

Report of Analysis of Collaboration Software for use in the LTER Network

James W Brunt

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There is much confusion about the variety and functionality of software tools in the category of collaboration software. This is really not surprising because I have found no product or class of products in recent years more hyped and loaded with jargon than that of collaboration software. The very words have a different connotation to every user, developer, and marketer. I'll attempt here to tease out the important points and make some distinctions between different classes of software. Collaboration software is commonly referred to as category of software under the general heading of "groupware". Groupware can be divided into four categories depending on the level of interaction — communication, conferencing, collaboration, and coordination.

Communication can be thought of as asynchronous interchange of information. Email, web posting, wikis, and webcasts fall into this category. **Conferencing** refers to synchronous communication between 2 or more individuals. Phone calls, Chat sessions, video teleconferencing and web conferencing systems are examples. **Collaboration** refers to interactive work toward a shared goal. Shared whiteboard applications and shared document editing are examples of this. **Coordination** refers to complex interdependent work toward a shared goal. Using project management software to develop software on timeline is an example of this.

Communication

Electronic tools for asynchronous communication of messages, files, data, documents, presentations, etc. between people and hence facilitate the sharing of information. Examples include:

- e-mail
- internet forums (also known as message boards or discussion boards) — a virtual discussion platform to facilitate and manage online text messages
- Web publishing, wikis, extranet systems, and intranet systems — collect, organize, manage and publish information for use in collaboration. Knowledge management and content management (CMS) systems fit into this category.

Conferencing

Electronic conferencing tools facilitate the synchronous sharing of information in an interactive way. Examples include:

- online chat — a virtual discussion platform to facilitate and manage real-time text messages
- audio/video teleconferencing — telephones, voip, h323, allow users to interact through talking and seeing

- data conferencing — networked PCs share applications, like whiteboards that each user can modify
- desktop sharing — users can access a shared document or application from their respective computers simultaneously in real time

Collaboration

- shared calendars — schedule events and automatically notify and remind group members
- file sharing software like briefcases, webDAV, and similar components in many CMS.
- shared document editing – advance forms like Google Docs and less advanced forms like Wikis.
- portals to domain specific applications

Coordination

Collaborative management tools facilitate and manage group activities. Examples include:

- project management systems — schedule, track, and chart the steps in a project as it is being completed
- knowledge management systems — collect, organize, manage, and share various forms of information; this might be done in extranets or intranets but must have project specific organization to be of use in this category.
- social software systems — organize social relations of groups – includes voting and consensus building applications.

Software that supports these interactions may be web-based or desktop client-based and maybe modular or integrated into more complex “collaboration” suites. Collaboration software suites tend to mix and match various components into a portal or desktop product for marketing. It’s possible to make some generalizations about these by looking at the supported components. Most common of these, marketed as groupware or collaboration suites, include email, calendaring (includes task lists), and file sharing. In general there are no hard and fast rules about “collaboration” software. Flexible content management systems (CMS) can be configured to create similar shared environments. The conventions expressed above are a product of the homogenization of available knowledge and personal experience with mature and developing products. Figure 1 compares the categorical names these software packages are marketed under with the more explicit collaboration names that they include. An analysis of this type is necessary to pinpoint the required functionality of the products being reviewed.

Software Marketing and Packaging Type	email	calendar	chat	forum	white board	file sharing	document editing	audio video	voting	desktop sharing	wiki / web posting
Groupware	Yes	Yes	Opt	No	Opt	Opt	No	Opt	No	No	No
Web Conferencing	No	No	Yes	No	Yes	Yes	Opt	Yes	Opt	Opt	No
Collaboration	Opt	Yes	Opt	Opt	Opt	Yes	Opt	Opt	Opt	Opt	Opt
Project Management	No	Yes	No	Opt	No	No	Opt	No	No	No	Opt
Content Management	Opt	Yes	Opt	Yes	Opt	Yes	Opt	No	Yes	No	Yes

Figure 1. A generalized matrix of names under which groupware is marketed and the included collaboration components.

Conclusions

Collaboration components needed by the LTER Network to support synthesis include these entire but because of the distributed nature of the scientists and institutions involved it is unlikely that a product that brings all these things together in one package will be acceptable. For example, all scientists in the network have their own email provider – it is unlikely that they would be persuaded to use a common email framework. A similar example could be made for calendaring although there will be a necessity for project calendaring. So collaboration software for the LTER Network needs to be modular, not dependent on one package, like email, for the whole to function. The ideal system would be web-based and/or cross-platform and support adopted standards like LDAP and H323.

Next Steps

We now need to (1)develop specific requirements based on users experiences. I expect the next steps in this analysis will be to do a short survey of synthesis group leaders for an initial pass at requirements and then (2)deploy an evaluation platform and (3) submit a “request for comments” to the network. I anticipate that this could happen in the fall of 2007.

Appendix I

In preparation of this report I have evaluated, reviewed and generally picked about through over 100 packages from the multitude of available offerings. The list that follows are evaluated packages by their marketed category that included one or more of these components. These projects were evaluated over the period of 2003-2007 and some may no longer exist or have merged into other projects:

Groupware

- eGroupWare - Open source enterprise collaboration system. Requires PHP and MySQL or PostgreSQL. UNIX, Windows, Macintosh
- exchange4linux
- Exchange Server - Email server software that facilitates exchange of data among Microsoft Outlook users.
- GroupVille - Web-based Groupware package for desktops and smartphones
- HyperOffice Features include web-based email, document management, group calendars, task manager, discussion forums, contact management, opinion polls, announcements, and Outlook synchronization.
- Group-Office – open source development platform – everything for everybody
- Horde/imp/Kolab – python based email and collaboration tools
- Novell GroupWise – proprietary email, calendaring, and tasks.
- Open-Xchange – proprietary but inexpensive cross-platform MS Exchange like
- OfficeMaster Offers forums, conferencing, calendaring, web publishing, email, address books, and more.
- OpenGroupware.org – open source groupware – does everything – based on Skyrix code
- Oracle Corporation Oracle Collaboration Suite a suite of e-mail, calendar, tasks, IM, web conferencing and document management
- Simple Groupware - open source groupware package written in PHP, XML, SQL, HTML, CSS and sgsML. All things to all people.
- Scalix – open source - linux based email and calendaring
- Workspot is a web service providing Linux desktops, which can be shared securely through a browser.
- Zing Technologies AnyZing and ZingThing - Electronic Learning and Meeting System software for team rooms and networks.
- Zimbra – ajax-based email, calendar, tasks and document sharing – nice interface
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Web Conferencing

- Adobe Acrobat Connect (Breeze) is a hosted online training, web conferencing, and learning solution that leverages Adobe Flash technology.
- Central Desktop - Easy-to-use group workspace with highly intuitive user interface. Features discussion forums (can be dropped in anywhere), file libraries, calendars,

task tracking, etc. Some wiki-like features, as well. Integrated live web conferencing is optional.

- Bored-Room - Hosted virtual office space with desktop sharing for up to 11 (1 moderator and 10 guests), video broadcasting for up to 25, Power Point presentations from your desktop/website or through their server. Remote computer access, private rooms. Rentals ranging from hourly plans to annual membership.
- AirSet, - An online personal information manager with sharing capabilities. Groups can share calendars, contact lists, and to-do lists. Accessible through web browsers, PDA's, and some mobile phones. Can synchronize with Outlook.
- BigMind Catalyst - customizable social space for collaborative work, learning, in-depth conversations, project management, and problem-solving in a well-organized environment.
- Collaboration Gateway -Offers secure eCommerce, event registration, polling, email/eNewsletters, discussion forums, project management, eLearning classrooms, CRM functions, and other features.
- CollaborativeWorkspaces.com -Offers online workspaces with a variety of tools, including discussions, chat, messaging, blogs, document sharing, and polls, integrated with Microsoft Office.
- Comapping - Browser-based mind-mapping for brainstorming, online presentations and other collaborative uses. Small per-person fee enables up to 20 users to add to or edit comap simultaneously. Maps can be shown to an unlimited number of viewers at no charge. Can also be installed on your own server behind firewall. Windows, Macintosh.
- Communispace - builds corporate communities based on their own software.
- Comotiv Collaboration - A suite of tools offering a combination of real-time and asynchronous collaborative tools, including project and task management, discussions, sharing of files, notes, bookmarks, and contacts, as well as real-time audio and video conferencing.
- Dicole - Environment for collaborative work and e-learning. Also available as open source software.
- eStudio - A "virtual office suite" with 15 collaboration tools, including message boards, real-time chat, group calendars & scheduling, project tracking, presentations, contact management, project time logging, document management, and more. Your workspace can optionally include an integrated live web and video conferencing tool Free for the first 30 days.
- Facilitate.com -Tools for brainstorming, categorizing and decision making designed to enhance productivity in the meeting room and over the internet.
- Google Apps - Free service offering web-based creation and editing of word documents and spreadsheets. Not as laden with features as Microsoft Office, but it handles the basics. You can use it privately, or share access with any group you specify. Also offers email (Gmail) and shared calendars. Note: you must have control of a web domain to create an account.
- GroupMind Express Designed for group decision making and project tracking. Used primarily in conjunction with real-time phone or face-to-face conferencing.
- HotOffice Intranet Office Suite Offers document management, group contact manager, bulletin boards, web-based email, and chat rooms.

- iCohere Complete workspace solution that integrates conferencing, document management, instant messaging, and other collaboration tools.
- iKE Collaborative work and project management service, featuring extensive document sharing, planning and tracking, chat and messaging features. Priced according to storage and bandwidth usage.
- Mix Meeting Real-time conferencing options including reservationless online meeting rooms able to accommodate small or large groups. Application and desktop sharing, file editing and transfer, interactive chat, polls. Hosting options available; pay only for the time you use. Also offering pay-per-minute conference calling with toll-free dial in. High volume discounts available.
- Near-Time Collaborative workspaces built on the concepts of blogs and wikis. Free plan allows unlimited users, blogs, wikis, and calendars. Additional features (task management, file sharing, management controls, and others) come with monthly fees, but are still inexpensive.
- Netcipia Public and private collaborative work spaces with a variety of tools/features including blogs and wiki. Document and file management/sharing along with website publication, corporate intranets and extranets, individual or collective blogs. Available as a hosted service with a dedicated server or free with shared server. No ads. Java based.
- NetSharer Low cost service offering features for collaboration, sharing, exchanging, and managing files and documents securely online.
- Orchestra Web-based shared workspace application, can be integrated into existing website. Installation required. This website appears to require Internet Explorer.
- Quick Doc Review A free, instant, private space for gathering comments on a Word or HTML document. The "Pro" version allows password protecting your documents and other features, for an annual fee.
- Polycom web conferencing
- ProjectSpaces Web-based collaboration tools featuring document storing/sharing, on-the-fly discussions, multiple project/task management. Monthly fee (unlimited members) based on number of projects. Free trial.
- Socialtext Wiki collaboration. Also features team blogs, searching and tagging, and file management. Integrated with email and instant messaging. Free for up to five users; monthly fees for larger groups.
- Socius Features group and user profiles, forums and listservs, file repositories, surveys, group calendars and scheduling, issue tracking, and search tools.
- WebEx WebOffice (formerly Intranets.com) Features document management, calendars, task management, discussions, contact lists, expense reports, polls, and databases. Optionally integrates WebEx live web conferencing at extra cost.
- Webforum Hosted applications to create user and discussion groups, control permissions, share files, etc. Available in many languages, which can be used simultaneously. No download, installation or programming experience required. Cost based on number of users. Also offer other web-based ASP services.
- WorkSmart - Hosted, project management applications featuring web-based workspaces, real-time document and file sharing, to-do lists, scheduling, trouble ticket management and task-based time tracking. Ability to customize site and

database templates, define complex user access permissions. On demand subscription pricing, no contract. Free trial.

- WorkZone -Extranet or intranet for secure collaboration and document sharing.
- xPert eCommunity -Collaboration platform optimized for communities of practice and work teams. Also available as licensed software.

Collaboration

- ACE - is a platform-independent, java-based, collaborative text editor. It is a real-time cooperative editing system that allows multiple geographically dispersed users to view and edit a shared text document at the same time.
- @task - Extended project management software, including document sharing, scheduling, threaded messaging, etc. Also available as a hosted service. UNIX, Windows, Macintosh (based on Java)
- activeCollab - Open source, web-based collaboration and project management software similar in layout and navigation to Basecamp. Unlimited projects, post messages, email notifications, establish milestones, assign tasks, insert tags, attach unlimited number of files, search every object in project. MySQL,PHP5, Apache recommended.
- Agora-project - Personal and group calendars, file sharing, instant messaging, email, private forums. Requires PHP and MySQL. Site in French.
- AROUNDMe - Open source collaboration software. Combines social networking tools with many additional features, including forums, document libraries, calendars, and blogs. UNIX, Windows (written in PHP)
- Atlassian Confluence is an enterprise wiki used for collaboration and knowledge sharing.
- Basecamp - is a web based project collaboration and management tool.
- BSCW - Shared Workspace System - A licensed, web-based environment for collaborative document editing and other shared work. UNIX, Windows
- BRANE - Enterprise collaborative work platform. BRANE embeds discussion throughout the team workspace so that discussions take place in the context of relevant documents and project management information. Windows
- BrightSuite - Features both asynchronous collaborative tools (forums, calendars, scheduling, etc.) and real-time tools (conferencing and instant messaging). Source code is available for complete customizability. Requires Microsoft Access, SQL Server, or MySQL. Windows
- cassiopeia - Suite of applications for workgroup collaboration. **latforms:** UNIX, Windows NT
- Caucus - High-end, customizable forum system that readily interfaces with other groupware applications. Also available as a hosted service. **latform:** UNIX
- CZ Enterprise icensed version of Community Zero software for online collaboration and communities. Runs under any platform that supports the Java Runtime Environment. **latforms:** UNIX, Windows
- Collaber is Eclipse (software) based peer-to-peer platform.

- Collabnet provides solutions for distributed collaborative software development.
- Collanos Workplace: server-less, cross-platform collaboration solution for teams working beyond or outside enterprise platforms
- Central Desktop wiki-based on demand team collaboration software for small and medium sized businesses.
- Clearspace web-based suite integrating forums, blogs, wiki, chat, and VOIP.
- CoMotion by General Dynamics C4S Viz (formerly MAYA Viz Ltd) is a multi-tiered client-server collaborative workspace system with extensive data visualization, Deme - Free, open source platform for small to medium-size groups who make decisions democratically. Features discussion forums with integrated email capabilities, collaborative document authoring, and polling. Requires PHP and MySQL. **latform:** Linux
- Dicole - open source software for collaborative work and e-learning. Also available as a hosted service. UNIX
- EditGrid is an online spreadsheet with access control and revision history support, whose RTU (real-time update) feature allows multiple users to collaborate on the same spreadsheet simultaneously.
- Elluminate is a web based, realtime collaboration tool with audio, video, whiteboard, application sharing simultaneously between Windows, Macs, and Linux users.
- Fle3 – web-based virtual learning environment – based on Zope
- eRoom - Collaborative work environment requiring a Web browser plus eRoom client software. Windows
- FoxSuite - Comprehensive suite of applications with 40 customizable modules for document/project/data management and sharing, web site creation, blogs, wiki board, web-based polling/charting/meetings. Buy or lease. Windows
- GNU Glue - An open source groupware project under development.
- Golightly - Full range of software and services for organizations including membership management, secure online community forums, editable workspaces, project management for fundraising, and more. Offering two pricing tiers designed to accomodate nonprofit organizations. Windows, UNIX, Macintosh
- Groove - Peer-to-peer collaboration system. Office tools for sharing files and workspaces, project management. Windows
- GroupServer - Open source software supporting email-based discussion forums with web archives, file sharing, surveys, and other features. UNIX, Windows
- GroupSystems - A suite of team-based decision software tools, including brainstorming, topic commenting, group outlining, voting, surveys, etc. Windows NT / Citrix WinFrame.
- Hipergate - Open source Java-based suite of applications, including collaborative tools, contact management, project management, content management, and more. UNIX
- iManage WorkTeam - Platform for collaborative work, including forums, team calendars, document management, etc. Part of iManage's WorkSite product line.
- Intranet Connections - Intranet software for employee collaboration, featuring discussion forums, bulletin boards, event calendars, in/out board, e-form builder and survey polls. Requires Cold Fusion. Windows

- IntraSmart - Intranet software featuring message boards, group calendars, company directory, document library, and more. UNIX, Windows, Macintosh
- IsoSpace - workspaces featuring real-time web and video conferencing, instant messaging, and persistent message boards, document management, etc. Built on a J2EE platform so no client download is required; works on mobile devices as well as PCs. Available both as licensed software and as a hosted service. Windows, UNIX, Macintosh
- JotSpot Wiki - supports calendars, spreadsheets, file repositories, and photo galleries. Built for ease of use
- Kerika cross-platform graphical Wiki that combines whiteboarding with document management
- Facilitate.com- An environment for collaborative group work, including realtime chat, asynchronous discussions, surveying, and brainstorming tools.
- Marratech Realtime collaboration with audio, video, whiteboard and chat.
- Microsoft Netmeeting – video, audio, and application sharing using standard protocols – limited to 128K
- Microsoft Live Meeting
- Microsoft Office Live Communications Server
- mayeticVillage - Collaborative workspaces available in several licensed and hosted configurations, from free spaces for small organizations to large enterprise solutions.
- Metalayer Community Hub - Portal software designed for corporate collaborative communities.
- MindAlign - Enterprise software offering a unique "collaborative messaging framework", offering a form of presence awareness and instant messaging with communications saved for future reference in group and topic-based channels. Also available as a hosted service.
- OpenTeams is a web-hosted environment with wiki, blog, bliki, tags, file attachment (with version history), discussion, WYSIWIG editing, and "What's New" change monitoring functionality in an email-like 3-pane Web 2.0/Ajax interface.
- Owis workflow management, document management, knowledge base, calendar, IM and collaboration suite
- Open Team Support - A free Web-based center for collaborative work. Supports discussion, voting, an information repository, and other features. This is a research project still in progress.
- PhpCollab - Open source project collaboration system (under development). UNIX, Windows
- phpGroupWare - open source groupware system. UNIX, Windows
- ProjectWeb - Project management and collaboration system with a strong emphasis on design and construction projects. Features secure file sharing, change notification, threaded discussion, history tracking and markup collaboration. Windows
- Quicktranet - Software for quickly creating a company intranet, including chat rooms, threaded message boards, news, calendars, and other features. Also available as a hosted service
- RealizationEngine Open source system for collaborative work using threaded discussions. Available free under the GNU General Public License. Non-GPL

licenses can be purchased. Also available as an inexpensive hosted service. UNIX, Windows

- SamePage - Workgroup collaboration environment. UNIX
- Socialtext provides wiki and weblog web-based collaboration
- SharePoint - Windows Sharepoint Services is an add-on to Microsoft Windows Exchange Server that you can use to share information, collaborate with other users on documents, and create lists and Web Part (portal) pages. The Sharepoint Portal Server (not free) is built upon Sharepoint Services, and adds more sophisticated portal features, including team portals and personal portals. Windows
- Simplify - A platform for building intranets for collaboration, implemented entirely in PHP. Requires MySQL or other SQL database. Linux (Windows version under development)
- TalkAndWrite - It allows you to work in any document like you were side by side. Powered by Skype. It is a Premium Skype Extra Freeware
- teamspace - Virtual team rooms including message boards, chats, calendar, team administration, file sharing, project management, idea generation and evaluation. Also available as a hosted service. UNIX, Windows
- Teamware Office - Groupware system that works with proprietary client software or a Web browser. UNIX, Windows
- Web-4M - Primarily a suite of realtime groupware tools, but features private newsgroups. Implemented entirely in Java.

Project Management

- Comindwork –Hosted web-based project management service automating task/work flow, ticketing and tracking bugs, wiki features for co-editing, document management, team memory, etc. Flexible dashboard and permissions. Monthly plans based on number of active projects and data storage requirements. Also available for custom installation on your own site.
- Collanos Workplace: cross-platform, server-less p2p teamwork solution
- dotProject – open source – php/postgres based project management portal
- eGroupWare
- Epiware - Project and Document Management
- erika - project sharing/project management application downloaded onto your computer. Each team member has complete set of files; new members added by email. Automatic email updates for members/participants not using Kerika. Storage server holds messages for buddies while offline. Capacity to share very large files. No up-front cost or long-term commitment. Windows, Linux, Macintosh
- Mindquarry Includes document synchronization, a wiki and task management
- Open-Xchange
- phpGroupWare Includes a project collaboration module
- project.net – ‘commercial’ open source project management application -
- Projistics - project management and collaboration system featuring task, resource and time management, calendar and status reports, opportunity management, resource management and knowledge management using a document center and knowledge

base, customizable workflow engine, issue and bug tracking, change management system, and risk management system. Windows

- Trac – web-based software project management
- ProjectCoordinator Web-based tool for project management, document management, and web content management. Also available as licensed software (the "portal" version.)
- Wrike – hosted web-based project management, task management -
- AceProject, by Websystems -Project management system, featuring task management, Gantt charts, statistics and reports, time sheet tracking, document management, email notifications, and discussion forums. Basic, limited use is free. Also available as licensed source code for Windows.
- Basecamp, Web based collaboration featuring task assignment, threaded message posting, scheduling, tracking time and file sharing. Tiered pricing for managing multiple projects. Free plan available for single project management.
- GroveSite -Wiki-based collaboration with project management features. Offers the ability to set up custom data tables.
- Celoxis -Web-based, scalable project management software available as hosted service or downloadable. Features task and resource management, shared calendar, workflow and budget tracking, along with threaded company-wide or project-specific discussion forums and secure client collaboration
- TaskComplete Enables a team to organize and track projects using a web-based task list with integrated calendar, discussion, and document management capabilities.
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Content Management

- Jahia content management, corporate portal, document management, collaboration suite
- Alfresco (software) content-management, workflow, and portal
- Microsoft SharePoint Services and Microsoft SharePoint Portal Server
- Open Text Corporation Livelink is an Enterprise Content Management solution
- Drupal – php/mysql based CMS
- phpNuke– open source – php/mysql based CMS
- postNuke– open source – php/mysql based CMS
- Plone – open source , python based CMS
- Joomla – open source, php/mysql based CMS
- Sakai project – open source portal development and CMS software