

# Continuous Delivery of New Software Applications Reduces Deployment Time

Grid Dynamics helps Raymond James Financial process ten times more improvements than before

Raymond James Financial (NYSE-RJF) is a leading diversified financial services company providing private client group, capital markets, asset management, banking and other services to individuals, corporations and municipalities. Its three principal wholly owned broker-dealers, Raymond James & Associates, Raymond James Financial Services, and Raymond James Ltd., have approximately 6,200 financial advisors serving in excess of 2.5 million client accounts in more than 2,500 locations throughout the United States, Canada and overseas. Total client assets are approximately \$458 billion. Public since 1983, the firm has been listed on the New York Stock Exchange since 1986 under the symbol RJF. Additional information is available at [www.raymondjames.com](http://www.raymondjames.com).

Raymond James Financial's IT organization, with the assistance of Grid Dynamics, recently undertook the implementation of a Continuous Delivery (CD) process for application deployment. Since 2011, Grid Dynamics has worked with a Raymond James Financial IT development process engineering group to help automate the deployment of more than 40 applications. Automated deployments significantly reduce turnaround times for application deployment and provide a faster feedback loop on changes implemented. At present, there are approximately 100 automated deployments per week to all environments, including the development and test environments.

As a publicly traded international financial services holding company, Raymond James Financial's interactions with its many internal and external stakeholders include vital information flow, marketing initiatives, reporting to regulatory entities, customer service and recordkeeping. Many of the company's systems are impacted by new regulations, changing markets, marketing enhancements, and thousands of other variables. These changes often require that software modifications be coded, tested, and redeployed. Considering the rapid and constant influx of new requirements, and the complexity of its financial software systems, the bar is set high for the Raymond James Financial IT staff.

According to Raymond James Financial CTO David Allen, "Like many large financial companies, our process for software changes and updates was often bureaucratic and personnel-intensive. Developers spent a lot of time chaperoning changes rather than writing new code. Over time, this deflection of highly trained and talented resources from more valuable activities created a significant productivity problem."



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## slow and cumbersome deployments

Prior to using automated deployments, deploying a new piece of code to the test environment could take up to a week and could involve up to seven different teams and multiple hand-offs. According to Brent Orchard, senior manager of development process engineering, “Before the continuous delivery process, our systems administrators and developers were required to manually manage each deployment request. This required multiple manual workflows each with associated paperwork and potential failure points. Due to the time needed to support those processes and run the systems, our staff could not afford to take the time needed to set up an automated system that would solve those problems.”

## Raymond James Financial chooses Grid Dynamics to implement continuous delivery

To provide its internal and external customers with more responsive, intuitive, productive and fully functional real-time online experiences, Raymond James Financial made the decision to invest in improving the software development lifecycle process of its in-house developed applications. The company invited Grid Dynamics to help bring Continuous Delivery (CD) to Raymond James Financial.

“We chose to partner with Grid Dynamics because they’re a pioneer of continuous innovation,” Allen said. “They came to us very well recommended and had a track record of success with CD implementation in a set of e-commerce enterprises.”

The project unfolded in four phases, from October 2011 through September 2014, and was designed to impact multiple Raymond James Financial areas in sequence. The core CD team consisted of developers, software testers, systems administrators, release management experts, software configuration managers, project managers, and database administrators. Co-directed by the Grid Dynamics program director and Raymond James Financial management, the team included 12 Grid Dynamics professionals, some of whom were embedded onsite at Raymond James Financial in Florida, and 18 Raymond James Financial personnel.



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## complex legacy processes addressed

Grid Dynamics began working with Raymond James Financial in late 2011 to develop interaction process guidelines and a pilot project that would prove the automated deployment concept. Work in the first phase was specifically confined to three internally developed applications. Tasks included developing standardization around environment archetypes, database management processes, and application release units. The automated deployment of three applications to pilot environments demonstrated to Raymond James Financial that deployment automation was not only possible, but would simplify and improve the IT environment.

“This was a significant milestone,” David Allen said. “A huge issue at the beginning of the engagement was general disbelief. At an early meeting, the idea that software updates could be delivered with the push of a button was actually greeted with out-loud laughter.”

## continuous integration meets continuous delivery

The second phase of the engagement from March through September 2012 involved deployment automation of three additional applications. In addition, the team was tasked with establishing a continuous integration process utilizing a new Application Lifecycle Management tool, institutionalizing a database change management process, and developing a CD management dashboard.

Phase 2 proved that wider implementation of continuous delivery was indeed possible within the company by actually deploying changes to development and test environments. Phase 2 introduced automated deployment of and/or upgrades to databases, as well as launched the Genesis deployment orchestrator tool.

Raymond James Financial Developer, Ryan Throne, and Application Administrator, Karen Chappel, estimate that Genesis saves at least a day for each deployment because it reduces the paperwork and number of people involved, eliminates the need to manually copy files to servers or perform any other manual actions that are prone to mistakes.

“Just today I spent about 45 minutes wrestling with a deployment to DEV and QA outside CD,” Chappel said. “I had to copy and unzip files, decipher where they were supposed to go, and modify configurations. It was painful and time consuming. In contrast, the same request for a system on continuous delivery would have taken minutes. From a system administration perspective, performing CD installs is much more efficient for everyone involved.”

## moving towards an agile environment

Beginning in October 2012 and lasting a year, Phase 3 required the CD Team within Raymond James Financial to operate in the areas of environment provisioning, agile software management and test automation. Widely adopted by the software development industry since 2001, agile software management is based on iterative and incremental development, where requirements and solutions evolve through collaboration between self-organizing cross-functional teams.

According to Allen, "One huge benefit of this engagement was the change in our company's attitude regarding agile implementation. At first we were very reluctant to consider it. This process set the stage for moving the entire development team into an agile mode."

The CD team's tasks in the third phase included bringing more standards to environment provisioning and introducing the team to scrum as part of the agile implementation. A key accomplishment was the automatic deployment of 38 applications to development and testing environments. In addition, the team implemented the first automated upgrade of a database in production and automated regression testing for four applications.

## ongoing continuous delivery deployment

The fourth phase of the engagement is ongoing, featuring the deployment through CD of more in-house developed Raymond James Financial application and increasing the number of supported development and middleware technologies.

"Overall, the CD Team achieved a dramatic reduction in hand-offs and manual processing. We have demonstrated that continuous delivery works and that the concept is valid. Internal acceptance is growing daily," said Allen.

Development teams who onboard applications to CD typically become enthusiastic repeat customers, and even some previously skeptical developers have become CD proponents.

"We are seeing enormous improvements. For example, cycle time for software changes to be delivered to a testing environment is now six minutes instead of two days. Our staff is able to process ten times as many improvements to our infrastructure than before continuous delivery," said Allen. "The benefit to Raymond James

Financial of implementing continuous delivery is a significant increase in productivity in terms of the most high-value development activities. That means our most critical team members can focus on the work they love to do."

## about Grid Dynamics

Grid Dynamics is a leading provider of open, scalable, next-generation commerce technology solutions for Tier 1 retail. With in-depth expertise in commerce technologies, wide involvement in the open source community and a modern, global workforce, Grid Dynamics helps great companies gain a sustainable business advantage by implementing and managing solutions in the areas of omnichannel platforms, product search, and continuous delivery. To learn more about Grid Dynamics, find us at [www.griddynamics.com](http://www.griddynamics.com) or by following us on Twitter @GridDynamics.



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