Next Generation Service Interfaces Architecture

Candidate Version 1.0 –23 Feb 2010

Open Mobile Alliance
OMA-AD-NGSI-V1_0-20100223-C

Use of this document is subject to all of the terms and conditions of the Use Agreement located at http://www.openmobilealliance.org/UseAgreement.html.

Unless this document is clearly designated as an approved specification, this document is a work in process, is not an approved Open Mobile Alliance™ specification, and is subject to revision or removal without notice.

You may use this document or any part of the document for internal or educational purposes only, provided you do not modify, edit or take out of context the information in this document in any manner. Information contained in this document may be used, at your sole risk, for any purposes. You may not use this document in any other manner without the prior written permission of the Open Mobile Alliance. The Open Mobile Alliance authorizes you to copy this document, provided that you retain all copyright and other proprietary notices contained in the original materials on any copies of the materials and that you comply strictly with these terms. This copyright permission does not constitute an endorsement of the products or services. The Open Mobile Alliance assumes no responsibility for errors or omissions in this document.

Each Open Mobile Alliance member has agreed to use reasonable endeavors to inform the Open Mobile Alliance in a timely manner of Essential IPR as it becomes aware that the Essential IPR is related to the prepared or published specification. However, the members do not have an obligation to conduct IPR searches. The declared Essential IPR is publicly available to members and non-members of the Open Mobile Alliance and may be found on the "OMA IPR Declarations" list at http://www.openmobilealliance.org/ipr.html. The Open Mobile Alliance has not conducted an independent IPR review of this document and the information contained herein, and makes no representations or warranties regarding third party IPR, including without limitation patents, copyrights or trade secret rights. This document may contain inventions for which you must obtain licenses from third parties before making, using or selling the inventions. Defined terms above are set forth in the schedule to the Open Mobile Alliance Application Form.

NO REPRESENTATIONS OR WARRANTIES (WHETHER EXPRESS OR IMPLIED) ARE MADE BY THE OPEN MOBILE ALLIANCE OR ANY OPEN MOBILE ALLIANCE MEMBER OR ITS AFFILIATES REGARDING ANY OF THE IPR'S REPRESENTED ON THE "OMA IPR DECLARATIONS" LIST, INCLUDING, BUT NOT LIMITED TO THE ACCURACY, COMPLETENESS, VALIDITY OR RELEVANCE OF THE INFORMATION OR WHETHER OR NOT SUCH RIGHTS ARE ESSENTIAL OR NON-ESSENTIAL.

THE OPEN MOBILE ALLIANCE IS NOT LIABLE FOR AND HEREBY DISCLAIMS ANY DIRECT, INDIRECT, PUNITIVE, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES ARISING OUT OF OR IN CONNECTION WITH THE USE OF DOCUMENTS AND THE INFORMATION CONTAINED IN THE DOCUMENTS.

© 2010 Open Mobile Alliance Ltd. All Rights Reserved.
Used with the permission of the Open Mobile Alliance Ltd. under the terms set forth above.

Contents

Figures

1. Scope   (Informative)

This document provides the architecture for the NGSI enabler based on the requirements as described in the [NGSI-RD].

NGSI interfaces are I0 interfaces for the NGSI enabler and are subject for the standardization in this enabler.

An NGSI component can realize its functionalities e.g. by accessing other OMA enablers via their interfaces. These OMA enabler interfaces are however I2 interfaces in relation to the NGSI enabler within the context of OSE [OSE] as shown in figure 1. These I2 interfaces are out of scope of NGSI enabler.
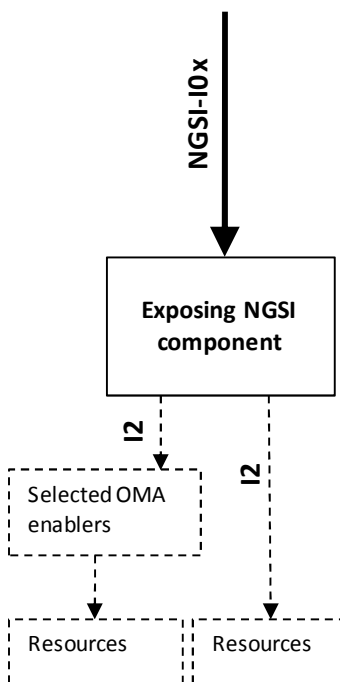
Figure 1 Relation of NGSI enabler to other OMA enablers in the context of OSE

2. References

2.1   Normative References

[NGSI-RD]	"NGSI Requirements", Open Mobile Alliance™, OMA-RD-NGSI-V1_0, URL:http://www.openmobilealliance.org/
[OSE]	"OMA Service Environment", Version 1.0, Open Mobile Alliance™, URL:http://www.openmobilealliance.org/
[RFC2119]	"Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL:http://www.ietf.org/rfc/rfc2119.txt

2.2   Informative References

[OMA-CAB]	"Converged Address Book Architecture", Open Mobile Alliance™, OMA-AD-CAB-V1_0, URL: http://www.openmobilealliance.org/
[OMA-CMI]	"Content Management Interface",Open Mobile Alliance™, OMA-RD-CMI-V1_0, URL: http://www.openmobilealliance.org/
[OMA-CMR]	"Customized Multimedia Ringing Architecture", Open Mobile Alliance™, OMA-AD-CMR-V1_0, URL: http://www.openmobilealliance.org/
[OMA-CPM]	"Converged IP Messaging Architecture", Open Mobile Alliance™, OMA-AD-CPM-V1_0, URL: http://www.openmobilealliance.org/
[OMADICT]	"Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_7, URL:http://www.openmobilealliance.org/
[OMA-LOCSIP]	"Location in SIP/IP core Architecture", Open Mobile Alliance™, OMA-AD-LOCSIP-V1_0, URL: http://www.openmobilealliance.org/
[OMA-OWSER]	"OMA Web Services Enabler (OWSER): Overview", Open Mobile Alliance™, OMA-AD-OWSER_Overview-V1_1, URL: http://www.openmobilealliance.org/
[OMA-Presence]	"Presence SIMPLE Architecture", Open Mobile Alliance™, OMA-AD-Presence_SIMPLE-V2_0, URL: http://www.openmobilealliance.org/
[OMA-PSA]	"Parlay Service Access", Open Mobile Alliance™, OMA-AD-Parlay_Service_Access-V1_0, URL:http://www.openmobilealliance.org/
[OMA-REST]	"RESTful bindings for Parlay X Web Services", Open Mobile Alliance™, OMA-ERELD-ParlayREST-V1_0, URL:http://www.openmobilealliance.org/
[OMA-XDM]	"XML Document Management Architecture", Open Mobile Alliance™, OMA-AD-XDM-V2_1, URL: http://www.openmobilealliance.org/

3. Terminology and Conventions

3.1 Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [**Error! Reference source not found.**].

All sections and appendixes, except "Scope" and "Introduction", are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

The definitions in the OMA Dictionary [OMADICT] are valid for this AD unless otherwise stated below.

Context Entity	see [NGSI-RD]
Context Information	see [NGSI-RD]
Context Information Model	see [NGSI-RD]
Federation	The binding of two or more Accounts (within an Authentication Domain or a Circle of Trust, where one of the Accounts is at an IDP) for a given Principal. Federation does not imply that Identity Attributes are being shared – it is simply a joining of two or more Accounts (e.g. for Single Sign On), after which Attributes could then be shared.
Identifier	see [NGSI-RD]
Identity	The characteristics by which a principal is recognised or known.
Media	Digital means by which information is packaged. Media may come in different forms, which are referred to as Media Types.
Multimedia List	see [NGSI-RD]
Pseudonym	An arbitrary name used as an Identifier to refer to an Identity. A Pseudonym is usually known in the context of a specific relationship to the Identity to a given entity only.
Service Recommendation	see [NGSI-RD]

3.3 Abbreviations

NGSI	Next Generation Service Interfaces
OMA	Open Mobile Alliance
OSE	OMA Service Environment
PSA	Parlay Service Access
REST	Representational State Transfer
SIP	Session Initiation Protocol
TEL	Telephone
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
XML	Extensible Markup Language

4. Introduction   (Informative)

The focus of the NGSI v1.0 is the standardization of functional interfaces for Data Configuration and Management, Call Control and Configuration, Multimedia List Handling, Context Management, Identity Control, Service Registration and Discovery functions. NGSI v1.0 covers both new functional interfaces as well as extensions of existing PSA v1.0[OMA-PSA] interfaces. The design of the OMA NGSI v1.0 enabler follows the principles of the OSE [OSE]. The NGSI v1.0 enabler aims to be compatible with PSA. NGSI v1.0 will reuse OMA Enabler interfaces, where appropriate PSA v1.0 interfaces do not exist, and define suitable bindings for them.

NGSI APIs are defined as abstract APIs to allow subsequent specification of different types of bindings.

To allow for easy identification of the related Parlay X API specification parts, the document structure of the Parlay X is respected in the organization of the NGSI interfaces. More specifically, interfaces are modularized such that the part structure of Parlay X is kept in order to make a relationship clear, while components are modularized according to the functionalities.

4.1   Version 1.0

This architecture document covers all requirements of NGSI 1.0 [NGSI-RD]. The document aims to cover architectural aspects related to the interfaces for the following areas:

- Data Configuration and Management

- Call Control and Configuration

- Multimedia List Handling

- Context Management

- Service Registration and Discovery

- Identity Control

5. Architectural Model

NGSI architecture diagram, NGSI functional components and interfaces will be described in the following sections.

5.1 Dependencies

The NGSI Enabler is dependent on OSE [OSE]. The NGSI functional interfaces have dependencies on and maintain back ward compatibility with the PSA Enabler [OMA-PSA], except for the new interfaces.

The following interfaces are developed as extensions to existing Parlay X specification parts:

NGSI Interface	Relation to existing Parlay X specification Parts
NGSI-3 - Group Change Notification Interface	Extensions to Part 13 (Address list management)
NGSI-4 - Call Control Extension Interface	Extensions to Part 2 (Third party call)
NGSI-5 - Call Notification Extension Interface	Extensions to Part 3 (Call notification)
NGSI-6 - Call Handling Extension Interface	Extensions to Part 10 (Call handling)
NGSI-7 - Multimedia Conference Extension Interface	Extensions to Part 12 (Multimedia conference)
NGSI-8 - Multimedia List Handling Extension Interface	Extensions to Part 19 (Multimedia streaming control)

These extensions are described as modifications of interfaces. The details are contained in the technical specifications.

An example for the relationship for NGSI I0 interfaces and OMA enablers are shown in Appendix B.
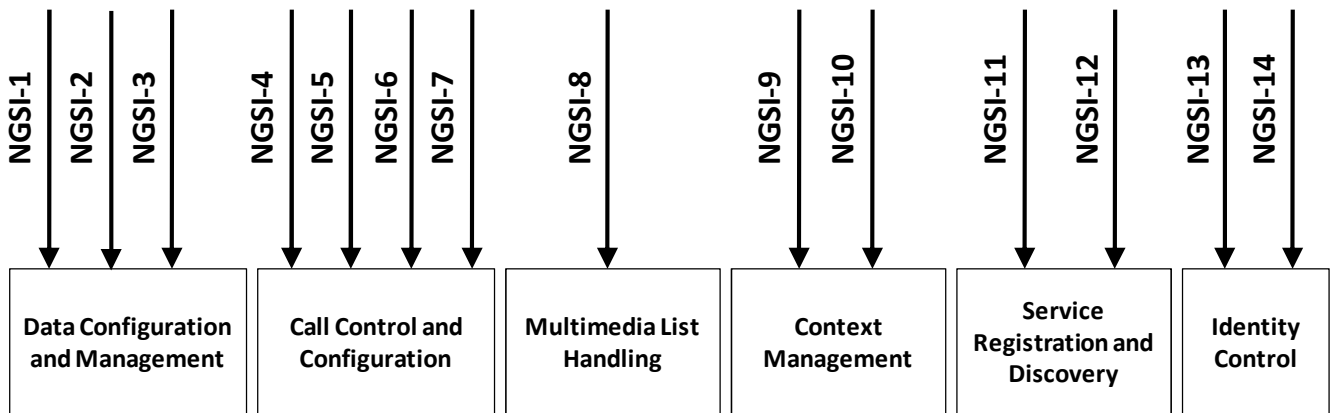
5.2 Architectural Diagram

Figure 2: NGSI Architectural Diagram

5.3 Functional Components

This section describes briefly the NGSI components.

5.3.1 Data Configuration and Management

The Data Configuration and Management component supports NGSI interface messages for the following functions:

- Management (i.e. create, read, update, delete) of data

- Subscription management of notifications regarding updates to data

- Notifications regarding updates to data.

The data supported can be of the type of XML or non-XML data.

This component exposes the NGSI-1, NGSI-2 and NGSI-3 interfaces.

5.3.2 Call Control and Configuration

The Call Control and Configuration component supports NGSI interface messages for the following functions:

- Call setup

- Call actions

- Call handling rules and methods

- Reaction to notifications

- Multimedia conferencing configuration and control.

This component exposes the NGSI-4, NGSI-5, NGSI-6 and NGSI-7 interfaces.

5.3.3 Multimedia List Handling

The Multimedia List Handling component supports NGSI interface messages for the following functions:

- Management (create, read, update, delete) of a Multimedia List to be used by Streaming functionality, including a manipulation of Media identifiers (e.g. URI) in a Multimedia List

- Management of Usage mode/order of a specific Multimedia List

- Management of a condition of Multimedia List to be performed by Streaming functionality.

This component exposes the NGSI-8 interface.

5.3.4 Context Management

The Context Management component supports NGSI interface messages for the following functions:

- Management of the Context Information about Context Entities and of its specific Context Information elements. The Context Information includes an identifier for a specific Context Entity, the type of Context Entity, attributes and their values, such as a person (=type) and its location(=attribute). It may also include meta data about the Context Information, for example, the lifetime and quality of information

- Access (query, subscribe/notify) to the available Context Information about Context Entities, including Context access specific conditions such as operation scopes to reduce the query cost and restrictions based on the attribute values etc.

This component exposes the NGSI-9 and NGSI-10 interfaces.

5.3.5 Service Registration and Discovery

The Service Registration and Discovery component supports NGSI interface messages for the following functions:

- Registration of Services
- Search for Services.

This component exposes the NGSI-11 and NGSI-12 interfaces.

5.3.6 Identity Control

The Identity Control component supports NGSI interface messages for the following functions:

- Management of the Identity including Identifiers
- Control of the Federation of the Identity.

This component exposes the NGSI-13 and NGSI-14 interfaces.

5.4 Functional Interfaces

The NGSI functional interfaces maintain backward compatibility with the PSA Enabler [OMA-PSA], except for those interfaces newly introduced in NGSI. To maintain such backwards compatibility, the following table identifies which NGSI interfaces are related to the following Parlay X Parts:

NGSI Interface	Relation to existing Parlay X specification Parts
NGSI-1 - Generic Data Management Interface	none
NGSI-2- Generic Data Change Notification Interface	none
NGSI-3 - Group Change Notification Interface	Extensions to Part 13 (Address list management)
NGSI-4 - Call Control Extension Interface	Extensions to Part 2 (Third party call)
NGSI-5 - Call Notification Extension Interface	Extensions to Part 3 (Call notification)
NGSI-6 - Call Handling Extension Interface	Extensions to Part 10 (Call handling)
NGSI-7 - Multimedia Conference Extension Interface	Extensions to Part 12 (Multimedia conference)
NGSI-8 - Multimedia List Handling Extension Interface	Extensions to Part 19 (Multimedia streaming control)
NGSI-9 - Context Entity Discovery Interface	none
NGSI-10 - Context Information Interface	none
NGSI-11 – Service Registration Interface	none
NGSI-12 - Service Discovery Interface	none

NGSI-13 - Identity Resolution Interface	none
NGSI-14 - Identity Management Interface	none

5.4.1   NGSI-1 - Generic Data Management Interface

The NGSI-1 interface handles the management of data contained in documents which are handled transparently to the content. This means the management is independent of the content, format and the application usage. The data supported can be of the type of XML or non-XML data.

The NGSI-1 interface supports the following functions:

- Management of data contained in a transparently handled document (i.e. creation, retrieval, update and deletion of the document as a whole)

Examples of data supported are: user's address book and user's personal contact card ([CAB]).

NGSI-1 does not have a Parlay X counterpart.

5.4.2   NGSI-2 - Generic Data Change Notification Interface

The NGSI-2 interface is handles subscription/ notification independently of the content, format and the application usage.

The interface NGSI-2 supports the following functions:

- Subscription to receive notification of data change in the content of the document
- Notification of data change in the content of the document (notifications contain the whole updated document)

Examples of data supported are: user's address book and user's personal contact card ([CAB]).

NGSI-2 does not have a Parlay X counterpart.

5.4.3   NGSI-3 - Group Change Notification Interface

The NGSI-3 interface extends the interfaces "*GroupNotification*" and "*GroupNotificationManager*" of Parlay X Part 13, and supports functionalities for:

- Subscription to receive notification of data change in group information;
- Notification of data change in group information.

The NGSI-2 interface extends Parlay X Part 13.

5.4.4   NGSI-4 - Call Control Extension Interface

The NGSI-4 interface extends the interface "*ThirdPartyCall* " of Parlay X Part 2.

The Parlay X Part 2 interface exposes call control functionalities including call setup and termination, adding/ removing/ transferring participants and retrieval of session information.

The NGSI-3 interface extends Call establishment with the following functions:

- Identify specific Media or a specific Media address (e.g. SIP-URI, TEL-URI, URL) to be added to a Call

- Record/retrieve one or more Media during a Call

- Configure an application-defined Call handling method, e.g.

    o Chained forwarding order

    o Simultaneous forwarding

- Configure parameters for anonymity and Pseudonyms of the Call participants. The actual Pseudonyms being used are retrieved by NGSI-10.

5.4.5 NGSI-5 - Call Notification Extension Interface

The NGSI-5 interface extends the interface "*CallDirection* " of Parlay X Part 3.

The Parlay X Part 3 interface exposes call notification functions including status notifications (e.g. busy, not reachable, no answer), call detail notifications (e.g. called number) and management functions for notifications (e.g. starting/stopping call notifications).

The NGSI-4 interface extends Parlay X Part 3 action elements with the following:

- Identify a specific Media or a specific Media address (e.g. SIP-URI, TEL-URI, URL) used during an action

- Record/retrieve one or more Media during an action

- Configure an application-defined Call handling method used during an action, e.g.

    o Chained forwarding order

    o Simultaneous forwarding.

- Configure parameters for anonymity and Pseudonyms of the Call participants. The actual Pseudonyms being used are retrieved by NGSI-10.

Note: To subscribe to event notifications related to calls initiated by a subscriber in the network, the same interface for subscription as Parlay X Part 3 can be used.

The separation of the NGSI-4 and NGSI-5 interfaces follows the Parlay X Part 2 and Part 3 structure. Interfaces in Part 3 focus on the notification interfaces to describe events and set the respective actions whereas Part 2 interfaces specify dedicated call control functions. The triggered actions themselves are not part of the Part 3 and NGSI-5.

5.4.6 NGSI-6 - Call Handling Extension Interface

The NGSI-6 interface extends the interface "*CallHandling*" of Parlay X Part 10.

It supports the following functions:

- Set the rules which will be enforced during Call establishment and Call handling. These rules are specific to the processing of the Call as follows:

    o For chained Call establishment based on an application-defined target address order (e.g. FindMe function trying a special order of targeted devices).

    o For simultaneous Call establishments to several application-defined target addresses

    o For Call handling based on the Call status (e.g. busy or not reachable)

    o For Call handling based on the caller's context (e.g. presence status)

- Define and configure Policies used for Call handling.

5.4.7   NGSI-7 - Multimedia Conference Extension Interface

The NGSI-7 interface extends the interface "*MultimediaConference*" of Parlay X Part 12.

It supports the following functions:

- Manage the Media address

- Configure the participant specific (e.g. depending on the role) Media address (e.g. SIP-URI, TEL-URI, URL) and its usage conditions (e.g. when joining/leaving calls)

- Configure conference presentation preferences available through network side configuration

- Configure the application-specific authentication (e.g. conference id and password) which is used when a participant joins the conference Call.

- Configure the recording one or more Media of a conference

- Record/retrieve one or more Media of a conference

- Observe/coach a conference

- Configuration of the conference control

- Add and control side/child conference which is additional to main conference.

5.4.8   NGSI-8 - Multimedia List Handling Interface

The NGSI-8 interface extends the interface "*Streaming*" of Parlay X Part 19.

It supports the following functions:

- Management (create, read, update, delete) of a Multimedia List

- Configuration of usage mode/order, e.g. how the Media referenced by the Multimedia List is expected to be played

- Configuration of the conditions when the Media referenced by Multimedia List is expected to be played.

5.4.9   NGSI-9 - Context Entity Discovery Interface

The NGSI-9 interface supports the following functions:

- Register and update the Context Entities, their attributes and their availability;

- Discover (e.g. by query or notification) the Context Entities, their attributes and their availability;

NGSI-9 does not have a Parlay X counterpart.

5.4.10   NGSI-10 - Context Information Interface

The NGSI-10 interface supports the following functions:

- Update Context Information associated with Context Entities

- Query for Context Information associated with Context Entities

- Subscribe to Context Information associated with Context Entities, including optionally specifying when to be notified (e.g., on change basis, periodically).

- Notify subscribers about Context Information associated with Context Entities.

NGSI-10 does not have a Parlay X counterpart.

5.4.11   NGSI-11 - Service Registration Interface

The NGSI-11 interface supports the following function:

- Registration of Services

NGSI-11 does not have a Parlay X counterpart.

5.4.12   NGSI-12 - Service Discovery Interface

The NGSI-12 interface supports the following function:

- Search for Services.

NGSI-12 does not have a Parlay X counterpart.

5.4.13   NGSI-13 - Identity Resolution Interface

The NGSI-13 interface supports the following functions:

- Resolution of Identifiers

NGSI-13 does not have a Parlay X counterpart.

5.4.14   NGSI-14 - Identity Management Interface

The NGSI-14 interface supports the following functions:

- Registration, revocation, deletion of Identifiers used for the Federation.

NGSI-14 does not have a Parlay X counterpart.

5.5   Security Considerations

Security functions are considered to be complementary framework functions which are out of scope of NGSI.

Appendix A.   Change History   (Informative)

A.1   Approved Version History

Reference	Date	Description
n/a	n/a	No previous version within OMA

A.2   Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-AD-NGSI-V1_0	21 Jul 2009		Generation of the baseline document
	30 Sep 2009	5.2, 5.3	Incorporated: OMA-ARC-NGSI-2009-0026-CR_NGSI_Initial_Architecture.doc
	12 Oct 2009	5.2, 5.3, 5.4	Incorporated: OMA-ARC-NGSI-2009-0032-CR_new_architecture_diagram, OMA-ARC-NGSI-2009-0033-CR_components_and_interfaces_description, Editorial: Added missing section heading "5.3.3 Multimedia List Handling Extenstion"
	16 Oct 2009	2, 3, 4, Appendix B, C	Incorporated: OMA-ARC-NGSI-2009-0043R02-CR_AD_3_Terminology, OMA-ARC-NGSI-2009-0042R01-CR_AD_2_References, OMA-ARC-NGSI-2009-0052-CR_AD_Appendix, OMA-ARC-NGSI-2009-0045-CR_AD_4_1_Version_1_0_description, OMA-ARC-NGSI-2009-0044-CR_AD_4_Intro OMA-ARC-NGSI-2009-0041R01-CR_AD_1_Scope Editorial: Comments to OMA-ARC-NGSI-2009-0041R01.
	19 Oct 2009	1, 3.2, 4., 4.1, 5., 5.1, 5.3.3, 5.3.4, 5.3.5, 5.4.1, 5.4.3, 5.4.5, 5.4.8, 5.4.10, 5.5	Incorporated: OMA-ARC-NGSI-2009-0038R01-CR_Context_Description.doc, OMA-ARC-NGSI-2009-0039-CR_IdentityControl_Description.doc, OMA-ARC-NGSI-2009-0040R02-CR_DataManagement_description.doc, OMA-ARC-NGSI-2009-0050R01-CR-AD_5_5_Security_Considerations, OMA-ARC-NGSI-2009-0051R01-CR-AD_5_AD_Model_and_Dependencies, OMA-ARC-NGSI-2009-0073-CR_AD_5.3.3_MLH_component, OMA-ARC-NGSI-2009-0081R01-CR_AD_MLH_sec_1_and_4.1 Editorial changes.
	20 Oct 2009	2.2, 3.2	Editorial changes: • reference to OMA dictonary version 2.8 • "Policy" definition removed, because it is in the current OMA dict.
	16 Nov 2009	all	Incorporated changes according to OMA-ADRR-NGSI-V1_0-20091116-D.doc
	18 Nov 2009	1, 4, 5.4.5	Incorporated changes according to OMA-ADRR-NGSI-V1_0-20091117-D.doc
	25 Nov 2009	4.1, 5.4.	Incorporated changes according to OMA-ADRR-NGSI-V1_0-20091124-D.doc

Document Identifier	Date	Sections	Description
	02 Dec 2009	3.2, 4, 5.4.3, 5.4.4, 5.4.5, 5.4.7., 5.5	Incorporated: OMA-ARC-NGSI-2009-0096-CR_ADRR_Comment_A071_resolution, OMA-ARC-NGSI-2009-0104R01-CR_Comment_resolution_related_to_A076, OMA-ARC-NGSI-2009-0106R01-CR_Comment_resolution_related_to_A086, OMA-ARC-NGSI-2009-0107-CR_ADRR_comment_A023_related_to_introduction, OMA-ARC-NGSI-2009-0108R01-CR_ADRR_Comment_A068, OMA-ARC-NGSI-2009-0109R01-CR_ADRR_comment_A074_section_5.4.5, Changes according to changes according to OMA-ADRR-NGSI-V1_0-20091201-D
	26 Jan 2010	5.1, 5.3, 5.4	Incorporated: OMA-ARC-NGSI-2009-0095R05-CR_Comment_resolution_related_to_Parlay_X_structure, OMA-ARC-NGSI-2009-0103R03-CR_ADRR_A039_A040_A042_A056_A057_A058_A060_A061_A066_resolution, OMA-ARC-NGSI-2010-0010-CR_ADRR_48_52_Clarification_of_functions, OMA-ARC-NGSI-2010-0011R01-CR_ADRR_79_80_NGSI_8_Functionality
	01 Feb 2010	1., 2.2, 5., Appendix B	Incorporated: OMA-ARC-NGSI-2010-0018R02-CR_ADRR_Comment_Resolution_A079_A081_A082_A083, OMA-ARC-NGSI-2010-0022R02-CR_ADRR_Comment_Resolution_A054, OMA-ARC-NGSI-2010-0038R01-CR_Add_on_to_ADRR_79_81_82_83, OMA-ARC-NGSI-2010-0039R03-CR_NGSI_component_relation_to_OMA_enablers, Editorial changes.
	02 Feb 2010	4, 5.1, 5.4, 5.4.3	Editorial changes
Candidate Version OMA-AD-NGSI-V1_0	23 Feb 2010	All	Status changed to Candidate by TP: OMA-TP-2010-0059-INP_NGSI_V1_0_AD_for_Candidate_approval

Appendix B.　Relation of NGSI enabler to other OMA enablers (Informative)

The following figure provides examples for the usage of selective OMA enablers (for more information please refer to [OMA-CAB], [OMA-CMI], [OMA-CMR], [OMA-CPM], [OMA-LOCSIP], [OMA-OWSER], [OMA-Presence], [OMA-XDM]):
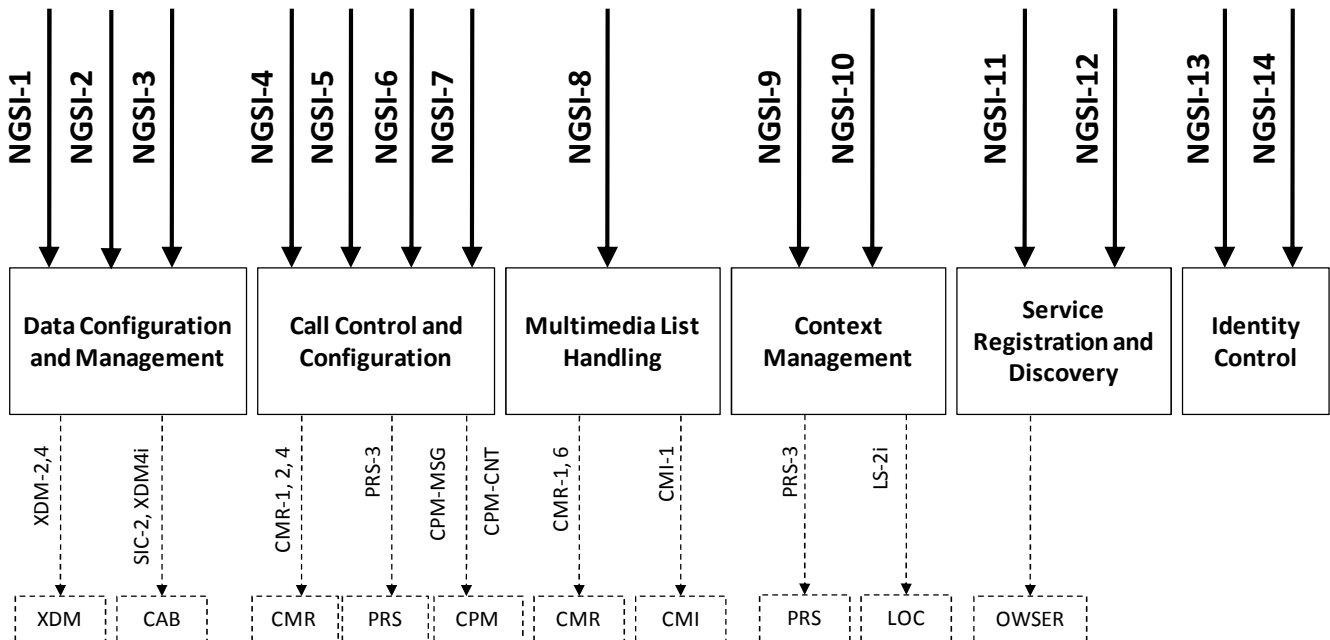
Figure 3 Example mapping of possible NGSI I2 interfaces to selected OMA enablers