**3GPP TSG-SA5 Meeting #155S5-243138**

**27 - 31 May 2024, Jeju, South Korea revision of S5-242339**

**Source: Nokia, Nokia Shanghai Bell**

**Title:** **pCR 28.867 CCL-impact assessment and** **Coordination**

**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 assessing the impact of Closed Control Loops.

# 4 Detailed proposal

***Start of First change***

# 5. Use Cases

5.A. Use case X5: CCL-impact assessment

5.A.1 Description

5.A.1.1 Overview

Besides having direct conflicts for parameter values, CCLs may also have direct and indirect effects for their goals and metrics, i.e. where actions on one CCL affect the goals and metrics of other CCLs. Impact assessment includes capabilities for evaluating the direct and indirect effects of CCL actions and determining measures for remediation. The scope affected by the actions of the CCL is the impact-scope and is different from the measurement scope, i.e., the scope where the CCLs measure and control scope, i.e., the scope where they act.

5.A.1.2 impact on known/bounded impact-scope

For some Closed Control Loops, the expected impact of the action may be known to the Closed Control Loop or coordination functionality governing the CCL. The scope affected by these actions is derived from the (candidate) actions executed by the CCL (or their descriptions). A CCL coordination functionality may wish to evaluate the known impact scope and needs to rely on information from MnS producers of other Closed Control Loops to:

1. determine if there are unwanted outcomes.
2. diagnose if the executed action(s) is/are responsible for those outcomes, especially for the case where multiple Closed Control Loops have concurrently taken actions, and
3. determine what needs to be done to undo the degradation and to avoid it in future.

5.A.1.3 impact on unknown impact-scope

For some CCLs, the impact-scope affected by the actions of a CCL A may not be known a priori. Any negative effects cannot be easily anticipated, and most may not be easily resolvable by simple if-then-else rules. The MnS producer of a CCL A interacts with MnS producers of other CLLs or with a coordination functionality to identify actions that lead to negative outcomes and flag them accordingly. Thereby:

1. MnS producer of CCL A or the coordination functionality notifies all other CCLs or MnS producers of all other CCLs when an action is executed that may affect those CCLs.
2. after a preset monitoring period, the MnS producers of the impacted CCLs report (directly or through the coordination functionality) the impact the MnS producer of CCL A (i.e. the CCL that has had impacts to their performance metrics or goals.
3. MnS producer of CCL A or the coordination function derives an appropriate remediation, e.g. by reconfiguring the candidate actions of the acting CCL (i.e. CCL A).

5.X5.2 Potential Requirements

REQ-CCL-IMPACT-1: The CCL MnS producer should support a capability enabling an MnS consumer to receive information on the impacts of the CCL on a particular impact-scope and the actions that caused such impacts.

Note A1: The MnS consumer may for example be another CCL or a CCL impact coordination function

Note A2: the information enables the MnS consumer to determine if there are unwanted outcomes resulting from actions of the CCL and to propose what needs to be done to undo the degradation.

REQ-CCL- IMPACT-2: The CCL MnS producer should support a capability enabling an MnS consumer to notify the MnS producer of the actions of another CCL that may affect the MnS producer’s CCL.

Note B1: The MnS consumer could for example be a CCL impact coordination function

Note B2: The MnS producer represents the CCL which may be potentially impacted when a CCL A executes an action that may affect the goals or metrics of the MnS producer’s CCL

REQ-CCL- IMPACT-3: The CCL MnS producer should support a capability to report to an MnS consumer what the impact that the action had to the metrics or goals of the MnS producer's CCL.

Note 1: The MnS producer represents impacted CCL or MnF or a coordination function representing the impacted CCL or MnF.

Note 2: MnS consumer may for example be a coordination function or an acting CCL that took an action that has impacted the MnS producer’s metrics.

REQ-CCL- IMPACT-4: The CCL MnS producer should support a capability enabling an MnS consumer to propose to MnS producer the appropriate remediation against the noted impact, e.g. the reconfiguration of the candidate actions of the acting CCL.

Note 3: MnS consumer may be the CCL impact coordination function or another CCL or management function

Note 4: The MnS producer may be the acting CCL or the impacted CCL

5.X5.3 Potential Solutions

TBD

5.X5.4 Evaluation of solutions

TBD

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| **End of modifications** |