3GPP TSG-SA WG2#163 S2-240xxxx

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**Source: Qualcomm Incorporated**

**Title: Summary of NWM feedback on FS\_VMR\_Ph2 conclusions**

**Document for: Discussion**

**Agenda Item: 19.6**

**Work Item / Release: FS\_VMR\_Ph2 / Rel-19**

*Abstract of the contribution: this contribution provides a summary of the NWM discussion on the FS\_VMR\_Ph2 study conclusions.*

# 1. Discussion

Details of the NWM discussion on FS\_VMR\_Ph2 study conclusions were captured at:

<https://nwm-trial.etsi.org/#/documents/8863>

A PDF version of the feedback forms and summary are available in the attached file.

Based on the feedback, some tentative conclusions can be derived, which are captured in the following sections.

# 2. Tentative conclusions

## 2.1 Conclusions related to KI#1:

Q1: Most company agreed to use the system architecture as shown in TR 23.700-06 Figure 6.1.1-1 to 6.1.1-3

as the basis for normative work for the case of PLMN.

Following additional aspects to be addressed in normative phase:

* Naming of the entities, e.g. MWAB-UE UDM vs. HPLMN UDM;
* Clarifications that the MWAB’s HPLMN and PLMN2 can be the same PLMN;

Q2: Most company agreed to use the system architecture as shown in TR 23.700-06 Figure 6.7.1-1 and 6.7.1-2

to be used as the basis for normative work for the case of SNPN.

Additionally, based on Q26, it can be concluded that the architecture in clause 6.7 of TR 23.700-06 for SNPN support should be extended with the following option:

* SNPN 1 is a PLMN, and SNPN 2 is a SNPN

Q3: Most companies agreed with the following general principles for normative work:

- MWAB-gNB connection with OAM server is over the IP connectivity provided by the PDU session of

MWAB-UE.

- MWAB-gNB N2 interface with UE-AMF is over the IP connectivity provided by the PDU session of

MWAB-UE.

- MWAB-gNB N3 interface with UE-UPF is over the IP connectivity provided by the PDU session of

MWAB-UE.

- Same or different PDU Sessions of MWAB-UE can be used for carrying the above traffic.

Some additional clarifications to be addressed in normative phase:

* The use of multiple PDU Sessions for N2 vs. N3 vs. OAM access, and whether some enhancements is

needed.

Q4: Most companies agreed to wait for RAN3 feedback to decide on the support of Xn interface between

MWAB-gNB and other gNBs.

Q5:Q27 On how to inform the UE-AMF that the UE is served by a MWAB cell (i.e. a moving cell), it can be concluded that an explicit indication from MWAB-gNB to UE’s AMF is assumed. However, further discussions are needed (at normative phase), also with RAN3 inputs on:

- Whether this is per MWAB-gNB (i.e. N2 est. signaling), or per UE signaling enhancement?

- Whether this indication is sufficient, e.g. how to reflect the location of the MWAB-gNB to UE’s AMF

for LI, Charging, or area management?

Based on the feedback from Q28, the following principles can be assumed for conclusions of KI#1:

- OAM server address is assumed to be configured on MWAB-gNB.

- The AMF address is assumed to be configured by the OAM server to the MWAB-gNB.

- MWAB-UE’s PLMN should NOT be assumed to have control of MWAB-gNB’s configurations (as it

can be serving a different PLMN).

* MOCAN should be supported by MWAB-gNB.

A NOTE for last point on MOCAN: ”Whether any specification impact is needed can be decided in normative

phase.”

## 2.2 Conclusions related to KI#2:

Q7: Most companies agreed to use the principles in TR 23.700-06 clause 8.2 as the basis for normative work,

with the following additional considerations:

- Needs to adjust based on RAN WG feedbacks.

- To turn the contents of EN into normative contents.

Q8: For KI#2, the additional considerations for normative phase should include:

- The details on authorization update handling;

- Clarify the separate MWAB-UE authorization (by AMF based on subscription) and that of the MWAB-gNB authorization (most likely by a different PLMN and OAM).

## 2.3 Conclusions related to KI#3:

Q9: For KI#3, most company agreed to reuse the existing CAG mechanism (as defined in Rel-18) as an optional method for managing UE’s access to MWAB-gNB.

A few further clarifications:

- CAG is only used for PNI-NPN deployment case.

- SNPN case should be separated.

Q10: Most companies agreed that existing SNPN control mechanism to manage the UE’s access to MWAB-gNB, in case it is serving a SNPN.

Based on the feedback from Q29, it is assumed that for KI#3:

- The case of mixed deployment of fixed gNB and MWAB-gNB for SNPN is supported;

- Existing SNPN control mechanism can be reused to differentiate the cells, and no standards impact is

expected

Q12: Most companies agreed that the MWAB-gNB’s configurations (e.g. Cell ID/TAC, AMF address, etc.) are

managed by OAM of the PLMN it serves, based on the location information of the MWAB.

Based on the feedback from Q30, it can be concluded :

* the detailed interactions between MWAB-gNB and OAM, e.g. the location information, is out of scope

of SA2.

NOTE: Any enhancements on this based on other WGs’ input should be handled in normative phase as

alignment work.

## 2.4 Conclusions related to KI#4:

Q14: Most companies agreed that the existing mobility procedures can be reused to handle UE’s mobility to/from a MWAB-gNB without enhancements.

Q15: Companies agreed that the solution based on instantiating multiple virtual cells by the same MWAB-gNB needs to wait for RAN3 confirmation.

Q16: Most companies agreed to down prioritize the mobility scenario F (Figure 6.9.2.1-2 of TR 23.700-06)

with UEs kept in CONNECTED mode.

## 2.5 Conclusions related to KI#5:

Q18: Most companies agreed that the principles presented in solution#11 (clause 6.11 of TR 23.700-06)

should be used as the basis for normative work.

## 2.6 Conclusions related to KI#6:

Q22: Most companies agreed to the following principles for emergency service support:

- Emergency services can be supported by MWAB based on the configuration of OAM.

- Some dedicated PDU sessions (with specific S-NSSAI and DNN) may be established by MWAB-UE when the MWAB-gNB serves an emergency session.

- MWAB-gNB will handover the UEs to other cells before stopping operating as MWAB.

Some additional clarifications should be added:

* The ”specific S-NSSAI and DNN” can be operator configured, and do not require a new standardized

SST.

* Further clarifications on the case when MWAB-UE setting up emergency sessions (or whether such case

needs to be considered).

* Clarification that for international roaming, the emergency service needs to be routed to local PSAP.

(from Q24 comments)

Based on the feedback from Q34, it can be concluded that:

* No enhancements will be introduced for the case where the MWAB-UE itself has an emergency service

session and continue to serve the MWAB-gNB.

# 3. Open points for further discussions

Some of the following points requires further discussions to conclude if any enhancement is required for the normative phase:

* Based on the feedback from Q31, the following aspects needs further discussion to be concluded:

- In case the MWAB-gNB does not change TAC/Cell ID when it moves, should SA2 consider enhancements to support the case where the UE’s AMF may change (due to MWAB-gNB’s change of location)?

- Or, should SA2 assume that the AMF (for the UE) doesn’t change in this case? This would also require RAN3 inputs on how such case can be supported, e.g. whether the MWAB-gNB needs to change gNB IDs or other IDs.

* Based on the feedback from Q33, there was a strong desire to not use Additional ULI. However, it needs to be further confirmed whether without it, the requirements to reflect the MWAB-gNB location can be satisfied. (Some of the discussion for satellite work, on the mapping of the cell ID, can be referenced.)
* Based on the feedback from Q32, it seems that there is no clear consensus for having the indication from AMF to LMF on the use of MWAB cell as the UE’s serving cell. However, there were some support for adding such indication. It should be confirmed during the meeting that if such indication can be an acceptable optimization.
* Based on the feedback from Q35, most companies support to rely on the existing slice based handling, or an AMF based timer to handle the ”graceful release”. However, some company still want to see an enhanced signaling between MWAB-UE and the MWAB-UE’s AMF. It needs to be confirmed during the meeting if we can conclude without introducing signaling enhancements.