**3GPP TSG-SA5 Meeting #157S5-245409**

**14 - 18 October 2024, Hyderabad, India**

**Source: Nokia**

**Title:** **pCR 28.867 Enhance usecase on Historical CCL**

**Document for: Approval**

**Agenda Item: 6.19.4**

# 1 Decision/action requested

***The group is asked to discuss and agree on the proposal.***

# 2 References

[1] 3GPP TR 28.867-041 “Closed control loop management”.

# 3 Rationale

TR28.867 defines a use cae of historicl CCL which provides data to enale a CCL to be instantiated based on data from previous CCLs. The usecase and solution does not show how that data can be used. This pCR enhances the UC show how that data can be used for instantiating the new CCL.

# 4 Detailed proposal

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| **Start of modification** |

# 5. Use Cases

## 5.3 Use case 3: CCL creation based on Historical CCL data

### 5.3.1 Description

This use case describes the need of maintaining information about the CCLs that existed in the past. Those CCLs are called Historical CCLs.

In an automation environment, before a consumer request to create a CCL it would like to know the data related with Historical CCLs that were available with the producer. This information will enable consumer to request for an optimal CCL. The information about historical CCL may include, scope of the CCL, configured goals/targets, controlled entity, etc.

Further, Historical CCL information serves as a valuable data source for predictive analytics within the CCL system executed as Analytics step. It enables the system to move from a reactive mode, where it responds to current issues, to a proactive mode, where it anticipates and prevents problems based on historical trends and patterns. This proactive approach enhances network reliability, minimizes downtime, and improves the overall efficiency of network operations.

The existing CCL mechanism has no means to enable historical CCL information that can be used to predict potential network issues and take proactive measures to prevent them. The absence of historical CCL information can be a significant limitation in network automation.

The breach and feedback information is provided in clause 5.3.3.

The Historical CCL information may be used by the managenet system to setup or initialize a CCL. The Historical CCL information provides the profiles of a CCL for CCL at different hierachies, e.g., CCLs that do not do coordination which are at a lower hierarchy L and CCLs responsible for coordination (as coordination entities) or escalation which are at a higher hierarchy H. For a new CCL at a lower hierarchy, the managent system obtains the profiles of the several CCLs at different hierachies and correlates the information of the new CCL (e.g. its goal information) against the profiles of the CCLs at the different hierachies. Based on this, the the managenet system computes the complete profile of the new CCL (including e.g. its measurememt and control scope) which is then configured onto the new CCL.

### 5.3.2 Potential Requirements

REG-HIS-REQ: The 3GPP management system shall enable authorized MnS consumer to request for information (e.g. CCL identification, configured goals/targets and the related status, scope of the CCL, conflict information) related with Historical CCL.

REG-HIS-REQ: The 3GPP management system shall have the capability to configure the profile of a CCL based on the historical CCL information that describes the profile of other CCLs at different hierarchies.

### 5.3.3 Potential Solution

The solution involves introducing <<datatype>> (e.g HistoricalCCLInfo) to contain historical CCL information that can be queried by the consumer to understand the information related with previous CCL including the following:

1. CCL Information:

- CCL Identification.

- Initial Goals and Targets: It provides the initial goals/targets set provisioned for the CCL.

- Intermediate Goals and Targets: It provides the set if intermediate goals/targets set provisioned for the CCL.

- Last Goals and Targets: It provides the last goals/targets set provisioned for the CCL.

- CCL Scope: It indicates the scope of CCLe.g in terms of a location.

1. Breach Information related with goal breach. There will be multiple instance of this datatype for each breach instance:

- Time of breach: The time at which the breach happened.

- Breached Goals and Targets: The goal which got breached.

- Action Taken: The action(s) that was taken to mitigate the breach. This will provide the list of operations performed, MOI effected and attributes set/modified.

- hierarchy information indicating whether the CCL is at a lower hierarchy L (for general CCLs) or at higher hierarchy H (for CCLs responsible for coordination or escalation ).

Editor's Note: The attributes in CCL information and Breach Information should be aligned with the attributes of CCL in other CCL solutions

The solution involves introducing <<datatype>> (requestCCLProfile) as the request to compute and configure a new CCL based on HistoricalCCLInfo. It may include an identifier for the new instantiated CCL and the identifiers of the historical CCLs or of their operationa profiles.

Figure 5.3.3-1 shows the procedural flow.



Figure 5.3.3-1

1. Producer instantiate and provision a CCL as defined in 3GPP TS 28.536 [4].

2. Consumer send DeleteMOI request for a CCL.

3. Producer sends a response.

4. Producer either instantiate or modify the HistoricalCCLInfo MOI with the information related with CCL being deleted.

5. Consumer may decides to initiate a CCL. Before that it would like to understand the historical CCL information.

6. It send getMOIAttributes for HistoricalCCLInfo MOI to read the information captured.

7. Producer send a response.

8. Consumer develops the learning based on the historical CCL information received.

9. Based on the learning the consumer send a createMOI request to create a new CCL. It enables the newly created CCL to move from a reactive mode to a proactive mode, where it anticipates and prevents problems based on historical trends and patterns. This proactive approach enhances network optimization, issue prevention and improves the overall efficiency of network operations.

10. Producer send a response.

NOTE: The above procedure flow is for illustration only. It assume that the proposed information is modelled as an IOC. The actual modelling of the information will be decided as part of normative work, that may change the procedure flow.

After instantiating the new CCL

11. The consumer may request the producer for CCL configuration to compute and configure the new CCL based on the profiles of several historical CCLs at different hierarchies.

12. the producer for CCL configuration obtains HistoricalCCLInfo for the different CCls at different hierarchies and correlates their profiles with the new CCL’s information (e.g its goal information) to compute the profile of the new CCL

13. the producer for CCL configuration then configures the new CCL with the compted profile.

### 5.3.4 Evaluation of solutions

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| **End of modifications** |