

Terms of Reference for Technical Committee Federated Network, Edge, Cloud, and AI Technologies (TC NET)

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Scope

TC NET will develop globally applicable Technical Specifications and Standards supporting the definition of a digital infrastructure integrating computing and AI resources with connectivity technology, resulting in a highly programmable, intelligent and federated cloud-network-edge-device continuum. In doing this, the TC avoids overlaps and divergence with regards to solutions in the same technology area or in contiguous ones, through coordination with standard bodies/projects as 3GPP, oneM2M, ITU, ISO/IEC and all the other relevant organisations. TC NET will produce deliverables which are complementary to 3GPP and ETSI TC CYBER deliverables.

TC NET addresses operation and management of the continuum in order to favour the evolution towards an autonomous network paradigm, improving the deployment, coordination, optimisation, and governance of end-to-end resources and services.

TC NET seeks to enable service and resource exposure, capability discovery, and continuum-level optimisation across heterogeneous domains, including runtime service interfaces and service-enablement. This includes inter-domain services, including connectivity services.

TC NET enables service and infrastructure programmability through declarative intent and policy-based management, SLA negotiation mechanisms, and vertical-specific standards to facilitate adoption by industries and public sectors.

TC NET ensures its outputs are consistent with international regulatory frameworks and contribute to secure and resilient digital infrastructure deployments. **TC NET** addresses European policy and regulatory requirements, including standardisation needs related to locality restrictions, jurisdictional constraints, and secure execution. **TC NET** also engages with other regulatory bodies to ensure its outputs support relevant global, regional, and national regulatory requirements.

Areas of Activity

The activities of **TC NET** include the following:

- **TC NET** focuses on the standardisation of the architectural framework, exposure mechanisms, interoperability enablers, protocols, open APIs, data models, and interfaces for interoperability of the federated cloud-network-edge-device continuum. TC NET addresses telco cloud (e.g., edge and remote) following AI-native and cloud-native principles. It assesses the applicability of emerging protocols and architectures (e.g., semantic communications frameworks for resource and capability description), and ensures security, trust, and privacy.
- **TC NET** defines frameworks for the use of agentic and AI-driven network operations, focusing strictly on the integration, exposure, and management of AI resources and services within the cloud-network-edge-device continuum, also considering inter AI interactions, via AI agents.
- **TC NET** will consider the results of relevant research initiatives (e.g., 3C Network - Connected Collaborative Computing).
- **TC NET** defines interfaces and exposure mechanisms for heterogeneous execution environments supporting locality-sensitive workloads, including trusted execution environments, workload isolation mechanisms, and compute and AI workloads lifecycle management across the continuum.
- **TC NET** supports the practical adoption of its specifications through developer-oriented artefacts, conformance and interoperability guidance, and collaboration on PoCs, interoperability events, and pre-standardisation trials to validate operational readiness and accelerate the standardisation process.
- **TC NET** cooperates with open-source initiatives aligned with its standardisation activities, including (but not limited to) existing and future ETSI Software Development Groups (SDG) providing relevant reference implementations and interoperability testing specifications.

- **TC NET** cooperates with other European and international standards organisations and open-source initiatives, through ETSI Partnership Agreements and promotes harmonisation. Through this cooperation, it ensures appropriate technical alignment and requirements feedback mechanisms across related standards domains.

Annex (Informative): Collaboration with Other Bodies

TC NET seeks to re-use existing applicable standardisation work and will encourage existing groups to fulfil data related requirements. **TC NET** seeks to collaborate with other ETSI TCs to ensure the provision of complementary solutions. **TC NET** also seeks to collaborate with ETSI Partnership Projects (oneM2M and 3GPP) to assure complementary solutions with potential global applicability.

TC NET will initially set-up the appropriate communication channels to the following groups both within and outside of ETSI, and with others as identified during the progression of the work.

ETSI groups:

- EPP 3GPP
- EPP oneM2M
- TC CYBER
- TC DATA
- TC EE
- TC EMTEL
- TC INT
- TC LI
- TC MTS
- TC SAI
- ISG F5G
- ISG ISAC
- ISG QKD
- SDG OpenCAPIF (OCF)
- SDG OpenOP (OOP)
- SDG OpenSlice (OSL)
- SDG OpenSourceMANO (OSM)
- SDG TeraFlowSDN (TFS)

External groups:

- SDO and Industry bodies: GSMA, IETF/IRTF, IEEE, ISO/IEC ITU-T, TM Forum, IOWN Global Forum.
- Open Source Community: Linux Foundation, Cloud Native Computing Foundation, Cloud Native Telecom Initiative (CNTI), OpenInfra Foundation, LF Agentic AI Foundation (AAIF), LF CAMARA, LF Europe SYLVA, LFN Essedum, LFN Nephio, LFN Salus, LFN Anuket, LF O-RAN-SC, LF NeoNephos, LF Duranta, LF XGVela
- European Institutions: European Commission, DG CONNECT, European Union Agency for Cybersecurity (ENISA)
- European Industry & Research Associations: 6G-IA (6G Infrastructure Association), SNS JU (Smart Networks and Services Joint Undertaking).
- European Sovereignty Initiatives: GAIA-X, IPCEI-CIS (Important Project of Common European Interest – Cloud Infrastructure and Services), EURO-3C.