**3GPP TSG-SA5 Meeting #155S5-243137**

**27 - 31 May 2024, Jeju, South Korea revision of S5-242337**

**Source: Nokia, Nokia Shanghai Bell**

**Title:** **pCR 28.867 CCL conflicts resolution**

**Document for: Approval**

**Agenda Item: 6.19.4**

# 1 Decision/action requested

**Discuss and agree on the text**

# 2 References

[1] 3GPP TR 28.867-010 “Closed control loop management”.

# 3 Rationale

Multiple CCLs acting along each other in the same environment are expected to affect one another. The operation of these CCLs needs to be coordinated. This pCR introduces the use cases for coordination of Closed Control Loops goals.

# 4 Detailed proposal

***Start of First change***

# 5. Use Cases

5.X Use case X1: CCL conflicts resolution

5.X.1 Description

5.X.1.1 Overview

Multiple conflicts are possible among CCL or their instances. The CCL MnS producer should be able to interactively coordinate with MnS consumers to resolve the conflicts.

5.X.1.2 CCL Goal-conflicts resolution

The targets in the goals of Closed Control Loop should not contradict one another within that goal or contradict with other targets in goals of related CCLs, otherwise a goal conflict is observed. For such a goal conflict, goal coordination interactions are needed to resolve the conflict, i.e., to align goals (and related targets) that should be achieved by the various deployed Closed Control Loops. Given the potentially high number and diversity of Closed Control Loops, the process of setting and coordination goals for the Closed Control Loops should be accomplished using another CCL that consumes the CCL-related monitoring and governance services to coordinate the resolution of conflicts with the CCL.

The MnS producer for this CCL instance should inform the MnS consumer about a candidate goal conflict, e.g. about the values of the goal’s targets that are in conflict with the targets of another goal. In response, the MnS consumer could revise the goals of that CCL instance, terminate the execution of the CCL instance, delete the CCL instance,

5.X.1.2 CCL Trigger-time conflicts resolution

Typically, a CCL will be triggered to run at a specific time and terminate when certain conditions are met, to run when a certain performance threshold is crossed. If triggered independently, there may be conflicts among the CCLs. The triggers for different CCLs to be executed need to be coordinated to avoid conflicts among the CCLs. And in some instances, the conditions in the network may be such that it is not clear which CCL should be triggered, requiring to trigger multiple CCL in sequence. The triggering may be done by a coordination function that consumes the CCL-related monitoring and governance services to receive information with which to evaluate the conditions and determines which CCL to be triggered.

It may be the case that CCLs need to operate in a hierarchy with each CCL having an operational profile indicating the specific level of hierarchy. The operational profile describes characteristic sunder which the CCL operates, e.g., when or after which other CCLs, this CCL should be executed. For example, to ensure that handovers are always optimal, a CCL on handover optimization may need to be triggered every after a CCL on Energy saving has been executed to be sure that there are appropriate handover relations even when some cells may have been disabled. The MnS consumer that coordinates the execution times of the CCLs needs to configure the appropriate hierarchy for the CCLs. Using the operational profiles of the CCLs, , the MnS consumer evaluates the description of the third CCL against at least one of the profiles P1 and P2 and accordingly determines and configures the operational profile of the third CCL.

Note: A CCL may be involved in more than 1 hierarchies or within a single hierarchy, the CLL may relate to multiple other CCLS, which requires the hierarchies to be coordinated.

5.X.2 Potential Requirements

REQ-CCL-CONF\_RES-1: The MnS producer should support a capability to coordinate the resolution of conflicts on the CCLs goals.

REQ-CCL-CONF\_RES-2: The MnS producer should support a capability to coordinate the resolution of conflicts on the triggers for execution of the CCL instances.

REQ-CCL-CONF\_RES-3: The MnS producer should support a capability enabling an MnS consumer to define and coordinate the hierarchies of the CCL.

5.X.3 Potential Solutions

TBD

5.X.4 Evaluation of solutions

TBD

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| **End of modifications** |