**3GPP TSG-SA3 Meeting #100bis-e *S3-202530-r3***

**e-meeting, 12-16 October 2020** Merger of S3-202420 and S3-202530

**Source: Ericsson, Nokia, Nokia Shanghai Bell**

**Title: A new key issue on security of data collection from UE**

**Document for: Approval**

**Agenda Item: 2.16**

# 1 Decision/action requested

***Approve this contribution to add a new key issue in the eNA study TR33.866***

# 2 References

[1] 3GPP TR 23.700-91: “Study on enablers for network automation for the 5G System (5GS); Phase 2”

# 3 Rationale

In [1], Key Issue #8 "UE data as an input for analytics generation" addresses whether and how to enhance the 5GS to support collection and utilisation of data provided by the UE in NWDAF in order to provide input information to generate analytics information (to be consumed by other NFs). This key issue addresses the security of data collection from the UE.

# 4 Detailed proposal

\*\*\* BEGINNING OF 1st CHANGES \*\*\*

# 2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non‑specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[xx] 3GPP TR 23.700-91: “Study on enablers for network automation for the 5G System (5GS); Phase 2”

\*\*\* END OF 1st CHANGES \*\*\*

\*\*\* BEGINNING OF 2nd CHANGES\*\*\*

## 4.X Key Issue #X: UE data collection protection at NF/NWDAF

### 4.X.1 Key issue details

In [xx], Key Issue #8 "UE data as an input for analytics generation" addresses whether and how to enhance the 5GS to support collection and utilisation of data provided by the UE in NWDAF in order to provide input information to generate analytics information (to be consumed by other NFs). This key issue addresses the security of data collection from the UE.

UEs register to 5GS and request services, e.g. the initial registration request to AMF. For fulfilling the service, but also for analytics purposes, 5GS NFs will collect data about the UE being served, e.g. AMF needs to maintain a mapping between SUPI and 5G-GUTI and for accounting the time window for the service used. UE related data, processed by one NF, may also need to be transferred to another NF to fulfil a service request or for analytics purposes. UE can also provide privacy sensitive data such as positioning information, user profiling info, etc to NFs, which may be transferred to NWDAF.

This KI determines the requirement for protection of UE data collected by core NFs.

NOTE: The transport of data between UE and NF/NWDAF is expected to be protected by the current NAS and AS security mechanisms.

### 4.X.2 Threats

If the communication between UE and network is not confidentiality protected, then sensitive information about UEs may be leaked to unauthorized entities.

If the integrity of the data collected from UE is not protected, the analytics may not be accurate.

Replay attacks may lead to usage of same UE data more than once, and therefore, it may cause wrong analytic results.

A NF can collect privacy sensitive information about UEs such as location information, environment information, user profile information, which UE is not informed about. This is compromising the UE’s privacy. If NF collects UE data without taking into consideration the user consent, the UE is not in control of its own data and loses its right of data protection.

UE data stored in a NF or transferred between different NFs may be altered by a malicious entity. The attacker may provide false or modified information to other NFs or an analytics function such as NWDAF. For instance, the malicious entity can modify the UE information statistics or logs sent to the NWDAF.

In case of the network is not authenticated by the UE, the UE may send UE data to an unauthorized entity, which may lead to leakage of sensitive data of the UE.

If an unauthenticated UE is sending the data, it may send erroneous data to NF/NWDAF, it can compromise the efficiency, performance and output of analytics algorithms implemented in the analytics functions. If the NF/NWDAF which is receiving UE data is not properly authenticated and authorized, the sender may transfer the UE data to an unauthorized NF or analytics function.

### 4.X.3 Potential Security requirements

TBD

\*\*\* END OF 2nd CHANGES \*\*\*