

Chapter 18

FCVW: Experiments in Groupware

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ABSTRACT

Pervasiveness of Internet and increasing geographical dispersal of work teams result in continuously growing importance of groupware - software that supports collaboration within groups. Numerous applications have been developed to address collaboration needs and many are widely used but don't fully satisfy work team requirements and the Internet potential. This paper surveys several groupware products and describes FCVW (Federated Collaborative Virtual Workspace), an experimental project designed to explore certain groupware aspects that are not sufficiently addressed by existing products.

INTRODUCTION

One of the predominant uses of computer networks since their inception has been support for collaboration and social interaction. Initially, this took the form of remote access to documents, but soon e-mail became one of the most prevalent network applications. Then, applications addressing various aspects of the use of computers in support of social and work-related communication (socialware and groupware) began to appear. From

the start it was clear that needs of social and work groups are closely related and that ideas used to support one area have their use in software supporting the other area as well.

A prime example of the overlap of social and recreational applications with groupware is the category of programs devised initially for fantasy games known as MUDs (Multi User Dungeons after the fantasy game of Dungeons and Dragons) (Curtis, P. & Nichols D. A., 1993). The spread of MUDs among recreational users and the recognition of their potential for work-related use lead to a new form of MUDs known as MOOs (MUD

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Object-Oriented) that took advantage of object-oriented technology. The flexibility of its basic concepts provided a new dimension—runtime user programmability - that is one of the essential features of the project described in this paper. Groupware and socialware research and production did not, of course, stop there and many other products based on a variety of different principles have been developed since the inception of MOOs.

Despite intensive research and development, many questions relating to groupware remain unanswered and intensive research is being conducted in the field. In our work, we selected an existing open-source non-commercial groupware product called CVW (Collaborative Virtual Workspace) (CVW Overview, 2007) as a starting point and used it to explore some of the most interesting groupware issues by adding functionality not present in the original. An overview of this exploration is the main subject of this paper. First, however, we present a classification of groupware to provide structure to the large number of existing groupware applications. We also give a brief overview of some of the most important or typical ones. This is followed by a summary of CVW, the basis of our own work, and a topic-by-topic presentation of the extensions that we added to CVW. A concluding section summarizes our work, reviews the lessons that we learned, and outlines our current work and plans.

A BRIEF SURVEY OF GROUPWARE

Applications designed for support of collaboration and social interaction initially focused on tools supporting individual work activities, such as shared access to documents, e-mail, scheduling of meetings, and synchronous and asynchronous communication. Eventually, it became clear that better results can be achieved by integrating tools supporting individual tasks into multifunctional environments. However, work on tools supporting parts of collaboration has not stopped. This is

because research often needs to address specific major issues of collaboration, such as mutual awareness of team members, and because new concepts and technologies supporting collaboration, such as wikis (Leuf, B. & Cunningham W., 2001) and blogs (Maybury, M., 2004), emerge independently of groupware development and complement existing collaboration tools.

Groupware research and development intensified when technology made groupware more attractive by providing higher network communication bandwidth, new hardware and software platforms, faster CPUs, larger computer memories, better displays, and larger storage capacities at lower cost. The result of this effort is a long list of products that have been developed and used by researchers, work teams, and loosely connected individuals. Because the number of products is so large, we will begin our survey by offering a categorization of major approaches.

Categorizing Integrated Collaborative Environments

Surveying collaborative environments can be confusing because there are so many of them. To provide a perspective, different approaches are often characterized by the major conceptual principles that they use - their underlying metaphor. Although there is no generally accepted classification, the following is a reasonable scheme even though it does not clearly separate particular groupware products because some environments combine several of these metaphors.

- **Space-Based Environments:** These environments are organized around the principle of a persistent virtual space, an emulation of the real-world physical arrangement of workplaces into interconnected virtual buildings, floors and rooms. In these environments, virtual rooms contain virtual objects (mainly, but not exclusively, documents) and tools, and are inhabited by

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