



# Transaction Accounting Marketing Requirements Document

**Version:** 1.0

**Abstract:**

Transaction accounting enables service providers to capture value-added service usage data for billing and accountability. The accounting information needs to be tracked at the transaction level. For example, delivery of a value-added service may require several transactions among more than one service provider thus needing a way to capture the transaction information among the service providers involved in delivery of the value-added service. The objective is to enable the generation of a record of Liberty-based transactions in a value-added service.

**Filename:** liberty-transaction-accounting-mrd-v1.0.pdf

This Market Requirements Document (MRD) has been developed by the Business and Marketing Expert Group of Liberty Alliance to capture the business requirements for an identity governance framework. Liberty Alliance is making this MRD publicly available to the industry at large for review and consideration. In addition, this MRD is being provided to the appropriate technical standards development group within Liberty Alliance for consideration of new technical work to address the requirements identified herein. This publication does not constitute a commitment by Liberty Alliance, explicit or implied, to develop technical specifications in full compliance with the requirements herein, now or in the future.

## Notice:

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

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

Copyright © 2004, 2007 2FA Technology; ActivCard; Adobe Systems; Agencia Catalana De Certificacio; America Online, Inc.; American Express Company; Amsoft Systems Pvt Ltd.; Avatier Corporation; Axalto; BIPAC; BMC Software, Inc.; Bank of America Corporation; Bell Canada; Beta Systems Software AG; British Telecommunications plc; Cingular Wireless; Cisco Systems, Inc.; Communicator, Inc.; Computer Associates International, Inc.; Credentica; Dan Combs; Danish National IT and Telecom Agency; DataPower Technology, Inc.; Deloitte & Touche LLP; Deutsche Telekom AG, T-Com; Diamelle Technologies, Inc.; Diversinet Corp.; Drummond Group Inc.; Earthlink, Inc.; Electronic Data Systems, Inc.; Enosis Group LLC; Entrust, Inc.; Entr'ouvert; Epok, Inc.; Ericsson; Falkin Systems LLC; Fidelity Investments; Forum Systems, Inc.; France Télécom; Fugen Solutions, Inc; Fulvens Ltd.; GSA Office of Governmentwide Policy; Gamefederation; Gemalto; Gemplus; General Motors; GeoFederation; Giesecke & Devrient GmbH; Guy Huntington; Hewlett-Packard Company; Hochhauser & Co., LLC; Huntington Ventures Ltd.; i2 Technologies, Inc.; IBM Corporation; Intel Corporation; Internet2; Intuit Inc.; Kantega; Kayak Interactive; Livo Technologies; Luminance Consulting Services; Mark Wahl; Mary Ruddy; MasterCard International; MedCommons Inc.; Mobile Telephone Networks (Pty) Ltd; Nanoindent Biometrics GmbH; National Emergency Preparedness Coordinating Council (NEPCC); NEC Corporation; NHK Science & Technical Research Laboratories; NTT DoCoMo, Inc.; Netegrity, Inc.; Neustar, Inc.; New Zealand Government State Services Commission; Nextel Communications; Nippon Telegraph and Telephone Corporation; Nokia Corporation; Novell, Inc.; OneName Corporation; OpenNetwork; Openwave Systems, Inc.; Oracle Corporation; Phaos Technology; Ping Identity Corporation; Postsecondary Electronics Standards Council (PESC); PricewaterhouseCoopers LLP; RSA Security Inc.; Reach; Reactivity Inc.; RegistryPro, Inc.; Royal Mail Group plc; Sabre Holdings Corporation; Sandisk Corporation; SAP AG; SchlumbergerSema; Senforce; Sharp Laboratories of America; Sigaba; SK Telecom; SmartTrust; Sony Corporation; Sun Microsystems, Inc.; Supremacy Financial Corporation; Symlabs, Inc.; Telecom Italia S.p.A.; Telefónica Móviles, S.A.; Telenor R&D; Thales e-Security; Trusted Network Technologies; Trustgenix; UNINETT AS; United Airlines; UTI; VeriSign, Inc.; Visa International; Vodafone Group Plc.; Wave Systems Corp; Wells Fargo. All rights reserved.

## Contents

<b>1</b>	<b>Introduction .....</b>	<b>5</b>
1.1	Targeted Scenarios .....	5
<b>2</b>	<b>Requirements .....</b>	<b>6</b>
<b>3</b>	<b>Use Cases .....</b>	<b>7</b>
3.1	Transaction Accounting for Attribute sharing within a CoT .....	7
3.1.1	Benefit .....	7
3.1.2	Details.....	7
3.2	Transaction Accounting for Attribute Sharing across Two CoTs.....	8
3.2.1	Benefit: .....	8
3.2.2	Dependencies with Other Use Cases.....	8
3.2.3	Details.....	8

## 1 Introduction

This feature enables service providers to capture value-added service usage data for billing and accountability. The accounting information needs to be tracked at the transaction level as opposed to just bilateral entity-to-entity accounting. For example, delivery of a value-added service may require several transactions among more than one service provider thus needing a way to capture the transaction information among the service providers involved in delivery of the value-added service. The objective is to enable the generation of a record of Liberty-based transactions in a value-added service.

The transactions that need to be tracked include, but are not limited to, the following:

- When an account federation is achieved.
- When a Principal's attribute is delivered from one provider to another one, according to the various set up permissions.
- When an authentication is made by an Identity provider using another IdP, etc.

All these providers need to log and count these transactions because they will have to compensate and bill each other in some cases, or will have to prove something about what happened, etc.

The transaction accounting feature must first be supported within a Circle of Trust (CoT), but is also needed in a roaming-like type of services access across different Circles of Trust. For instance, an attribute provider belonging to CoT1 may need to log a success or a failure in delivering an attribute to another intra- or inter-CoT1 Service Provider depending on the business need to complete such activities as billing of the SP by the AP, billing of the Principal by the AP or the SP, logging of SP's consent about the Provider's or Principal's policy concerning this attribute,

### 1.1 Targeted Scenarios

B2C, B2B, B2E

## 2 Requirements

<b>Req#</b>	<b>UC #</b>	<b>Requirements</b>
1	3.1	The ability to generate transaction information at IdP and SP, including successful or failed access through federated accounts asked by the Principal.
2	3.1	The ability to generate transaction information at IdP, SP, and AP, including successful or failed delivery of an attribute by AP to SP.
3	3.2	The ability to generate transaction information at IdP1, SP1, AP2, and IdP2, including successful or failed delivery of an attribute by AP2 to SP1.
4	3.2	The ability to generate transaction information at IdP1 and IdP2, logging the use of federation between Principal's account at IdP1 and IdP2.

### 3 Use Cases

Requirements mentioned above result in these Use Cases, but they will have to be generalized in the technical specification stage as the real need is to be able to log transactions needed for general Identity Web Services operations enabled by Liberty Frameworks.

Providers will need to be able to compare their respective Transaction data for tracing, accounting, metering, or charging needs. These features will have to cover accounts federation transactions, DS-Providers interactions, attribute sharing, inter-CoT providers interactions, etc.

#### 3.1 Transaction Accounting for Attribute Sharing within a CoT

##### 3.1.1 Benefit

AP and SP share the same accounting ticket format and values which will feed their own respective billing systems.

##### 3.1.2 Details

<b>Title/ID</b>	Transaction Service for Attribute Sharing within One CoT
<b>Pre-Conditions</b>	IdP, AP, SP belong to the same CoT Principal has federated accounts at IdP and SP Principal's attribute X is managed at AP
<b>Constituents</b>	IdP/DS, AP, Principal
<b>Use Case</b>	<ol style="list-style-type: none"> <li>1. Principal accesses SP.</li> <li>2. SP requests AP for Principal's attribute "X."</li> <li>3. AP delivers or refuses attribute to SP.</li> <li>4. AP generates transaction information after the transaction is completed, the information must include the following basic data required to track activity and identify:                             <ul style="list-style-type: none"> <li>- attribute provider (AP)</li> <li>- Service Provider (SP)</li> <li>- Principal</li> <li>- attribute X</li> <li>- date/time of the transaction</li> <li>- success/failure code</li> </ul>                             (this information may include other data as relevant)                         </li> </ol>
<b>Post Conditions</b>	<ol style="list-style-type: none"> <li>1. AP feeds its accounting system to later bill SP for the transaction.</li> <li>2. SP later bills Principal for attribute consumption at AP.</li> </ol>

<b>Alternate Courses of Action</b>	After step 4, several business scenarios are possible depending on which provider will bill Principal, for example, IdP may play a role in the billing operations toward the Principal.
------------------------------------	---

## 3.2 Transaction Accounting for Attribute Sharing Across Two CoTs

### 3.2.1 Benefit:

Liberty needs to provide an interoperable method to allow SPs/APs to buy/sell attributes within an authentication domain or across two authentication domains, according to business agreements and privacy policies between IdP/AP/SP and Principal.

### 3.2.2 Dependencies with Other Use Cases

MRDV2: "Federated SSO/Authentication across two or more authentication domains"

### 3.2.3 Details

<b>Title/ID</b>	Transaction Service for Attribute Sharing across Two CoTs
<b>Pre-Conditions</b>	<p>IdP1/DS1, SP1 are members of CoT 1.                  IdP2/DS2, AP2 are members of CoT 2.                  AP2 is attribute provider for Principal's attribute "X."                  Principal has an account with IdP1.                  Principal has an account with SP2.                  Principal's accounts at Idp1 and SP2 have been previously federated.                  IdP1 and IdP2 have an "SSO/authentication roaming" agreement.</p>
<b>Constituents</b>	IdP1/DS1, IdP2, DS2, AP2, SP1, Principal
<b>Use Case</b>	<p>1. Principal accesses SP1 through IdP1.                  2. SP1 asks for Principal's attribute "X" managed by AP2.                  3. AP2 delivers or refuses attribute "X" to SP1.                  4. AP2 generates transaction information after the transaction is completed, the information must include the following basic data required to track activity and identify:</p> <ul style="list-style-type: none"> <li>- attribute provider (AP)</li> <li>- Service Provider (SP)</li> <li>- Principal</li> <li>- attribute X</li> <li>- date/time of the transaction</li> <li>- success/failure code</li> </ul> <p>(this information may include other data as relevant)</p>
<b>Post Conditions</b>	1. AP2 feeds its accounting system with transaction accounting



	ticket to later bill SP1 for the transaction. 2. SP1 later bills Principal for attribute consumption at AP.
<b>Alternate Courses of Action</b>	After step 4, several business scenarios are possible depending on which provider will bill Principal, for example, IdP1 may play a role in the billing operations toward the Principal.