**MoM of FS\_eNPN Conference Call 20200807**

Notes are captured for informative purposes based on author’s understanding. There may be inaccuracies and missing parts. Please, ask involved parties if anything is unclear.

**Papers available here:**

**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E**

About 70+ people participating and at least the participating companies were:

Ericsson, Nokia, Qualcomm, Intel, Sony, vivo, Huawei, MediaTek, OPPO, DoCoMo, Tencent, AT&T, T-Mobile USA, LGE, CMCC, MATRIXX, Orange, Futurewei, CableLabs, Convida, Charter, Telecom Italia, VW, OTD, Siemens, DTAG, Samsung, FirstNet, Cisco, ZTE, Sandvine, China Telecom, Motorola Solutions, Sharp, Infoblox, Alibaba

Intention was to spend approx 30 min per KI, but due to lack of time after discussing KI#1 it was agreed to discuss KI#2 papers per mail and instead spend the CC for the other key issues. Also, only the evaluation/conclusion papers were opened i.e. solution related papers to be discussed by mail.

Moderator encouraged companies to further discuss and if possible merge papers using the discussion mail list and especially discuss the KI#2 aspects.

Notes per agenda and paper:

1. KI#1
	1. Way forward, conclusion proposals

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| # | File | Source |
| 1-1 | **KI #1, Proposed way forward**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/INT%20S2-200XXXX\_KeyIssue1\_wf.docxComments:MDT, ok with 1-2 bullets. Concern with indication. Without indication still possible for UE to select.Intel, clarified sol#1. If SA1 req relaxed no SIB indication needed.MDT, LS to SA1? MDT, questioned why logic for underconfigured UE needed.Intel, explained scenario for the need.Nokia, asked if unauthorized UE possible to try.QC, cannot fully conclude on KI#1 i.e. partial conclusion. Proposed to not point to the solution.Intel, clarified does not need to be SNPN access mode.QC, clarified when SNPN access mode should be used.Intel, will look into wording for access mode. | Intel |
| 1-2 | **Evaluation and conclusion for KI#1**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/KI1\_E\_S2-200xxxx\_FS\_eNPN-evaluation-conclusion-KI1\_140E\_rev2.docxNokia, AAA agree it should be supported. Question, roles of UDM when AAA supported. Intel, any ind on radio? Intel, operators with Home SP as PLMN?QC, at least SIB needed for network support new functionality i.e. UE's with SP subscriptions.MDT, how UE do select Home SP subscription and if multiple possible?Nokia, nw only see one requested by the UE.HW, agree with Nokia – UE selects one to use.Intel, propose to keep one subscription in specsQC, need to maintain multiple as a possibility and UE selects which one.Futurewei, sol#11 Orange, still cannot agree arch based on roaming modelNokia, different arch modelsEricsson, asked which aspects that are of concern while agreed to avoid "roaming"DTAG, prefer to use structure from Ericsson paperQC, split to PLMN subscription and SNPN subscription?DTAG, may help to split QC, impacts to PLMN selectionTo look into split SP with SNPN and PLMN subscription and possible merge with Intel paper. | Ericsson |
| 1-3 | **KI#1, evaluations and conclusions regarding AAA-based architecture**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200bxxx%20-%20pCR%20KI%231%2C%20evaluations%20and%20conclusions%20regarding%20AAA-based%20a....docxNokia, principles if we have single SNPN and AAA or also when AAA is outside SP?HW, AAA separate from SNPN but works also inside.E, role change from AMF?HW, no UDMNokia, AAA behind AUSF as done in past. But sympathy for no UDM and only have AAA…QC, sent LS and better to keep AAA open based on LS reply.No firm agreement how to progress conclusion for AAA-based architecture. | **Huawei, HiSilicon** |
| 1-4 | **KI #1: way forward proposal**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxx-WayForward-KI-1-v1.docxIntel, UE probe network in 3) but does not address the stage 1 req,MDT, concerns with 3) as don't think underconfigured UE is clear.Nokia, referring to on demand SIB – signalling is less.Intel, on demand only for registered UEs…QC, need to explain the use case.Orange, can use KI#4QC and Intel don't agree to use KI#4 as it is different as here UE got subscription.Look into merge? | **Nokia, Nokia Shanghai Bell** |
| 1-5 | **KI#1, evaluation and conclusion for mobility scenarios**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx%20-%20pCR%20KI%231%2C%20evaluation%20and%20conclusion%20for%20mobility%20scenarios%20....docxIntel asked if it is more a requirement of co-existence?Couple of comments on co-existence.Discuss further reasoning and wording. | **Huawei, HiSilicon** |

* 1. Other input e.g. solution merges etc. – NOT DISCUSSSED

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| # | Title and File | Source |
|  | **KI#1, Solution to support SNPN access using 3rd party credentials via external Credential Provider – Note on Potential Key Hierarchy Impact**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx\_eNPN-KI1Sol8Update-KeyHierarchy.docx | **Siemens, Volkswagen** |
|  | **KI #1, Solution #11, address Editor notes**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-2000xxx\_eNPN\_KI\_%231%20-%20Sol%20%2311-address%20EN.doc | **Futurewei** |
|  | **KI#1, update Sol#4, 8, 10 to address the Ens**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200axxx%20-%20pCR%20KI%231%2C%20update%20Sol%234%2C%208%2C%2010%20to%20address%20the%20ENs%20-%20v0.1.docx | **Huawei, HiSilicon** |
|  | **KI#1, New Sol: New Network Selection for UE using Home SP subscription to access a supported SNPN**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-20xxxxx1-Sol.%20for%20KI-1\_new%20network%20selection%20v5.docSubmitted late. | **MediaTek Inc.** |

1. KI#2
	1. Way forward, conclusion proposals - NOT DISCUSSSED

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| # | Title and File | Source |
| 2-1 | **Evaluation and Conclusion for the KI#2**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx\_evaluation\_KI%232.doc | OPPO |
| 2-2 | **Evaluation and conclusion for KI#2**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/KI2\_E\_S2-200xxxx\_FS\_eNPN-evaluation-conclusion-KI2\_140E\_ver2.docx | Ericsson |
| 2-3 | **KI #2: way forward proposal**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxx-WayForward-KI-2.docx | **Nokia, Nokia Shanghai Bell** |
| 2-4 | **KI #2, evaluation and conclusion discussion**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-2000xxx\_eNPN\_KI\_%232%20-%20evalution%20and%20conclusion-Futurewei.docSubmitted late. | **Futurewei** |

* 1. Other input e.g. solution merges etc. - NOT DISCUSSSED

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| # | Title and File | Source |
|  | **Update on the solution 18**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx\_solution18\_update.doc | OPPO |
|  | **KI #2, new Solution #, QoS notification between SNPN and PLMN**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-2000xxx\_eNPN\_KI\_%232%20-%20new%20solution%20-QoS%20notification%20and%20negotiation.doc | **Futurewei** |
|  | **KI #2, Solution #18, address Editor notes**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-2000xxx\_eNPN\_KI\_%232%20-%20Sol%20%2318-address%20EN.doc | **Futurewei** |
|  | **KI#2, new solution, policy based control**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/KI2\_E\_S2-200xxxx\_FS\_eNPN-Solutions%20to%20KI%232\_rev3.docx | Ericsson |
|  | **KI#2, New Sol: Solution for offering QoS – simultaneous access to services by PLMN and SNPN**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx\_eNPNVIAPA\_%20P-CR\_v00.doc | **Nokia, Nokia Shanghai Bell** |
|  | **KI #2, New Sol: Simultaneous communication using N3IWF**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/LGE%20S2-200xxxx\_eNPN\_New%20Sol%20for%20KI%232.docx | **LG Electronics** |

1. KI#3
	1. Way forward, conclusion proposals

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| # | Title and File | Source |
| 3-1 | **KI #3, Evaluation and interim conclusion**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200XXXX\_KeyIssue3\_Evaluation.docxE, ok with generic parts 21 and 23, but cannot agree to only agree some deployment options at this stage.E, if already have subscription no need for 24 i.e. need further discussions.Intel, #24 more for IMS voice services.E, limited set.Intel, #24 about HR model.E, HR got similar issues as KI#1.Look into merge | **Intel** |
| 3-2 | **KI#3: intermediate conclusion for KI#3**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/KI3\_E\_S2-200xxxx\_FS\_eNPN-evaluation-conclusion-KI3\_ver1.docxIntel, which deployment models?Intel, is it the model with one subscription for 5GC and one for IMS? It is unrelated to HR.QC, Nokia wants to get involved in discussions.DTAG, assumed merge?YesLook into merge | Ericsson |
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* 1. Other input e.g. solution merges etc.

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1. KI#4
	1. Way forward, conclusion proposals

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| # | Title and File | Source |
| 4-1 | **KI #4, Partial Evaluation and Conclusion on the O-SNPN discovery aspects**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx%20-%20FS\_eNPN%20-%20Key%20Issue%204%20-%20Partial%20Eval%20and%20Conclusion.docMDT, does not show principles needed for KI.?, premature to pick 29 as baseline.QC, agree with manual and automatic selection but want to keep rest to UE implementation.Intel, auto selection specific for UE without interface. Seems both require ID from UE.Intel, auto selection two cases i.e. UE pre-configured with ON-SNPN and without.Convida, UE implementation approach does not address a random selection. Security concern.InterDigital, cannot be assumed UE can be pre-configured.InterDigital, sol#5 it is trial and error.Convida, all cases we need to pre-provision an id.QC, if config with temp ID why not with O-SNPN ID.Convida, O-SNPN ID not known at manufacturing.HW, config all SNPN ID and then automatic?Nokia, temp id in same format?Convida, format left to RAN and probably shorter.Consider merge | **Convida Wireless LLC** |
| 4-2 | **KI #4, Overall Evaluation and interim conclusion – User plane solutions**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200XXXX\_KeyIssue4\_Evaluation\_r01.doc.docxFuturewei, UP only option?Intel, does not see benefit of CP i.e. prefer UP for R17.OPPO, also think CP is needed.HW, how the PS is not manually selected?Intel, agreement with more than one, PS id, when UE gains secure connection…will clarify Nokia, comments on conditions stated and what UE providesIntel, UE does not analyze the relation in the network and therefore need one logic to apply.Nokia, prefer UPE, prefers to support both CP and UP, and not clear that the logic and relations in the network for the selection is best way forward.Convida, 2 and 3 but 5th bullet is SIB indication is only needed if UE is not configured with nw id?Intel, SIB whether nw supports onboardingIntel, does Convida want more information to enable to restrict UEsConvida, does not cover when UE not pre-config with ID and UE does not provide any ID.Intel, then UE selects any nw setting the SIB ind.Convida, need to describe security issue with single bit.MDT, why SIB indication needed if UE configured with O-SNPN ids?DTAG, spent effort to compartmentalize at the last meeting and conclusion should be divided in such way.Consider merge | **Intel** |
| 4-3 | **Interim Conclusions for Key Issue #4**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/QC-E%20S2-2004823-KI4-interim%20conclusions-r2.docNokia, default credentials mandatory?Orange, what is default credentials?HW, DCS auth the UE?Intel, primary auth possible, prefer to wait for SA3.QC, used for security reasons to allow protectionIntel, prefer SA3 to decide whether primary auth neededQC, explained bullet 1 and 4 difference, MDT, prefer to explain difference between default credentialsHW, both O-SNPN and PLMN in remote provisioning?QC, for both Nokia, leave it CP approach open. Intel, PNI-NPN should be fineNokia, will consider PNI-NPN caseOPPO, what is the problem with CP solution?Nokia, issue with CP is that it requires primary auth and that might not be possible.Consider merge | **Qualcomm Incorporated, Ericsson** |
| 4-4 | **KI#4, evaluations and conclusions on boarding and provisioning for SNPN subscription**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx%20-%20pCR%20KI%234%2C%20evaluations%20and%20conclusions%20onboarding%20and%20provis....docxE, UDM updated? HW, PS triggers update of UDM.InterDigital, ON can be PLMN or SNPN, support it and proposed it before but it was objected to.Orange, already included/supportedInterDigital, some previous objectionsConsider merge | **Huawei, HiSilicon** |
| 4-5 | **KI #4: way forward proposal**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxx-WayForward-KI-4-v1.docxNOT DISCUSSSED, consider merge | **Nokia, Nokia Shanghai Bell** |
| 4-6 | **KI #4: Evaluation and conclusion for PNI-NPN on-boarding**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/Evaluation%20and%20conclusion%20for%20PNI-NPN%20on-boarding.docNOT DISCUSSSED, consider merge | **Huawei, HiSilicon** |
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* 1. Other input e.g. solution merges etc. - NOT DISCUSSSED

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|  | **KI #4, Sol #39: Update to resolve Editor's Notes**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/ORA%20S2-200xxxx\_onboarding\_sol39\_upd\_v02.docx | **Orange, Telecom Italia** |
|  | **KI#4, Extension to SOL#35 to support external credential provider for onboarding authentication**ftp://ftps.3gpp.org/tsg\_sa/WG2\_Arch/TSGS2\_140e\_Electronic/INBOX/CCs/2020\_08\_07\_FS\_eNPN\_PreSA2%23140E/S2-200xxxx\_eNPN-KI4-Sol35Update-extCdP-extPS.docx | **Siemens, Volkswagen** |
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