NFV & MEC Plugtests Event
1 – 15 October 2021
MEC Interoperability Test Plan

ETSI

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Contents

Foreword

This Test Plan has been produced by ETSI Centre for Testing and Interoperability during the preparation of the ETSI NFV & MEC Plugtests 2021 for the MEC Interoperability activity.

Introduction

The present document describes the Interoperability Test Plan that was followed during the ETSI NFV & MEC Plugtests held remotely in October 2021.

Intellectual Property Rights

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1 Scope

The present document defines a test plan with the purpose of supporting the NFV & MEC Plugtests™ event. It contains:

- conventions summarizing all pro-formas and common rules for conduction the Plugtests event;
- the overall architecture describing the network including controllers, interfaces and applications;
- the configurations (CFG) summarizing the valid configurations derived from the overall architecture. A valid configuration is a specific subset of the overall architecture to which a given group of test descriptions applies used during test sessions;
- the Test Summary listing all test objectives. A Test Description (TD) will be developed for each test objective.
- the Test Descriptions (TD) compiling all the information required to execute a test. They describe all the steps required to achieve a test objective;
- the Interoperability Feature Statements (IFS) identifying the features which a Device Under Test (DUT) supports, including those which are optional and those which are conditional on the support of other features. The IFS are used to select applicable TDs for each test session.

2 References

2.1 Normative references

Normative references are not applicable in the present document.

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] ETSI GS MEC 001 (V2.1.1) (01-2019): "Multi-access Edge Computing (MEC); Terminology"

[i.2] ETSI GS MEC 010-2 (V2.1.1) (11-2019): "Multi-access Edge Computing (MEC); Application lifecycle, rules and requirements management"

[i.3] ETSI GR MEC-DEC 025 (V2.1.1) (06-2019): "Multi-access Edge Computing (MEC); MEC Testing Framework"

[i.4] ETSI GS MEC 011 (V2.2.1) (12-2020): "Multi-access Edge Computing (MEC); Edge Platform Application Enablement"

[i.5] ETSI GS MEC 013 (V2.1.1) (09-2019): "Multi-access Edge Computing (MEC); Location API"

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 [i.**Error! Reference s ource not found.**] and the following apply:

3.2 Abbreviations

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

FUT	Function Under Test
IFS	Interoperability Feature Statement
IOP	Interoperability
SUT	System Under Test
TD	Test Description
UE	User Equipment

4 Test Structure

4.1 Conventions

The Test Ids of this Test Plan have been created as per the following naming convention:
TEST ID = TD_<ROOT>_<GROUP>_<OPERATION>
Where <ROOT> is "MEC".

4.2 Test Description pro-forma

Test Descriptions compile all the information required to execute a test. They describe all the steps required to achieve a test objective. The following information is provided with each Test Description:

- Identifier: A unique identifier is assigned to each Test Description. The usage of a well-defined naming convention allowing to put the TD into context (Functional Group, Feature, etc.) is recommended.
- Test Objective: Description of the objective of the TD (what).
- Configuration: Reference to the applicable configuration(s).
- References: Reference to the base specification(s) which describe the feature being tested.
- Applicability: List of items in the IFS that need to be supported by the FUTs in order to be able to execute the test.
- Pre-test conditions: Specific conditions that need to be met by the FUT prior to start executing the test sequence. It can include information about configuration, and/or initial state of the FUT.
- Test Sequence: Detailed description of the steps that are to be followed in order to achieve the stated test purpose. These steps are specified in a clear and unambiguous way but without placing unreasonable restrictions on how the step is performed. Clarity and precision are important to ensure that the step can followed exactly. The lack of restrictions is necessary to ensure that the test can apply to a range of different types of implementation.

Table 4.2-1: Test Description pro-forma

Interoperability Test Description			
Identifier	Unique test description ID: TD_AB_XXX_00. Follows the naming convention as per clause 4.1		
Test Purpose	A concise summary of the test reflecting its purpose and allowing readers to easily distinguish this test from any other test in the document		
Configuration	Reference to the applicable configuration(s)		
References	List of references to the base specification clause(s), use case(s), requirement(s), etc. which are either used in the test or define the functionality being tested		
Applicability	List of features and capabilities in the IFS which are required to be supported by the FUTs in order to execute this test		
Pre-test conditions	List of test specific pre-conditions that need to be met by the FUT including information about configuration, i.e. precise description of the initial state of the FUTs prior to start executing the test sequence		
Test Sequence	**Step**	**Type**	**Description**
	1	***<Request>***	*Step description*
	2		
	3		
	4		
	5		
	6		
IOP Verdict			

The Steps in the Test Sequence can be of different type, depending on their purpose:

- A stimulus corresponds to an event that triggers a specific action on a FUT, like sending a message for instance;
- A configure corresponds to an action to modify the FUT or SUT configuration;
- An IOP check consists of observing that one FUT behaves as described in the standard: i.e. resource creation, update, deletion, etc. For each IOP check in the Test Sequence, a result can be recorded;
- The overall IOP Verdict will be considered OK if all the IOP checks in the sequence are OK.

4.3 Interoperability Feature Statement (IFS)

The Interoperable Feature Statement (IFS) identifies the standardized features of a FUT. These features can be mandatory, optional or conditional (depending on other features), and depend on the role played by the FUT. The IFS can also be used as a pro-forma by a vendor to identify the features that its FUT will support

when interoperating with corresponding features from other vendors. Annex A of the present document defines the IFS.

5 Architecture

The generic Interoperability Test Architecture follows recommendations contained in [i.3].

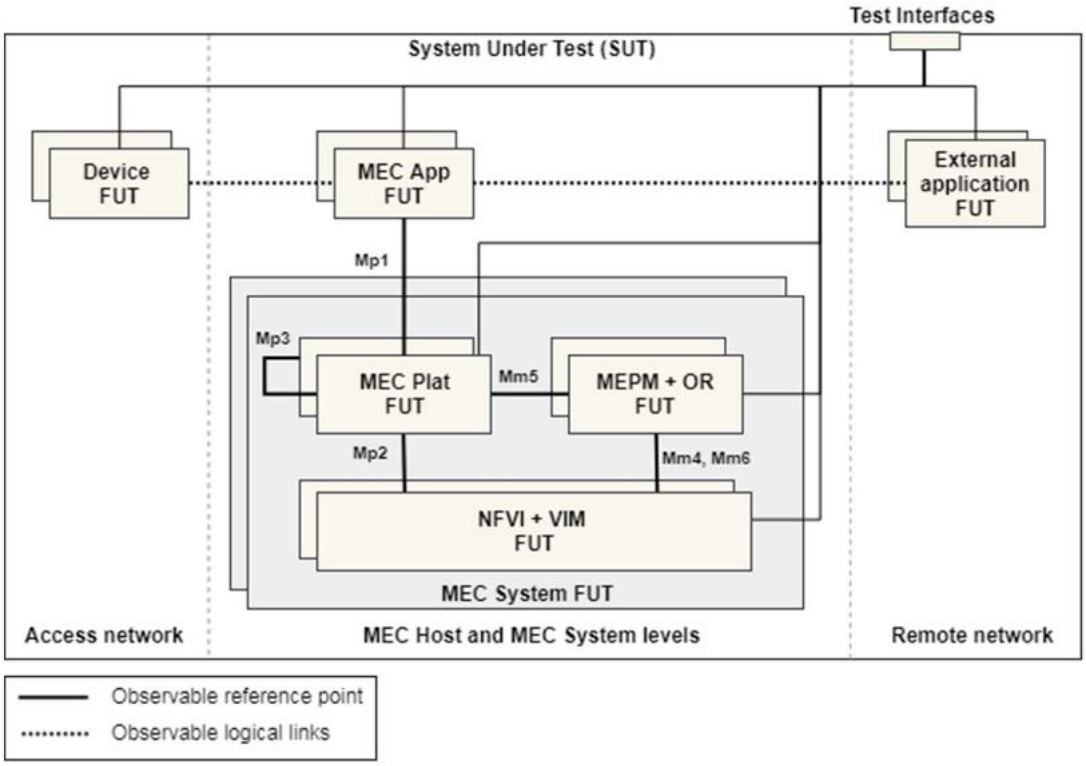

Figure 5-1: Generic Interoperability testing architecture as reported in [i.3]

6 Configurations

6.1 SUT_MEC_BASIC

The SUT_MEC_BASIC test configuration includes a single MEC application along with a MEC platform. In this configuration, the term “MEC Platform” is used to indicate any of the following components: MEC platform, MEC orchestrator or MEC platform manager. The providers of other components of the MEC system such as MEO or MEPM are out of scope. The MEC application runs – together with the MEC Platform - on the MEC host or the NFVI.

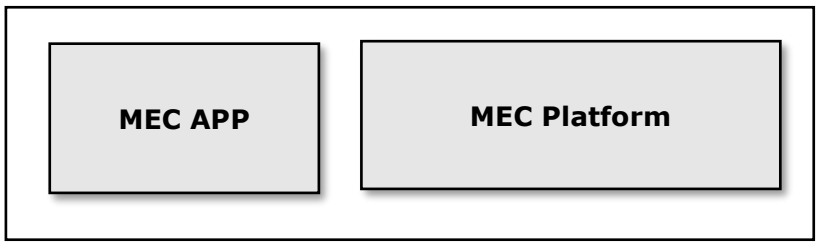

Figure 6.1-1: SUT_MEC_BASIC test configuration

6.2 SUT_MEC_SERVICES_SINGLE_APP

The SUT_MEC_SERVICES_SINGLE_APP test configuration is similar to the configuration SUT_MEC_BASIC, with a difference on the integration between the two elements. In this configuration, one (1) MEC application runs with in the MEC Host alongside the MEC platform. The configuration focuses on the capabilities around MEC Services such as the capability of applications and the platform to provide and register. The service is registered and available for discovery through the service registry in the MEC platform.

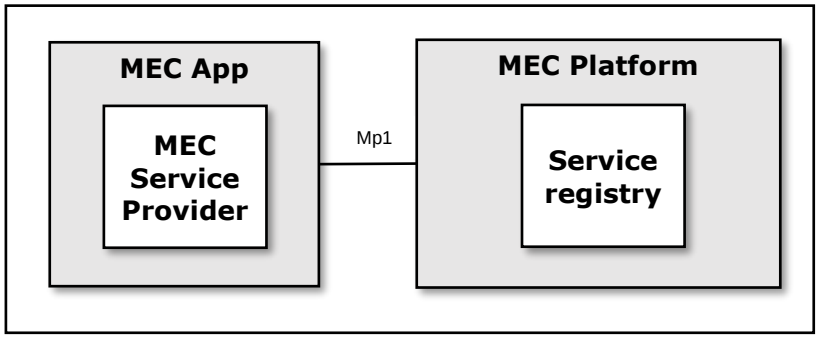

Figure 6.2-1: SUT_MEC_SERVICES_SINGLE_APP test configuration

6.3 SUT_MEC_SERVICES_MULTI_APP

The SUT_MEC_SERVICES_MULTI_APP configuration is similar to the configuration SUT_MEC_SERVICES_SINGLE_APP, with a difference on the integration between both elements. In this configuration, two (2) MEC applications run together alongside the MEC Platform. The configuration focuses on the capabilities around MEC Services such as the capability of applications and the platform to provide, discover or consume MEC services.

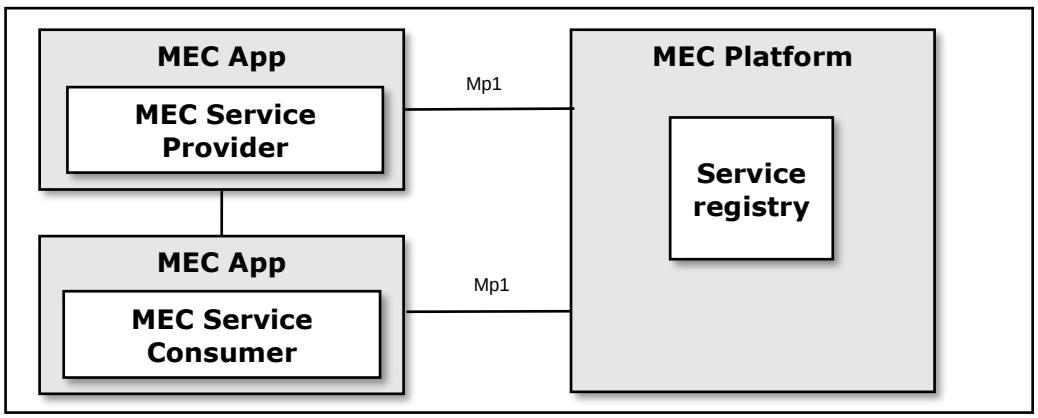

Figure 6.3-1: SUT_MEC_SERVICES_MULTI_APP test configuration

6.4 SUT_MEC_NFVI

The SUT_MEC_NFVI configuration, the MEC platform and the MEC application(s) are hosted and executed by a third party NFV Infrastructure. The focus is on interoperability of virtualization technologies and VIM APIs in a multivendor scenario.

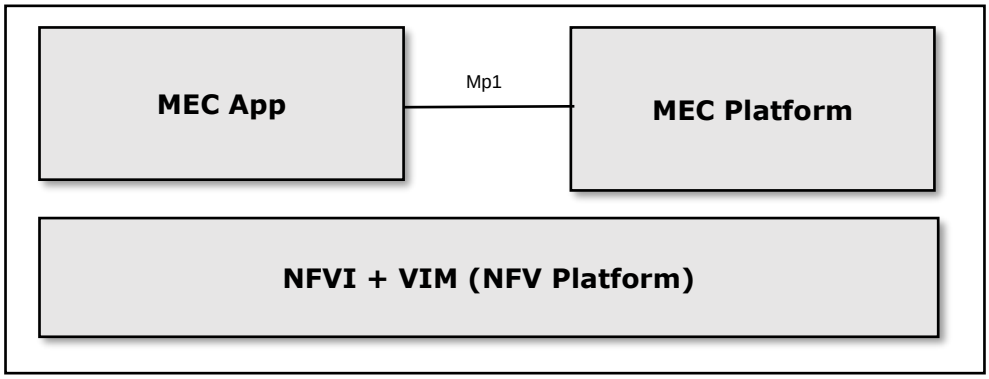

Figure 6.4-1: SUT_MEC_NFVI test configuration

6.5 SUT_MEC_MANO

The SUT_MEC_MANO focuses on the MEC-in-NFV scenario. In this scenario the MEC application(s) and the MEC platform are packaged as VNFs and are managed by a third-party MANO platform in an NFV infrastructure. The availability of other components of the MEC system (such as MEAO, MEPM and specific VNFM) is out of scope.

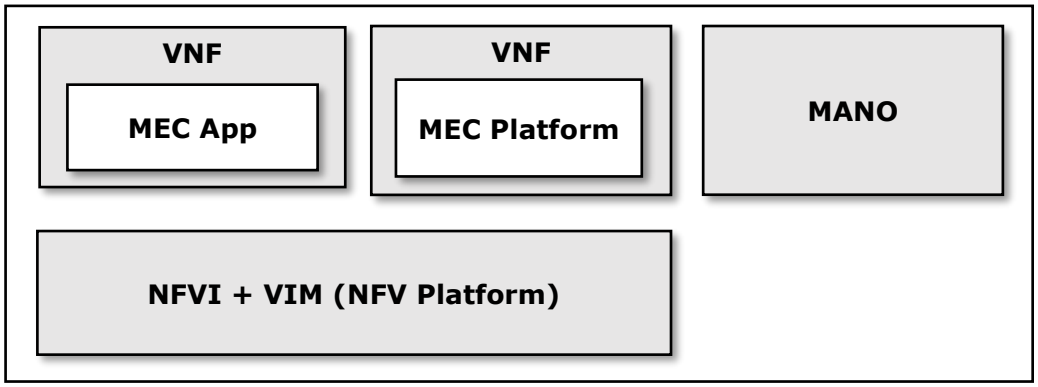

Figure 6.5-1: SUT_MEC_MANO test configuration

7 Test Summary

7.1 Test group 1 - MEC Application lifecycle

7.1.1 Applicable configurations

The configurations applicable to the test group 1 are:

- SUT_MEC_BASIC
- SUT_MEC_SERVICES_SINGLE_APP
- SUT_MEC_NFVI
- SUT_MEC_MANO

7.1.2 List of objectives

Table 7.1.2-1: Test Objectives for group 1 – MEC Application lifecycle

Test ID	Objective
TD_MEC_APP_ONBOARD	Verify that a MEC application can be successfully onboarded in a MEC System.
TD_MEC_APP_START	Verify that a MEC application can be successfully started in a MEC Host.
TD_MEC_APP_STOP	Verify that a MEC application running in a MEC Host can be stopped.
TD_MEC_APP_STATUS	Verify that the status of a MEC application running in a MEC Host can be queried.
TD_MEC_APP_CHANGE	Verify that the status of a MEC application running in a MEC Host may be changed.

7.2 Test group 2 – MEC Services

7.2.1 Applicable configurations

The configurations applicable to the Services tests are:

- SUT_MEC_SERVICES_SINGLE_APP
- SUT_MEC_SERVICES_MULTI_APP

7.2.2 List of objectives

Table 7.2.2-1: Test objectives for Group 2 – MEC Services

Test ID	Objective
TD_MEC_SVC_QUERY	Verify that a MEC App successfully retrieves the list of available services from the MEC Platform.
TD_MEC_SVC_REGISTER	Verify that a MEC App successfully registers a new service in the MEC Platform Service Registry.
TD_MEC_SVC_UPDATE	Verify that a MEC App successfully updates an existing service in the MEC Platform Service Registry.
TD_MEC_SVC_DEREGISTER	Verify that a MEC App successfully deregisters a service existing in the MEC Platform Service Registry.
TD_MEC_SVC_CONSUME	Verify that a MEC App successfully consumes a service exposed by a different MEC App and registered in the MEC Platform Service Registry.
TD_MEC_SVC_QUERYTIME	Verify that a MEC App successfully queries the time information from the MEC Platform.
TD_MEC_SVC_TRANSPORTS	Verify that a MEC App successfully queries the list of available transports from the MEC Platform.

7.3 Test group 3 – MEC Traffic

7.3.1 Applicable configurations

The configurations applicable to the Network tests are:

- SUT_MEC_BASIC
- SUT_MEC_SERVICES_SINGLE_APP
- SUT_MEC_NFVI
- SUT_MEC_MANO

7.3.2 List of objectives

Table 7.3.2-1: Test Objectives for Group 3 - Traffic and DNS rules

Test ID	Objective
TD_MEC_NTW_ACTIVATE	Verify that a MEC application successfully requests a rule to be activated in the MEC Platform.
TD_MEC_NTW_UPDATE	Verify that a MEC application successfully requests an update to an existing rule in the MEC Platform.
TD_MEC_NTW_DEACTIVATE	Verify that a MEC application successfully requests a rule to be deactivated in the MEC Platform.
TD_MEC_NTW_DNS_ACTIVATE	Verify that a MEC application successfully requests a DNS rule to be activated in the MEC Platform.
TD_MEC_NTW_DNS_DEACTIVATE	Verify that a MEC application successfully requests a DNS rule to be deactivated in the MEC Platform.

7.4 Test group 4 – MEC Location API

7.4.1 Applicable configurations

The configurations applicable to the Network tests are:

- SUT_MEC_BASIC
- SUT_MEC_SERVICES_SINGLE_APP
- SUT_MEC_NFVI

7.4.2 List of objectives

Table 7.4.2-1: Test Objectives for Group 4 – MEC Location API

Test ID	Objective
TD_MEC_LOC_UE_LKP_1	Verify that MEC application can successfully retrieve the location information of a specific UE
TD_MEC_LOC_UE_LKP_2	Verify that MEC application can successfully retrieve the location information of a group of UEs
TD_MEC_LOC_UE_INF_LKP_1	Verify that MEC application can successfully look up UE information in a particular location
TD_MEC_LOC_UE_INF_LKP_2	Verify that MEC application can successfully look up UE(s) information of a group of UEs in a particular location
TD_MEC_LOC_UE_SUB_1	Verify that MEC application can create a subscription to receive notifications about location information changes of a specific UE or a group of UEs
TD_MEC_LOC_UE_SUB_2	Verify that MEC application can cancel a UE Location subscription

TD_MEC_LOC_INF_SUB_1	Verify that MEC application can create a subscription to receive notifications of UE information updates for the list of UEs in a particular location
TD_MEC_LOC_INF_SUB_2	Verify that MEC application can cancel a UE Information subscription
TD_MEC_LOC_RNL	Verify that MEC application can make a location enquiry about the radio nodes currently associated with the MEC host
TD_MEC_LOC_TRACK	Verify that MEC application can create a subscription to receive notifications of UE information updates for a specified UE.
TD_MEC_LOC_DIST_1	Verify that MEC application can obtain the current distance between 2 UEs
TD_MEC_LOC_DIST_2	Verify that MEC application can obtain the current distance between a UE and a geographical location
TD_MEC_LOC_DIST_SUB_1	Verify that MEC application can create a subscription to receive notifications about distance changes between 2 UEs
TD_MEC_LOC_DIST_SUB_2	Verify that MEC application can create a subscription to receive notifications about distance changes between a UE and a geographical location
TD_MEC_LOC_DIST_SUB_3	Verify that MEC application can cancel a UE distance subscription
TD_MEC_LOC_AREA_SUB_1	Verify that MEC application can create a subscription to receive notifications about UE entering a geographical area.
TD_MEC_LOC_AREA_SUB_2	Verify that MEC application can create a subscription to receive notifications about UE leaving a geographical area.
TD_MEC_LOC_AREA_SUB_3	Verify that MEC application can cancel a UE Area subscription

8 Test Descriptions MEC

8.1 Test group 1- MEC Application Lifecycle Management

8.1.1 Onboard an application

Interoperability Test Description			
Identifier	TD_MEC_APP_ONBOARD		
Test Objective	Verify that a MEC application can be successfully onboarded in a MEC System.		
Configuration	SUT_MEC_BASIC SUR_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI		
References	[i.2], “Onboarding Application Package” (section 5.2.2)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV		
Pre-test conditions	MEC Platform running MEC application descriptor available (AppD as defined in [i.2]) MEC application image available by the MEC Platform OSS (real or simulated) connected to the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	OSS platform sends an on-board application package request to the MEC system (or to MEO if present).
	2	Response	MEC Platform acknowledges the application package on-boarding to the OSS.
	3	IOP Check	Verify that the MEC application has been onboarded successfully in the MEC system.
IOP Verdict			

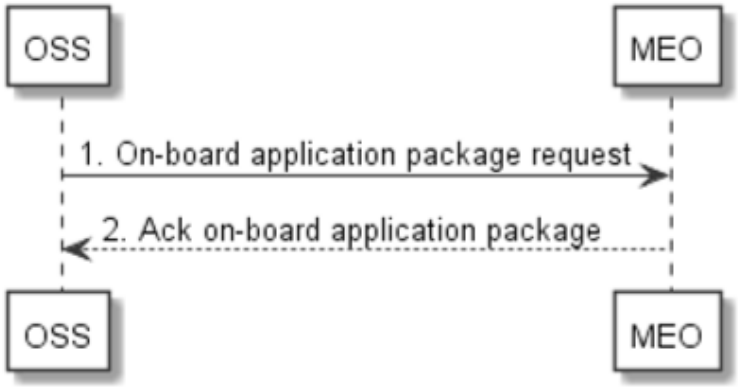

Figure 8.1.1-1: On-board application package flow

8.1.2 Start an application instance

Interoperability Test Description			
Identifier	TD_MEC_APP_START		
Test Objective	Verify that a MEC application can be started in a MEC Platform.		
Configuration	SUT_MEC_BASIC SUR_MEC_SERVICES_SINGLE_APP SUT_MEC_MANO		
References	[i.2] “Application Instantiation Operation”. Section 5.3.1		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV		
Pre-test conditions	MEC Platform running MEC application onboarded in MEC Platform (or MEO) OSS (real or simulated) connected to the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	OSS platform sends a start instance request to the MEC Platform (or MEO)
	2	Response	MEC platform sends an instantiate application response to the OSS with the result of the instantiation operation.
	3	IOP Check	Show that the MEC application has been started successfully.
	4	IOP Check	Verify that the MEC platform sends the right configuration to the MEC application instance.
IOP Verdict			

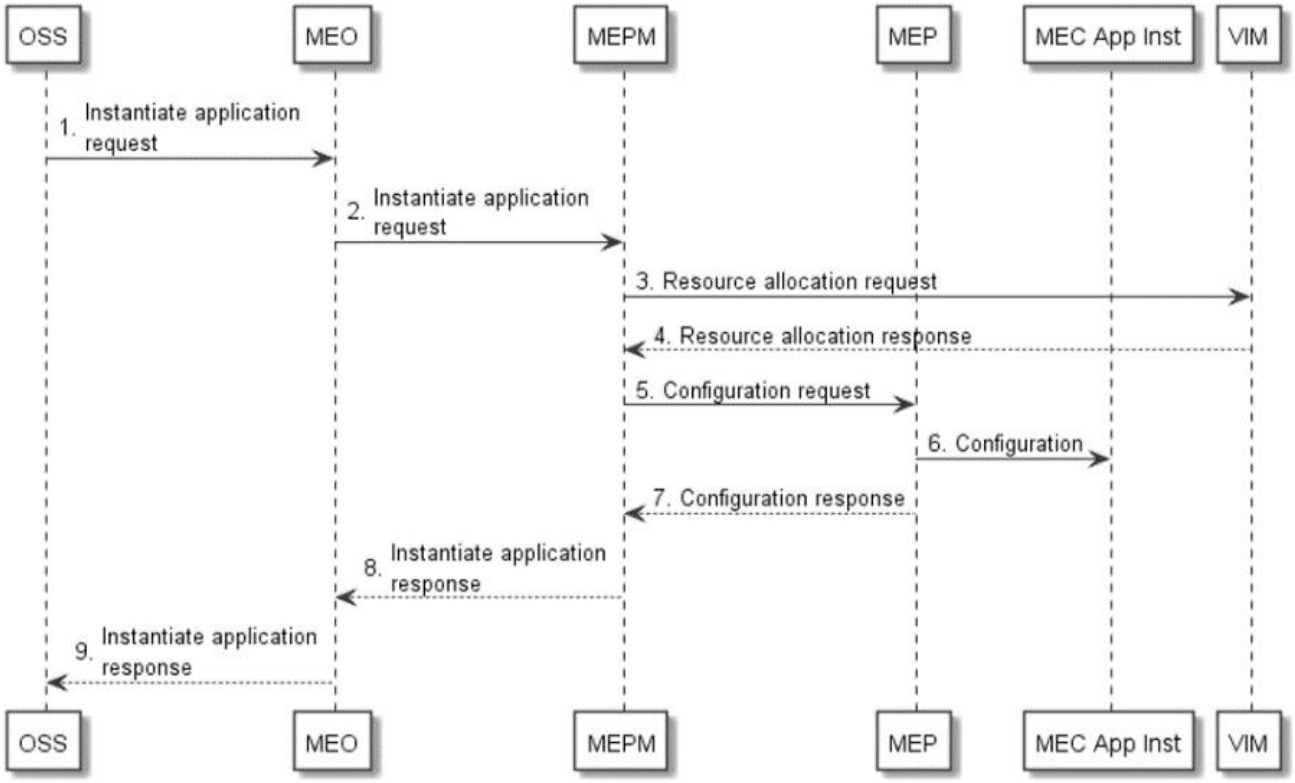

Figure 8.1.2-1: Instantiation of a MEC App flow

NOTE: In the Context of the Plugtests, MEO, MEPM and MEP may be be bundled therefore their exchanges will not be perfomed in the tests.

8.1.3 Stop an application instance

Interoperability Test Description			
Identifier	TD_MEC_APP_STOP		
Test Objective	Verify that a MEC application can be stopped in a MEC Platform		
Configuration	SUT_MEC_BASIC SUR_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.2] MEC 010-2, “Application instance terminate operation”. (Section 5.3.2)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV		
Pre-test conditions	MEC Platform running MEC application instance running in MEC Platform (or MEO) OSS (real or simulated) connected to the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	OSS platform sends a termination request for a specific instance to the MEC Platform. This request includes the instance id.
	2	Response	The MEC Platform sends a terminate application instance response to the OSS.
	3	IOP Check	Show that the MEC application has been stopped successfully.
	4	IOP Check	Verify that a terminate app instance message is sent to the MEC application instance.
IOP Verdict			

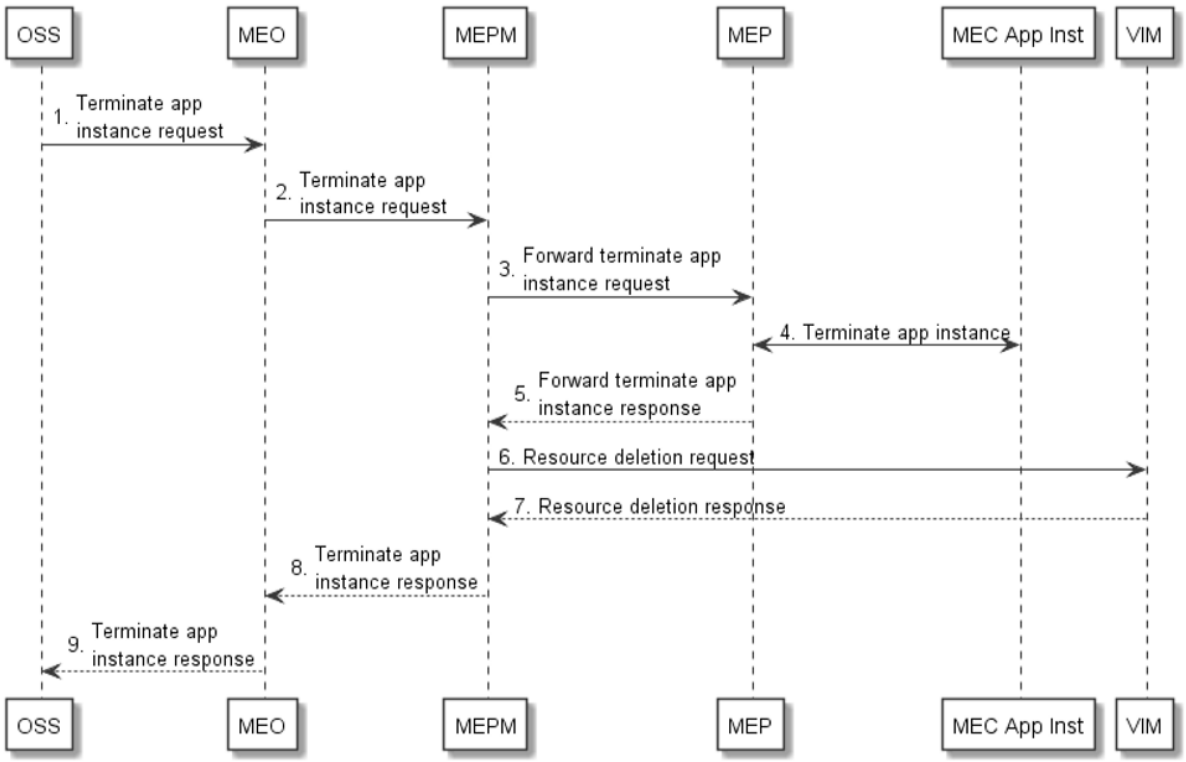

Figure 8.1.3-1: Instance Termination information flow

8.1.4 Retrieve application instance status

Interoperability Test Description			
Identifier	TD_MEC_APP_STATUS		
Test Objective	Verify the status of a MEC Application running in a MEC Platform is reported successfully.		
Configuration	SUT_MEC_BASIC SUR_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.2] MEC 010-2, “Query application instance information operation”. (Section 6.3.1.5)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV		
Pre-test conditions	MEC Platform running MEC application instance running in MEC Platform (or MEO) OSS (real or simulated) connected to the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	OSS platform sends a status request for a specific instance to the MEC Platform. This request includes the instance id.
	2	Response	The MEC Platform (or MEO) replies back to OSS with the status of the instance.
	3	IOP Check	Show the status of the MEC application instance. Since the MEC application instance was running before, it should report back that it is running.
IOP Verdict			

8.1.5 Change application instance status

Interoperability Test Description			
Identifier	TD_MEC_APP_CHANGE		
Test Objective	Verify that a request made to the MEC platform to change the state of a specific instance will result in the instance changing status.		
Configuration	SUT_MEC_BASIC SUR_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.2] MEC 010-2, “Change application instance operational state operation”. (section 6.3.1.4)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV		
Pre-test conditions	MEC Platform running MEC application instance running in MEC Platform (or MEO) OSS (real or simulated) connected to the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	OSS platform sends a status change request for a specific MEC application running in a MEC platform. This is done through sending the instance id with the request.
	2	Response	The MEC Platform, after changing the MEC application instance status, is replying back to the OSS with the operation outcome.
	3	IOP Check	Show that the MEC application's status has changed according to the request made.
IOP Verdict			

8.2 Test group 2 - MEC Services

8.2.1 Query existing services

Interoperability Test Description			
Identifier	TD_MEC_SVC_QUERY		
Test Objective	Verify that MEC application can successfully query which service are available in a MEC platform.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.4] MEC 011, “Service availability Query”. (Section 5.2.5)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER		
Pre-test conditions	MEC Platform running MEC application instance running At least one (1) MEC application service registered in the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	MEC application instance to request the available service through a service availability query, to the MEC platform.
	2	Response	MEC Platform respond back with a list of available services in the MEC platform.
	3	IOP Check	Check that the MEC application instance received the list of available services in the MEC platform.
IOP Verdict			

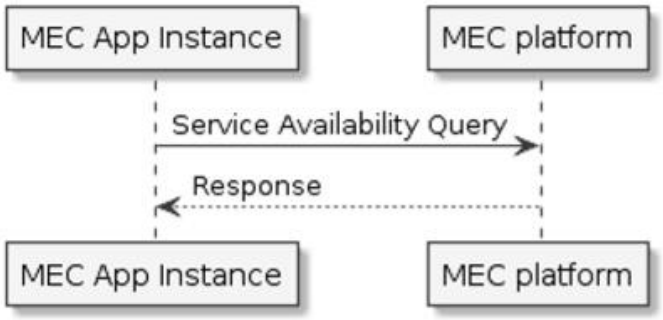

Figure 8.2.1-1: Service availability query flow

8.2.2 Register a new service

Interoperability Test Description			
Identifier	TD_MEC_SVC_REGISTER		
Test Objective	Verify a MEC service produced by a MEC application can be successfully registered in a MEC Platform		
Configuration	SUT_MEC_SERVICES_MULTI_APP		
References	[i.4] MEC 011, “Service registration”. (Section 5.2.4)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER, IFS_MEC_APP_PROD		
Pre-test conditions	MEC Platform running MEC application instance providing a MEC service MEC Application instance registered to receive service notification		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to send a new service registration message to the MEC platform
	2	Response	The MEC platform respond back with a successful registration.
	3	IOP Check	Show that the MEC application instance registered the MEC service successfully.
	4	IOP Check	Verify a notification is sent about the new service to the MEC application instance.
IOP Verdict			

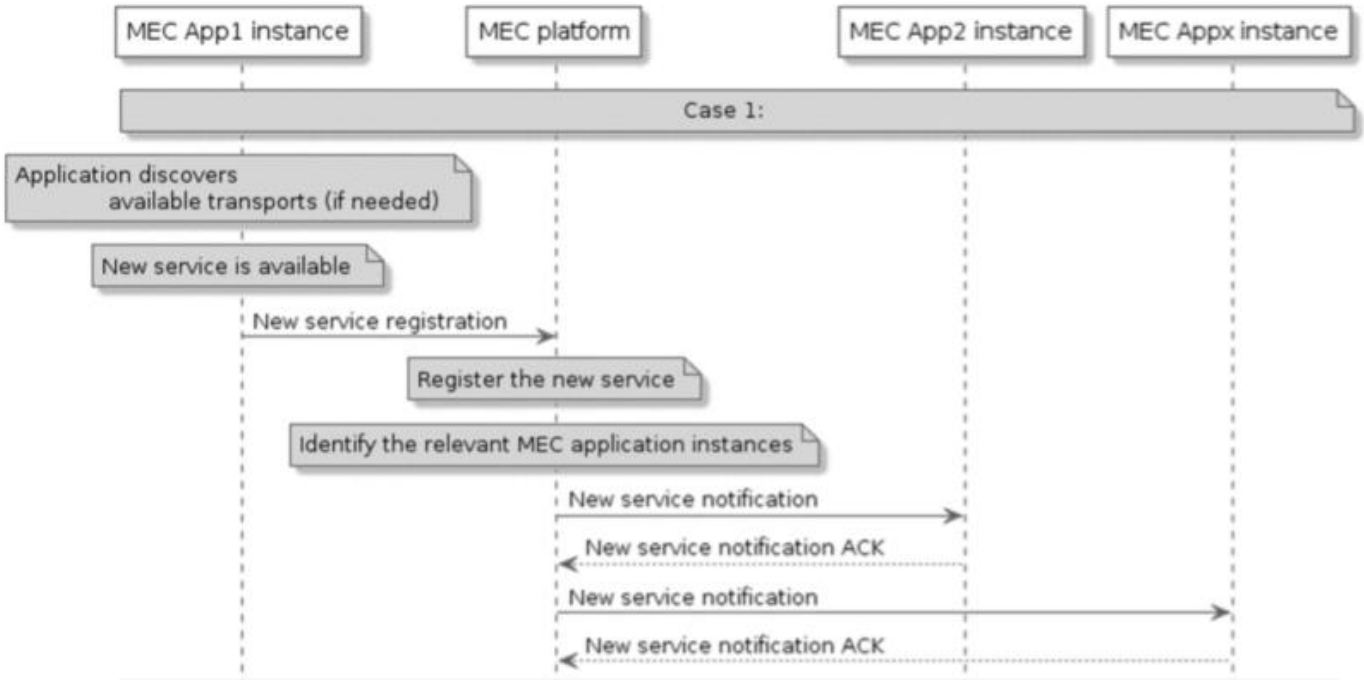

Figure 8.2.2-1: New service registration flow

8.2.3 Update an existing service

Interoperability Test Description			
Identifier	TD_MEC_SVC_UPDATE		
Test Objective	Verify an existing MEC service in a MEC platform can be updated successfully.		
Configuration	SUT_MEC_SERVICES_MULTI_APP		
References	[i.4] MEC 011, “Service availability update” (Section 5.2.4)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER, IFS_MEC_APP_PROD		
Pre-test conditions	MEC Platform running MEC application instance providing a MEC service MEC Application instance registered to receive service notification		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC service sends a service availability update message to the MEC platform to change its availability.
	2	Response	The MEC platform respond back with a notification change.
	3	IOP Check	Show that the MEC service availability has changed in the MEC platform.
	4	IOP Check	Verify a notification is sent about the availability change to the MEC application instance.
IOP Verdict			

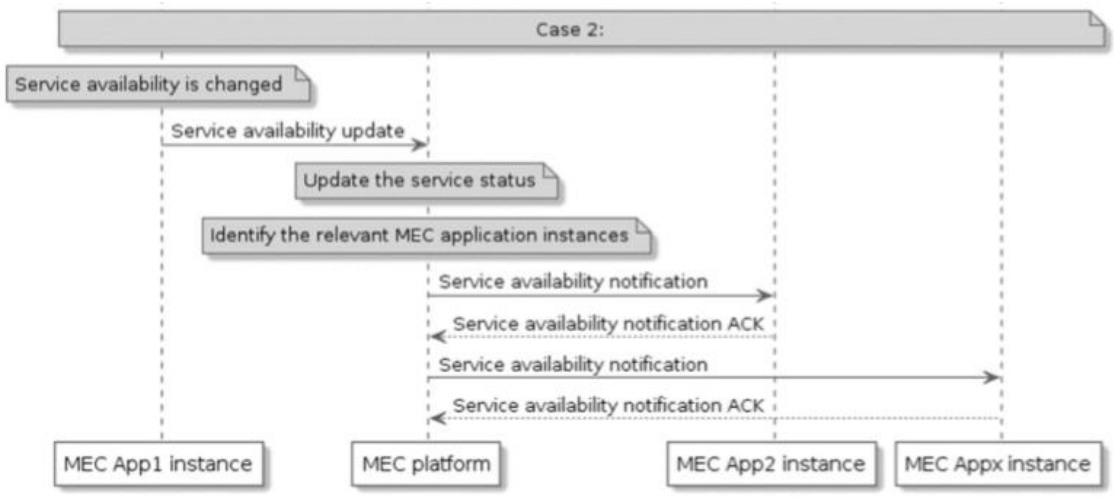

Figure 8.2.3-1: Service availability update flow

8.2.4 Deregister a service

Interoperability Test Description			
Identifier	TD_MEC_SVC_DEREGISTER		
Test Objective	Verify a MEC service produced by a MEC application instance can be successfully deregistered from a MEC Platform		
Configuration	SUT_MEC_SERVICES_MULTI_APP		
References	[i.4] MEC 011, “Service deregistration”. (Section 5.2.11)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER, IFS_MEC_APP_PROD		
Pre-test conditions	MEC Platform running MEC application instance providing a MEC service MEC Application instance registered to receive service notification		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance sends a request to the MEC platform to deregister the MEC service it provides.
	2	Response	The MEC platform deregisters the MEC service and returns a service deregistration acknowledgement.
	3	IOP Check	Show that the MEC service is no longer registered in the MEC platform.
	4	IOP Check	Verify a notification is sent about the availability change to the MEC application instance.
IOP Verdict			

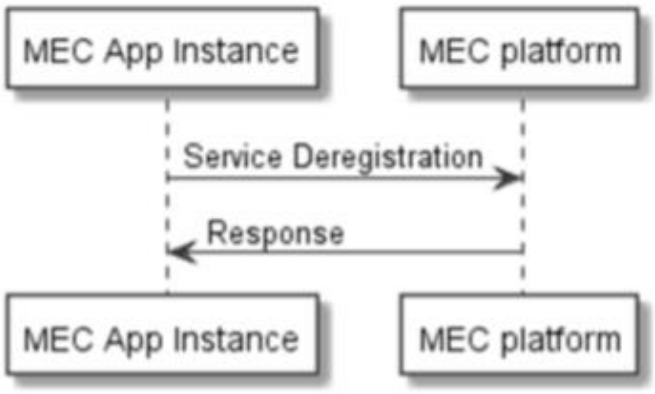

Figure 8.2.4-1: MEC service deregistration flow

8.2.5 Consume a service

Interoperability Test Description			
Identifier	TD_MEC_SVC_CONSUME		
Test Objective	Verify that a MEC service can be consumed by another MEC application.		
Configuration	SUT_MEC_SERVICES_MULTI_APP		
References			
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER, IFS_MEC_APP_PROD, IFS_MEC_APP_CONS		
Pre-test conditions	MEC Platform running MEC service is available (either by the MEC platform or a MEC application) (MEC service provider) MEC service consumer has already discovered the service endpoint. MEC application instance consuming the MEC service (MEC service consumer)		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance (MEC service consumer) request for the service.
	2	Response	The MEC service provider provides such service as requested.
	3	IOP Check	Show that the MEC service is provided, and consumed by the respective component.
IOP Verdict			

8.2.6 Query time service

Interoperability Test Description			
Identifier	TD_MEC_SVC_TIMEQUERY		
Test Objective	Verify that a MEC App can successfully query the time information from the MEC Platform.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References			
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER, IFS_MEC_APP_PROD, IFS_MEC_APP_CONS		
Pre-test conditions	MEC Platform running Time service is available through the MEC Platform MEC application is running in MEC Platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance (MEC service consumer) request for the time from the MEC platform
	2	Response	The MEC platform provides accurate time based on location/format.
	3	IOP Check	Show that the MEC application received the time properly.
IOP Verdict			

8.2.7 Transport information query

Interoperability Test Description			
Identifier	TD_MEC_SVC_TRANSPORTS		
Test Objective	Verify that a MEC App successfully queries the list of available transports from the MEC Platform.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References			
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DISCOVER, IFS_MEC_APP_PROD, IFS_MEC_APP_CONS		
Pre-test conditions	MEC Platform running Transport information is available through the MEC Platform MEC application is running in MEC Platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	MEC application instance sends a request to query the information about transports provided by the platform
	2	Response	MEC platform responds with the message body containing the list of available transports information.
	3	IOP Check	Show that the MEC application received the transports information properly.
IOP Verdict			

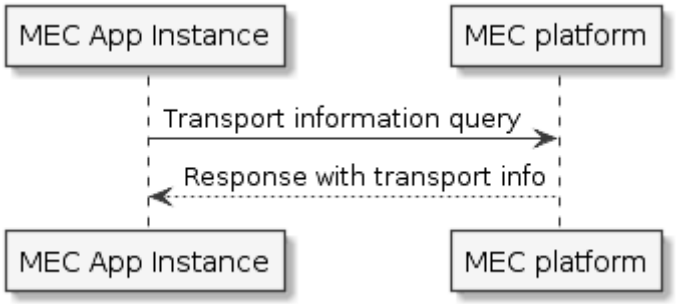

Figure 8.2.7-1: Transport information query flow

8.3 Test group 3 - MEC Traffic

8.3.1 Traffic rule activation

Interoperability Test Description			
Identifier	TD_MEC_NTW_ACTIVATE		
Test Objective	Verify a MEC application can activate a traffic rule in the MEC platform successfully		
Configuration	SUT_MEC_BASIC SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.4] MEC 011, “Traffic rule activation”. (Section 5.2.7)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_TRAFFIC, IFS_MEC_PLAT_TRAFFIC		
Pre-test conditions	MEC Platform running MEC application instance running		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance sends a traffic rule activation request to MEC platform.
	2	Response	The MEC platform sends a response to the MEC application instance to indicate the results of the operation.
	3	IOP Check	The traffic rule was activated successfully in the MEC platform. The selected traffic type coming in the MEC platform is steered accordingly.
IOP Verdict			

Figure 8.3.1-1: Traffic rule activation flow

8.3.2 Traffic rule update

Interoperability Test Description			
Identifier	TD_MEC_NTW_UPDATE		
Test Objective	Verify a MEC application can update a traffic rule in the MEC platform successfully		
Configuration	SUT_MEC_BASIC SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.4] MEC 011, “Traffic rule update”. (Section 5.2.7)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_TRAFFIC, IFS_MEC_PLAT_TRAFFIC		
Pre-test conditions	MEC Platform running MEC application instance running A traffic rule applied in the MEC platform, impacted specific set of traffic.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance sends a traffic rule update request to MEC platform.
	2	Response	The MEC platform sends a response to the MEC application instance to indicate the results of the operation.
	3	IOP Check	The traffic rule was updated successfully in the MEC platform. The initially impacted traffic is now affected differently based on the requested update.
IOP Verdict			

Figure 8.3.2-1: Traffic rule update flow

8.3.3 Traffic rule deactivation

Interoperability Test Description			
Identifier	TD_MEC_NTW_DEACTIVATE		
Test Objective	Verify a MEC application can deactivate a traffic rule in the MEC platform successfully		
Configuration	SUT_MEC_BASIC SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.4] MEC 011, “Traffic rule update”. (Section 5.2.7)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_TRAFFIC, IFS_MEC_PLAT_TRAFFIC		
Pre-test conditions	MEC Platform running MEC application instance running A traffic rule applied in the MEC platform, impacted a specific set of traffic		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance sends a traffic rule deactivate request to MEC platform.
	2	Response	The MEC platform sends a response to the MEC application instance to indicate the results of the operation.
	3	IOP Check	The traffic rule was deactivated successfully in the MEC platform. The initially impacted traffic is no longer affected by the traffic rule.
IOP Verdict			

Figure 8.3.3-1: Traffic rule deactivation flow

8.3.4 DNS rule activation

Interoperability Test Description			
Identifier	TD_MEC_NTW_DNS_ACTIVATE		
Test Objective	Verify a MEC application can activate a DNS rule in the MEC platform successfully		
Configuration	SUT_MEC_BASIC SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.4] MEC 011, “DNS rule activation”. (Section 5.2.8)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DNS, IFS_MEC_PLAT_DNS		
Pre-test conditions	MEC Platform running MEC application instance running		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance sends a DNS rule activation request to MEC platform.
	2	Response	The MEC platform sends a response to the MEC application instance to indicate the results of the DNS rule activation.
	3	IOP Check	The DNS rule activation was successful and the MEC platform routes DNS request accordingly.
IOP Verdict			

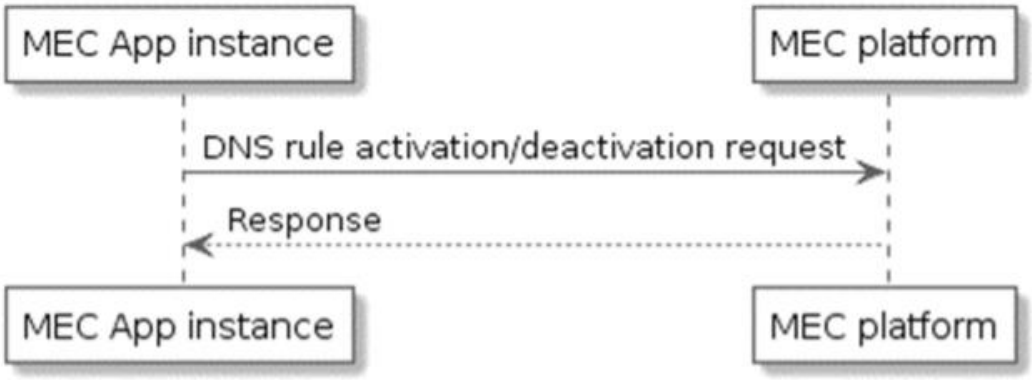

Figure 8.3.4-1: DNS rule activation flow

8.3.5 DNS rule deactivation

Interoperability Test Description			
Identifier	TD_MEC_NTW_DNS_DEACTIVATE		
Test Objective	Verify a MEC application can deactivate a DNS rule in the MEC platform successfully		
Configuration	SUT_MEC_BASIC SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_NFVI SUT_MEC_MANO		
References	[i.4] MEC 011, “DNS rule activation”. (Section 5.2.8)		
Applicability	IFS_MEC_APP_APPD, IFS_MEC_PLAT_SRV, IFS_MEC_APP_DNS, IFS_MEC_PLAT_DNS		
Pre-test conditions	MEC Platform running MEC application instance running A DNS rule activated in the MEC platform		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance sends a DNS rule deactivation request to MEC platform.
	2	Response	The MEC platform sends a response to the MEC application instance to indicate the results of the DNS rule deactivation.
	3	IOP Check	The DNS rule deactivation was successful and the MEC platform does not route DNS request anymore.
IOP Verdict			

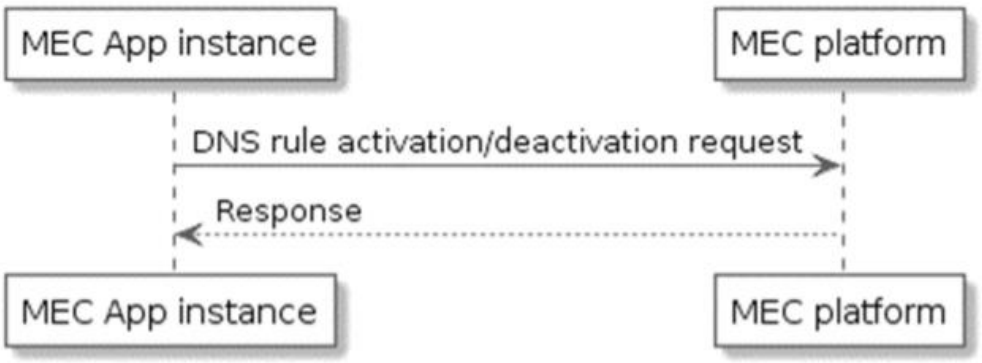

Figure 8.3.5-1: DNS rule deactivation flow

8.4 Test group 4 – MEC-013

8.4.1 UE Location Lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_UE_LKP_1		
Test Objective	Verify that MEC application can successfully retrieve the location information of a specific UE		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “UE Location Lookup”. (clause 5.3.2)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE location information available from the Location service		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to retrieve one or more UE locations by sending a request to the resource representing UE locations in the MEC Platform.
	2	Response	The Location Service returns a response with a message body including the location information of the UE(s) if the UE location lookup is accepted.
	3	IOP Check	Check that the MEC application instance received UEs location information
IOP Verdict			

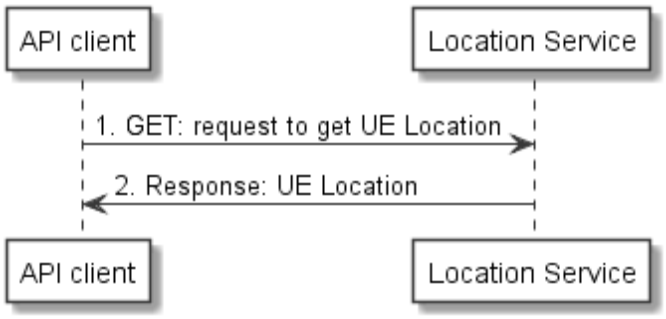

Figure 8.4.1-1: Flow of UE location lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_UE_LKP_2		
Test Objective	Verify that MEC application can successfully retrieve the location information of a group of UEs		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.4], “UE Location Lookup”. (clause 5.3.2)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform. • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • UEs connected to the radio nodes associated with the target MEC Host or at least their UE location information details available from the Location service		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to retrieve UE locations by sending a request to the resource representing UE locations in the MEC Platform.
	2	Response	The Location Service returns a response with a message body including the location information of the UE(s) if the UE location lookup is accepted.
	3	IOP Check	Check that the MEC application instance received UEs location information
IOP Verdict			

8.4.2 UE Information Lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_UE_INF_LKP_1		
Test Objective	Verify that MEC application can successfully look up UE(s) information in a particular location		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "UE Information Lookup". (clause 5.3.3)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE information available from the Location service		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to lookup the UE(s) Information by sending a request to the resource representing UE information in the MEC Platform. The request includes location area information.
	2	Response	The Location Service returns a response with a message body including the UE information of the UE according to the query parameters in the location area, if the UE information lookup is accepted
	3	IOP Check	Check that the MEC application instance received UE information
IOP Verdict			

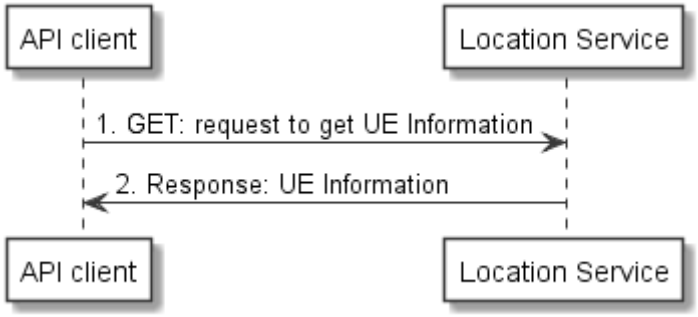

Figure 8.4.2-1: Flow of UE Information Lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_UE_INF_LKP_2		
Test Objective	Verify that MEC application can successfully look up UE information of a group of UEs in a particular location.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “UE Information Lookup”. (clause 5.3.3)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A group of UEs connected to the radio nodes associated with the target MEC Host or at least their UE information available from the Location service		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to lookup the UEs Information by sending a request to the resource representing the UE information in the MEC Platform. The request includes location area information.
	2	Response	The Location Service returns a response with a message body including the UE information of the group of UEq according to the query parameters in the location area, if the UE information lookup is accepted
	3	IOP Check	Check that the MEC application instance received UE information of the group of UEs
IOP Verdict			

8.4.3 UE Location Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_UE_SUB_1		
Test Objective	Verify that MEC application can create a subscription to receive notifications about location information changes of a specific UE or a group of UEs		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "UE Location Lookup". (clause 5.3.4)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE location available from the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE location notification by sending a Create request to the resource representing UE location in the MEC Platform. The request includes the subscription details, which includes UE(s) identifier, e.g. UE IP address, and a callbackURL for receiving the UE location.
	2	Response	The Location Service returns a response with a message body containing the subscriptionId
	3	IOP Check	Check that the MEC application instance subscribed UE location successfully.
	4	Stimulus	Update the UE location information in the location service
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Location notification, which includes location information.
	6		Repeat steps 4 and 5 several times
IOP Verdict			

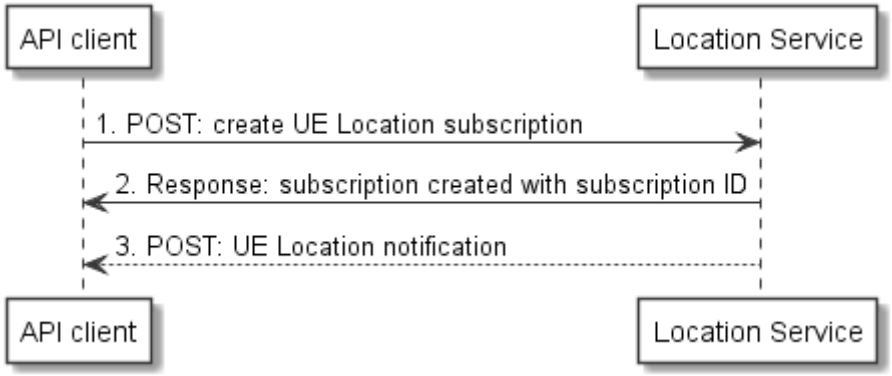

Figure 8.4.3-1: Flow of UE Location Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_UE_SUB_2		
Test Objective	Verify that MEC application can cancel a UE Location subscription		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “Subscribe Cancellation”. (clause 5.3.6)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE Location available from the Location service • MEC App has subscribed to UE location notification by creating a right resource into the Location service’ and got the corresponding subscriptionId		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application unsubscribes to UE Location notification by sending a Delete request to the resource URI in the MEC Platform. The request contains the subscriptionId
	2	Response	The Location Service returns a successful response if the subscription cancellation is accepted
	3	IOP Check	Check that the MEC application instance un-subscribed UE location successfully.
	4	Stimulus	Update the UE location in the location service
	5	IOP Check	Check that the Location Service does not notify the MEC App of the UE location change.
IOP Verdict			

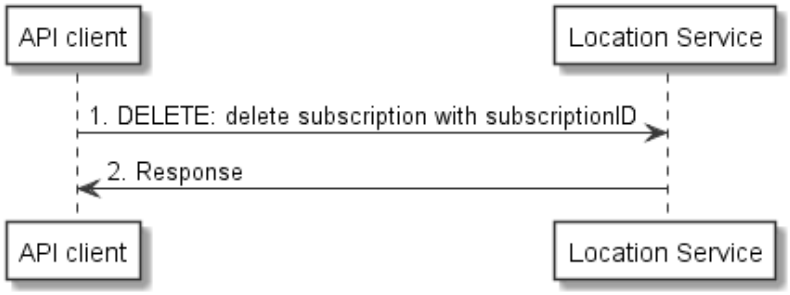

Figure 8.4.3-2: Flow of Location Subscribe Cancellation

8.4.4 UE Information Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_INF_SUB_1		
Test Objective	Verify that MEC application can create a subscription to receive notifications of UE information updates for the list of UEs in a particular location		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "UE Information Subscribe". (clause 5.3.5)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE information available from the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE information notification by sending a Create request to the resource representing UE information in the MEC Platform. The request contains all subscription details, which includes location area information and a callbackURL for receiving the UE information.
	2	Response	The Location Service returns a response with a message body containing the subscriptionId
	3	IOP Check	Check that the MEC application instance subscribed UE information successfully.
	4	Stimulus	Update the UE Information in the location service
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Location notification, which includes the UE information for each UE in the location area.
	6		Repeat steps 4 and 5 several times
IOP Verdict			

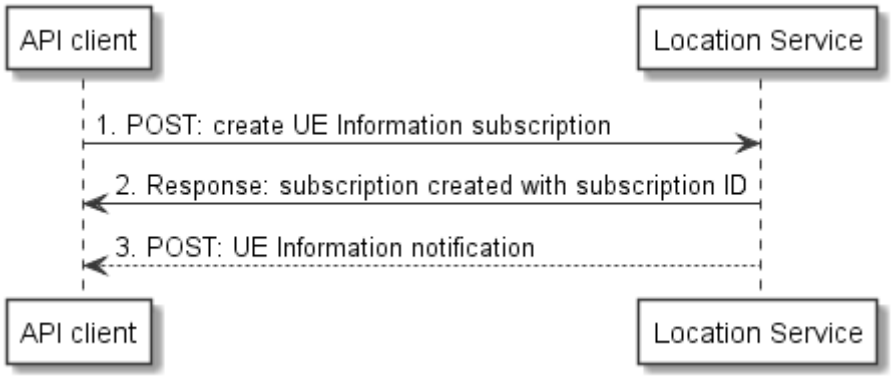

Figure 8.4.4-1: Flow of UE Information Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_INF_SUB_2		
Test Objective	Verify that MEC application can cancel a UE Information subscription		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "Subscribe Cancellation". (clause 5.3.6)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE Information available from the Location service • MEC App has subscribed to UE information notification by creating a right resource into the Location service' and got the corresponding subscriptionId.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application unsubscribes to UE Location notification by sending a Delete request to the resource URI in the MEC Platform. The request contains the subscriptionId
	2	Response	The Location Service returns a successful response if the subscription cancellation is accepted
	3	IOP Check	Check that the MEC application instance un-subscribed UE information successfully.
	4	Stimulus	Update the UE Information in the location service
	5	IOP Check	Check that the Location Service does not notify the MEC App of the UE Information change.
IOP Verdict			

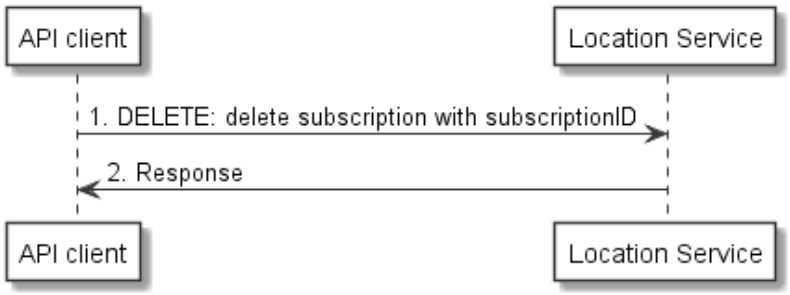

Figure 8.4.4-2: Flow of Location Subscribe Cancellation

8.4.5 Radio Node Location Lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_RNL		
Test Objective	Verify that MEC application can make a location enquiry about the radio nodes currently associated with the MEC host		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "Radio Node Location Lookup". (clause 5.3.7)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence • A UE connected to the radio nodes associated with the target MEC Host or at least its Radio Node Location Information available from the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to enquiry about the radio node by sending a request to the resource representing radio node information in the MEC Platform.
	2	Response	The Location Service returns a response to the MEC Application instance with message body including the list of radio nodes.
	3	IOP Check	Check that the MEC application instance received the list of radio nodes currently associated with the MEC host and the location of each radio node
IOP Verdict			

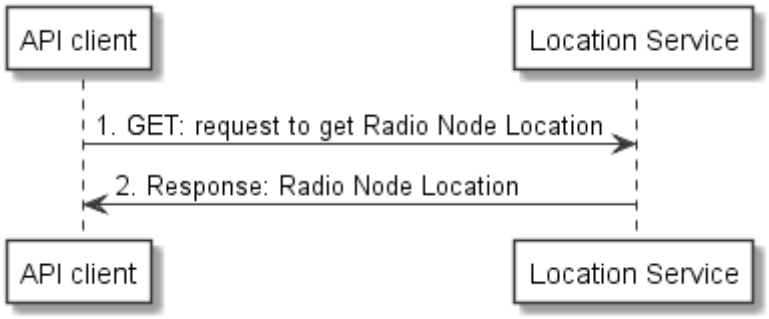

Figure 8.4.5-1: Radio Node Location Lookup

8.4.6 UE Tracking Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_TRACK		
Test Objective	Verify that MEC application can create a subscription to receive notifications of UE information updates for a specified UE.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "UE Tracking Subscribe". (clause 5.3.8)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE information available from the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE Tracking notification by sending a Create request to the resource representing UE information in the MEC Platform. The request contains all subscription details, which includes the UE identifier, e.g. UE IP address, and a callbackURL for receiving the UE location.
	2	Response	The Location Service returns a response with a message body containing the subscriptionId
	3	IOP Check	Check that the MEC application instance subscribed UE tracking successfully.
	4	Stimulus	Update the UE Information of the specified in the location service (e.g the UE handing over between cells).
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Location notification. The report includes the UE information.
	6		Repeat steps 4 and 5 several times
IOP Verdict			

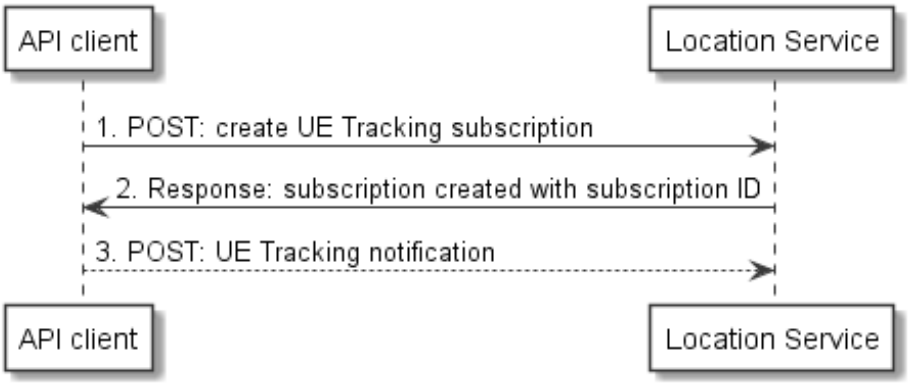

Figure 8.4.6-1: Flow of UE Tracking Subscribe

8.4.7 UE Distance Lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_DIST_1		
Test Objective	Verify that MEC application can obtain the current distance between 2 UEs		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
• References	• [i.5], “UE Distance Lookup”. (clause 5.3.9)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • 2 UEs connected to the radio nodes associated with the target MEC Host or at least their UE information available from the Location service		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to lookup the UE distance by sending a request to the resource representing UE distance to the MEC Platform. The request includes the two UE identities, e.g. UE IP address.
	2	Response	The Location Service returns a response with a message body including the distance information if the UE location lookup is accepted.
	3	IOP Check	Check that the MEC application instance received the correct distance value between the 2 UEs.
IOP Verdict			

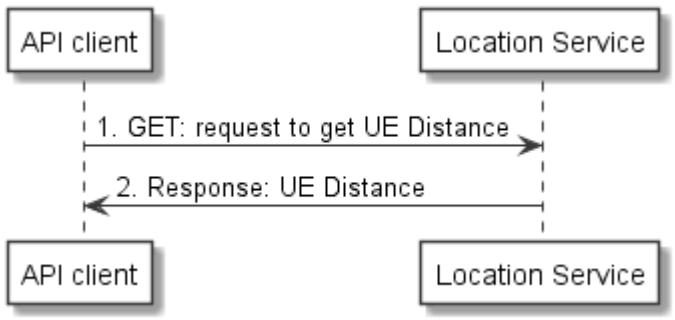

Figure 8.4.7-1: Flow of UE Distance Lookup

Interoperability Test Description			
Identifier	TD_MEC_LOC_DIST_2		
Test Objective	Verify that MEC application can obtain the current distance between a UE and a geographical location		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “UE Distance Lookup”. (clause 5.3.9)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • a UE connected to the radio nodes associated with the target MEC Host or at its UE information available from the Location service • Geographical location information available in the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to lookup the UE distance by sending a request to the resource representing UE distance to the MEC Platform. The request includes the UE identifier (e.g. UE IP address) and the coordinates of the location to measure from.
	2	Response	The Location Service returns a response with a message body including the distance information if the UE location lookup is accepted.
	3	IOP Check	Check that the MEC application instance received the correct distance value between the UE and the geographical location provided.
IOP Verdict			

8.4.8 UE Distance Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_DIST_SUB_1		
Test Objective	Verify that MEC application can create a subscription to receive notifications about distance changes between 2 UEs		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "UE Distance Subscribe". (clause 5.3.10)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • 2 UEs connected to the radio nodes associated with the target MEC Host or at least their UE information available from the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE distance notification by sending a Create request to the resource representing UE Distance subscription in the MEC Platform. The request contains the subscription details, which includes : • UE(s) identities (e.g. UE IP address) • the required accuracy • the minimum interval between notifications. • a callbackURL for receiving the UE distance.
	2	Response	The Location Service returns a response with resource URI containing the subscriptionId.
	3	IOP Check	Check that the MEC application instance subscribed UE distance successfully.
	4	Stimulus	Update the UE location information of one or both UEs in the location service
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Location notification, which includes distance information.
	6	IOP Check	Check that the MEC application instance received the correct distance value between the 2 UEs.
	7		Repeat steps 4 to 6 several times
IOP Verdict			

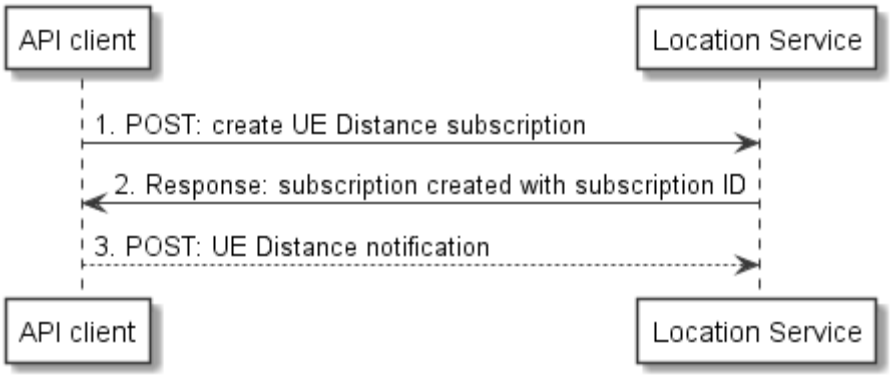

Figure 8.4.8-1: Flow of UE Distance Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_DIST_SUB_2		
Test Objective	Verify that MEC application can create a subscription to receive notifications about distance changes between a UE and a geographical location		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], "UE Distance Subscribe". (clause 5.3.10)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • a UE connected to the radio nodes associated with the target MEC Host or at its UE information available from the Location service • Geographical location information available in the Location service.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE distance notification by sending a Create request to the resource representing UE Distance subscription in the MEC Platform. The request contains the subscription details, which includes : • UE identifier (e.g. UE IP address) • the coordinates of the location to measure from. • the required accuracy • the minimum interval between notifications. • a callbackURL for receiving the UE distance.
	2	Response	The Location Service returns a response with resource URI containing the subscriptionId.
	3	IOP Check	Check that the MEC application instance subscribed UE distance successfully.
	4	Stimulus	Update the UE location information of the UE in the location service
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Location notification, which includes distance information.
	6	IOP Check	Check that the MEC application instance received the correct distance value between the UE and the geographical location provided.
	7		Repeat steps 4 to 6 several times
IOP Verdict			

Interoperability Test Description			
Identifier	TD_MEC_LOC_DIST_SUB_3		
Test Objective	Verify that MEC application can cancel a UE distance subscription		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “Subscribe Cancellation”. (clause 5.3.6)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • 2 UEs connected to the radio nodes associated with the target MEC Host or at least their UE information available from the Location service • MEC App has subscribed to UE distance notification by creating a right resource into the Location service’ and got the corresponding subscriptionId.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application unsubscribes to UE distance notification by sending a Delete request to the resource URI in the MEC Platform. The request contains the subscriptionId.
	2	Response	The Location Service returns a successful response if the subscription cancellation is accepted
	3	IOP Check	Check that the MEC application instance un-subscribed UE distance successfully.
	4	Stimulus	Update the UE location information of one or both UEs in the location service
	5	IOP Check	Check that the Location Service does not notify the MEC App of the UE distance change.
IOP Verdict			

8.4.9 UE Area Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_AREA_SUB_1		
Test Objective	Verify that MEC application can create a subscription to receive notifications about UE entering a geographical area.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “UE Area Subscribe”. (clause 5.3.11)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • a UE connected to the radio nodes associated with the target MEC Host or at least their UE information available from the Location service • a UE not present in the specific area of the test.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE area notification by sending a Create request to the resource representing UE area subscription in the MEC Platform. The request contains the subscription details, which includes : • UE(s) identities (e.g. UE IP address) • Area definition • the required accuracy • the minimum interval between notifications. • Indication that notifications should be generated on only entering area or both entering and leaving. • a callbackURL for receiving the UE distance.
	2	Response	The Location Service returns a response with resource URI containing the subscriptionId.
	3	IOP Check	Check that the MEC application instance subscribed UE area successfully.
	4	Stimulus	Update the UE location information of the UE in the location service, to reflect it is entering in the Area
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Area notification, which includes distance information.
	6	IOP Check	Check that the MEC application instance received the correct distance value between the 2 UEs.
	7	Stimulus	Update the UE location information of the UE but keeping it in the specified area
	8	IOP Check	Check that the Location Service does not notify the MEC App of any UE Area change.
IOP Verdict			

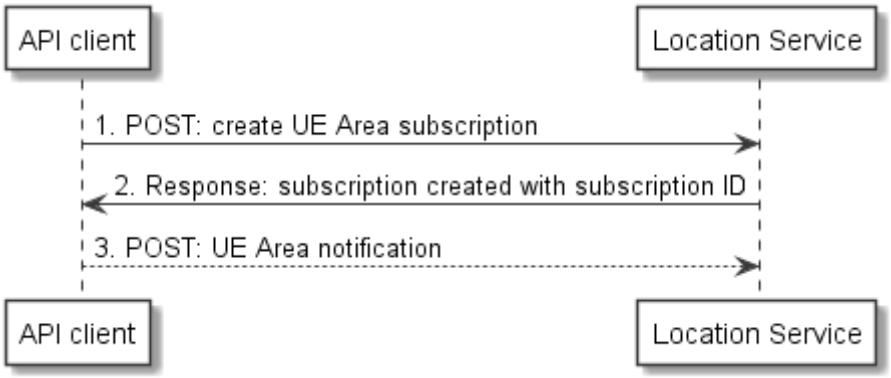

Figure 8.4.9-1: Flow of UE Area Subscribe

Interoperability Test Description			
Identifier	TD_MEC_LOC_AREA_SUB_2		
Test Objective	Verify that MEC application can create a subscription to receive notifications about UE leaving a geographical area.		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “UE Area Subscribe”. (clause 5.3.11)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • a UE connected to the radio nodes associated with the target MEC Host or at least their UE information available from the Location service • a UE present in the specific area of the test.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application instance to subscribe to UE area notification by sending a Create request to the resource representing UE area subscription in the MEC Platform. The request contains the subscription details, which includes : • UE(s) identities (e.g. UE IP address) • Area definition • the required accuracy • the minimum interval between notifications. • Indication that notifications should be generated on only leaving area or both entering and leaving. • a callbackURL for receiving the UE distance.
	2	Response	The Location Service returns a response with resource URI containing the subscriptionId.
	3	IOP Check	Check that the MEC application instance subscribed UE area successfully.
	4	Stimulus	Update the UE location information of the UE in the location service, to reflect it is leaving in the Area.
	5	IOP Check	Check that the Location service sends a message to the callbackURL destination, with a message body containing the UE Area notification, which includes distance information.
	6	IOP Check	Check that the MEC application instance received the correct distance value between the 2 UEs.
	7	Stimulus	Update the UE location information of the UE but keeping it out of the specified area
	8	IOP Check	Check that the Location Service does not notify the MEC App of any UE Area change.
IOP Verdict			

Interoperability Test Description			
Identifier	TD_MEC_LOC_AREA_SUB_3		
Test Objective	Verify that MEC application can cancel a UE Area subscription		
Configuration	SUT_MEC_SERVICES_SINGLE_APP SUT_MEC_SERVICES_MULTI_APP		
References	[i.5], “Subscribe Cancellation”. (clause 5.3.6)		
Applicability	IFS_MEC_APP_CONS, IFS_MEC_PLAT_SRV, IFS_MEC_PLAT_LOC		
Pre-test conditions	• MEC Platform running • MEC application instance up and running • At least one MEC-013 Location service registered in the MEC platform • MEC App has authN/Z rights to perform all the requests mentioned as stimulus in the test sequence. • A UE connected to the radio nodes associated with the target MEC Host or at least its UE Location available from the Location service • MEC App has subscribed to UE area notification by creating a right resource into the Location service’ and got the corresponding subscriptionId • Subscription set to notify on entering a specified area. • a UE not present in the specific area of the test.		
Test Sequence	**Step**	**Type**	**Description**
	1	Stimulus	The MEC application unsubscribes to UE area notification by sending a Delete request to the resource URI in the MEC Platform. The request contains the subscriptionId.
	2	Response	The Location Service returns a successful response if the subscription cancellation is accepted
	3	IOP Check	Check that the MEC application instance un-subscribed UE area successfully.
	4	Stimulus	Update the UE location in the location service to reflect the UE is entering the area
	5	IOP Check	Check that the Location Service does not notify the MEC App of the UE area change.
IOP Verdict			

Annex A:
Interoperability Feature Statement

A.1 Entities

Table A.1-1: Entities

Item	Which entity do you support?	Status	Support
1	MEC App	Available	Optional
2	MEC Platform	Available	Optional
3	NFV Platform (NFVI + VIM)	Available	Optional
4	MANO	Available	Optional

A.2 MEC App

Table A.2-1: MEC App Features

Item	Feature	ID	Status	Support
1	App Descriptor	IFS_MEC_APP_APPD	Available	Mandatory
2	MEC Service API consumer	IFS_MEC_APP_CONS	Available	Optional
3	MEC Service API producer	IFS_MEC_APP_PROD	Available	Optional
4	Packaged as VNF	IFS_MEC_APP_VNF	Available	Optional
5	Able to discover services through Service Enablement API over Mp1	IFS_MEC_APP_DISCOVER	Available	Optional
6	Able to request traffic rules support	IFS_MEC_APP_TRAFFIC	Available	Optional
7	Able to request DNS rules support	IFS_MEC_APP_DNS	Available	Optional
8	Support of MEC-013 Location API	IFS_MEC_APP_LOC	Available	Optional

A.3 MEC Platform

Table A.3-1: MEC Platform Features

Item	Feature	ID	Status	Support
1	Implements Service Enablement API	IFS_MEC_PLAT_SRV	Available	Optional
2	Implements Traffic Rules feature of Application Enablement API	IFS_MEC_PLAT_TRAFFIC	Available	Optional
3	Implements DNS Rules feature of Application Enablement API	IFS_MEC_PLAT_DNS	Available	Optional
4	Implement MEC-013 Location service	IFS_MEC_PLAT_LOC	Available	Optional

A.4 NFV Platform

None.

A.5 MANO

None.

Annex B:
FUT Specific Information Pro-Forma

In this Annex each Vendor can list any specific implementation-dependent details, which may be necessary to correctly implement the test procedures.

B.1 MEC App

	Description	Value
App descriptor		
NSD or VNFD		

B.2 MEC Platform

	Description	Value
Platform Service Enablement API endpoint		

B.3 NFV Platform

	Description	Value
Virtualization technologies	E.g. (KVM, VMWare, Docker, LXD, …)	
Image format		
VIM API exposed	E.g. Openstack APIs	

B.4 MANO

None.

Annex:
Bibliography

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Change History

Document history		
0.1	23.03.2020	Template draft
1.0	01.06.2020	Final version

End of Document