**3GPP TSG-SA5 Meeting #148eS5-233408**

**Electronic meeting, Online, 17 -25 April 2023 (revision of S5-232769)**

**Source: China Mobile, Huawei, AsiaInfo, CATT, ZTE, China Unicom, Intel**

**Title: New WID on autonomous network levels phase 2**

**Document for: Approval**

**Agenda Item: 6.2.1**

3GPP™ Work Item Description

Information on Work Items can be found at <http://www.3gpp.org/Work-Items>
See also the [3GPP Working Procedures](http://www.3gpp.org/specifications-groups/working-procedures), article 39 and the TSG Working Methods in [3GPP TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm)

Title: Autonomous network levels phase 2

Acronym: ANL\_Ph2

Unique identifier:

Potential target Release: Rel-18

# 1 Impacts

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Affects: | UICC apps | ME | AN | CN | Others (specify) |
| Yes |  |  | X | X |  |
| No | X | X |  |  |  |
| Don't know |  |  |  |  | X |

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work item is a …

|  |  |
| --- | --- |
|  | Study  |
| X | Normative – Stage 1 |
| X | Normative – Stage 2 |
| X | Normative – Stage 3 |
|  | Normative – Other\* |

**\* Other = e.g. testing**

## 2.2 Parent Work Item

For a brand-new topic, use “N/A” in the table below. Otherwise indicate the parent Work Item.

|  |
| --- |
| Parent Work / Study Items  |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| FS\_eANL | SA WG5 | 940042 | Study on enhancement of autonomous network levels |

### 2.3 Other related Work Items and dependencies

|  |
| --- |
| Other related Work /Study Items (if any) |
| Unique ID | Title | Nature of relationship |
| 880027 | Autonomous network levels | Work Item in Rel-17 |
| 940041 | Study on evaluation of autonomous network levels | Preceding Study Item |
| 970031 | Enhancement of Management Data Analytics phase 2 | Management data analytics service related features |
| 940046 | Study on intent-driven management for network slicing  | Intent-driven management service related features |
| 940039 | Study on AI/ML management  | AI/ML management service related features |

# 3 Justification

Autonomous network levels (ANL) is being addressed in normative work (Ref. WID on autonomous network levels, UID 880027) in SA5 in Rel-17. The concepts, framework, use cases, requirements and generic autonomous network levels are defined in TS 28.100.

In Rel-17 work, generic MnS requirements and corresponding solutions for network optimization, RAN NE deployment and fault management are specified mainly for lower levels of autonomous network, e.g. level 1 to level 3. Enhanced generic requirements and solutions for higher autonomous network levels, e.g. those requirements for supporting the autonomy capabilities corresponding to MDA, IDMS are not specified.

The specification in Rel-17 identifies typical scenarios related to network and service deployment, maintenance and optimization, including RAN NE deployment, fault management, radio network coverage optimization and RAN UE throughput optimization. The generic autonomous network levels for RAN energy saving and 5GC NF deployment are introduced and studied in Rel-18, however, the generic solutions and requirements for supporting the autonomy capabilities corresponding to different autonomous network levels for RAN energy saving and 5GC NF deployment are not specified.

In Rel-17 work, generic autonomous network levels defined in TS 28.100 can be used to determine the ANL (L0-L5) for corresponding scenarios. Based on the ANL definition, the usage of autonomous network level in management service for certain management purposes is not specified.

# 4 Objective

The objectives are to:

1) Specify enhanced MnS requirements and corresponding solution including IOCs to support autonomy capabilities for each autonomous network levels for the use case of RAN NE deployment, fault management, radio network coverage optimization RAN UE throughput optimization defined in Rel-17.

2) Specify the generic workflows for the new use cases studied in Rel-18, management requirements and MnS requirements to support autonomy capabilities for each autonomous network levels for the new use cases studied in Rel-18 as following.

- RAN energy saving

- 5GC NF deployment

3) Specify the MnS requirements and solutions for autonomous network levels management (including NRM fragment to support the autonomy functionalities discovery and control) for the use cases defined in Rel-17 and the two listed in objective 2).

This work will take into account of the study in 3GPP TR 28.910, TR 28.909 and related work in progress which are related to network autonomy. Any existing standard deliverables shall be reused as much as possible when applicable. In which work item to define the new solution depends on the concrete MnS requirements, for example, MDA related solution can be defined in eMDAS work, intent related solution can be defined in eIDMS work, fault management related solution can be defined in FSEV work. Coordination with 3GPP working groups (e.g. SA WG2, RAN WG3) and other groups (e.g. ETSI ISG ZSM) to achieve coordinated view on autonomous network related topics (e.g. closed control loop, data analytics, intent handling) are needed.

# 5 Expected Output and Time scale

|  |
| --- |
| New specifications {One line per specification. Create/delete lines as needed} |
| Type  | TS/TR number | Title | For info at TSG#  | For approval at TSG# | Rapporteur |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

|  |
| --- |
| Impacted existing TS/TR {One line per specification. Create/delete lines as needed} |
| TS/TR No. | Description of change  | Target completion plenary# | Remarks |
| 28.100 | Add new use cases, enhanced requirements, and solutions for autonomous network levels  | SA#103 (Mar 2024) |  |
| 28.312 | Update requirements and enhancements on intent driven management | SA#103 (Mar 2024) |  |
| 28.104 | Update enhancements on management data analytics | SA#103 (Mar 2024) |  |
| 28.105 | Update enhancements on AI/ML management | SA#103 (Mar 2024) |  |
| 28.535 | Update requirements and enhancements on service assurance | SA#103 (Mar 2024) |  |
| 28.313 | Update requirements and enhancements on management of SON | SA#103 (Mar 2024) |  |

# 6 Work item Rapporteur(s)

Cao Xi, China Mobile, caoxi@chinamobile.com, primary rapporteur, responsible for objective 1) and 3).

Xu Ruiyue, Huawei, xuruiyue@huawei.com, secondary rapporteur, responsible for objective 2).

# 7 Work item leadership

SA WG5.

# 8 Aspects that involve other WGs

Co-ordination with SA2, RAN3 and ETSI ZSM where appropriate.

# 9 Supporting Individual Members

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| --- |
| Supporting IM name |
| China Mobile |
| Huawei |
| Asiainfo |
| ZTE |
| CATT |
| China Unicom |
| Intel |
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