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Mobile Semantic Computing

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Special Session Title:
Mobile Semantic Computing

Organizers:

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Session Abstract:

We propose to organize a special session on research in the intersection of mobile computing, the Semantic Web and Web services. This session will examine how the research in these areas can serve as a foundation for new architectural and communication paradigms that can enhance service creation, distribution, discovery, integration and utilization in distributed and ubiquitous environments. Some of the initial areas that our early research have highlighted are :

1. Semantic annotation of data in bandwidth constrained environments such as mobile networks to promote efficient bandwidth utilization
2. Possibilities of using microformats such as RDFa and opportunities that can be explored by their usage in applications such as mashups
3. Utilization of semantic annotation in the client side for more intelligent data gathering and processing
4. Ontologies and meta models to describe execution environments for services
5. Role of semantic web in taking the foundations of social computing and Web 2.0 to the mobile environment.
6. Semantically rich policies to control interaction and behavior of devices in mobile environments., in particular to enable security and
7. privacy.

The proposed special session would be one of the earliest forums to facilitate discussion in the intersection of Semantic Web, Web Services and mobile computing research areas. This session is expected to attract researchers with varied interests and would serve as a common platform for forging new collaborations towards exploring the research space of Mobile Semantic Computing. The proposed special session would be one of the earliest forums to facilitate discussion in the intersection of Semantic Web, Web Services and mobile computing research areas. This session is expected to attract researchers with varied interests and would serve as a common platform for forging new collaborations towards exploring the research space of Mobile Semantic Computing.

Session Outline:

- Overview paper written by organizers
- Invite talk by an active industry personality (eg., Ora Lassila from Nokia, or someone from Google, Yahoo!, IBM)
- four invited papers from active researchers and technologies in the area (e.g., Dipanjan Chakraborty from IBM, Massimo Paolucci from DoCoMo, Lalana Kagal from MIT, and others)

*Outline of the the overview paper: *Initial draft**

The advent of powerful mobile devices, mobile computing platforms and interfaces are rapidly ushering the next computing revolution. The recent

surge in the growth and adoption of the RESTful services paradigm for delivering applications as services on the Web have challenged and changed

conventional approaches to software design and delivery. Combined with the evolution of Semantic Web techniques and principles, the areas of mobile computing and RESTful services can take us closer towards realizing the

Web as a ubiquitous platform for data, information, knowledge and application exchange. While the possibilities are endless and are exciting, one

needs to address certain basic issues that have to be resolved before the grand vision can be realized. We outline and illustrate some of these

issues in this paper. The issues we outline include

- 1) Efficient ways to distribute data processing between service providers and users, especially data integration in case of mashups,
- 2) semantic annotation of data and data formats that can be used in bandwidth constrained environments such as mobile environments,
- 3) need to identify techniques to model and describe various execution environments, their capabilities and constraints and
- 4) the role of semantic web in taking the foundations of social computing

and other emerging Web 2.0 paradigms into ubiquitous environments.

[Note: [eBiquity](#) group has has long standing research program on pervasive computing and social semantic web, while the [Kno.e.sis](#) Center is a recognized leader in semantic web and services computing. Latter's work has played key influence and role in W3C's SAWSDL recommendation for semantically annotating Web services. Follow on work on SA-REST and its application on android platform is in progress. Profs. Joshi and Sheth have been involved in numerous activities related to this special session. We will be happy to work with conference organizers to further customize this session and guidelines.]