Key Performance Indicator for OMA Enablers

Architecture

Candidate Version 1.0 – 08 Jun 2010

Open Mobile Alliance

OMA-AD-KPIinOMA-V1_0-20100608-C

© 2010 Open Mobile Alliance Ltd. All Rights Reserved.

Used with the permission of the Open Mobile Alliance Ltd. under the terms as stated in this document. [OMA-Template-ArchDoc-20100101-I]

Contents

Figures

1. Scope   (Informative)

The Key Performance Indicators in OMA (KPIinOMA) enabler provides the functionality to request and report Performance Measurement and/or KPI data from OMA service enablers to requestors (Operational Environment), and the definition of the Key Performance Indicators for the OMA service enablers.

This Architecture Document is defined to support the requirements described in the Key Performance Indicator in OMA Requirements Document [OMA-KPIinOMA-RD].

2. References

2.1 Normative References

[OMA-KPIinOMA-RD]	"Key Performance Indicators for OMA Enablers Requirements", Open Mobile Alliance™, OMA-RD-KPIinOMA-V1_0, URL:http://www.openmobilealliance.org/
[OSE]	"OMA Service Environment", 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
[RFC2616]	"Hypertext Transfer Protocol – HTTP/1.1", R.Fielding et al, June 1999, URL:http://www.ietf.org/rfc/rfc2616.txt
[RFC3416]	"Version 2 of the Protocol Operations for the Simple Network Management Protocol (SNMP)", R. Presuhn et al, December 2002, URL:http://www.ietf.org/rfc/rfc3416.txt
[RFC959]	"FILE TRANSFER PROTOCOL (FTP)", J. Postel et al, October 1985. URL:http://www.ietf.org/rfc/rfc959.txt

2.2 Informative References

[OMADICT]	"Dictionary for OMA Specifications", Version 2.7, Open Mobile Alliance™, OMA-ORG-Dictionary-V2_7, 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 [RFC2119].

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

3.2 Definitions

Key Performance Indicator	See [OMA-KPIinOMA-RD]
KPIinOMA-enabled Instance	See [OMA-KPIinOMA-RD]
Operational Environment	See [OMA-KPIinOMA-RD]
Performance Measurement	See [OMA-KPIinOMA-RD]

3.3 Abbreviations

KPI	Key Performance Indicator
KPIinOMA	Key Performance Indicators in OMA
OE	Operational Environment
OMA	Open Mobile Alliance

4. Introduction   (Informative)

This architecture document defines the functional component and the interface of the KPIinOMA enabler, fulfilling the requirements that have been captured in the Key Performance Indicators in OMA Requirements Document [OMA-KPIinOMA-RD].

Any OMA enabler may act as a KPIinOMA enabled instance and hence make use of the functions exposed by the KPIinOMA enabler.

4.1   Version 1.0

This architecture document covers all requirements [OMA-KPIinOMA-RD] of KPIinOMA V 1.0.

5. Architectural Model

5.1 Dependencies

The interface KPI-1 of the KPIinOMA enabler is dependent on at least one of the following technologies as the mandatory protocol for Performance Measurement reporting, query and configuration:

- • SNMPv2 [RFC3416]

- • HTTP 1.1 [RFC2616]

- • FTP [RFC 959]

5.2 Architectural Diagram

The following figure represents the KPIinOMA architecture, showing the KPIinOMA enabler.
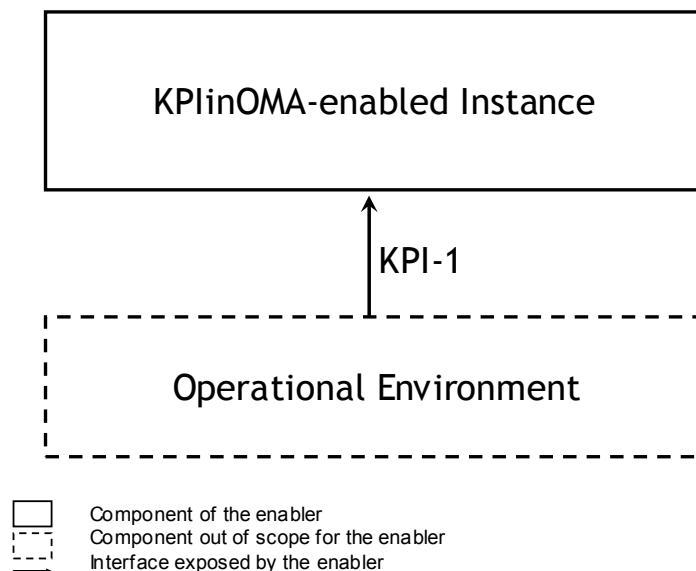
Figure 1 - KPIinOMA Architectural Diagram

The KPIinOMA enabler defines one component and one interface: KPIinOMA-enabled Instance and KPI-1 interface.

5.3 Functional Components and Interfaces

5.3.1 Functional Component within KPIinOMA enabler

5.3.1.1 KPIinOMA-enabled Instance

The KPIinOMA-enabled Instance MUST provide the following functions:

- ✧ Collection function:
  - • Collecting the Performance Measurement, e.g. based on configuration
  - • Receiving and responding to the Performance Measurement Collection request from Operational Environment

❖   Command interpreter function

- Interpreting the query command and configure command from Operational Environment

❖   Reporting function:

- Reporting the Performance Measurement to Operational Environment, as provisioned

- Responding the Performance Measurement, as a response to a query request from Operational Environment

❖   Configuration management function:

- Receiving and applying the configuration from Operational Environment

- Responding the configuration data, as a response to a query request from Operational Environment

The KPIinOMA-enabled Instance MAY provide the following function:

❖   KPI calculation function:

- Calculating the KPI based on the collected Performance Measurement according to the KPI definition and configuration

5.3.2   Functional Component external to KPIinOMA enabler (Informative)

5.3.2.1   Operational Environment

The Operational Environment is a KPIinOMA requestor (not defined by the KPIinOMA enabler). By invoking the KPI-1 interface, the requestor:

- Receives Performance Measurements from KPIinOMA-enabled Instance either in response to a Performance Management query or a Performance Management report based on pre-configuration of the KPIinOMA-enabled instance.

- Requests the KPIinOMA-enabled Instance to collect Performance Measurements

- Initiates the configuration of the KPIinOMA-enabled Instance via a configuration command request

- Queries the Performance Measurement, KPI data or configuration data from KPIinOMA-enabled Instance

5.3.3   Interfaces

5.3.3.1   KPI-1 Interface

This interface is exposed by KPIinOMA-enabled Instance, and it is used by the requestor (Operational Environment) to:

- query Performance Measurement, KPI data or configuration data,

- receive Performance Measurement and/or KPI data reported from KPIinOMA-enabled Instance,

- request the Performance Measurement collection, and

- accomplish configuration to KPIinOMA-enabled Instance.

5.4   Security Considerations

The KPI-1 interface is expected to be provided over secured connections, e.g. as secured by TLS, to ensure that the secure interface operations between KPIinOMA-enabled Instance and requestor (Operational Environment).

KPIinOMA enabler SHOULD allow Service Provider's deployment to perform the specific security features below:

- mutual authentication between KPIinOMA-enabled Instance and requestor (Operational Environment)

- integrity protection between KPIinOMA-enabled Instance and requestor (Operational Environment)

Appendix A.   Change History   (Informative)

A.1   Approved Version History

Reference	Date	Description
n/a	n/a	No prior version –or- No previous version within OMA

A.2   Draft/Candidate Version 1.0 History

Document Identifier	Date	Sections	Description
Draft Versions OMA-AD-KPIinOMA-V1_0	04 Mar, 2010	all	Incorporates input to committee: OMA-ARC-KPIinOMA-2010-0001-INP_AD_Baseline
	16 Mar, 2010	all	Incorporates input to committee: OMA-ARC-KPIinOMA-2010-0002R01-CR_AD_Architecture_Diagram; OMA-ARC-KPIinOMA-2010-0003R01-CR_AD_Scope; OMA-ARC-KPIinOMA-2010-0004R01-CR_AD_Introduction; OMA-ARC-KPIinOMA-2010-0005R01-CR_AD_Security_Considerations; OMA-ARC-KPIinOMA-2010-0007R01-CR_AD_Flows; OMA-ARC-KPIinOMA-2010-0008-CR_KPIinOMA_Dependencies.
	13 Apr, 2010	all	Incorporates agreed CRs: OMA-ARC-KPIinOMA-2010-0010R01-CR_KPI_Reporting.doc; OMA-ARC-KPIinOMA-2010-0011R01-CR_Configuration_Query.doc; OMA-ARC-KPIinOMA-2010-0012-CR_Performance_Measurement_Collecting.doc; OMA-ARC-KPIinOMA-2010-0018R01-CR_Configuration_Flow.doc; OMA-ARC-KPIinOMA-2010-0019-CR_Introduction_Update.doc; OMA-ARC-KPIinOMA-2010-0020R01-CR_update_for_description_on_instance.doc; OMA-ARC-KPIinOMA-2010-0021-CR_update_for_description_on_OE.doc
	08 May, 2010	all	Incorporates agreed CRs: OMA-ARC-KPIinOMA-2010-0025R01-CR_Editorial_Comments_Resolution.doc
	18 May, 2010	all	Incorporates agreed CRs: OMA-ARC-KPIinOMA-2010-0026R03-CR_ADRR_update_architecture_figure.doc; OMA-ARC-KPIinOMA-2010-0037-CR_Consistency_changes_in_AD; OMA-ARC-KPIinOMA-2010-0030R01-CR_ADRR_on_scope_in_section_4.doc; OMA-ARC-KPIinOMA-2010-0038R01-CR_AD_Flow_Legend
	19 May 2010	All	Editorial Cleaning up
Candidate Version: OMA-AD-KPIinOMA-V1_0	08 Jun 2010	All	Status changed to Candidate by TP: OMA-TP-2010-0226-INP_KPIinOMA_V1_0_AD_for_Candidate_approval

Appendix B.   Flows (informative)

For the figures representing call flows:

- Components within the scope of KPIinOMA enabler are depicted with a solid border line;

- Entities external to the KPIinOMA enabler are depicted with a dashed border line;

- Mandatory steps for the KPIinOMA enabler are depicted with a solid arrow line,

- Optional steps for the KPIinOMA enabler are depicted with a dashed arrow line.

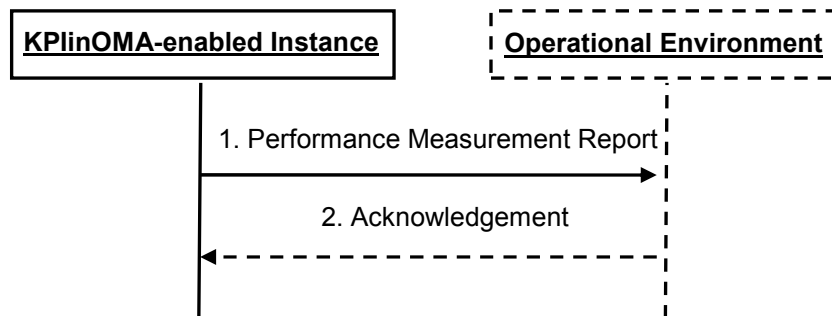## B.1   Performance Measurement Report Call Flow

Figure 2 – Performance Measurement Report Call Flow

This call flow is triggered by KPIinOMA-enabled Instance's internal execution logic according to configuration by Operational Environment.

1.   KPIinOMA-enabled Instance reports the collected Performance Measurement to the Operational Environment.

2.   Operational Environment may respond the acknowledgement to the KPIinOMA-enabled Instance.

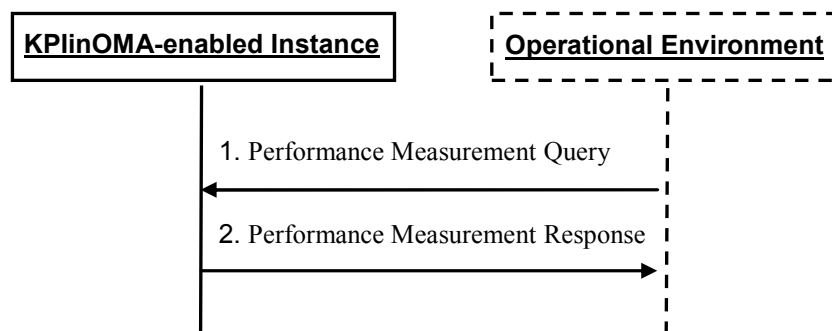## B.2   Performance Measurement Query Call Flow

Figure 3 – Performance Measurement Query Call Flow

This call flow is triggered by Operational Environment.

1.   Operational Environment queries the KPIinOMA-enabled Instance for the Performance Measurement.

2.   KPIinOMA-enabled Instance responds the Performance Measurement to the Operational Environment.
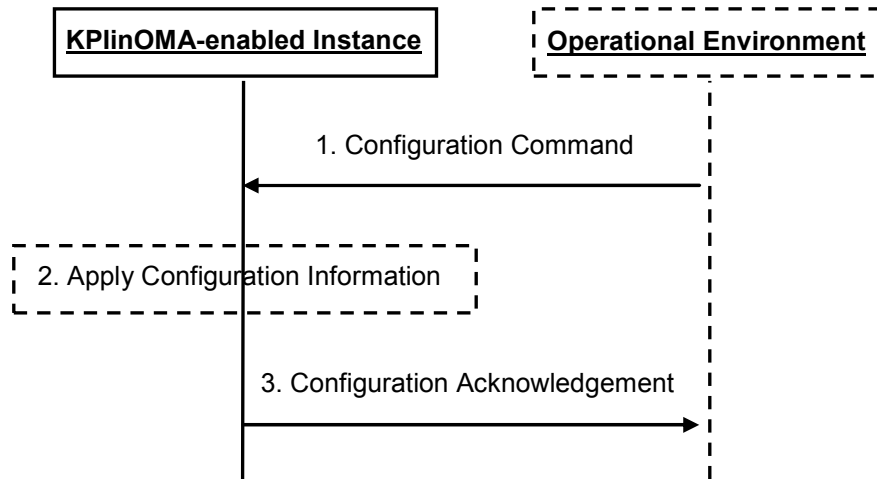
B.3   Configuration Call Flow

Figure 4 –Configuration Call Flow

This call flow is triggered by Operational Environment.

1. Operational Environment sends the configuration command to KPIinOMA-enabled Instance for collecting and reporting Performance Measurement.

2. KPIinOMA-enabled Instance generates the configuration profile according to the received configuration information.

3. KPIinOMA-enabled Instance acknowledges successful configuration to the Operational Environment.

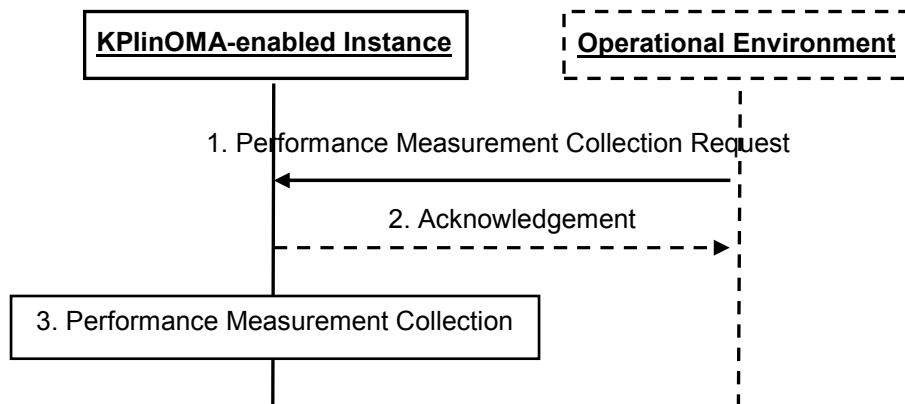# B.4   Performance Measurement Collection Call Flow

Figure 5 – Performance Measurement Collection Call Flow

This call flow is triggered by Operational Environment's internal execution logic or by Operational Administrator to request the KPIinOMA-enabled Instance start collecting specific KPI related Performance Measurement.

1. Operational Environment send the request to KPIinOMA-enabled Instance for collecting specific KPI related Performance Measurement

2. KPIinOMA-enabled Instance may respond the acknowledgement to the Operational Environment for the request.

3. Receiving the Performance Measurement Collection Request from Operational Environment, KPIinOMA-enabled Instance start collecting the Performance Measurement according to the request or the pre-defined logic. How and according to which criteria the Performance Measurement is collected is out of scope.

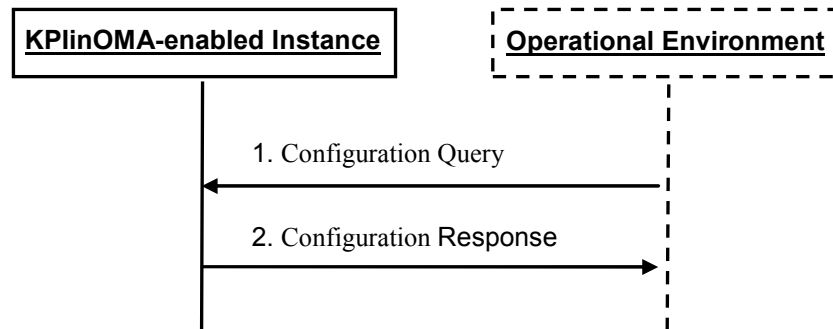# B.5   Configuration Query Call Flow

Figure 6 – Configuration Query Call Flow

This call flow is triggered by Operational Environment.

1. Operational Environment queries the KPIinOMA-enabled Instance for the configuration information.

2. KPIinOMA-enabled Instance responds the configuration information to the Operational Environment.