Special Session: Web Computing

Session Chair: T. Gross

The Internet as well as the protocols, middleware, and applications running on top of it offer a broad range of new opportunities and entail several new challenges for the design and the development of parallel and distributed systems. Especially the World-Wide Web is based on components — such as the HTTP and HTML — that are very simple, yet powerful and easily extendible. Great progress has been made on the server side with developments such as Database support (e.g., WebObjects, Oracle 8) as well as the client side with various browser plugins and applets (e.g., Java, Macromedia Flash). Besides these developments and opportunities for further development on the technological side we are facing new organisational and socio-economical challenges. More and more enterprises act globally and are distributed world-wide, and make business with customers and suppliers world wide. Additionally, novel types of organisations emerge. In virtual enterprises, for instance, legally independent companies or people agree to act under one umbrella and to cooperate to fulfil emerging needs from the market. Based on the specifics of the respective project they build up team, where each partner organisation contributes its core competencies. Consequently, they highly rely on functioning information and communication technology that supports the cooperation among distributed work groups.

In the area of Computer-Supported Cooperative Work (CSCW) several concepts and prototypes for the flexible support of cooperation including functionality for the exchange of information, sharing of information, coordination, and collaboration among distributed work groups have been developed. The first CSCW system at the beginning of the 1980’s were in general proprietary and developed for a single hardware and operating system. They did only offer functionality for specific tasks and allowed only a limited number of users to cooperate. In the late 1980’s CSCW toolkits were developed that often provided core functionality for CSCW systems such as session management and data sharing and made the development of CSCW systems easier. Nevertheless, the systems that could be developed were still proprietary. Since the 1990s the wide-spread use of the Internet and other technology on top of it — Web Computing — offer developers of CSCW systems both a great technological basis with various strengths such as location transparency, operating system transparency, standardised protocols, standardised data formats, etc. and multifarious applications that can be integrated, extended, or augmented into more complex CSCW systems.

In this special session we want to discuss these recent developments including both new opportunities and new challenges from both the technical and the social point of view. The session comprises three papers dealing with Web Computing.

The first paper ‘CRAFT: A Framework for Service Integration in Distributed Systems’ by H. Ludwig and V. Hoffner is motivated by the need for cross-organisational distributed systems in the business-to-business as well as other areas. It presents the CrossFlow Runtime Architecture Framework that offers functionality for the integration of multiple internal services into a single external service, translation between domains, billing and payment as well as security and auditing.

The second paper ‘Integrating Pervasive Information Acquisition to Enhance Workspace Awareness’ by A. Ferscha presents the TeamSpace workspace system that provides distributed users with an environment for cooperation and pervasive information about the workspace. At the core of the system active objects are used to transmit the actions through the server to other clients autonomously. The system is based on the virtual reality markup language (VRML), Java, and the wireless application protocol (WAP).

The third paper ‘What Groupware Functionality Do Users Really Use? Analysis of the Usage of the BSCW System’ by W. Appelt describes a study of usage of the Basic Support for Cooperative Work (BSCW) system — a shared global workspace system based on the World-Wide Web. The study is based on approximately 5.9 million server accesses by approximately 17000 users of a public BSCW server. Data concerning general usage characteristics, usage of BSCW features, and user behaviour is analysed and discussed.

With these three papers we hope to cover the whole life cycle of CSCW systems including their design, their implementation, and their evaluation.