



NovaForge™

Software development factory

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**BULL**

Architect of an Open World™

Structured, professional software development

The key to responsiveness in a changing business world.

Bull's services centers, methodologies and tools all converge around open 'forge' technologies to design, deliver and maintain its customers' applications in a professional and structured way.

Delivering open information systems, the introduction of new services, application integration... there are so many things that are driving IT Departments to initiate large-scale information systems updating or modernization programs. And these projects have to meet stringent financial, regulatory, functional and technical criteria.

In an environment where, on average, 70% of projects overrun in terms of costs or timescales by more than 50%, IT Directors/CIOs have to respond to many challenges, including:

- Managing expectations
- Making the most effective re-use of existing assets and capitalizing on them fully
- Controlling the development life-cycle
- Harmonizing the software production framework.

NovaForge™ is a professional and structured shared software development platform, based on a process that draws on a full range of proven development tools, which has been successfully used for many years by Bull's own worldwide R&D teams for their distributed development programs. The result is a true software development 'factory'.

NovaForge is designed to:

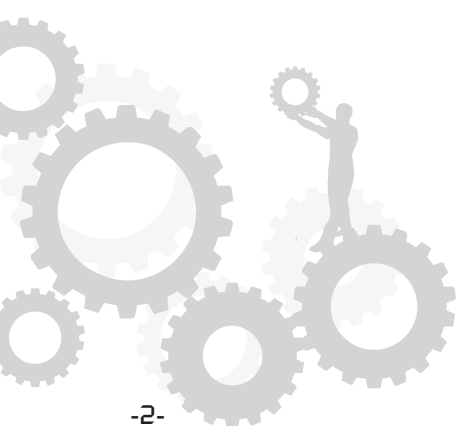
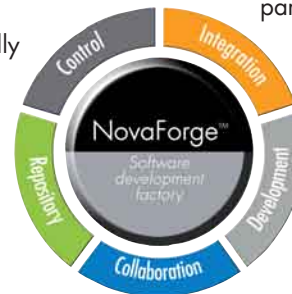
- Reduce the overall software development workload
- Optimize the management of costs and timescales

- Improve the quality of deliverables
- Encourage acceptance by all those involved in the project
- Make it easier to monitor the development process
- Reduce risk, particularly by providing a shared view of the project parameters.

A high level of added value.

NovaForge is based around four core values:

- Capitalizing on experience: through the use of qualified development tools and proven methodologies, as well as the re-use of work that has already been carried out
- Sharing: NovaForge lets everyone involved in the project – no matter where they may be located – to share the same view of the project and make common use of the same documentation database
- Flexibility: NovaForge has been designed in a modular way, so that it can be used with specific tools and respond to different levels of workload on different projects
- Transparency and control: because clear project indicators are openly published, so that everyone involved can see them.



NovaForge, an industrial and collaborative platform

Based on Open Source components, NovaForge can be used as a platform for software development, application updating (refactoring), third-party application maintenance and application testing projects at a professional level, as well as for any kind of project where requirements have to be formally managed.

NovaForge is structured around five key areas: the database, collaborative portal, development workspace, integration and testing workspace, project management workspace.

A single focal point for everyone involved in the project.

NovaForge has been designed to meet the needs of the different groups of people involved in any project. The collaborative workspace is customized to suit different roles, in particular:

- Functional Analysts, who use the database to index the specifications
- Systems Architects and Technical Referees, who translate the

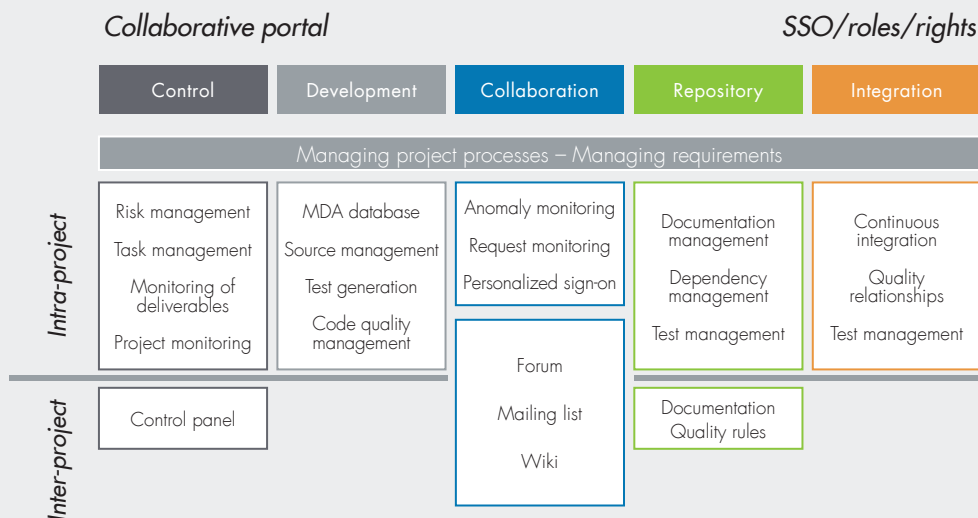
specifications into logical 'bricks' and populate the database with them

- Software Developers and Designers, with access to the project specifications and documentation database, as well as modeling, code generation and quality control tools
- Project Managers, for assigning tasks, monitoring the indicators used by the continuous integration platform and managing risk
- The Contracting Authority, who validates the specifications and tracks the project indicators
- Quality and methodological referees, and those responsible for managing resources, the database and re-use of existing assets.

Simplifying and automating the development environment.

The development workstation offered by NovaForge is based on industry standard tools, enabling developers to concentrate their energies on coding business rules and managing complexity more effectively.

NovaForge
platform





The repository

The establishment of a shared repository responds to the need to optimize development projects by capitalizing on best practice, tools and procedures that have already been tested within the organization and are re-usable. From this, a knowledge base is constituted and added to through the lifecycle of the projects involved, by a 'knowledge re-use' committee whose role is to define and validate the repository content.

Building applications by capitalizing on best practice

A methodological approach and processes brought to life by a documentation database.

NovaForge is made up of many different functional elements, designed to help build a usable repository. These include:

- A library of technical and graphical components
- Collection of best practice examples
- Sequence checklist for various phases
- Blueprints for project artefacts
- Methodological guides for all phases of development
- Process guides, in line with the methodologies and standards used within the organization (CMMI)
- Organization and deployment of development teams.

The repository is accessible to everyone involved in the project via the collaborative portal.



Collaborative space

Via its collaboration portal, NovaForge offers a shared view of the project to the whole community, a combined summary view of resources, and shared tools and processes. This gives everyone the same vision of the project, and enables real-time monitoring of all stages of the development life-cycle. These collaborative functions are a real advantage when it comes to optimizing project management, especially in distributed working environments; by sharing, publishing and making everything produced by the project accessible.

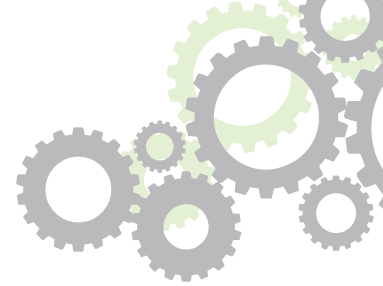
Sharing project information in a secure and structured way

A collaborative infrastructure.

NovaForge structures the way information is shared, and holds all the information and documentation related to the project in a collective 'memory', as well as enabling dynamic publication of documents and technical pre-requisites.

The key collaborative functions are:

- Communication, using tools for collaborative working such as forums, wikis, contact lists and content publishing
- Personalization of the NovaForge desktop environment (tasks, diary, alarm calls...)
- Orchestration of user rights and management of the customization of data and access to different databases (sources, documentation, deliverables, events and traceability of anomalies)
- Tracking of requests and project events
- Extended configuration management.



Development

Managing the software development life-cycle has to take into account a whole range of functional, technical, regulatory and financial demands. Against this backdrop, a well structured, fluid and shared development environment is a real asset.

Take advantage of a flexible software development environment that grows with your needs

Automating the key phases of software development.

The development workspace within the NovaForge platform is based around the Eclipse component, as well as standard methodologies and tools. It covers all stages of a project:

- Needs' analysis and requirements gathering
- Application modeling: using the UML model and featuring industry standard tools such as MEga and Enterprise Architect, as well as methodologies such as Unified Process (RUP and 2TUP) which enable iterative and incremental process development
- Specifications: with storage, sharing and version control of source files as a core part of the documentation database
- Code generation: using a Model Driven Architecture (MDA) approach, which incorporates all the best development practices from the Java/J2EE environment.

A platform that grows with your needs.

The development workstation is based on:

- IDE Eclipse: the comprehensive Open Source development environment
- Additional 'plug-in' Open Source functionality
- A UML modeling workshop.

Simplification and standardization: driving productivity improvements.

The development environment structures development tasks in the most efficient and cost-effective way by:

- Acting as a homogeneous technical repository for all the organization's applications, enabling existing models to be successfully re-used
- Bringing together and standardizing best practice and tools
- Enabling development work to be more easily guided
- Bringing the whole development life-cycle together on a single platform: from the definition of functional specifications, to day-to-day testing
- Generating code that conforms to industry standards such as Struts, JSF, JB..., guaranteeing uniform, measureable quality, and making it easier for the customer to re-incorporate it into their system.

Automated and standardized code generation

IDE-Eclipse component

Source management: CVS, subversion

Code generation

Construction: ANT, Maven

Enterprise Architect

Quality measurement: Check Style, Pmd, Xradar

Workflow generation: Bonita, Orchestra

Unitary testing: Junit, DBunit

Mega

UML design workspace

The NovaForge development workstation is Bull's Java/J2EE development environment. Based on standards including MDA and leading Open Source tools such as Eclipse, it enables code to be generated for high-performance application architectures and features development best practice.



Integration and testing

Software testing is the critical stage in application acceptance and has to cover all requirements. The tools available in NovaForge are designed to formalize tests, organize them into campaigns, and execute them with total traceability in relation to project requirements and anomalies.

A professional and automated integration, testing and implementation process delivers assured quality

Professional, automated development.

Using the continuous systems integration chain has become the standard way to manage the process of constructing an application in its entirety. This approach is at the heart of a move to really professionalize and automate software development. NovaForge provides a complete structure for this, including:

- 'Nightly build': systematic reconstruction and automated everyday testing
- Unit tests
- Rate-of-coverage tests
- Software quality measurement tests
- Performance tests
- Rate-of-comment tests
- Integration testing (using scenarios from UML UseCases)
- Implementation on the customer's target server (JOnAS, JBoss, Weblogic, Websphere...).

High-level tools, based on Open Source components.

- Test management
- Construction process management: Maven 2
- Automation: Hudson
- Unit tests: JUnit
- Software quality measurement: NovaForge provides an integrated quality measurement platform, which stores and automates the testing process. It is based on CheckStyle and PMD.



Project management

NovaForge is both an operational project management tool, providing information from the continuous integration process, and a powerful tool for controlling project quality, resources and costs.

Manage the progress of your projects in real time

Operational monitoring.

NovaForge enables you to track every aspect of a project: from risk management to overall progress tasks (such as identifying what remains to be done and how far requirements have been met).

Overall project control.

NovaForge provides a shared view of project status, tailored to each level of responsibility within the project, and enabling indicators to be collected for each party or organization involved, including:

- For management: financial dashboard, consolidated (multi-project) view of resources and costs, aggregated data on unitary information and quality indicators, activity statistics...
- For those involved in projects: daily dashboards, request monitoring and project events.

NovaForge at your service

A software development platform at the heart of the VirtualShore™ approach

NovaForge is the shared tool used by all Bull services centers worldwide

Bull has developed an innovative approach – VirtualShore™ – which is based on the principle of bringing together the best available resources, in the most cost-effective way, in a shared and structured environment to optimize the development process and so meet all the projects' requirements in terms of costs, timescales, quality and security.

The NovaForge platform is at the heart of this offering. It is the shared tool for all Bull's services centers across the world and is used by Bull in all its software development, application maintenance and professional application testing projects in environments including Java J2EE and PHP. Bull works closely with its customers to tackle all their software development requirements, supported by a full range of services, including:

- Consulting
- Change management
- Support
- Training

Flexible services.

Bull can adapt NovaForge to the specific needs of customers who want to integrate it into their own organizations, enabling them to develop their own projects.

For other organizations, who want to use NovaForge without having to actually run it on-site, Bull also offers the same platform in ASP (Application Service Provider) mode, in a highly secure environment featuring:

- 24x7 service continuity
- Guaranteed bandwidth
- Guaranteed availability
- Back-up management
- Support.

Bull Training

Bull is a leading Open Source training center in Europe. The experience of its teams in technological change means it can offer a huge range of solutions, tailored to every need (training plans, development programs, change management...).

