Second International Workshop on Location and the Web (LocWeb 2009)

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ABSTRACT

Location-Based Services are becoming increasingly Web-based, as a result of the availability of networked mobile devices and mobile Internet access. The "Location and the Web (LocWeb)" workshop targets the capabilities and constraints of Web-based location-based services, which can be implemented as browser-based applications, or as native applications using Web services. The focus of this CHI workshop is on developing approaches to handle the complexity of location-based services, specifically looking at location abstractions, location sharing, context-relevant information, privacy issues, and interface design. The goal of this workshop is to serve as a starting point for better understanding how the Web has to change to embrace location as a first-level concept, and how these changes are reflected in applications and user interfaces to transform the Web into a platform for location-based services.

Categories and Subject Descriptors: H.5.m [**Information Interfaces and Presentation (e.g., HCI)**]: Miscellaneous; H.4.m [**Information Systems Applications**]: Miscellaneous

Keywords: Location-Based Services, World Wide Web, Privacy, Web Services, Mobile Computing

1. INTRODUCTION

Location-oriented applications and services have been available on the Web for the past decade, but have only become ubiquitous through the launch of services such as Google Maps and associated APIs (supporting the creation of map-based mashups). In recent years, *Location-Based Services (LBS)*, where information specific to the user's location is provided, have also become increasingly visible.

Typically, location-based services on the Web implement some location model (a *concept* of location), but this model often is specific and limited to that service. For example, mapping and routing services are always tightly bound to a specific service provider, and there is no simple means for a user to specify a location or a pair of locations so that recipients could use that information in their preferred mapping or routing services.

The main goal of the workshop is to illustrate how location-oriented *concepts*, *services*, and *applications* for the Web all need to work together to get the Web to further evolve towards a location-aware information system. The main questions in this area are how location is treated as a concept, and how it is presented to users, so that interactions with location-based services become more user-friendly and more integrated with other experiences of place and space.

The increasing availability of mobile devices with Internet access and support for location-based services will eventually turn the Web into a location-aware information system, and applications and services on the Web will be capable of being based on shared concepts for location, so that location information can be shared among users, applications, and services. Services for managing location information in an open way were proposed by the OGC and adopted at the organizational level, but the full potential of location information in a loosely coupled environment is only starting to be explored and realized, with the W3C currently working on the first location-oriented specification: a DOM-based API for retrieving location information from a location-aware device.

The goal of the Second International Workshop on Location and the Web (LocWeb 2009) is to explore the possibilities in such a location-aware Web, where location is no longer encapsulated in devices or applications, but openly exposed and shared. In this location-aware Web, new applications, services, and interactions can emerge. The exploration of these applications and interactions is essential to inform the development and evolution of location concepts for the Web, which currently is in an early stage.

LocWeb 2009 is the successor of the first workshop (LocWeb 2008) held at WWW2008 in April 2008 in Beijing, China [2].

2. WORKSHOP THEMES

The goal of the workshop is that participants and submissions do not just look at one isolated location-based service or application, but instead are interested in advancing the ways in which location is handled on the Web at the system level.

Based on the submissions to the workshop, two main themes could be identified. The first theme relates to front-end issues, such as user interface design, personalization, and merging Web-based concepts with the real world. The second theme relates to back-end issues, such as information retrieval, social aspects, and infrastructure design and implementation. Based on these two main themes, the workshop is structured as follows.

2.1 Front-End Issues

Location-specific front-end issues can be encountered in various ways. One very important example is whether users want their location to be exposed to applications, and how much control they have over that. Privacy issues around location are very sensitive and important, and need to be handled carefully [3].

Another important issue is what location is in the first place. While it can be viewed as coordinates, there are many other possible conceptualizations of location, and based on application and user needs, different perspectives can be appropriate in different scenarios [5]. As one specific way to approach this question of location concepts, Time Geography can provide a foundation for combining spatial and temporal information into a coherent framework [11].

Tightly connected to location concepts is the question of the relevance of information pertaining to a given location. This depends on the location information provided by a user, as well as on the location concepts used by a service or an application; only if matches can be made will it be possible to accurately determine the relevance of some given information to a user's location [6, 10].

Once information has been retrieved and can be delivered to the user's device, the question remains: how it can be presented and manipulated in a way that is appropriate for the user and provides sufficiently spatial characteristics to exploit the spatial nature of the information [8]?

One very typical example for location-based services is the scenario of traveling, and this also is an example which usually involves the combination of various information sources. The combination and personalization of these sources is an example for how location-orientation introduces new opportunities and challenges for providing services [9].

Another example is that of combining Web-based information resources with the real world. The idea of augmented reality has been proposed in various scenarios, and seems to be particularly useful when applied to location-aware services and the information provided by these services [7].

2.2 Back-End Issues

While it is generally perceived that location-based services will become increasingly important, their implementation is often non-trivial. This is caused by several factors, such as the current lack of standardization, and also by the lack of implementation frameworks. Providing better frameworks for the implementation of location-based services can thus make these services easier to develop and deploy, and may also help provide more standardized concepts to be used throughout different services [1].

One of the cornerstones of a location-aware infrastructure is the question of user locations. While this can be handled on a per-application basis, this approach introduces the same problem as the many "identities" that people have in many different systems. A metasystem for handling location information could provide a more unified way of handling location information and making it reusable across services [4].

As one example for mining location-oriented information, popular photo sharing sites and services provide vast collections of images which are increasingly geotagged, making it possible to use them for location-aware image analysis. Applying this method to images and using object recognition allows the detection of cultural differences among the visual representations of concepts [13].

3. WORKSHOP FORMAT

Contributors will have time to present their statements and research results on location and the Web. Demos are welcome and encouraged. During the presentations and demos, the other participants will try to extract and document "clues" for how each presentation addresses the 3 main workshop questions (concepts, applications, services). These clues will be collected for discussion and consolidation at the end of each section.

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