Web Services Applications Brief:
Liberty Alliance ID-SIS Geo-Location

Liberty Alliance Web Services: Geo-Location

Let’s say a consumer named Jack wants to see a movie, maybe the Oscar award-winning film, “The Sea Inside.” He picks up his cell phone and surfs through the entertainment service his mobile carrier kindly provides. Luckily, Jack’s mobile provider deploys the latest technology delivered by the Liberty Alliance Project and shows the list of movies playing within his current location. With one click, he simply selects “The Sea Inside” and receives a breakdown of closest cinemas playing that movie. Jack never has to manually enter a zip code or any location information. Time is saved. Jack make the movie before the opening credits.

This is the Liberty Alliance Web service, ID-SIS Geo-location, in action.

The Benefits of Identity-based Web Services

- Interoperability among applications people really and truly use
- Lower costs of doing business, savings could be passed to the consumer
- Creation of New business and service opportunities and models
- Necessary privacy, security and controls are established within the Liberty framework enabling fearless e-commerce
- Easy plug-in to existing location infrastructure

Identity is Everything

Identity plays a critical role in realizing the potential of truly interoperable location-based services.

Unless identity can be established and secured within this new environment, no enterprise is going to be comfortable using Web services beyond their organizational borders.

The Liberty Alliance, an organization representing more than 150 organizations including leading banks, technology companies, government agencies, wireless providers and other entities from around the globe, was established to address issues around interoperability and tackle the twin issues of identity assurance and trust. As part of this work, Liberty Alliance is driving the development and adoption of federated identity standards and identity-based Web services.

How does this play out? In addition to releasing a public draft of ID-WSF 2.0, a second generation framework for identity-based Web services, Liberty Alliance has developed specific Web services in the areas of presence, geo-location and contact book which enable privacy, security and flexibility within a new electronic paradigm.
Liberty ID-SIS Geo-location

Liberty’s ID-SIS (Identity Service Interface Specifications) Geo-location Service is a standard protocol for the sharing of a Principal’s geo-location information in a privacy-respecting fashion.

Location-based services are applications that provide content or services to a person based on a combination of their registered personal profile and their location – often relative to some other location. Location-based services will likely bring many advantages to end-users. However, the portability and increasing ubiquity of mobile devices, coupled with the ability to determine their location (and consequently the owning user), could also pose new risks for abuse.

While these applications promise significant benefit to end-users, the potentially sensitive nature of location information requires that the privacy issues be addressed at the outset. ID-SIS-GL, as part of the Liberty Alliance’s architecture for permissions-based attribute sharing, is specifically designed to address these privacy requirements.

ID-SIS-GL offers geo-location information including the position of a Principal, speed and direction related information, and information related to the quality of the data provided. ID-SIS-GL may also provide geo-location information in a more “human readable” format (e.g., street, city, region, country).

An ID-SIS-GL service is an instance of a data-oriented identity Web service. An ID-SIS-GL service, like all data services, is characterized by the ability to query and update attribute data as well as the ability to subscribe to receive notifications of location information updates. It relies on mechanisms from other Liberty Alliance specifications for access control and for conveying data validation information and usage directives.

The ID-SIS-GL basically provides a Web services interface for geolocation. ID-SIS-GL also reuses as much as possible the functionality, concepts and semantics established by the Mobile Location Protocol specified by the Open Mobile Alliance (OMA).

Definition of Terms

**Identity** (n) 1. The most basic element in a high value relationship. 2. The individual characteristics by which a person, business, business partner, government agency or other entity is recognized or known.

**Single sign-on** (n) 1. having the capability of accessing an online system once and having that authentication honored by other system entities, often service providers.

**Identity Provider** (IdP) (n) 1. a service that authenticates identity, often a trusted party such as a bank, mobile operator or an Internet Service Provider (ISP).

**Federation** (n) 1. an association comprising of any number of service providers or organizations 2. a model based upon trust in which user identities and security are individually managed and distributed by the service providers or member organizations. 3. where the individual organization is responsible for vouching for the identity of its own users and the users are able to transparently interact with other trusted partners based on this first authentication 4. resembles the credit card model in that vendors accept an individual’s ability to pay and then that ability is authenticated/verified through a single location.

**Circle of Trust** (n) 1. a trusted group of identity and service providers who share linked identities and have pertinent agreements in place regarding how to do business and interact with identity providers 2. where an individual or a business inputs a password once and credentials are shared among the circle of trust’s members 3. A step strongly linked to federation, where multiple entities are involved, and there are business, policy and technical relationships in place.
Here’s how it works:

1. Jack’s geo-location information is made available to a Location Service Provider through various means. Jack explicitly selects this Provider as the Provider of his geo-location information and also at this time Jack could specify his privacy policy for access to his geo-location data.

   There are a multitude of mechanisms by which a Location Service Provider can determine the location of a principal (e.g., IP address, Mobile positioning, GPS). Use of such mechanisms or definition of new ones is, however, out of the scope of Liberty ID-SIS Geo-location Service.

2. The Location Service Provider registers at Jack’s Discovery Service so that other Service Providers will be able to determine which Provider Jack is using to keep his geo-location information. This step is performed just once.

3. Later on, Jack accesses a Service Provider in order to make use of some location-based service. Single Sign-on mechanisms available from Liberty Alliance Project could also be leveraged by the Service Provider for Jack’s identification and authentication purposes.

4. The Service Provider requires Jack’s geo-location information in order to deliver the service (or a more personalized service) to Jack, so queries Jack’s Discovery Service looking for Jack’s Location Service Provider.

5. After the Discovery Service returns information on the Location Service Provider, the Service Provider can query Jack’s location. The Service Provider would be able to query and even subscribe to Jack’s geo-location information according to Liberty ID-SIS-GL Service.

6. Finally, the Service Provider, after processing Jack’s geo-location information, would be able to deliver the service to Jack.
SERVICES APPLICATIONS IN ACTION

From an end-user’s perspective, when it comes to presence, geo-location and contact book, the applications and possibilities are endless.

The beauty of The Liberty Web services framework is that it allows for seamless interactions among these different Web services---and then delivers them up to the end-user’s phone, computer or mobile device. It all depends on what the user wants to do.

**Service Composition:** ID-SIS-GL is now being released together with two more Service Interoperability Specifications for Presence and Contact Book joining to the previously released service interfaces available with the first version of ID-WSF, which also included ID Personal Profile and ID Employee Profile.

All available service interfaces are designed to function individually or in a seamless unified fashion in order to enhance user control of invoked Web services, in a privacy-respecting manner. Some of the Use Cases below show how e.g. Personal Profile and Presence Service Interfaces can be used in combination with Geo-location.

**Coffee Shop Alerts:** Jack has allowed his favorite coffee shop chain to subscribe to receive notification of his location information in the event he happens to walk close to one of its shops. This would allow Jack’s favorite coffee shop to provide him with customized offers via his cell phone:

”Good Morning, Jack. Come on in and get a latte for half price at our coffee shop in Union Square.”

This location-based service can be combined with other Liberty-enabled Web services like ID-SIS Presence in order for Jack’s favorite coffee shop to check availability and willingness to receive such invitations.

Of course Jack must explicitly consent to receive such alerts, or alternatively, consent the release of his geo-location information to enable such alerts.

**mCommerce Use Case:** Let’s say Jane uses her mobile phone to visit a mCommerce site. She selects the goods she likes, and at check-out, chooses to pick up the goods in the closest available shop in the physical world. This application would make sense for show ticket delivery machines, CD stores, underground transportation tickets, flower shops and so on. If the purchase was digital in nature like a ring tone or song, the SP could select the right device from the list of available devices in the user’s ID-SIS Presence information.

**Traffic Information:** Geo-location systems could be the trigger needed to send traffic reports to commute drivers. For instance, Jack could subscribe to a traffic information provider, and agree to receive traffic reports along the route taken to his office. The Service Provider would in turn subscribe to his location information, offered by the Location Provider, and detect that his reaching a certain area, upon which it would indicate which route is optimal.

**ID theft Detection and Prevention:** A bank could use Liberty’s ID SIS Geo-location to detect simultaneous transactions in different locations far away from each other---by monitoring the transactions. If the location of the user differs significantly from where the transaction took place, the bank could then look into ID-SIS Presence information to check what best available services could be used to immediately contact the consumer.

About the Liberty Alliance

The Liberty Alliance (www.projectliberty.org) is an alliance of more than 150 companies, non-profit and government organizations from around the globe. The consortium is committed to developing an open standard for federated network identity that supports all current and emerging network devices. Federated identity offers businesses, governments, employees and consumers a more convenient and secure way to control identity information in today’s digital economy, and is a key component in driving the use of e-commerce, personalized data services, as well as web-based services. Membership is open to all commercial and non-commercial organizations.