

## Terms of Reference (ToR) for ETSI ISG Zero touch network and Service Management (ISG ZSM)

Approved by the ETSI Director-General on **19 September 2023** following Board#144 Consultation

### Scope

The “Industry Specification Group Zero touch network and Service Management” (ISG ZSM) is working on the definition of a new, future-proof, horizontal and vertical end-to-end operable architecture framework, solutions, and core technologies to enable agile, efficient, and qualitative management and automation of emerging and future networks and services. Horizontal end-to-end refers to cross-domain, cross-technology aspects. Vertical end-to-end refers to cross-layer aspects, from the resource-oriented up to the customer-oriented layers. The goal is to have all operational processes (e.g., delivery, deployment, orchestration, configuration, assurance, and optimization) executed automatically, ideally with 100% automation.

The highest priority of the ISG ZSM is to progress and successfully finalize its third term work, consolidating and developing the work on end-to-end cross-domain network and service automation solutions, including considerations on sustainability and capability exposure, and exploring new technologies for autonomous network and service management, and how to apply them in an open and interoperable way.

The ISG plans to maintain and enhance the existing specifications and produce new specifications addressing the next level of details needed to enable full end-to-end automation of network and service management.

The ISG intends to analyse existing specifications and solutions (both ETSI and external ones) and where appropriate leverage them to avoid duplication and maximize synergies.

The ISG will continue to strengthen the collaboration with relevant standardization bodies, open-source communities and network industry fora in order to promote the adoption of and alignment with the ZSM architecture and solutions to ensure that automated end-to-end network and service management can be achieved. It will also utilize the collaboration to discuss and align on gaps that need to be filled.

The ISG ZSM plans to work constructively with open-source communities to ensure alignment that will allow integrating open-source software components in ZSM-based solutions. The ISG ZSM aims to act as a central point for end-to-end network and service automation and facilitate the coordination and cooperation between relevant standardization bodies and open-source projects. The unique value of ISG ZSM will be in providing guidance to the implementation of management interfaces as well as coordinating and giving directions to achieve automated end-to-end network and service management solutions and architecture. In addition, the ZSM key automation technologies should be leveraged by other organizations (such as those listed in annex), to ensure cross-use cases, cross-domains, cross-planes, interoperable, unified and consistent automated and cognitive operation.

The ISG ZSM will encourage the creation of Proofs of Concept (PoCs) to demonstrate the viability of ZSM implementations. The results and lessons learnt from the ZSM PoCs will be channelled to the ISG ZSM specification work. In its specification work, the ISG will take into consideration also feedback and findings from real deployments and operational experience.

The ISG ZSM will consider complementing the cooperation with other standardization bodies and open source projects with interoperability testing specifications, test platforms, acceptance tests, and test results dissemination (to be considered in the specifications activities) in the context of end-to-end management and automation. This work will be done in collaboration with the related organizations.

The ISG ZSM will continue its effort to disseminate its results and accelerate the development of compliant solutions.

### Areas of activity include:

- Further details of the Integration Fabric and the management services.
- Enablers for AI/ML applications in support of network and service automation.
- Intent-based automation and cognitive operations.
- Unified and expressive data formats to support AI/ML.
- Cross-domain data services.
- Information and data modelling.
- Support for new IT/Telco/Enterprise business models.
- Design time capabilities in support of the run-time automation: CI/CD, closed loops, etc.
- Network as a Service (NaaS) and APIs for network and service capability exposure.

- Support for network of networks.
- Support for cloud-network integration, with special focus on edge scenarios.
- Support for continuous testing.
- Extended management capabilities, such as Network Digital Twins and Generative Models.
- Security capabilities to protect the ZSM framework, services, and automated processes.
- Support for network sustainability goals, with special focus on energy efficiency.

The ISG will assess the implications of emerging technologies on automation and consider that in its work. .  
New compelling use cases may identify additional missing parts that the ISG will agree to work on.

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## **Annex (informative): collaboration with other bodies**

Close collaboration and coordination with other standard groups is required to ensure that all the organizations together provide complementary solutions. It will also be necessary to identify and agree the roles of the corresponding standardization bodies in filling the identified gaps.

ISG ZSM will setup the appropriate communication channels to the following groups both within and outside of ETSI.

### **ETSI groups**

The ISG will seek for specific coordination with other ETSI groups :

- ISG ENI
- ISG MEC
- ISG NFV
- ISG F5G
- OSG OSM
- OSG TFS
- SDG OSL
- TC EE

Additionally, the ISG will continue the fruitful collaboration with EPP 3GPP.

### **External groups**

The ISG also intends to cooperate with a number of external organizations including:

- BBF
- GSMA
- IEEE
- IETF
- ITU-T FG AN
- Linux Foundation, with a special focus on the CAMARA project
- MEF
- NGMN
- OASIS
- ONAP
- ONF
- O-RAN
- TMF

and others as identified during the progression of the work.