Schriften zu Kooperations- und Mediensystemen · Band 2

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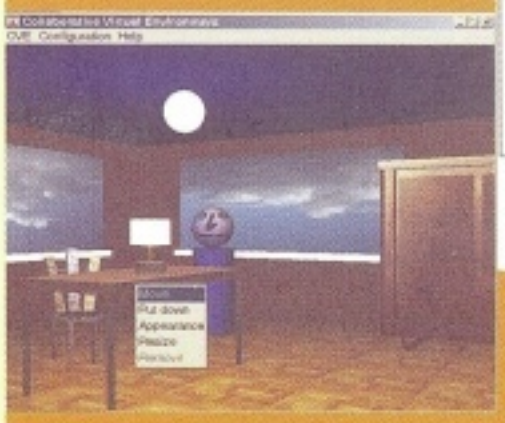
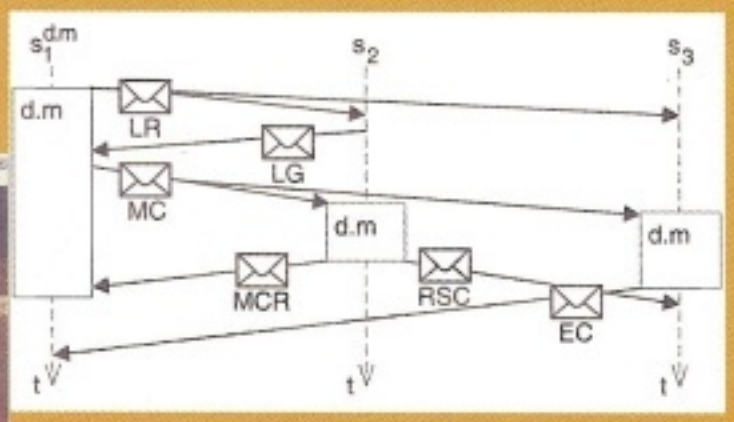
Stephan Lukosch

Transparent and Flexible Data Sharing for Synchronous Groupware





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Contents

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Synchronous groupware brings together users, who are geographically distributed and connected via a network. It encompasses a wide range of applications like collaborative whiteboards, text editors or virtual environments.

Developing synchronous groupware is a difficult and time-consuming task, an application has to establish network connections between the collaborating users, handle parallel input from many users, has to offer group functions for collaboration-awareness, and has to manage shared data. The latter belongs to the main obstacles during the development of synchronous groupware.

This thesis describes *DreamObjects*. DreamObjects is a platform that focuses on shared data management. It offers flexible and extensible solutions for the recurring problems that are related to data sharing and achieves a maximum of transparency for the developer, as it hides all necessary mechanisms for managing the shared state.

DreamObjects supports a variety of distribution schemes. The data of an application can be distributed to one developer-selected site, all participating sites, or a dynamically changing set of the participating sites. Similarly, a developer can choose between different mechanisms for concurrency control. If the offered solutions do not meet the requirements of the application, developers can even integrate their own solutions in the platform.

A user, who joins a session, can choose, whether he wants to join with a replay of the session or with a direct state transfer. Both mechanisms are fault-tolerant, decentralized, and do not block current participants of the session in their work. Finally, DreamObjects offers a decentralized persistency service to support the transition between asynchronous and synchronous work.

Stephan Lukosch, born 1973 in Herne, Germany, studied computer science from 1993 to 1998 at the University of Dortmund. Since 1998, he is working as a researcher at the institute for cooperative systems at the University of Hagen. In June 2003, he received a Dr. rer. nat. in computer science from the University of Hagen. His research interests include development and runtime support for synchronous groupware applications. During his work at the University of Hagen, he developed a platform that simplifies the development of synchronous groupware applications by relieving developers from data sharing issues.

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