**3GPP TSG-SA5 Meeting #143-eS5-223584d1**

e-meeting, 9 - 17 May 2022 (revision of S5-223240)

Source: Lenovo, Motorola Mobility

Title: New R18 SID on MP-CP Conflict management and coordination

Document for: Approval

Agenda Item: 6.2

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:

New SID on Enablers for conflict management and coordination in management and control plane closed loops

Acronym: FS\_COMCO

Unique identifier:

{A number to be provided by MCC at the plenary}

Potential target Release: *Rel-18*

# 1 Impacts

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

# 2 Classification of the Work Item and linked work items

## 2.1 Primary classification

### This work is a study item

|  |  |
| --- | --- |
|  | Feature |
|  | Building Block |
|  | Work Task |
| x | Study Item |

## 2.2 Parent Work Item

|  |  |  |  |
| --- | --- | --- | --- |
| Parent Work / Study Items | | | |
| Acronym | Working Group | Unique ID | Title (as in 3GPP Work Plan) |
| N/A |  |  |  |

### 2.3 Other related Work Items and dependencies

|  |  |  |
| --- | --- | --- |
| Other related Work /Study Items (if any) | | |
| Unique ID | Title | Nature of relationship |
| 850026  820020 | Closed loop SLS Assurance  Stage 2 of eNA | Specification of closed loops in management plane  NWDAF stage2 that yields NWDAF assisted closed loops |

Dependency on non-3GPP (draft) specification:

None

# 3 Justification

Automation is a key ongoing topic for telco networks. In R17 SA5 has worked on eCOSLA while SA2 has created NWDAF assisted closed loops. Having multiple closed loops and/or automation functions in a system is likely to result in conflicting actions in some cases, e.g. where multiple closed loops may react to the same issue and solve it in conflicting or sub-optimal manner.

Conflicts include multiple aspects such as:

* issuing contradictory actions. Example two different closed loops configuring the same entity to achieve conflicting goals.
* configurations to managed entities that result in a sub-optimal network behaviour example: multiple entities responding to an analytics output performing various actions, all of which may not be necessary.
* oscillating configurations that for example cause thrashing

There are scenarios in which the OAM closed loops will conflict with each other and the control plane closed loops. Furthermore, there are example where the control plane closed loops with conflict with each other.

For example: an NSI load level info from the NWDAF, indicating that the load level is beyond a certain threshold could trigger following reactions from the different NFs

* NSSF: map the NSSAI to a new NSI ID
* AMF: Reject UEs registering for the slice

These actions taken by NSSF and AMF in parallel are conflicting in the sense that there are now new resources to support additional users, but the UEs are being rejected.

The algorithm and intelligence that detects and resolves such conflicts are internal to vendor implementation. However, 3GPP can provide standardized, *enablers* such as data and management mechanisms, which should be able to collect the data and the enforce the decisions required/made by such algorithms. This may include, for example, logging specific information that is currently not logged, supporting notification related to conflict detection, and new management mechanisms such as prioritization of certain closed loops over others across vendor implementations. This therefore needs to be standardized.

3GPP SA5 has complete visibility over both management, control and user planes and therefore is the appropriate group to pursue such specifications

# 4 Objective

The key objectives of this study would be

* Identification of certain key scenarios that result in possible conflicts between closed loops in the management plane or in the control plane (NWDAF assisted closed loops) and possible requirements in terms of enablers that can assist in resolutions. The scope will be limited to aspects that require standardization.
* Document Mechanisms for coordinating various aspects, such as but not limited to:
* Features of network functions, management service producers and closed loops, that enable *identification and notification* of the conflicts to authorized consumers
* Features, data and management *services that may enable management* functions to coordinate the configuration of the goals of closed loops in management and control plane
* Features and management services that *may enable* the coordination of closed loops before and after execution of their actions
* Features and management services that *may enable* management service producers to coordinate the execution of NF actions
* Features and management services that *may be used to enable* NF to coordinate their executions among each other
* Features, including KPIs that enable network functions and management service producers *to assess the impact* of specific conflicts

The study will propose potential solutions *that can assist* in conflict detection and coordination mechanism across management and control planes closed loops. The work will coordinate with other related R18 studies or work items to standardize such enablers for e.g. in SA5 such as eCOSLA, SBMA and with SA2 work on eNA.

# 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 |
| TR | 28.xxx | Study on conflict management and coordination | Jun 2022  SA#96e | Dec 2022  SA#97 | Vaishnavi, Ishan  ivaishnavi@lenovo.com |
|  |  |  |  |  |  |

# 6 Work item Rapporteur(s)

## Vaishnavi, Ishan; Lenovo; ivaishnavi@lenovo.com

# 7 Work item leadership

SA5

# 8 Aspects that involve other WGs

Conflicts and coordination aspects related to the control or user plane may involve discussion with SA2

Conflicts and coordination aspects related to the radio networks may involve discussion with RAN groups, primarily, RAN3

Reuse of enablers developed in other standards organization such as ETSI ZSM.

# 9 Supporting Individual Members

|  |
| --- |
| Supporting IM name |
| Lenovo |
| Motorola Mobility |
| Nokia |
| CMCC |
| DT |
| Orange |