**3GPP TSG-SA5 Meeting #144-e *S5-224181rev2***

**e-meeting, 27 June – 1 2022**

**Source: CMCC, Huawei**

**Title: pCR TR 28.830 Add description of key issue service outage**

**Document for: Approval**

**Agenda Item: 6.7.7.2**

# 1 Decision/action requested

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

# 2 References

[1] SP-220153: "New SID on Fault Supervision Evolution"

[2] S5-222733: "draft TR 28.830 Fault supervision evolution"; v0.1.0

# 3 Rationale

Service outage is a typical anomaly issue in the network, e.g., multiple gNBs may be out of service simultaneously. Multiple domains will be involved and it will cause the End to End service outage. A large amount of alarms will be reported in RAN domain and CN domain. It is complex and time consuming to identify the root cause and recover from the anomaly situation. In some existing solutions, human operators from RAN domain, CN domain and TN domain will be involved to analyse the alarms, identify the root cause and try to recover the anomaly separately from the domain perspective. As a result, it is difficult for manual fault demarcation and locating from each separate domains.

In autonomous networks, 3GPP management system should provide corresponding capabilities to resolve the preceding issues and ensure that the affected services can be quickly recovered. The 3GPP management system should provide the capability of anomaly issues detection, analysis, decision and resolving efficiently.

It is proposed to add description of issue service outage in draft TR 28.830.

# 4 Detailed proposal

This document proposes the following changes in TR 28.830.

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| **1st Change** |

# 5 Issues and potential solutions

## 5.X Issue #X1: Anomaly Event Management

### 5.X.1 Description

Editor’s note: This clause provides a description of the key issue.

Service outage is a typical fault on the network. One of the major issues is that wireless base stations are out of service in batches. This fault has wide impacts and time-consuming troubleshooting.

(1) The monitoring engineer shall check the out-of-service status and impact scope.

(2) O&M engineer of different technique domains (such as wireless, core network, and transmission) need to manually check the problems caused by out-of-service in different technique domains.

(3) If a problem involves multiple technique domains and the association relationship is complex, it is difficult and time-consuming for O&M engineer of different technique domains to manually demarcate and locate cross-domain faults.

It is expected that the anomaly event MnS producer in fault management evolution can provide the corresponding capabilities to resolve the preceding issues and ensure that the affected services can be quickly handled and resolved. The incident MnS provides anomaly detection, analysis, and resolution decision and execution capabilities to efficiently resolve the service outage anomaly events.

The anomaly event MnS producer in fault management evolution should be able to obtain the gNB out-of-service information from related management services. Analyzes collected information and identifies anomaly events. Demarcates and locates root causes and provides solution recommendations and decision results. Finally, based on this result, the anomaly event is resolved and rectified.

For example, a failure in transport links may result in service outage of multiple gNBs and the corresponding cells, and may also the affected CN NFs. A large amount of alarm notifications will be reported for these gNBs and CN NFs. It is expected the management system could identify this situation and indicate this service outage issue in a single anomaly event and try to resolve it automatically or indicating manually recovery. To support the above functionality, the related management interface should allow the consumer to configure the rules, poilicies or algorithms used for proactive identification, impact analysis, and dynamic decision-making.

In order to solve the above issue, the following requirements for the 3GPP management system apply:

FSEV\_REQ MGMT1: The 3GPP management system should provide the capablity to support configuration related to anomaly event management (for example, correlation analysis rules for user-defined abnormal events, action selection strategy, business prediction algorithm model, etc.).

FSEV\_REQ MGMT2: The 3GPP management system should provide the capability to support anomaly event transmission to request for further handling from the domain management to the cross domain management.

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| **End of change** |