



TECHNICAL WHITE PAPER

Optimizing Continuous Delivery

Addressing customer demands for increased Web Content Management agility through continuous applications delivery

“Never has the ability to quickly develop and deliver innovative software solutions mattered more. The old ways of developing and delivering software — adequate for a slower-paced age, are too slow.”

Kurt Bittner | Principal Analyst
Forrester Research, Inc.

THE NEED FOR SPEED BRINGS CHANGES TO DEVELOPMENT AND DELIVERY

While the established enterprise software development model of traditional 12–18 month major release cycles has served organizations well for more static IT environments, software vendors now need to dramatically rethink their applications development and delivery policies to reflect major global technology-led shifts.

Until recently, applications development innovation was focused on optimizing productivity within the software production team. Now, however, the drivers have shifted and the emphasis has moved to focus on ensuring that the business value inherent in new software releases is delivered to customers more quickly. This is reflected in the core agile development principle of “satisfying the customer through early and continuous delivery of valuable software.”¹

This principle becomes even more important given how factors such as the increased smartphone and tablet usage, near universal Internet access, the extension of social networks to billions of users, cloud software deployments and the growing impact of Big Data are all now combining to create a massively changed global IT landscape. Each of these factors on its own has the potential to disrupt markets. Together, what Gartner Research describes as a “Nexus of Forces,”² is leading to escalating consumer expectations and greater pressure on companies to create value for those customers. While these commercial imperatives are nothing new, what’s changed are the associated accelerated economic imperatives and compressed timescales.

For IT teams, however, the ability to provide higher value applications more quickly — services that enable real market differentiation — is essential. How their enterprise software partners, in turn, transition their application development activities in response to these demands will prove critical.

Forrester Research Principal Analyst Kurt Bittner summed up the challenge when he said: “Never has the ability to quickly develop and deliver innovative software solutions mattered more.” He went on to describe how “old ways of developing and delivering software — adequate for a slower-paced age, are too slow.”³ This issue of speed is central to the discussion, with Forrester stressing that the winners will be those companies that succeed in delivering compelling digital experiences first.



The Continuous Delivery approach has become a key differentiator for business success, particularly given the growing use of smart mobile devices and acceleration in social connectivity.

Addressing the requirement for increased responsiveness through Continuous Delivery

The move toward a more rapid, reliable and low-risk delivery process is central to addressing business demands for increased responsiveness, and consequently there has been an increased call for external software providers to deliver the innovations needed for their business customers to compete effectively. Authors Jez Humble and David Farley were early to recognize this shift when they published their ground breaking book on Continuous Delivery titled: *Reliable Software Releases through Build, Test and Deployment Automation* in 2010.⁴

Humble and Farley set out many of the principles and technical practices that would enable the rapid, incremental delivery of high quality, valuable new functionality to users. By presenting a methodology for reliable, low-risk delivery, they were able to map out a new Continuous Delivery approach that embraced the delivery process, the deployment pipeline and a more automated approach to managing all changes, from initial check-in through to release.

In the intervening period since its publication, Humble & Farley's "Continuous Delivery" has evolved to become an accepted playbook for development teams looking to adopt a Continuous Delivery approach in order to accelerate their delivery of valuable software to their customers. This has now become a key differentiator for business success, particularly given the growing use of smart mobile devices and acceleration in social connectivity that now gives consumers anytime access to information and accelerates their sharing of customer experiences.

This sustained cycle of innovation and acceleration is clearly making the marketing role more complex. To ensure differentiation, businesses need to respond to these trends by delivering customer engagement solutions that are fast, efficient and flexible. However, the operational and technical teams challenged with delivering this next level of content are under real pressure. What might have seemed like the right strategy 18 or 12 months ago may no longer be relevant.

The pace of change, particularly in the key areas of mobile, social, information and cloud, is unprecedented. For software developers tasked with designing ever more complex and effective digital customer experiences, the challenge is particularly acute, given that most development teams are still limited by available resources. Clearly enabling such an approach demands a new generation of customer engagement solutions that are fast, efficient and — most importantly — flexible.

Gartner Analyst Nathan Wilson encourages businesses to combine Continuous Delivery with additional processes such as Kanban tracking, continuous integration and continuous automated testing to ensure that each change is fully tested before being deployed.

Defining Continuous Delivery

For many, the key challenge facing IT departments is how to optimize their resources in order to help business users provide a positive customer experience. This is where a development strategy based on a Continuous Delivery approach can help.

The concept of Continuous Delivery is all about addressing business demands for faster access to application enhancements that can produce clear business value for customers. As it becomes possible for development teams to make more frequent small changes, rather than riskier large ones, businesses can benefit from dramatically faster and more focused feedback.

Continuous Delivery refers specifically to an automated process that accelerates the release of software and digital services into production. Instead of infrequent major software releases that could be up to 18 months apart, continuous delivery focuses on smaller and more self-contained updates that unlock immediate business benefits. Examples of target applications enabled by Continuous Delivery could include a business launching a new service, developers working to improve existing online properties, distributing bug fixes or introducing special offers quickly — all with a minimum of manual intervention.

Continuous Delivery aims to address the implications of increased customer expectations immediately, providing businesses and their users with access to new features as quickly and efficiently as possible. Rather than having to wait for a major new software release to access innovative functionality, businesses can work with enterprise software providers that have adopted a Continuous Delivery approach.

There's often some misunderstanding about how Continuous Delivery and Continuous Deployment work together. While Continuous Delivery is a software methodology that allows quality code to be produced rapidly with the goal of shipping new features, updates and patches to customers more regularly, Continuous Deployment takes things further. Each change that passes automation tests is deployed to production automatically. Embracing development, version control, continuous integration, testing, automated deployments and operational platform control, Continuous Deployment is a logical end goal for Continuous Delivery, but it's an approach that won't necessarily be suitable for all operations.

In a recent Research Note, Gartner Analyst Nathan Wilson encourages businesses to combine Continuous Delivery with additional processes such as Kanban tracking, continuous integration and continuous automated testing to ensure that each change is fully tested before being deployed.⁵

Gartner Analyst Sean Kenefick believes that using a Continuous Delivery method to deploy smaller bits of functionality more often, development teams can lessen the overall risk of their releases

Identifying Continuous Delivery benefits

Companies across all industries are clearly under increasing pressure to grow revenues, broaden their reach and improve customer loyalty, while simultaneously cutting costs and consolidating operations. However, building a truly innovative online solution from scratch is always going to be an expensive and time-consuming process. For many, the application of a Continuous Delivery approach — specifically the ability to roll out compelling new features more frequently — is an essential step towards keeping ahead of the competition.

Adopting a Continuous Delivery strategy can provide businesses with the control and agility they need to compete in the digital economy. Key benefits include:

- **Accelerated time to market** – with Continuous Delivery, changes can be made quickly, released rapidly and user feedback gathered within days. This kind of rapid loop helps improve delivery quality and reduces the time needed to create value for key business users, helping them to respond more quickly to market changes and adjust their strategies in response to market feedback
- **Reduced costs and greater focus** – An always-on development approach helps increase productivity and reduces time spent on less relevant functionality. This helps address the tendency towards scope creep that can overload major software releases, often overloading releases with functionality that isn't requested or needed by business users
- **Improved quality** – with a Continuous Delivery strategy, IT development teams benefit from more frequent production, testing and user feedback, unlike traditional release cycles where production code only gets fully tested towards the end of a project. Adopting a continuous delivery approach enables the introduction of a more automated approach
- **Risk reduction** – any major software release can introduce risk for businesses, particularly given a potentially large numbers of changes and an increased exposure to failure due to incomplete testing. With continuous improvement these risks are immediately reduced, with changes introduced and proofed more regularly, faster access to customer feedback, and a more reliable release process

By using a Continuous Delivery method to deploy smaller bits of functionality more often, Gartner Analyst Sean Kenefick believes that development teams can lessen the overall risk of their releases.⁶ Indeed his research suggests that Continuous Delivery development practices, platform configuration automation and orchestration should be key resources for the developer tool belt.

Forrester Research's Kurt Bittner sums up this drive toward Continuous Delivery in the introduction to his report on the topic: "even if full continuous deployment is not your goal, proceeding toward it will help you increase reliability, reduce risks and decrease costs."⁷

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Removing barriers to successful online engagement

Through the effective application of automation and related Continuous Delivery refinements, businesses can move quickly in order to win the battle for customers in today's increasingly digital economy. Unfortunately many businesses still find that they're being held back by their current content management system and its inability to support the changing demands of today's online, mobile and socially engaged customers.

For businesses to have access to all the capabilities they need to be successful in today's challenging digital environment, they need to be working with Web Content Management solutions that effectively remove barriers to online innovation. Multi-channel customer experiences, for example, require the delivery of targeted content that exactly matches the context of each customer. Similarly, businesses need to model their social capabilities to integrate deeply into the fabric of the user experience — assisting purchase decisions, delivering answers and helping customers progress towards purchase.

To underpin these successful customer experiences, businesses need access to a new generation of optimized editorial hubs for contextual multi-platform publishing — solutions that are engineered from the start for the post-PC world. Freed from the limitations of out-dated Web page-based systems, these information-driven solutions enable businesses to reuse content seamlessly, gain greater visibility over online interactions, and deliver engaging, context-driven online experiences for their customers — regardless of channel or touchpoint.

Businesses also need to be reassured that their WCM platform of choice is able to adapt to changing business requirements. In today's increasingly competitive online environment, companies need to be able to develop new Web capabilities quickly and with lower risk. Whether it's new content, increased social interaction or targeted microsites, companies have to innovate online continually. What's needed is an approach that offers the best of both worlds. All the required levels of resilience, security and control demanded by critical enterprise systems, along with the out-of-the-box functionality, frequent updates and customizability of the most agile Web applications.

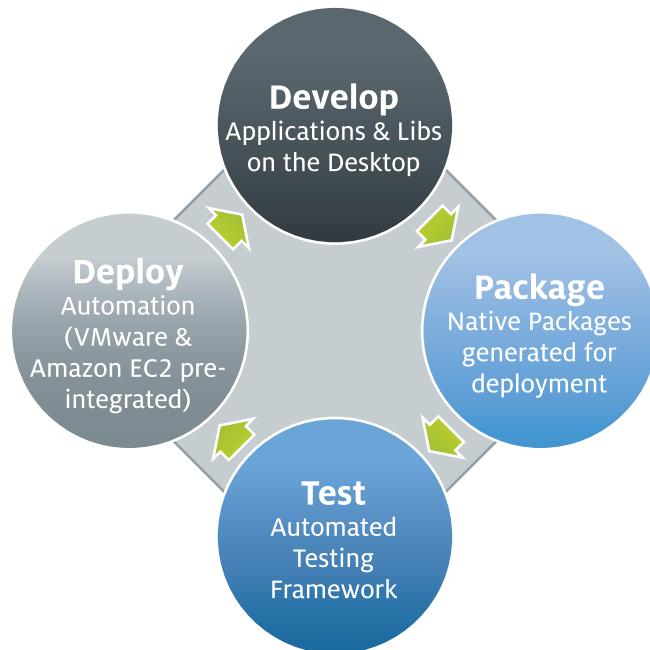
While undoubtedly enhancing the productivity of a business's online marketing team, the potential of the latest Web Content Management hubs can be severely limited if companies aren't in a position to support their online marketing teams with the technical support they need. It just doesn't work to have a critical new microsite or campaign lined up and ready to go only to find out that it is being held up along with other queued IT projects.

From the IT department's perspective, however, it's difficult to achieve the right balance between delivering the customization, functionality and responsiveness that business users such as Marketing teams demand, and ensuring the security, stability, consistent performance and fine-grained operational control that they expect of enterprise solutions. That's why many businesses are increasingly looking to jump-start this process by teaming with a technology vendor that already has the Continuous Delivery skills and proven ability to help address their online real time challenges.

Achieving Continuous Web Content Management Delivery with CoreMedia

All too often companies are faced with one of two scenarios when selecting the right Web Content Management technology: either an inflexible, out-of-the-box approach with limited APIs and only a few customization extension points, or a much more open development platform that requires significant development effort to produce a functional online solution.

With CoreMedia that's not the case. Thanks to an extensive commitment to Continuous Delivery, with processes spanning the full delivery cycle from development and production to code testing, release automation, automating infrastructure and managing code when it's in production, CoreMedia is ideally placed to meet the growing demand for Continuous Delivery solutions — particularly given accelerating factors such as the ubiquity of mobile, increased take of social channels, and the continued shift towards cloud services.



CoreMedia supports Continuous Delivery into the cloud with tools provided for development, testing and deployment.

Examples of CoreMedia's Continuous Delivery solutions

- **Blueprint** – Blueprint is CoreMedia's rapid development platform for advanced Web applications and ongoing innovation, featuring a set of advanced core modules, industry-specific site templates, style sheets and sample content that companies can deploy immediately. Blueprint addresses the growing requirement for continuous development, with our development team deploying an agile process and making new functionality and features available every six weeks. With Blueprint, IT developers working for CoreMedia customers can also adopt enhancements or extensions as and when needed.

Blueprint takes businesses beyond standalone templates and launch tools to serve as a live repository of continuous product innovations including code, UI enhancements, technical knowledge and best practice deployments. Two Blueprint categories are available: **Blueprint Core**, which contains a set of product-ready tools that are common to most online properties and can help developers get a new website up and running quickly; and **Blueprint Flex**, which offers a range of more advanced code modules and templates that are appropriate for advanced web projects or those demanding a higher level of customization. Developers can choose to merge all of each new release of Blueprint's code into their solution, or only incorporate the features that will add immediate value to their environment.

- **Chef** – Chef is a powerful automation platform that CoreMedia uses to automate the delivery of its applications and bring the latest Blueprint releases of its Web Content Management solution to customers around the world. Chef automates the configuration of cloud services, rapidly refreshing CoreMedia software running across virtual machines and deploying software in minutes or hours rather than weeks.

As a systems and cloud infrastructure automation framework, Chef makes it easy to deploy servers and applications to any physical, virtual, or cloud location, no matter the size of the infrastructure — and because Chef handles the Continuous Delivery tasks needed to automate configuration management and manage compute resources, CoreMedia's developers are free to focus on the innovations that deliver real value for our customers. Unlike traditional Java software distribution management approaches, such as OSGi, Chef uses Ruby as its configuration language and is designed from the ground up to integrate with other tools in the Continuous Delivery lifecycle.

- **FreeMarker templating** – FreeMarker is a powerful templating engine that supports CoreMedia's Continuous Delivery by enabling the use of more dynamic and better-structured templates than traditional JSP approaches. FreeMarker complements CoreMedia as it focuses only on presentation, enforcing a strict separation of application and presentation logic. This allows designers to change the appearance of a Web property on the go, providing marketers, for example, with the ability to launch custom design-driven microsites without having to wait for IT to recompile and redeploy site code.

FreeMarker adds significant value to CoreMedia's Continuous Delivery approach, as it is inherently dynamic, supporting anywhere/anytime loading without recompiling. This makes it ideal for internationalization or location-aware WCM solutions, and encourages businesses to keep on adding functionality to their digital propositions without adding increased pressure on already busy IT resources.

Conclusion

For many businesses, the ability to take advantage of new Web Content Management capabilities, without having to wait for the next major release of their WCM software solution, can play a key role in helping them remain competitive in today's digital economy. Accelerating the release of software and digital services into production through the adoption of a Continuous Delivery approach not only reduces the time to potential benefit for key business users, but can also ensure a clear focus on just those application innovations and enhancements that unlock real value.

Before pursuing Continuous Delivery initiatives, however, businesses need to be certain that their enterprise software providers have both the skills and track record necessary for the application of a Continuous Delivery model. With its comprehensive Continuous Delivery portfolio — and an approach that spans the full delivery cycle from initial development through to final production — CoreMedia is an ideal partner for the provision of a successful Web Content Management Continuous Delivery strategy.

1 Jez Humble, qcon Presentation, Sao Paulo, August 2013.

2 "The Nexus of Forces Works its way into the Enterprise." Gartner Research, Inc. Chris Howard, Daryl C. Plummer, September 2013.

3 "To the Victor Go the Spoils: How the Need for Speed is Reshaping the ALM Landscape." Forrester Research, Inc. July 2013 Report.

4 "Continuous Delivery." Jez Humble & David Farley, Addison-Wesley Signature Series, 2010.

5 "Achieving Continuous Delivery." Gartner Research, Inc. Research Note, January 2013.

6 "Exploit Continuous Delivery Patterns for Successful Release Management." Gartner Research, Inc. Sean Kenefick, September 2013.

7 "Continuous Delivery is Reshaping the Future of ALM." Forrester Research, Inc. July 2013 Report.

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