**3GPP TSG-SA5 Meeting #154 *S5-24xxxx***

Changsha, China, 15 – 19 April 2024

**Source: Ericsson**

**Title: Trace Format Correction**

**Document for: Discussion**

**Agenda Item: 6.3.13**

# 1 Decision/action requested

***For agreement***

# 2 References

[1] 3GPP TS 32.422 Telecommunication management; Subscriber and equipment trace; Trace control and configuration management

[2] 3GPP TS 28.622 Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Information Service (IS).

[3] 3GPP TS 28.623 Telecommunication management; Generic Network Resource Model (NRM) Integration Reference Point (IRP); Solution Set (SS) definitions

[4] 3GPP TS38.413 NG-RAN; NG Application Protocol (NGAP)

# 3 Rationale

## 3.1 Background

File based trace reporting description is specified for 5G and pre-5G in TS32.422[1]. Streaming based trace reporting description is added in R16 for 5G in TS32.422[1]. It is specified that at NG-RAN activation procedure, either a Trace Collection Entity IP Address or a Trace Reporting Consumer URI will be provided, in following sections:

* 4.1.1.9.1 NG-RAN activation mechanisms "Trace Collection Entity IP Address for the file-based trace reporting or Trace Reporting Consumer URI for the streaming trace reporting"
* 4.1.2.16 NG-RAN activation mechanisms "Trace Collection Entity IP Address for the file-based trace reporting or Trace Reporting Consumer URI for the streaming trace reporting"
* 4.3.3.1: Trace session activation for RLF reporting in NG-RAN "TCE IP Address for file based reporting or Trace Reporting Consumer URI for streaming reporting"
* 4.8.3 Trace session activation for RCEF reporting in NG-RAN "TCE IP Address for file based reporting or Trace Reporting Consumer URI for streaming reporting"

Furthermore,

* in section 5.9 Trace Collection Entity (TCE) IP Address is specified as "This parameter may be present only if the Trace Reporting MnS Consumer URI parameter is not present."
* in section 5.9c Trace Reporting Consumer URI "The parameter may be present only if the IP address of TCE is not present"

In 3GPP TS28.622[2], both Trace Collection Entity (TCE) IP Address IE and Trace Reporting Consumer URI IE are specified as conditional mandatory.

However,

* in 3GPP TS28.622[2], it is also specified that “The attributes jobType, traceReference, traceRecordingSessionReference, traceCollectionEntityIPAddress, traceTarget and traceReportingFormat are mandatory for all job types.” With this specification, the traceCollectionEntityIPAddress is mandatory which is not aligned with the text in 3GPP TS32.422[1].
* in RAN3 specification, 3GPP TS38.413[4], it is specified that Trace Collection Entity IP Address shall be included in the Trace Activation message and Trace Reporting Consumer URI may be included in the Trace Activation message. If the Trace Activation IE includes the Trace Reporting Consumer URI IE, the NG-RAN node shall use it as described in 3GPP TS 32.422[1] and, if streaming based reporting is supported, ignore the Trace Collection Entity IP Address IE.

## 3.2 The problem(s)

There are several issues with the current definition:

Problem 1: misalignment between SA5 specifications

Problem 2: misalignment between SA5 specifications and RAN3 specifications

Problem 3: non-backward compatible changes

* Trace Collection Entity IP Address is specified as mandatory attribute in pre-5G RAN.
* Changing a mandatory IE into a conditional mandatory in later releases is not considered as backward compatible.

Problem 4: trace is discontinued at handover

* Making both Trace Collection Entity IP Address and Trace Reporting Consumer URI IE conditional mandatory, may leading Trace failure at handover. If both source gNB and target gNB are supporting only one trace reporting format and it is not same, the trace has to be discontinued after handover.
* For example, if the source gNB has file-based trace report supported. At handover, only the Trace Collection Entity IP Address is forwarded to the target gNB. There is no Trace Reporting Consumer URI in the trace configuration. However, if the target gNB only has streaming-based trace report supported, the trace has to be deactivated after handover.
* If Trace Collection Entity IP Address IE is mandatory in Trace Activation and Trace Reporting Consumer URI IE is conditional mandatory, above problem could be avoided. Both IEs will be forwarded at handover. The target gNB can decide how to report the ongoing Trace based on its capability.

## 3.3 Proposals

Proposal 1: Revise the SA5 specifications to make Trace Collection Entity IP Address mandatory (instead of conditional mandatory)

Proposal 2: Keep Trace Reporting Consumer URI as conditional mandatory.

Proposal 3: Adding a clarification that if Trace Reporting Consumer URI is provided in the Trace Activation message, Trace Collection Entity IP Address IE shall be ignored, if streaming based reporting is supported.

# 4 Detailed proposals

Update the following specifications based on above proposals.

* TS32.422[1]: section 4.1.1.9.1, 4.1.2.16, 4.3.3.1, 4.8.3, 5.9, 5.9c, 5.10.11
* TS28.622[2]: section 4.3.30.2, 4.3.30.3
* TS28.623[3]: module \_3gpp-common-trace.yang, and TS28623\_GenericNrm.yaml
* Send LS to RAN3 about the agreed changes in SA5.