3GPP TSG-RAN WG2 Meeting #116 electronic R2-210xxxx

Online, November 1-12, 2021

Agenda Item: 8.24.3 Other

Source: Ericsson

Title: Summary of [AT116-e][053][NR17] MINT (Ericsson)

Document for: Discussion, Decision

# 1 Introduction

This contribution summarizes the following discussion:

* [AT116-e][053][NR17] MINT (Ericsson)

      Scope: Take into account on-line agreements, take into account also LS in [R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip) and tdocs submitted. Determine TS impacts, arrive at agreeable CR and Reply LS out.

      Intended outcome: Report, Endorsed Draft CRs to 38304 38331, and Approved LS out. It is assumed this can be done offline.

      Deadline: EOM

In order to complete by the EOM, the rapporteur suggests two phases. The first phase to conclude on the open issues discussed in this document. Followed by the second phase where LS out and potential draft CRs will be produced.

**First phase:**

* Conclude issues discussed in this document.
* Deadline for input: Wednesday 23:59 UTC.

**Second phase:**

* Prepare LS out
* Prepare draft CRs
* Deadline: EOM.

Contact person(s) for each participating company:

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| Company | Contact Name, Email |
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# 2 Discussion

## 2.1 Summary of discussion at RAN2#116

Below is an excerpt from RAN2 chair notes at RAN2#116 for the MINT discussion.

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| MINTOnline Friday W1* [AT116-e][053][NR17] MINT (Ericsson)

 Scope: Take into account on-line agreements, take into account LS in [R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip) and tdocs submitted, see below. Determine TS impacts, arrive at agreeable CR and Reply LS out.  Intended outcome: Report, Endorsed Draft CRs to 38304 38331, and Approved LS out. It is assumed this can be done offline.  Deadline: EOM[R2-2109816](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109816.zip) Reply LS on UAC enhancements for minimization of service interruption when disaster condition applies ([C1-216253](http://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1//TSGC1_132e/Docs//C1-216253.zip); contact: Ericsson) CT1 LS in Rel-17 FS\_MINT-CT To:RAN2[R2-2110681](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2110681.zip) RAN2 aspects for MINT Ericsson discussion Rel-17[R2-2109834](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109834.zip) Selection of MINT UAC solution Lenovo, Motorola Mobility discussion Rel-17 FS\_MINT-CT* 3 tdocs noted

COMMENTS by PROPONENTS, on 40 vs 38- Ericsson think that 38 impact the procedure text, so 38 is a little more complicated. - Lenovo think both solutions require text update on access identity 3, 40 has the minor drawbacks that there is an additional calculation step, and there is a dependency on configuration for Accedd id 0. So prefer 38. - Ericsson think the example in Lenovo paper is not the way it should be done. DISCUSSION on 40 vs 38- LG agree with Lenovo. Difference is very small. But prefer 38.- Chair wonder if there is ever a case when configuration for ID 0 is not there.- Apple think that If they are independent than reconfiguration in easier, but agrees the comment by ericsson on procedure impact thus prefer 40. - Chair: Both solutions seems acceptable and rather small. SOH (preference) shows a slight majority for 38.- Huawei think we need to discuss the details. - Lenovo think this is a WI in CT and SA right now. * Will use solution 38
* Send reply LS

Chair: We discuss the other parts offline (support for LS in [R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip) acc to input tdocs), including LS out. Attempt to arrive at agreeable TP[R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip) LS on system information extensions for minimization of service interruption (MINT) ([C1-216297](http://www.3gpp.org/ftp/tsg_ct/WG1_mm-cc-sm_ex-CN1//TSGC1_132e/Docs//C1-216297.zip); contact: Ericsson) CT1 LS in Rel-17 MINT To:RAN2 Cc:SA2- LG think a and b in the LS doesn't impact RAN2 solution. Think it only affects NAS. - Lenovo has different opinion, and think the signalling cen be different for the PLMNS that share a cell in RAN sharing. Apple agrees and think we should discuss new SIB existing SIB etc. * Noted, will take into account offline

[R2-2111243](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111243.zip) LS on MINT functionality for Disaster Roaming ([S2-2108172](http://www.3gpp.org/ftp/tsg_sa/WG2_Arch//TSGS2_145E_Electronic_2021-05/Docs//S2-2108172.zip); contact: LGE) SA2      LS in     Rel-17   MINT   To:SA3, SA5, CT1, CT4, CT6, RAN2      Cc:SA, CT, RAN* Noted (wo pres, no action)

[R2-2109835](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109835.zip) Discussion on system information extensions for MINT Lenovo, Motorola Mobility discussion Rel-17 FS\_MINT-CT[R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip) RAN2 impact for supporting disaster roaming LG Electronics discussion Rel-17[R2-2111147](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111147.zip) Text proposal to 38.331 for solution 38 and 40 LG Electronics discussion Rel-17[R2-2111224](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111224.zip) RAN2 impact from MINT Apple discussion Rel-17 FS\_MINT-CT Late |

## 2.2 Remaining open issues

### 2.2.1 Implementation of UAC solution 38

In the online session the UAC solution 38 was agreed. On the details for implementing this solution the following options are proposed:

Option 1: In [R2-2109834](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109834.zip), Lenovo suggests introducing the new specific barring factor for Access Identity 3 in SIB1 by an R17 NCE of existing *uac-BarringInfoSetList*.

Option 2: In [R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip), LG suggests to introduce the new specific barring factor for Access Identity 3 in SIB1 by a new IE *UAC-BarringInfoSetListDisaster-r17* and a new IE *UAC-BarringPerCatDisaster-r17* to indicate mapping between Access Category and *uac-BarringInfoSetDisaster-r17*.

**Q1: Which option do you prefer for implementing UAC solution 38?**

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| **Company** | **Option 1 / Option 2** | **Comments** |
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### 2.2.2 Applicability of the special Access Identities 1, 2, 11 to 15

Beside Access Identity 3 a disaster roaming UE may be configured by its HPLMN with one or multiple special Access Identities 1, 2, 11 to 15. However, the applicability of the special Access Identities in the PLMN that offers disaster roaming service is not clear. This issue was briefly discussed in RAN2#115-e meeting but there was no consensus. In [R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip) LG proposes that the UE attempting for disaster roaming access is configured with Access Identity 1, 2 or 11 to 15 and 3, only Access Identity 3 specific barring is applied.

**Q2: Do you agree that the UE attempting for disaster roaming access is configured with Access Identity 1, 2 or 11 to 15 and 3, only Access Identity 3 specific barring is applied?**

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| **Company** | **Yes/No** | **Comments** |
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### 2.2.3 SIB to carry the disaster roaming information

CT1 indicated in [R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip):

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| Thus, for available PLMN(s), NAS will need to obtain from RRC:a) disaster related indication, for which CT1 still discusses whether it indicates (a) solely that the available PLMN is accessible for disaster inbound roamers or (b) that the available PLMN is accessible for disaster inbound roamers and all other PLMNs have disaster condition; orb) "list of one or more PLMN(s) with disaster condition for which disaster roaming is offered by the available PLMN" where each PLMN with disaster condition is identified by its PLMN ID. The list will need to be able to hold at least the same amount of PLMN IDs as number of PLMNs which can share an NR cell.(a) or (b) is used depending on the decision of the available PLMN. |

RAN2 needs to decide which SIB the information used for disaster roaming should be placed.

In [R2-2109835](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109835.zip), Lenovo suggests to "*defer this issue for the moment*".

In [R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip), LG proposes that "*Disaster roaming information is broadcast in a new SIB.*"

In [R2-2111224](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111224.zip), Apple suggests that "*a new SIB is more justified*",

**Q3: Which SIB should be used to provide the information used for disaster roaming?**

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| **Company** | **New SIB/SIB1/Other** | **Comments** |
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### 2.2.4 Support of RAN sharing scenarios

In [R2-2109835](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109835.zip), Lenovo suggests RAN2 to agree that in case of RAN sharing the ASN.1 signaling of the 1-bit flag (Option a) or PLMN list (Option b) in NR and LTE needs to allow both a common PLMN signaling and a per-PLMN specific signaling.

And in [R2-2110681](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2110681.zip) Ericsson proposes that RAN2 signalling should, in addition to signal disaster PLMN(s) per available PLMN, also allow to signal shared disaster PLMNs.

**Q4: Do you agree that in case of RAN sharing the ASN.1 signalling of the 1-bit flag (Option a) or PLMN list (Option b) in NR and LTE needs to allow both a common PLMN signalling and a per-PLMN specific signalling?**

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| **Company** | **Yes/No** | **Comments** |
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### 2.2.5 NAS interaction

CT1 asked RAN2 in [R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip) to specify that the RRC provides NAS with the disaster roaming information which were acquired from SIB.

In [R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip) LG proposes that upon reading the Disaster Roaming information, UE AS forwards to NAS accessibility indication and a list of PLMNs, if available, with a corresponding PLMN for each PLMN in SIB1.

**Q5: Do you agree that upon reading the Disaster Roaming information, UE AS forwards to NAS accessibility indication and a list of PLMNs, if available, with a corresponding PLMN for each PLMN in SIB1?**

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| **Company** | **Yes/No** | **Comments** |
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### 2.2.6 Impacts on cell (re)selection

Referring to the inputs from CT1 only impacts to UAC and SIB are expected to support the MINT feature in AS. However, on impacts to cell (re)selection the following proposals are made:

In [R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip), LG proposes to not introduce any modification of cell suitability criteria for disaster roaming access.

In [R2-2109835](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109835.zip), Lenovo suggests that a clarification from CT1 or SA2 may be needed whether specific requirements on cell (re)selection exist for disaster roaming UEs.

**Q6: Do you think there may be any impacts on cell selection/reselection due to MINT? Or do we need to seek input from CT1/SA2?**

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| **Company** | **Yes/No/Wait** | **Comments** |
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### 2.2.7 Support of NPNs

According to the CT1 LS [R2-2109818](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2109818.zip) the MINT feature is supposed to be supported in public PLMNs. However, it is not fully clear whether it is applicable for NPNs as well. In [R2-2111146](http://www.3gpp.org/ftp/tsg_ran/WG2_RL2//TSGR2_116-e/Docs//R2-2111146.zip) LG proposes that NPNs do not support disaster roaming.

**Q7: Do you agree that NPNs do not support disaster roaming?**

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| **Company** | **Yes/No** | **Comments** |
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# 3 Conclusion

TBD