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Foreword

This Technical Specification (TS) has been produced by ETSI Partnership Project oneM2M (oneM2M).

1 Scope

The present document specifies the interworking technologies for oneM2M and OIC interworking using the architecture identified in annex F of ETSI TS 118 101 [2] for the following scenario:

- Interworking using oneM2M Resource Types for transparent transport of encoded OIC Resources and commands in oneM2M Resource Types between OIC Devices and M2M Applications.

NOTE: The present document limits Content Sharing Resources to <container> and <contentInstance> resources.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at https://docbox.etsi.org/Reference/.

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The following referenced documents are necessary for the application of the present document.

[1] ETSI TS 118 111: "oneM2M; Common Terminology (oneM2M TS-0011)".

[2] ETSI TS 118 101: "oneM2M; Functional Architecture (oneM2M TS-0001)".

[3] OIC-Core-Specification-V1.0.0: "OIC Core Specification".

[4] ETSI TS 118 103: "oneM2M; Security solutions (oneM2M TS-0003)".

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

[i.1] oneM2M Drafting Rules.

NOTE: Available at http://www.onem2m.org/images/files/oneM2M-Drafting-Rules.pdf.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI TS 118 111 [1] and ETSI TS 118 101 [2] apply.

NOTE: A term defined in the present document takes precedence over the definition of the same term, if any, in ETSI TS 118 111 [1] and ETSI TS 118 101 [2].

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ACP	Access Control Policy
AE	Application Entity
AE-ID	Application Entity Identifier
CBOR	Concise Binary Object Representation
CMDH	Communication Management and Delivery Handling
CSE	Common Services Entity
IPE	Interworking Proxy Entity
JSON	JavaScript Object Notation
OIC	Open Interconnect Consortium
URI	Uniform Resource Identifier
XML	eXtensible Markup Language

4 Conventions

The key words "Shall", "Shall not", "May", "Need not", "Should", "Should not" in the present document are to be interpreted as described in the oneM2M Drafting Rules [i.1].

5 Architecture Model

5.1 Introduction

The architecture model followed in the present document is based on the architecture model in Annex F of ETSI TS 118 101 [2]. It describes interworking using specialized Interworking Proxy application Entity (IPE). The present document describes the OIC IPE that supports the following scenarios.

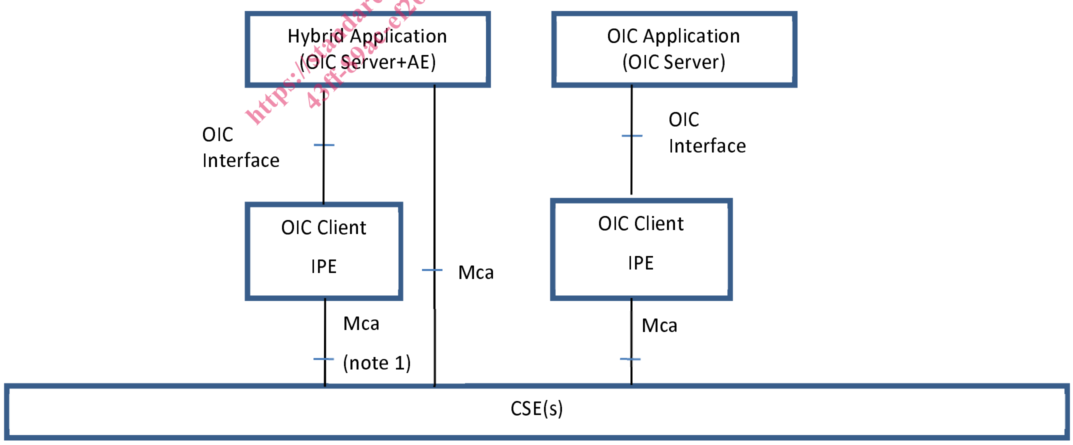
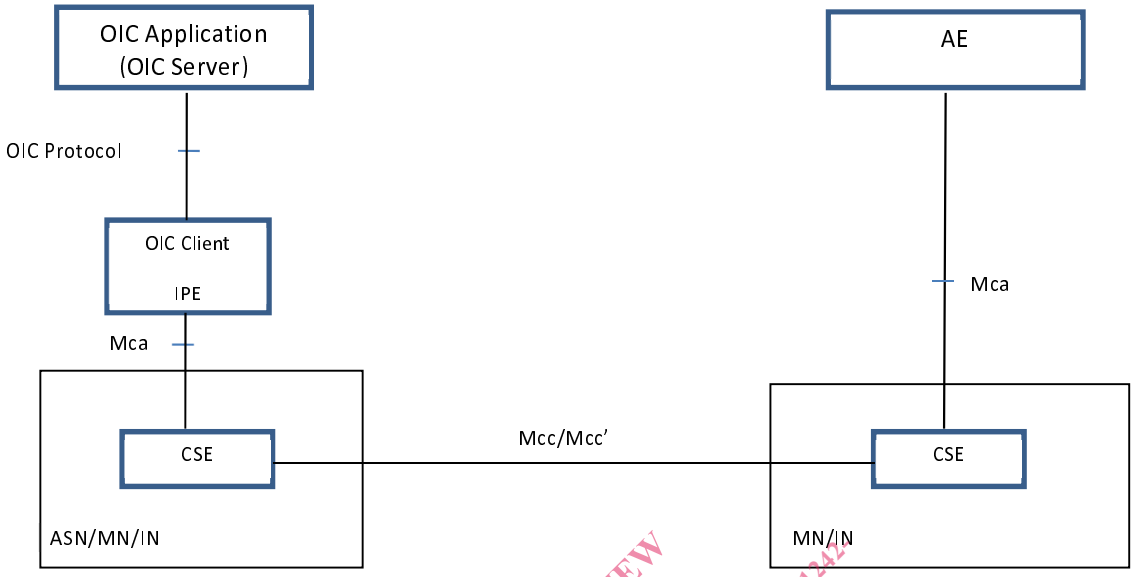


Figure 5.1-1: OIC Interworking Scenarios

In the scenarios depicted in Figure 5.1-1, the Hybrid and OIC Applications represent applications that implement the OIC Server role defined in the OIC Protocol [3].

5.2 Interworking Reference Model

The OIC Interworking reference model utilizes the Functional Architecture's reference model in ETSI TS 118 101 [2]; augmenting the ETSI TS 118 101 [2] reference model with capabilities provided by the OIC IPE.



NOTE: The AE in the reference model could be registered with the same CSE as the OIC IPE.

Figure 5.2-1: OIC Reference Model

5.3 Function of Interworking Proxy Entity

The OIC IPE participation in the OIC Protocol as described in clause 5 does so in the role of an OIC Client to which OIC Applications (OIC Servers) interact. For each OIC Server (Endpoint) that is maintained by the OIC Client in the OIC IPE, the OIC IPE shall instantiate and maintains an instance of a Resource of type <AE>.

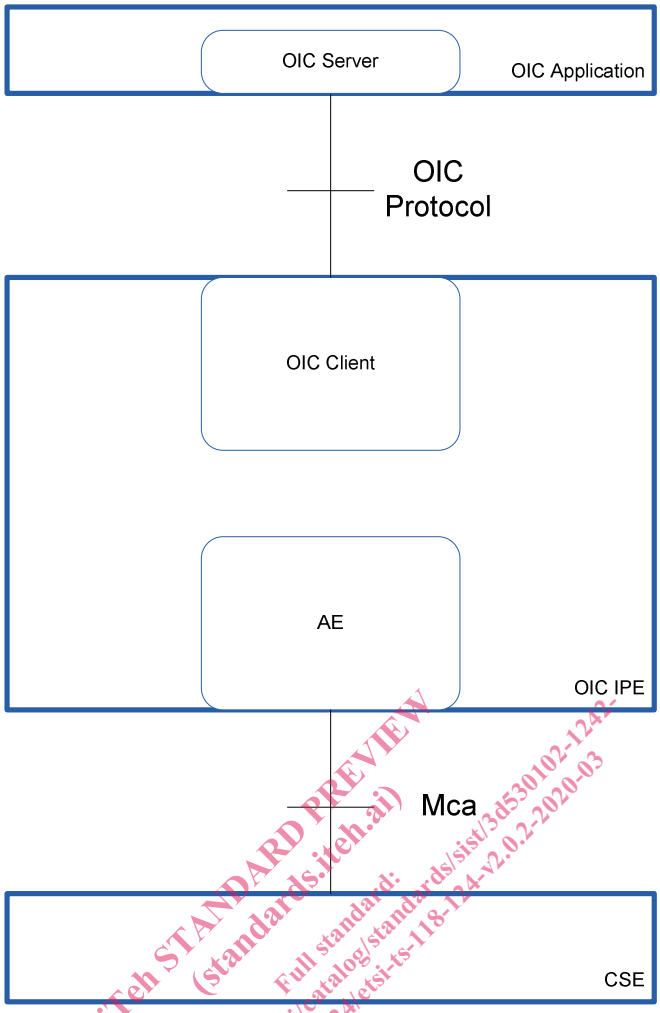


Figure 5.3-1: OIC IPE Architecture

Mapping OIC Servers to AEs provides the following:

1) Application Registry: OIC Servers can now be registered as oneM2M Applications.

2) Service Subscriptions: OIC Servers can now be attached to M2M Service Subscriptions just like any other oneM2M Application.

5.4 Types of Interworking

OIC IPEs provide the following types of interworking in the present document:

1) Interworking using the <container> resource for transparent transport of encoded OIC Resources that are available to AEs as depicted in Figure 5.4-1.

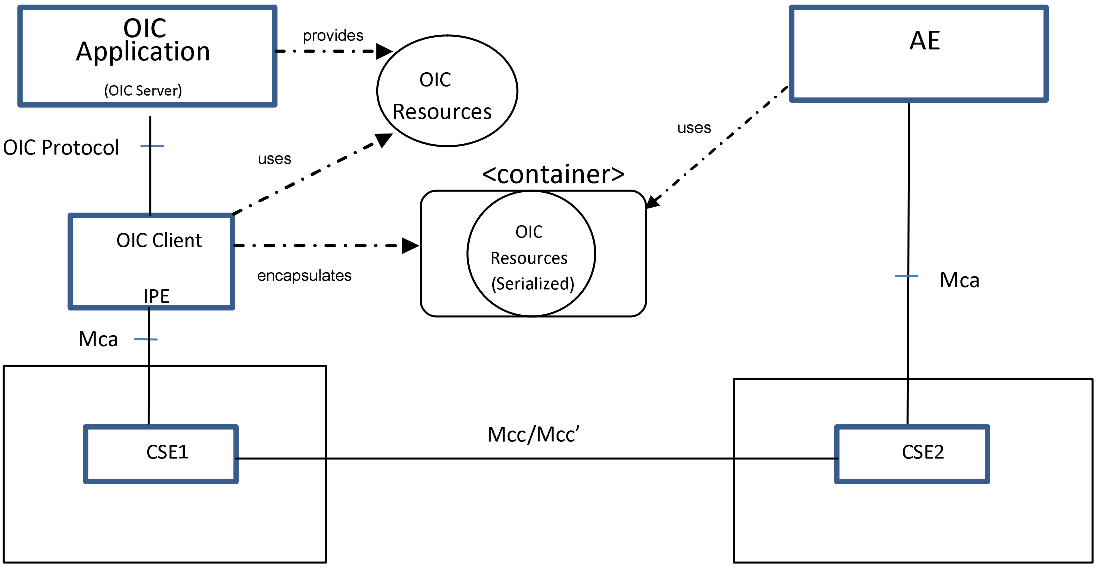


Figure 5.4-1: OIC Transparent Interworking Function

In Figure 5.4-1, the OIC Resources are provided by the OIC Application to the OIC IPE using the OIC Protocol [3]. The OIC IPE then encapsulates the OIC Resources in Content Sharing Resources and then hosts the Content Sharing Resources in a CSE using the Mca reference points for use by AEs. The AE accesses the Content Sharing Resource from the CSE that hosts the resource using the Mca reference point. Once the AE receives the Content Sharing Resource, the AE extracts the OIC Resource from the Content Sharing Resource for the AE's purpose.

6 Architectural Aspects

6.1 Introduction

The OIC IPE participation in the OIC Protocol as described in clause 5 does so in the role of an OIC Client to which OIC Applications (OIC Servers) interact. As an OIC Client, the IPE provides the following Architecture Aspects based on the OIC Protocol Aspects:

- OIC Device Lifecycle.
- OIC Resource Discovery.
- OIC Interworking Procedure.
- OIC Subscription Notification.
- OIC Device Management.
- OIC Provisioning and Security.

6.2 OIC Device Lifecycle

6.2.1 Introduction

As the OIC IPE discovers OIC Devices when the OIC IPE interacts with the OIC Server over the OIC protocol, the OIC IPE shall maintain the associated resources in the CSE that represents the OIC Device.