



Genomics-focused research institute simplifies informatics with open source Business Intelligence

The J. Craig Venter Institute (JCVI), a not-for-profit research institute located in both Rockville, MD and San Diego, CA, is dedicated to the advancement of the science of genomics, the understanding of its implications for society, and communication of those results to the scientific community, the public, and policymakers.

Founded by J. Craig Venter, Ph.D., the institute is home to approximately 350 scientists and staff with expertise in human and evolutionary biology, genetics, bioinformatics, genomic and environmental policy research and other disciplines, along with related public education.

One essential discipline at the Institute is informatics—software, mathematical tools and database technology designed for the analysis of gene sequences and other large data sets. As the science progresses, in fact, the need for computational and analytic resources continues to grow exponentially. While helping uncover more than six million new genes in the world's oceans—and creating internationally renowned databases and tools to study the genomes of hundreds of pathogens, plants, and mammalian genomes—the Informatics team at JCVI has won an array of awards for their innovative use of Java platform technology in a genomics environment.

Addressing critical data extraction and reporting requirements.

Reporting, analysis and conditional decision-making are essential to the Institute's four central informatics "pipeline" processes. *"Each of these pipelines demands large amounts of reporting,"* explains Indresh Singh, Senior Bioinformatics Engineer at the Institute. *"The reports required are somewhat specialized, and end users must be able to request them—specifying the data domains they need—on a self-service basis."*

Early in the development of the Institute's informatics solutions, the informatics team decided to acquire (rather than construct) these reporting capabilities. They sought a reporting solution that could be easily integrated with the team's Java-centric application stack—or at least that would run within a browser rather than on any kind of proprietary platform. To keep costs low and ensure maximum flexibility, the team also preferred an open source solution.

Other requirements included solid charting capabilities—essential for some of the reports needed—and an easy-to-use report definition tool that wouldn't involve a lot of coding. This last requirement was particularly important, as the team knew reporting needs would evolve over time and they wanted report adjustments to be easy to make.

The team evaluated a handful of Business Intelligence solutions—Oracle Reports and others—before selecting JasperDecisions, an earlier version of what is now known as the JasperReports Library (the reporting engine) and the Jaspersoft iReport Designer.

The Jaspersoft technology best met all the Institute's criteria—and its open source, low-cost licensing model was an advantage as well. *"We also liked that we could easily integrate the Jaspersoft technology,"* says Singh. *"Our users can run reports from within our platform—everything is seamless."*

Project details/highlights

JCVI's technology stack includes the JBoss application server, Oracle and MySQL databases, and Apache Tomcat web server; all of its applications run within standard browsers. Jaspersoft's open, web services-based APIs made both report initiation and output delivery easy to embed within the application.

End users typically can access a web portal, choose a report, and then specify relevant parameters. "A user might need enter a sample identifier, a plate barcode, a project number, and other specifics," says Singh. "In many cases they'll also choose a type of output—PDF, or perhaps a CSV-format so they can further analyze the output in Excel."

In some cases, the Jaspersoft reporting engine is used essentially as a decision point, controlling and informing subsequent processing. In this scenario, a CSV-formatted report is generated, and the next step in the pipeline process queries the CSV data, conditionally initiating additional processing. *"The query and export facility is there within the Jaspersoft technology, so it makes more sense to use it than to write and maintain custom code,"* says Singh.

When JasperDecisions was replaced by the Jaspersoft Business Intelligence Suite, the team needed to make a number of changes to the setup, and even created a few workarounds while the new technology matured. New capabilities coming online enabled the team to decommission those workarounds. For example, JasperReports Server now includes "cascading parameter" capabilities that use previously specified values to appropriately narrow the choices, presented in pull-down menus, for subsequent parameter selection.

Singh explains: "Each Study belongs to a specific project—so, once a user specifies Project ID, only the relevant studies are presented in the drop-down menu for Study."

Across the four research pipelines, more than 500 researchers and administrative staff use the reporting and export facilities, drawing on hundreds of reports that have been designed using iReport. Usage fluctuates daily; at any given time, hundreds of projects can be in the mix, each requiring one or more reports.

Benefits of the Jaspersoft-powered reporting and data export

As the science progresses and the Institute takes on more projects, reporting and data analysis requirements continually evolve. *"This is one of the benefits Jaspersoft gives us,"* says Singh. *"We're able to make changes to reports, using the iReport Designer, very quickly and efficiently. And we're able to define new reports just as quickly."*

Singh also points to the timesavings enabled by the CSV-formatted data exports. "If we had to implement this kind of query and formatting ourselves, it would consume a lot of our resources."

Looking forward, Singh sees possible expansion in the use of Jaspersoft solutions. "Many of our users perform some limited analyses using Excel, after using JasperReports to export the data. As their needs grow, we may want to use JasperAnalysis to streamline and simplify those tasks."

About Jaspersoft

Jaspersoft provides the most flexible, cost effective and widely deployed Business Intelligence suite in the world, enabling better decision making through highly interactive, web-based reports, dashboards and analysis. Leveraging a commercial open source business model, Jaspersoft provides end-to-end BI capabilities at a fraction of the cost of other vendors. The BI suite includes pixel-perfect enterprise reporting, ad hoc query, dashboards, OLAP and in-memory analysis, and data integration. Jaspersoft is the only BI vendor that enables companies to adapt to the new, virtualized world by providing a complete spectrum of on-premise, multi-tenant SaaS and cloud-based deployment options for both embedded and standalone business intelligence. Unlike traditional BI vendors, Jaspersoft is built on a modern, lightweight, standards-based architecture and offers greater vendor independence thanks to its open source codebase. Unlike niche BI vendors, Jaspersoft represents a safe choice with tens of thousands of production deployments across a wide range of industries.

Jaspersoft's open source business intelligence software has more than 13 million product downloads worldwide, 160,000 production deployments and over 14,000 commercial customers in 100 countries. Its BI suite is advanced regularly by a development community of more than 200,000 registered members.

For more information visit: <http://www.jaspersoft.com> and <http://www.jasperforge.org>.

CONTACT US

Jaspersoft EMEA (Europe, Middle East and Africa)

Digital Court,
Rainsford Street,
The Digital Hub,
Dublin 8, Ireland
Phone: + 353 1 443 4700
Germany + 49 30 8939 1934
UK + 44 207 193 9321
France + 33 970 446 126
Italy + 33 970 446 126
Spain + 33 970 446 126
Poland + 48 22 219 6087
Switzerland + 41 44 586 76 99
Sweden + 46 85 19 71 245
Email: sales-emea@jaspersoft.com

Jaspersoft Headquarters

539 Bryant Street, Suite 100
San Francisco, CA 94107
1-888-399-2199
Phone: 415.348.2380
Fax: 415.281.1987
Email: sales@jaspersoft.com

www.jaspersoft.com