



Document Map and Overview

Version 3.5

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Preface

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Abstract

This is the base document describing the other components of the IPDR.org document library, guiding readers to the appropriate area and suggesting how to use the full set.

Change History

3.5-A.0 Initial Draft	May 4, 2004
3.5-A.0 Review Draft 1	April 24, 2003
3.5-A.0 Review Draft 2	May 20, 2003— Distinguish document types by shape, add legend, modify flowchart and define roles.
3.5-A.0 Review Draft 3	June 10, 2003—Add IPDRDoc Structuring Guidelines Component
3.5-A.0 Review Draft 4	Add glossary terms
3.5-A.0 Review Draft 5	September 19, 2003—Reflect decisions from Miami Beach face-to-face meeting
3.5	May 4, 2004—Production Release, Including Release Compatibility Matrix

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1. Introduction

1.1 Purpose

This document provides a map to the rest of the documents in the IPDR.org document set. It also describes each of those documents at a summary level. Lastly, a general guide for the use of the document set is provided.

1.2 Scope

This document limits its discussion to the IP-based services and application areas chartered by the IPDR Organization's Steering Committee.

1.3 Document Set Numbering

The document set is referenced as a collection by the release number of this document. The release number is of the form M.m, where M is a major release family, principally employed to indicate new features, and m is a minor release within the major release, principally to modify or extend existing features. Every effort is made by IPDR.org to retain backward compatibility within a major release family. See section 5 below for the matrix of component revisions compatible within a given release.

1.4 References and Terminology

All components of the document set share a common document containing all references and any specialized terminology, including acronyms. See the Appendix for the list

2. Document Map

The following figure illustrates the various components of the IPDR.org document set, indicating high-level content where appropriate. The following section details each component.

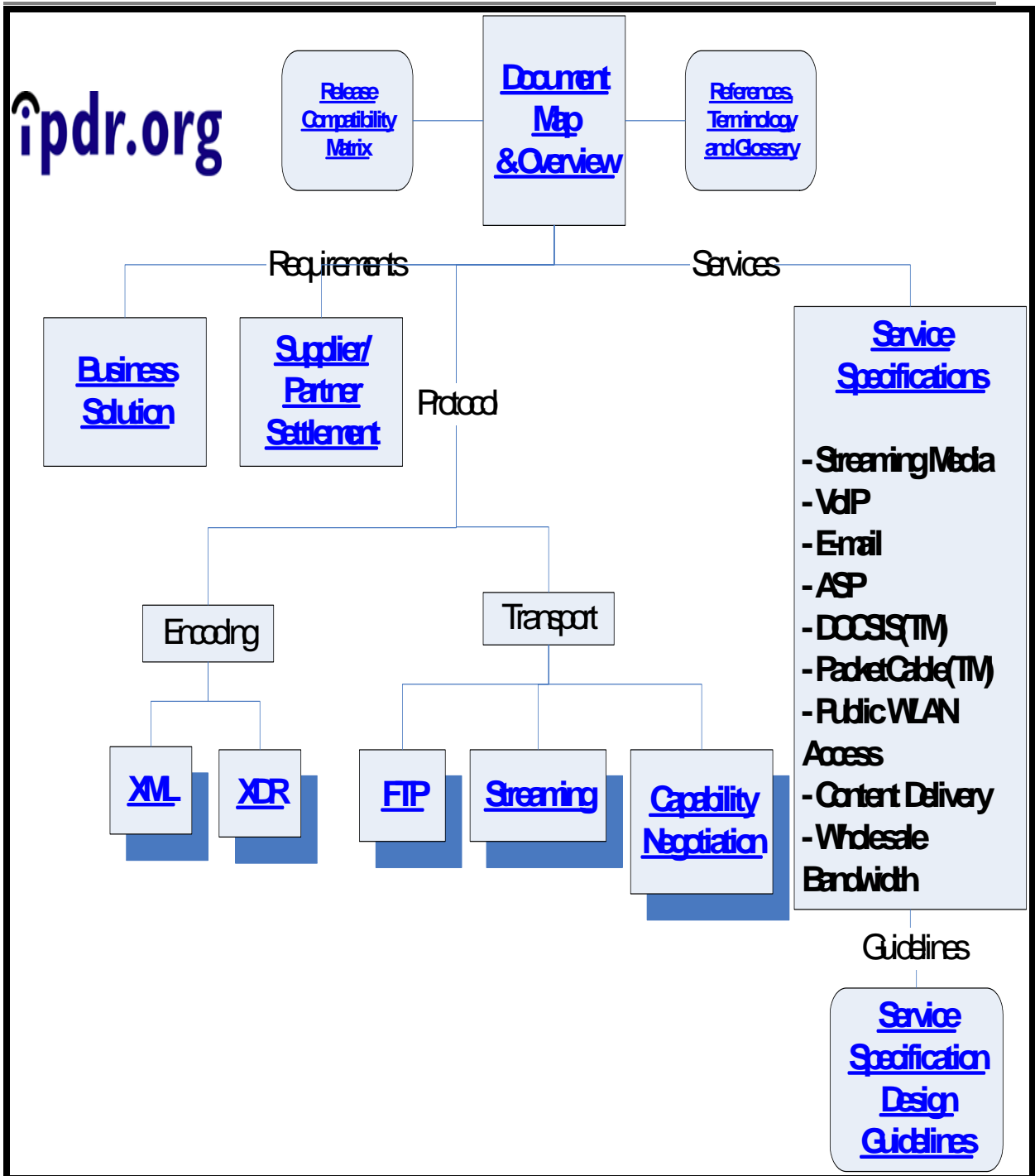


Figure 1 - Document Map

The specifications in the map above that list detailed choices (such as the variety of encoding options) indicate the areas of extensibility of the IPDR solution. Those components that do not indicate choices document the generic discussion of the IPDR solution.

3. Overview

The following subsections detail the purpose and general content of the document components illustrated in Figure 1 above.

3.1 Requirements—Business Solution

3.1.1 Business Problem Definition

This section puts the solution specified in the context of the industry needs and problems with current and past solutions. The general objectives to improve on past solutions are explained.

3.1.2 Reference Model

This section describes the functional components and the interfaces between them that are used in specifying protocols and information for implementation of Service Specifications.

3.1.3 NDM-U Accounting Solution Requirements

This section provides a technology-neutral model of the TeleManagement Forum's Network Data Management component of its eTOM for the application of managing usage data in support of IP-based services, thus the acronym NDM-U. The business requirements which drive Service Specifications for specific service instances are documented here.

3.1.4 Information Meta Model

This section describes the service-independent elements of information upon which the Service Definitions are based.

3.2 Requirements—Supplier/Partner Settlement

This section provides a technology neutral model of the TeleManagement Forum's Supplier/Partner Settlement component of its eTOM for the application of exchanging usage information in support of multi-enterprise financial transactions related to the provision of IP-based services to the customers of one or more of those enterprises. . The business requirements which drive Service Specifications for specific service instances are documented here.

3.3 Protocol—Encodings Specifications

These documents specify the various choices for encoding information defined in Service Definitions.

3.4 Protocol—Transport Specifications

These documents specify the various choices for transport protocols used to move service-specific instance documents between functional entities in the Reference Model.

3.5 Protocol—Capability Negotiation

In order for various functional elements of an IPDR implementation to coordinate their operation, they must discover what capabilities each has and negotiate a level of feature operability that both will support. This document describes the mechanism for realizing such a negotiation.

3.6 Services—Service Specification Guideline

This document provides the guidelines for authors in the creation of service-specific instances of IPDR Service Specifications. This document also specifies an “envelope” for usage detail and settlement details and/or aggregate totals of usage and charges. The document also provides the general approach for constructing an IPDRDoc for a given service or Supplier/Partner settlement scenario.

3.7 Services—IPDR Service Specifications

This set of documents provide service-specific Use Cases, Information Elements, Service Definitions (XML Schema documents conforming to the Information Meta Model), and applicable Business Processes for each IP-based service for which the IPDR technology is applicable.

4. User's Guide to IPDR.org Documents

The following is a typical example of the use of the document set:

1. Familiarization with the components of the Document Map and their general purpose by reading this document.
2. Read Business Solution Specification.
3. Read Service Specification Guidelines.
4. For Application Specialists, author Use Case section of the Service Specification.
5. For High-Level Designers, specify service-specific information elements in the Service Definition section of the Service Specification.
6. For Detailed Designers, use the Encoding and Transport Specifications in the construction of software solutions.

This use case can also be understood by means of the following flow chart.

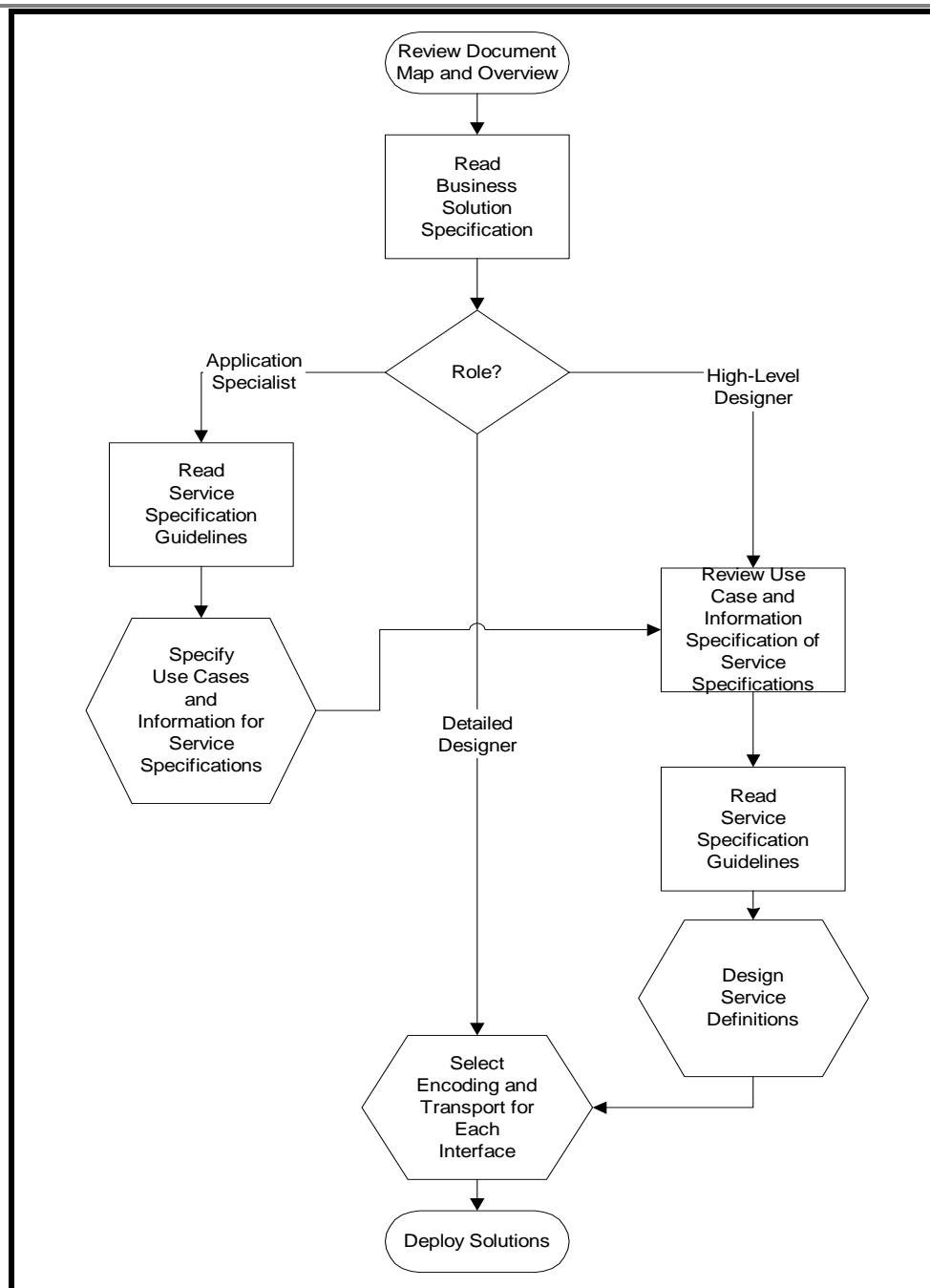



Figure 2 - User's Guide Flow Chart

The roles identified on the three branches of the flowchart above are:

1. Application Specialist – this is a subject matter expert in the area of accounting and settlement use cases of internet-based services.
2. High-Level Designer – this is a subject matter expert in the area of information modeling and use case analysis.
3. Detailed Designer – this is a subject matter expert in the area of defining formal Service Definitions, using the subset of XML Schema described in the Service Specification Guideline.

5. IPDR Release Compatibility Matrix

The IPDR technology is comprised of the collection of components depicted in the Document Map above. As various components are revised to reflect minor or major changes, this necessitates incrementing the compatibility level of the overall product. The following matrix indicates which revisions of each component are associated with the other components at a given release of the overall product, including the protocol version serial number.

 <u>Component Name</u>	<u>Compatible Revision – Release 3.5</u>
Requirements—Business Solution	3.5
Requirements—Supplier/Partner Settlement	1.0
Protocol—Encoding/XML	3.5
Protocol—Encoding/XDR	3.5
Protocol—Transport/File	3.5
Protocol—Transport/Streaming	2.0
Protocol—Transport/Capabilities Negotiation	3.5
Protocol Version Serial Number	4
Service Specification Guidelines	3.5
Service Specification—VoIP	3.5-A.0
Service Specification—Streaming Media	3.5-A.0
Service Specification—Public WLAN Access	3.5-A.0

Appendix - References, Terminology and Glossary

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Voice over IP Service Specification – *VoIP 3.5-A.0*

Electronic Mail Service Specification – E-mail 3.0-A.0

Authentication and Authorization Service Specification – A&A 2.5-A.0

Internet Access Service Specification – IAC 2.5-A.0

Wholesale Service Specification—WS 3.0-A.0

Streaming Media Service Specification – SM 3.5-A.0

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A.2 Terminology and Acronyms
 A.3.1 Terminology

Term	Definition
Access Provider	In the context of Roaming , the Access Provider facilitates service delivery to the Service Consumer where the Home Service Provider is unable to provide PWLAN access.
Accounting	The process of collecting and analyzing service and resource usage metrics for the purposes of capacity and trend analysis, cost allocation, auditing, and billing, etc. Accounting management requires that resource consumption be measured, rated, assigned, and communicated between appropriate business entities.
Aggregator	<i>A type of PWLAN Service Provider that maintains business relationship with the Service Consumer for providing PWLAN Services.</i>
Audit (or Reconciliation) Record	In order for two service providers to measure of level of trust and SLAs, there is a need of automation of exchange of revenue impacting data between them. This data/information is known as audit/reconciliation records.
Bilateral Relationship	A business relationship between two Service Provider wherein they agree to serve each other’s Service Consumers
Billable Account Identifier	The identifier used for Settlement between Service Providers
Billed Entity	One of the following: Service consumer’s Username Terminal Equipment Identifier Account Number
Billing Class of Service	An indication of which of a choice of billable services is being consumed
Business Relationship Record	Two service providers may enter into a business agreement to offer service to the consumer via identifying key attributes by which they can measure the level of service compliance and automation for exchange of changes needed (due to changing business conditions).
Business	A network element that enables automated support for Accounting and

Term	Definition
Support System	Billing related business processes of a Service Provider. (Examples of business processes are fraud Detection & handling, data warehousing, rating, billing, customer care and web self-care). Two Business Support Systems may also interwork to provide Bilateral Settlement .
Charging Model	A network feature that supports specific type(s) of service agreements between the Service Provider and the Billed Entity
Clearinghouse	In view of the network reference model, the Clearinghouse is a functional entity that performs Multilateral Settlement .
Content Provider	A Service Provider partner or third-party vendor that offers digital content via the Access Provider
Intermediary	A broker or aggregator of Settlement services among Service Providers
Mediation	In view of network reference model , Mediation refers to the combination of the logical entities IPDR recorder, IPDR transmitter, and IPDR store.
Multilateral Relationship	A business relationship between Service Providers wherein they agree to perform Settlement via an Intermediary
Net Position	The result of the Settlement process wherein two or more Service Providers compare their roaming balances and generate net debtor/creditor positions for each .
Network Access Identifier (NAI)	The mobile user's Username and service provider identifier such as defined in RFC2486 (e.g., username@serviceprovider.com)
Operations Support System	Software and hardware employed in the management and surveillance of Service Provider Resources
Partner	A Service Provider that maintains a commercial relationship with another Service Provider to allow collaborative delivery of Services to Service Consumers .
Payment Method	One of the following: Pre-Paid, Subscription
Prepaid Service	Services provisioned as user accounts with a finite available balance

Term	Definition
PWLAN Access	PWLAN Access may be defined as the time duration between successful authentication and logoff initiated by the user or the PWLAN network. The account is provided by the Service Provider.
PWLAN Partner	A third-party vendor in the PWLAN value chain that has a business agreement with the Service Provider. Examples include Venue Owner, Content Provider, or an infrastructure provider for delivering PWLAN services.
Rating	The process of assigning a monetary value to resource usage
Resource	A quantifiable asset employed by a Service Provider, or on behalf of a Service Provider by another Service Provider, to fulfill a request of a Service Consumer. (Examples include: files, communications, goods, etc).
Revenue Assurance	The process of using an independent source of audit data to verify accuracy and completeness of Settlements
Roaming	Service usage initiated by a service consumer and provided by a Service Provider other than the one with which the service consumer have business relationship.
Roaming Agreement	Contract between Service Providers defining how their respective Service Consumers may use the Resources of a Visited Service Provider and how the Visited Service Provider will be compensated for the usage
Roaming Plan	A service agreement that defines the terms under which the Service Consumer uses public WLAN access and/or services from multiple devices, locations, and Access Providers networks
Serve Provider	The Visited Service Provider
Service	Network and/or application operation that provides the Service Consumer with the requested resource.
Service Consumer	The beneficiary (human or system) of a service.
Service Element	Any element that is responsible for fulfilling a Service Consumer request. (Examples include: network equipment and system processes)
Service	An enterprise that provides communications-based Services.

Term	Definition
Provider	
Session	A set of related service usages; service usages may or may not be time based in the unit of measurement.
Settlement	Periodic correlation of usage provided by more than one Service Providers for the purpose of determining the net debtor and creditor positions (in terms of accounting units) between the Service Providers. Settlement done between two Service Providers is Bilateral Settlement. Settlement done between more than two Service Providers is Multilateral Settlement.
Settlement Exchange	Net Position rated in currency units.
Settlement Model	One of : Bilateral or Multilateral
Subscription	Services implemented via contract between a payor and payee
Summary Exchange	Exchange of Summary of accounting information
Supplier	A Service Provider that delivers Service Consumer requested services from a Partner or to a Partner.
Terminal Equipment	The device used by the Service Consumer for access to PWLAN services.
Termination Cause	How the Session was terminated.
Universal Access Method	The ability to access WISP services with only an Internet browser and Wi-Fi network interface on the Service Consumers device
Usage	Consumption of resources and services by a Service Consumer.
Usage	A parameter whose value indicates some aspect of usage of a given

Term	Definition
Attribute	service and/or resource.
Usage Entry¹	A Service-specific trigger resulting in the generation by a Service Element of a set of Usage Attribute values related to Usage specific to a given Service Consumer
Usage Event	A discrete Service Consumer, Terminal Equipment, or Service Element activity impacting Resource Usage
Use Case	A use case is a coherent unit of functionality provided by a system, a subsystem, or a class as manifested by sequences of messages exchanged among the system and one or more outside interactors (called actors) together with actions performed by the system. (Note: the definition, as defined in UML standards, is followed in this specification).

¹ Because of legacy issues, a Usage Entry from a given Service Element will not initially conform to an IPDR specification or, in some cases, may never conform. To be considered a Usage Entry the information presented or made available by inference from the Service Element must minimally contain attributes from some of the general attribute categories.

A.3.2 Acronyms:

3GPP	- Third Generation Partnership Project
AAA	- Authentication, Authorization, Accounting
ANI	- Automatic Number Identification
ASP	- Application Service Provider
BID	- Billing Identifier
BRI	- Business Relationship Identifier
BSS	- Business Support Systems
CCI	- Call Clarity Index
CDMA	- Code Division Multiple Access
CLEC	- Competitive Local Exchange Carrier
CRM	- Customer Relationship Management
DOCSIS	- Data over Cable System Interface Standard (Registered Trademark of CableLabs®)
DSL	- Digital Subscriber Line
DSS	- Decision Support Systems
DTD	- Document Type Definition
EP	- End Point
ESN	- Electronic Serial Number
ETSI	- European Telecommunications Standardization Institute
FoIP	- Fax over IP
GK	- Gate Keeper
GMT	- Greenwich Mean Time
GPRS	- General Packet Radio Service
GSM	- Global System for Mobile Communications
GSMA	- GSM Association
IETF	- Internet Engineering Task Force
IMSI	- International Mobile Subscriber Identity
IP	- Internet Protocol
IPDRDoc	- IPDR Document
IS	- IPDR Store
ISDN	- Integrated Services Digital Network
ISO	- International Standardization Organization
ISP	- Internet Service Provider
IT	- IPDR Transmitter
ITU-T	- International Telecommunications Union – Telecommunications Standardization Section
LAN	- Local Area Network
LEC	- Local Exchange Carrier
MAC	- Media Access Controller
MOS	- Mean Opinion Score
MSO	- Multi-(cable)System Operator
NAI	- Network Access Identifier
NAS	- Network Access Server
NDM	- Network Data Management
NDM-U	- Network Data Management - Usage
NSE	- Network Service Element
OSS	- Operations Support System
PAC	- Protected Access Controller
PLMN	- Public Land Mobile Network
POP	- Point of Presence
PSTN	- Public Switched Telephone Network
QoS	- Quality of Service
RADIUS	- Remote Authentication Dial-In User Service
RAS	- Remote Access Server
SC	- Service Consumer

SCN - Switched Communications Network
SE - Service Element
SID - System Identifier
SIM - Subscriber Identity Module
SLA - Service Level Agreement
SMS - Short Message Service
SP - Service Provider
TIPHON- Telecommunications and Internet Protocol Harmonization over Networks
TMF - TeleManagement Forum
TOM - Telecommunications Operations Map
UA - Usage Aggregators
UAM - Universal Access Method
UC - Usage Collectors
VoIP - Voice over IP
VPN - Virtual Private Network
WAP - Wireless Application Protocol
Wi-Fi® - Wireless Fidelity (Registered Trademark of the Wi-Fi Alliance)
WISP - Wireless Internet Service Provider
WLAN - Wireless LAN
xDSL - Digital Subscriber Line of type x
XML - eXtensible Markup Language