**3GPP TSG-SA5 Meeting #145-e *S5-225540rev1***

e-meeting, 15 August - 24 August 2022

**Source: Samsung**

**Title: Rel-18 pCR 28.829 KI and solution for MNO exposes Network Performance Monitoring**

**Document for: Approval**

**Agenda Item: 6.9.3.4**

# 1 Decision/action requested

***The group is asked to discuss and approve the proposals.***

# 2 References

None

# 3 Rationale

This document propose the KI and solution for the use case of MNO exposes Network Performance Monitoring

# 4 Detailed proposal

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| **First modification** |

# 7 Key Issues and potential solutions

## 7.1 Key Issue: 1

### 7.1.1 Description

This describe the issues to be studied in context of the use case of MNO exposes Network Performance Monitoring.

This key issue assumes that DSO is an MNO trusted entity and can access MnSes provided by the 3GPP Management System. The existing performance assurance mechanism can be used to report network performance to DSO. However, the following need to be studied

1. Whether and how the existing ThresholdMonitor can be used for configuring the network monitoring.

2. Whether and how the existing NtfSubscriptionControl can be used for sending reports as notifications against monitoring.

3. Whether the existing performance measurements and KPI are enough to support the requirements (latency, throughput, packet loss, availability etc.) defined in clause 6.5.3.

### 7.1.2 Potential Solutions

#### 7.1.2.1 Potential Solution #1: MNO expose network performance monitoring

##### 7.1.2.1.1 Introduction

This solution addresses Key Issue 1 and some of the requirements in 6.4 and 6.5.

The solution assumes that DSO is an MNO trusted entity and can access MnSes provided by the 3GPP Management System. In this solution, the existing provisioning MnS and related NRM fragments are used. DSO uses ThresholdMonitor to configure the related threshold for various network performance requirements e.g latency, throughput, packet loss, cell/network availability etc. DSO also uses the NtfSubscriptionControl to subscribe for NotifyThresholdCrossing notifications. The management system monitors the network and delivers the notification when the measurement or KPI crosses the configured threshold limit.

##### 7.1.2.1.2 Description

 MNO



Figure 7.1.2.1.2-1: Monitoring Configuration Procedure

Editor's Note: This clause further details the potential solution and any assumptions made.

1. DSO sends createMOI for ThresholdMonitor IOC

a. The attribute performanceMetrics, contains the measurements defined for each of the network performance requirements as required by DSO e.g latency, throughout, packet loss, availability etc.

b. It also contains an attribute containing the location (Lat/long, TAC, cellid). This will be used to scope the object instance to be monitored.

2. Threshold Monitoring Producer creates the MOI.

3. createMOI response is sent by Threshold Monitoring Producer to DSO.

4. Threshold Monitoring Producer, behaving as consumer of provisioning MnS, sends createMOI (prefMetricJob) request to Performance Assurance Producer.

5. createMOI response is sent by Performance Assurance Producer to Threshold Monitoring Producer behaving as its consumer.

6. Performance Assurance Producer calculates the required measurements and KPIs as per request.

7. Performance Assurance Producer provides the required measurements and KPIs to Threshold Monitoring Producer behaving as its consumer.

8. DSO sends createMOI for NtfSubscriptionControl IOC

a. The attribute notificationRecipientAddress contains the address of the notification recipient i.e. DSO.

9. Threshold Monitoring Producer creates the MOI.

10. createMOI response is sent by Threshold Monitoring Producer to DSO.

11. Threshold Monitoring Producer checks for threshold crossing

12. Threshold Monitor Producer sends notifyThresholdCrossing notification to DSO if the performanceMetrics value crosses the configured thresholdValue.

Editor’s Note: This solution requires measurement and KPI to be defined for each network performance requirement as required by DSO.

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| **Next modification** |

### 6.5.3 Potential Requirements

1. The 5G mobile network management system shall according to mobile network operator policy expose standarized interfaces to authorized third parties that provide the ability to initiate and terminate requests for monitoring including the configuration of the monitoring (e.g. monitoring report interval, monitoring measurement granularity, location of interest, etc.)

Editor's Note: The details of performance monitoring configuration are FFS.

2. The 5G mobile network management system shall according to mobile network operator policy expose standardized interfaces to authorized third parties that provide a mechanism for the mobile network operator to send reports to the third party.

3. The 5G mobile network management system shall support the following exposure standardized interfaces to authorized third parties to monitor information according to the associated configuration:

a) Latency between the DSO’s device and the DSO’s server the device is communicating with[an average for the third party's network traffic];

Editor's Note: It is FFS how to define latency in the context of triggering an alarm.

b) Throughput [an average for the third party's network traffic];

c) Packet loss [an average for the third party's network traffic];

Editor's Note: It is FFS how to define packet loss in the context of triggering an alarm.

d) Service loss [an indication of any intervals in which there was a full loss of service for the third party (i.e. no communication service is possible for DSO due to a cell outage in MNO’s network. )].

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| **End of modification** |