Posties: A WebDAV Application for Collaborative Work

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ABSTRACT
Collaboration among several groups in geographically distant locations is increasingly common in today's workplace. However, managing this kind of collaboration tends to be a difficult and cumbersome task. The most common tool is the e-mail notification to keep the project members informed, and to distribute the workload among the project members. This paper presents WebDAV Posties, a tool designed to facilitate collaboration between geographically distant groups.

KEYWORDS: WebDAV, WWW.

INTRODUCTION
Collaboration among several groups in geographically distant locations is increasingly common in today's workplace. However, managing this kind of collaboration tends to be a difficult and cumbersome task. The most common tool is the e-mail notification to inform the project members of updates to documents and source code, and to distribute the workload among the project members.

Even concurrent version control systems like CVS [3] have not yet found their way into the average distributed workplace, presumably because of difficulties in accessing CVS through corporate firewalls and the need to learn yet another software management tool. In addition, corporate management tends to shy away from Open Source development tools like CVS, mainly because of the limitations some Open Source licenses impose on the users of Open Source software [4]. Finally, the current collaboration tools represent insular solutions. For example, CVS does not work with e-mail tools or other commonly used file and configuration management tools.

This paper gives an overview of WebDAV and then presents with WebDAV Posties a tool to facilitate collaboration between geographically distant groups.

Hypertext 2000, San Antonio, TX.

WEBDAV
The unfortunate situation of managing collaboration led to the formation of the IETF WebDAV working group in 1996 to identify the key issues encountered in remote authoring using the Web. Subsequently, the WebDAV working group developed standard extensions to the Hypertext Transfer Protocol (HTTP) [2] to address these issues.

The WebDAV standard [5] extends the HTTP/1.1 protocol with features that allow Web client programs to perform remote authoring operations. These extensions provide the functionality for namespace management, metadata support, and overwrite protection. Version management (the V in WebDAV) is scheduled to be included in the follow-up work of the Delta-V working group [6]. A more detailed discussion of WebDAV is available elsewhere [7].

Namespace management
WebDAV provides operations to move and copy resources, and to create new collections of resources, thereby allowing users to remotely manage their web resources.

Metadata support
The WebDAV specification provides the ability to associate arbitrary attribute-value pairs with WebDAV resources. This allows users to specify metadata, e.g., document authors, copyright information etc. WebDAV supports queries to retrieve either all of the metadata associated with a resource or to limit the queries to specific attribute-value pairs.

Overwrite protection
WebDAV provides both exclusive and shared write locks. The exclusive write lock capabilities of WebDAV prevent users from overwriting each other's work, thereby avoiding the so-called “lost update problem.” The exclusive lock guarantees that only the lock owner can update a locked resource. In contrast, the shared write lock allows a group of collaborators to work simultaneously on the same resource. Exclusive locks provide a higher degree of conflict avoidance between collaborators, while shared locks allow for a greater degree of concurrent collaboration.

Version Management
In 1999, the IETF Delta-V working group has proposed Versioning Extensions to WebDAV [1]. The proposed extensions range from classical checkout/checkin

operations to full configuration management. In addition, WebDAV Versioning includes automatic versioning support for versioning-unaware programs.

WEBDAV POSTIES

WebDAV Posties is a "cyber-version" of the well-known Post-It® Note. Post-It Notes are a widely used and effective management tool to facilitate collaboration among teams. Obviously, the use of Post-It Notes is restricted to geographically close groups of collaborators. WebDAV Posties overcomes this restriction by abstracting from the paper form of the notes. Instead, WebDAV Posties stores the text content on a centralized WebDAV server. Therefore, Posties can represent the text online through a GUI (see Figure 1), anytime and anywhere.

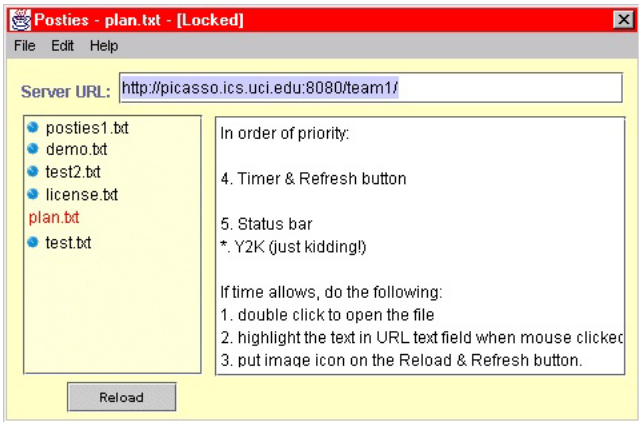

Figure 1: WebDAV Posties User Interface

The Posties implementation relies mainly on the overwrite protection provided by the WebDAV locking mechanism. The Posties user logs into the desired WebDAV server, using the password mechanism provided by the server. The user is then presented with a list of notes. The user can now view or edit these notes. The WebDAV locking mechanism ensures that only one user at a time is able to edit a particular note. The write lock is removed once the user has saved the modified note, again allowing other team members to further edit the note. Since WebDAV uses write locks only, all team members are able to view locked notes at any time.

The online storage of the notes increases the effectiveness of Posties as a management tool, since notes can be amended and modified at will by each member of the collaborating teams.The utilization of the HTTP protocol provides WebDAV with the ability to allow team members access to all Posties notes from their Web browsers, helping them to stay informed of the project progress. Project web pages can contain links to the Posties notes, and the notes themselves can contain links to other notes or to other web resources as well. The Posties notes can therefore be integrated seamlessly into existing Web-based hypertext structures. The collaborative authoring provided by the WebDAV Posties adds dynamism to the resulting hypertext structure.

The existing WebDAV Posties prototype implementation does not contain versioning support. However, adding versioning would increase the dynamism of the hypertext structure significantly by providing the ability to not only have links to the latest version of Posties notes, but to support access to the complete revision history of any note. This capability would be beneficial in numerous circumstances. In the context of project management, this dynamic hypertext could provide team members in collaborative environments the ability to easily capture and review the rationale of decisions during the course of a project.

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