RFP 186 - oneM2M Interworking

Draft

8 Pages

Abstract

This RFP describes the need of oneM2M protocol interworking service that exposing the exists OSGi-based devices to the oneM2M network.

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0.4 Table of Contents

0.5 Terminology and Document Conventions

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY" and "OPTIONAL" in this document are to be interpreted as described in 6.1.

`Source code is shown in this typeface.`

0.6 Revision History

The last named individual in this history is currently responsible for this document.

Revision	Date	Comments
Initial	*Nov 18 2016*	*Initial Document* *Seven Gan, Huawei, seven.ganlu@huawei.com*

1 Introduction

oneM2M is a global organization that creates requirements, architecture, API specifications, security solutions and interoperability for Machine-to-Machine and IoT technologies. Its specifications provide a framework to support a wide range of applications and services such as smart cities, smart grid, connected car, home automation, public safety, and health. As an increasing number of big players participating in oneM2M standard, it is becoming more and more popular and is likely to become one of the most mainstream IoT standards in the world. Integrating OSGi-based devices into oneM2M network can promote the application of OSGi technology in IoT Scenario.

This RFP describes the need of oneM2M protocol interworking service that exposing the exists OSGi-based devices to the oneM2M network.

2 Application Domain

When adding a OSGi-based device (such as IoT gateways, enhanced capability devices) into oneM2M network, it requires the oneM2M protocol communication support of these devices. So that these OSGi devices and their connected sensors can be remotely discovered and operated on the oneM2M IoT platform as shown in Fig 1.

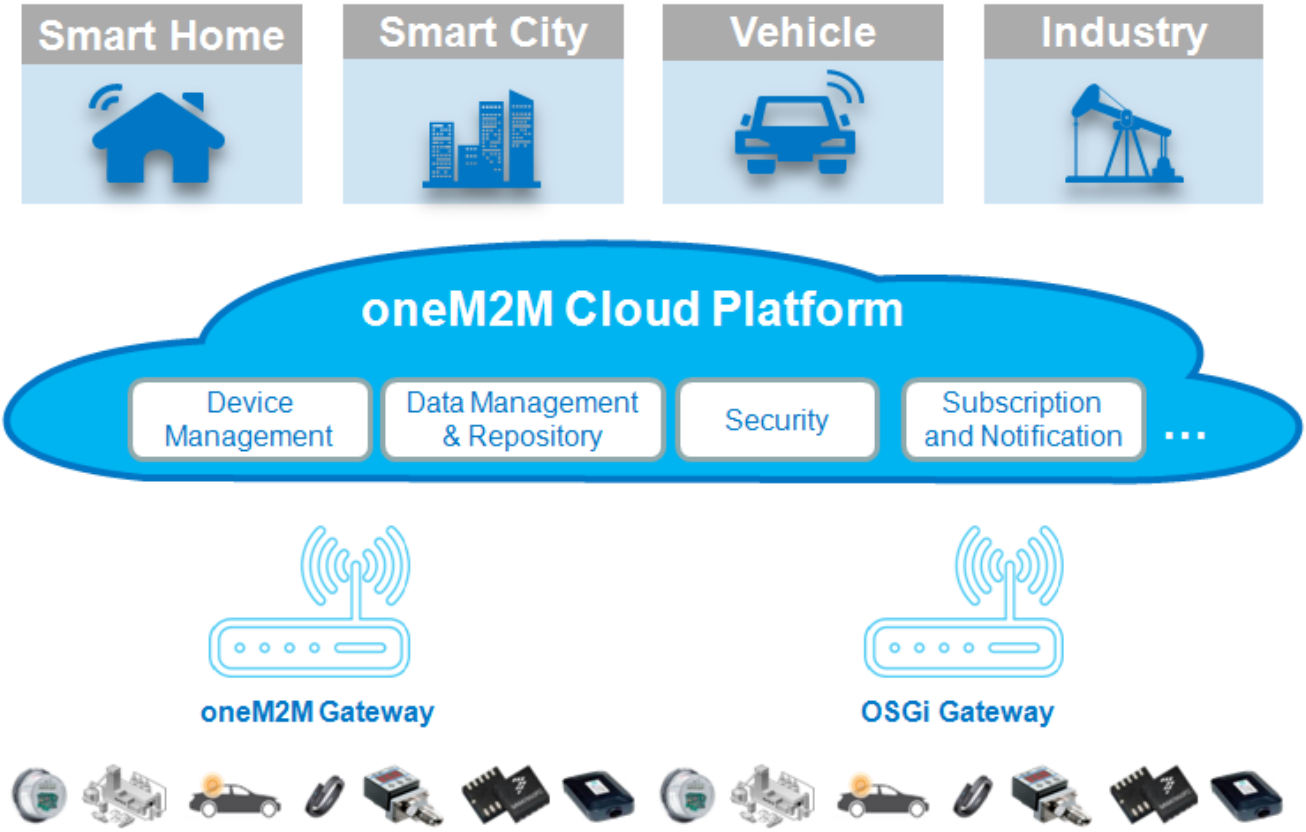

Fig 1

2.1 Terminology + Abbreviations

3 Problem Description

OSGi defines Device Abstraction Layer which provides a unified interface for OSGi application developers to interact with sensor, devices, etc. And also defines Configuration Admin service which allows operators to configure deployed bundles. Other OSGi standard device services (e.g. UPnP Device Service, EnOcean Device Service, Zigbee Device Service, SDT Device Service) and OSGi-based open source projects (e.g. Eclipse SmartHome, Kura) have the similar mechanisms. It is impossible to integrate these devices into oneM2M network by re-developing them as fully oneM2M compliance devices. The better way is to develop an oneM2M protocol interworking service which can interact with these device services and configuration admin service, expose these devices and configurations as oneM2M resources to oneM2M network without affecting the exist implementation of OSGi devices.

There are two interworking scenarios. One is to consider the interworking service as an oneM2M AE who communicates with CSE through Mca reference point, as shown in Fig 2. The other one is to consider the

interworking service as an oneM2M CSE who communicates with CSE through Mcc reference point and communicates with AE through Mca reference point, as shown in Fig 3.

The oneM2M protocol interworking service requested in this RFP would give developers a common way of developing such service.

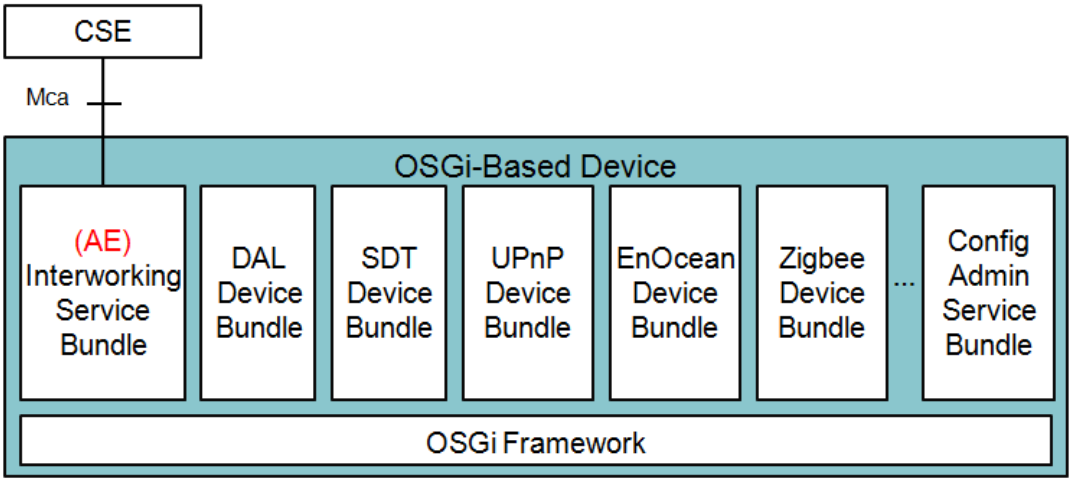

Fig 2

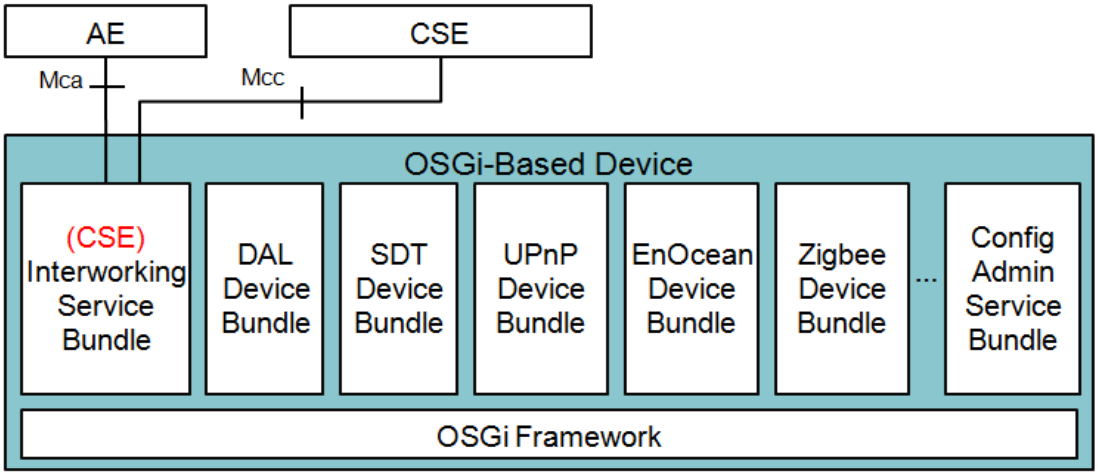

Fig 3

4 Use Cases

Use case 1 – Remote Control Sensors Connected to OSGi Residential Gateway by oneM2M Platform

A given line of residential gateways supports different kinds of sensors and runs applications for home automation which controls all sensors through device service interface. Add these sensors to oneM2M network by installing interworking bundles without any modification on the current implementation of gateways, expose these sensors as oneM2M resources to oneM2M platform. So that oneM2M platform can remotely discover and operate these sensors through oneM2M communication protocol.

Use case 2 – Remote Configure Deployed Bundles by oneM2M Platform

A given line of residential gateways supports Configuration Admin service, allows applications configure deployed bundles. Add these gateways to oneM2M network by installing interworking bundles without any modification on the current implementation of gateways, expose the configuration of bundles as oneM2M resources to oneM2M platform. So that oneM2M platform can remotely get and modify the configuration of deployed bundles.

5 Requirements

R1: The solution MUST provide a standard service for exposing Device service and Configuration Admin service as oneM2M resources to oneM2M network without any modification of Device Service and Configuration admin service.

R2: The solution MUST *provide a mapping rule between Device service and oneM2M resource for Interworking service developers.*

R3: The solution MUST *provide a mapping rule between Configuration Admin service and oneM2M resource for Interworking service developers.*

R4: The solution MUST *define API for configuring the Interworking service.*

R5: The solution SHOULD *independent with specific transport protocol between OSGi devices and oneM2M devices.*

6 Document Support

6.1 References

[1]. Bradner, S., Key words for use in RFCs to Indicate Requirement Levels, RFC2119, March 1997.

[2]. Software Requirements & Specifications. Michael Jackson. ISBN 0-201-87712-0

[3]. oneM2M Release 2 specifications, TS 0001 Functional Architecture v2.10.0

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6.3 End of Document