**Rapporteurs’ Rel-18 topics status report for eMDAS\_Ph2 & AIML MGT and Rel-19 AIML MGT\_Ph2 TU allocation scheduling forecast**

**NEC & Intel**

3GPP SA5 Rapporteur call 11th January 2024

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| **Management Data Analytics phase 2 (eMDAS\_Ph2) (Intel, NEC)**  **Approved WID: SP-220981** | | |
| **Current completion** | **87%** | |
| **Completion target** | **SA5#153/SA#103 (Mar 2024)** | |
| **WoP** | **Description** | **Status & plan** |
| **eMDAS\_Ph2\_WoP#1** | Definition of recommended actions related to non-3GPP domain where relevant (e.g., recommended interactions with ETSI NFV MANO or other domains based on the existing operations defined by the corresponding SDOs) | * **Completed** * Addressed by adding “recommendedNon3GPPActions” IE to the RecommendedAction <<dataType>> (Table 8.5.1.2-1) |
| **eMDAS\_Ph2\_WoP#2** | Analytics (statistics and/or predictions) for an existing management data, like PM (Ref. TS 28.552), KPI (Ref. TS 28.554) and alarm (Ref. TS 28.532) | * **Completed** * Addressed by adding new relevant use cases, requirements and set of relevant enabling data and analytics output, (Clause 7.2.x, 8.4.y) |
| **eMDAS\_Ph2\_WoP#3** | Coordination between MDAFs (e.g., cross-domain MDAF and domain specific MDAF) for the specific cases where needed | * **Completed** * Supporting text was added to existing and newly introduced use cases and corresponding requirements where required including use cases e.g., NF resource utilization analysis, Service experience analysis, Network slice throughput analysis, Failure prediction |
| **eMDAS\_Ph2\_WoP#4** | Control of MDA process (the process for making analytics for the request from a consumer) without impacting the network and services and without disclosing the vendor’s proprietary analytics algorithm | * To be further discussed in SA5#153 |
| **eMDAS\_Ph2\_WoP#5** | Interaction and coordination between MDAF and other functions acting as MDAS consumer, including COSLA and SON | * To be addressed as part of Rel-19 SID Study on closed control loop management, WT.5. |
| **eMDAS\_Ph2\_WoP#6** | Enhancement of existing MDA capabilities, in terms of the use cases, requirements and data definitions | * **Completed** * Added new use case, corresponding requirements, enabling data and analytics output for prediction and statistics for management data (clause 7.2.x, 8.4.y) * Added new use case, corresponding requirements, enabling data and analytics output for Control plane congestion analysis (clause 7.2.x, 8.4.x). * Added new use case, corresponding requirements, enabling data and analytics output for Filtering analytics recommendations (clause 7.3.x,) |
| **eMDAS\_Ph2\_WoP#7** | Use cases, requirements, enabling data, MDA types and MDA outputs for the MDA capabilities related to resource related analytics | * **Completed** * New use cases, corresponding requirements, enabling data definitions and analytics output were added for NF resource analytics (clause 7.2.x, 8.4.x) |

**Plan for SA5#153 – eMDAS\_Ph2:**

* Discussion on WoP#4,
* Draft CR cleanup including corrections/editorials, and
* Convert the final draft CR into CR & prepare the submission to SA for final approval.

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| **Rel-18 AI/ML management (AIML\_MGT) (Intel, NEC)**  **Approved WID: (SP-230335)** | | |
| **Current completion** | **80%** | |
| **Completion target** | **SA5#153/SA#103 (Mar 2024)** | |
| **WoP** | **Description** | **Status & plan** |
| **AIML\_MGT\_WoP#1** | To specify the AI/ML management capabilities, including use cases, requirements and solutions for each phase of the AI/ML operational workflow for managing the AI/ML capabilities in 5GS (i.e., management and orchestration (e.g., MDA defined in TS 28.104), 5GC (e.g., NWDAF defined in TS 23.288) and NG-RAN (e.g., RAN intelligence defined in TS 38.300 and TS 38.401)), including.   * Management capabilities for ML training phase, which includes control of producer-initiated ML training, data management for ML training, performance evaluation for ML training, ML entity validation, ML context management, ML entity capability discovery, ML entity testing. * Management capabilities for ML deployment phase, including management of ML entity loading; and * Management capabilities for AI/ML inference phase. | **Completed:**   * Training/testing phase capabilities, * Inference phase capabilities * Deployment phase   Work on-going & to be finalised:   * NRMs for AI/ML inference capabilities and functions – including,   (a) the relation between the AI/ML capabilities and SON functions, MDAFunction, and AnLFFunction, and,  (b) configurations for the AI/ML inference capabilities,  Reporting of inference outcome   * Address any gaps in the NRM, specially for deployment and inference phase, * Address any proposals for further capabilities for deployment phase, * Discussion on the capabilities for emulation phase and decide on whether to reschedule the work completely to Rel-19. |
| **AIML\_MGT\_WoP#2** | To describe the deployment scenarios of the AI/ML management capabilities, with consideration of alignment with other relevant 3GPP WGs (e.g., RAN3, SA2) and ETSI ISG ZSM. | * **Completed** * Addressed in clause 4a.2. |

**Plan for SA5#153:**

* Address contributions for WoP#1 focusing on the items identified above and decide upon what needs to be rescheduled to Rel-19,
* Draft CR cleanup, including corrections/editorials, and
* Convert the final draft CR into CR & prepare the submission to SA for final approval.

# **Rel-19 Study on AI/ML management phase 2 (Intel, NEC):**

* **Potential TU plan for SA5#153/#154/#155/#156 according to WTs**.

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| **Abbr** | **Acronym** | **3GPP Rel-19 SA5 Study and Work Items**  **SID/WID title & WT description** | **Total TU (planned)** | **Study TU (planned)** | **Normative TU (planned)** | **Jan/Feb 2024 (SA5#153)** | **April 2024 (SA5#154)** | **May 2024 (SA5#155)** | **Aug 2024 (SA5#156)** |
| AIML MGMT | FS\_AIML\_MGT\_Ph2 | SID Study on AI/ML management phase 2 | 8.1 | 4.2 | 3.9 | 0 | 1.2 | 1.5 | 1.5 |
|  |  | WT.1 Continue the study on AI/ML emulation, AI/ML inference coordination and ML knowledge transfer that are leftover from Rel-18. |  | 0.6 |  | 0 | 0.2 | 0.2 | 0.2 |
|  |  | WT-2. Study the management aspects (LCM CM and PM) of AI/ML functionalities defined by other 3GPP WGs, including,  WT-2.1 AI/ML model transfer in 5GS (SA1, Rel-18 WID 920037 and Rel-19 WID 1000030),  WT-2.2. 5GS support for AI/ML-based services (SA2, Rel-18 WID 980019)  WT-2.3. Support for AI/ML services at application enablement layer (SA6, Rel-18 WID 970036), |  | 0.7 |  | 0 | 0.2 | 0.2 | 0.3 |
|  |  | WT-3. Study the management aspects (LCM CM and PM) of AI/ML functionalities defined by 3GPP SA5 WG, including,  WT-3.1. MDA (Management Data Analytics) phase 3 (SA5) |  | 0.7 |  | 0 | 0.1 | 0.3 | 0.3 |
|  |  | WT-4. Study the AI/ML management and operation capabilities to support different types of AI/ML technologies as needed to support the AI/ML in 5GS, such as Federated Learning, Reinforcement Learning, Online and Offline training, Distributed Learning, and Generative AI. |  | 0.9 |  | 0 | 0.3 | 0.3 | 0.3 |
|  |  | WT-5. Study the sustainability aspect of AI/ML, including,  WT-5.1 Evaluation of energy consumption/efficiency impacts associated with AI/ML solutions for all operational phases (training, emulation, deployment, inference). |  | 0.7 |  | 0 | 0.2 | 0.3 | 0.2 |
|  |  | WT-6. Further study the trustworthiness aspects related to the AI/ML functionalities in 5GS, including,  WT-6.1Concept of trustworthiness for AI/ML in the context of OAM,  WT-6.2 Data (e.g., measurements, events) to support calculation of trustworthiness indicators. |  | 0.6 |  | 0 | 0.2 | 0.2 | 0.2 |