

1



2

3

4 Liberty ID-SIS Geo-Location MRD - Marketing 5 Requirements Document for Geo-Location 6 Service

7 **Version:** 1.0

8 **Editors:**

9 David Castellanos, Ericsson
10 Rob Lockhart, IEEE-ISTO
11 Jose-Luis Mariz, Ericsson

12 **Contributors:**

13 Shin Adachi, NTT
14 Corina Grahm, Ericsson
15 Jukka Kainulainen, Nokia
16 Salima Fazal Karim, France Télécom
17 Kurt Kolok, IEEE-ISTO

18 **Abstract:**

19 This MRD for a Liberty-based geo-location identity service describes the sharing of a
20 user's geo-location with their service providers. Geo-Location is defined as information
21 referring to a position. Location may be calculated using any sort of positioning mecha-
22 nism or provided as a stated location. It may be expressed in terms of geographical loca-
23 tion in some format (e.g., coordinates) and/or as civil data location (e.g., address).

24 **Filename:** liberty-id-sis-geo-location-mrd-v1.0.pdf

25 This Market Requirements Document (MRD) has been developed by the Geo-Location
26 Services Group of Liberty Alliance to capture the business requirements for a Geo-
27 Location identity service. Liberty Alliance is making this MRD publicly available to the
28 industry at large for review and consideration. This publication does not constitute a
29 commitment by Liberty Alliance, explicit or implied, to develop technical specifications
30 in full compliance with the requirements herein, now or in the future.

31 **Notice**

32 This document has been prepared by Sponsors of the Liberty Alliance. Permission is
33 hereby granted to use the document solely for the purpose educating the public. No
34 rights are granted to prepare derivative works of this Liberty Alliance Publication.
35 Entities seeking permission to reproduce portions of this document for other uses must
36 contact the Liberty Alliance to determine whether an appropriate license for such use is
37 available.

38 Use of certain elements of this document may require licenses under third party
39 intellectual property rights, including without limitation, patent rights. The Sponsors of
40 and any other contributors to the Liberty Alliance Publication are not and shall not be
41 held responsible in any manner for identifying or failing to identify any or all such third
42 party intellectual property rights. **Liberty Alliance Publication is provided "AS IS,"**
43 **and no participant in the Liberty Alliance makes any warranty** This of any kind,
44 express or implied, including any implied warranties of merchantability, non-
45 infringement of third party intellectual property rights, and fitness for a particular
46 purpose. Those who are interested in additional Liberty Publications are advised to
47 review the Liberty Alliance Project's website (<http://www.projectliberty.org/>) for
48 information concerning any Necessary Claims Disclosure Notices that have been
49 received by the Liberty Alliance Management Board.

50 Copyright © 2003 - 2008 American Express; Ericsson, France Télécom; Nokia, NTT;
51 Symlabs, Inc.; and Vodafone. All rights reserved.

52 Liberty Alliance Project
53 Licensing Administrator
54 c/o IEEE-ISTO
55 445 Hoes Lane
56 Piscataway, NJ 08855-1331, USA
57 info@projectliberty.org

58	Table of Contents	
59	1 Introduction	4
60	2 Requirements	6
61	2.1 Derived Infrastructure Requirements	7
62	3 SP Requests Principal’s Geographic Location to LP (General Use Case)	8
63	3.1 Main Description	8
64	3.2 Targeted Scenarios	8
65	3.3 Dependencies with Other Use Cases	8
66	3.4 Details	8
67	3.5 Graphical Description	9
68	4 SP Subscribes to Principal’s Geographic Location to LP	10
69	4.1 Main Description	10
70	4.2 Targeted Scenarios	10
71	4.3 Business Justification	10
72	4.4 Dependencies with Other Use Cases	10
73	4.5 Details	10
74	4.6 Graphical description	11
75	5 SP Unsubscribes to Principal’s Geographic Location to LP	12
76	5.1 Main Description	12
77	5.2 Targeted Scenarios	12
78	5.3 Business Justification	12
79	5.4 Dependencies with Other Use Cases	12
80	5.5 Details	12
81	5.6 Graphical description	13
82	6 Principal Requests Geographic Location from Another Principal	14
83	6.1 Main Description	14
84	6.2 Targeted Scenarios	14
85	6.3 Business Justification	14
86	6.4 Dependencies with Other Use Cases	14
87	6.5 Details	14
88	6.6 Graphical Description	16
89	7 New Glossary Terms	17
90	7.1 Term	17
91	8 References	18
92		

93 **1 Introduction**

94 A Liberty-based geo-location identity service enables the sharing of a user's geo-location
95 with their service providers. Geo-Location is defined as information referring to a
96 position. Location may be calculated using any sort of positioning mechanism or
97 provided as a stated location. It may be expressed in terms of geographical location in
98 some format (e.g., coordinates) and/or as civil data location (e.g., address).

99 Without the calculation of the location by the Liberty-based location identity service, the
100 user would either have to manually enter his location (if enabled by the terminal and
101 network interaction capabilities); the service provider would reference a default location;
102 or, in cases where the user is not aware of his location, the service could not be provided.

103 There are also cases in which the user to be tracked is an object. It is also possible that
104 the entity exposing its location information is a group. Users shall be able to request
105 location information from another user through the mediation of their respective location
106 providers and service providers.

107 Location providers can also be realized in client implementations based on existing
108 specific infrastructure support (LUAD-WSP). See [[LibertyGlossary-v1.4](#)] for definitions
109 of the acronyms and initialisms used in this document that are not defined in [Section 7](#).

110 See [Figure 1](#), below, for a generic description of all the above referenced possible
111 interactions.

112 Note the following:

- 113 • Principal-1 can also be an object;
- 114 • Device and WSP (location provider) can be combined into a unified LUAD-WSP
115 implementation; and
- 116 • The names spaces by which Principal-2 and location provider refer to Principal-1
117 are different, so some linkage is achieved by a Principal-to-Principal referencing
118 mechanism.

119 SPs can request geo-location information in their preferred format out of those supported
120 in this identity service specification. The LP can then respond with the supported
121 formats by that specific LP, trying to match at the maximum degree the S-requested
122 format and accuracy.

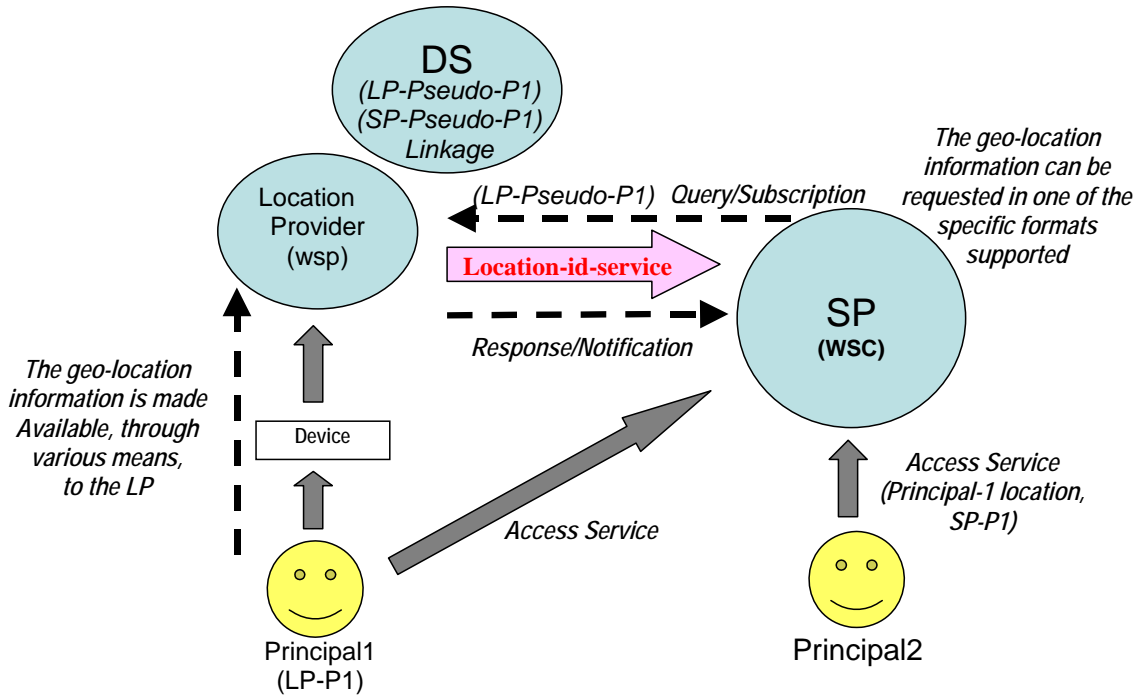


Figure 1. General interaction flow

123 For example, a location service would enable a user to benefit from location-specific
124 weather, news, travel, currency, time zone advisory, and other services offered by the
125 service providers. A location service would also enable services that provide information
126 about, and directions to, nearby facilities such as restaurants, gas stations, ATM
127 machines, public transit, points of interest, etc.

128 The goal of the Liberty Alliance ID-SIS Geo-Location MRD is to define interoperability
129 standards for securely sharing location information with and between service providers.
130 Regardless of the user's chosen location service provider, other service providers can
131 offer location-specific services without requiring specific infrastructure for each location
132 service provider. Policies are as well-enabled to control the distribution of location
133 information, such as user policies to set personal privacy conditions, avoid spam, and
134 also legal authorities policies to enforce the regulatory framework.

135 Liberty Alliance standards therefore provide a number of qualities, as described above, to
136 location information exchange being carried out via various protocols. However, such
137 protocols, themselves, are out of the scope of the Alliance work, though some alignment
138 is necessary to be able to utilize the Liberty-specified framework.

139 **2 Requirements**

Req#	UC #	Requirements
1	Generic	LP registers at DS as provider of (specific) Principal’s positioning data.
2	Generic	LP de-registers at DS as provider of (specific) Principal’s positioning data.
3	Generic	SP finds out provider of (specific) Principal’s positioning data.
4	3, 6	SP queries for (specific) Principal’s positioning data. Another Principal can request (specific) Principal’s positioning data through the SP the requestor Principal is accessing for services.
5	Generic	[LibertyPh2-MRD] Phase 2 interaction service maybe used in order to query user for (specific) positioning data and/or user consent to specific actions (e.g., SP access/subscription to Principal’s positioning data).
6	4	SP subscribes (event-/time-based) to (specific) Principal’s positioning data at LP.
7	5	SP unsubscribes from (specific) Principal’s positioning data at LP.
Core Geo-Location Attributes		
8	Generic	Mechanism to enable Principals to share the following core Geo-Location information in an interoperable manner. The list of relevant Geo-Location attributes are: Position Data a. Timestamp, b. Position shape, c. Altitude (optional), d. Altitude accuracy (optional), e. Speed (optional), f. Direction (optional), and g. Level of confidence (optional). and Civil Data (optional) a. Attributes from civil data as defined in the [LibertyIDPP] service, address data format.
8a	Generic	All attributes standardized for this profile are NOT required to be present at all times in every profile.
8b	Generic	For each of the above geo-location attributes, the specification must specify the names and semantics of the attribute schemas to enable interoperability.

Req#	UC #	Requirements
8c	Generic	All above geo-location attributes may include meta information such as timestamp for creation.

140

141 2.1 Derived Infrastructure Requirements

142 From the geo-location service requirements, the following infrastructure requirements are
143 derived as described in the indicated MRDs so that such infrastructure will support the
144 service-intended usage:

- 145 • Principal-to-Principal referencing (see “People Service” in [[LibertyIDWSF2.0-](#)
146 [MRD](#)]),
- 147 • Subscription and notification (see “Subscription and Notification” in
148 [[LibertyIDWSF2.0-MRD](#)]),
- 149 • Groups and roles (see “People Service” in [[LibertyIDWSF2.0-MRD](#)]), and
- 150 • Transaction accounting (see [[LibertyTA-MRD](#)]).

151

152 **3 SP Requests Principal’s Geographic Location to LP**
 153 **(General Use Case)**

154 **3.1 Main Description**

155 An SP requests a Principal’s geographic positioning data attributes.

156 **3.2 Targeted Scenarios**

157 B2C, B2B

158 **3.3 Dependencies with Other Use Cases**

- 159 • [\[LibertyPh1-MRD\]](#) Phase 1 Federation and SSO related UCs.
- 160 • [\[LibertyPh2-MRD\]](#) Phase 2 AP registration at DS, SP DS Lookup, and SP
- 161 requests of attributes to AP related UCs.

162 **3.4 Details**

Title/ID	SP Requests Geographic Location to LP
Pre conditions	<ol style="list-style-type: none"> 1. Principal has an account with an IdP. 2. Principal’s account is federated to SP (i.e., Principal has given permission for Principal’s identity to be shared with the SP). 3. Principal is authenticated by Principal’s IdP. 4. Principal has attributes at an LP and has selected LP as provider of his/her positioning data (i.e., LP has registered at DS). 5. Permissions for these attributes are available at LP. 6. Principal is accessing SP and has presented an authentication assertion with Principal’s DS indicator.
Constituents	Principal, DS, SP, LP
Use case	<ol style="list-style-type: none"> 1. SP issues a query to Principal’s DS requesting Principal’s LP. 2. DS replies with information so SP can reach LP. 3. SP contacts LP requesting specific Principal’s positioning data. 4. LP evaluates applicable permission policies. 5. LP returns Principal’s geographical positioning data to SP.
Post conditions	SP receives Principal’s geographical positioning data.
Alternate courses of action	Principal may not have an account at SP or might have a privacy policy set for anonymity in exposing location information. SP then would still be able to perform anonymous authentication requests and perform further requests of Principal’s positioning data.

	<p>LP may decide not to provide requested information to SP ...</p> <ol style="list-style-type: none">1. Requested data or permissions to disclose it is not available at LP.<ol style="list-style-type: none">a. [LibertyPh2-MRD] Phase 2 Interaction service could be used in order to get info.b. Latest available value could be provided instead.2. Incompatible Usage Directives.3. Any error occurred at DS lookup or during actual attribute request to LP.
--	--

163 **3.5 Graphical Description**

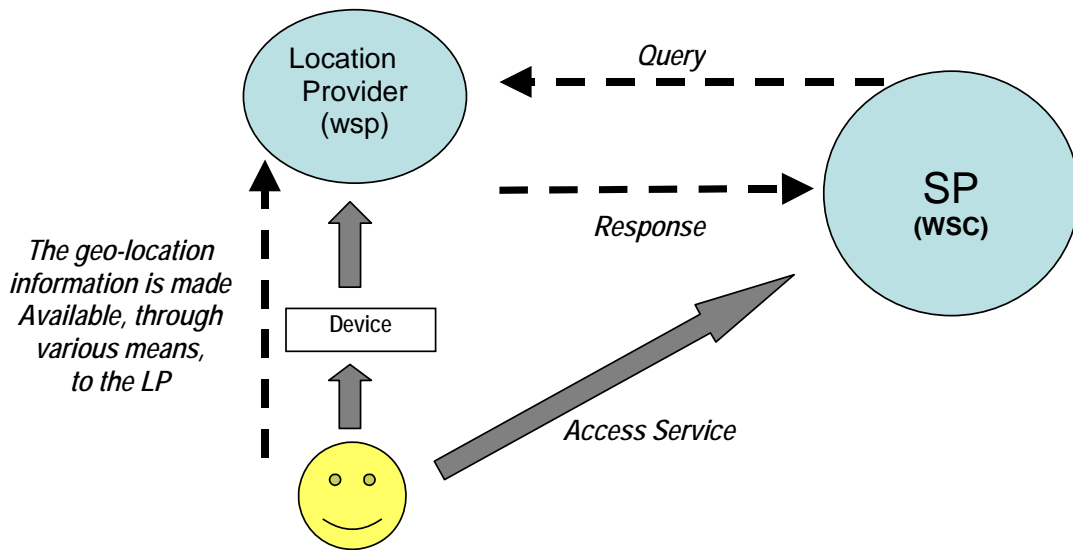


Figure 2. UC-4

164

165 **4 SP Subscribes to Principal’s Geographic Location**
 166 **to LP**

167 **4.1 Main Description**

168 SP subscribes to changes or periodic updates of Principal’s positioning data.

169 **4.2 Targeted Scenarios**

170 B2C, B2B

171 **4.3 Business Justification**

172 SPs may need Principal’s position to offer a location-based service on a periodic basis or
 173 based on changes of Principal’s location.

174 **4.4 Dependencies with Other Use Cases**

- 175 • [\[LibertyPh1-MRD\]](#) Phase 1 Federation and SSO related UCs.
- 176 • [\[LibertyPh2-MRD\]](#) Phase 2 AP registration at DS, SP DS Lookup, and SP
 177 requests of attributes to AP related UCs.

178 **4.5 Details**

Title/ID	SP Subscribes to Principal’s Geographic Location to LP
Pre conditions	<ol style="list-style-type: none"> 1. Principal has an account with an IdP. 2. Principal’s account is federated to SP (i.e., Principal has given permission for Principal’s identity to be shared with the SP). 3. Principal is authenticated by Principal’s IdP. 4. Principal has attributes at an LP and has selected LP as provider of his/her positioning data (i.e., LP has registered at DS). 5. Permissions for these attributes are available at LP. 6. Permissions for SP subscription to Principal’s position data are also available at LP. 7. Principal is accessing SP and has presented an authentication assertion with Principal’s DS indicator.
Constituents	Principal, DS, SP, LP
Use case	<ol style="list-style-type: none"> 1. SP issues a query to Principal’s DS requesting Principal’s LP. 2. DS replies with information so SP can reach LP. 3. SP requests LP to subscribe to (specific) Principal’s positioning data. Subscription could be either or both:

	<ol style="list-style-type: none"> a. On a periodic basis (e.g., every hour during x period of time), and/or b. An event-based subscription (e.g., from every single location change to less fine-grained location changes). <ol style="list-style-type: none"> 4. LP accepts SP subscription to Principal's positioning data. 5. When conditions for subscription are met, LP sends requested Principal's geographical data to SP.
Post conditions	SP receives Principal's positioning data when conditions of subscription are met.
Alternate courses of action	<p>Principal may not have an account at SP.</p> <p>It might not be possible for LP to process subscription request since Principal's permission to let SP subscribe to his/her (specific) positioning data is not available. However, the [LibertyPh2-MRD] Phase 2 Interaction service could be used in order to get user consent.</p>

179 **4.6 Graphical description**

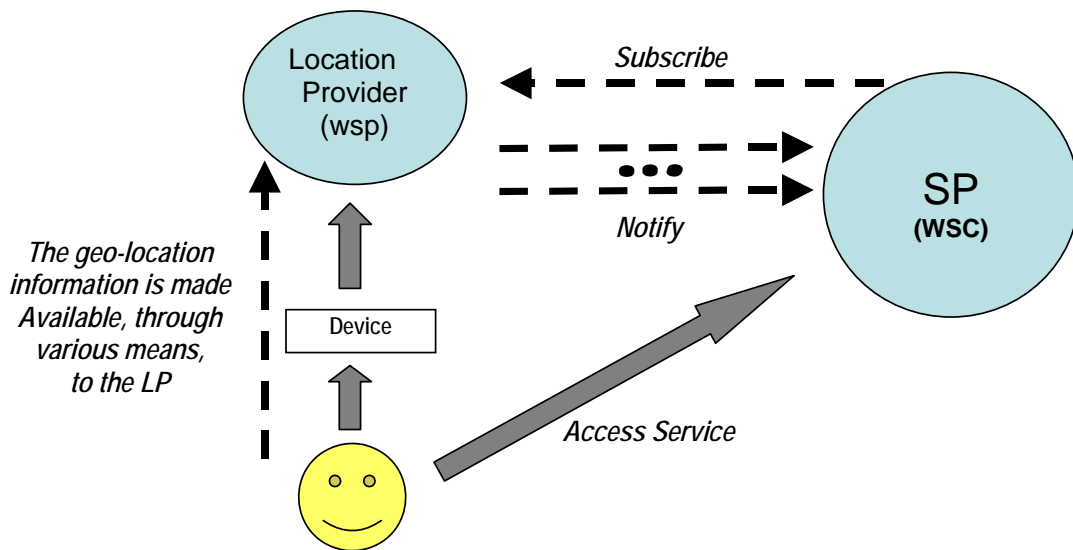


Figure 3. UC-5

180

181 **5 SP Unsubscribes to Principal’s Geographic**
182 **Location to LP**

183 **5.1 Main Description**

184 SP unsubscribes to Principal’s positioning data.

185 **5.2 Targeted Scenarios**

186 B2C, B2B

187 **5.3 Business Justification**

188 SP and/or LP may decide to terminate subscription to Principal’s positioning data. This
189 could be triggered by Principal’s initiative.

190 **5.4 Dependencies with Other Use Cases**

191 Please see the use case in [Section 4](#) of this document.

192 **5.5 Details**

Title/ID	SP Unsubscribes to Principal’s Geographic Location to LP
Pre conditions	1. SP has subscribed to Principal’s positioning data at LP.
Constituents	Principal, DS, SP, LP
Use case	1. SP requests LP to unsubscribe from Principal’s positioning data. 2. LP confirms SP is now unregistered from Principal’s positioning data.
Post conditions	SP unsubscribes from Principal’s positioning data at LP.
Alternate courses of action	SP triggers this action due to a Principal’s request while in SP or due to internal SP decision. LP may also unilaterally originate this action with or without Principal’s intervention at LP.

193 **5.6 Graphical description**

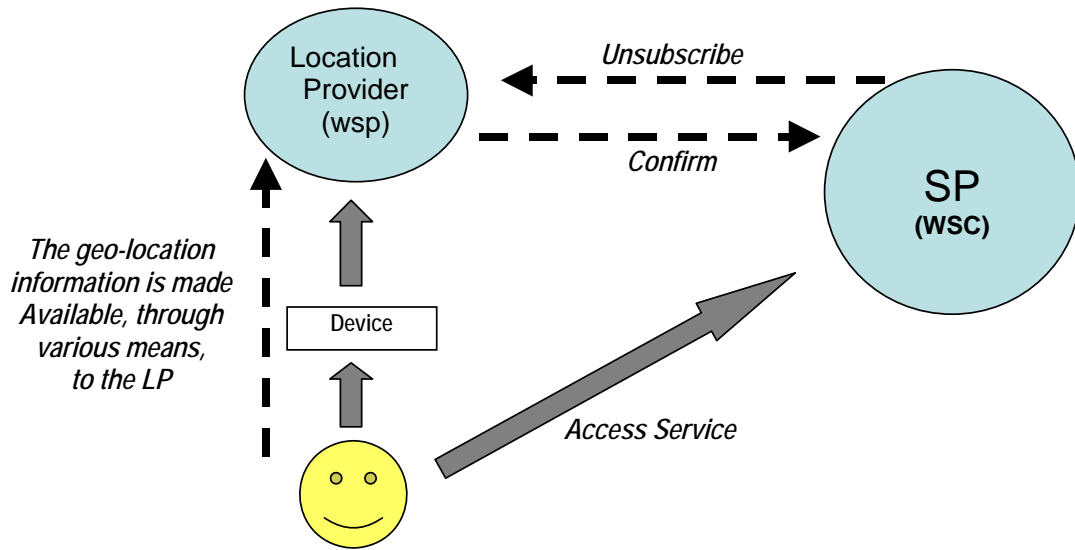


Figure 4. UC-6

194 **6 Principal Requests Geographic Location from**
 195 **Another Principal**

196 **6.1 Main Description**

197 A Principal requests through its SP another Principal’s geographic positioning data
 198 attributes from its respective LP.

199 **6.2 Targeted Scenarios**

200 C2C, B2B

201 **6.3 Business Justification**

202 Principals might be interested in another Principal’s position as part of one of the services
 203 being offered to them.

204 **6.4 Dependencies with Other Use Cases**

- 205 • [\[LibertyPh1-MRD\]](#) Phase 1 Federation and SSO related UCs.
- 206 • [\[LibertyPh2-MRD\]](#) Phase 2 AP registration at DS, SP DS Lookup and SP
 207 requests of attributes to AP related UCs.

208 **6.5 Details**

Title/ID	Principal Requests Geographic Location from Another Principal
Pre conditions	<ol style="list-style-type: none"> 1. Principal-1 has an account with an IdP. 2. Principal-1’s account is federated to SP (Principal has given permission for Principal’s identity to be shared by Principal’s IdP). 3. Principal-1 is authenticated by Principal’s IdP. 4. Principal-1 has attributes at an LP and has selected LP as provider of his/her positioning data (i.e., LP has registered at DS). 5. Permissions for these attributes are available at LP. 6. Principal-1 is accessing SP and has presented an authentication assertion with Principal’s DS indicator. 7. Principal-2 is receiving service from SP. 8. Principal-2 and SP know Principal-1 as P1-sp. 9. Principal-1 is known by LP as P1-lp. 10. P1-sp information is linked to P1-lp.
Constituents	Principal, DS, SP, LP

Use case	<ol style="list-style-type: none">1. Principal-2 queries P1-sp's positioning data.2. SP issues a query to P1-sp's DS requesting Principal-1's LP.3. DS replies with information so SP can reach LP with P1-lp's information.4. SP contacts LP requesting specific P1-lp positioning data.5. LP evaluates applicable permission policies.6. LP returns Principal-1's geographical positioning data to SP.7. SP returns Principal-1's geographical positioning data to Principal-2.
Post conditions	SP receives Principal-1's geographical positioning data and delivers it to Principal-2 under SP service execution conditions.
Alternate courses of action	<p>Principal-1 may not have an account at SP, or might have a privacy policy set for anonymity in exposing location information. SP then would be still able to perform anonymous authentication requests and perform further requests of Principal-1's positioning data.</p> <p>LP may decide not to provide requested information to SP ...</p> <ol style="list-style-type: none">1. Requested data or permissions to disclose it not available at LP.<ol style="list-style-type: none">a. [LibertyPh2-MRD] Phase 2 Interaction service could be used in order to get the information.b. Latest available value could be provided instead.2. Incompatible Usage Directives.3. Any error occurred at DS lookup or during actual attribute request to LP.

209 **6.6 Graphical Description**

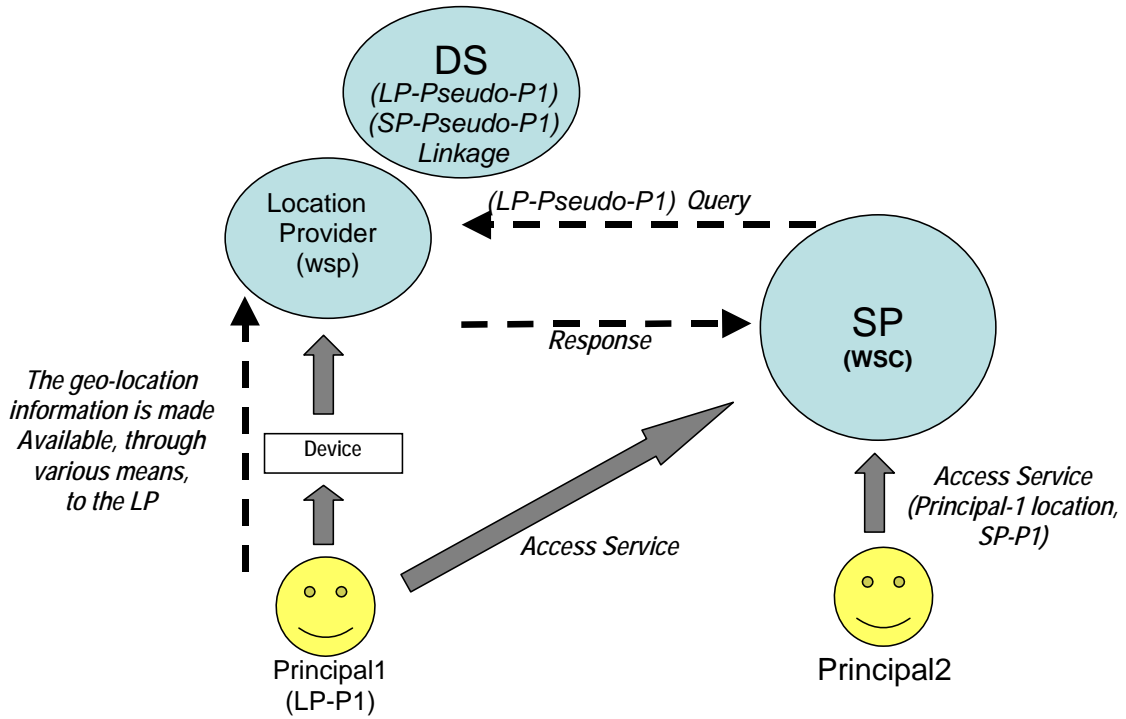


Figure 5. UC-7

210

211 **7 New Glossary Terms**

212 **7.1 Term**

213 **Geo-Location** Information referring to a position.

214 **LP** Location Provider.

215 **8 References**

- 216 [LibertyGlossary-v1.4] Hodges, Jeff, eds. "Liberty Technical Glossary," Version
217 1.4, Liberty Alliance Project. (14 Dec, 2004).
218 <http://projectliberty.org/liberty/content/download/1233/8003/file/liberty-glossary->
219 [v1.4.pdf](http://projectliberty.org/liberty/content/download/1233/8003/file/liberty-glossary-v1.4.pdf)
- 220 [LibertyIDPP] Kellomäki, Sampo, Lockhart, Rob, eds. "Liberty ID-SIS Personal
221 Profile Service Specification," Version 1.1, Liberty Alliance Project. (29 Sep, 2005).
222 <http://projectliberty.org/liberty/content/download/1028/7146/file/liberty-idsis-pp->
223 [v1.1.pdf](http://projectliberty.org/liberty/content/download/1028/7146/file/liberty-idsis-pp-v1.1.pdf)
- 224 [LibertyIDWSF2.0-MRD] Sponsors, Liberty Alliance, eds. "Liberty ID-WSF 2.0
225 Marketing Requirements Document v1.0," Version 1.0, Liberty Alliance Project. (20
226 Sep, 2006). <http://projectliberty.org/liberty/content/download/2207/14681/file/liberty-id->
227 [wsf-2.0-mrd-v1.0.pdf](http://projectliberty.org/liberty/content/download/2207/14681/file/liberty-id-wsf-2.0-mrd-v1.0.pdf)
- 228 [LibertyPh1-MRD] Sponsors, Liberty Alliance, eds. "Phase 1 - Authentication Sharing
229 Requirements Document v1.0," Version 1.0, Liberty Alliance Project. (20 Sep, 2006).
230 <http://projectliberty.org/liberty/content/download/2204/14665/file/liberty-phase-1-mrd->
231 [v1.0.pdf](http://projectliberty.org/liberty/content/download/2204/14665/file/liberty-phase-1-mrd-v1.0.pdf)
- 232 [LibertyPh2-MRD] Sponsors, Liberty Alliance, eds. "Phase 2 - Identity Services
233 Marketing Requirements Document v1.0," Version 1.0, Liberty Alliance Project. (20
234 Sep, 2006). <http://projectliberty.org/liberty/content/download/2206/14678/file/liberty->
235 [phase-2-mrd-v1.0.pdf](http://projectliberty.org/liberty/content/download/2206/14678/file/liberty-phase-2-mrd-v1.0.pdf)
- 236 [LibertyTA-MRD] Sponsors, Liberty Alliance, eds. "Liberty Transaction Accounting
237 Marketing Requirements Document v1.0," Version 1.0, Liberty Alliance Project. (21
238 Nov, 2007). <http://projectliberty.org/liberty/content/download/3793/25034/file/liberty->
239 [transaction-accounting-mrd-v1.0.pdf](http://projectliberty.org/liberty/content/download/3793/25034/file/liberty-transaction-accounting-mrd-v1.0.pdf)