**3GPP TSG SA WG5 Meeting #145e S5-225411rev1**

**e-meeting, 15 - 19 August 2022**

**Source: Samsung, EUTC, BMWK, Vodafone, Telefonica, EDF**

**Title: pCR TR 28.829 Business use case - DSO Provides Performance Reporting indicating Problems**

**Type: pCR**

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

**Agenda Item: 6.9.13.6 (FS\_NSOEU: Study on Network and Service Operations for Energy Utilities)**

# 1 Decision/action requested

***SA5 is asked to approve this pCR.***

# 2 References

None

# 3 Rationale

This pCR provides a use case to address one of the objectives of the study.

# 4 Detailed proposal

This pCR proposes to add an overview to the new TR 28.829 for the study item FS\_NSOEU, Feasibility Study for Network and Service Operations for Energy Utilities.

In this pCR the a use case is provided for DSO to report to an MNO regarding ongoing measured performance. This is useful to identify problems in service - e.g. diminishing capacity, periodic or increasing intervals of reduced performance, etc.

BEGIN CHANGE

## 6.W Business use case: DSO Provides Performance Information indicating Relevant Changes to its Network

### 6.W.1 Description

**Motivation**

As described in 6.2, DSO reporting to MNO to resolve problems and incidents, current practice, and Annex A, incident reporting is a vital component of service management. The reporting of such problems today occurs very infrequently, e.g. when service agreements are created or renewed. This exchange of information could be very beneficial to an MNO and lead to considerations such as adjustment of coverage (e.g. for optimization), capacity planning (e.g. to react to growth in utilization in some part of the network), disaster recovery planning, and more.

Providing information from the DSO to the MNO serves a broader set of motivations as well. As the DSO's organization and use of their own network changes, their measured performance will change. This information may be important in distinguishing whether differences in network usage arise from performance problems or instead whether the changes are intentional on the part of the DSO.

The DSO is in a unique position to provide information to an MNO regarding their service. The DSO not only has many deployed stationary UEs, but performs signficant performance management for these and requires extremely high availability. The DSO therefore has a very detailed set of information gathered over time, across the MNO's network. Specifically, the DSO identifies where there are problems for their own purposes, for the purposes of proactive response to increase availability. (See 6.2 and 6.Y)

This 'problem' or 'utilization' information is in the interest of the DSO to share, as it could lead the MNO to consider service improvements or to identify issues that they may not have otherwise detected. Providing problem analysis information is an example of mutual advantage for both the customer and the service provider. In any case, if such information is needed by both sides, a standard interface for providing it will reduce the informal communication needed by both parties.

**Background**

See 6.2.

### 6.W.2 Details

Problem Management processes, by which the DSO works with the MNO to address such issues as observed erratic or declining performance, occur very infrequently today. Problem Management results in concrete proposals for improvements, essentially as input for processes such as capacity planning and adjustments to service level agreements. Problem management therefore results in changes that need to be considered over time, decisions that take months or years to conclude.

The opportunities to analyze problems that emerge from time to time in energy utility service provider communication networks can be analyzed by the energy utility service providers in cooperation with the MNOs to ascertain the root cause of unexpectedly low or declining performance levels. This network problem discovery, trend analysis and identification of root causes of problems is, as a result of sharing infomation and conferring with MNOs, made easier for energy utility service providers.

**Use case actors:**

**DSO operations center engineer:** The DSO operations center engineer analyzes collected information, creates and operates network monitoring tools including alarms, and seeks to identify areas of potential improvement in service delivery.

**MNO technical service / account manager:** The MNO technical service / account manager responds to queries from the energy utility service provider when needed. Such questions may arise when problems emerge, e.g. as network performance or avaialbility appears to decline in the DSO's network.

**Use case service flow:**

1) Using the DSO operational tools, the DSO operations center engineer gathers and analyzes data, seeking to identify trends that appear threatening to the proper function of the energy utility service provider network. An example of such a trend would be a gradual decline in performance parameters including observed increasing latency or jitter, or gradual decline in availability. Note that these parameters' decline *even while remaining within the expectations of the service level agreement* may merit investigation if the decline is prolonged and pronounced.

2a) When such trends are identified, the DSO operations center engineer uses tools to study the details of the potential problem.

2b) Another goal is to identify where there are not problems, despite data that appears to indicate problems. In some cases, when less or no traffic is sent or received over the mobile telecommunications network this may be a decision of the customer.

3) The DSO operations center engineer shares this information with the MNO by means of a standard interface, including the measured performance, physical location, Cell ID and other information.

NOTE: The physical location, Cell ID and other information is available to the MNO. It is given by the DSO in order to provide sufficient information that the observed performance information provided by the DSO can effectively be correlated and compared to management information collected by the MNO.

4a) The 'root cause' of the problem may need to be investigated by the DSO before identifying a potential remedy is possible, or determining how high a priority the mitigation has. This process can be accellerated and eased by collaboration and interaction between the DSO operations center engineer and the MNO technical service representative. The communication between the two organizations is based on any standard data model which eases communication and determining answers to essential questions for both the MNO technical service and DSO operations engineers.

4b) The apparent problem (reduced or zero network utilization) can be flagged to the MNO as 'intended'.

**Service flow result:**

The DSO learns about performance problems in their network. By sharing these problems in a standardized manner with the MNO, it is possible to more straightforwardly ascertain whether the issues are also present in the mobile network. The MNO benefits from information acertained by the DSO about network performance issues.

The DSO is able to differentiate in the information it provides to the MNO between reduced performance in the network and intentional reduced utilization of the network. This will ease interpetation of the data by the MNO.

### 6.W.3 Potential Requirements

Subject to operator policies, the 5G mobile network management system may support a means for authorized third parties that require extremely high availability for a large number of deployed UEs to provide network performance information by means of standardized interfaces to MNOs. The data model of the performance information provided by the third party to the MNO will be standardized and include at least the following elements: {measurement granularity, location of measurement, latency, packet loss, throughput.}

NOTE 1: The information elements to include in the incident report will be defined and evaluated during the 'solution definition' stage of this study.

NOTE 2: The measurements provided by the DSO can be obtained by means that are outside the scope of 3GPP. For example, these may be gathered from management MIBs of routers that are operated by the DSO. Other measurements provided by the DSO can be obtained or management interfaces exposed by the UE.

END OF CHANGE