Email discussion summary for [RAN-R18-WS-non-eMBB-China_Telecom] - Version 0.0.4
RAN

3GPP TSG RAN Rel-18 workshop **RWS-210560**

E-Meeting, June 28 - July 2, 2021

Agenda Item: **4.2**

Source: **China Telecom**

Title: **Email discussion summary for [RAN-R18-WS-non-eMBB–ChinaTelecom]**

Document for: **Discussion**

1 Introduction

This contribution is a summary of email discussion on non-eMBB-driven functional evolution on [1][2].

2 Email discussion (1st round)

2.1 Comments on Further enhancement of Private Network[1][2]

Companies are invited for providing comments on the following contributions.

RWS-210154, "Further enhancement of Private Network for Rel-18".

RWS-210155, "Draft WID on Further Enhancement of Private Network Support for NG-RAN".

Feedback Form 1: Comments on FeNPN

1 – Intel Technology India Pvt Ltd (1) On the support of SNPN and PNI-NPN for eMTC/NB-IoT connected to 5GC: Since SNPN and PNI-NPN are only NR, will this require first porting SNPN and PNI-NPN concept to LTE? (2) On the RAN awareness of CAG ID usage for initial access and handover: For CAG, the access control and resource/scheduling management can be based on slice based approach, where user defined access categories can be defined for access control while the resource/scheduling management can be based on S-NSSAI. Will this introduce another mechanism for performing access control and resource/scheduling management?
2 – CATT Thanks for the contributions. In general, we are interested in this topic and we think the bullets listed in the contribution could be discussed in RAN after there is conclusion in SA2. Besides□a small comment

on the last bullet, maybe more discussions on how the network use the CAG ID would be useful.

3 – ZTE Corporation

Thanks for the contributions. One clarificaiton, Does PALS only have impact on NPN? Does it have impact on NR?

4 – Beijing Xiaomi Mobile Software

Thanks for the proposals. We agree that the eNPN can be further enhanced in R18. We also think some SA1 requirement may impact the NR.

5 – Qualcomm CDMA Technologies

- "Service Performance monitoring (e.g. delay, PLR for service) on a flow level can enable": This is part of the LS from 5G-ACIA but SA2 did not answer yet and has not identified whether and where are the gaps with existing QoS monitoring mechanisms supported in rel.16/17.
- "…Operator/Vertical can analysis and even forecast the service performance based on the Service Performance monitoring" : Our understanding is that this was discussed in SA2 in V2X rel.16 and also later in later in 5G-ACIA but it was not agreed.
- "…control plane provisioning enables 3 GPP network to have control of the full onboarding process, without relying on mechanism outside 3GPP: This should have no RAN impacts.
- "PDU session anchored at the SNPN cannot be maintained during mobility when the UE accesses the SNPN using credentials owned by a Credentials Holder separate from the original SNPN": Since this was also discussed and not agreed in Rel-17, do you propose any changes to rel.17 service requirements so that this can be done?
- NG RAN is not aware of the UE serving (CAG ID in case of initial access and handover…" : This was also previously discussed in SA2 but is not in their scope. Still the benefits are not clear to us.
- We also think "- *Service/Session continuity with PDU Session anchored at Credentials Holder's network.*" in itself does not have any RAN impact. The question could be rather, ***if*** SA2 can agree on service/session continuity during inter-SNPN mobility (which was not popular with MNOs in the past), then it would make sense to support inter-SNPN connected mode mobility, which has mostly RAN3 impact. So this could probably be re-worded into "Support of connected mode inter-SNPN mobility" with a Note below: "This depends on whether Service/Session continuity with PDU Session anchored at Credentials Holder's network will be supported in Rel-18.

2.2 Response to companies' comments/questions

Thank you very much for the questions/comments/supports. Please find our responses and summary below.

Response:

Q1: On the support of SNPN and PNI-NPN for eMTC/NB-IoT connected to 5GC: Since SNPN and PNI

NPN are only NR, will this require first porting SNPN and PNI-NPN concept to LTE?

(@Intel)

A1: NB-IoT with 5GC is the part of NR system and to be used to fulfill the IoT requirement since NR does not have a specific narrow-band system for IoT, so we think the NPN concept could be ported into

NB-IoT system as it has been a part of NR.

Q2: On the RAN awareness of CAG ID usage for initial access and handover: For CAG, the access control and resource/scheduling management can be based on slice-based approach, where user defined access categories can be defined for access control while the resource/scheduling management can be based on S-NSSAI. Will this introduce another mechanism for performing access control and resource/scheduling management?

(@Intel, CATT, QC)

A2: The CAG is a concept of network aspect compared with the slice, there can be several slices in a CAG network. If operators want to manage or count the network usage in terms of CAG network dimension, RAN should have CAG awareness.

Q3: Does PALS only have impact on NPN? Does it have impact on NR?

(@ZTE, Xiaomi)

A3: It seems that PALS may has impact on both PLMN and NPN, but some functions such as "Hosting Network and 3rd Party Provider service negotiation" and "Automatic discovery and selection of 3rd party provider services" are more likely related with the onboarding and 3rd party credential functions of NPN.

Q4: About the motivation to support the Service/Session continuity with PDU Session anchored at Credentials Holder's network.

(@QC)

A4: Some SA2 companies thought this part of work was left due to the practical limitations of Rel-17 whether this work should be involved in Rel-18 will depend on SA2 conclusion.

Q5: The other functions such as "Service Performance monitoring" and "control plane provisioning" may not be supported in Rel-18 in SA2 or may not have RAN impact.

(@QC)

A5: These functions listed here have been discussed in Rel-18 in SA2, but no conclusion has been made. We listed these functions here to inform RAN that these functions discussed in SA2 should be noticed because they may have RAN impact.

<u>Moderator Summary</u>

5 companies participated in the first round discussion on FeNPN.

Based on the received comments and questions from companies, we summarized them into the following issues and make corresponding clarifications:

1 The support of SNPN and PNI-NPN for eMTC/NB-IoT connected to 5GC

As the NB-IoT/eMTC connected to 5GC should be considered as a part of 5G network and many operators have deployed the NB-IoT networks, it is envisioned that the NPN for NB-IoT/eMTC can provide operators more comprehensive support of IoT use cases, therefore it should be supported in Rel-18.

2□The support RAN awareness of serving (selected) CAG ID

The CAG is a concept of network aspect compared with the slice, there can be several slices in a CAG network. If operators want to manage or count the network usage in terms of CAG network dimension, RAN should have CAG awareness. Although this feature has been discussion and not included in Rel-17, we still think it is useful function for operating NPN network.

3□Check RAN related impact of SA2 and SA1 study on NPN and specify the corresponding RAN functionality where necessary

These functions listed here such as "Service Performance monitoring" and "Service/Session continuity between SNPNs" are to inform RAN that these functions discussed in SA2 should be noticed because they may have RAN impact. Whether these functions should be included in Rel-18 will depend on SA2 conclusion.

3 Email discussion (2nd round)

Companies are invited to provide questions and comments to the follows:

1. Any further questions and comments to moderator's response and summary for 1st round in section 2.2

2. Any further questions and comments to proposal RWS-210154, RWS-210155

Feedback Form 2: Comments on FeNPN (2nd round)

1 – FGI

Thanks for the discussion on Rel-18 NPN. We also think NPN should be further enhanced in Rel-18, not only based on Rel-18 SA1/SA2 input but also considering the Rel-17 leftover, as you mentioned.

In your slide page 4, could you elaborate more on the case "A PDU session anchored at the SNPN cannot be maintained during mobility when the UE accesses the SNPN using credentials owned by a Credentials Holder separate from the original SNPN, which implies a lack of service continuity"? Do you assume that the UE already connects to an original/source SNPN with an anchor PDU session, and then the UE perform handover to a target SNPN cell? Is the Credentials Holder separate from the source SNPN and the target SNPN? Such scenario is not clear.

Furthermore, in your slide page 7, could you explain the details of "the enhanced mobility when involving SNPN"? For example, the scenarios and the meaning of enhanced mobility.

3.1 Response to companies' comments/questions□2nd round□

Q1□In your slide **page 4**, could you elaborate more on the case "A PDU session anchored at the SNPN cannot be maintained during mobility when the UE accesses the SNPN using credentials owned by a Credentials Holder separate from the original SNPN, which implies a lack of service continuity"? Do you assume that the UE already connects to an original/source SNPN with an anchor PDU session, and then the UE perform handover to a target SNPN cell? Is the Credentials Holder separate from the source SNPN and the target SNPN? Such scenario is not clear. Furthermore, in your slide **page 7**, could you explain the details of "the enhanced mobility when involving SNPN"? For example, the scenarios and the meaning of enhanced mobility.

(@FGI)

A1: Thanks for your question, the case of "UE mobility with a PDU session anchored at the SNPN" is that the UE of SNPN#1 connects to SNPN#1 with an anchor PDU session, then the UE performs handover to SNPN#2 which can provide the authentication for this UE by connecting to the credential holder of SNPN#1. In this case, although UE of SNPN#1 is not the subscriber of SNPN#2, but it has the right to use the network resource of the SNPN#2, its service continuity should be considered, i.e. "the enhanced mobility when involving SNPN".

4 Summary

Moderator Summary

6 companies participated in the two rounds of discussion on FeNPN and provided valuable questions and comments. Based on the received comments and questions, we made corresponding clarifications. The summary of the non-eMBB discussion was made as follows:

For FeNPN:

Keep following the progress of SA2 NPN and SA1 PALS related work and check RAN related impact of SA2 and SA1 study on NPN and include the corresponding RAN functionality in Rel-18 where necessary□

Continue to work on agreement on NPN RAN functionality that need to be further supported in Rel-18;

Such as:

The support of SNPN and PNI-NPN for eMTC/NB-IoT connected to 5GC;

The support RAN awareness of serving (selected) CAG ID.

5 Reference

[1] 3GPP RWS-210154, "Further enhancement of Private Network for Rel-18", China Telecom, Rel-18 workshop, June 28 – July 2, 2021.

[2] 3GPP RWS-210155, "Draft WID on Further Enhancement of Private Network Support for NG-RAN", China Telecom, Rel-18 workshop, June 28 – July 2, 2021.