Collaborative Software Development on Demand

CollabNet is the standard for on-demand collaborative software development networks. Our software and services help distributed enterprises reduce costs and speed development by bringing their people, ideas, processes, and development partners together in one Collaborative Development Environment.

This paper outlines how this approach enables a level of rapid innovation and dynamic communication between project members—regardless of location—that is not possible with traditional software development tools and techniques.

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Overview

As globalization builds momentum and takes on a life of its own, enterprises of all kinds are realizing that their traditional software development tools and approaches can no longer deliver an end-to-end solution for application lifecycle management. A combination of disconnected and incompatible groupware tools, expensive and limited home-grown and legacy systems, and isolated issue tracking and requirement definition applications are leading to wildly diverging development processes and a lack of transparency between teams—even when they're under the same roof let alone distributed around the world.

While improving IT efficiencies and cutting development costs have always been top priorities for CIOs, the rapid and unstoppable shift toward a global business landscape is creating a new set of challenges and a heightened sense of urgency to meet them. For example:

- Development teams and projects are increasingly distributed across groups, partner companies, geographies, and time zones.

- Budgets and development cycles are compressed.

- Markets and technologies are constantly shifting.

- Security risks and regulatory compliance requirements are increasing.

> **"The best companies are the best collaborators. In a flat world more and more business will be done through collaboration within and between companies."**
> **—Thomas Friedman, author of National Best Seller *The World is Flat***

CollabNet helps organizations conquer these challenges by transforming how their development teams work. Providing an on-demand, collaborative environment for complete application lifecycle management, CollabNet solutions support globally distributed development efforts with functionality designed to:

- Facilitate seamless coordination among disparate groups and distributed operations

- Enable faster innovation while speeding time-to-market and reducing development costs

- Drive code re-use and adoption of best practices

- Control and secure intellectual property and software assets

- Simplify regulatory compliance

New Challenges Demand New Solutions

A complex combination of global economic pressures, mergers and acquisitions, deregulation, fierce competition, and other business and technical drivers is prompting organizations in virtually every industry to re-evaluate how they work. When it comes to examining how they develop software, many are realizing they can no longer rely on traditional tools, platforms, and project management techniques to meet emerging challenges. These challenges include:

- **Distributed development teams and projects.** Software development across groups, partner companies, geographies, and time zones is now the norm, and capitalizing on talent and resources wherever they are located is a competitive imperative.

- **Compressed budgets and development cycles.** Regardless of the markets they serve, organizations are under intense pressure to speed delivery of new technologies and solutions, often with shrinking budgets. This requires a framework that enables them to respond rapidly to changing requirements, easily reuse software assets, and seamlessly integrate new staff, partners, and off-shored teams.

- **Shifting trends and technologies.** Development teams need to continuously learn and adapt to new business strategies, industry standards, and technology paradigms such as Service Oriented Architecture (SOA) and Service Oriented Development of Applications (SODA). This increases the importance of managing software development projects wisely.

- **Security risks and regulatory compliance requirements.** Scattered and undocumented intellectual property and other assets hinder reuse, expose organizations to security breaches, and complicate compliance with corporate mandates and government regulations.

Why Do Traditional Tools Fall Short?

They're based on an obsolete architecture. Traditional version control, Software Configuration Management (SCM) and issue tracking applications were designed for teams of developers sharing a local-area network (LAN). These applications do not easily scale to provide global access and high performance across wide-area networks (WANs). As a result, even simple development operations can be cripplingly slow, forcing organizations to try to compensate with multiple servers, expensive software, and additional IT personnel.

They're not designed for distributed development. While the IT industry has a long history of overcoming technological hurdles, mapping new processes and strategies to software is harder to achieve. Traditional tools simply don't have what it takes to support distributed development:

- They are not globally accessible and lack a comprehensive framework for coordination, cooperation, and communication between executives, managers, business analysts, and developers.

- Information about source code changes, updates on project status, and bits of informal knowledge are typically spread across applications and locations, out of the context of project history and out of the reach of some team members.

- Without a central information repository, integrated communication tools such as email, and automated notifications of critical changes, it can be difficult to reuse code, audit project progress, quickly identify and address issues, and bring new people up to speed.

The Need for a Collaborative Development Environment

According to UC Irvine[1], effective software evolution demands full participation of all stakeholders, both business and technical users. It also requires product and process visibility and use of tools that are effective for all types of users.

In the face of difficult new challenges and a lack of tools to meet them, many organizations are moving toward a new approach to software development known as a Collaborative Development Environment (CDE). The goal is to unify project managers, developers, and business users within a single CDE. By facilitating seamless coordination across disparate teams and distributed operations, organizations can:

- Reduce cycle time to deliver production-ready software sooner.

- Transform relationships with customers and business partners by giving them input as the software takes shape.

- Improve product quality by reusing pre-tested code from other projects.

- Reduce engineering and development costs through wider involvement.

- Accelerate innovation by quickly recognizing and reconciling defects, confronting issues, and sharing code.

CollabNet
Collaborative Software Development on Demand

CollabNet sets the standard for on-demand collaborative software development. Leveraging the Internet to deliver advanced application lifecycle management functionality, CollabNet provides a collaborative development environment that extends far beyond the developer community to include business analysts, and project managers as well as Q&A, support, and maintenance staff.

Tapping into intellectual capital from employees, partners, and third parties maximizes the skills and resources available, in many cases at lower hiring and ongoing costs, regardless of location. An intuitive and customizable user interface suitable for users of varying technical expertise cost-effectively includes

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[1] *Endeavors: A Process System Infrastructure Department of Information and Computer Science, University of California, Irvine.*

all remote users and provides visibility into project status across teams and projects at any time.

Reduce Costs and Speed Development with CollabNet Software as a Service (SaaS)

Because CollabNet is delivered using Software as A Service (SaaS) model, it can be rapidly deployed—without cost overruns. There is no penalty for deploying to isolated developer groups or multiple locations, and no additional cost to transfer resources or licenses. It is available around the clock—across time zones—and works on any type of computer, enabling cost-effective support of small and large development projects and teams. CollabNet also lowers ongoing maintenance and training costs by decreasing the hardware and software required for an effective distributed environment and providing a platform that is both highly secure and amazingly easy to adopt.

Manage Distributed Development

The CollabNet environment eliminates geographic barriers with on-demand secure access to all of the components needed for distributed development: code development, project management, and knowledge management. By automating the development, integration, and end-user adoption links in the software development chain, CollabNet enables secure and cost-effective development across distributed organizations.

Using CollabNet for distributed development, organizations can:

- Reduce time-to-market and time-to-profit by securely integrating all development and project-related functions.

- Improve communication across all locations using existing desktop clients combined with an on-demand project-centric tool environment.

- Reduce cost of ownership with managed service or remote management.

- Integrate cross-functional teams and technical users across the application development lifecycle using standard process templates and artifact types.

Streamline Partner Co-development

Supply chain partners are often dispersed around the globe, making collaboration across time zones, languages, and cultures difficult and costly. Disparate systems, networks, and security standards further complicate coordination. CollabNet allows organizations to easily integrate any number of third-party developers or development organizations into their development processes, reducing partner integration time by as much as 90 percent. One CollabNet customer saw a multiple-week reduction in time-to-market for third-party-intensive development efforts, resulting in multi-million dollar savings.

Using CollabNet for partner co-development, organizations can:

- Establish co-development environments with partners quickly and easily.

A CollabNet customer starting with dozens of users saved $200,000 in hardware costs; another with thousands of users saved $20 million in combined hardware costs and software licenses. And a third saved $1.4 million in software license costs in the first year by using CollabNet instead of an outdated SCM solution.

One CollabNet customer reduced new developer training time by 80% to 90%, another saved $240,000 in travel expenses, a third reduced administrative overhead by 50%, and another reduced the steps to problem resolution by 60%, cutting support costs by 80%.

New ways of developing software result in new software. One CollabNet customer says that 60% of intellectual property is now generated by off-payroll developers. Another reports that 70 third parties are building modules to support their code. And another has seen a 500% increase in the number of new joint-partner products since they began using CollabNet.

- Enhance development functions through improved visibility and accountability in partner activities.

- Decrease time-to-market by coordinating the development activities of outside partners.

- Reduce total cost of ownership using Web-based tools that offer cost predictability and can be rapidly deployed and easily upgraded.

Leverage Global Resources

As the scope and complexity of global projects grow, so do cost pressures, security issues, and communication gaps. CollabNet helps reduce the risks associated with global development with a leading-edge collaborative development environment that transforms the traditional enterprise approach to application development.

Using CollabNet for global sourcing and offshore development, organizations can:

- Reduce cost of ownership with a combination of centralized tool administration and distributed project administration.

- Improve focus on core competencies with the benefits of CollabNet's SaaS model.

- Generate new revenue opportunities by enabling secure co-development with supply chain partners.

Accelerate Adoption of a Service Oriented Architecture

As organizations move toward a Service Oriented Architecture (SOA), it is important to recognize that creating a SOA has as much to do with a transformation in development culture as with adopting an open Internet standards-based design. This is because building service-based systems involves a shift in thinking from large-scale, centrally planned IT systems to smaller, modular development projects that require collaboration and consensus among all the stakeholders in an end-to-end IT process.

CollabNet streamlines both the cultural and technical transition from insular LAN-centric development with a finite group of resources to an open WAN-centric development environment with a diverse ecosystem of stakeholders.

Using CollabNet to create a SOA, organizations can:

- Improve the quality of each service by appropriately involving all stakeholders in the process.

- Increase the potential usage of each service by providing not only central access to the software, but to the community that builds and enhances it as well.

- Develop mature processes by providing centralized templates that guide project teams through the approved processes.

> **A major systems manufacturer uses CollabNet for software development, project communication, knowledge management, and project administration. Three years after launching a 30-user pilot program, business units across 20 countries and 55 cities are using CollabNet to work collaboratively with 150 third-party companies on more than 600 different projects. Top-line results include $20 million savings in infrastructure costs and 25 percent decrease in product schedules.**

> **The world's largest companies can save a total of $53 billion in IT spending over the next 5 years if they implement SOA**
> **– Aberdeen, January 2006**

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Facilitate and Encourage Reuse

To effectively use or contribute reusable components, developers need an environment that makes it easy. The project structure in the CollabNet environment automatically classifies software components and related assets such as documentation, specifications, and test plans for future use. A central code repository along with mailing list management facilitates reuse of code and knowledge exchange across dispersed teams.

Using CollabNet to facilitate reuse, organizations can:

- Increase code quality by making it easier to reuse code with access to past test results.

- Decrease time-to-market by facilitating interaction within the community that developed the component being reused.

Simplify Regulatory Compliance

With increasingly stringent legislation including Sarbanes-Oxley, HIPAA, SAS 70, Basel II, and others, ensuring regulatory compliance is a mandate for companies in virtually every industry. Complying with these new regulations demands traceability and auditing capabilities that traditional software development tools do not provide. This is particularly true with increasingly disparate LAN-based systems, distributed teams, and location-centric processes.

CollabNet facilitates compliance with government and industry regulations with a secure solution for distributed software development. A centralized repository with strict access control provides an easily auditable record of all development activity. CollabNet also helps to align IT initiatives with business objectives and compliance requirements because it provides a single environment for software development and communication between business and technical functions.

Using CollabNet to streamline regulatory compliance, organizations can:

- Increase the ease of auditing by having all project artifacts accessible from a centralized repository.

- Improve the audit trail between source files and the tasks that define the changes in each revision.

- Identify issue, solution, and code implementation discussions that determined why a particular solution was implemented versus another. .

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CollabNet Enterprise Edition
Complete Application Lifecycle Management

CollabNet Enterprise Edition is the leading collaborative software development environment for distributed Application Lifecycle Management (ALM). Ideal for any organization that needs to develop software, CollabNet Enterprise Edition is agnostic to development tools such as proprietary IDEs, technologies such as .NET and Java, and processes such as agile and iterative development.

CollabNet **Application Lifecycle Manager** (CALM) provides a set of content, artifacts, and tools to guide project members through the software development process and to provide a customizable methodology for successfully managing a software project through the application lifecycle. CALM allows project teams to implement higher-level business processes which are deeply integrated with associated software development processes. This allows business owners and other related stakeholders to create a much tighter association between desired business practices and the underlying distributed application software development.

The CollabNet **Baseline Process Template** is easily modifiable and configurable for domain or project; easily provisioned on a project-by-project basis; aligns third-party development tools with specific processes; and supports a task-based, not tool-based, interface.

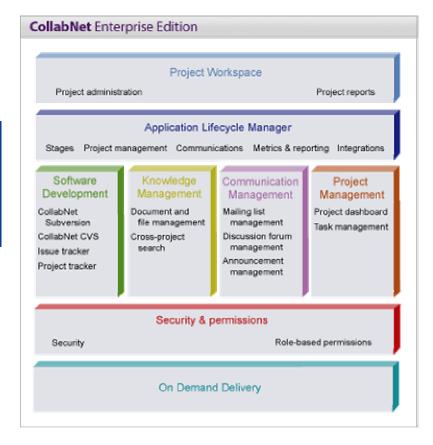### *Secure Environment On-Demand from Anywhere, Anytime*

CollabNet Enterprise Edition is a web-based application accessible over the Internet, Virtual Private Network (VPN), or dedicated line. This on-demand, Software as a Service (SaaS) delivery option eliminates the time and expense associated with purchasing, installing, configuring, and managing hardware. CollabNet maintains the system, installs the latest application enhancements, and offers 24x7 support.

The CollabNet Enterprise Edition Project Workspace is available at any time from anywhere, enabling development team members to work together regardless of location. Servers are housed in a secure card-access cage at industry-leading collocation facilities. This infrastructure employs high-availability network storage in a RAID (Redundant Array of Inexpensive Disks) configuration with tape and off-site backups for increased security.

More than one million developers and IT managers use CollabNet.

More than 15,000 development projects are managed through CollabNet.

CollabNet servers handle an average of more than 8 million hits a day.

The world's largest developer communities, including Openoffice.org and java.net are powered by CollabNet.

CollabNet customers have reduced time to project completion by as much as 66% percent, reducing development costs and generating revenue earlier.

> **With the CollabNet Enterprise Edition project workspace, the focus of project administration shifts from managing tools to managing projects. All tools are automatically available in the workspace—no need to administer multiple, individual tools.**

Software Development

The CollabNet environment provides enterprise-class tools for software development:

- **Subversion**, the leading open source versioning system designed for distributed, web-based development, manages changes to files and directories. A tree of files is placed into a central repository similar to ordinary file storage, except that every change ever made to the files and directories is tracked. This allows recovery of older versions of data, or examination of the history of changes to data.

- **Project Tracker** is a highly configurable artifact tracking tool that allows domain and project administrators to set the data definition for tracking any number of different types of artifacts. Project Tracker has a sophisticated query utility for finding and analyzing data and a flexible reporting mechanism for reporting on artifacts that meet specific criteria defined by a project member. Alternatively, **Issue Tracker** can be used as a simple issue management tool when a project needs a standard set of issue types, data, and process.

Knowledge Management

Knowledge management provides a structured method to find and share intellectual property stored in the CollabNet environment.

- The **document and file management** feature creates a central repository for all documentation related to a project, including initial concept and specification documentation, screen shots, code review documents, support plans and information, and even end-of-life plans. Files of any type, from structured documents and spreadsheets to binary files for distribution, are managed in a single easy to access location.

- The **cross-project search utility** encompasses all project artifacts, with the exception of the files under version control. Search results adhere to the CollabNet environment role-based permissions model, allowing users to view only the search results they are authorized to see.

Communication Management

Each project in the CollabNet environment is also a forum for communication. All project communication is captured in the environment for team members to access.

- **Mailing lists** related to project details make it easy for developers and other team members to coordinate their work, and allow new project members to review the project history to get up to speed. In addition to the lists created by the project owner or developers, CollabNet automatically generates mailing lists for versioning control, issue tracking, project milestones, technical discussions, and general communication.

- **Discussion forums** can be configured to limit what information, notification of a new posting, subject, or body text is published via e-mail, providing a secure alternative to mailing lists. Using a discussion forum to transfer source files or communicate sensitive project information is far more secure than using e-mail.

- **Announcements** communicate information that relates to a specific project to all members of that project. Project owners can select announcements to be posted as links or actual documents. With custom integration services, popular news feeds can be added to the CollabNet environment.

Project Management

CollabNet **Task Management** and CollabNet **Project Dashboard** provide the capability to import a Microsoft project plan associating the tasks with project team members, collect and analyze real-time data about the progress and status of projects in CollabNet Enterprise Edition, and report that information back into a Microsoft Project plan. When used together, CollabNet Task Management and CollabNet Project Dashboard enable enterprises to effectively plan, track, manage, and analyze activities associated with software development projects through increased management visibility, earlier and closer to real time in the development process.

Security and Permissions Management

Fundamental to the CollabNet environment is a fine-grained security model that allows team members to safely share information.

- Web-based application security begins with **access control**, including password-based authentication and optional SSL/TLS with server authentication for encryption of all communications. Authentication can also be integrated with third-party systems and include optional certificate support.

- CollabNet provides exceptional flexibility in organizing projects into groups and categories based on the exact requirements of the project owner. Using a **role-based permissions** model, project owners grant users access to specific tools, operations, and data.

Summary

A number of today's leading computing initiatives like SOA, compliance, code reuse, and global outsourcing share the need to assemble distributed software development teams. In this distributed environment, it has become essential for CIOs to set, measure, and improve their development processes and for project teams to understand and complete their specific development tasks in view of the overall lifecycle. CollabNet provides a secure, centralized on-demand delivery model integrated with a structured yet flexible software development process to enable true collaborative development in a global business environment.

For More Information

To learn more about CollabNet solutions for distributed, collaborative software development, please call1-888-778-9793, e-mail info@collab.net, or visit www.collab.net.

For the latest information about CollabNet, CollabNet White Papers, and Web Seminars, visit http://www.collab.net/news/archives/.