



Collaborative Application Integration, Extension, and Migration With CASAHL ecKnowledge®

The collaboration software market has undergone dramatic changes during recent years. Previously dominated by proprietary solutions and largely stand-alone products, the focus has recently converged toward a more consistent, standards-based, and integrated collaboration model in which people can more naturally collaborate in the context of their preferred tools. The business value of efficient and effective collaborative applications is now widely understood; collaborative applications are now mission-critical.

Enterprises seeking to optimize their collaborative applications face a variety of challenges, ranging from constraints due to the large installed base of earlier collaboration products to new requirements such as the need to securely and seamlessly accommodate new device types and cross enterprise boundaries.

CASAHL Technology™ has been the leading independent supplier of collaborative application middleware solutions since 1993. In working with enterprise customers worldwide, CASAHL has encountered three fundamental collaborative application patterns:

- **Integration:** integrating collaborative applications with tools and resources that aren't inherently focused on collaboration, such as DBMS-based and ERP applications, e.g., integrating IBM Lotus Notes/Domino and Microsoft Outlook/Exchange applications with enterprise applications.
- **Extension:** extending the scope of collaborative applications to accommodate new user environments, developer tools, and collaborative platforms, e.g., making Notes/Domino and Outlook/Exchange applications accessible to SharePoint clients.
- **Migration:** migrating collaborative applications between platforms, e.g., from Notes/Domino to SharePoint and SQL Server, or from Outlook/Exchange to IBM Workplace.

Almost all enterprises need a combination of collaborative application integration, extension, and migration in order to address business priorities and to fully exploit collaboration products without compromising on interoperability or disrupting business by forcing users or developers to leave their preferred tools.

CASAHL's flagship product, ecKnowledge, is an industrial-strength collaborative application middleware switch that addresses integration, extension, and migration with a unified, high-productivity development model. Combined with a set of diagnostic tools and market-proven best practices, ecKnowledge has enabled enterprises throughout the world to deliver better business results by optimizing collaborative application investments.

This rest of this document includes an overview of today's collaborative application opportunities and challenges; requirements for collaborative application integration, extension, and migration solutions; and a summary of the reasons that CASAHL has been the market leader in collaborative application middleware solutions for more than a decade.



Collaborative Application Opportunities

Historically, collaboration-oriented products were generally proprietary and incompatible: proprietary because they predated pivotal industry standards such as XML, and incompatible due to application models that were often focused on addressing different needs. Notes/Domino, for example, began during the mid-1980s as a workgroup-level product for collaborative, document-oriented applications, and later expanded to include enterprise email and calendaring/scheduling. Exchange, in contrast, started several years later, with an initial focus on enterprise messaging and calendaring/scheduling, and subsequently expanded to add support for some types of collaborative applications.

More recently, there has been broad market convergence around a new model for collaborative applications, a model centered on these four concepts:

- **Workspaces:** virtual spaces where people assemble and jointly work on projects, processes, and documents. Example of workspace-oriented products include many common types of Notes/Domino applications, IBM Lotus Team Workplace (formerly known as QuickPlace), the Windows SharePoint Services-hosted document and meeting workspaces in Office 2003, and the Groove Networks Workspace model (often used in conjunction with SharePoint).
- **Channels:** complementary to workspaces, channels are appropriate for subscription and notification-oriented collaborative contexts. Email, weblogs, and RSS¹ news feeds are all examples of collaboration-conducive channel types. Channels often foster collaboration by notifying people when something noteworthy has transpired in a collaborative context, e.g., when a process milestone has been completed and the next step is joint activity in a collaborative workspace.
- **Contextual collaboration:** this is a trend toward pervasively integrated collaboration-oriented tools and services, with which people can more readily focus on their business tasks at hand and are less disrupted by tool boundaries. Examples here include IBM Lotus Instant Messaging and Conferencing (formerly known as Sametime) and Microsoft Office Live communication services; all are used to augment workspaces and channels with presence awareness and real-time communication tools.
- **Industry standards such as XML and SIP²:** broad compliance with standards has also facilitated convergence toward the new collaboration model, especially (real and de facto) standards for XML Web services and real-time communication.

Collaboration pioneer Ray Ozzie and Burton Group senior analyst Peter O'Kelly described these trends in a recent perspective titled "Communication, Collaboration & Technology: Back to the Future" (available at <http://www.groove.net/contact/b2f-download/>). Their perspective clearly explains reasons why collaborative applications are business-critical today and are poised for an even more strategic role in the future.

All of the leading collaboration software vendors are embracing the new collaborative application model. Groove Workspace, IBM Workplace, Microsoft Office 2003 with Windows SharePoint Services and Office SharePoint Portal Server 2003, and Oracle Collaboration Suite, for example, are all centered on workspaces, channels, and contextual collaboration, and the vendors have all pledged support for related industry standards.

The new collaboration model presents many new opportunities for enterprises to stay more closely connected with their customers and to optimize workforce productivity. By enabling people to interact with information and other people, using workspaces, channels, and contextual collaboration as appropriate (based on the nature of the work and personal preferences), and by permitting people and networks to interact seamlessly and securely while working on different device types (e.g., smart phones as well as PCs) and across organizational boundaries, the new model has set the stage for major advances in collaborative applications.

¹ RSS, known variously as Rich Site Summary, RDF Site Summary, and Really Simple Syndication, is an XML dialect for headline syndication, and is commonly used to make weblog posts accessible to RSS clients such as NewsGator, an RSS reader client plug-in for Microsoft Outlook.

² SIP is the Session Initiation Protocol; SIP and SIMPLE (SIP for Instant Messaging and Presence Leveraging Extensions) are key real-time communication-enabling standards.

Collaborative Application Challenges

Unfortunately, most enterprises encounter several challenges as they seek to fully exploit the new collaborative application model. One clear challenge, in the economic environment of recent years, is to do more with less. Enterprises seek to derive more business value from their existing information technology investments, and are not in a position to invest in major infrastructure changes.

Since many collaborative applications start at workgroup or department levels, this often results in enterprises juggling multiple, often incompatible collaboration-oriented products, typically a mix of products from IBM, Microsoft, and a few specialized software vendors. This challenge will get worse in the future, as enterprises engage in more inter-enterprise collaborative applications. Application developers can't assume a common set of tools or platforms across enterprise boundaries.

Another common challenge in collaborative applications is an unfortunate tendency for the applications to become functional and data silos, often resulting in selectively redundant and inconsistent databases and applications. Sales, customer service, and field support are three examples of collaborative application domains that have obvious overlaps with traditional application categories such as SFA (sales force automation), CRM (customer relationship management), and ERP (enterprise resource planning),

User and developer preferences and training considerations are also challenges. Users who have worked in Lotus Notes for years are often unwilling to switch to other collaborative tools, for example, and application developers can't easily or inexpensively switch among tools such as Domino Designer, WebSphere Studio, and Visual Studio.NET.

Personal collaborative work style preferences also present challenges. Some people prefer workspace-oriented collaboration, for instance, while others are more event-driven and prefer to work with channel-oriented tools, and others prefer contextual collaboration such as the new Document and Meeting Workspaces included with Office 2003. There is no "one size fits all" approach for collaborative applications, and the need to span workspaces, channels, and contextual collaboration is a significant challenge.

The current installed base of collaboration-oriented products and applications also produces many challenges. Products such as Notes/Domino and Outlook/Exchange have very different application models and capabilities, making integration and migration very challenging. Convergence toward the new collaborative application model has also resulted in many challenges due to changes in the leading vendors' product strategies, such as:

- IBM moving from Lotus Notes/Domino, Sametime, and Quickplace to a new WebSphere-focused Workplace strategy. The move will take several years, and IBM has pledged to support Lotus Notes/Domino for at least another decade, but IBM's focus has shifted to the newer elements of its Workplace product family for new collaborative applications.
- New collaborative capabilities in Microsoft's latest (2003) wave of products. Office 2003 and Windows SharePoint Services, for example, are often very attractive for organizations that have made strategic commitments to Microsoft as a software supplier, e.g., in terms of pricing and licensing opportunities. Microsoft's plans for the Longhorn releases of Windows and Office will also significantly advance Microsoft's collaboration strategy.
- Market consolidation: there has been an increase in merger and acquisition activity as vendors seek to address the new collaboration model, e.g., with Documentum acquiring eRoom and then itself being acquired by EMC. The consolidation and increased competition has also resulted in the financial destabilization of many smaller vendors, leaving some enterprises with unacceptable dependencies on suppliers that may soon be out of business or otherwise unable to maintain and advance their products.

Collaborative Application Patterns

As the leading independent provider of collaborative application solutions for more than a decade, CASAHL has consistently encountered three patterns among organizations seeking to overcome collaborative application challenges and optimize their collaborative applications.

Integration: The first pattern involves integrating collaborative applications with tools and resources that aren't inherently focused on collaboration, such as DBMS-based and ERP applications. Integration doesn't change the nature of the collaborative application; instead, the goal is to minimize redundancy and maximize application and resource reuse by integrating collaborative applications with traditional resources. Common scenarios include integrating Notes/Domino and Outlook/Exchange applications with:

- Enterprise databases managed in IBM DB2, Microsoft SQL Server, or Oracle, e.g., to retrieve customer data in real-time or to track a business transaction initiated in a collaborative application.
- Enterprise applications such as Microsoft CRM, PeopleSoft and SAP R/3, augmenting the enterprise applications with collaborative, workflow-oriented capabilities.
- XML Web services and message queuing-based applications, again adding collaborative workflow.

Extension: The second pattern involves extending the scope of collaborative applications to accommodate new collaborative user environments, developer tools, and platforms. Some popular extension scenarios include:

- Making Notes/Domino and Outlook/Exchange applications seamlessly accessible to SharePoint and InfoPath clients, in order to expand application scope without forcing users to work outside of their preferred tools.
- Adding secure off-line and cross-firewall support by extending collaborative applications into Groove workspaces.
- Leveraging the collaborative workflow tools available from vendors such as SourceCode and Ultimus.

Migration: The third pattern entails migrating collaborative applications between collaborative platforms. Migration is sometimes an attractive option for enterprises seeking to consolidate relationships with fewer software suppliers in order to reduce total costs or to take advantage of unique capabilities in a given collaborative platform. The most common migration scenarios include migrating:

- From Notes/Domino to SharePoint and SQL Server or Outlook/Exchange.
- From Outlook/Exchange to SharePoint and SQL Server.
- From Exchange 5.5 to IBM Workplace (Notes/Domino as well as the more recent Workplace thin client offerings).

Most enterprises require a mix of integration, extension, and migration solutions. Relatively few make an across-the-board switch from one set of collaboration tools to another because of the cost, complexity, and disruption involved in such wholesale migration.

Collaborative Application Middleware Requirements

The need to flexibly integrate, extend, and migrate collaborative applications is a natural opportunity for middleware, with core requirements including:

- Breadth: support for all of the leading collaboration-related user environments, developer tools, and platforms, with custom interface adapters for leading collaboration products, enterprise applications, DBMSs, and open-ended, XML-based adapters for other resources. The list of products and tools supported typically includes a mix of the following:
 - Collaboration-oriented products include Notes/Domino, Outlook/Exchange, SharePoint, and InfoPath.
 - Data management products including IBM DB2, Microsoft SQL Server, Oracle, and other leading DBMSs.
 - Departmental and enterprise applications including Microsoft CRM, PeopleSoft, SAP, and Siebel.
 - Developer tools including IBM Domino Designer and WebSphere Studio, Microsoft Visual Studio.NET, and leading workflow-oriented products.
- Depth and application model independence: the middleware solution must incorporate a level of abstraction that makes it possible for developers to take full advantage of collaboration product capabilities without getting locked into vendor/product-specific constraints. The alternative is a grab-bag of point-to-point tools that don't scale.
- Flexibility: integration, extension, and migration scenarios have different requirements in terms of execution model (scheduled, event-driven/real-time and on demand).
- Enterprise scalability and robustness: collaborative applications are now mission-critical for most enterprises, so collaborative application middleware solutions must be architected and supported as enterprise-class software products, e.g., with dynamic load balancing and fault tolerance and complete interoperability with leading systems management frameworks.
- Maximized developer productivity: by minimizing the need for custom, low-level programming and following a template-based approach whenever possible, collaborative application middleware can empower both professional developers and less technical business domain experts to build and manage solutions.
- Comprehensive application life cycle support, including diagnostic and planning tools and a methodology embodying market-proven best practices.

CASAHL Solutions

CASAHL Technology offers a proven collaborative application middleware solution for enterprises that would otherwise be faced with expensive, protracted, and contentious integration, extension, and migration challenges. CASAHL's flagship product, ecKnowledge, is an industrial-strength collaborative application middleware switch that addresses integration, extension, and migration with a unified, high-productivity development model.

ecKnowledge supports all the leading collaboration-related user environments (including Lotus Notes/Domino, Microsoft Outlook/Exchange, SharePoint, and InfoPath) and the leading developer tools (such as Microsoft Visual Studio .NET, IBM Domino Design and Websphere Studio), connecting them to each other and to the wider information world for purposes of interdepartmental and inter-enterprise data integration, application extension, and/or data and application migration between disparate systems. ecKnowledge can connect to virtually any data source, including DBMSs (such as IBM DB2, Microsoft SQL Server, Oracle, and other relational and legacy systems), ERP (enterprise resource planning) and CRM (customer relationship management) systems (such as SAP R/3, PeopleSoft, and Microsoft CRM), desktop applications (such as Microsoft Access and Excel), XML, and XML Web services.

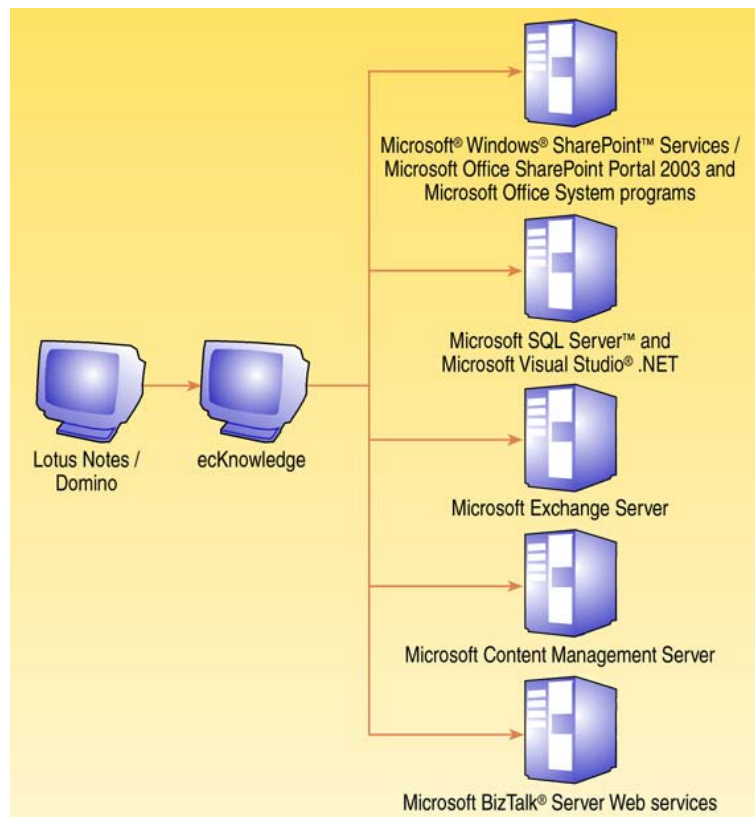


Figure 1: A typical ecKnowledge collaborative application middleware scenario involving IBM and Microsoft products

ecKnowledge provides a wide range of information exchange capabilities to suit the needs of the particular business application, with solutions spanning the full spectrum of data integration, application extension, and partial or full migration between disparate systems. ecKnowledge one-way and bi-directional replication jobs, import/export jobs, stored requests, and Internet file transport jobs (publication/broadcasts, subscriptions, and consolidations) offer numerous features to support collaboration between participating users and applications. Among these are event and workflow triggers, application of business rules, job chaining, data transformation capabilities, and the choice of end-user application interface. Each ecKnowledge job or application can be configured to run on a scheduled, event-driven (real-time), or ad hoc (on demand) basis.

To support application extension and/or migration, ecKnowledge can take a Lotus Notes form or Microsoft Exchange Public Folder form and automatically generate the framework for an equivalent Visual Studio .NET or InfoPath application, with a Windows Form, Web Form, or InfoPath Form as the target environment, customizable code, and data bound to SQL Server. The resulting solution is a fully functional application framework that can jump-start the extension or migration effort, saving numerous hours (and dollars) of development time. Developers can then extend the new application as desired. For groups that simply want to extend or migrate their Notes/Domino document library items to a wider Web-based audience, ecKnowledge offers a migration wizard that quickly and easily migrates Lotus Notes/Domino document library items to the SharePoint (WSS or SPS 1.x) environment.

ecKnowledge's architecture is non-intrusive to existing infrastructures. There is no need to install additional software on the network or on any ERP or database system to work with ecKnowledge, and no change is required to existing applications.

The ecKnowledge Composer is a non-programming, wizard-based GUI development environment that can be used by both business domain experts (i.e., non-programmers) and professional developers for rapid application development and easy maintenance. The Composer stores applications and application templates in the ecKnowledge System Catalog, a database that is also used by the ecKnowledge Server to determine application information and record certain statistics.

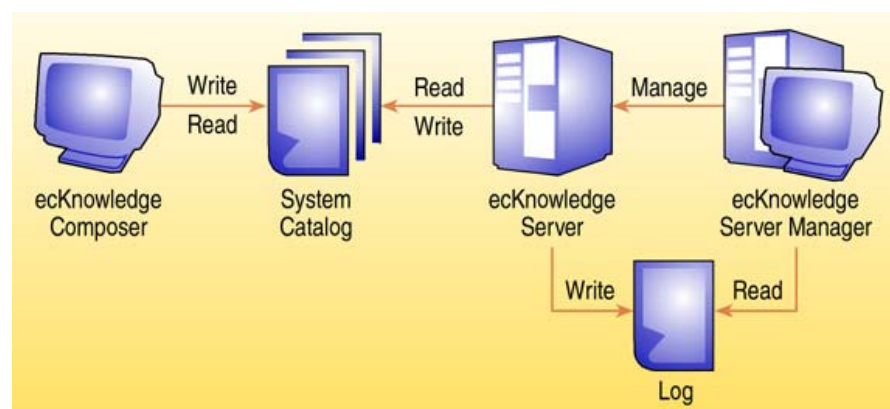


Figure 2: CAS AHL ecKnowledge software components

The ecKnowledge Server runs as a Microsoft Windows Server™ service and performs the integration, extension, and migration tasks using industry-standard protocols. ecKnowledge respects existing enterprise security infrastructures and does not require any change to firewalls. ecKnowledge Servers are robust, secure and scalable. Multiple Servers can work together as a cluster for dynamic load balancing and failover protection. The ecKnowledge Server Manager is a GUI interface tool that enables easy remote administration of Servers on a network. All Server activity is written to a Log file or database that can be viewed in different formats by means of the Server Manager, for easy system administration.

In sum, CAS AHL ecKnowledge provides a powerful, yet flexible solution for collaborative application integration, extension and migration. For enterprises that have collaborative application migration requirements, CAS AHL's approach also supports the requisite interim integration phase, so end users and application developers can continue working with their preferred tools until migration is complete. Businesses using CAS AHL solutions have enjoyed high productivity and rapid ROI, making CAS AHL ecKnowledge the solution of choice for a more than a thousand enterprises in a wide variety of industries around the world.

About CASAHL Technology

CASAHL Technology, Inc. is the leading provider of powerful, yet easy-to-use software for collaborative application integration, extension, and migration across heterogeneous environments. Founded in 1993, CASAHL began by developing, then licensing, significant database technology to Lotus/IBM. In 1995, CASAHL introduced its award-winning product, Replic-Action™, which quickly became the leading integration software for workgroup applications. With the release of ecKnowledge® in 1997, CASAHL has maintained its leadership position in the enterprise market by building on Replic-Action's leadership in both extension and migration for collaboration applications.

CASAHL has in-depth knowledge of and expertise in both Microsoft and IBM Lotus Notes/Domino technologies. Media and industry analysts have recognized CASAHL with annual awards and honors for superior technology and professional services. CASAHL has been the recipient of the Lotus Advisor Magazine Editors' Choice Award as the top integration product in the Lotus Notes/Domino market for five of the last six years. CASAHL is the developer of Microsoft's Lotus Notes Application Analyzer and is Microsoft's recommended connection solution provider for Lotus Notes/Domino enterprises.

CASAHL has over 1000 enterprise customers and a network of consulting partners around the world. In addition to its award-winning products, CASAHL also offers training and consulting services for integration, extension, and migration projects.

To learn more about CASAHL products and services, visit our website at www.casahl.com or phone 925-328-2828 (800-324-4284 USA only).



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