**3GPP TSG-SA5 Meeting #143-e *S5-223584d2***

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 |
| 850026820020 | Closed loop SLS AssuranceStage 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. 3gpp has specified multiple features that provide or support closed loop automation, e.g. eCOSLA and 5GSON in R17 by SA5 and 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.

Conflicts may occur in any or more of the following scenarios/sub layers of network management :

* the management-related closed loops will conflict with each other
* management -related closed loops will conflict with control-plane-related closed loops
* Control-plane-related closed loops will conflict with each other

As an example, consider that an NSI load level info from the NWDAF exceeds a given threshold, indicating that the load level is beyond a certain acceptable point. This could among others:

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

If the actions by the NSSF and AMF are taken in parallel, they may be 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 always internal to vendor implementation. However, it is necessary for 3GPP to provide standardized *enablers* (such as data and management mechanisms) that are needed to ensure that the conflict detection and resolution algorithms have the necessary critical information required to detect and resolve the detected conflicts. Such critical enablers may include, for example, capturing and transmitting specific management-functions-information related to the conflicts, notifications related to conflict detection and resolution, and new management mechanisms such as prioritization of certain closed loops over others across vendor implementations. These enablers therefore need 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 and use cases that illustrate possible conflicts among closed loops and functions in the management plane or in the control plane (NWDAF assisted closed loops)
* Identification of possible requirements for the enablers for the enablers that can assist in the detection and resolutions of the conflicts. The scope will be limited to aspects that require standardization.
* Document Mechanisms for coordinating various aspects, such as but not limited to:
* Features, data and management services that may enable network functions, management functions (and closed loops) to interact and agree on the appropriate goals of the closed loops and management functions in the management and control planes.
* Features, data and management services that may enable network functions, management functions (and closed loops) to interact and agree on their respective desired actions prior to execution of those actions
* Features, data and management services that may enable network functions, management functions (and closed loops) to agree on the execution (e.g. the sequence of execution) of those actions
* Features, data (e.g. KPIs) and management services that may enable network functions, management functions (and closed loops) to assess the impact of each other's actions
* Features, data (e.g. KPIs) and management services that may enable network functions, management functions (and closed loops) to communicate the effect of one another's actions subsequent to execution of those actions

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 2022SA#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 |