



Multi-access Edge Computing (MEC); Edge Platform Application Enablement

PREVIEW
iTech STANDARDS
(standards.it-eu-api)
Full standard:
<https://standards.it-eu-api/catalog/standards/sru/854187d-5ff-4772-bd6e-3ad741ee90be/etsi-gs-mec-011-v2.1.1-2019-11>

Disclaimer

The present document has been produced and approved by the Multi-access Edge Computing (MEC) ETSI Industry Specification Group (ISG) and represents the views of those members who participated in this ISG. It does not necessarily represent the views of the entire ETSI membership.

ReferenceRGS/MEC-0011v211Plat.App.Enabl

KeywordsAPI, MEC

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

The present document can be downloaded from:

<http://www.etsi.org/standards-search>

The present document may be made available in electronic versions and/or in print. The content of any electronic and/or print versions of the present document shall not be modified without the prior written authorization of ETSI. In case of any existing or perceived difference in contents between such versions and/or in print, the prevailing version of an ETSI deliverable is the one made publicly available in PDF format at www.etsi.org/deliver.

Users of the present document should be aware that the document may be subject to revision or change of status.

Information on the current status of this and other ETSI documents is available at

<https://portal.etsi.org/TB/ETSIDeliverableStatus.aspx>

If you find errors in the present document, please send your comment to one of the following services:

<https://portal.etsi.org/People/CommiteeSupportStaff.aspx>

Copyright Notification

No part may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm except as authorized by written permission of ETSI.

The content of the PDF version shall not be modified without the written authorization of ETSI.

The copyright and the foregoing restriction extend to reproduction in all media.

© ETSI 2019.

All rights reserved.

DECT™, **PLUGTESTS™**, **UMTS™** and the ETSI logo are trademarks of ETSI registered for the benefit of its Members.

3GPP™ and **LTE™** are trademarks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

oneM2M™ logo is a trademark of ETSI registered for the benefit of its Members and of the oneM2M Partners.

GSM® and the GSM logo are trademarks registered and owned by the GSM Association.

Contents

| | |
|--|----|
| Intellectual Property Rights | 8 |
| Foreword..... | 8 |
| Modal verbs terminology..... | 8 |
| 1 Scope | 9 |
| 2 References | 9 |
| 2.1 Normative references | 9 |
| 2.2 Informative references..... | 10 |
| 3 Definition of terms, symbols and abbreviations..... | 10 |
| 3.1 Terms..... | 10 |
| 3.2 Symbols..... | 10 |
| 3.3 Abbreviations | 11 |
| 4 Overview | 11 |
| 5 Description of the services (informative)..... | 11 |
| 5.1 Introduction | 11 |
| 5.2 Sequence diagrams | 12 |
| 5.2.1 General..... | 12 |
| 5.2.2 MEC application start-up..... | 12 |
| 5.2.3 MEC application graceful termination/stop | 14 |
| 5.2.4 Service availability update and new service registration | 15 |
| 5.2.5 Service availability query | 17 |
| 5.2.6 Managing subscription to event notifications..... | 17 |
| 5.2.6.1 Introduction | 17 |
| 5.2.6.2 Subscribing to event notifications..... | 18 |
| 5.2.6.3 Unsubscribing from event notifications..... | 18 |
| 5.2.7 Traffic rule activation/deactivation/update | 19 |
| 5.2.8 DNS rule activation/deactivation..... | 19 |
| 5.2.9 Transport information query | 20 |
| 5.2.10 Time of Day (ToD)..... | 20 |
| 5.2.10.1 Introduction..... | 20 |
| 5.2.10.2 Get platform time..... | 20 |
| 5.2.10.3 Timing capabilities query flow | 21 |
| 5.2.11 Service deregistration | 21 |
| 6 Common data types | 22 |
| 6.1 Introduction | 22 |
| 6.2 Resource data types | 22 |
| 6.2.1 Introduction..... | 22 |
| 6.2.2 Type: SubscriptionLinkList | 22 |
| 6.3 Referenced structured data types..... | 22 |
| 6.3.1 Introduction..... | 22 |
| 6.3.2 Type: LinkType | 22 |
| 7 MEC application support API | 23 |
| 7.1 Data model | 23 |
| 7.1.1 Introduction..... | 23 |
| 7.1.2 Resource data types | 23 |
| 7.1.2.1 Introduction..... | 23 |
| 7.1.2.2 Type: TrafficRule..... | 23 |
| 7.1.2.3 Type: DnsRule | 23 |
| 7.1.2.4 Type: TimingCaps..... | 24 |
| 7.1.2.5 Type: CurrentTime..... | 24 |
| 7.1.3 Subscription data types | 25 |
| 7.1.3.1 Introduction..... | 25 |
| 7.1.3.2 Type: AppTerminationNotificationSubscription..... | 25 |

| | | |
|-----------|--|----|
| 7.1.4 | Notification data types | 25 |
| 7.1.4.1 | Introduction | 25 |
| 7.1.4.2 | Type: AppTerminationNotification | 25 |
| 7.1.4.3 | Type: AppTerminationConfirmation | 26 |
| 7.1.4.4 | Type: AppReadyConfirmation | 26 |
| 7.1.5 | Referenced structured data types | 26 |
| 7.1.5.1 | Introduction | 26 |
| 7.1.5.2 | Type: TrafficFilter | 26 |
| 7.1.5.3 | Type: DestinationInterface | 27 |
| 7.1.5.4 | Type: TunnelInfo | 27 |
| 7.1.6 | Referenced simple data types and enumerations | 28 |
| 7.2 | API definition | 28 |
| 7.2.1 | Introduction | 28 |
| 7.2.2 | Global definitions and resource structure | 28 |
| 7.2.3 | Resource: all mecAppSupportSubscription | 30 |
| 7.2.3.1 | Description | 30 |
| 7.2.3.2 | Resource definition | 30 |
| 7.2.3.3 | Resource methods | 30 |
| 7.2.3.3.1 | GET | 30 |
| 7.2.3.3.2 | PUT | 31 |
| 7.2.3.3.3 | PATCH | 31 |
| 7.2.3.3.4 | POST | 31 |
| 7.2.3.3.5 | DELETE | 32 |
| 7.2.4 | Resource: individual mecAppSupportSubscription | 32 |
| 7.2.4.1 | Description | 32 |
| 7.2.4.2 | Resource definition | 32 |
| 7.2.4.3 | Resource methods | 33 |
| 7.2.4.3.1 | GET | 33 |
| 7.2.4.3.2 | PUT | 33 |
| 7.2.4.3.3 | PATCH | 33 |
| 7.2.4.3.4 | POST | 33 |
| 7.2.4.3.5 | DELETE | 33 |
| 7.2.5 | Resource: mecTimingCaps | 34 |
| 7.2.5.1 | Description | 34 |
| 7.2.5.2 | Resource definition | 34 |
| 7.2.5.3 | Resource methods | 35 |
| 7.2.5.3.1 | GET | 35 |
| 7.2.5.3.2 | PUT | 35 |
| 7.2.5.3.3 | PATCH | 36 |
| 7.2.5.3.4 | POST | 36 |
| 7.2.5.3.5 | DELETE | 36 |
| 7.2.6 | Resource: mecCurrentTime | 36 |
| 7.2.6.1 | Description | 36 |
| 7.2.6.2 | Resource definition | 36 |
| 7.2.6.3 | Resource methods | 36 |
| 7.2.6.3.1 | GET | 36 |
| 7.2.6.3.2 | PUT | 37 |
| 7.2.6.3.3 | PATCH | 37 |
| 7.2.6.3.4 | POST | 37 |
| 7.2.6.3.5 | DELETE | 37 |
| 7.2.7 | Resource: all mecTrafficRule | 37 |
| 7.2.7.1 | Description | 37 |
| 7.2.7.2 | Resource definition | 37 |
| 7.2.7.3 | Resource methods | 38 |
| 7.2.7.3.1 | GET | 38 |
| 7.2.7.3.2 | PUT | 38 |
| 7.2.7.3.3 | PATCH | 38 |
| 7.2.7.3.4 | POST | 38 |
| 7.2.7.3.5 | DELETE | 39 |
| 7.2.8 | Resource: individual mecTrafficRule | 39 |
| 7.2.8.1 | Description | 39 |
| 7.2.8.2 | Resource definition | 39 |

| | | |
|------------|---|----|
| 7.2.8.3 | Resource methods | 39 |
| 7.2.8.3.1 | GET | 39 |
| 7.2.8.3.2 | PUT | 40 |
| 7.2.8.3.3 | PATCH | 41 |
| 7.2.8.3.4 | POST | 41 |
| 7.2.8.3.5 | DELETE | 41 |
| 7.2.9 | Resource: all mecDnsRule | 41 |
| 7.2.9.1 | Description | 41 |
| 7.2.9.2 | Resource definition | 41 |
| 7.2.9.3 | Resource methods | 42 |
| 7.2.9.3.1 | GET | 42 |
| 7.2.9.3.2 | PUT | 42 |
| 7.2.9.3.3 | PATCH | 42 |
| 7.2.9.3.4 | POST | 42 |
| 7.2.9.3.5 | DELETE | 43 |
| 7.2.10 | Resource: individual mecDnsRule | 43 |
| 7.2.10.1 | Description | 43 |
| 7.2.10.2 | Resource definition | 43 |
| 7.2.10.3 | Resource methods | 43 |
| 7.2.10.3.1 | GET | 43 |
| 7.2.10.3.2 | PUT | 44 |
| 7.2.10.3.3 | PATCH | 45 |
| 7.2.10.3.4 | POST | 45 |
| 7.2.10.3.5 | DELETE | 45 |
| 7.2.11 | Resource: confirm termination task | 45 |
| 7.2.11.1 | Description | 45 |
| 7.2.11.2 | Resource definition | 45 |
| 7.2.11.3 | Resource methods | 46 |
| 7.2.11.3.1 | GET | 46 |
| 7.2.11.3.2 | PUT | 46 |
| 7.2.11.3.3 | PATCH | 46 |
| 7.2.11.3.4 | POST | 46 |
| 7.2.11.3.5 | DELETE | 47 |
| 7.2.12 | Resource: confirm ready task | 47 |
| 7.2.12.1 | Description | 47 |
| 7.2.12.2 | Resource definition | 47 |
| 7.2.12.3 | Resource methods | 48 |
| 7.2.12.3.1 | GET | 48 |
| 7.2.12.3.2 | PUT | 48 |
| 7.2.12.3.3 | PATCH | 48 |
| 7.2.12.3.4 | POST | 48 |
| 7.2.12.3.5 | DELETE | 49 |
| 8 | MEC service management API | 49 |
| 8.1 | Data model | 49 |
| 8.1.1 | Introduction | 49 |
| 8.1.2 | Resource data types | 50 |
| 8.1.2.1 | Introduction | 50 |
| 8.1.2.2 | Type: ServiceInfo | 50 |
| 8.1.2.3 | Type: TransportInfo | 51 |
| 8.1.3 | Subscription data types | 51 |
| 8.1.3.1 | Introduction | 51 |
| 8.1.3.2 | Type: SerAvailabilityNotificationSubscription | 52 |
| 8.1.4 | Notification data types | 52 |
| 8.1.4.1 | Introduction | 52 |
| 8.1.4.2 | Type: ServiceAvailabilityNotification | 52 |
| 8.1.5 | Referenced structured data types | 53 |
| 8.1.5.1 | Introduction | 53 |
| 8.1.5.2 | Type: CategoryRef | 53 |
| 8.1.5.3 | Type: EndPointInfo | 53 |
| 8.1.5.4 | Type: SecurityInfo | 54 |
| 8.1.6 | Referenced simple data types and enumerations | 55 |

| | | |
|-----------|--|----|
| 8.1.6.1 | Introduction | 55 |
| 8.1.6.2 | Simple data types | 55 |
| 8.1.6.3 | Enumeration: SerializerType | 55 |
| 8.1.6.4 | Enumeration: TransportType | 55 |
| 8.1.6.5 | Enumeration: LocalityType | 55 |
| 8.1.6.6 | Enumeration: ServiceState | 56 |
| 8.2 | API definition | 56 |
| 8.2.1 | Introduction | 56 |
| 8.2.2 | Global definitions and resource structure | 56 |
| 8.2.3 | Resource: a list of mecService | 58 |
| 8.2.3.1 | Description | 58 |
| 8.2.3.2 | Resource definition | 58 |
| 8.2.3.3 | Resource methods | 58 |
| 8.2.3.3.1 | GET | 58 |
| 8.2.3.3.2 | PUT | 59 |
| 8.2.3.3.3 | PATCH | 59 |
| 8.2.3.3.4 | POST | 60 |
| 8.2.3.3.5 | DELETE | 60 |
| 8.2.4 | Resource: individual mecService | 60 |
| 8.2.4.1 | Description | 60 |
| 8.2.4.2 | Resource definition | 60 |
| 8.2.4.3 | Resource methods | 60 |
| 8.2.4.3.1 | GET | 60 |
| 8.2.4.3.2 | PUT | 61 |
| 8.2.4.3.3 | PATCH | 61 |
| 8.2.4.3.4 | POST | 61 |
| 8.2.4.3.5 | DELETE | 61 |
| 8.2.5 | Resource: a list of mecTransport | 61 |
| 8.2.5.1 | Description | 61 |
| 8.2.5.2 | Resource definition | 61 |
| 8.2.5.3 | Resource methods | 62 |
| 8.2.5.3.1 | GET | 62 |
| 8.2.5.3.2 | PUT | 62 |
| 8.2.5.3.3 | PATCH | 63 |
| 8.2.5.3.4 | POST | 63 |
| 8.2.5.3.5 | DELETE | 63 |
| 8.2.6 | Resource: a list of mecService of an application instance | 63 |
| 8.2.6.1 | Description | 63 |
| 8.2.6.2 | Resource definition | 63 |
| 8.2.6.3 | Resource methods | 63 |
| 8.2.6.3.1 | GET | 63 |
| 8.2.6.3.2 | PUT | 65 |
| 8.2.6.3.3 | PATCH | 65 |
| 8.2.6.3.4 | POST | 65 |
| 8.2.6.3.5 | DELETE | 66 |
| 8.2.7 | Resource: individual mecService of an application instance | 66 |
| 8.2.7.1 | Description | 66 |
| 8.2.7.2 | Resource definition | 66 |
| 8.2.7.3 | Resource methods | 67 |
| 8.2.7.3.1 | GET | 67 |
| 8.2.7.3.2 | PUT | 67 |
| 8.2.7.3.3 | PATCH | 68 |
| 8.2.7.3.4 | POST | 69 |
| 8.2.7.3.5 | DELETE | 69 |
| 8.2.8 | Resource: all mecSrvMgmtSubscription | 69 |
| 8.2.8.1 | Description | 69 |
| 8.2.8.2 | Resource definition | 69 |
| 8.2.8.3 | Resource methods | 70 |
| 8.2.8.3.1 | GET | 70 |
| 8.2.8.3.2 | PUT | 70 |
| 8.2.8.3.3 | PATCH | 70 |
| 8.2.8.3.4 | POST | 71 |

| | | |
|-------------------------------|---|-----------|
| 8.2.8.3.5 | DELETE | 71 |
| 8.2.9 | Resource: individual mecSrvMgmtSubscription | 72 |
| 8.2.9.1 | Description | 72 |
| 8.2.9.2 | Resource definition | 72 |
| 8.2.9.3 | Resource methods | 72 |
| 8.2.9.3.1 | GET | 72 |
| 8.2.9.3.2 | PUT | 73 |
| 8.2.9.3.3 | PATCH | 73 |
| 8.2.9.3.4 | POST | 73 |
| 8.2.9.3.5 | DELETE | 73 |
| Annex A (informative): | Complementary material for API utilization | 75 |
| History | | 76 |

iTeh STANDARD PREVIEW
(standards.iteh.ai)
 Full standard:
<https://standards.iteh.ai/catalog/standards/sist/8566d87d-5ff8-4772-bd6e-3ad741ee90be/etsi-gs-mec-011-v2.1.1-2019-11>

Intellectual Property Rights

Essential patents

IPRs essential or potentially essential to normative deliverables may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<https://ipr.etsi.org/>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Trademarks

The present document may include trademarks and/or tradenames which are asserted and/or registered by their owners. ETSI claims no ownership of these except for any which are indicated as being the property of ETSI, and conveys no right to use or reproduce any trademark and/or tradename. Mention of those trademarks in the present document does not constitute an endorsement by ETSI of products, services or organizations associated with those trademarks.

Foreword

This Group Specification (GS) has been produced by ETSI Industry Specification Group (ISG) Multi-access Edge Computing (MEC).

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

"**must**" and "**must not**" are **NOT** allowed in ETSI deliverables except when used in direct citation.

1 Scope

The present document focuses on the functionalities enabled via the Mp1 reference point between MEC applications and MEC platform, which allows these applications to interact with the MEC system. Service related functionality includes registration/deregistration, discovery and event notifications. Other functionality includes application availability, traffic rules, DNS and time of day. It describes the information flows, required information, and specifies the necessary operations, data models and API definitions.

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>.

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 necessary for the application of the present document.

- [1] ETSI GS MEC 001: "Multi-access Edge Computing (MEC) Terminology".
- [2] ETSI GS MEC 002: "Multi-access Edge Computing (MEC) Technical Requirements".
- [3] ETSI GS MEC 003: "Mobile Edge Computing (MEC); Framework and Reference Architecture".
- [4] ETSI GS MEC 010-2: "Mobile Edge Computing (MEC); Mobile Edge Management; Part 2: Application lifecycle, rules and requirements management".
- [5] ETSI GS MEC 009: "Multi-access Edge Computing (MEC); General principles for MEC Service APIs".
- [6] IETF RFC 2818: "HTTP Over TLS".
NOTE: Available at <https://tools.ietf.org/html/rfc2818>.
- [7] IETF RFC 5246: "The Transport Layer Security (TLS) Protocol Version 1.2".
NOTE: Available at <https://tools.ietf.org/html/rfc5246>.
- [8] IETF RFC 3986: "Uniform Resource Identifier (URI): Generic Syntax".
NOTE: Available at <https://tools.ietf.org/html/rfc3986>.
- [9] IETF RFC 7159: "The JavaScript Object Notation (JSON) Data Interchange Format".
NOTE: Available at <https://tools.ietf.org/html/rfc7159>.
- [10] W3C Recommendation (16 August 2006): "Extensible Markup Language (XML) 1.1 (Second Edition)", edited in place 29 September 2006.
NOTE: Available at <https://www.w3.org/TR/xml11/>.
- [11] IETF RFC 7230: "Hypertext Transfer Protocol (HTTP/1.1) Message Syntax and Routing".
NOTE: Available at <https://tools.ietf.org/html/rfc7230>.

[12] IETF RFC 6455: "The WebSocket Protocol".

NOTE: Available at <https://tools.ietf.org/html/rfc6455>.

[13] IETF RFC 6749: "The OAuth 2.0 Authorization Framework".

NOTE: Available at <https://tools.ietf.org/html/rfc6749>.

[14] IETF RFC 6750: "The OAuth 2.0 Authorization Framework: Bearer Token Usage".

NOTE: Available at <https://tools.ietf.org/html/rfc6750>.

[15] ETSI GS NFV-IFA 007: "Network Functions Virtualisation (NFV) Release 2; Management and Orchestration; Or-Vnfm reference point - Interface and Information Model Specification".

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] IETF RFC 5905: "Network Time Protocol Version 4: Protocol and Algorithms Specification".

[i.2] IEEE 1588™ (Version 2): "IEEE Standard for a Precision Clock Synchronization Protocol for Networked Measurement and Control Systems".

[i.3] Protocol buffers, version 3.

NOTE: Available at <https://developers.google.com/protocol-buffers/docs/proto3>.

[i.4] OASIS Standard: "MQTT Version 3.1.1" , 29 October 2014.

NOTE: Available at <http://docs.oasis-open.org/mqtt/mqtt/v3.1.1/os/mqtt-v3.1.1-os.html>.

[i.5] GRPC™.

NOTE: Available at <http://www.grpc.io/>.

[i.6] OpenAPI Specification.

NOTE: Available at <https://github.com/OAI/OpenAPI-Specification>.

[i.7] IETF RFC 4122: "A Universally Unique Identifier (UUID) URN Namespace".

NOTE: Available at <https://tools.ietf.org/html/rfc4122>.

3 Definition of terms, symbols and abbreviations

3.1 Terms

For the purposes of the present document, the terms given in ETSI GS MEC 001 [1] apply.

3.2 Symbols

Void.

3.3 Abbreviations

For the purposes of the present document, the abbreviations given in ETSI GS MEC 001 [1] and the following apply:

| | |
|------|---|
| API | Application Programming Interface |
| DSCP | Differentiated Services Code Point |
| FQDN | Fully Qualified Domain Name |
| GRE | Generic Routing Encapsulation |
| GTP | GPRS Tunnelling Protocol |
| HTTP | HyperText Transfer Protocol |
| IETF | Internet Engineering Task Force |
| JSON | JavaScript Object Notation |
| MAC | Media Access Control |
| MQTT | Message Queue Telemetry Transport |
| NFVI | Network Functions Virtualisation Infrastructure |
| NTP | Network Time Protocol |
| PoP | Point of Presence |
| PTP | Precision Time Protocol |
| QCI | Quality Class Indicator |
| REST | Representational State Transfer |
| RFC | Request For Comments |
| RNI | Radio Network Information |
| RPC | Remote Procedure Call |
| TC | Traffic Class |
| TLS | Transport Layer Security |
| ToD | Time of Day |
| URI | Uniform Resource Indicator |
| UTC | Coordinated Universal Time |
| VIM | Virtualised Infrastructure Manager |
| VNF | Virtualised Network Function |
| XML | eXtensible Markup Language |

4 Overview

The present document specifies two MEC Platform Application Enablement APIs that support the requirements defined for Multi-access Edge Computing in ETSI GS MEC 002 [2], namely the MEC application support API and the MEC service management API.

Clause 5 introduces the functionalities enabled via the Mp1 reference point between MEC applications and MEC platform. It provides the high level information flows and describes the necessary operations.

The common data types are defined in clause 6, while the corresponding data models and API definitions are specified in clause 7 for the MEC application support API and clause 8 for the MEC service management API.

5 Description of the services (informative)

5.1 Introduction

The MEC platform, as defined in ETSI GS MEC 003 [3], offers an environment where MEC applications may discover, advertise, consume and offer MEC services. Upon receipt of update, activation or deactivation of traffic rules from the MEC platform manager, applications or services, the MEC platform instructs the data plane accordingly. The MEC platform also receives DNS records from the MEC platform manager and uses them to configure a DNS proxy/server.

Via Mp1 reference point between the MEC platform and the MEC applications, as defined in ETSI GS MEC 003 [3], the basic functions are enabled, such as:

- MEC service assistance:
 - authentication and authorization of producing and consuming MEC services;
 - a means for service producing MEC applications to register/deregister towards the MEC platform the MEC services they provide, and to update the MEC platform about changes of the MEC service availability;
 - a means to notify the changes of the MEC service availability to the relevant MEC application;
 - discovery of available MEC services;
- MEC application assistance:
 - MEC application start-up procedure;
 - MEC application graceful termination/stop;
- traffic routing:
 - traffic rules update, activation and deactivation;
- DNS rules:
 - DNS rules activation and deactivation;
- timing:
 - providing access to time of day information;
- transport information:
 - providing information about available transports.

These functions are grouped into those considered to provide MEC application support (i.e. application specific traffic routing, DNS rules and timing, as well as graceful termination/stop) and those that provide MEC service management (i.e. MEC service assistance and associated service transport information).

5.2 Sequence diagrams

5.2.1 General

Clauses 5.2.2 to 5.2.10 describe how MEC applications and/or MEC services may be supported by the MEC platform via Mp1 reference point. The related sequence diagrams are presented.

5.2.2 MEC application start-up

Figure 5.2.2-1 shows three alternative messages that a MEC application can use to communicate with a MEC platform during the start-up phase of the application instantiation process, steps 5 to 7 in clause 5.3.1 of ETSI GS MEC 010-2 [4].

In this flow, the MEC platform can verify the authenticity of the MEC application with the aid of an AA entity that contains the registration related information about the MEC application in question. For actual authentication, the MEC application uses access token based on OAuth2.0.

MEC platform also has possibility to verify the correctness of the service registration or services query of the MEC application, as it is assumed that MEC platform has received the valid configuration for service consuming and service producing MEC applications. The related information about this MEC application instance (including the required and the optional services, the services to be offered by this application instance and the associated transport dependency, the traffic rules and DNS rules associated with this application instance, etc.) can be compared to those included in the service registration or services query messages, which can be used to determine whether to accept or reject the request.

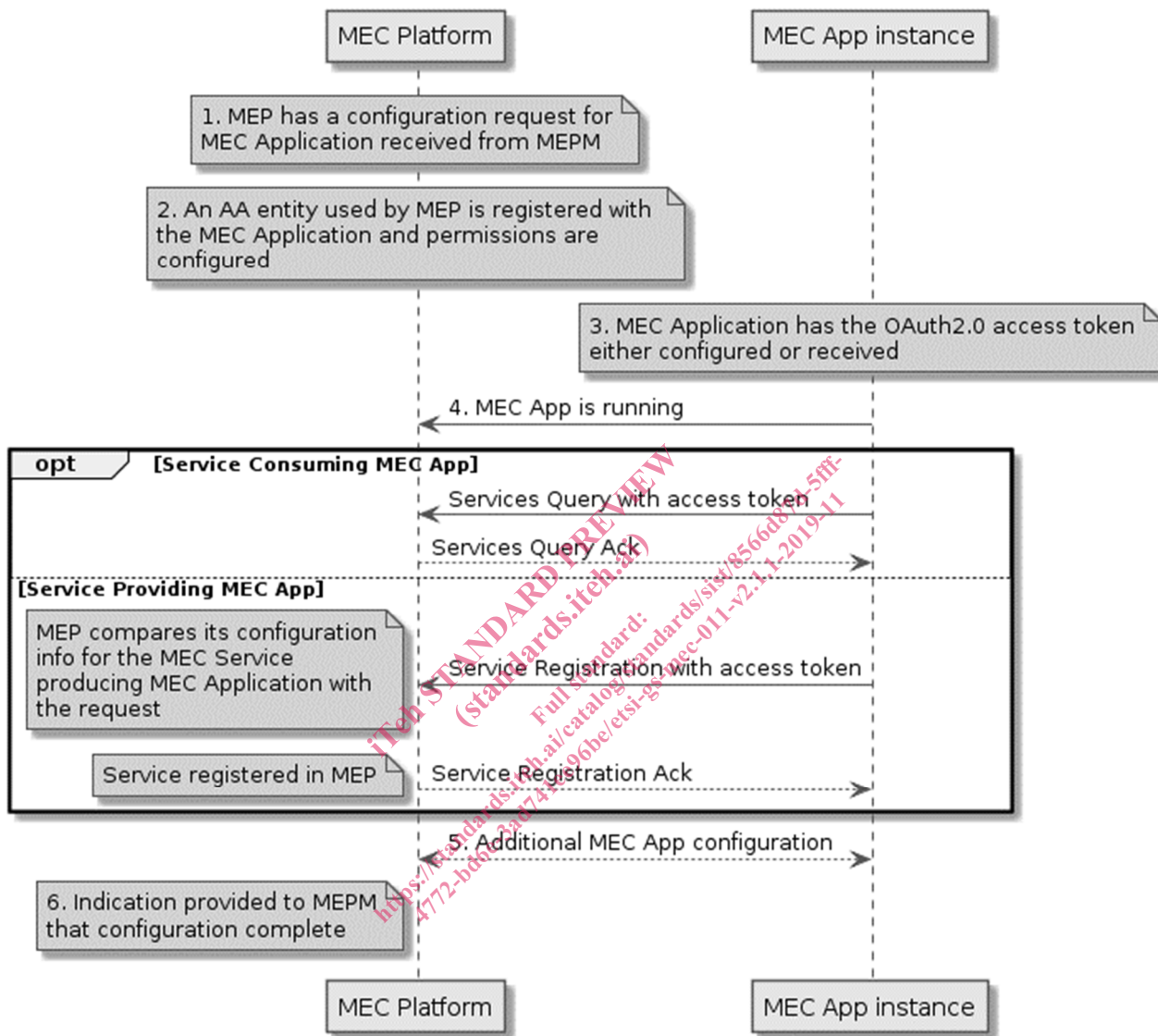


Figure 5.2.2-1: Flow of MEC application start up

MEC application start up procedure, following the MEC application instantiation procedure (as defined in ETSI GS MEC 010-2 [4]), consists of the following steps:

- 1) MEC platform has received a configuration request from MEC Platform Manager. The configuration request contains detailed information about the parameters related to the MEC application, including the required and the optional services, the services to be offered by this application instance and the associated transport dependency, the traffic rules and DNS rules associated with this application instance, etc.
- 2) An AA entity associated with the MEC platform has been configured with the MEC application related identity and permissions.
- 3) MEC application that intends to communicate with MEC platform has the OAuth2.0 access token either received or configured.