key solutions in its software portfolio that help System i customers deliver a Web interface on existing applications. These solutions are the IBM WebFacing Tool and IBM WebFacing deployment with IBM WebSphere® Host Access Transformation Services (HATS) technology.

Many companies are considering a more strategic approach to transformation, called "transforming application structure." With this approach, customers innovate by restructuring applications for greater flexibility. Application restructuring can be accomplished in a variety of ways. One way is to use tools to deconstruct existing applications into reusable components that can be utilized

in a mixed-workload application. Such an environment combines RPG components with new Java™ or Enterprise Generation Language (EGL) code that has been developed to meet new requirements.

A case for SOA

Insurance companies can achieve many benefits from moving their existing applications to a service-oriented architecture, because an SOA:

- *Enables reuse. Business services are exposed through standard interfaces, making reuse possible and beneficial.*
- *Promotes business flexibility. Reuse of components or services reduces the time to create new applications. IT can adopt new business requirements in a timely, effective manner. Application integration is easier, as services can be used by multiple applications and invoked by disparate clients. With an SOA framework, there is no need to modify the entire application when business requirements change.*
- *Provides a cost-effective way to build, maintain and integrate applications. Reengineering existing applications to an SOA-compatible structure is possible, but it requires good knowledge of the existing applications, a sound methodology, modeling tools and modern development tools.*

Delivering highly reliable and highly available applications

As insurance companies make the transition from their existing inventory of green-screen applications to an SOA-compatible structure, they need to continue to deliver reliable, highly available and stable software that runs their business. Whether companies are leveraging existing applications by adding new functions or developing new applications, it's important to work with tools that ensure high-quality code.

Software is no longer written in a single language or even run on a single operating system on a single machine; rather, it's a composite of many technologies distributed throughout an enterprise and often extending to the machines of customers and trading partners, geographically dispersed around the world. And insurance companies must now make sure that their computer systems meet the requirements of regulatory bodies and the compliance demands of auditors. In addition to business challenges, the modern IT organization running System i technology must address the technical challenges of integrating new technologies, operating systems and development environments. They must also embrace the demands of managing a distributed development environment.

It's vital with today's modern, diverse environment supported by the System i platform and its interaction with other technologies that companies implement tools that allow them to maintain the reliability and quality of service that their business demands. Tools that offer a total lifecycle management solution and that provide control over the entire development process are key to success.

Companies also need tools to assist them in implementing the right development processes and in delivering documentation for processes, ensuring that the business can meet rigorous examinations by auditors and regulators.

IBM Rational solutions for insurance on System i technology
IBM offers many valuable technologies, solutions and services to help insurance companies implement business and application transformation programs. In this paper we will look at how insurance organizations are leveraging the IBM Rational Software Delivery Platform to overcome business and technical challenges in the following areas:

- *Risk and compliance management*
- *Application transformation*

The IBM Rational Software Delivery Platform provides capabilities to architect, build, test, deliver, deploy and manage applications on the System i platform. While individual product capabilities are important, the real value is the combination of these capabilities within a robust software development and delivery platform that enables the creation and maintenance of new and existing applications.

The IBM Rational Software Delivery Platform offers the infrastructure and framework to realize that vision, and it addresses the following critical needs:

- *Business requirements management*
- *Process and portfolio management*
- *Architecture management*
- *Change and release management*
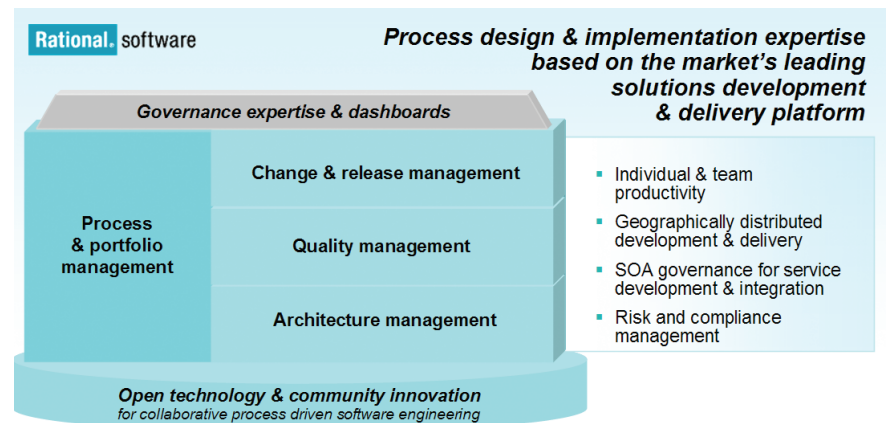- *Quality management*

Figure 1: The IBM Rational Software Delivery Platform helps organizations govern the business process of software and systems development.

Risk and compliance management

IBM Rational solutions for managing insurance risk and compliance are built around a compliance-driven application development and delivery management system, and are designed to go beyond meeting business and operational challenges. These solutions are designed to help companies find ways to generate business value from their risk and compliance infrastructure investments by:

- *Making risk and compliance management more pervasive and integrated parts of day-to-day business management.*
- *Using information assets to competitive advantage.*
- *Leveraging regulatory mandates or requirements to spark change that results in business process improvement and business transformation.*

Policy provisioning and business analysis for the compliance officer and analyst

Increasingly, organizations are establishing a regulatory project office charged with coordinating a company's overall compliance efforts. As a compliance officer or analyst, your responsibilities may include:

- *Documenting existing business processes.*
- *Assessing the compliance gap between your current business operations and where you would like those operations to be tomorrow.*
- *Developing business policies based on your interpretation of regulatory legislation.*
- *Demonstrating a linkage between the business policies you develop and the legislation they satisfy.*

IBM Rational business requirements management for business analysts

The IBM WebSphere business process management solution—featuring IBM WebSphere Business Modeler software—helps risk officers and business analysts:

- *Document and analyze current business processes, identify compliance risks and remediate those risks through the simulation of to-be business processes.*
- *Define situations and situational outcomes to develop key performance indicators and metrics that drive appropriate and timely actions.*
- *Identify process bottlenecks and inefficiencies before they affect larger corporate performance.*
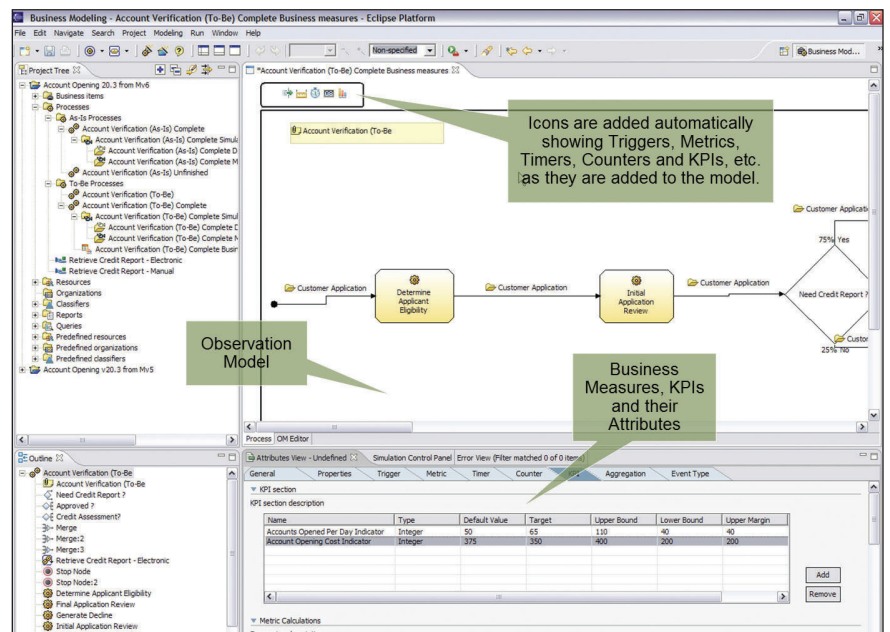

Figure 2: IBM WebSphere Business Modeler software helps organizations fully visualize, analyze and document their business processes.

The IBM Rational requirements management solution—featuring IBM Rational RequisitePro® software—is a requirements and use-case management solution that helps teams:

- *Provision policies across the enterprise by providing traceability from legislation to policies to compliance requirements in a seamless, bidirectional way.*
- *Trace compliance requirements through the software development lifecycle by linking compliance requirements to use cases, test artifacts, defect and change management artifacts, and software build documentation.*
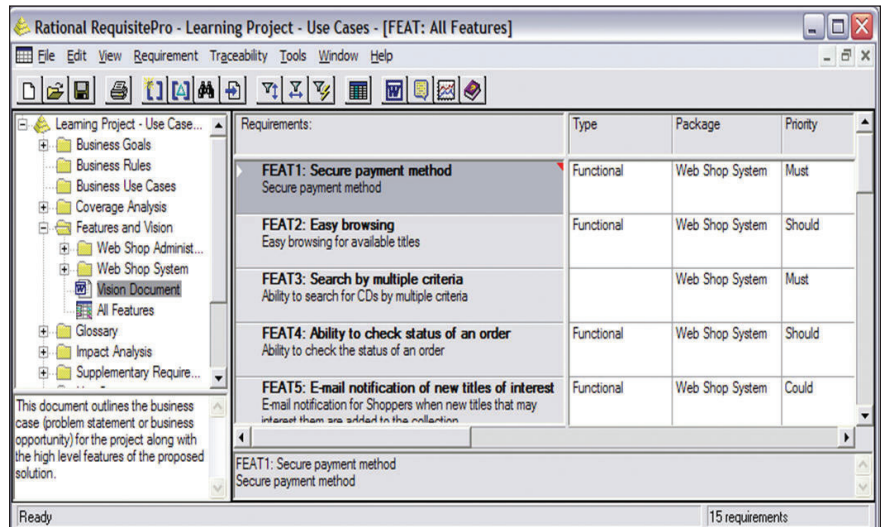- *Continually validate compliance requirements through integrations with a test management solution.*

Figure 3: IBM Rational RequisitePro software comes with a Web interface that enables all authorized team members to access requirements, even when users are in remote locations or working in multi-platform environments. Access, query, modify, create requirements and requirements documents, and manage traceability through the RequisiteWeb interface.

Regulatory compliance oversight for the IT executive

IT executives are charged with managing investments — and balancing risk and costs — across the entire portfolio of an organization's IT assets. In recent years, this responsibility has expanded to include executive oversight of the multiyear effort required to implement regulatory changes across the organization and to control costs, budget and delivery. The IBM portfolio management solution helps insurance companies' IT executives and project managers effectively track, manage and prioritize their regulatory compliance efforts, improving executive oversight and reducing overall operational risk.

IBM Rational process and portfolio management for IT executives

The IBM Rational process and portfolio management solution — featuring IBM Rational Portfolio Manager software — helps IT executives and project managers:

- *Gain reliable insight into the status and delivery of multiple compliance remediation projects.*
- *Collect and track metrics and trend analysis for auditing as well as objective business decision making.*
- *Mitigate regulatory risk through portfolio management activities.*
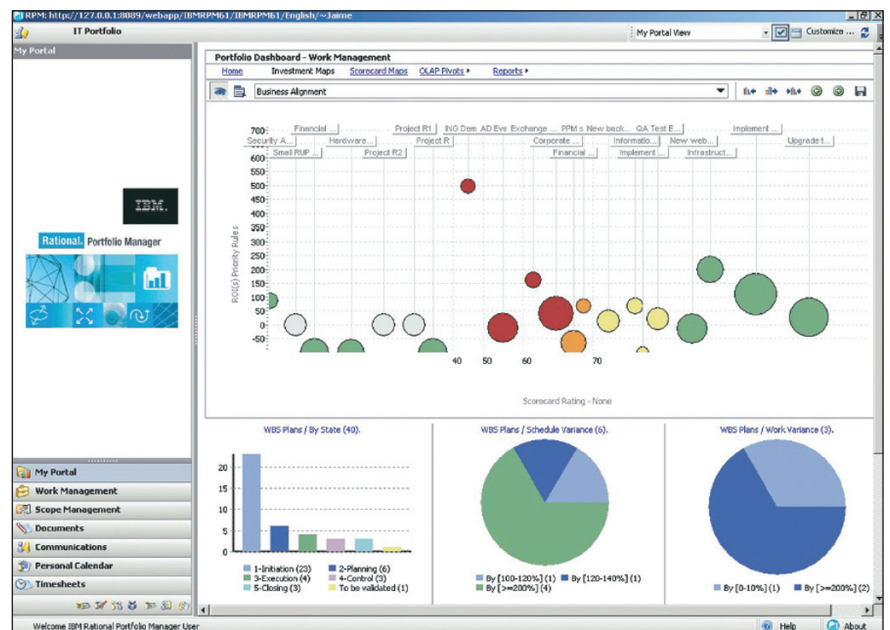

Figure 4: Using the IBM Rational Portfolio Manager solution, IT executives and project managers can assess the relative ROI, cost and business alignment of proposals at a high level.

Managing regulatory compliance in the development organization

Providing your development team with an organized, tamper-resistant and self-documenting software management and delivery environment is more than just good sense. For insurance companies, complying with hundreds of local and state regulations requires constant changes to hundreds of lines of source code across many different business applications. Teams that develop and extend software are increasingly subject to business controls throughout the application development process. While teams could comply with these business controls manually through spreadsheets and paper-based sign-off documents, manual efforts are difficult to manage, impossible to scale and typically result in up to a 30 percent loss of developer productivity.

IBM Rational change management for IT organizations

The IBM Rational automated change management solution – featuring IBM Rational ClearCase® software for software asset management, and IBM Rational ClearQuest® software for defect and workflow management – provides a highly practical and customizable solution for teams that need to define, manage, enforce and audit IT control structures for application development.

Rational ClearCase software provides lifecycle management and control of software development assets. As code and other software assets change over time, Rational ClearCase software keeps a clear, detailed record of changes. It also helps secure code and other important documents from unauthorized access or damage.
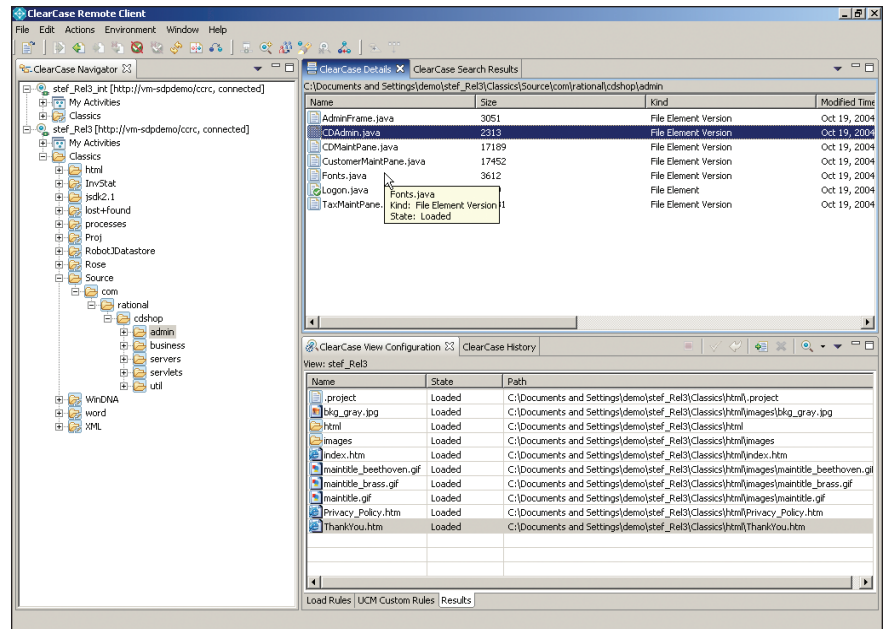
Figure 5: IBM Rational ClearCase software helps manage and control software development assets.

IBM Rational ClearCase software provides:

- *Version control that records all changes to software assets over time.*
- *Audit trails that document the who, what, why and when of every software change.*
- *User authentication to protect against unauthorized access to strategic software assets.*
- *Baselines to help ensure that only the right versions of files are included in your releases.*
- *Reporting of real-time information on the status of activities and incorporation of change requests.*
- *Build auditing that helps guarantee the reproducibility of software versions. Rational ClearCase software automatically detects dependencies and produces a detailed bill of materials that reports the exact file versions comprising a build.*
- *Project policies and triggers for flexible enforcement of site-specific configuration management policies.*

IBM Rational ClearQuest software is a powerful and flexible change tracking and workflow management system that provides the capabilities insurance companies need to establish, enforce and document software development controls with minimal manual overhead. Users can configure Rational ClearQuest software to enforce custom processes and workflows. Automating a team's control structure helps ensure that naive or unethical users cannot circumvent it. For example, users can specify which steps in the process require electronic signature authorization; what information is captured in the electronic signature audit trail; and which users have access to specific activities.
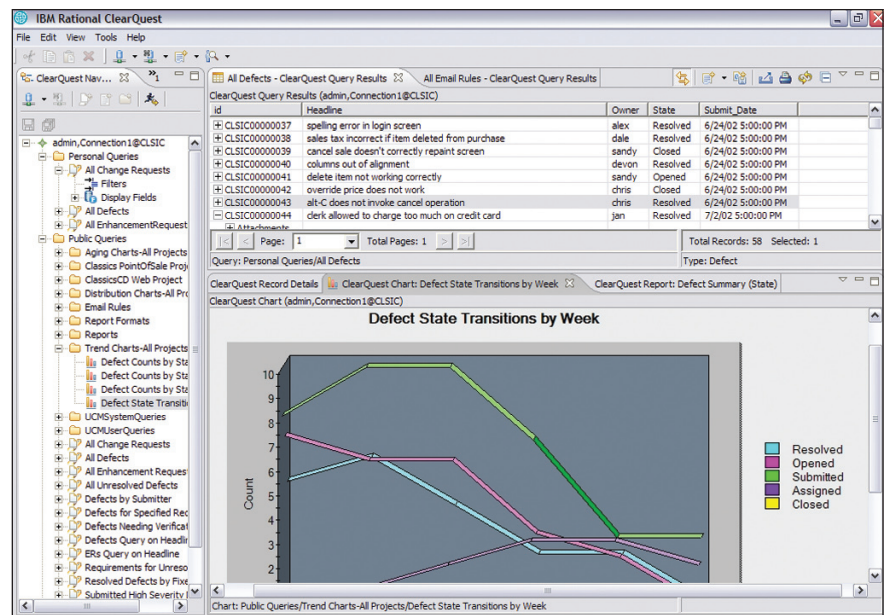

Figure 6: IBM Rational ClearQuest software is designed to provide a consolidated, real-time view of the entire project status.

IBM Rational ClearQuest software provides:

- *Workflow management to define and enforce consistent, repeatable processes with flexible process definition and customization.*
- *Audit trails that capture and document evidence of who made a change, what they changed and when they changed it.*
- *Electronic signatures that help ensure only authorized users can approve change requests and moves to production.*
- *User authentication with IDs and passwords that provide identity management protection.*
- *Data controls to help ensure that only authorized users can make changes to controlled data.*

Application transformation

For insurers, legacy transformation or application modernization typically involves options that include some form of legacy repurposing, package integration or custom development. As application transformation may involve many different approaches and choices, it is important for insurers to determine which of these options best align with their strategic business or IT imperatives. The IBM Rational Software Delivery Platform has capabilities to help with:

- *Application modernization. The Rational platform unlocks the management of business logic from legacy applications; increases application development responsiveness to business needs; leverages reuse of existing application functions in new business processes; generates increased revenues by enabling the business to adapt more dynamically and capture new marketplace opportunities; and moves from costly custom development processes to rapid assembly of applications using an SOA.*

- *Application integration. It provides near-real-time, enterprise-wide access to critical business data; improves data sharing and collaboration among employees; helps ensure data accuracy for better business process management and strategic decision making; leverages investments in existing legacy applications as part of the ROI equation; and improves application robustness and operational reliability.*
- *Web enablement. The Rational solution optimizes Internet-based interactions with partners, suppliers and customers.*

IBM Rational architecture management

The IBM Rational architecture management solution—featuring IBM Rational RequisitePro, IBM Rational Software Architect, IBM Rational Method Composer, IBM WebSphere Business Modeler and IBM Rational Data Architect software—provides insurers with the ability to execute a staged, model-driven approach to architecting custom applications for the System i platform. The model-driven approach to application transformation greatly assists in the successful deployment of service- or component-based architectures across the enterprise, and it enables the efficient and accurate gathering of requirements. Refinement of these requirements within a platform-independent model (PIM) clearly identifies business responsibilities. Additionally, the direct generation of a platform-specific model (PSM) from this design model—with the support of proper tools such as those provided by the IBM Rational and IBM WebSphere groups—can help insurance company IT staff ensure consistency of definitions within a single integration effort or across multiple projects.

**IBM Rational Software Delivery Platform for insurance
companies running the IBM System i platform.**
Page 18

IBM Insurance Application Architecture

IBM Insurance Application Architecture (IAA) consists of information, processes and integration models that represent best practice systems development in the insurance industry. An information architecture blueprint with detailed insurance business content, the IAA can be applied to initiatives on an enterprise-wide or specific-project basis. It enables the scoping, specification and design of information solutions that are:

- *Faster, through the use of generic model specifications and designs.*
- *Cost-effective, because of reduced analysis costs and increased reuse of existing assets.*
- *Better, through increased quality and consistency and lower risk, because solutions are built on good practices and from a strategic perspective.*

The IBM Rational Software Architect application provides:

- *Unified Modeling Language (UML)-based architectural modeling and specification for SOA.*
- *Software patterns and transformation for automating the refinement of models and the transition between analysis, design and implementation.*
- *Tools to help build scalable Web; Web services; SOA; EGL; Java; Java Platform, Enterprise Edition (Java EE); and portal applications.*
- *Capabilities for Java application structural review and control.*
- *An open and extensible modeling platform.*
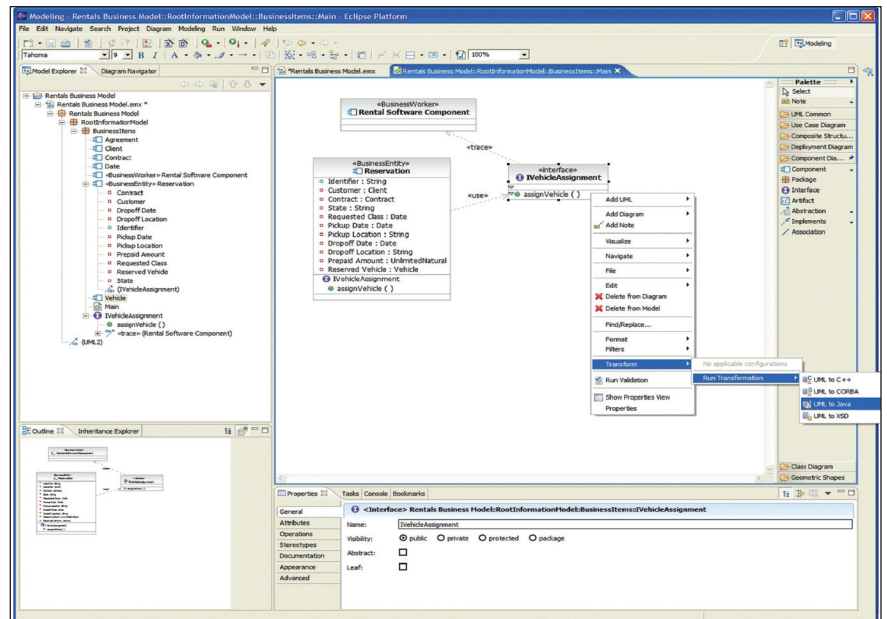- *Lifecycle and team integrations.*

Figure 7: The IBM Rational Software Architect application accelerates model-driven development by providing capabilities to transform UML models to code.

For insurance companies, data architecture transformation and migration are typically significant challenges. Business users need data that isn't easily accessible or isn't available in the needed form. Changes to underlying data models may be required, often resulting in a comprehensive data analysis exercise.

An enterprise data modeling and integration design tool, IBM Rational Data Architect software simplifies data modeling and integration design, enabling architects to discover, model, visualize and relate diverse and distributed data assets.

The latest release of Rational Data Architect software features integrations with the IBM Rational Software Architect application, the Eclipse 3.2 environment and IBM Information Server software. Additional mappings and expanded support are available for XML, IBM DB2® 9, IBM Informix®, Sybase and mySQL products.

Rational Data Architect software helps data architects to:

* *Create logical and physical data models.*
* *Discover, explore and visualize the structure of data sources.*
* *Discover potential relationships and identify actual relationships (through mapping) among disparate data sources.*
* *Compare and synchronize the structure of two data sources or targets.*
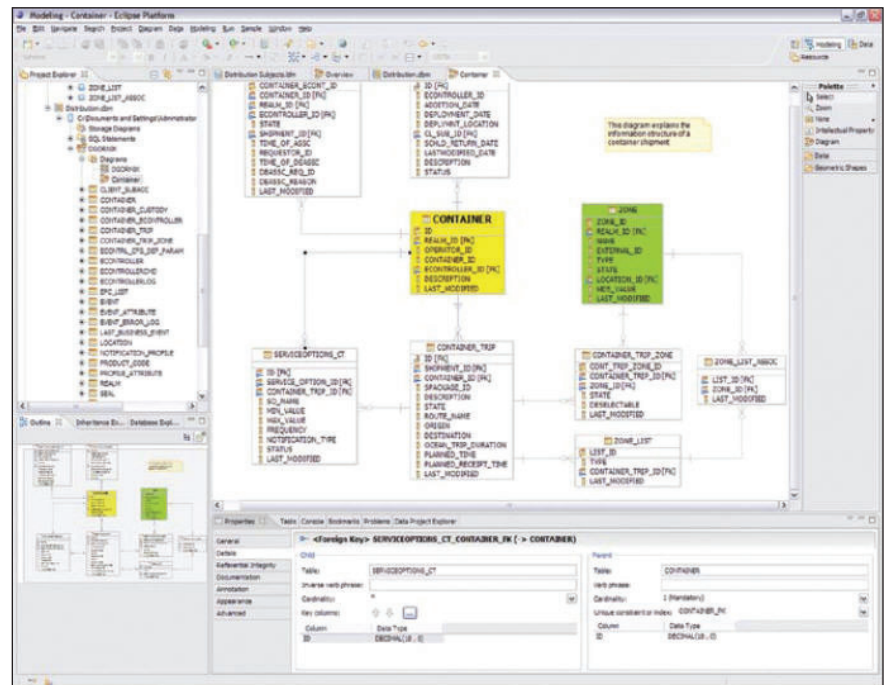* *Analyze models and data sources for conformance to enterprise standards.*

Figure 8: IBM Rational Data Architect software provides advanced features to help data architects discover, model, visualize and relate heterogeneous data assets.

Application development

IBM provides a wide variety of tools to support the complete application development lifecycle and to support specific client needs. Integrated development environments (IDEs) allow you to create and maintain new and existing applications. An IDE enables insurance company software developers to modernize applications by having tools that support the complete development lifecycle all located in one place. These tools are also valuable when extending or integrating applications.

Following is a list of the IBM tools that assist in application development:

- ***IBM WebSphere Development Studio Client for iSeries™, Version 6.0 software*** *inherits and extends IBM Rational Web Developer, Version 6.0 software to deliver an IDE and tools for developing Java, Web, Web services, client/server and System i server applications, in languages like RPG and COBOL. The System i enhancements to WebSphere Development Studio Client for iSeries software make it easy for insurance company IT staff to create, test, deploy and maintain sophisticated e-business applications with few Java, Web or Web service programming skills.*
- ***IBM WebSphere Development Studio Client Advanced Edition for iSeries, Version 6.0 software*** *inherits the improved Web, Enterprise JavaBeans (EJB) and Java EE development capabilities from IBM Rational Application Developer, Version 6.0 software. It also provides support that makes it easy to integrate Web and Web-enabled applications using the IBM WebFacing Tool and IBM WebSphere Portal Server software.*

**IBM Rational Software Delivery Platform for insurance
companies running the IBM System i platform.**
Page 22

The client component is designed to help insurance company IT staff accomplish three primary programming goals:

- *Develop and maintain System i applications.*
- *Create Web front ends to System i business logic.*
- *Create GUI front ends to System i business logic.*

A "lightened" version of WebSphere Development Studio Client software, IBM WebSphere Development Studio Client Lite software offers the main functions that insurance companies' RPG developers want and need to access. The WebSphere Development Studio Client Lite software uses just 256MB of memory and allows developers to create, edit, compile and debug RPG applications. To get the Lite version, however, insurers must first install the full product.

Extending the Eclipse platform with visual construction development capabilities, the IBM Rational Application Developer for WebSphere Software application helps insurance companies' Java developers rapidly design, develop, assemble, test, profile and deploy high-quality Java/Java EE, portal, Web, Web services and SOA applications.

Enterprise Generation Language

EGL is a simple-to-learn, high-level language. Designed by IBM for business-oriented developers who need to create modern applications that exploit SOA, EGL doesn't require developers to have familiarity with all the complexities of Java and middleware products. EGL generates either Java or COBOL code, and it allows the insurance company developers to work at a high level of abstraction — generating the "plumbing" code — which enables developers to concentrate on

solving the business problem at hand. EGL can be used to generate new user interfaces that can call up existing business logic, or the language can be used to develop complete core business applications that fully support SOA. Business-oriented developers, like RPG and COBOL developers, are extremely knowledgeable of how their companies operate, and because they can learn EGL in just a few weeks, they can quickly deliver business value while leveraging new technologies.

Quality management

The Rational group provides insurance company IT teams with the right combination of testing tools and best practices across the entire application lifecycle to manage quality and ensure project success. Built on the IBM Rational Software Delivery Platform, Rational testing solutions enable tighter management, better planning and improved data sharing for all team members. To help you make confident go-live decisions and build high-quality enterprise applications, the Rational group offers solutions for performance testing, functional and regression testing, manual testing, developer testing and test management. With Rational solutions, quality assurance teams can easily manage and address issues with application functionality, usability, reliability, scalability and performance.

IBM Rational Functional Tester software

IBM Rational Functional Tester software is a test automation tool that can be used to develop sophisticated tests to validate the functionality and use cases of Java, Web, Microsoft® .NET, IBM 3270, IBM 5250, VT100 and Siebel software applications. Insurance companies' testers and developers alike can leverage the Rational Functional Tester software's use of industry standard languages—such as Java and Microsoft Visual Basic .NET—and its integration

with Eclipse and Microsoft Visual Studio .NET technology to build powerful, customized, automated tests. And by integrating Rational Functional Tester software with the Rational ClearQuest quality management system, testers and developers can centralize test execution and results analysis of both automated and manual tests, and better ensure the traceability of test results to upstream requirements and downstream defects.

Figure 9: IBM Rational Functional Tester software supports testing of browser, Java, Microsoft .NET and terminal-based applications such as IBM 3270 (IBM System z™), IBM 5250 (IBM System i) and VT100 (UNIX®).

IBM Rational Performance Tester software

The Rational Performance Tester software is a highly scalable and easy-to-use solution for the development, execution and analysis of performance and scalability tests. Java EE transaction-breakdown capabilities and remote system resource monitoring allow insurance companies' testers to pinpoint the source of performance bottlenecks. Through integration with IBM Tivoli® composite application management solutions, Rational Performance Tester software is designed to capture performance data from a production environment and deliver it to the developer's desktop, creating a closed-loop performance-problem isolation and repair process. Through integration with IBM Tivoli monitoring solutions, Rational Performance Tester software helps enable insurance company IT teams to capture extended system resource data for more granular problem isolation.

Rational Performance Tester software can also help users realize a better return on hardware investments by executing predeployment capacity planning tests to size the server resources needed to achieve the desired performance and throughput. Additionally, the Rational software:

- *Supports Microsoft Windows®, Linux® and IBM z/OS® operating systems as distributed controller agents.*
- *Delivers both high-level and detailed views of tests with a rich, tree-based text editor.*
- *Performs capacity planning tests to help ensure optimal investments in hardware and IT infrastructure assets.*
- *Delivers automatic identification and support for dynamic server responses.*

- *Enables large, multiuser tests with minimal hardware resources.*
- *Integrates with Tivoli composite application management solutions to identify the source of production performance problems.*
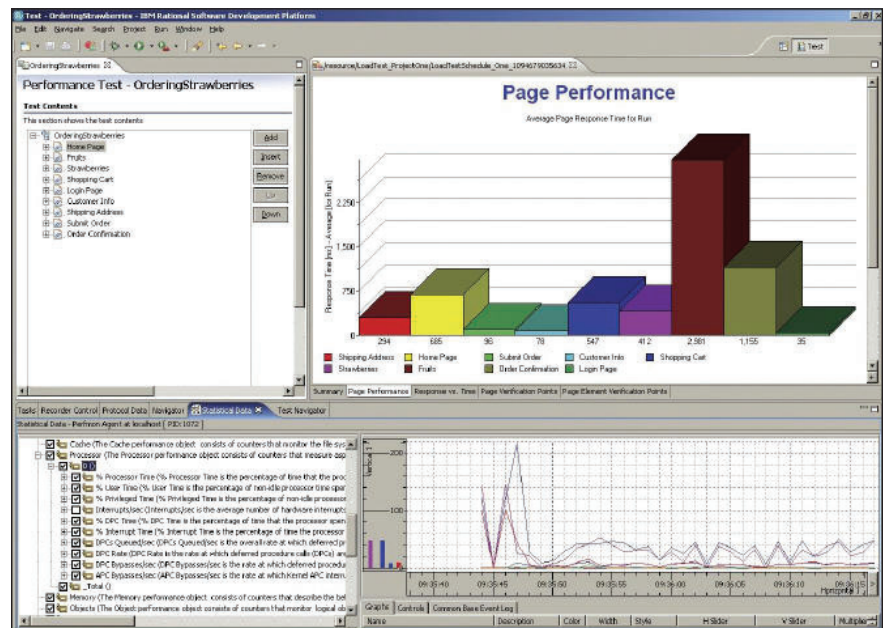- *Offers optional extensions for Siebel and SAP solutions.*

Figure 10: IBM Rational Performance Tester software is a multiuser testing tool for validating Web application scalability before deployment.

Summary

Flexibility is a fundamental need for insurance organizations seeking to react to a rapidly changing landscape that includes emerging competitive threats, shifting compliance and regulatory requirements, mergers, acquisitions and evolving technology. Just as important is the ability to align the delivery of core business process software with business needs and priorities.

The IBM Rational Software Delivery Platform plays an important role in enabling insurance organizations running System i technology to create business solutions. It combines industry-leading tools for managing requirements, processes and portfolios, architectures, changes and releases, and quality. Comprising Eclipse-based solutions and software development best practices, the Rational Software Delivery Platform is designed to help insurance organizations govern the process of software and systems delivery and tighten the relationship between IT and business.

For more information

To learn more about how Rational solutions running on the System i platform can help you improve operations at your insurance enterprise, call your IBM representative, or visit:

ibm.com/software/rational

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