Session 2: Web Computing

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We are facing a new era of workgroup computing. Communication facilities on the World Wide Web play a key role in the design and implementation of distributed systems for cooperation purposes. Internet communication facilities allow processes to be spread over the Web to communicate and to access remote resources. Performance of the whole distributed system, in particular a distributed workflow and communication system, depends on this facility. It was the development of efficient and cost effective interconnection structures on the one hand and the price performance evolution in microelectronics on the other hand which were prerequisites for the development of distributed communication applications. One of those new application areas is Computer Supported Cooperative Work (CSCW). In its most general form, CSCW examines the possibilities and effects of technological support in distributed collaborative group communications and work processes. In the field of 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 workgroups have been developed. Since the 1990s the wide-spread use of the Internet and other technology on top of it offer the developers of CSCW systems both a great technological basis with various strengths such as location transparency, operating transparency, standardized protocols, standardized data formats, etc.

As local and wide-area networking technologies become more sophisticated, distributed group working is a well-suited scenario for computer use and presents theoretical and practical problems that have not been thoroughly addressed in computer science research. This session aims to bring together experts from academia and industry who share an interest in the study and design of effective Web computing solutions as well as approaches and methodologies. It focuses on understanding the impact of Web computing environments in order to facilitate the design of complex cooperation systems. This session is an opportunity for designers and researchers to discuss their experiences with implementing cooperative systems on the Web in large organizations such as industry, government and academia. It is open for sharing information about new Web technologies and practices.

In this session we have four papers dealing with the various aspects of Web computing. The first paper by Ranieri Baraglia, Renato Ferrini and Domenico Laforenza is entitled “Metapsi: A Web-based Metacomputing Environment to build a Computational Chemistry Problem Solving Environment”. It describes the features of a problem solving environment, designed to facilitate the execution of a complex chemical application on a metacomputer through the Web.

The second paper “Ambient Interfaces in a Web-Based Theatre of Work” by Tom Gross deals with the problem of awareness: how to supply the members of a workgroup with the information they need about their environment – the other members of the group, about shared artefacts, about meetings etc. Awareness infrastructures are presented that improve the presentation of information and the paper describes their integration into real-world settings.

The third paper “SALSART - A Web Based Cooperative Environment for Offline Real-time Schedule Design” is by Gerhard Fohler, Damir Isovic, Tomas Lennvall and Roger Vuolle. The system described comprises a set of stand alone tools interacting via an internet based central supervisor.

The last paper by Erwin Großpietsch and Erik Maehle is entitled “Routing to Support Communication in Dependable Networks”. In this paper issues of dependable communication by means of routing techniques for the Internet are presented and discussed. The presented survey comprises approaches that are of importance for one of the three basic levels of Web communication: communication within parallel server machines, in local networks, and in the Internet itself.

Overall, the Web technologies promise a better support of human communication across wider distances than it was previously possible. Yet, if this vision is to be realized, many difficult problems remain to be solved and are the future challenges. Nevertheless the four papers presented give a good overview over the design, the implementation and the evaluation of Web computing applications today.