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Sophia Antipolis, France

Source: Vodafone

Title: Changes to authentication data request message to enhance index value allocation in the AuC

Document for: Decision

Agenda Item: 10.1

In 33.102 v3.6.0 Annex C.3.4 on sequence number management, it is suggested that in future releases of the 3GPP specifications additional information may be available in the MAP Authentication Data Request message which may be used in the allocation of index values in the array mechanism. In particular, information about the domain type (e.g. PS or CS) and information about the requesting network element's identity may be used to allocate index values so that the following objectives are achieved:

- synchronisation failures are minimised when the serving network is super-charged;
- synchronisation failures are eliminated when interleaving authentications occur in the CS and PS domain.

Note that this information may also be available from other sources, depending on the implementation of the HLR and the HLR/AuC interface. However, it is preferable to make this information available at the application layer by including it in the MAP message.

It is proposed that a liaison statement is sent to N4 requesting that they add the following information to the MAP Authentication Data Request message in 3GPP R4:

- requesting node type (e.g. PS or CS);
- requesting node identity.

It is also proposed that a CR to 33.102 is created to include this enhancement in the 3G authentication mechanism specification.

The next N4 meeting is 15-19 January 2001.

An extract from 33.102 v3.6.0 Annex C.3.4 is attached.

Extract from 33.102 v3.6.0:

C.3.4 Guidelines for the allocation of the index values in the array scheme

- **General rule:** index values *IND* used in the array scheme, according to Annex C.1.2, shall be allocated cyclically within its range $0, \dots, a-1$. This means that the index value *IND* used with the previously generated authentication vector is stored in SQN_{HE} , and the next authentication vector shall use index value $IND + 1 \bmod a$.

It may be useful to allow exceptions to this general rule when additional information is available. This includes:

- Authentication vectors distributed within the same batch shall have the same index value.

In future releases, the Authentication Data Request MAP message may contain information about the requesting serving node and the domain (CS or PS) from which the request originates. Note that this information may also be available from other sources, depending on the implementation of the HLR and the HLR/AuC interface. If this information is available it is recommended to use it in the following way. Support for this use is, however, not required for an implementation to claim compliance to Annex C.

- Authentication vectors distributed to different service domains shall have different values (i.e. separate ranges of index values are reserved for PS and CS operation);
- If the new request comes from the same serving node as the previous request, then the index value used for the new request shall be the same as was used for the previous request.