**3GPP TSG-SA5 Meeting #158 *S5-247084***

Orlando, USA, 18 - 22 November 2024

**Source: Ericsson, Deutsche Telekom, Nokia, Samsung**

**Title: pCR TR 28.867 Clarify evaluation 5.9.4**

**Document for: Approval, Information, Discussion**

**Agenda Item: 6.19.4**

# 1 Decision/action requested

***In this box give a very clear / short /concise statement of what is wanted.***

# 2 References

[1] 3GPP TS 28.867 Study on closed control loop management

[2] 3GPP TS 28.535 Management and orchestration; Management services for communication service assurance; Requirements

[3] 3GPP TS 28.536 Management and orchestration; Management services for communication service assurance; Stage 2 and stage 3

# 3 Rationale

In the use case description for Consumers feedback on CCL Actions (section 5.9 [1]) , the producer provides the consumer with a list of actions to which the consumer may give a rating to the result of the execution of the action. The producer receives the rating and may decide to change the closed loop operation in order to improve the rating.

The study concluded with “Only one potential solution is proposed. The proposed solution satisfies all the requirements and is considered feasible.”

What is not discussed in the evaluation is the fact that proposed solution does not meet automation requirements and technical competence requirements during network operations.

1. A closed loop that is in operations has autonomy to decide how to handle degradation within the scope of the configuration the closed loop has been set-up for. Any mechanism that reduces the autonomy of a closed control loop is not meeting the operator goal for automated operations.
2. A closed loop in operation does not require detailed knowledge from network operations point of view, the reporting of fulfilment and potentially other information is sufficient.
3. Providing ways of manipulating loop internal operation requires network operations to have detailed technical knowledge to handle the manipulation according to the producer (vendor) specifications.

The study concluded with “Only one potential solution is proposed. The proposed solution satisfies all the requirements and is considered feasible.” However, the proposed solution does not satisfy the definition of a closed control loop as documented in TS 28.535 clause 4.2.4 which is as follows:

“In a closed control loop, there is no direct involvement of a human operator or other management entity in the control loop, the control loop is fully automated.”

As described this definition is not met, however when changing to open control loop as described in TS 28.535 clause 4.2.3 the definition is met.

Therefore, it is proposed to change CCL to OCL.

# 4 Detailed proposal

**First change**

## 5.9 Consumers feedback on CCL actions

### 5.9.1 Description

In fully automated control loops, the CCL re-configures a particular NF to meet its stated goals without the involvement of any other entity. The actions executed by the CCL have different levels of satisfaction for the different consumers. Without a reliable means to gauge consumer Execution Satisfaction, the CCL lacks the feedback to fine‑tune and optimize functionality, and so is unable to improve the overall performance. To be able to gauge the satisfaction, even as the CCL continuously executes actions onto the network, the consumer should be able to receive information about the provisioning operations executed by the CCL. This information includes operations performed, MOIs updated, etc. The CCL does not break its execution when it provides information to the MnS consumer or to wait for feedback from the MnS consumer. The feedback from an MnS consumer does not break the loop.

Based on some local policies, the consumer may prefer that a particular NF is not updated as part of the Execution step of CCL. The consumer should be enabled to request the CCL to revoke the changes made to a NF. Consumer may also update the CCL to ensure that a particular NF is never updated in future. The existing attribute aCCLDisallowedList can be used, as appropriate.

Alternatively, the consumer may want to provide feedback enabling the CCL to apply an alternative approach to achieve the objectives. The consumer should be able to provide its feedback on the execution indicating how satisfied the consumer is with the CCL actions.

EXAMPLE: The consumer feedback may grade the usefulness of the executed action on a fixed scale say from 0 (indicating a terrible and never to be re-used action) to 10 (indicating a very good action for the interests of the consumer).

NOTE: The actions that need to be provided to the consumer are decided by the producer.

### 5.9.2 Potential Requirements

**REQ-FED-FUN-01:** The 3GPP management system should enable consumer to provide its feedback on the action(s) taken by CCL.

**REQ-FED-FUN-02:** The 3GPP management system should enable consumer to request for revocation of the action(s) taken by the CCL.

**REQ-FED-FUN-03:** The 3GPP management system should have a capability enabling consumer to receive information (e.g. operation performed, MOIs updated) about the action(s) taken by the CCL.

Note: The CCL does not break its execution when it provides information to the MnS consumer orto wait for feedback from the MnS consumer. The feedback from an MnS consumer should not break the loop.

5.9.3 Potential Solution

The solution involves introducing a new set of information to be maintained for each CCL. This information includes the following:

1. ACCL identification (only when the IOC is name-contained in SubNetwork)
2. Feedback Time stamp: Time at which the feedback was provided. This is decided by the producer.
3. Satisfaction Score: It indicates the numeric value ranging from 1 to 10 (1 being the worse), providing the consumer’s satisfaction for the CCL. This is provided by the consumer. This will enable producer to better decide on the actions to be taken as part of execute step.
4. Execution Revoke: The action taken by the CCL may be proved to be so bad that a consumer may, optionally, request to revoke them. This is provided by the consumer.

There are several alternative to include this information as part of network resource model definition:

Alternative 1: This information can be defined as part of a new IOC. This IOC can be name contained in AssuranceClosedControlLoop IOC (3GPP TS 28.536) or directly into Subnetwork IOC (3GPP TS 28.622).

Alternative 2: The information can be added as part of AssuranceReport IOC in form of a new <<datatype>

Procedure flow

The procedure allows consumer to provide its feedback for a particular CCL. This functionality will enable customer satisfaction and help with fine tuning the CCL algorithm thereby improving the overall performance of the automation technique.



Figure 5.9.3-1

1. The CCL gets provisioned.
2. The consumer sends createMOI for CCLFeedback IOC to provide feedback on an existing CCL.
3. Producer sends a response.
4. Alternatively, consumer may also send modifyMOIAttribute for AssuranceReport IOC to provide feedback on an existing CCL.
5. Producer sends a response.
6. The producer checks if the action performed need to be revoked. The value of attribute RevokeAction will indicate if the actions are to be revoked. If yes, then it will also identify the particular action(s) to be revoked.
7. The producer revokes the actions as indicated by the consumer.

### 5.9.4 Evaluation of solutions

Only one potential solution is proposed. The proposed solution satisfies all the requirements and is considered feasible.

**End of change**