Fast, Secure Software Delivery Helps Ellie Mae Stay on Top of Mortgage Processing Industry

Industry:
Financial Services

Geography:
North America

Summary:
Ellie Mae improves efficiency of software development operations by 20% and strengthens security with CI/CD practices powered by CloudBees Core

Challenge:
Reduce downtime, improve security and accelerate time to market with CloudBees Core

Solution:
Adopted CloudBees Core to support implementation of CI and CD process automation and manage pipelines as code

Results:
» Increased developer efficiency by 20%
» Gained valuable insights in pipeline activities
» Improved access control and security
» Higher availability, better insights, more agility
» Improved ability to recruit developers

Product:
» CloudBees Core

If you've ever taken out a loan to purchase or refinance a home, there's a good chance your bank or mortgage lender used online services from Ellie Mae to process your application. In fact, the Pleasanton, California-based company processes more than 30+ percent of all mortgages in the U.S. It's estimated that 165,000 mortgage professionals at banks, credit unions, mortgage lenders and mortgage brokers, use Ellie Mae's Encompass mortgage management platform to originate and fund mortgages.

It's no secret that the mortgage industry is changing rapidly as Ellie Mae's customers put greater emphasis on operational efficiencies that enable multi-channel mortgage approaches, comply with changes in regulations (including the Home Mortgage Disclosure Act and Regulation C (HMDA) and the Uniform Closing Dataset), meet increased quality standards and shore up data security and privacy.

"Ultimately we want no human intervention in the whole build-to-deploy process. We want to be 100 percent CI/CD and zero-downtime deployments for all our product lines. CloudBees Core will help us reach that goal."

Satheesh Ravala
Senior Vice President
Cloud Engineering and Operations
Ellie Mae

Ellie Mae's success – including a 180 percent increase in revenue from 2013 to 2016 and being named by Deloitte as one of the 500 fastest growing technology companies – is due in large part to increased adoption of Encompass. But for Ellie Mae's customers it all comes down to one objective: originating and funding more loans even faster with lower origination costs.

+20%
Developer Efficiency
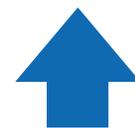
Access Control and Security

To keep more than 20 mortgage-processing products and services at the top of the market, Ellie Mae staffs about 50 teams of about 500 total software engineers around the world. It's a serious business: Just consider the consequences to the economy if many of the nation's mortgage loans couldn't be processed for any length of time.

"Getting a more fully-supported Jenkins platform that's reliable, scalable and secure has been a big win for Ellie Mae. Equally important has been the support we receive from CloudBees. I have complete peace of mind knowing that we have dedicated, on-demand experts ready to help us anytime we're having problems."

Satheesh Ravala
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With so many people relying on Ellie Mae's software as a service (SaaS) platform – and with competitors nipping at its heels – the company is constantly racing to upgrade its platform with innovative applications, tools and features to attract new and keep existing customers. That's why the company's software developers stay keenly focused on streamlining and automating every phase of its build-to-production process.

"It's so critical for us to keep our technology tied to high-ability standards and that's where CloudBees is adding considerable value for us," says Satheesh Ravala, senior vice president, cloud engineering and operations at Ellie Mae, Inc.

Challenge
Reduce Downtime and Accelerate Software Releases

In recent years, as Ellie Mae's customers began expanding operations outside of the U.S., avoiding downtime during software development cycles became even more critical. Customers today are processing mortgages and doing analytical work around the clock, removing the option of overnight or weekend downtime. Ellie Mae updates its SaaS-based, loan origination product line every quarter and releases service packs on a monthly basis. The frequent release cadence, "requires our CI/CD pipeline to be much more efficient and highly available," says Ravala.

"Our goal is to move toward zero downtime software deployments across our product lines. If our platform goes down, the impact can be significant across our customer base." Ultimately, Ravala's team aims to adopt a continuous integration (CI) and continuous delivery (CD) software deployment approach requiring virtually no human intervention across all of Ellie Mae's product lines.

According to Ravala, today, about 50 percent of Ellie Mae's products are zero-downtime deployment-enabled, which means customers do not experience any downtime during the deployment process. "By the end of this year, we want to be 100 percent CI/CD, and zero-downtime deployments for all our product lines," says Ravala.

Another reason for Ellie Mae's decision to implement efficient CI/CD practices: The company has been steadily moving development operations to the public cloud – in particular Amazon Web Services, an environment which is geared toward automated CI/CD processes using Jenkins. "We have embraced a hands-off approach to production in AWS," says Ravala. "And that's being driven heavily by Jenkins. We're moving toward everything as code."

Because it limits the need for manual production tasks, moving to an automated, centrally managed CI/CD environment also lets Ellie Mae improve security. "We didn't want engineers to be on maintenance for four or five hours every Saturday night doing code deployment by hand," Ravala says. "We had to hire more people to do manual deployment, but now we are able to do more with the team we have."

Although Ellie Mae initially used Jenkins, developers frequently ran into limitations around security and scalability. "You don't really get an open source solution without a lot of manual lifting," says Justin Brodley, director, public cloud infrastructure at Ellie Mae.

Ellie Mae turned to CloudBees to create a faster, streamlined and bullet-proof approach to CI/CD – one that would enable its business objectives, deliver for customers and keep engineers focused on innovation instead of on tools.

Solution
Use CloudBees Core to Drive High-Efficiency CI/CD Practices

The development group started with Jenkins, focusing on automating its build and secure software development life cycle (SSDLC) processes. Then it added other automated

quality-assurance tools. When engineers deploy the code to production, Ellie Mae uses tools like AWS CloudFormation and Terraform to streamline infrastructure provisioning in the cloud. It's also adding configuration management software to more easily retrofit existing deployment models and better leverage modern continuous delivery processes.

Centrally managed continuous delivery processes help speed software deployment and enable teams to easily revert to earlier versions as needed. Security is strengthened because engineers no longer need to get involved in deploying code to production servers. "We want to decouple the development and release process, and that is now possible with continuous delivery systems," Ravala says.

Ellie Mae is now adopting CloudBees Core features that allow for faster onboarding of teams and empower engineers to focus on delivering value, not maintaining Jenkins and the overall environment.

"Many of the CloudBees Core plugins that we use aren't available in the open source version of Jenkins today," Brodley notes. These include Role-Based Access Control, a capability that improves Ellie Mae's ability to specify who can (and can't) perform certain activities across various development and production environments – a boon for security.

Development teams are also using Jenkins Pipeline to orchestrate complex and non-sequential enterprise pipelines, saving a significant amount of time when infrastructure failures cut a job short. Meanwhile, with CloudBees Jenkins Operations Center, teams get a detailed view of what's happening inside the pipeline. Ellie Mae is also looking at deploying the CloudBees Checkpoints plugin to better manage long-running jobs that can take days to complete.

Validated plugins through the CloudBees Beekeeper program are also critical to the high availability of the Ellie Mae platform. "If they're not validated, we can't be confident in their stability," says Brodley. "We want validated, supported plugins that we are confident using in our mission-critical platform. That's what we have with CloudBees."

According to Brodley, reducing downtime takes vigilance. "To reduce downtime, you need to be hyper-focused on the different steps and components in the process, and then understand how they're impacting the systems," says Brodley. "We're using the analytics provided by CloudBees Core to help make changes to our build pipeline and optimize the process. That's a big driver for us."

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For developers at Ellie Mae, the move to CloudBees Core provides the peace of mind that comes from having access to world-class Jenkins experts on demand.

"We like open source products, but we need to have more control and support," Brodley explains. "That's where CloudBees is invaluable to us." For example, when developers last year were struggling with a memory-size issue, reliance on the Jenkins community alone resulted in conflicting recommendations. "CloudBees was able to pinpoint the issue, help us address it immediately and then engage with us to make sure we had it right moving forward," Brodley explains.

For Ellie Mae, CI/CD is helping them stay ahead of the competition, but the journey isn't over. Ravala says the next step for Ellie Mae is getting away from static to more on-demand environments. "Right now, the release and deployment steps are coupled. Ultimately, we want a hands-free code push all the way to production with the ability to 'turn on' visibility to the customer once we are ready to release those features."

Results

20% Greater Efficiency.
"We've seen a 20 percent improvement in overall efficiency on both the development and operations side by adopting Jenkins Pipeline. There's no more waiting for multistep build processes to finish. We are able to do more with the team we have and do it faster," says Ravala.

Faster Time to Market.
"Our teams have definitely delivered faster using CloudBees Core than our teams that were on the .Net platforms using MSBuild," says Ravala. "We can now develop and release new products to the market significantly faster, and that allows us to stay ahead of the competition. It's been a big win for us."

Improved Security.

"With Role-Based Access Control, we can specify the level of access developers have to different components and activities in the build environment, improving security," says Brodley. "In addition, with hands-off automation, our engineers no longer need access to production servers and don't do code deployment by hand anymore. It's all done through the CI/CD platform. This improves security, reduces error rates and speeds up deployments."

Higher Availability.

"With CloudBees Core, Jenkins is never down or not working properly," says Brodley. "That's really one of the big advantages we have right now with the new platform. CloudBees Core is designed from the ground up to be operationally resilient and that means our environment is, too."

Better Insights.

"With CloudBees Core, we're getting better insights into what's happening in our delivery pipelines," says Ravala. "We will continue to increase the number of teams that have full commit-to-deploy pipelines."

More Agility.

"If we didn't adopt CloudBees Core, I don't think we would have been able to adopt microservices and deploy a more agile engineering and operational model," says Ravala. "The Jenkins community alone could not have provided us with the right path forward."

Easier Recruitment.

"One of the advantages of going with Jenkins over other tools is that you can find developers anywhere who have that skill set," says Brodley. "Typically, when we bring a new developer in, they'll ask 'What's your build platform?' When we say 'Jenkins,' they almost always say, 'Yeah, I know that.' So that's one of the big advantages of using Jenkins for us. It really has a long pedigree in the developer community."

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Justin Brodley
Director, Public Cloud Infrastructure
Ellie Mae

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