**3GPP TSG-RAN WG3 Meeting #123 R3-240837**

**Athens, Greece, 26 February – 01 March 2024**

**Agenda Item: 9.1.12**

**Source: Qualcomm (moderator)**

**Title: Summary of Offline Discussion on CB: # 11\_R18URLLC**

**Document for: Approval**

**Introduction**

During the discussion in Chairs session, following was discussed:

**SMF can send the TSCAI to NG-RAN during Xn Handover in the NGAP: Path Switch Request Acknowledge message to reflect the SA2 requirements from TS23.502 and to solve the issue of supporting and non-supporting node of uRLLC feature issue?**

**CB: # 11\_R18URLLC**

**- Discuss the open issue above**

**- Check other corrections**

(moderator - QC)

Summary of offline disc [R3-240837](file:///C%3A%5CUsers%5Cgeethapr%5CAppData%5CLocal%5CTemp%5C73a170a5-6d98-4054-932f-82237fcf9a46_RAN3_123_agenda_202402262010.zip.a46%5CInbox%5CR3-240837.zip)

**For the Chairman’s Notes**

TSCAI in Path Switch:

**Companies prefer to wait for SA2 LS response, if any to discuss on this issue further.**

Stage 2 Clarification

**Proposal: To reword ‘event c’ as “event a) occurred and b) has not yet been reached for a RAN TSS attribute an implementation-dependent time interval has passed, or a previously reported value can no longer be met.”**

Corresponding CR to TS 38.401 to be agreed in R3-240884

Nokia CR on TS 38.300 text clarification R3-240328 merged to HW CR R3-240408.

Corresponding CR to TS 38.300 to be agreed in R3-240885

Transaction ID

Proposal: It is agreed to introduce Transaction ID in F1AP TSS messages to follow the general specification principle.

Corresponding CR to TS 38.473 to be agreed in R3-241016

Routing ID

Proposal: SA2 agreed to support multiple TSS reporting sessions and to introduce a routing ID to identify the requesting TSCTF.

Corresponding CR to TS 38.413 to be agreed in R3-241018

**Discussion**

## TSCAI in Path Switch

Qualcomm in their paper [1] have proposed to align with SA2 spec TS23.502 Clause 4.9.1.2.2 which contains the highlighted text to send TSCAI in the Path Switch Request Acknowledge or PDU Session Modify Request message.

From [1]:

|  |
| --- |
| **TS 23.502 Clause 4.9.1.2.2**6. SMF to AMF: Nsmf\_PDUSession\_UpdateSMContext Response (N2 SM information) The SMF sends an Nsmf\_PDUSession\_UpdateSMContext response (N2 SM Information (CN Tunnel Info, updated CN PDB for the accepted QoS Flows, Updated TSCAIs for the accepted QoS Flows)) to the AMF for PDU Sessions which have been switched successfully. The CN Tunnel Info of UPF send to AMF is used to setup N3 tunnel. If redundant transmission is performed for one or more QoS Flows of a PDU Session, two CN Tunnel Info are sent and the SMF indicates to the Target NG-RAN one of the CN Tunnel Info is used as the redundancy tunnel of the PDU Session as described in clause 5.33.2.2 of TS 23.501 [2]. The SMF sends an Nsmf\_PDUSession\_UpdateSMContext response without including the CN Tunnel Info to the AMF for the PDU Sessions for which user plane resources are deactivated or released and then the SMF releases the PDU Session(s) which is to be released using a separate procedure as defined in clause 4.3.4. For each accepted GBR QoS Flow of Delay-critical resource type, the dynamic CN PDB and TSCAI may be updated and sent to the Target NG-RAN by the SMF. The SMF may update the CN PDB and TSCAI in the response or using a separate PDU Session Modification procedure, based on local configuration. |

Do companies agree with the below proposal? If not please provide reasons.

**~~Proposal: SMF sends the TSCAI to NG-RAN during Xn Handover in the NGAP: Path Switch Request Acknowledge message to align with the SA2 requirements from TS 23.502~~**

**Observation: From R16 onwards, BAT DL is already sent in Path Switch Request Acknowledge message from AMF to NG-RAN which could be updated in SMF.**

**Conclusion: Companies prefer to wait for SA2 LS response, if any to discuss on this issue further.**

## Stage 2 Clarification

### Primary Source Event Rewording

There are 3 papers which proposes rewording of “event c” description in TS 38.401 Clause 8.24 shown below as three options.

Option 1:

Qualcomm Proposal [1]: In a clock degraded status, if an time interval has passed since the last report or a previously reported RAN TSS attribute value is further degraded.

Option 2:

Nokia Proposal [5]: while at least one pre-configured threshold cannot be met (i.e. status is degraded), an implementation-dependent time interval has passed since the last report or a previously reported RAN TSS attribute value can no longer be met.

7. Later, the gNB-DU detects a primary source event:

a) a RAN TSS attribute cannot meet a pre-configured threshold (i.e. status is degraded);

b) a RAN TSS attribute meets the pre-configured threshold again (i.e. status is no longer degraded);

c) event a) occurred and b) has not yet been reached for a RAN TSS attribute, ~~the gNB-DU performs~~ ~~periodic reporting or a previously reported RAN TSS attribute value can no longer be met~~

Option 3:

ZTE Proposal [6]:

c) a previously reported RAN TSS attribute value can no longer be met.

NOTE 4: Additional primary source events, if any, are up to gNB-DU implementation.

1. Upon detecting the primary source event, the gNB-DU provides an updated RAN TSS report to the gNB-CU by sending a TIMING SYNCHRONISATION STATUS REPORT message. If event a) occurred and event b) has not yet been reached, the gNB-DU performs periodic reporting.

Which one of the above rewording do you prefer among the three options. Please provide inputs in the below table.

Proposal: event a) occurred and b) has not yet been reached for a RAN TSS attribute an implementation-dependent time interval has passed, or a previously reported value can no longer be met.

CR to TS 38.401 in R3-240884 to be agreed

### TS 38.300 Clarification

Nokia and Huawei have provided stage 2 corrections to TS 38.300 text in Clause 16.8.2.

Nokia paper in [8] and Huawei paper in [9].

Can one of the paper be taken as baseline and merge the changes? If yes which paper can be taken as baseline?

Conclusion: HW will provide a baseline with Nokia changes on TS38.300 merged. The Baseline draft CR will be updated in FTP site for comments from other companies.

Draft CR to TS 38.300 to be agreed in R3-240885

## Transaction ID

Huawei, Nokia and ZTE have provided a CR in [7] to TS 38.473 to add Transaction ID IE to Timing Synchronisation Status Reporting Messages.

Do companies agree with to introduce Transaction ID in TSS messages over F1AP? If yes, provide your comments on the CR in [7]

Conclusion: -It is agreed to introduce Transaction ID in F1AP TSS messages to follow the general principle.

CR to TS38.473 to be agreed in R3-241016

## Routing ID

E/// have provided a CR in [10] to TS 38.413 to add Routing ID IE to Timing Synchronisation Status Reporting Messages.

Reasoning from [10]:

SA2 has been discussing (refer to S2-2400199) on how to solve the Discussion on the support of Network Timing Synchronization Status

Reporting. The solution impacts RAN3 in the below points:

* The NGAP message Time Synchronization Status Request contains a Routing ID encoded with the TSCTSF NF ID. The NG RAN needs to know when there are multiple TSCTSF instances that have requested the TSS reporting so that the NG RAN could keep reporting until the last TSCTSF i nstance requests to stop the reporting;
* The NG RAN includes the Routing ID in the Time Synchronization Status Report message. Upon receiving the NGAP message Time

Synchronization Status Report message, the AMF forwards the Time Synchronization Status Report message as an N2 Container in the

Namf\_Communication\_N2InfoNotify Request message to that specific TSCTSF.

Do companies agree with to introduce Routing ID in TSS messages over NGAP? If yes, provide your comments on the CR in [10]

Conclusion: SA2 has agreed to support multiple TSS reporting sessions and to introduce a routing ID to identify the requesting TSCTF.

CR to TS 38.413 to be agreed in R3-241018

## ASN.1 changes

<To be discussed if time permits >

|  |  |  |
| --- | --- | --- |
| [R3-240745](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_123%5CDocs%5CR3-240745.zip) | ASN.1 Correction on NGAP for Time Risilience and uRLLC (ZTE, China Telecom, China Unicom) | CR1120r, TS 38.413 v18.0.0, Rel-18, Cat. Fnoted |
| [R3-240746](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_123%5CDocs%5CR3-240746.zip) | ASN.1 Correction on XnAP for Time Risilience and uRLLC (ZTE, China Telecom, China Unicom) | CR1225r, TS 38.423 v18.0.0, Rel-18, Cat. FRev in [R3-240847](file:///C%3A%5CGeetha%5C3GPP%5CRAN3%20123%5CInbox%5CR3-240847.zip) |
| [R3-240670](file:///D%3A%5C%E4%BC%9A%E8%AE%AE%E7%A1%AC%E7%9B%98%5CTSGR3_123%5CDocs%5CR3-240670.zip) | Correction on ASN.1 code related to TRS (Ericsson) | CR1213r, TS 38.423 v18.0.0, Rel-18, Cat. F |

Conclusion: [R3-240847](file:///C%3A%5CGeetha%5C3GPP%5CRAN3%20123%5CInbox%5CR3-240847.zip) will be considered as baseline CR. Nokia, E/// and HW to be added as co-source companies. Companies prefer not to have the code points in the ASN.1 for Parent Time source IE in XnAP spec. ZTE to confirm with the XnAP spec rapporteur.

The CR to be handled in CB: #15\_R18ASN.1

# References

[1] R3-240077 Discussion on remaining open issues in uRLLC from Rel-18 (Qualcomm Incorporated)

[2] R3-240079 TSCAI from AMF to NG-RAN during Xn Handover (Qualcomm Incorporated)

[3] R3-240080 TSCAI from AMF to NG-RAN during Xn Handover (Qualcomm Incorporated)

[4] R3-240081 TSCAI from AMF to NG-RAN during Xn Handover (Qualcomm Incorporated)

[5] R3-240327 Clarification of primary source event (Nokia, Nokia Shanghai Bell)

[6] R3-240744 Correction on 38.401 for time resilience and uRLLC (ZTE, China Telecom, China Unicom)

[7] R3-240308 Correction of timing synchronisation status reporting procedure (Huawei, Nokia, Nokia Shanghai Bell, ZTE)

[8] R3-240328 Cleanup of Stage 2 for Timing Resiliency and URLLC enhancements (Nokia, Nokia Shanghai Bell)

[9] R3-240408 Correction of network timing synchronization status monitoring (Huawei)

[10] R3-240741 Introducing Routing ID in TRS procedures (Ericsson)