

Viridity Energy Speeds Reactive Application Development with the CloudBees Platform



CHALLENGE

Speed the development and deployment of Java-based reactive applications for energy management.

SOLUTION

Use the CloudBees Platform to reduce build and deployment times, lower costs, minimize infrastructure maintenance overhead, and cut overall delivery time.

RESULTS

- >> Costs cut by 66%
- >> Deployment windows reduced by more than 85%
- >> Months of development time saved

SERVICES

- >> DEV@cloud™
- >> RUN@cloud™
- >> Papertrail

Many factories, data centers, universities and other large electric consumers are looking for ways to better manage their energy assets. Viridity Energy helps these organizations make the most of their investment in renewable energy and storage technologies, as well as controllable loads, electric vehicles and a wide range of other assets. The company's VPower™ software platform enables Viridity Energy customers to optimally manage a dynamic link with the electric grid and transform their energy profiles into financial returns.

Viridity Energy designed and built VPower as a reactive application, making it scalable, resilient, responsive and driven by asynchronous events. The development team used the CloudBees® Platform as a Service (PaaS) solution to accelerate reactive application development and streamline the deployment of VPower.

"VPower handles an enormous amount of data and it must be scalable, which makes it a natural fit for cloud computing. Dynamic scaling—paying just for the infrastructure you're using—sounds great but it's not easy to build," says Duncan DeVore, VP of software engineering at Viridity Energy. "With CloudBees we have a configurable PaaS architecture that supports development of reactive applications and scales automatically so we can focus on software development."

Challenge: Support Cloud-Based Reactive Application Development, Simplify Deployment

Initial versions of VPower were hosted at a datacenter, but this arrangement made deployments difficult. "We had outsourced our environment and system administration duties, but there were too many hoops that we had to jump through for a deployment," Craig Stewart, enterprise architect at Viridity Energy, recalls. "We had to put in a service request to our datacenter operator before we could do anything. Next, we used rudimentary shell tools to manually copy our JAR files to the Tomcat cluster. Then we would bring everything back up and start checking the logs for issues. The process took hours to complete."

In addition to streamlining the deployment process, Viridity Energy also wanted to establish an integrated build and runtime environment for JVM-based applications, with support for continuous integration, the Scala programming language, the Akka toolset and other critical elements of reactive application development. By concentrating on software development, rather than infrastructure setup and maintenance, Viridity Energy sought to accelerate the delivery of new features and updates to VPower for its clients.

A Solution for Accelerating the Delivery of Scalable, Resilient, Event-Driven Applications

After a thorough evaluation of PaaS alternatives, Viridity Energy selected the CloudBees Platform for the development and deployment of its flagship VPower software.

To get started with the CloudBees Platform, the Viridity Energy development team created a simple reactive application that made use of the full technology stack they planned to use for

“The CloudBees Platform has enabled us to deliver better solutions to our clients faster, because we’re not spending time worrying about infrastructure. We are a software company; that is what we concentrate on. With CloudBees we can dedicate every last ounce of developer time into feature enhancements for our clients.”

>> Craig Stewart, Viridity Energy

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production development—including a GitHub repository and a MongoDB database, as well as Jenkins for continuous integration and Akka for developing multi-module, event-driven applications with Scala.

After a successful start, the Viridity team started development in earnest. Stewart and Gary Keorkunian, software architect, worked with CloudBees® engineers to configure instances that would enable multiple VPower™ modules to interact with one another asynchronously via non-standard ports.

Today, Viridity Energy developers build on DEV@cloud™ using Jenkins continuous integration, and they deploy to RUN@cloud™ for three environments: integration, quality assurance and production. The team uses a log management hosted service from Papertrail, a CloudBees Ecosystem Partner, to increase the efficiency of debugging and testing activities in the QA environment.

“Our developers always have the CloudBees console open, and they use it daily in the QA and production environments,” says Stewart. “Instead of waiting for the datacenter to provision an instance, for example, our team is hands-on, handling it themselves. That provides real value.”

With DEV@cloud, the team also now has the flexibility to work from remote locations when needed. “In the past, we could not develop on the road without being on our VPN. Now all we need is an Internet connection,” notes Keorkunian.

“Our reactive applications are fully event-driven,” explains Stewart. “As such, they are composed of many independent processes that must be able to connect with one another directly. CloudBees offered the flexibility in deployment configurations that we needed by providing us with dedicated instances that had dedicated blocks of ports. This enables our applications to bind to well-known interfaces.”

Viridity Energy is currently working with CloudBees as they build a second-generation network for the VPower platform that will include public and private subnets based on Amazon Virtual Private Cloud. A VPN tunnel will be used for the secure transfer of client data to the company’s dedicated SCADA hardware.

Results

>> **Costs cut by 66%.** “In CloudBees, we have an infrastructure that is configurable, scalable and ultimately saves us money,” says DeVore. “Just moving to CloudBees from our datacenter cut our cost by two-thirds. We are now paying for just what we use, rather than prepurchasing infrastructure and paying for it whether we use it or not.”

>> **Deployment windows reduced by more than 85%.** “CloudBees has reduced our deployment windows significantly,” says Stewart. “In the past there were times when we would start around 6:00 PM and not be finished until 2:00 AM. Today, we can deploy a release in less than an hour. The hot-fixes we perform now simply would not have been practical with our old approach.”

>> **Months of development time saved.** “With DEV@cloud a build that used to take two minutes now takes only five seconds,” says DeVore. “The combination of faster builds, faster deployment and less time spent setting up and maintaining infrastructure helped us shave one to two months off our six-month schedule.”