Call for Papers

M-MPAC 2009
International Workshop on Middleware for Pervasive Mobile and Embedded Computing
http://www.smartlab.cis.strath.ac.uk/M-MPAC/

A Workshop of Middleware 2009
Urbana Champaign, Illinois, USA
November 30 – December 4, 2009

Problem Space

Building on the success of the previous editions of MPAC and MobMid, this event combines the thematic areas of the two workshops and aims to develop a research roadmap on essential middleware abstractions and platforms for pervasive mobile and embedded systems.

In recent years, the rise of relatively powerful mobile communication devices like mobile phones, mobile Internet devices, and netbooks, as well as several types of embedded devices, like TV set-top boxes, iPods, Kidle, etc, has enabled a wide spectrum of novel pervasive applications, such as healthcare monitoring, sport tracking, context-aware collaborative computing, etc. Moreover, with the rise of cloud computing infrastructures developers have also started exploring the possibility of empowering resource-constrained mobile devices with such infrastructures offering unlimited storage and computing resources.

Developing practical applications for this kind of devices is still in most cases a complex and time-consuming process. Many of the existing applications have been built in an ad-hoc manner and without any possibility for code reuse. As the number and type of mobile and embedded devices, and pervasive applications increases, so does the need to enable interoperability among them. Identifying appropriate middleware abstractions and organizing successfully used protocols, algorithms, and software modules into generic middleware platforms can facilitate application development, foster software reuse, and enable rapid prototyping of pervasive applications.

It is unclear and in many respects still an unexplored research area to what extent traditional middleware services can be provided on these devices. Porting existing middleware architectures to these new computing platforms turns out to be often infeasible. Instead, a thorough reconsideration of middleware abstractions and their supporting infrastructure is needed to allow applications to make effective use of the available computational power, memory, communication technologies, integrated sensors, etc. An ideal middleware platform should be capable of handling the resource constraints of these devices but at the same time exploit their unique features such as availability of location information, embedded sensors, mobility, spontaneous interaction, context-awareness, etc.

Topics

The main topics of the workshop include, but are not limited to:

**Device platforms**
- Virtualization technologies and applications
- Distributed ensembles
- Interaction paradigms and protocols
- Emerging mobile platforms (e.g., Android)
- Virtual machines (J2ME, .NET, etc.)

**Data issues**
- Data formats and encoding
- Availability and durability of data in personal networks
- Synchronization of personal devices with other consumer electronics such as cameras, iPods, etc.
- Data portability

**Security and Privacy**
- Privacy preservation and identity management for device-to-device interactions
- Security architectures balancing risk and utility
- Trust management in device ensembles
- Mobile device data security

**Applications**
- Healthcare, entertainment, games, mobile TV, smart spaces, etc.
- Mobile phones in sensor and ad hoc networks
- Application development on mobile and embedded devices
- Programming models

**Networking**
- Emerging wireless technologies and platforms
- Experiences or case studies with new technologies (WiMax, WiBree, LTE, etc) and devices (MIP, UMPC, wearables, etc)
- Multi-link scenarios: WiFi, Bluetooth, cellular network
- Quality of service and network selection

**Adaptability**
- Context-awareness, location monitoring
- Resource management, cyber foraging, and energy-awareness
- Using cloud infrastructures for computing-intensive tasks and data storage
- Autonomics and self-* properties

**Mobile Web**
- Web architectures (REST, Ajax) in pervasive computing
- Context adaptation and management in pervasive computing
- Mobile web scalability and reliability in access
- Content adaptation on mobile devices

**Experiences and case studies**
- Lessons from deployments
- User experiences
- Performance studies
Submission

Submissions should not exceed 6 pages and should be formatted using the ACM proceeding style (see http://www.acm.org/sigs/pubs/proceed/template.html). Submission implies that at least one of the authors will register and present the paper. Please submit your paper in PDF at http://www.cis.strath.ac.uk/external/m-mpac2009/openconf/

Papers should present a view of the state of the art in a particular sub-problem area, identify specific middleware challenges, and suggest potential avenues for exploration by proposing models, abstractions and infrastructure components addressing these challenges. Approximately two thirds of the workshop will be devoted to the presentation and discussion of these papers, while the remaining third of the time will be devoted to the development of the research roadmap.

Papers will be reviewed by at least 3 members of the program committee. The review process will be based upon identifying the relevance and potential of the position statement to contribute to the elaboration of the roadmap and to stimulate discussion.

All accepted papers will appear in a special workshop proceedings volume in the ACM Digital Library. The publication of the best workshop submissions and the research roadmap in the style of previous events is under investigation.

Important Dates

* Paper submission deadline: August 1 2009
* Notification of acceptance: September 15 2009
* Final camera ready papers due: October 1 2009
* Workshop date: November 30 2009

Program Committee

Paolo Bellavista, Università di Bologna, Italy
Gordon Blair, Lancaster University, UK
Cristian Borcea, NJIT, US
Renato Cerqueira, PUC-Rio, Brazil
Dan Chalmers, University of Sussex, UK
Domenico Cotroneo, University of Naples, Italy
Didier Donsez, Université Joseph Fourier, Grenoble I, France (Publicity Chair)
Markus Endler, PUC-Rio, Brazil
Roy Friedman, Technion, Israel
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Oriana Riva, ETH Zurich, Switzerland (Workshop Co-Chair)
Luís Rodrigues, Technical University of Lisbon, Portugal
Romain Rouvoy, Université Lille 1, France
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Venu Vasudevan, Motorola Labs, US
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