

Automating Continuous Delivery to Solve the Industry's Top Software Delivery Challenges

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Continuous Delivery and Its Role in the Enterprise

Today more than 70% of companies are leveraging Continuous Delivery (CD) practices. Enterprises are delivering software to the business, software companies to version staging areas, and product companies to repositories for eventual incorporation into airplanes, automobiles, or consumer devices. And just as there are many definitions of and use cases for continuous delivery, it presents a different mix of challenges to virtually every company.

Business and customer demands are driving the need to deliver software faster. Releasing a new product or service ahead of competitors can make or break a company. Particularly if an application fills a customer need, works well, and is of high quality, it is often the case that first to market means “first in market share” going forward.

At the same time, almost every company experiences challenges related to continuous delivery. This ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) white paper explores those challenges and highlights the benefits of automating all or part of the end-to-end continuous delivery process.

Top Continuous Delivery Challenges

EMA's latest continuous delivery research¹ explored the links between business success and velocity of software delivery. That research found that a majority of today's companies have implemented continuous delivery practices at some level, and more than 60% have accelerated the speed of software delivery to some degree. However, most are still under pressure from business leaders to deliver even faster.

The reason is simple: business agility is directly dependent on software agility. Today's companies rely heavily on new applications and features as growth- and revenue-enablers. EMA's study found that companies practicing continuous delivery were nine times more likely to have YOY revenue growth of 10% or more last year than those that do not.

At the same time, continuous delivery does have its challenges. As Figure 1 shows, IT organizations are struggling with almost every aspect of software delivery, including testing, tools, and the risks associated with constant, ongoing production changes.

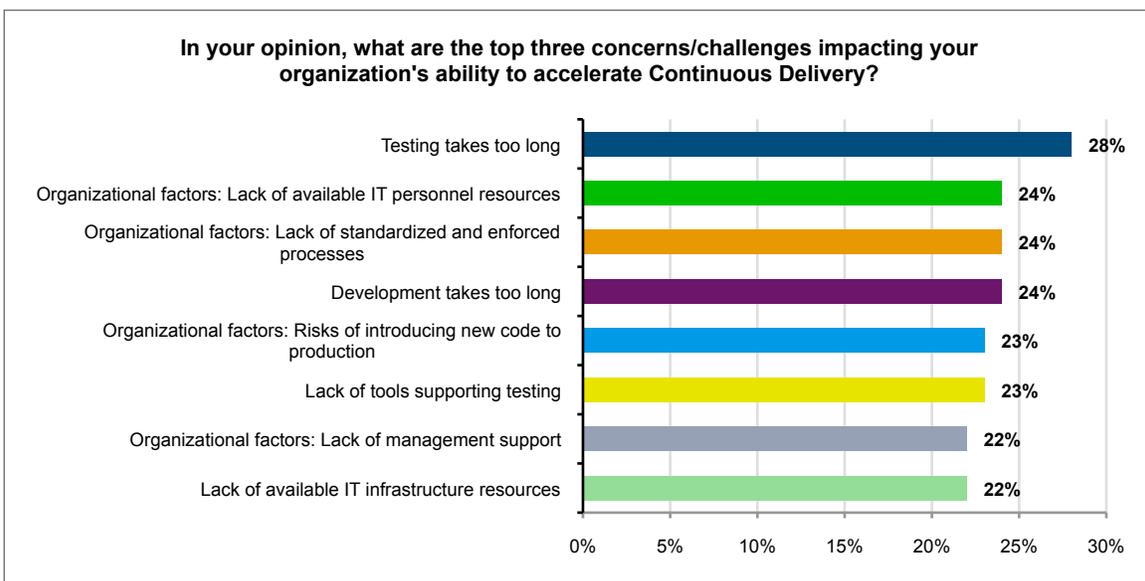


Figure 1

¹ [DevOps and Continuous Delivery: Ten Factors Shaping the Future of Application Delivery](#), EMA, 2014.

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Continuous Delivery

Automation of continuous delivery processes appears to be a key success factor in accelerating software delivery. Based on its years of experience with continuous delivery automation, CloudBees has helped customers solve each of the following challenges:

- *Testing takes too long*

Solution: Automation is the “engine” of continuous delivery, and automated testing is a key component. Accelerating CD requires automated testing to ensure that the same tests are run each time the application is updated. In addition to delivering consistency, automation makes it possible to run more tests in less time while reducing the risks typically associated with production changes.

- *Lack of available IT personnel resources*

Solution: Automation of repetitive tasks reduces strain on IT resources, allowing IT to focus its resources on business-enabling activities.

- *Lack of standardized and enforced processes*

Solution: The first step in setting up continuous delivery is establishing a standardized process spanning development, testing, staging, and deployment. An end-to-end process ensures that delivery of updates always occurs in exactly the same sequence, minimizing the risk of human error. In addition, processes are enforced in such a way that human error does not adversely impact the pipeline, ensuring that code keeps moving from one step to the next in an automated, continuous fashion.

- *Development takes too long*

Solution: A major benefit of automated continuous delivery is that it keeps developers focused on core development work instead of operational tasks. Each time a change is committed to the source code repository, the automated build processes “take control.” Builds, management of artifacts, and unit/integration testing are all automated via Jenkins, allowing developers to focus on writing great code versus tinkering with builds and testing environments. This increases developer efficiency, eliminates bottlenecks, and accelerates code delivery.

- *Risks of introducing new code to production*

Solution: Continuous delivery is not necessarily continuous deployment. The final stage of deployment to production can still require review and signoff by release management personnel. However, rigorous automated testing delivers quality and consistency, helping to instill confidence based on the fact that the same set of tests are executed each time code is updated. Since testing is built into the process, risk of adverse impact is minimized.

- *Lack of tools supporting testing*

Solution: When selecting CD automation products, interoperability should be a primary decision factor. The software lifecycle is drawn out and the steps comprising it are complicated. Each step requires specialized functionality, which may drive a need to plug supporting tools into the continuous delivery platform. For this reason, products should be assessed for their ability to integrate to ensure that the automation foundation can grow as needed as a company's continuous delivery requirements become more extensive and the process itself becomes more mature.

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- *Lack of management support*

Solution: Large-scale initiatives such as continuous delivery require top-down executive support. CD is a transformation that involves people, process, and technology; cross-functional initiatives of this nature require visionary guidance. CD has been documented to have a positive impact on revenue, the ability to outpace the competition, and business alignment. Executives being pressured to improve business–IT alignment often find that continuous delivery offers an on-ramp supporting higher levels of customer satisfaction among business stakeholders.

- *Lack of available IT infrastructure resources*

Solution: Infrastructure can be an obstacle to acquisition, which is a key reason why more companies are moving “to the cloud.” With companies such as CloudBees supporting continuous delivery via public cloud services, customers have access to secure, scalable infrastructure without extensive operational expenditures (OpEx). In addition, some vendors—including CloudBees—offer both hybrid cloud and on-premise options, allowing customers to take advantage of either type of solution based on the requirements of a given department or project.

CloudBees and Continuous Delivery

CloudBees (www.cloudbees.com) offers a Platform as a Service (PaaS) to build, run, and manage web applications. Best known for its Jenkins and Hudson roots², CloudBees has a long history of helping customers automate continuous delivery across the application lifecycle.

As part of the survey cited in Figure 1, EMA compared CloudBees customers³ to “all others” in terms of continuous delivery maturity. The survey found that CloudBees customers spend more time on value-add functions and less on non-core administration tasks than non-CloudBees customers. Specifically, CloudBees customers spend (versus the norm):

- 20% more time developing new applications.
- 15% more time modifying existing applications.
- 20% less time performing “day to day deployment” tasks.
- 15% less time performing “operational” tasks such as setting up testing environments.
- 20% less time on administration and database tasks for development-related purposes.

EMA Perspective

Continuous delivery is not simply a buzzword. It is a set of practices and disciplines that can deliver tangible business value. However, the success of continuous delivery initiatives relies as much on automation as it does on process engineering. Accelerating a process is very difficult (and making it reliable is nearly impossible) if it relies on manual testing, check-off lists, and handwritten scripts to complete. Most companies will find they need to make tools investments to significantly accelerate the process and ensure its integrity.

² Several Jenkins “core committers” are CloudBees employees.

³ EMA, *DevOps and Continuous Delivery: Ten Factors Shaping the Future of Application Delivery*. CloudBees customers who volunteered to take the survey (approx. 174 respondents) were compared to “all other” survey respondents (approx. 164 respondents).

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With this study—and the comparison between CloudBees and non-CloudBees customers—the results of continuous delivery initiatives are starting to become apparent. Continuous delivery can drive revenue growth, but only to the extent that it delivers on its anticipated value proposition. Automation helps make this possible by standardizing processes and off-loading repetitive tasks.

As a vendor of open source solutions, CloudBees delivers multiple form factors, some of which are free of charge. Companies already engaged in continuous delivery may need to accelerate their processes by incorporating production-grade tools. Those just starting out on the CD trail may not know where to start. Regardless, it's clear that CloudBees customers have derived significant value from the products, a factor that makes them well worth consideration for companies at any stage of continuous delivery maturity.

For more information or to try CloudBees free of charge, visit: www.cloudbees.com.

About Enterprise Management Associates, Inc.

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