Updates on FG –AINN Journey

ITU-T FG AI Native Networks

Riccardo Trivisonno, ITU-T FG AINN Chair – Huawei Technologies

The future of AI native communication networks

AI4Good 2026

Geneva, Switzerland, July 7th , 2026

ITU-T Focus Groups

Overview

Focus Groups are an instrument created by ITU-T that follow ITU-T A.7 to **augment the Study Group work programme** by providing an alternative working environment for the **quick development** of specifications in their **chosen areas**.

Focus Groups are now widely used to **address industry needs as they emerge**, and when they are not covered within an existing Study Group.

The key difference between Study Groups and Focus Groups is the **freedom** that the latter have to **organize and finance themselves**, as well as they are **open to non ITU-T members**.

Focus Groups can be **created very quickly**, are usually **short-lived** and can choose **their own working methods**, leadership, financing, and types of deliverables.

More details here https://www.itu.int/en/ITU-T/focusgroups/Pages/default.aspx

ITU-T FG 13 Focus Group
Artificial Intelligence Native for Telecommunication Networks

FG-AINN overview

Focus Group on **Artificial Intelligence Native for Telecommunication Networks** (FG-AINN)

(in operation since 2024-07)

The ITU-T Focus Group on AI-Native Networks (FG AINN) was established by **ITU-T SG13** to explore and define the **fundamental changes needed in network architecture** to fully **harness the potential of AI**.

This focus group, launched in July 2024, seeks to identify the **requirements**, **challenges**, and **opportunities** that AI-native networks will bring to the **global communications landscape**

More details here https://www.itu.int/en/ITU-T/focusgroups/ainn/Pages/default.aspx

FG AINN Scope and Objectives (excerpt from ToR)

Objectives

The Focus Group to support pre-standardisation activities, including:

- Objective-1: Analysis of **gaps** and study of **use cases** related to AI Native (non-radio aspects)
  - a. study **terminology, concepts, use cases, gaps and technical requirements** for AI Native networks.
  - b. identify and study the **AI Native approaches for telecommunication networks**, **evolution** and **key tasks for standardization**
- Objective-2: Study of **architecture frameworks** & **technical enablers** for AI Native (non-radio aspects)
  - a. identify possible **architecture directions** and **common frameworks** for integration of AI Native approaches in networks.
  - b. support customization, optimization and validation of AI native networks.
  - c. study and develop **PoC design** on feasibility and relevance of certain AI Native approaches in telecom networks.
- Objective-3: Knowledge **dissemination**
  - a. build a community to **unify the concepts**, **develop common understandings**, to the benefit of the global community.
  - b. **identify stakeholders** with whom ITU-T could collaborate to contribute to the pre-standardisation activities and identify potential collective action and specific next steps.
  - c. collaborate with stakeholders to **implement the PoC designs** for studying the feasibility of certain concepts.

FG AINN 2025 Plan (excerpt from ToR)

Tasks and Deliverables target

Focus Group expected to provide its deliverables to SG13 for its consideration and action:

- Technical reports on gap analysis:
  - gaps with respect to existing technologies and the studies under the standardisation organizations, industry bodies, and open-source bodies.
- Technical reports on use cases:
  - terminology, definitions, use cases, requirements related to AI Native.
- Technical specifications on architecture frameworks:
  - to enable networks use cases with AI Native approaches (focusing on non-radio aspects) - frameworks for AI Native networks and enabling technologies.
- Knowledge dissemination workshops:
  - organize and participate in workshops, webinars, aligned with SG13 meetings, regional stakeholders, panel discussion to share and collect knowledge and experience from community and stakeholders to create awareness about the FG works.
- Final report:
  - Upon completion of its lifetime, to provide the final report and remaining set of deliverables

FG AINN Structure and Governance

Governance

Chair

- **Buse Bilgin** (Turkcell, Turkiye) until Aug 2025
- **Riccardo Trivisonno** (Huawei, Germany)
  - Acting chair since Aug 2025
  - Chair since Nov 2025

Vice-Chairs

- **Leon Wong** (Rakuten, Japan)
- **Paul Harvey** (Uni. of Glasgow, UK)
- **Gyu Myoung Lee** (John Moore Uni., Rep. of Korea)
- **Wei Meng** (ZTE, China)
- **Xiaoou Liu** (China Telecom, China)
- **Yuexia Fu** (CMCC, China)

Counsellor

- **Thomas Basikolo** (ITU, Switzerland)

Secretariat

- **Shabnam Karimova** (ITU, Switzerland)

Working Groups

WG1: Terminology and Gap Analysis

- **Xiaomi An** (RenMin Uni., China)
- **Sujit Kumar** (India)

WG2: Use Cases

- **Huiqing Sun** (CMCC, China)
- **Ranjana Sivaram** (Indian Gov. DoT, India)

WG3: Architecture of AI-Native Approach

- **Antonio De Domenico** (Huawei, Germany)
- **Xingyu Shang** (China Telecom, China)
- **Ziqi Chen** (CMCC, China)

WG4: Proof-of-Concepts and Community Outreach

- **Liya Yuan** (ZTE, China)
- **Preksha Shah** (Freestream, India)

FG AINN 2025 Achievements – SG13 October 2025 meeting

Deliverables Status Nov.'25

Deliverable N.	ID	WG	Title	Notes	Release Date
1	FG-AINN-O-08	WG1	Study of concepts, characteristics and definitions of artificial intelligence native telecommunication networks	Deliverable available.	11.07.25
2	FG-AINN-O-011	WG1	Vocabulary for Artificial Intelligence Native Telecommunication Networks	Deliverable available.	23.09.25
3	FG-AINN-I-152-R2	WG1	Standardization Gap Analysis of the FG-AINN	Deliverable in progress.	Exp. 12.25
4	FG-AINN-O-012	WG2	Technical Specification - Use cases for AI native telecommunication networks	Deliverable available. Updated version may be released.	23.09.25
5	FG-AINN-I-177-R1	WG3	Technical Specifications -Architecture Framework for Artificial Intelligence Native Telecommunication Networks	Deliverable in progress.	Exp. 12.25
6	FG-AINN-O-014	WG4	Technical Report - Proof-of-Concept activities under ITU FG-AINN WG4	Deliverable available. Updated version may be released.	23.09.25
7	FG-AINN-I- 181	WG4	Technical Report - Knowledge Dissemination gathered from the 3rd and 4th FG-AINN meeting	Deliverable available. Updated version may be released.	23.09.25
8	FG-AINN-I- 185-R1	FG-AINN	FG-AINN Progress Report	Deliverable in progress	Exp. 12.25

FG AINN 2025 Achievements – SG13 October 2025 meeting

Promotion Activities

- "ITU T Study Group 13 Focus Group on Artificial Intelligence Native for Telecommunication Networks (FG-AINN) Progress and Current Status" presentation at 6G-IA Pre-Standardisation Working Group, May 2025
- "Build-a-thon 1.0, Building PoCs and Demos for AI native networks", presentation at 6G-IA (6G industrial association) Pre-Standardisation Working Group, June 2025
- "Build-a-thon 2.0, Building PoCs and Demos for AI native networks", presentation at 6G-IA (6G industrial association) Pre-Standardisation Working Group, July 2025
- "ITU Build-a-thon 3.0 for AI Native Networks and Services", organized at India Mobile Congress (IMC), Oct 2025. Link: https://aiforgood.itu.int/event/itu-build-a-thon-3-0-for-ai-native-networks-and-services
- Invited Key notes on AI, presentation at 6G-IA (6G industrial association) Pre-Standardisation WG, June 2025
- "FG-AINN WS: AI-Native Network Approach: Opportunities and Challenge", Workshop at AI4Good, July 2025
- "AI Native Network" Special Session Organisation at IEEE CSCN'25, September 2025

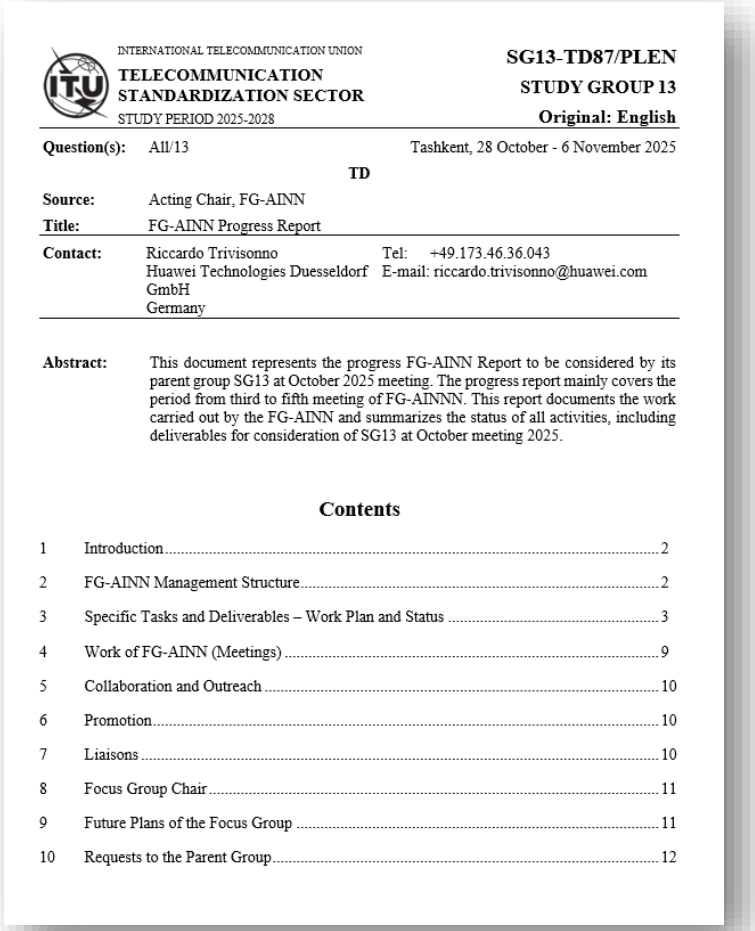
Liaisons Activities

established cooperation with several standard developing organizations, including:

- ITU-T SGs and ITU-T FGs
- ETSI [ISG ENI, ZSM, SDG TFS], 3GPP, GSMA, IEEE, TMF, IETF, IRTF, LinuxkMKo, Foundation Networking, LF AI & Data Foundation, O-RAN Alliance, NGMN, ITU-T Correspondence Group for datasets applicable for AI/ML in networks

FG AINN extension request – SG13 October 2025 meeting

SG13 Meeting - 2025



INTERNATIONAL TELECOMMUNICATION UNION
TELECOMMUNICATION STANDARDIZATION SECTOR
STUDY PERIOD 2025-2028

SG13-TD87/PLEN
STUDY GROUP 13
Original: English

Question(s): All/13 — Tashkent, 28 October - 6 November 2025

TD

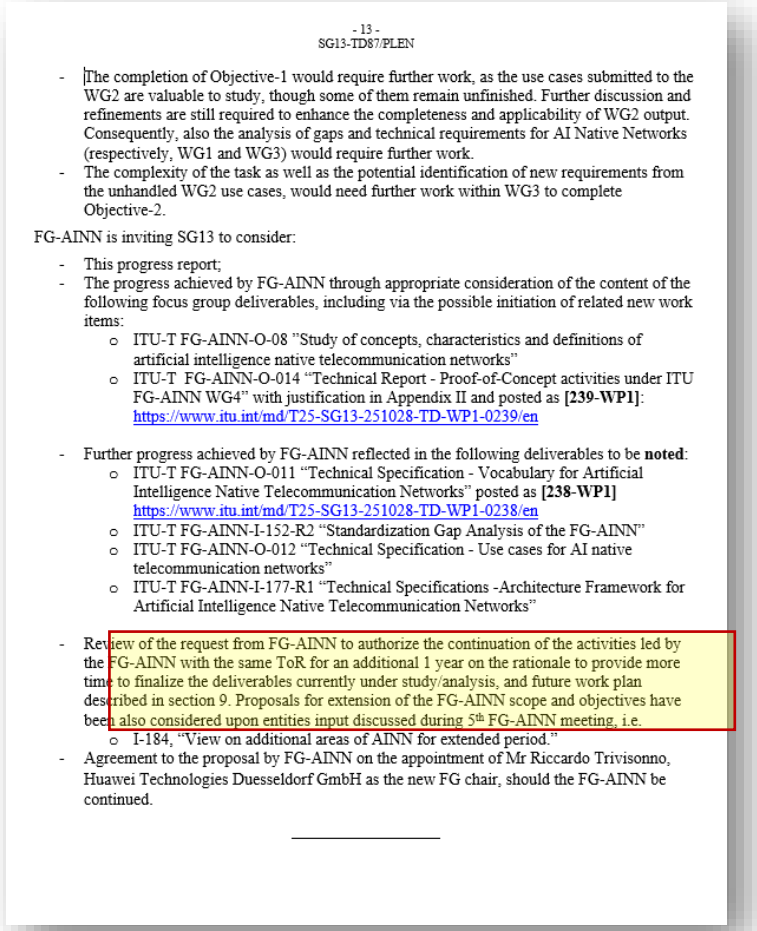
Source: Acting Chair, FG-AINN

Title: FG-AINN Progress Report

Contact: Riccardo Trivisonno
Huawei Technologies Duesseldorf GmbH
Germany
Tel: +49.173.46.36.043
E-mail: riccardo.trivisonno@huawei.com

Abstract: This document represents the progress FG-AINN Report to be considered by its parent group SG13 at October 2025 meeting. The progress report mainly covers the period from third to fifth meeting of FG-AINNN. This report documents the work carried out by the FG-AINN and summarizes the status of all activities, including deliverables for consideration of SG13 at October meeting 2025.

Contents



- The completion of Objective-1 would require further work, as the use cases submitted to the WG2 are valuable to study, though some of them remain unfinished. Further discussion and refinements are still required to enhance the completeness and applicability of WG2 output. Consequently, also the analysis of gaps and technical requirements for AI Native Networks (respectively, WG1 and WG3) would require further work.
- The complexity of the task as well as the potential identification of new requirements from the unhandled WG2 use cases, would need further work within WG3 to complete Objective-2.

FG-AINN is inviting SG13 to consider:

- This progress report;
- The progress achieved by FG-AINN through appropriate consideration of the content of the following focus group deliverables, including via the possible initiation of related new work items:
  - ITU-T FG-AINN-O-08 "Study of concepts, characteristics and definitions of artificial intelligence native telecommunication networks"
  - ITU-T FG-AINN-O-014 "Technical Report - Proof-of-Concept activities under ITU FG-AINN WG4" with justification in Appendix II and posted as **[239-WP1]**: https://www.itu.int/md/T25-SG13-251028-TD-WP1-0239/en
- Further progress achieved by FG-AINN reflected in the following deliverables to be **noted**:
  - ITU-T FG-AINN-O-011 "Technical Specification - Vocabulary for Artificial Intelligence Native Telecommunication Networks" posted as **[238-WP1]** https://www.itu.int/md/T25-SG13-251028-TD-WP1-0238/en
  - ITU-T FG-AINN-I-152-R2 "Standardization Gap Analysis of the FG-AINN"
  - ITU-T FG-AINN-O-012 "Technical Specification - Use cases for AI native telecommunication networks"
  - ITU-T FG-AINN-I-177-R1 "Technical Specifications -Architecture Framework for Artificial Intelligence Native Telecommunication Networks"
- Review of the request from FG-AINN to authorize the continuation of the activities led by the FG-AINN with the same ToR for an additional 1 year on the rationale to provide more time to finalize the deliverables currently under study/analysis, and future work plan described in section 9. Proposals for extension of the FG-AINN scope and objectives have been also considered upon entities input discussed during 5th FG-AINN meeting, i.e.
  - I-184, "View on additional areas of AINN for extended period."
- Agreement to the proposal by FG-AINN on the appointment of Mr Riccardo Trivisonno, Huawei Technologies Duesseldorf GmbH as the new FG chair, should the FG-AINN be continued.

FG AINN 2026 Progress – SG13 June-July 2026 meeting

SG13 Meeting - 2026

INTERNATIONAL TELECOMMUNICATION UNION
TELECOMMUNICATION STANDARDIZATION SECTOR
STUDY PERIOD 2025-2028

SG13-TD168/PLEN
STUDY GROUP 13
Original: English

Question(s): All/13 — Geneva, 23 June - 2 July 2026

TD

Source: Chair, FG-AINN

Title: FG-AINN Progress Report

Contact: Riccardo Trivisonno
Huawei Technologies Duesseldorf GmbH
Germany
Tel: +49.173.46.36.043
E-mail: riccardo.trivisonno@huawei.com

Abstract: This document represents the progress FG-AINN Report to be considered by its parent group SG13 at June 2026 meeting. As per ToR, the FG-AINN final report is due by November 2026. The report mainly covers the period from sixth to seventh meeting of FG-AINN. This report documents the work carried out by the FG-AINN and summarizes the status of all activities, including deliverables for consideration of SG13 at June meeting 2026.

Contents

- ITU-T SG11- "LS/i on the initiation of new work item QSTR-AI4CDD "Technical Report on AI-enabled behavioural detection framework for counterfeit ICT devices in operational networks" [from ITU-T SG11]"
- ITU-T SG17 - "LS/r on call for contributions to the new Focus Group on Artificial Intelligence Native for Telecommunication Networks (reply to FG-AINN-LS2 and FG-AINN-LS3) [from ITU-T SG17]"
- ETSI ISG ENI - "LS/i/r on ITU-T FG-AINN 2026 Work Plan" (reply to FG-AINN-LS4) [from ETSI ISG ENI]
- ITU-T SG5 - "LS/i/r on information and call for contributions to the new Focus Group on Artificial Intelligence Native for Telecommunication Networks (FG-AINN) (reply to FG-AINN-LS3)"
- ITU-T SG20 - "LS/i/r on the call for contributions to the new Focus Group on Artificial Intelligence Native for Telecommunication Networks (FG-AINN)" (reply to FG-AINN-LS2 and FG-AINN-LS3) [from ITU-T SG20]

Outgoing Liaisons

- FG-AINN-LS7 LS on completion on the FG-AINN WG1 Draft Deliverable "*Technical Specification -Vocabulary for Artificial Intelligence Native for Telecommunication Networks*"

8 Future Plans of the Focus Group

The future work plan of the FG-AINN is captured in the list below and the groups' efforts are invested in achieving periodic transfer of mature deliverables to the parent Study Group, once the deliverables are ready.

- FG will continue holding regular weekly virtual meetings (every Wednesday at 09:00am CEST) and the WGs calls occurring on a regular basis. The weekly virtual calls and meetings aim to support ongoing collaboration and progress within the focus group.
- The eighth FG-AINN meeting is scheduled to take place virtually on 21 – 23 July 2026
- The ninth FG-AINN meeting is planned to take place from 21-23 September in Beijing, China. The meeting will be confirmed at a later stage.

9 Requests to the Parent Group

Based on the following analysis of achievements:

- Although a few late submitted input documents may require further study, an extensive analysis of Use Cases has been conducted and completed, allowing the definition of a broad set of requirements for AI native networks.

FG-AINN is inviting SG13 to consider:

- Approval of this progress report and
- initiation of related new work item in Q20/13:
  - FG-AINN deliverable contained in FG-AINN-O-024 "*Technical Specification - Use cases for AI native telecommunication networks*" posted as [474-WP1]
  - FG-AINN deliverable contained in FG-AINN-O-027 "*Technical Report - Proof-of-Concept activities*" posted as [473-WP1]

FG AINN 2026 HY Achievements – SG13 July 2026 meeting

Deliverables Status Jun.'26

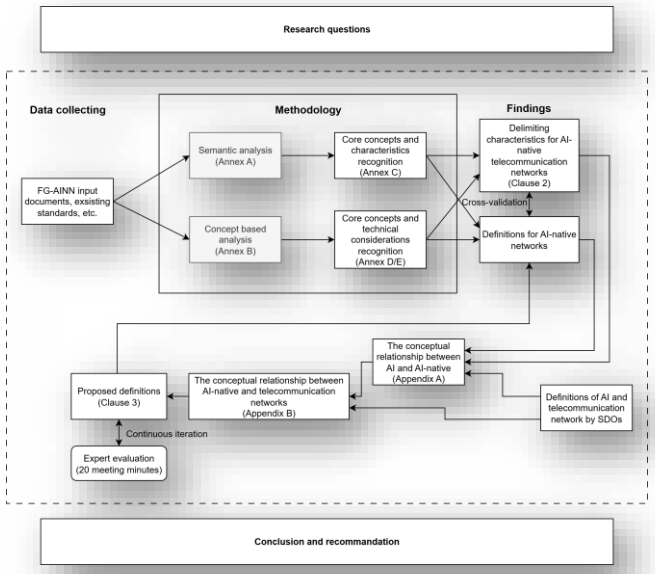
Deliverable N.	ID	WG	Title	Notes	Release Date
1	FG-AINN-O-08	WG1	Study of concepts, characteristics and definitions of artificial intelligence native telecommunication networks	Deliverable available.	11.07.25
2	FG-AINN-O-023	WG1	Vocabulary for Artificial Intelligence Native Telecommunication Networks	Deliverable available.	30.11.26
3	FG-AINN-O-024	WG1	Standardization Gap Analysis of the FG-AINN	Deliverable available.	30.11.26
4	FG-AINN-O-025	WG2	Technical Specification - Use cases for AI native telecommunication networks	Deliverable available.	07.05.26
5	FG-AINN-O-026	WG3	Technical Specifications -Architecture Framework for Artificial Intelligence Native Telecommunication Networks	Deliverable in progress.	30.11.26
6	FG-AINN-I-247	WG3	Technical Specifications - AI Agent enabled Management and Orchestration for AI Native Networks	Deliverable in progress.	30.11.26
7	FG-AINN-O-027	WG4	Technical Report - Proof-of-Concept activities under ITU FG-AINN WG4	Deliverable available. Updated version may be released.	30.11.26
8	FG-AINN-O-30	FG-AINN	FG-AINN Progress Report	Deliverable in progress	30.11.26

WG1 Activities and Achievements – insights FG-AINN-O-08

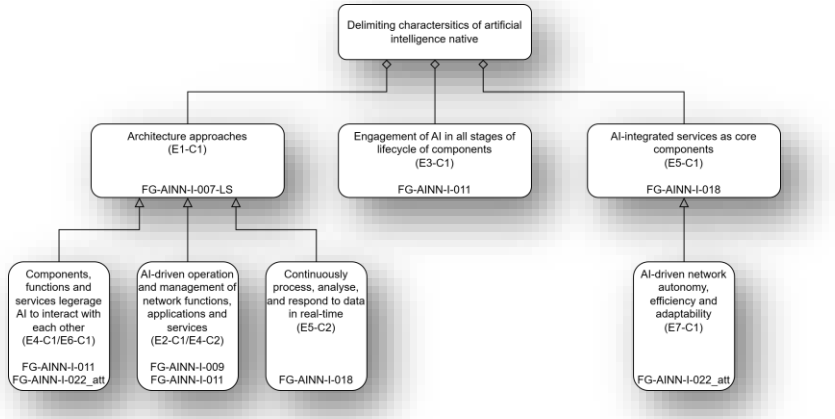
Concepts, characteristics and definitions of AI native telecom net

Objectives

- Integration of AI into telecom networks led to 'AI-native' paradigm
- no consensus on scope, constituent elements, defining characteristics
- Consensus needed to establish coherent framework for requirements and technical specifications, and coordinated standardization efforts.
- The TR aims to:
  - Systematically analyze the concept of 'AI-native' within the context of telecommunication networks to identify its core concepts, objects and delimiting characteristics;
  - Propose definitions for 'AI-native telecom network', ' and 'AI-native network'.



Characteristics and Definitions



Delimiting characteristics of 'AI native' derived, as shown in Figure:

- Architecture approaches for deep integration of AI
- Engagement of AI in all stages of lifecycle of network components, functions, applications and services
- AI itself as a core component

Proposed definitions

- AI-native telecom network: "*Telecom network integrating AI as a core component, enabling novel value-added services, and enhancing the performance of the network and its services*".
  - NOTE1: Integrating AI refers to use AI technologies as enablers through the entire lifecycle of telecommunication network's design, deployment, operation, and maintenance.
  - NOTE2: Enhance performance refers to higher level of autonomy, efficiency, adaptability resource utilization.
  - NOTE3: AI-native telecommunication network environment refers to all components and entities external to the network interacting with the AI-native telecommunication network including humans , devices and applications.
  - NOTE4: AI-native telecommunication network value-added services refer to added-value services integrating AI and leveraging telecommunication network communication and computing capabilities.
- AI-native networks: "*networks in which all steps in the lifecycle of network services, applications and functions, and AI pipelines, are managed by AI, using AI, and with specific aim to make AI integration easier in the network*".

Note: AI Agents, not defined in the TR, are mentioned as AI technologies to integrate the new AI models and solutions in the network

WG1 Activities and Achievements – insights FG-AINN-O-08

Concepts, characteristics and definitions of AI native telecom net

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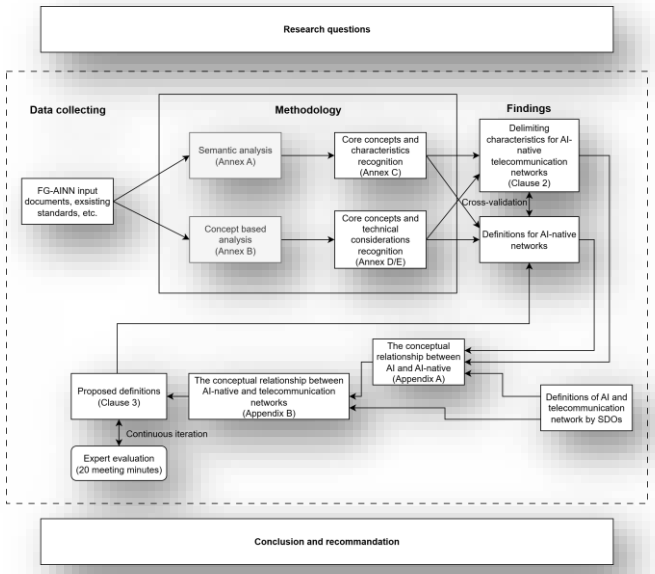

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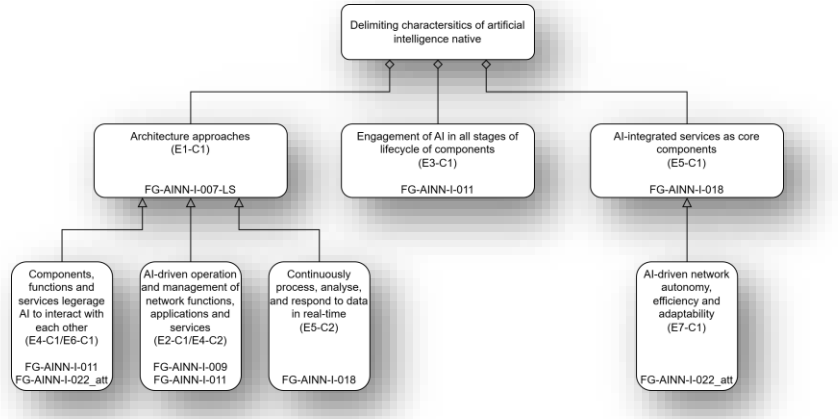

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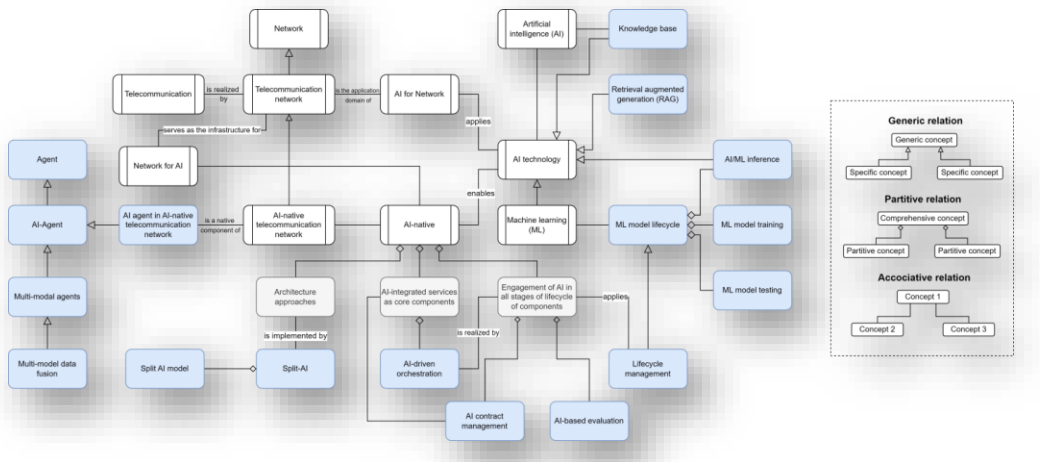
WG1 Activities and Achievements – insights FG-AINN-O-023

Vocabulary for Artificial Intelligence Native Telecom Networks

Objectives and Methodology

- The TS provides a set of common terminology, definitions and concepts related to AI Native for Telecom Networks (AINN).
- The generation of the AI Native Telecom Networks vocabulary follows four steps and processes of vocabulary building:
  - Step 1: Based on the delimiting characteristics of AI Native, combined with the core concepts and concept relationships of “AI Native Telecommunication Network”, “AI Native” and “AI Native Network” determine the terms related to AI Native Networks
  - Step 2: Guide vocabulary building based on the “Principles for Building Concepts and Definitions Related to AI Native for Telecommunication Networks”
  - Step 3: Collect terms and definitions from input documents of all FG-AINN plenary meetings, further select and determine terms upon relevant terms obtained in Step 1.
  - Step 4: Determine final terms and definitions and related terms and definitions based on expert advice and consensus building through WG1 and FG-AINN plenary meetings.



Terminology and Definitions

4.1 Terms defined elsewhere

4.1.1 Agent [b-ETSI GR ENI 004]: Computational process that implements the autonomous, communicating functionality of an application:

- software agent: software that acts on behalf of a user or another program
- software autonomous agent: software agent that acts on behalf of the entity that owns it without any communication from the owning entity
- software intelligent agent: software agent that reasons about its environment and take the best set of actions to satisfy a set of goals

NOTE: This has the connotation of containing AI mechanisms to provide the reasoning and decision-making capabilities.

- software multi-agent: set of software agents that are physically separate that work together to satisfy a set of goals

4.1.2 AI Agent [b-ETSI GR ENI 051]: Automated entity that senses and responds to its environment and takes actions to achieve its goals. [b-ITU-T Y.AIA-SH from ISO/IEC 22989:2022]

NOTE: AI Agent can also refer to autonomous system that can interact with its environment to collect data, learn from the past experiences and subsequently use these to improve its decision-making capability in order to perform specific tasks.

4.2 Terms defined in this Technical Specification

This Technical Specification defines the following terms:

4.2.1 AI agent in AI-native telecommunication network : Entity in the AI-native telecommunication network able of interacting with the AI-native telecommunication network environment and that uses AI task-specific capabilities for achieving the goals of the AI-native telecommunication network and its environment.

NOTE 1: The AI agent AI task-specific capabilities may include, but are not limited to, decision-making, reasoning, forecasting, clustering, classification, self-learning, acquiring contextual information, natural language processing, and complex tasks decomposition.

NOTE 2: Interactions may include, but are not limited to, data collection, usage of tools (e.g., search engines, databases, devices, other AI agents external to the network) through related APIs, and sharing the output of the agent decisions with AI-native telecommunication network and its environment through an interface.

WG2 Activities and Achievements – insights FG-AINN-O-025

Use cases for AI native telecommunication networks

Objectives

Objectives

- The TS provides use case descriptions, analysis of technical challenges or gaps, as well as indicate assumptions and potential requirements for each use case.
- Based on the 38 use cases submitted to FG-AINN, the deliverable contains Technical Specification on Use cases for AI Native Telecommunication Network
- Analysis of 17 use case have completed

Methodology

Use Case Template

Use case id	FG-AINN-usecase-XXX
Use case name	
Created by	
Creation date	
Use case context	
Use case description	
Core concepts / characteristics of AINN (Optional)	
Actors and Roles (Optional)	
Technical challenges or Gaps (Optional)	
Use case category	
Reference	

Categorization & Requirements

Use Cases Categorization

Categories	Collection of Use Cases
LLM-based	004
AI-native networks applied in vertical industries	001, 005, 013, 014, 015
AI-agent in AI native networks	006
AI training/inference as a service	002, 003
AI-native digital twins	009, 015
AI-native network optimization	007, 012
Data support for AI-native networks	008
Native API of AI native networks	010
Security and trust	011

Requirements

Functional requirements

- Support complete ML model lifecycle, including joint optimization of connection, data collection and processing, algorithm, and models;
- Support the AI training or AI inference as service provisioning for both Network for AI and AI for Network;
- Support for distributed and hierarchical AI models operating at different levels (e.g. device, edge, net, cloud);
- Support data lifecycle management of the entire data process for AI training and inference, including data creation, collection, transmission, processing, storage and consumption;
- Support the coordination of multiple AI agents through AI-native models.
- Support providing intent recognition and interpretation based on AI-native method;
- Support dynamic QoS enforcement, traffic prioritization, resource orchestration and allocation for the AI-native network.

Performance requirements

- Ensure effective service provisioning with limited latency of the AI training and inference;
- Increase computing resource utilization in different levels (e.g. device, edge, network and cloud);
- Minimize network overhead for model or data lifecycle management by enabling reuse of data exposed to AI and avoid duplicate data collection;
- Balance AI task completion with required performance and resource usage.

WG2 Activities and Achievements – insights FG-AINN-O-025

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Categorization & Requirements

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AI-native networks applied in vertical industries	001, 005, 013, 014, 015
AI-agent in AI native networks	006
AI training/inference as a service	002, 003
AI-native digital twins	009, 015
AI-native network optimization	007, 012
Data support for AI-native networks	008
Native API of AI native networks	010
Security and trust	011

Requirements

Functional requirements

- Support complete ML model lifecycle, including joint optimization of connection, data collection and processing, algorithm, and models;
- Support the AI training or AI inference as service provisioning for both Network for AI and AI for Network;
- Support for distributed and hierarchical AI models operating at different levels (e.g. device, edge, net, cloud);
- Support data lifecycle management of the entire data process for AI training and inference, including data creation, collection, transmission, processing, storage and consumption;
- Support the coordination of multiple AI agents through AI-native models.
- Support providing intent recognition and interpretation based on AI-native method;
- Support dynamic QoS enforcement, traffic prioritization, resource orchestration and allocation for the AI-native network.

Performance requirements

- Ensure effective service provisioning with limited latency of the AI training and inference;
- Increase computing resource utilization in different levels (e.g. device, edge, network and cloud);
- Minimize network overhead for model or data lifecycle management by enabling reuse of data exposed to AI and avoid duplicate data collection;
- Balance AI task completion with required performance and resource usage.

WG3 Activities and Achievements – insights FG-AINN-O-026

Architecture Framework for AI Native Telecommunication Networks

Objectives

- Providing Technical Specification on Architecture Framework for Artificial Intelligence Native Mobile Networks.
- Providing details on architecture components and capabilities, including identification of relevant AI Native approaches and their architectural requirements to support use cases relevant for AI native telecommunication networks.
- Providing customisation and optimization techniques of various AI Native network approaches useful to enable the different services and scenarios.

Methodology

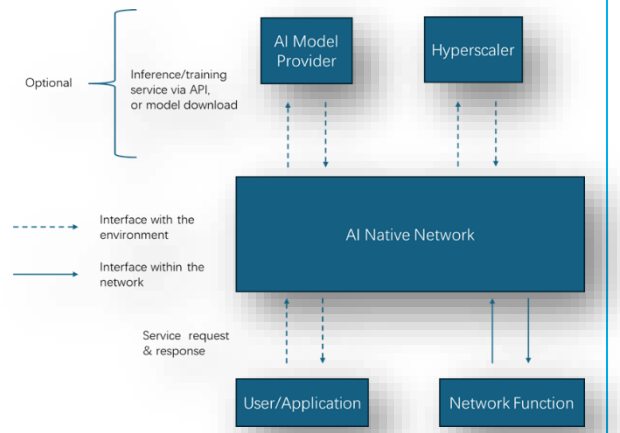
AI Native architecture framework **requirements** and **Gap analysis** with respect to IMT2020

- service management in AI Native telecommunication networks
- AI model lifecycle management in AI native telecom networks
- resource control in AI native telecommunication networks
- AI agent integration in AI native telecommunication networks
- data management in AI native telecommunication networks
- network management in AI native telecommunication networks

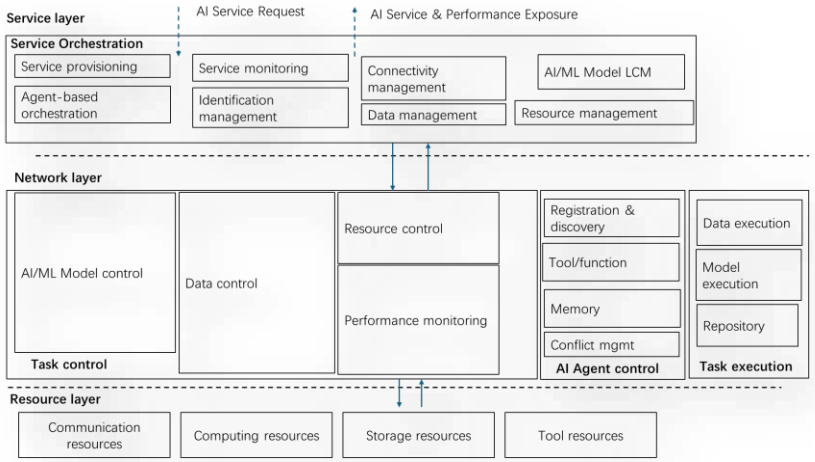
Overall **AI Native architecture framework** description

AI Native Network Architecture Framework

AI service deployment and key roles



Three Layers and Capability Framework



WG3 Activities and Achievements – insights FG-AINN-O-026

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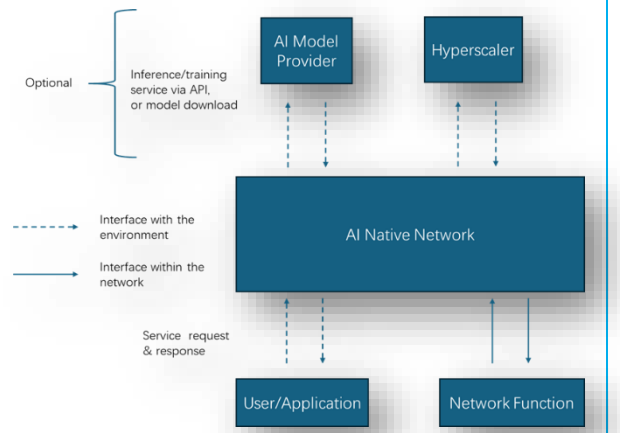

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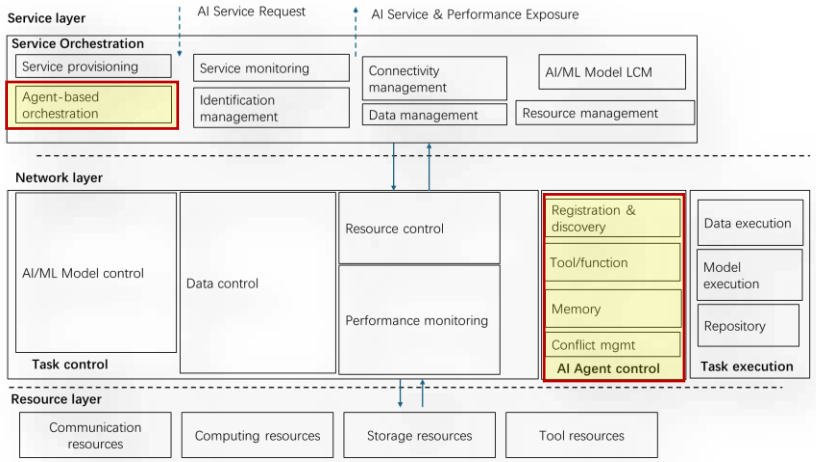


WG3 Activities and Achievements – insights FG-AINN-I-247

AI Agent enabled Management and Orchestration for AI Native Mobile Networks

Objectives (*)

New Work Item proposal from China Mobile, China Telecom, China Unicom, ZTE approved in April 2026

- Producing Technical Specification on **AI Agent enabled Network Management and Orchestration** for AI Native Networks, including:
  - Agent enabled Management and orchestration framework
  - lifecycle of business-level task
  - definition of management agents and orchestration agents
  - key mechanisms for business-level task lifecycle management, multi-agent collaboration, inter Agent communication.

M&O Challenges, Agent Potentials

Challenges in Current M&O

Limited Automation & Manual Dependency
Relies on static workflows, lacking autonomous decision-making, leading to low efficiency.

Difficulty in End-to-End Automation
Difficult to achieve full lifecycle automation from intent understanding to closed-loop assurance.

Inadequate Adaptability to Dynamics
Struggles with complex services (XR, V2X) and dynamic network issues, showing inflexibility.

Isolated Operations & Weak Collaboration
Systems operate in silos, lacking efficient mechanisms for integrated and cross-domain management.

AI Agents Potentials

Planning & Orchestration
Eliminates static workflow dependency by allowing Agents to dynamically plan tasks and invoke the appropriate skills

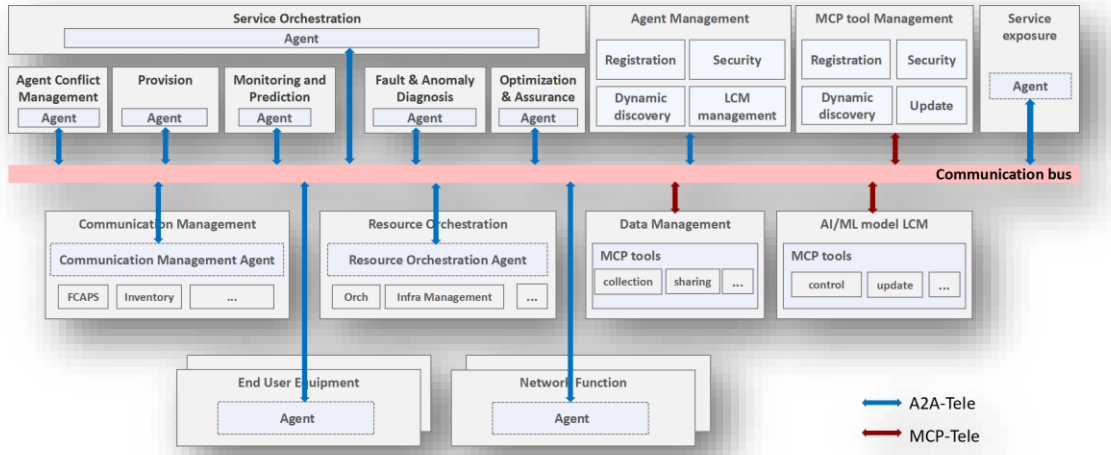
Proactive Network Assurance
E2E automation by using skills to drive the entire lifecycle, forming a complete, autonomous closed loop.

Tool Utilization for Closed-Loop
Invoke the appropriate skills and tools in real-time based on the current network state and objectives.

Agent Collaboration
An unified Agent framework that enables inter-Agent collaboration, facilitating integrated management

AI Agent enabled M&O Framework

Early Contribution – under discussion



(*) Details in FG-AINN-I-247 "Technical Specifications on AI Agent enabled Management and Orchestration for AI Native Networks " .doc and .ppt versions

WG4 Activities and Achievements – insights FG-AINN-O-027

Proof-of-Concept activities

PoC Scope and Objectives

Proof of Concept activities developed in alignment with the **AI-native** delimiting characteristics:

- architecture approaches for deep AI integration
- engagement of AI in all stages of the lifecycle
- AI itself as a core component

PoCs mapped to:

- gaps
- use cases
- architecture concepts

Build-a-Thons

- Build-a-thon 1.0, PoCs and Demos for AI native networks, Feb. 2025
- Build-a-thon 2.0, PoCs and Demos for AI native networks, May. 2025
- ITU Build-a-thon 3.0 for AI Native Networks and Services, Oct. 2025
- Build-a-thon 4.0, Feb. 2026

Outcome and Lesson Learned

28 PoCs developed and submitted, AI Agents often featured as enablers

- PoC-001 AI-Native Proactive Network Slice Marketplace for Dynamic Service Ecosystems
- PoC-002 Using AI to Reduce the 6G Standards Barrier for African Contributors
- PoC-003 Aionet Build-a-thon 2025: AIONETx
- PoC-005 Explainable AI-Native Intent-Based Self-Healing Network Orchestrator for Rural, Edge Telecom Infrastructure
- PoC-006 5G Adaptive Signal Solutions for Rapid Transit and Aerial Operations
- PoC-009 Truth Shield: Real-Time AI-Powered Fake News Control System
- PoC-012 5G Adaptive Signal Solutions for Rapid Transit and Aerial Operations
- PoC-014 AIONET- AI-native Intent-Oriented Network Edge Tuner
- PoC-015AI-Native Autonomous Agent for Real-Time 6G Network Security, Optimization, and Slice Assurance
- PoC-016 Autonomous Energy Aware Self Optimizing Radio Access Network (Auto EA-SORAN)
- PoC-017 AIONETx: AI-Native Semantic Voice Transmission System for Telecom Calls
- PoC-019 Standardization Knowledge Base Platform for AI-Native Net: Bridging the Standards Gap in 5/6G Development
- PoC-020 Context aware Smart Datacasting
- PoC-022 AI-Driven Mass OTA (Over-the-Air) Updates for Connected Vehicles
- PoC-025 Intent-Driven AI-Native Precise Positioning-as-a-Service
- PoC-027 AI-Enabled Broadcast Core for Ubiquitous Connectivity

Lesson Learned

- Clarity of Data Structures and Model Inputs
- AI Model Selection, Integration, and Hosting
- System Interfaces and Layer-wise Architecture
- Closed-loop Automation and Fault Management
- Security, Credentials, and Execution Environment
- Use Case Depth and Deployment Focus
- Knowledge Base and ITU Standards Alignment
- Advanced Themes: Semantic Communication, Federated Learning

AI:

AI-Native Networks (FG-AINN)

ITU Focus Group

Thank you!