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Mobile Semantic Computing

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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.]