Special Session: Distributed Mobile Computing

Session Chair: K. Sandkuhl

Distributed Mobile Computing (DMC) is a rapidly developing field of interest, bringing together researchers from a wide range of disciplines within information technology. One key aspect in the context of mobile computing are mobile devices, as for example handheld computers, palmtops, or mobile phones with internet-access via WAP (Wireless Application Protocol). The increasing processing power of these devices and their integration into network infrastructures (mobile internet and intranet access) lead to a wide range of new applications and services, extending distributed systems via wireless communication media.

In its most general form, DMC examines concepts, technologies, application areas and effects of mobile devices within IT-infrastructures. Research and development in this area encompass various research questions from different fields, including:

- communication media: integration of emerging communication standards (e.g. Bluetooth or UMTS) into mobile devices;
- application protocols: light-weight protocols for communication between mobile devices and back office components;
- software engineering: software development processes and architectures tailored to the features of mobile devices;
- content management: representation, transformation and distribution of information objects, content portions, and documents for mobile devices;
- application areas: new generation services and applications for various fields, e.g. mobile commerce, business-to-business, home automation, traffic management, railway systems, automotive applications, etc.

This special session aims to bring together experts from academia and industry who share an interest in the study and design of innovative DMC solutions and methodologies. It is an opportunity for designers and researchers to discuss their experiences and ideas for new system architectures, application areas and practices.

In this session we have three papers dealing with different aspects of DMC and reflecting the scope of research in this area: The first paper is by Sandra Haseloff: “Designing Adaptive Mobile Applications”. The paper discusses architectures for mobile software systems. On the basis of a view concept it presents a layered and component-oriented software architecture. The focus of this architecture is on supporting the development of adaptive mobile applications.

The second paper “Towards Ubiquitous Awareness” is by Tom Gross. The paper presents an application for DMC from the field of Computer-Supported Cooperative Work (CSCW). It concentrates on the aspect of “awareness” within groupwork scenarios and presents an approach for extending awareness mechanisms to mobile devices.

The last paper is by Bernd Schopp, Axel Ropnack, and Markus Greunz: “The Need for Topological Time and Location Information in Mobile E-Business Applications” As localisation-services will soon be provided by mobile communication suppliers, a new generation of services and location-dependent applications will emerge. The authors discuss the impact of time, space and intention for mobile computing and give examples from electronic business scenarios.

Overall, DMC promises better information provision and support for mobile persons and new types of applications in business scenarios. Yet, if this vision is to be realized, many problems remain to be tackled. These are the future challenges for DMC research.