

Our highest priority is to satisfy the customer through early and continuous delivery of valuable software.

Reinforcing Agile Software Development in the Cloud

Welcome changing requirements, even late in development. Agile processes harness change for the customer's competitive advantage.

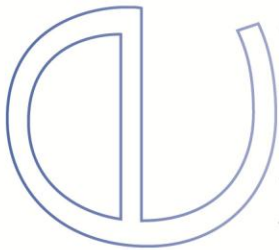
Deliver working software frequently, from a couple of weeks to a couple of months, with a preference for the shorter timescale.

Business people and developers must work together daily throughout the project.

Build projects around motivated individuals.

Why the Cloud Is Advantageous for Agile, and for Accelerating its Enterprise-wide Adoption

White Paper



Give them the environment and support they need, and trust them to get the job done.

The most efficient and effective method of conveying information to and within a development team is face-to-face conversation.

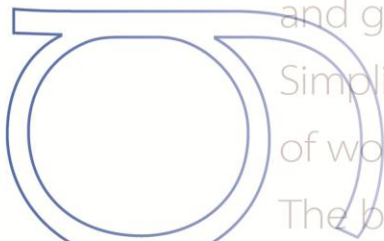
Working software is the primary measure of progress.

Agile processes promote sustainable development.

The sponsors, developers, and users should be able to maintain a constant pace indefinitely.

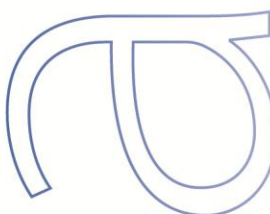


Continuous attention to technical excellence and good design enhances agility.



Simplicity—the art of maximizing the amount of work not done—is essential.

The best architectures, requirements, and designs emerge from self-organizing teams.



At regular intervals, the team reflects on how to become more effective, then tunes and adjusts its behavior accordingly.

Executive Summary

The popularity of Agile software development is growing as adoptees experience faster production, improved quality and, not least of all, a more flexible and collaborative process designed to accommodate change. In fact, Agile's effectiveness stems from collaboration—via multiple and faster feedback loops, transparent communications, and agreement that unanticipated issues will arise. So why not reinforce Agile's power by giving users access to it in an environment that fosters wide-spread use, and collaboration: The Cloud.

Leading thinkers in enterprise IT correctly view the cloud as less a technology phenomenon, and more as a business opportunity and accelerator of collaboration. That's particularly relevant for adoption of Agile practices. In addition to driving time and cost savings, the cloud addresses one of the biggest challenges Agile proponents face—how to apply it at scale, and successfully generate enterprise-wide use of Agile.

As we know, the key challenge with Agile transformation in the enterprise is a cultural issue – whether executive management, managers, and teams are ready to adopt the Agile philosophy. However, once an enterprise overcomes the cultural issue, there is the additional challenge of providing and managing development tools and infrastructure that support the Agile process, especially with development teams and other work groups geographically dispersed. An Agile enterprise with disparate development tools across locations is common; as a result, Agile adoption across the enterprise can stall. By leveraging a cloud development platform, an enterprise can start using development tools that support the Agile process right away, cost effectively, without having to provision and manage development infrastructure.

Housed in a well-designed, platform-based Application Lifecycle Management (ALM) cloud architecture, today's leading Agile development tools can be delivered seamlessly—and without infrastructure requirements—to all developers and production assistants enterprise-wide. With a multi-tenanted cloud architecture and automated infrastructure, organizations using Agile can:

- Scale on demand—for instance, immediately from 5 to 50 developers—to quickly support large projects
- Achieve up to 75% cost efficiencies
- Improve time-to-market between 25% and 75% by relieving resources of infrastructure management responsibilities
- Manage source control in five minutes, versus a full day on an installed server
- This paper details how the cloud can help organizations accelerate their adoption to Agile software development, and more quickly and cost-effectively realize Agile's numerous business benefits.

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A STRONG CASE FOR AGILE

What should an enterprise-ready, distributed Agile ALM tool in the cloud be comprised of—what functionality and features are essential for successful Agile software development?

The best way to answer that is to understand how Agile differs from traditional Waterfall development approaches, particularly in its three core principles and practices.

An Adaptive versus a Predictive Approach

Any advocate of Agile might wisely ask, “Why try to predict every detail of the future of our development when we can incrementally explore it, and make timely adaptations along the process?” Consider how much this perspective differs from a Waterfall approach.

In a typical Waterfall process, everything is fixed—scope, functionality, cost, time, and quality dimensions. Waterfall is also heavily reliant on accurately forecasting and anticipating all technical and business issues that will surface during the development process. The hope—a leap of faith—is that all will go exactly as planned. Of course, this is not possible.

As the business team drives through the requirements and design phase, they’ll invest a great deal of time in producing requirements documentation. This is the germ of what can easily become an adversarial, rather than collaborative, relationship between business and the technical team.

Having put time and effort into the requirements, the business team views the documentation as quasi-contractual: “We met our end of the deal, now you meet yours.” But this becomes problematic for a couple of reasons. First, more time will elapse before coding production begins since the technical or design teams will proceed cautiously, and slowly, to analyze the requirements and develop better estimates. Second, what if, as most often happens, the requirements don’t sync with real-world, unforeseen technical or business issues? The project stalls. Worse, that fixed scope-functionality-cost-time-quality agreement shatters. Many months or a year or more might have been squandered—not only because of the unanticipated problem, but also due to the scarcity of regular communications that might have uncovered the problem earlier.

On the other hand, Agile development emphasizes an ongoing collaborative approach between business and technical teams; with short cycles of development based only on fixing time, cost and quality measures, while leaving scope and functionality flexible; and the absence of any effort for large upfront design.

Agile doesn’t attempt to build the entire product in a one-shot approach. Instead, developers build in “sprints,” prioritizing per sprint to build the most useful part. This can happen typically in a month. In turn, users or “customers” can then quickly return valuable feedback on what’s working and what needs modification. In this fashion, the product quickly evolves through ongoing sprints, with added functionality that has been tested and refined. This results in faster development—in fact, the business team may decide to offer a version of the product while more functionality is still in development—and ensured quality.

HOW THE CLOUD SUPPORTS AGILE’S THREE CORE IDEALS

Agile turns the Waterfall, contractual process upside down; in many aspects it’s the antithesis of Waterfall. Agile presents an alternative development landscape and atmosphere, characterized by continuous feedback through shorter, nested feedback loops such as daily or frequent commits, continuous integration, and automated tests; by constant communications between product owners, stakeholders and the technical team; by continuous prioritization and re-prioritization of the most important, high impact tasks; and by flexibility to modify business requirements or processes.

With its different approach, Agile relies on distinctive tools to support its main principles and practices: Feedback, Transparency in Communications, and Time-Boxing. If an organization wants to adopt an Agile development approach, it requires an integrated toolset and an Agile development infrastructure. For example, in order to have clear, prioritized communication about defects, features need to be prioritized in the same discussion. Therefore, having a separate bug tracking tool and feature tracking tool is not ideal.

In addition, Agile also requires an automated development infrastructure to support continuous integration. This can be complex and difficult to maintain. Having a development platform in the cloud can simplify many of these issues in a cost-effective way. Here’s how.

Feedback is Key in Agile, and King in the Cloud

Developers need feedback. In Agile, near-immediate feedback is essential, and it’s generated through daily commits, continuous integration, testing, and through stakeholder input.

Agile development values rapid, continuous feedback—through analytics, and through direction from stakeholders and product owners. First, through continuous introspection, on a daily basis the technical team members can see if their code merges properly with other developers' code, or find duplications or efficiencies in code. Next, with continuous integration and regular deployments of code to development or testing servers (daily, every few days, or weekly), product owners and stakeholders can give regular feedback on the development by reviewing iterations and identifying necessary modifications—before it's too late. This ensures that the developers are building what the project owners want, versus finding out months later that it's off track.

The key to Agile is to reduce this overall feedback cycle—to shorten it. The best way to do reduce the cycle is to automate each piece of feedback functionality. Automation of code scanning and integration, testing, deployment, and all other continuous introspection activities will not only shorten cycles and speed up development, but it will also make the Agile development process scalable. All automated introspection functions are easily and readily available across the enterprise.

The cloud can automate feedback in all stages of a project. Here are some of the ways cloud automation can support fast feedback and provide other benefits in Development, Building, Testing, and Deployment.

Automated Development in the Cloud: Continuous integration of code must begin with proper source control management to establish version control. For successful Agile development, organizations can rely on the cloud to provide distributed and easily accessible source code management to any number of developers—in less than five minutes. The cloud enables secure, 99.9% up-time availability to source code. And organizations can quickly scale up—moving from a few developers accessing the tool up to 500 or even 1000 developers without infrastructure concerns.

Automated Build in the Cloud: Organizations building with Agile in the cloud can expedite their work, and reduce their build costs. First, developers can take their existing build images residing on multiple platforms and use virtualization to have those images pre-built, and then accessed through the cloud. This expedites provisioning of existing build images. Second, the cloud enables utility pricing, so that fees are only charged for the specific services and actual build time used, versus the cost of maintaining a dedicated server.

Automated Testing in the Cloud: Testing in the cloud provides significant advances in speed and agility. Organizations can quickly run multi-platform testing using virtual images. In addition, they can run unit tests in parallel through cloud machines; so rather than running consecutive tests on one machine, multiple tests can be simultaneously run on multiple cloud machines. This also results in cost savings by paying only for actual test time used, and not the expense of maintaining a dedicated server or testing infrastructure.

Automated Production Deployment in the Cloud: The cloud provides access to production environments in minutes, and, in some cases, push-button control to automate deployment: Leading Agile enterprise-ready cloud solutions empower organizations to export code to production in one click. Consider how important that is to supporting Agile development.

In Agile, to reduce the feedback cycle, automating production deployment as much as possible is a top priority. Whether deployment is to a test machine or a demo machine staging production, fast and frequent deployment is how the technical team can receive critical feedback from the business owners and keep the project moving quickly in the right direction. Therefore, push button deployment should be made available to all developers and the Scrum Master, as opposed to IT or an operations team. Remember, fast feedback is king in Agile. And IT requests can lengthen the feedback cycle. To counteract security management concerns regarding widespread system access, sophisticated cloud solutions for Agile incorporate pre-configured, password-ready access to the deployment system.

Transparency: Getting a Sharp View of Reality in the Cloud

Successful Agile development projects hinge on strong and extensive communications. Everything people discuss, plan, and do—on the technical side and the business side of the organization—needs to be transparent, immediately. That's how people ensure effective collaboration, in a timely manner, to

direct progress with laser-like accuracy. Real-time transparency allows staff to make informed decisions and issue beneficial directives by immediately seeing potential problems, or identifying the value of a best-practice or project asset.

In Agile, transparency comes in two forms. One is from direct verbal communications within and across teams in daily meetings: Scrum meetings, or developer meetings among teams working on specific aspects of a project. In Agile, product owner/technical team attendance is required in meetings.

The second source of transparency is from data capture. In addition to discussions in meetings, data capture brings crystal-clarity to transparency, and that's where the cloud plays an important role.

In cloud-based Agile development, organizations can have pre-integrated developer services that capture and share data from all distributed automated tools—across coding, building, testing and deploying. Real-time, comprehensive capturing of data provides the transparency organizations need to measure performance and properly monitor and manage the Agile project.

The data provide a near infinite view into the project. With the cloud aggregating data from a myriad of sources, organizations can see, for example, number of commits to date, number of efforts remaining, testing information such as number of failed integrations, bandwidth usage, activity levels among developers, or follow-up dates. The cloud enables organizations to understand developer and project performance based on sprint estimates and actual sprint results. Or, overall sprints can be compared, between a baseline sprint to the next sprint or series of sprints. Organizations can also get timely information on code: whether it's compliant or not, its efficiency level, how easy it is to maintain, or identification of duplications.

The cloud can also provide tools to support analysis of the data. Services are available for customized organization, packaging and delivery of analytics to support transparency.

Time-Boxing: Prioritizing Tasks at Scale in the Cloud

As discussed earlier, the Agile approach to software development is to work in sprints, with the objective of each sprint to create the most important piece, and then the next-most important piece, of the product. Sprints are time-boxed, usually in 2-week or 4-week increments. The concept of time-boxing forces both the business and technical teams to continuously prioritize and re-prioritize features and defects. This is an important process because it forces everyone to make the tough decisions, and also clarifies the business priorities in a way that product owner, scrum masters, and teams understand.

Continuous prioritization and reprioritization of tasks, and the monitoring and management of all activities within a current sprint, requires transparency and tracking. Therefore, if you have a distributed team, you need a tool that all team members can access. Deploying such a tool internally takes time and energy in working with Enterprise IT. With a cloud development platform, you can provision Agile Management tools in minutes, and can scale globally with thousands of users without having to manage the IT infrastructure.

CASE STUDY: TEAMFORGE AS AN AGILE CLOUD DEVELOPMENT PLATFORM

Let's look at one practical implementation of an Agile, cloud-based development platform, with CollabNet TeamForge. TeamForge is the leading enterprise platform for Application Lifecycle Management that radically simplifies management of software projects. Organizations can deploy TeamForge as a hosted or onsite solution, or in the cloud. It enables organizations with multiple and widespread development teams to quickly and cost-effectively support Agile development, with a wide variety of features and functionality (See Figure 1). TeamForge supports Agile development through:

- Version control software (such as Subversion, with more than 5 million worldwide users) hosted in the cloud that can also be scaled elastically as workload changes. TeamForge also provides the option for Subversion replication, allowing for local repository replicas for resource-intensive activities like continuous integration (CI) (See Figure 2).

- A social architecture, which allows for collaboration across organizational and geographical boundaries, in the content of code and tracker artifacts.
- An enterprise search infrastructure, to discover artifacts, code, documents, discussion threads and Wiki content, whether on-premises or hosted in the cloud.
- Instant provisioning of virtual servers, pre-configured for respective needs. A developer can initiate provisioning and deployment of build and test servers in the cloud, at the push of a button.
- Security and governance, which are especially critical for cloud-based platforms. TeamForge provides role-based management for access to code, tracker artifacts and file releases.

*You can access a free trial of TeamForge in the cloud under:
www.collab.net/CTFdemo*

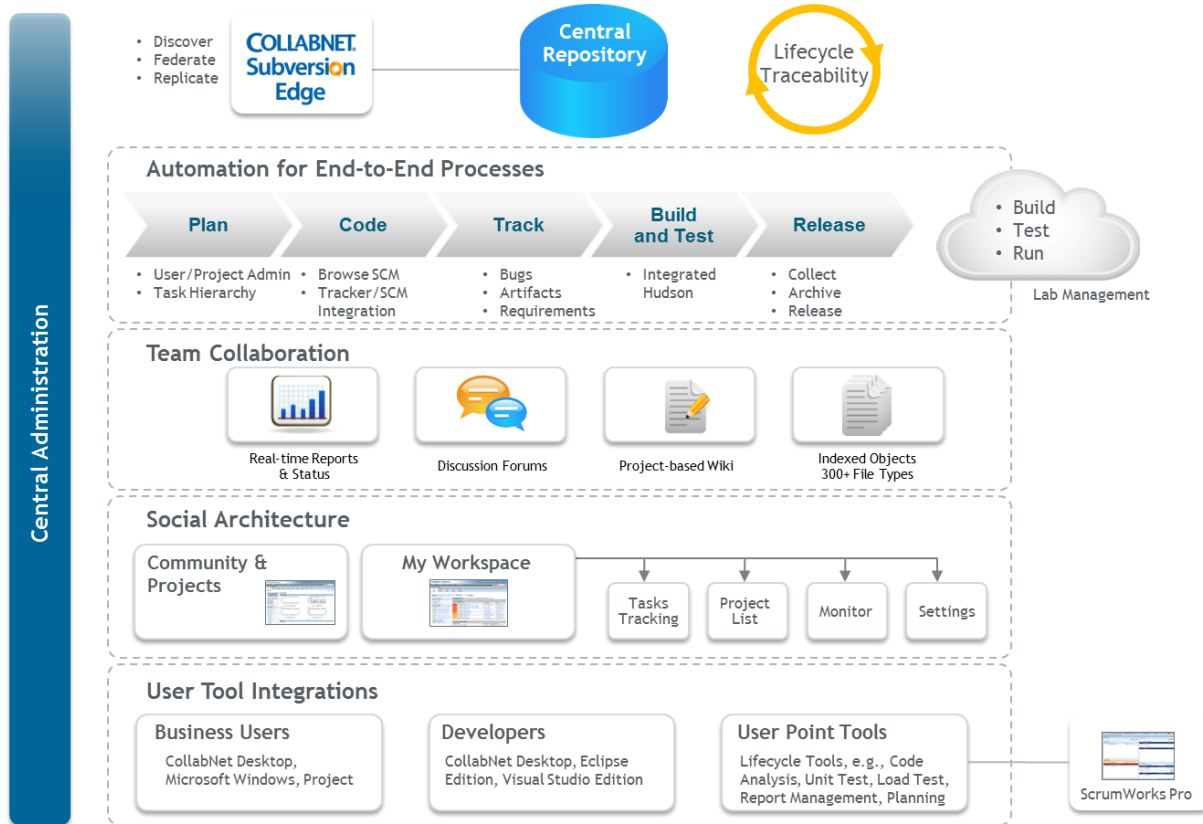


FIGURE 1: The TeamForge platform provides a complete solution for cloud-based, Agile application lifecycle management (ALM).

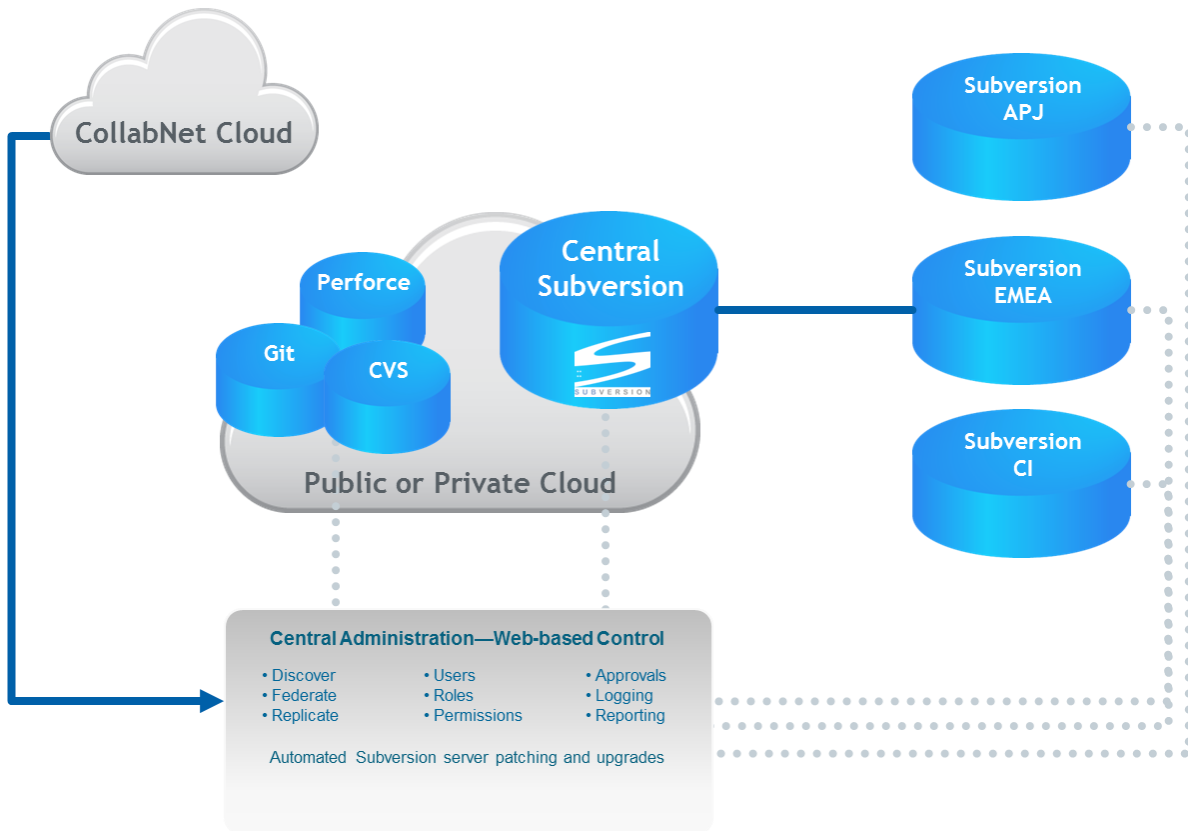


FIGURE 2: TeamForge can provide the option for replicating Subversion, CollabNet’s version control software, across the cloud and on-premises deployments. Local repository replicas can be produced quickly for resource-intensive activities like continuous integration.

CONCLUSION

How should the value of cloud computing be accurately assessed? Time and cost benefits are the leading, motivating factors and measures for any business accessing tools and services via the cloud: The cloud provides a low-investment method to quickly increase capacity or add capabilities. But, as Agile demonstrates, that shouldn’t be the full measure of the cloud’s value.

A Cloud Development platform can also offer integrations, additional analytics and intelligence, and connections to other cloud platforms. To build this in-house may not be the best solution. As production environments migrate into the cloud, the value of a development platform in the cloud increases, along with helping enterprises to become more agile.

ABOUT THE AUTHOR



Willie is a proven leader in the software industry. Most recently, he was the CEO of Emergence Software, which focuses on simplifying deployment of Open Source software. Prior to that, Willie was the VP, Consulting Services at BEA Systems, overseeing Web 2.0 and BPM implementations globally and grew revenue to 32+ million a year. Willie has deep management experience and running high performance teams based on Agile methodology.

ABOUT COLLABNET

CollabNet is the recognized leader in leveraging collaboration, Agile methods, and Cloud computing to transform the way software development organizations develop and deploy applications. We enable our customers to efficiently manage lifecycles, development processes, distributed teams, and projects. Our lightweight and easy-to-use platform, offered in the Cloud on the Codesion™ hosting platform and in on-premises versions, delivers substantial cost, quality, and time-to-market improvements to more than 7,000 customers, from workgroups to enterprises. For more information, please visit www.collab.net.

For more information on CollabNet's agile tools and training visit www.collab.net/CTFdemo