Terms of Reference (ToR) for
ETSI ISG Multi-access Edge Computing (ISG MEC)

Approved by the Director-General on **6 September 2022**, following ETSI Board#139 consultation

Scope

The purpose of the ISG MEC is to produce deployable Group Specifications, Group Reports and other collateral (e.g., serialized API specifications, test scripts, API sandboxes, white papers) that enable the hosting of third-party applications in a multi-vendor and multi-operator Multi-access Edge Computing (MEC) environment.

The focus for the ISG MEC is to initiate work on Phase 4 as summarized below, while closing out the remaining aspects of Phase 3. This has significant work scope, reflecting a change of emphasis from broadening specifications to enabling industry adoption of our completed work. Specifically, Phase 4 is focused on the following:

- Completion (i.e., publication) of key specifications e.g., MEC Service APIs and Federation Enablement APIs, also through data modeling ("Stage 3"), where appropriate. Serialization of the APIs specified in these and development of test specifications for these APIs. This is of critical industry need to support deployment of ETSI MEC / 3GPP based systems.
- Consolidating the development of MEC Federation, as natural follow-up on Phase 3 work, given the emerging nature of MEC systems as heterogeneous clouds, possibly expanding traditional cloud and NFV LCM approaches. Examples include: MEC federation scenarios where resources can be managed by multiple operators, and where a diverse set of capabilities can be exposed and consumed by the various federating members; MEC systems where components such as platform and/or applications are in mobility and/or intermittently connected; MEC systems where some underlying cloud resources are consumer owned. Notably, such work has already been initiated during Phase 3 with a WI on "MEC Federation Enablement APIs" (GS MEC 040), as a normative work following the study on Inter-MEC system and MEC-Cloud system coordination (GR MEC 035).
- Addressing multi-domain and multi-tenancy slicing and MEC support for application slicing (in collaboration with 3GPP and OPG), as follow-up of the study on MEC Application Slices (MEC 044).
- Study and implement the needed architectural/service updates in MEC to support cloud native communication systems and edge native design for application developers (also with container support).
- Addressing the recommendations coming from the study on MEC security (MEC 041) by introducing proper normative work to improve security and privacy in MEC systems (also in the above-described heterogeneous scenarios, considering, for example, OPG requirements).
- Addressing the recommendations coming from the study on Abstracted Radio Network Information for Industries (MEC 043) by defining a developer-friendly API that hides the complexity and requires only little technical skills or knowledge of the underlying Radio Network.
- Development of API serialization and test specifications for key service APIs, such as V2X, IoT, MTS, Fixed and Wi-Fi network information service APIs.
- Promotion of MEC as an attractive development environment for the industry by creating "portals" that enable convergence of key industry ecosystem, e.g., application developers and operators
- Continuing engagement with other key initiatives (e.g., 3GPP SA6, 3GPP SA5, 3GPP SA2, GSMA OPG, 5GAA) within the industry to create aligned and synergized solutions for Edge Computing.
- Updating architectural entities, e.g., enhancements of MEO/MEPM functionalities, adding more MEC service APIs, etc.

In addition, the ISG MEC plans to maintain leadership in this space as follows:

- ETSI – through MEC – is now widely recognized as the leading SDO and Industry alignment group in Edge Computing
- MEC outreach efforts (Open SW / ETSI Forge, White Papers, PoCs, Hackathons, Conference Presentations, webinars, MEC Tech Series, workshops) enhance this positioning

The ISG has an active and productive on-going cooperation with ETSI ISG NFV and GSMA. The ISG also plans to continue monitoring industry developments related to the Edge Computing space, and align with the relevant activities such as:

- ETSI OSM, ETSI TC CYBER, ETSI NFV, ETSI SAI, ETSI ISG ZSM; TCG; ONAP; Akraino; CNCF (Cloud Native Computing Foundation); 5G Edge Computing related work by 3GPP (e.g., 3GPP SA6 EDGEAPP architecture); GSMA OPG, TM Forum, etc.

- Verticals (e.g., industrial automation, V2X, uncrewed aerial systems, online gaming), where ISG MEC can promote re-use of the MEC specifications and work to evolve MEC specifications as needed. In particular, the ISG continues to build on its successful collaboration with 5GAA in the V2X space.

Based on identified need, ISG MEC may initiate new work to fill any gaps and to bridge with the key industry initiatives. The ISG will produce specifications that will support the additional requirements and use cases.

All work in ISG MEC, including what has been outlined above, will be further described in work item proposals that will be submitted for approval by the ISG MEC. As a general guideline, the ISG MEC will use and refer to existing specifications (both ETSI and external specifications) where appropriate. In addition, the ISG plans to continue to develop specifications on testing and test methodologies by leveraging the appropriate ETSI capabilities in this area.

The ISG will continue to coordinate experimentation and showcasing of MEC solutions (e.g., PoCs, MEC deployment trials), will produce case studies and documents/reports of PoC and trial results. A goal of ETSI MEC is to incorporate operational and delivery experience from the ETSI MEC PoCs and deployment trials and re-introduce concepts into existing and future MEC specifications.

The ETSI Secretariat will coordinate and support ETSI MEC Hackathons and PlugTests in collaboration with ISG MEC. The goal is to drive interoperability between different MEC architectural entities and resolve any identified interoperability deficiencies within the draft and published specifications.

It is worth noting that other organizations/fora are working on MEC-related aspects. The ISG will continue to work to strengthen the collaboration with such organizations, encouraging them to build on the ISG MEC work rather than reinvent. The ISG also plans to work constructively with open source communities.

The ISG MEC will continue its efforts to disseminate its results and accelerate the development of compliant solutions (including presentations and tutorials, e.g., the MEC Tech Series introduced in Phase 3).

Planned deliverables and delivery dates

The ISG MEC will maintain and revise its specifications and produce new specifications to support the capabilities required by the industry, this includes test methodologies, specification, and associated tooling. Working in cooperation with the ETSI NFV ISG, the MEC ISG may work on enhancements to its existing specifications required for the integration of MEC in NFV environment. Moreover, the ISG MEC envisages a continued engagement with 3GPP for integration between the 5G mobile system and MEC, e.g., with SA6 on EDGEAPP architecture alignment and with SA2 on 5G CN support.

Additionally, ETSI ISG MEC will align with the existing and emerging activities in Edge Computing such as:

- ETSI OSM, ETSI TC CYBER, ETSI NFV, ETSI SAI, ETSI ISG ZSM; ONAP; Akraino; CNCF; 5G Edge Computing related work by 3GPP (e.g., 3GPP SA6 EDGEAPP architecture); GSMA OPG, TMF, etc.
- New verticals (e.g., industrial automation, V2X, uncrewed aerial systems, online gaming), where ISG MEC can promote re-use of the MEC specifications and work to evolve MEC specifications as needed. In particular, the ISG continues to build on its successful collaboration with 5GAA in the V2X space.

All work in ISG MEC, including what has been outlined above, will be further described in their related work item proposals that will be submitted for approval by the ISG MEC.

The proposed target delivery dates (completion) of the ISG MEC deliverables will be agreed when the New Work Items (NWIs) are accepted.

It is expected that the specifications and associated collateral will be completed during 2023 and 2024.

Annex (informative): collaboration with other bodies

ETSI groups

The ISG MEC intends to establish and/or maintain a liaison relationship with the following ETSI TB(s) and Partnership Project(s):

- TC NTECH
- TC ITS
- TC CYBER
- ISG SAI
- ISG ARF
- ISG NFV
- ISG ZSM
- OSG OSM
- EPP 3GPP

External groups

Depending on the way in which the work progresses, the ISG MEC may establish and/or maintain a liaison relationship with the following organizations:

- GSMA
- 5GAA
- LINUX Foundation, in particular LF Edge, CNCF, ONAP and Akraino
- IEEE
- Wi-Fi Alliance
- Small Cell Forum
- IIC (Industrial IoT Consortium)
- Open Edge Computing Initiative
- CORD (CORD as well as Open CORD)
- OpenStack
- Distributed Management Task Force (DMTF)
- OASIS (Advancing Open Standards for the Information Society)
- Open Networking Foundation (ONF)
- VR/AR Association
- VR-IF
- Broadband Forum
- 5G-ACIA
- CCSA
- GUTMA
- Open Grid Alliance
- TMF

If required, the ISG MEC may decide to establish additional liaison relationships.

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