



**Realize expected results with the IBM Rational
geographically distributed development solution**

Build a development infrastructure to support distributed development teams



Geographically distributed development (GDD) brings software development into the twenty-first century as an on demand business: an enterprise whose business processes—integrated end to end across the company and with key partners, suppliers and customers—can respond with flexibility and speed to any customer demand, market opportunity or threat. GDD infuses global structure into software development strategy—a structure composed of team members dispersed across many regions, some located within the confines of your corporate walls and others engaged through an outsourced model.

Achieving expected benefits, such as a competitive edge through decreased time to market, a variable staffing model providing a comprehensive range of development skills, decreased costs and global presence, is a daunting task. Software development in and of itself creates several challenges throughout the project life cycle—add a geographically dispersed team and challenges increase exponentially.

Analogous to a car assembly line—where precision, clear workflow guidelines and communication are required at each step to help ensure that each engine component, body part and electrical device come together to produce a reliable, high-performance automobile—you need a cohesive, efficient and precisely calibrated team that delivers the right application on time, on budget and with the highest quality.

As a leader in innovation and technology, IBM is equipped to provide the expertise, experience and insight to offer a robust **GDD solution comprised of process improvement, tooling strategies and implementation services** to support development organizations every step of the way.

This buyer's guide should be used as a point of reference for vendor assessment, evaluation and the development of a comprehensive request for proposal (RFP) for selecting the appropriate tools and infrastructure. This guide also provides details about which tools within the IBM Rational® GDD solution can help address specific requirements and challenges.

Note: This guide is intended to provide information about tools and infrastructure—it is not a guide to IBM software outsourcing services.

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Defining a GDD landscape

Before initiating vendor assessment and evaluation, organizations should define a development landscape. By clearly defining segmentation (whether or not your GDD model will include outsourced and offshore segments) and discipline alignment (where tasks in the development process will be done and by whom), organizations can focus on specific challenges and requirements introduced at each level.

GDD segmentation can be categorized into three specific levels, each introducing a unique set of issues:

Level 1—Distributed teams within the confines of the company and within country borders. These distributed teams introduce typical software development challenges that require a solution that addresses productivity and efficiency for each team member while supporting diverse languages, operating systems and platforms.

Level 2—Contractors and vendors that are onshore or nearshore and responsible for outsourced applications. Level 2 introduces challenges of asset ownership and security as they relate to communication between sites and access to repositories. Level 2 solutions require tracking, controlling and measuring the value being delivered by external sources along with maintaining visibility and control into the status of mixed-staff projects.

Level 3—Internal company teams and third-party providers that are located offshore. These offshore providers introduce challenges created by a range of cultures, languages and time zones, which affect the ability to clearly communicate requirements and application architecture.

Once the segmentation is defined, discipline alignment should be addressed—areas of concentration for each location need to be established. Some disciplines may be kept onsite, while others may be divided among external sites. The center of excellence must be located for each discipline, as must the resources and skills needed for each project.

The organization in Figure 1 has a team at corporate headquarters that focuses on requirements, architecture and high-level design for all projects. As these elements are created, project

	Analysis	Design	Construction	Function and performance test	Component test	Deployment	Project management
Nearshore (Kansas City and Toronto)	30%		40%	20%	40%		
Onsite (San Jose)	70%	100%		80%		100%	100%
Offsite (Bangalore)			60%		60%		

Figure 1: GDD segmentation and discipline alignment

specifications are communicated to Toronto and Bangalore for development and component testing. The Toronto team is responsible for new feature development on existing projects and all new project development, while the Bangalore team is tasked with maintenance development. As component testing is completed in Toronto and Bangalore, work is returned to headquarters, where validation, function and performance tests are executed. Additionally, the Kansas City location has teams for requirements maintenance and performance testing. Project and portfolio management, as a core competency, is handled from headquarters, where all components of application and resource portfolios are tracked and monitored.

The type of GDD model represented in Figure 1 is one most commonly found in IT organizations. Other types of GDD models are componentized team development models or tightly coupled co-development models. Componentized team development models use distributed teams that “own” the development efforts for one or more application components. Teams then collaborate to bring the final application together. Tightly coupled co-development models consist of teams at geographically dispersed sites that all work on the same software components to achieve a 24x7 development cycle.

Once a GDD structure has been established, an RFP addressing user needs, network infrastructure, data access, security, communication, workflow and collaboration can be created. Some models will require software development tools that support the entire life cycle from proposal to deployment, while models such as componentized team development may only require tools that support configuration management and development.

Process and portfolio management

Follow a development process to plan, manage and measure development projects

Establishing a **core framework for software engineering processes** builds comprehensive and effective distributed teams. A defined process helps users at all locations clearly understand their designated roles within the development cycle. A defined process also provides guidance and contextual and visual workflow steps to help team members understand their immediate responsibilities and how to move work to and from other team members.

Another crucial factor for effective distributed teams is the ability to **measure process improvement for each discipline in the development life cycle**. As distributed teams are refined and workflow is standardized, the effectiveness of the process needs to be monitored and tracked as well as the end results. Management must include a metrics strategy within the development plan and must track variance to determine what milestones need to be met. These metrics can then be used to adjust the process as needed and support strategic goals.

Understanding, balancing and assessing the risks and benefits of a GDD implementation help ensure that it aligns with business priorities and drives value. Project portfolio management helps monitor and control risks, issues and financials across portfolios to help enable faster, better decision making—and a consistent, predictable business plan moving forward.

The integration of process and project portfolio management will allow the repeatable execution of defined processes anywhere in the world—a capability critical to meeting IT governance objectives. Tools that allow the capture and reuse of in-house or industry GDD best practices and processes prevent teams from starting from scratch.

Setting the framework for a GDD strategy

An intuitive, browser-based solution provides ease of use and accessibility for all users and enables the implementation of an established process. A **process environment** such as the IBM® Rational Unified Process® delivers a framework for defining, delivering and adopting software development best practices. The flexible Rational Unified Process provides a common vocabulary, clear definitions of responsibilities, workflow details and a unified culture for all team members.

A **project management tool** such as IBM Rational Portfolio Manager software provides an overarching view of project portfolios, resulting in a closed-loop portfolio management process that combines top-down portfolio analyses with bottom-up project management. Rational Portfolio Manager captures vital project data and helps evaluate, calculate and communicate all dimensions of a portfolio to help assign resources within distributed structures and measure project cost, quality and completion time.

For **quantitative analysis based on metrics collected at each development discipline**, IBM Rational ProjectConsole™ software provides a Web-based solution that includes a graphical dashboard based on all data collected—requirements through defects—for easy access and assessment.





A defined process helps users at all locations clearly understand their designated roles within the development cycle.

Process and portfolio management—sample RFP requirements

REQUIREMENTS	IBM RESPONSE
United teams despite diverse languages and cultures	<ul style="list-style-type: none"> • Enable browser-based access to the same knowledge base for all teams • Provide easy access to guidelines, template and tool mentors based on underlying best practices • Visually communicate discipline workflow and interactions with the Unified Modeling Language (UML)
Reduction in work transfer issues	<ul style="list-style-type: none"> • Implement a framework based on core process workflows from business modeling through deployment • Use a phased approach to software development that details execution for each discipline
Easy-to-navigate process that is not overwhelming for users	<ul style="list-style-type: none"> • Jump-start planning and get new team members up to speed fast with knowledge assets and guidance • Allow users to create personal process views that are central to individual needs • Provide intuitive navigation with a browser-based interface
Demonstrated progress toward expected return on investment for GDD projects	<ul style="list-style-type: none"> • Track metrics throughout the project life cycle • Report on variance measurements and adjust process to achieve desired results • Track project progress and quality through quantitative analysis
Ability to assess and manage distributed resources efficiently	<ul style="list-style-type: none"> • Maintain a broad and deep understanding of an organization's capacity, skills inventory, total workload and resource demand • Optimize skill usage with resource planning to align mission-critical resources with high-priority projects
Scalable project management solution	<ul style="list-style-type: none"> • Centralize sensitive schedule, budget and resource data while allowing secure, high-performance access anywhere in the world • Implement native scheduling, resource loading and "what-if" scenarios that avoid performance issues by integrating with third-party scheduling products
Consistently executed processes	<ul style="list-style-type: none"> • Capture and reuse successful GDD engagement models, work breakdown structures and workflows to ensure execution against IT governance requirements and best practices • Enable reusable project templates and task guidance based on a proven process, so teams never have to start planning from scratch
Accurately tracked labor costs for in-house or external resources	<ul style="list-style-type: none"> • Accurately track labor expenses and budget for time and materials or fixed-bid resources

The IBM Rational GDD solution provides the following products to address process and portfolio management:

*IBM Rational Portfolio Manager
IBM Rational Unified Process*

IBM Rational Team Unifying Platform™ (includes IBM Rational RequisitePro, IBM Rational ProjectConsole, IBM Rational ClearCase LT, IBM Rational ClearQuest, IBM Rational TestManager, IBM Rational SoDA® and IBM Rational Unified Process)

Requirements and analysis

Enforce clearly communicated project requirements through use-case scenarios and visual modeling

Successful application development calls for **communicating and understanding requirements**—a challenge for distributed teams. A solution that provides all users, both local and remote, with access to project requirements is the key to effective requirements management.

Other important features of a requirements management solution include e-mail notifications to **alert developers and quality engineers about changes** that affect the code they are developing or the test plans they are creating. If there is confusion about requirements, discussion groups facilitate communication among team members and logs of the dialog help eliminate ambiguity.

Distributed teams facing language and culture differences need a comprehensive solution that not only communicates requirements, but also provides context for requirements through usage documents and visual diagrams. This visualization helps team members understand requirements as they relate to usage scenarios and application workflow. A solution that **promotes better communication across all locations, enhances collaboration and reduces project risk** so that applications are developed within specifications and on time.

Capitalize on requirements management

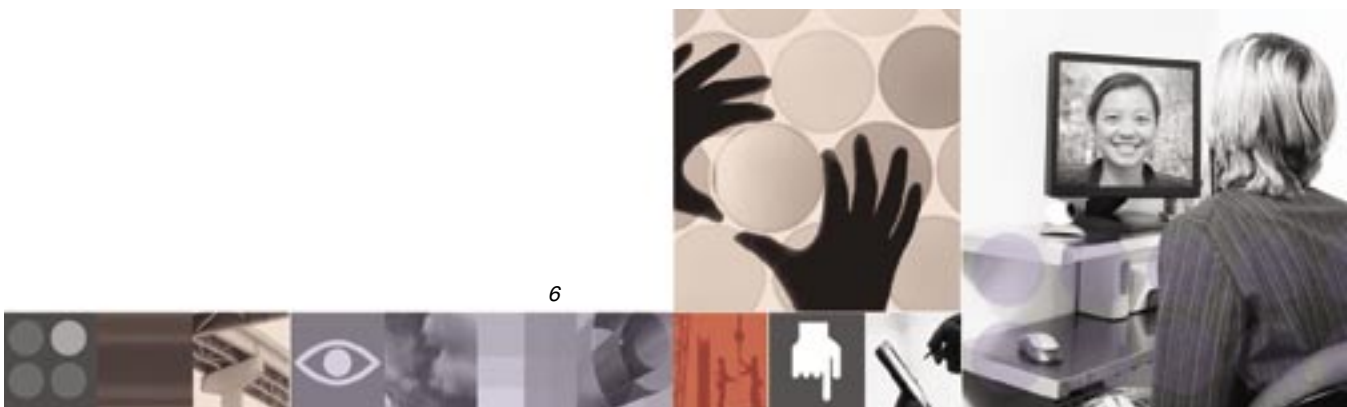
A **requirements management solution** such as IBM Rational RequisitePro® software uses documents to capture and communicate requirements, providing context and order to usage scenarios. These captured requirements are then dynamically linked to a database to provide organizing and tracking information. As requirements are modified, Rational RequisitePro enables

increased understanding of the effects of change by linking associated requirements. This linking enables informed impact-analysis decisions for scope management and resource reallocation.

Requirements are the building blocks for application development—a solution that integrates requirement data with related discipline data, such as test plans and application models, can benefit distributed teams by optimizing workflow efficiencies, reducing rework and increasing traceability. Through the Rational RequisiteWeb feature, a Web-based interface for the IBM Rational RequisitePro solution, remote team members can create, view and modify requirements in addition to maintaining requirements links.

As requirements are developed and communicated, architects and designers translate these requirements into various views of the system. Modeling tools used to create system views help visually communicate all dimensions of the application infrastructure while improving the productivity and overall maturity of the development process. A **visual modeling and design tool** such as IBM Rational Software Modeler software enables users to clearly document and communicate these various system views to all stakeholders on the team.

Rational Software Modeler offers users across all geographies notation familiarity through UML, an industry standard for modeling. IBM Rational Software Modeler also provides client-side integration with Rational RequisitePro so requirements can be associated to corresponding model elements, providing traceability from requirements through design.





A customizable requirements management tool that optimizes workflow efficiencies, reduces rework and increases traceability.

Requirements management—sample RFP requirements

REQUIREMENTS	IBM RESPONSE
Secure access to requirements repository so that each project complies with company standards	<ul style="list-style-type: none"> • Provide authorship tracking for all users, enabling a detailed audit history • Adopt a security model based on users and user groups • Allow project-level security that can be augmented by group-level security
Flexible solution providing all users with the ability to access requirements regardless of location	<ul style="list-style-type: none"> • Provide a Web-based interface for remote users to view and edit requirements, documents, attributes and traceability metrics • Support enterprises that have terminal service solutions incorporated into their infrastructures
Reduced reliance on verbal communication for requirements management to address language barrier between teams	<ul style="list-style-type: none"> • Use discussion groups to document communication about requirements • Capture requirement updates with detailed log histories • Communicate requirement updates via e-mail notifications to affected users
Quick and easy access to requirements and their attributes	<ul style="list-style-type: none"> • Implement a robust database infrastructure for requirements and their attributes • Organize requirements information in customizable folders • Create views into the database for quick requirements search
Project life-cycle integration that facilitates traceability	<ul style="list-style-type: none"> • Support versioning models that synchronize versions between distributed teams • Access and associate requirements to model elements to ensure that the system architecture reflects the intended specification • Report on traceability from requirements to design to highlight coverage
Software modeling solution based on current technology to communicate application design to offshore teams	<ul style="list-style-type: none"> • Embrace the UML 2.0 open standard to express architecture with clarity and control • Exploit the latest modeling technology through model-driven architecture (MDA) to address multiple levels of models and transformations between those models • Leverage the Eclipse Modeling Framework (EMF) and the UML 2.0 meta-model

The IBM Rational GDD solution provides the following products to address requirements management and analysis:

IBM Rational RequisitePro
IBM Rational Software Modeler

IBM WebSphere® Business Integration
Modeler, Advanced Edition

IBM WebSphere Business Integration
Modeler, Entry Edition

Software configuration management

Manage and control software assets while gaining better insight, predictability and control of the development process

A robust software configuration management (SCM) solution provides a reliable, secure and automated environment for teams to work with assets throughout the project life cycle. As remote teams are added, assets and **changes to assets must be seamlessly coordinated across local and dispersed development projects.**

A best-of-breed solution allows multiple and occasionally overlapping branches of a project to be worked on by different development teams simultaneously, **supporting 24x7 distributed development** and accelerating the rate of deployment for critical projects. In addition, best-of-breed solutions should give developers granular control over personal workspaces, provide advanced build and release management for speedy application delivery, support asset-based development and provide access from any location.

Change is inevitable throughout the development life cycle—to manage all types of change from design to code to test requires a flexible solution, one that improves **team collaboration with out-of-the-box process automation and workflow management** that can be tailored to the unique phases and sequence steps developed within any organization. Furthermore, optimal solutions enable easy customization to defect and change request fields, user interfaces, queries, charts and reports. For remote users, an additional interface is needed to allow easy access and updatable change requests as needed. This interface helps ensure that **remote users are connected and in synch with the latest developments affecting their workload.**

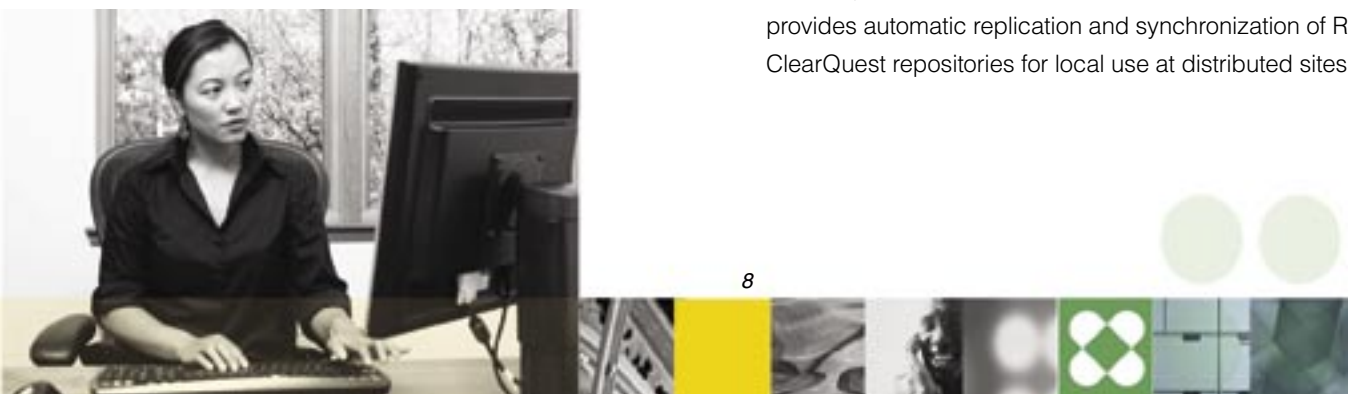
Creating an infrastructure for change management

Offerings like IBM Rational ClearCase® and IBM Rational ClearCase MultiSite® software help meet the needs of distributed teams. IBM Rational ClearCase provides desktop or Web-based **life-cycle management and asset control** for all distributed team members. With integrated version control, automated workspace management, parallel development support, baseline management and build and release management, Rational ClearCase features a consistent activity-based change management process that structures team efforts into a defined, repeatable process—a process that helps ensure that all code and content changes will be delivered and promoted accurately.

To address users at all locations, Rational ClearCase provides several options for anytime, anywhere access. A desktop client provides local users with complete change management functionality in a flexible Microsoft® Windows® interface. Remote users can use the Rational ClearCase Remote Client feature to access version objects via a wide area network (WAN). Web users can access the change management capabilities in an easy-to-use browser-based interface.

As an alternative for distributed teams, IBM Rational ClearCase MultiSite, an add-on to Rational ClearCase, provides **replication and synchronization of project databases to each site** for local access to development assets. Data integrity is maintained during replication by resending information if a network failure occurs and by automatically recovering repositories during system failures. For flexibility and ease of use, Rational ClearCase MultiSite supports a browser-based interface that allows administrators to manage all replicas from their local site.

IBM Rational ClearQuest® and IBM Rational ClearQuest MultiSite provide customizable workflow management and **defect and change tracking** for improved insight, predictability and change control. Rational ClearQuest provides flexible anytime, anywhere access via a Web-based interface for users that need to update change requests remotely. Rational ClearQuest MultiSite, an add-on to Rational ClearQuest for distributed teams, provides automatic replication and synchronization of Rational ClearQuest repositories for local use at distributed sites.



Rational tools support parallel software development, enabling developers to work on multiple versions and multiple releases at the same time.



Software configuration management—sample RFP requirements

REQUIREMENTS	IBM RESPONSE
Automated and enforced development process that facilitates precise work-flow details, eliminating work-transfer issues between remote teams	<ul style="list-style-type: none"> • Define processes with actions and states • Increase flexibility to collect the right data with mandatory fields and pick lists • Provide e-mail notification of changes to improve response time for addressing changes • Assign ownership of a task to an individual
Secure transport of company assets between locations	<ul style="list-style-type: none"> • Address specific company protocol with multiple options • Utilize Secure FTP (SFTP), which requires only port 22 to be open on the firewall between servers • Leverage existing transport infrastructure for pushing files between sites • Use a solution that provides a TCP-based shipping server and can be configured to work through firewalls
Simplified reuse of software across distributed teams	<ul style="list-style-type: none"> • Integrate with developer tools to search, locate, download and apply assets from reusable asset repositories • Support the Reusable Asset Specification (RAS), which defines a standard way to package reusable assets
A complete offering to address configuration and assessment of an SCM solution during implementation and when scaling to add new sites	<ul style="list-style-type: none"> • Align with a solution that offers services for deployment planning, environment specification, usage model definitions, configuration and administration planning • Partner with a company that provides comprehensive, detailed books written by industry experts on best practices and tips for success
Ability to easily track all assets related to specific changes to help reduce risk	<ul style="list-style-type: none"> • Raise the level of abstraction when managing change to simplify development • Use an activity-based approach to change management rather than manually tracking files • Allow developers to perform operations directly on activities rather than on the collections of files associated with them
Anywhere, anytime flexibility for administrators to manage all replicas from remote sites	<ul style="list-style-type: none"> • Provide an easy-to-use browser-based interface • Allow administrators to remotely initiate synchronization • Enable creation, scheduling and modification of jobs • Ease code and change integration from multiple sites and time zones
Version control and build and release management across distributed teams	<ul style="list-style-type: none"> • Enable versioning of source code, libraries, visual models, design notes, documents, Web artifacts, any artifact represented as digital content and all system file objects • Optimize build times while helping to ensure the reproducibility of software versions

The IBM Rational GDD solution provides the following products to address software configuration management:

IBM Rational ClearCase

IBM Rational ClearQuest

IBM Rational ClearCase MultiSite

IBM Rational ClearQuest MultiSite

Design and construction

Maximize the productivity of code-centric, model-driven development

After requirements have been clearly communicated to development teams, they must be translated into precisely engineered models and code. A set of tools that addresses architecture, design modeling, construction, model-driven development and architected rapid application development (RAD) optimizes productivity. In addition, distributed developers need built-in integration of version control tools to effectively manage change, the ability to **communicate application architecture models to all stakeholders** and a flexible licensing structure.

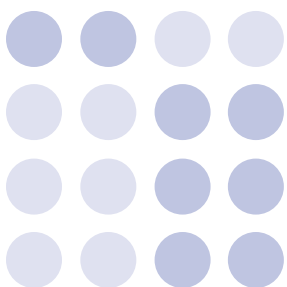
Embarking on the possibilities of design and construction tools

As architects, system analysts and designers begin to **build visual diagrams** to depict various views of a project, they turn to tools like IBM Rational Software Modeler to capture and communicate all aspects of the application architecture. Sequence, activity, component, class and deployment diagrams capture the details of these views. As diagrams are rendered and updated throughout the project life cycle, they can be easily published as HTML, PDF or XML reports so all distributed stakeholders are aware of the latest modifications. Author patterns and transforms are used to increase predictability and repeatability, while drag-and-drop components leverage existing skills and shorten Java™ learning curves. Assets are securely managed through multi-model support, compare/merge capabilities and SCM integration. For Java or C++ applications, tools like IBM Rational Software Architect software leverage model-driven development with UML for the creation of well-engineered applications and services.



For code-centric teams focused on building Web-based applications, a comprehensive development environment enables design, construction and testing of all application aspects. For **developers building Web, Web services, Java, Java 2 Platform Enterprise Edition (J2EE™) and portal applications**, IBM Rational Web Developer and IBM Rational Application Developer help enable accelerated deployment. These tools allow developers to use built-in version control integration for seamless collaboration and software configuration management across all teams.

To complete the portfolio of design and construction tools, IBM Rational Rose® Technical Developer software provides a solution for **developers of real-time, embedded and other complex types of software systems** with advanced modeling constructs, including model execution and fully executable code generation. Disparate teams can publish models to the Web to communicate system architecture. Configuration management is available through background synchronization, merging and merge avoidance.





A comprehensive development environment enables design, construction and testing of all application aspects.

Design and construction—sample RFP requirements

REQUIREMENTS	IBM RESPONSE
Ability to set up licensing according to the needs of each team	<ul style="list-style-type: none"> • Enable flexible licensing to meet the needs of the organization • Provide ease of use for dispersed teams with floating license model • Employ user license model for centrally located teams
Support for an aggressive, comprehensive service-oriented architecture (SOA) that has been established as part of a GDD strategy	<ul style="list-style-type: none"> • Model business process and information flow with UML activity diagrams • Integrate business applications with interoperable Web services and SOAs • Accelerate SOA development using RAD tools and wizards • Improve code quality with automated tools for Web services unit testing
Easily communicated application flow and architecture to distributed developers	<ul style="list-style-type: none"> • Use industry-standard UML 2.0 • Support use-case, class, sequence, activity, composite structure, state machine, communication, component and deployment diagrams • Convert and publish models to HTML to be viewed from anywhere through a browser
Complex systems development that includes embedded and real-time projects	<ul style="list-style-type: none"> • Support advanced modeling constructs, including model execution and executable code generation • Automate test harness generation • Ensure stringent requirements for latency, throughput and dependability • Use run-time model execution and visualization
Support for seasoned Java developers as well as for those with limited Java knowledge of building Web, Web services, Java, J2EE and portal-based applications	<ul style="list-style-type: none"> • Accelerate Web, Java and SOA development using RAD tools and wizards • Leverage existing skills and shorten the Java learning curve with drag-and-drop user interface components and point-and-click database connectivity • Visualize and graphically edit code through UML Visual Editor for Java and Enterprise JavaBeans™ (EJB™) • Adapt and extend development environments with Eclipse-based plug-ins

The IBM Rational GDD solution provides the following products to address design and construction:

IBM Rational Software Architect
 IBM Rational Software Modeler
 IBM Rational Rose Technical Developer

IBM Rational Rose XDE™ family
 IBM Rational Professional Bundle

IBM Rational Application Developer for WebSphere Software
 IBM Rational Web Developer for WebSphere Software

Software quality

Improve software functionality, reliability and performance

Quality assurance testing validates the functionality, performance, scalability and reliability of an application to determine if it is ready for release, ultimately contributing to its success or failure. To **ensure complete application testing at all locations**, a test plan based on application requirements must integrate with requirements data so each requirement can be mapped directly to a test case—and provide total coverage for each application.

Developing **quality software requires an iterative approach throughout the development life cycle**. By testing at the early stages of application development, team members can detect problems when they are easier and less expensive to fix. As teams work in an iterative fashion, it is important that each member fully understand the testing process, standards and workflow so that all dimensions of a test are executed and each team member can transfer work between groups. To automate this process, development teams need a set of testing tools that offers robust unit, function and performance testing.

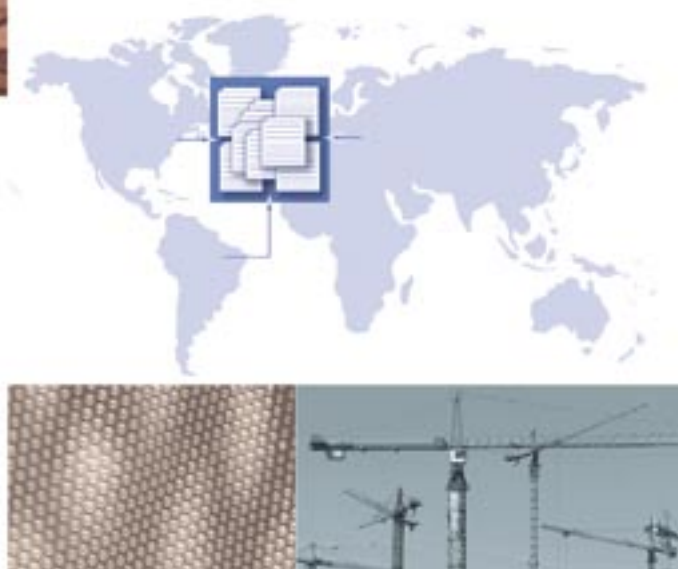
Building a testing strategy—quality by design

IBM Rational TestManager software helps project teams **manage all aspects of testing**—from initial test-case planning and development to test execution and analysis of the results—to provide the data needed for critical deployment decisions. For teams with centrally hosted requirements and test plans, Rational TestManager integration technology enables the linking of each test case to a specific requirement, helping ensure that all requirements are tested before deployment.

IBM Rational Functional Tester for **advanced and automated functional and regression testing** helps enable superior control when testing Java, Microsoft .NET and Web-based applications. Combining advanced test development techniques with the simplification and automation of basic test needs, Rational Functional Tester improves and accelerates the process of system test creation, execution and results analysis to help ensure the early capture and repair of application errors. For distributed testing teams that want to share test assets across all teams without overwriting files or losing critical updates, version control integration enables check-in and check-out, compares files to previous versions and shows change histories.

Verifying the performance and scalability of applications can be very challenging and resource intensive. Yet if these attributes are not thoroughly addressed, applications will quickly be abandoned by user communities. IBM Rational Performance Testing helps optimize Web and client/server application performance by simulating workload models and enabling large, multi-user tests with limited hardware resources. Rational Performance Testing also provides real-time views of performance bottlenecks, capacity levels and response times.





IBM Rational PurifyPlus™ software is a **run-time analysis tool** designed to help developers write faster, more reliable code. Memory problems are identified while applications are running, automatically revealing problems in C and C++ and memory profiling in Java and .NET. Performance can be improved by reviewing output detailing application bottlenecks and performance reports. Complete coverage detection shows what parts of the code have not been tested to help avoid the deployment of untested code.

IBM Rational Manual Tester provides a **manual test authoring and execution tool** that promotes test step reuse to reduce the impact of software change on testers and business analysts. It adds control and organization to any manual testing process, improving the efficiency and speed of efforts to measure application quality. To support distributed teams, organizations can place test steps and data on a network file share or under change control so that all team members can access and update the assets, increasing user productivity and efficiency.

By testing at the early stages of application development, team members can detect problems when they are easier and less expensive to fix.

Software quality—sample RFP requirements

REQUIREMENTS	IBM RESPONSE
Process-based approach to defining a testing strategy	<ul style="list-style-type: none"> • Integrate with a proven life-cycle process • Implement an effective testing strategy through best practices, workflows and guidelines • Offer an iterative approach to testing versus a waterfall methodology
Ability to share functional test assets across distributed teams	<ul style="list-style-type: none"> • Share tester scripts, script templates and object maps with team members • Establish version control to prevent overwriting of test assets • Manage and simplify complex merge operations • Maintain a history of changes to scripts and other test assets
Ability to share manual test assets across distributed teams	<ul style="list-style-type: none"> • Support tracking of step reuse and data stores • Version test files for access across all teams

The IBM Rational GDD solution provides the following products to address software quality:

IBM Rational Manual Tester
 IBM Rational Functional Tester
 IBM Rational Robot

IBM Rational Performance Tester
 IBM Rational Test RealTime™

IBM Rational PurifyPlus
 IBM Rational Professional Bundle

Team collaboration

Integrated collaboration and user productivity tools

Distributed team members need personalized access to project knowledge bases, discussions, business processes and the team members essential to their work. Establishing this **collaborative environment provides increased responsiveness among colleagues, speeds group decision making** and keeps team members involved and up-to-date with project activities.

By offering a full set of **integrated collaboration tools** delivered in a single, customizable portal-like interface, IBM Workplace™ Collaboration Services establishes a way for team members to coordinate, collaborate and communicate on any project, regardless of whether they are centralized or geographically dispersed. IBM Workplace Collaboration Services can help increase responsiveness among colleagues, outsource providers and contractors by centralizing timely and accurate information, granting all team members an equal opportunity to review and react—and alleviating many challenges introduced when project members work in different time zones.

IBM Workplace Collaboration Services includes instant messaging and presence awareness, Web conferencing, customizable team spaces, collaborative learning and document management in an integrated platform. Online work environments tailored to user needs leverage existing data and applications and can be accessed from Web browsers, mobile devices and server-managed rich clients.

For smaller companies or deployments, IBM Workplace Services Express offers a **quick, easy single-server installation to combine essential collaboration tools** such as instant messaging and team collaboration with portal capabilities for aggregating multiple business applications into one customizable user interface.





A customizable, portal-like interface provides a way for team members to coordinate, collaborate and communicate on any project.

Team collaboration—sample RFP requirements

REQUIREMENTS	IBM RESPONSE
Quick and easy implementation to start collaborating in days, not months	<ul style="list-style-type: none"> • Facilitate discussions, set up chat rooms and combine team calendars with ready-to-use templates • Leverage out-of-the box functionality that users can customize themselves • Centralize installation on one server
Consolidated work area where teams can more effectively communicate and collaborate on project issues	<ul style="list-style-type: none"> • Create a centralized location to post and share project documents that can be viewed and modified by other team members • Share team member project calendars • Track feedback from other team members • Enable the creation of forums and participation in threaded discussions • Allow team members to share files in real time via Web conferencing
On demand communication options for distributed team members	<ul style="list-style-type: none"> • Let users know which team members are available for collaboration through integrated presence awareness • Provide instant messaging for real-time, person-to-person communication • Leverage browser-based conferencing to share presentations and meeting materials
Ability for all disparate project members to securely connect to the team workplace through the intranet, Internet or mobile devices	<ul style="list-style-type: none"> • Enable full-featured browser-based and mobile access to presence, instant messaging and team spaces

The IBM Rational GDD solution provides the following products to address team collaboration:

*IBM Workplace Collaboration Services
IBM Lotus® Instant Messaging and
Web Conferencing*

*IBM Workplace Services Express
IBM Lotus Web Conferencing*

*IBM Workplace Client Technology
IBM Lotus Team Workplace*

For more information:

To learn more about the technologies and products behind the IBM Rational geographically distributed development solution, visit: ibm.com/software/rational/solutions/etrans/gdd.html



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