e-business case studies

Rational Software Corporation

Enterprise e-business development solutions

an e-business solution

Putting e-business to work

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Rational Software Corporation

The Company

- Founded in 1981
- Provides large-scale application development services based on fundamental engineering principles
- Serves large enterprises such as banks, telecoms and defense contractors

The Solution

- Rational Suite™, an integrated e-business application design and management suite
- Integrated IBM e-business software offerings

Business Benefits

- Comprehensive solution for large scale development projects
- Increased cost/time savings as a result of the automated generation of up to 90% of application code
- Tightly integrated support of IBM's WebSphere® software platform and associated products

The Technology

- IBM WebSphere Application Server
- IBM WebSphere Commerce Suite
- IBM VisualAge® for Java™
- IBM DB2® Universal Database™
- IBM WebSphere Business Components
- IBM Insurance Application Architecture (IAA)
- IBM Visual Banker®

OVERVIEW

e-business case studies: Rational Software Corporation

Many businesses have learned the hard way that if you want to build a skyscraper, you shouldn't lay the groundwork for a tool shed. Back when the Internet was in its infancy, most companies were unaware of the demands that the coming e-business revolution would put on their information technology (IT) systems. Satisfied to think of the Internet as a means of sharing information, not a means of processing it, they soon discovered that the applications they built five years ago could no longer support the additional requirements in an e-business environment.

Since its founding in 1981, however, Rational Software Corporation, the e-development company, has based its approach to application development on fundamental engineering principles that enable development teams to visualize large projects from the beginning of the development process, rather than piecemeal. The company's integrated life-cycle software solution, Rational Suite, and its configuration management solution, Rational ClearCase™, play a critical role in designing and implementing many of the most complex applications for e-business and business integration.

"Building e-business applications is a sophisticated undertaking that requires the right tools, teaming and processes," says Michael Devlin, chief executive officer at Rational Software. "And that is what Rational Software provides."

Winner of *Software Development* magazine's Jolt Product Excellence Reward for "Design and Management Tools," Rational Suite automates the planning, design and testing of e-business applications, and documents the progress of large projects while providing a practical, predictable process.

Because of a need to provide developers with a seamlessly integrated solution for producing e-business applications, Rational Software is working with IBM to integrate Rational Suite with IBM's application development tools, architecture, infrastructure and servers in the IBM WebSphere software platform and the IBM VisualAge family of products, both components of the IBM Application Framework for e-business.

The Application Framework for e-business is the foundation for building e-business applications based on IBM's experience in helping thousands of businesses become successful e-businesses. It is a model based on open standards, multiple platforms and cross-industry leadership in hardware, software and services.

The powerful integration of IBM and Rational technologies will allow developers to quickly build a solid infrastructure for deploying complex applications, with advanced stability, performance and scalability.

IBM's Application Framework for e-business provides:

• A vision for, and objectives of, e-business

• A methodology and technology direction for building e-business applications

• A prescribed set of standards and technologies

• An integrated set of software, a choice of servers and services.

As a result of using IBM's Application Framework for e-business, Rational has been able to deliver superior e-business solutions ahead of its competitors. "IBM shows great foresight in its Application Framework for e-business," says Glen Hughes, director of strategic platforms at Rational Software. "IBM's commitment to supporting open standards and Java technology complements the vision of Rational Software."

By integrating with IBM's WebSphere software platform, which includes robust Web application server software along with the VisualAge family of tools to develop key e-business applications, Rational Suite further streamlines the application development processes, reducing development cycles by 60 percent to 90 percent. These efficiencies have resulted in faster time-to-market and considerable cost savings for Rational's customers.

BUSINESS DRIVERS

Building Software on Solid Ground

"IBM shows great foresight in its Application Framework for e-business. With a commitment to supporting open standards and Java technology, the hardware and software components that make up this model for developing e-business solutions echo many of the same mantras Rational Software has stressed all along."

–Glen Hughes, Director of Strategic Platforms, Rational Software Corporation

From the beginning, Rational Software has always been a leading vendor of technology that helps software developers become more productive. A pioneer in the development of the Unified Modeling Language (UML), Rational Software leads the world software development life-cycle management market in two segments—software configuration management (SCM) and object-oriented analysis, modeling, design and construction (OOAMDC) tools. The company also ranks among the top vendors in the Automated Software Quality (ASQ) market. Its software tools for the visual modeling of complex application development have aided the development teams of companies that include McDonnel Douglas, Merrill Lynch and AT&T.

Long before the Internet became a viable environment for sophisticated business applications, Rational Software had developed an approach to application development that employed the concurrent development practices more often associated with engineering than with the programming methods of that time. Software development was widely considered to be an incremental task, with functionality added on to applications as needed. Without proper planning, such an approach could lead to communication bottlenecks, overburdened processors and system crashes.

"What developers often overlook," says Hughes, "is that the infrastructure they build today may not be able to support additional complex functions they need tomorrow. Rational Suite helps prevent this by letting developers visualize their entire project and carefully plan, design, deploy and test complex applications that will grow and change later on. Rational Suite helps create an IT systems blueprint that development teams can continue to refer to whenever they need to make enhancements."

As many businesses move their applications to the Web, Rational Software's products are playing an increasingly critical role in the development of high-performance applications for e-business. Rational Rose®, a visual modeling tool included in Rational Suite, significantly reduces software development time and simplifies project management. "Rational Suite automates the building of a sound IT infrastructure," says Alex Baran, strategic alliance manager at Rational Software. "After finishing the requirements analysis and design phase, Rational Suite instantly generates the application code, which can be further enhanced in VisualAge, then tested and finally deployed to WebSphere."

IBM SanFrancisco (part of the WebSphere Business Components family of products) is a Java-based set of components and models that allows developers to assemble server-side business applications from existing parts, rather than build from scratch. When this infrastructure is completed, developers use other development tools—including Java application development tools, Web application servers, relational databases and reusable business logic such as Enterprise JavaBeans™—to create the front-end interfaces and other unique features for the applications. To further enhance the ability to deploy e-business applications with speed and ease, the companies chose to form a team for close software integration to provide a more comprehensive development environment.

Rational sought an alliance that would provide:

• Close collaboration between IBM's development staff and its own

• A solid reputation for e-business expertise

• A comprehensive software platform support infrastructure

• Market leadership.

Rational found these qualities in IBM. "IBM has taken great care in developing products that help developers build flexible, scalable applications," says Baran. "For Rational Software, the alliance provides an integrated solution for mutual customers with a complete end-to-end development and deployment solution—from the first requirements to final deployment and ongoing changes thereafter. Together, SanFrancisco and Rational Suite provide an integrated solution to speed development. This is compelling evidence that the Application Framework for e-business is the best choice for companies looking to deploy robust e-business solutions."

The alliance also promotes the integration of Rational ClearCase, Rational's market-leading configuration management solution and Rational ClearQuest, Rational's highly flexible defect and change tracking tool, with a broad range of solutions from the IBM WebSphere software platform. These include IBM WebSphere Application Server, IBM WebSphere Commerce Suite, IBM VisualAge for Java, IBM DB2 Universal Database, IBM SanFrancisco, IBM Contact Center (formerly known as IBM Visual Banker) and IBM Insurance Application Architecture (IAA).

"Building e-business applications is a sophisticated undertaking that requires the right tools, teaming and processes. And that is what Rational Software provides."

–Michael Devlin, Chief Executive Officer, Rational Software Corporation

The IBM WebSphere software platform offers customers, standards-based Java server runtime environment, along with Web site development tools, commerce software and management software to help companies build, manage and deploy powerful, portable e-business applications. VisualAge for Java is a key element of the Application Framework for e-business, with proven support for building and testing Java applets, servlets and Enterprise JavaBean components. With DB2 Universal Database and WebSphere Studio Web application development software supporting the WebSphere platform foundation, developers can create personalized Internet experiences that drive top line revenues while protecting the bottom line.

The close collaboration between Rational Software and IBM also ensures that developers at both companies are aware of each other's software development strategy, and more importantly, how those plans will affect the design of their own products to ultimately meet the needs of the development community for a tightly integrated development and deployment environment.

Headquartered in Cupertino, California, Rational Software Corporation has partnered with IBM to create e-business applications for the 21st century.

DEVELOPMENT STRATEGY

Uniting Teams to Build Tomorrow's Applications

Rational Software defines the functions of development teams to include analysis, development and testing, among others. To meet the unique requirements of each of these key functions, Rational Software provides four editions of Rational Suite—Rational Suite AnalystStudio™, Rational Suite DevelopmentStudio™, Rational Suite TestStudio™ and Rational Suite Enterprise™. Included in all four editions of Rational Suite are four basic components:

- Rational Unified Process® (RUP), a documented and tailorable software development process for e-business, which gives key members of the team a practical, predictable process to follow. RUP tool mentors provide context sensitive guidance for using the software tools at this point in the process. A series of templates help software developers change and document the application.

- Rational ClearQuest™ is a change and defect tracking tool that documents and changes code problems as they occur, allowing everyone on the team to better understand the state of the software and prioritize the use of development resources accordingly. This also dramatically improves communication between the developers and the Quality Assurance organization.

- Rational RequisitePro® allows one to define the system so that the entire team can better understand what is to be built. RequisitePro includes links to Rational Rose and Rational Suite TestStudio to help ensure that the developer's application and data models and the automated functional test scripts are based on the system's requirements.

- Rational SoDA™ (Software Document Automation) automates the creation and maintenance of project information and reports. SoDA gives users a single interface for reporting on requirements, design, test and defect status.

In addition to these four products, each edition of Rational Suite includes other tools to improve productivity, as members perform key development functions, for example Rational Rose in Rational Suite DevelopmentStudio and functional testing tools in Rational Suite TestStudio.

After analyzing the requirements of a project, Rational Suite enables users to build the foundation upon which the applications will be deployed. "Figuratively speaking, Rational Suite breaks the ground, pours the cement and erects the supporting beams for the construction of a complex application," explains Baran. "By automating this process and integrating with components of the Application Framework for e-business, such as IBM WebSphere Business Components and IBM VisualAge for Java, Rational Suite significantly reduces the time needed to roll out a high quality application."

Featured IBM Technology

IBM WebSphere Application Server
WebSphere Application Server is an e-business application deployment environment built on open standards-based technology. It is the cornerstone of WebSphere application offerings and services. The Standard Edition lets you use Java servlets, JavaServer Pages and XML to quickly transform static Web sites into vital sources of dynamic Web content. The Advanced Edition is a high-performance EJB server for implementing EJB components that incorporate business logic. The Enterprise Edition integrates EJB and CORBA components to build high-transaction, high-volume e-business applications.
www.ibm.com/software/webservers/appserv/

IBM WebSphere Commerce Suite (formerly Net.Commerce)
WebSphere Commerce Suite (formerly award-winning IBM Net.Commerce, the industry's first, integrated e-commerce solution) allows you to take e-commerce beyond buying and selling to effectively and efficiently manage rich content. Create dynamic e-marketplaces that reduce sourcing and transaction costs. Offer value-added, low-cost hosting services. Leverage relationship marketing. Streamline purchasing processes. And integrate Web sites with business-critical systems like inventory, order processing and shipping to protect and extend existing investments.
www.ibm.com/software/webservers/commerce

Featured IBM Technology, continued

IBM VisualAge for Java
Build Web-enabled enterprise applications with IBM's Java development environment, VisualAge for Java, a key element of IBM's Application Framework for e-business. VisualAge for Java leads the industry with proven support for building and testing Java applets, servlets, and Enterprise JavaBean components. And it's the only Java development environment that supports the development and management of Java programs that can scale from Windows NT® to OS/390 application servers.
www.ibm.com/software/ad/vajava

IBM DB2 Universal Database
DB2 Universal Database builds upon the stability and performance of DB2 on the mainframe and provides the features required in a distributed database product. DB2 Universal Database is IBM's relational database server solution for the UNIX®, OS/2® and Windows NT/2000 operating environments.
www.ibm.com/data/db2

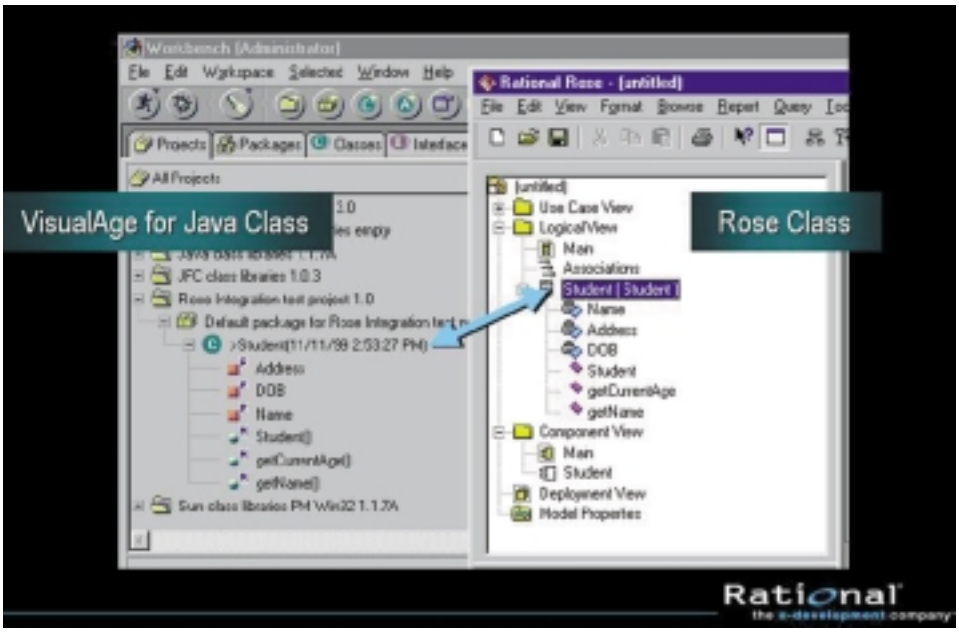
IBM WebSphere Business Components
WebSphere Business Components provide an easy-to-use, coherent package of software implementation that can be developed and delivered, can be composed from other components, and has explicit and well specified interfaces for the services it provides and expects from others. IBM has developed WebSphere Business Components to help developers reduce their development time, run across diverse infrastructures, and deliver value to companies faster with a whole project solution.
www.ibm.com/software/webservers/components/

Rational Suite helps companies perform the four key tasks in the application development lifecycle, namely:

- System definition—to define the system architecture and data requirements to meet specific business needs
- Visual modeling techniques—to provide development teams a global view of the software architecture
- Automating testing—to test the functionality of the application, and ensure code quality before it is deployed
- Managing change—to manage the continual change throughout the software development process.

One current Rational Software customer, UBS, one of the world's leading financial services groups, is using Rational Suite, Rational ClearCase, IBM WebSphere Application Server, Enterprise Edition and IBM VisualAge for Java to transition its business from a product focus to a customer focus. As the company diversified its services to provide everything from stock brokerage services to automobile insurance, life insurance and other investment opportunities, it sought to enhance customer service by consolidating information from all its customer accounts on one system.

Rational Suite allowed the customer to design a solution that would provide comprehensive information access to its customer service representatives, and to its customers over the Web. "When you consider the size of its existing systems architecture, transitioning these business processes to the Web is an enormous task," explains Kevin Kernan, vice president of business development at Rational Software. "These are the kind of situations where Rational Suite, used together with products such as IBM WebSphere Application Server, delivers high value, enabling large teams of developers to deliver high-quality, scalable solutions that won't interrupt the customer's day-to-day business."



Rational Suite's integration with components of the Application Framework for e-business—such as IBM VisualAge for Java—provides a comprehensive environment for application development.

CUSTOMER SNAPSHOT I

UBS AG Builds New IT Infrastructure with Rational and IBM Technologies

Zurich-based UBS AG employs more than 48,000 professionals who provide financial advice and other services to business customers and private investors. Many of these services rely on the processing of electronic data. Naturally, UBS is extremely prudent in selecting tools for building the applications that access and process this data, because, as one bank representative explains it, "in the information age, IT systems are a core success factor for the bank."

Within the Strategic Solution Program of UBS, shared core applications such as Partner, Product and Contract component systems will rely on robust and scalable IBM middleware. These new enabling technologies will significantly improve the flexibility of the UBS client-facing applications in the e-business environment.

The Software Development Factory for strategic solution projects at UBS also uses Rational Software and IBM development tools. "Our highly integrated and factory-like software development environment with the suitable processes allows us to implement robust software with a short time-to-market," says Heinrich Schneider, managing director for Software Factory and Shared Business Components at UBS.

UBS will migrate its legacy systems to a renewed runtime platform based on technologies that include IBM DB2 for OS/390®, IBM WebSphere Application Server, IBM MQSeries® and IBM CICS®. Within the Software Factory development process, Rational Rose and VisualAge for Java are used extensively, and lifecycle support is based on Rational ClearCase.

UBS is optimistic that IBM and Rational Software solutions and strategies for e-business are setting an industry standard. "It is very difficult for an IT department to predict future business needs, but we know that we have to have the know-how and capability to provide software solutions in a fast and flexible manner," says Schneider. "The pragmatic development of software will be a key factor for success in the financial industry. Our expectations for IBM and Rational Software are very high."

Featured IBM Technology, continued

IBM Insurance Application Architecture
IAA is a generalized business model for the insurance industry, developed during engagements with more than 40 insurers worldwide. By defining a standard model for representing and managing all information, IAA helps you create and maintain a single view—not only of your clients, but of your entire enterprise.
*http://houns54.clearlake.ibm.com/solutions/global/gfspub.nsf/detailcontacts/Insurance_Application_Architecture_IAA_*

IBM Contact Center (formerly known as IBM Visual Banker)
Contact Center is a graphical Customer Service Representative workbench and contact center management tool that streamlines and standardizes service processes regardless of CSR skill level, while enabling personalization based upon customer classification, history and preferences. It combines a comprehensive set of business function templates with an architecture and implementation strategy designed to get a contact center up and running fast.
www.ibm.com/software/speech/crm/contact_and_banker

Return on Investment

"By automating [the application development] process and integrating with components of the Application Framework for e-business, such as IBM SanFrancisco and IBM VisualAge for Java, Rational Suite significantly decreases the time needed to roll out a high quality application."

–Alex Baran, Strategic Alliance Manager, Rational Software Corporation

Function	Benefit
Application development	• Rational Suite and IBM WebSphere Business Components automate the creation of the application code • UML-based visual modeling tools provide enhanced ability to design and develop scalable and reliable solutions and flexible software applications • Detailed documentation of changes and defects keep all team members aware of project status • Practical and predictable processes to ensure team effectiveness
Scalability of systems architecture	• Based on open standards and Java technology, solutions built with the IBM WebSphere development solutions and Rational Suite allow businesses to extend functionality to incorporate legacy systems and utilize emerging technologies
Reliability of systems architecture	• Enhanced ability to develop high-quality, scalable, reliable solutions
Collaborative development	• More complete integration of complementary technologies • New market opportunities by leveraging IBM e-business customer base

Figure 1. Benefits

The greatest benefits of the alliance between Rational Software and IBM are witnessed by end users. Development teams using the integrated tools to build solutions based on the Application Framework for e-business can design, deploy and test products more quickly and efficiently, with confidence that the infrastructure they build today will support business applications in the future.

At the product development level, the collaboration between Rational and IBM ensures that new releases of IBM offerings in the WebSphere software platform can be optimized by the requirements analysis, design, deployment and testing functions of Rational Suite. "Our alliance assures us that when either company makes a change, the other will know about it and work through it, ensuring that no links are broken in the integration of our complementary software products," asserts Baran.

Yet, the most powerful benefits of the alliance will be seen in the fast, efficient development of high quality software applications that will, no doubt, continue to define the role of e-business.

"The rapid evolution of e-business is a reality," concludes Baran. "Rational Software tools help developers prepare to evolve in directions they aren't aware of today. Together with IBM WebSphere software platform and VisualAge integration, we provide a complete solution for developing and deploying applications that will continue to deliver returns on investment well into the future. The benefits of this alliance are sure to impact the future direction of e-business."

"Together with the Application Framework for e-business, we provide solutions for developing applications that will continue to deliver returns on investment well into the future. The benefits of this alliance are sure to impact the future direction of e-business."

–Alex Baran

"By laying the groundwork for our systems development within the Application Framework for e-business, we were able to accomplish in 12 weeks what would have taken a full year to develop otherwise."

–Edwin Jaufman, Chief Information Officer, Provider Solutions

CUSTOMER SNAPSHOT II

Provider Solutions Cuts Application Development Time as Much as 90 Percent

"It's like painting by numbers," says Provider Solutions Chief Information Officer Edwin Jaufman. "Using Rational Suite to develop our applications lays a solid foundation for designing even the most complex e-business applications, and generates up to 90 percent of the code when used with IBM SanFrancisco. Then we only need to fill in the missing spaces."

Provider Solutions is an independent software vendor (ISV) dedicated to developing solutions for the healthcare industry. Provider Solutions Outcomes Manager Internet Offering is a Web-enabled application that helps nursing agencies, home care providers, physicians and other healthcare professionals collect and assess data related to post-treatment medical care. This information is necessary to satisfy the Health Care Financing Administrations requirements for Medicare patients receiving in-home care. Provider Solutions uses Rational Rose to oversee the development of the solution, employing IBM SanFrancisco—Java-based e-business components for the fast development of server-side applications—as well as IBM WebSphere Application Server, and tightly integrated tools such as WebSphere Studio and VisualAge for Java.

"Rational Rose enabled us to produce more efficient code with much less time," says Jaufman. "By laying the groundwork for our systems development within the Application Framework for e-business, we were able to accomplish in 12 weeks what would have taken a full year to develop otherwise."

FUTURE VISION

The collaboration between IBM and Rational provides customers with the ability to produce high quality e-business applications very quickly. Traditionally, the software development company has worked with large financial, defense, banking and telecom companies. However, smaller dot-com start-ups are finding the speed and scalability of solutions designed with the Application Framework for e-business perfect for the excruciating demands of developing e-business applications in "Internet time."

"We are seeing smaller companies with very complex needs," explains Baran. "The Web has added an enormous layer of complexity, and with IBM's Application Framework for e-business, we have a set of tools that automate much of the labor, and with automation you get speed—speed is what the small customer really needs."

"There's a considerable amount of work being done at the development level of both companies," explains Kernan. "As the new solutions are being rolled out, both IBM and Rational want to make sure that everyone knows how well our technologies work together to develop the best solutions for businesses wanting innovative software architectures."

For more information, please contact your
IBM marketing representative or IBM Business Partner.

Visit us at:
ibm.com/framework

For information about Rational Software Corporation, visit:
www.rational.com

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