

Next Generation Activity-Centric Computing

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ABSTRACT

We present *Activities*, a natural way of managing one's individual and collaborative daily work. *Activities* organizes and integrates resources, tools, and people around the computational concept of a work activity, with the goal of increasing work quality and efficiency. Activity templates extend these benefits by capturing ad hoc business processes and best practices for later reuse. *Activities* consists of a centralized, web-based service and includes many extensions for existing desktop applications. *Activities* emerged from a multi-year research effort on activity-centric computing and has been in use since November 2005.

Categories and Subject Descriptors

[H.4.3](#) Communications applications -- Information browsers

General Terms

Design, Human factors, Activity, Activity-centric computing

Keywords

Activity, Activity-centric computing, Collaboration

1. INTRODUCTION

As enterprise IT environments become more complex, business users have an increasingly hard time effectively managing their work. A single collaborative activity is often managed with multiple collaboration tools and technologies at different levels of formality and/or at different points in its lifecycle, such as email, chat, wikis, discussion forums, listservs, document management systems, workflow systems, ERP systems etc [4]. This diversity of tools means that individuals must monitor and participate in multiple shared venues, dividing their attention and efforts. Predicting the scale of a new collaboration, and selecting the appropriate tools to use, is challenging, as resources can be difficult to move from one environment to another.

In this demonstration we present *Activities*, a novel collaboration tool that brings together all related work and collaborations into a common view. The technical goal of activity-centric computing is to bridge the gaps between tool boundaries by horizontally integrating different collaboration tools in a single conceptual context – the **activity**. The intent is not to provide yet another dedicated collaboration tool but rather a technology for organizing collaboration to reflect the work being done.

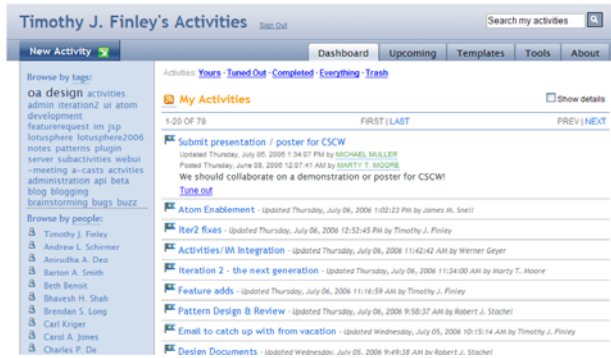


Figure 1. Web-based activity dashboard.

The basic idea behind *Activities* is simple: *Reorganize collaboration to reflect the work being done, rather than the technologies that support the work.* An activity can be defined as a logical unit of work that incorporates all the tools, people, and resources needed to get the job done [5]; related concepts include *Working Spheres* [2] and *Thrasks* [1]. Examples of activities are: preparing an executive meeting, planning a conference, closing a sale, or writing or responding to a Request for Proposals.

This project is a direct result of years of research into activity centric collaboration, including the research on Activity Explorer [5], the research work done in Unified Activity Management [4], and the Dogear social bookmarking system [3].

2. ACTIVITY SYSTEM

The design of *Activities* was driven by the goal of organizing work into shared or private activities. In this system an “activity” consists of a set of related, shared objects representing a task or project. The set of related objects is structured as a hierarchical thread called an “activity outline”, representing the context of the task at hand. The activity outline is similar to an activity thread [5], with more explicit structure than a working sphere [2], and greater diversity of resources than a thrask [1]. Users add items to activities by posting either a response to an existing object or a new resource addition directly to the activity. *Activities* initially supports sharing of six types of objects: message, chat transcript, file, tasks, web links, and email. Complex tasks can be structured through sub-activities. The system is extensible, i.e. new object types can be added to customize the system to particular application scenarios.

Activities are shared per default. There are three simple access roles: owner, author, and reader. In addition, *Activities* provides fine-grained privacy options for each object.

Activities also supports more structured collaborations in the form of activity templates [4]. Any activity can be copied into a template that can be used to create a new activity or sub-activity – for instance, if a person reviews journal submissions on a regular basis, they can create an activity template that includes a checklist and links to resources that are needed to perform the review.

Activities and objects within them can have simple metadata associated with them: description, due date, and tags. Keyword tagging allows users to find related resources in a single activity or across activities. Users can also search for terms within a specific activity, or across all their activities.

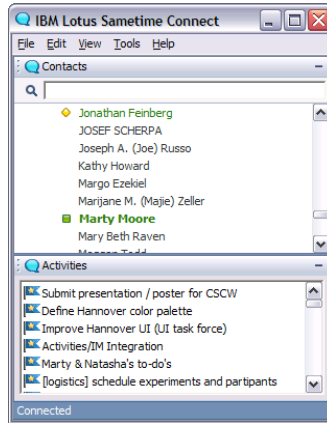


Figure 2. Activities embedded in the IBM Lotus Sametime Instant Messaging client

There are several ways users can manage their list of activities. Users can see a list of their activities by visiting a web-based activity dashboard (see Figure 1), or by subscribing to an RSS feed of their activities. Additionally, users may access their activities through a number of desktop-based extensions such as the IBM Lotus Sametime IM client (see Figure 2), Mozilla Firefox, or Microsoft Office. A user's activity list can be sorted by last modified date, due date, participants, or tag.

Each activity has a web page associated with it (see Figure 3) so that users can see recent entries posted to the activity, navigate the activity outline, see all the entries in the activity organized by type, and see the history of the activity. Similar to Activity Explorer [5], the activity outline is automatically structured based on the response hierarchy in an activity, but it can also be reorganized post-hoc if a user wants to create their own structure within the activity.

Users can access and post objects to activities either from the activity web page or from their usual working contexts: mail, office editor, web browser, instant messaging client, and line-of business tools such as a Lotus Notes database.

3. USAGE DATA

The *Activities* system has been in use internally since November 2005, and was broadly deployed within IBM in May of 2006. We have been gathering usage statistics during both of these periods. To date there are 2,682 registered users, with 2,327 activities and a



Figure 3. Activity web page with activity

total of 15,506 objects in those activities. The adoption rate of the service is constantly growing. We have begun analyzing the data and will report on these results in a separate publication.

4. CONCLUSION

This *Activities* system is the first step in a long-term development path toward building an activities service which is open, extensible, and easily integrated into the particular toolset of a user or corporation. Further improvements will be made in personal activity management, with particular emphasis on interruption management, task prioritization and deadline management, and tighter integrations with a user's mail, calendar, and contacts tools, including lessons learned from [1,2,4]. Ultimately, *Activities* will support extranet collaboration, allowing individuals or businesses to collaborate in activities across organizational boundaries.

5. ACKNOWLEDGMENTS

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