WWW Based Collaboration
with the BSCW System

Wolfgang Appelt
GMD – German National Research Center for Information Technology
Schloß Birlinghoven, D-53754 Sankt Augustin, Germany
appelt@gmd.de

Abstract. The World Wide Web offers a great deal of potential in supporting cross-platform cooperative work within locally dispersed working groups. GMD has developed the BSCW System, a Web based groupware tool using the metaphor of shared virtual workspaces. The system is particularly useful – and already used by a large community – for cooperation between researchers in distributed environments. This paper describes the principles, architecture and functionality of the current (August 1999) version.

1 Introduction

Collaboration between researchers involves a rich set of modes and means of cooperation. For example, several researchers may meet spontaneously, e.g., at a conference, and discuss new research ideas. They may decide to write a joint paper, distribute the off-line drafting of different sections of the paper to individuals, have face to face meetings to discuss the drafts, maybe with mutual reviews between meetings, until the final paper eventually emerges and is presented to the scientific community. Depending on the area of research, besides textual communication additional media such as graphics, spreadsheets, animations, presentation of software or the results of experiments will be involved in their cooperation.

To enable efficient ways of cooperation, these collaboration processes need to be supported by electronic means, in particular, when cooperation takes place within locally dispersed groups. These electronic cooperation tools need to support the usual work practices of researchers, in particular, they need to provide

- a rich variety of tools for asynchronous and synchronous collaboration,
- a smooth transition between asynchronous and synchronous modes of collaboration,
- a close integration into the normal working environments of the users, and
- cross-platform interoperability, since in general cross-organisational research groups use a variety of platforms.

In the last years the Internet and the World Wide Web (WWW) in particular have become the most important infrastructure for communication within the
research community. Email over the Internet has emerged as the primary means of interchanging multimedia information between researchers, and the WWW has become an important medium for dissemination of research results. The WWW has a number of advantages as the basis for tools to support collaborative information sharing:

- WWW browsers are available for all important platforms and provide access to information in a platform independent manner.
- Browsers offer a simple and consistent user interface across different platforms.
- Browsers are already part of the computing environment in many organizations.
- Many organisations have also installed their own Web servers and are familiar with server maintenance.

Given these characteristics, the extension of the Web to provide richer forms of cooperation support for working groups is both appropriate and desirable. Therefore, the CSCW (Computer Supported Cooperative Work) research group in GMD’s Institute for Applied Information Technology (FIT) has developed the BSCW (Basic Support for Cooperative Work) system within the last five years which as its main goal seeks to transform the Web from a primarily passive information repository to an active cooperation medium.

2 General Approach of the BSCW System

Over the last years, CSCW research has led to a better understanding how to support electronic cooperation within groups in various environments. Empirical studies have shown (see e.g. [3]) the importance of joint information spaces (often called shared workspaces) particularly in locally distributed, loosely organised groups. The groups use such workspaces for the collection and structuring of any kind of information they need (e.g., documents, graphics, spreadsheets, tables, or software) to achieve the goals of their collaboration.

Such workspaces support primarily asynchronous modes of communication. This mode is normally the most important one for cooperation between researchers since in such an environment cooperation consists often in parallel, loosely coupled activities of the individual group members. Synchronous types of cooperation such as audio/video conferencing or chat sessions are usually of less importance but should also be supported to some extent. The usage of workflow systems – which are primarily addressing the execution of a set of tasks following a predefined sequence with allocation of responsibilities to persons or roles – is normally not appropriate in such groups.

The BSCW system is based on the metaphor of shared workspaces. The users access these workspaces with their normal Web browsers; the installation of additional software at the users’ sites is not necessary. A further focus of the system is the information of the users about the activities within their workspaces, i.e., the system provides several awareness services.