Source:	**Ericsson**
Title:	**Issues regarding one-step HLR interrogation**
Agenda item:	**8.7**
Document for:	**Discussion and Decision**

1. Introduction

The Rel-5 and onwards CRs NP-030078 and NP-030106 are agreed CN3 and CN4 corrections on Service Change and UDI Fallback, introducing two-step HLR interrogation to perform subscription checking and forwarding options for SCUDIF calls.

This contribution addresses the concerns expressed in NP-030131 that includes introduction of a one-step interrogation procedure.

2. Discussion

Two-step or one-step HLR interrogation

One of the main aspects dealt with during the development of the SCUDIF specifications was the fact that the service shall be backward compatible.

Backward compatibility with older terminals, and with existing network components and integration thereof was one of the main requirements that need to be reminded here now. Please refer to the TS 23.172 'Technical realization of CS multimedia service, UDI/RDI fallback and service modification" sections 4.2 related to backward compatibility with non-supporting terminals, and 4.3.6 on interworking with existing ISUP and other non-BICC networks.

With that in mind, Ericsson proposed the two-step interrogation CRs in CN3 and CN4 as oppose to one-step interrogation that clearly defeats the purpose of all the efforts and mechanisms specified in the TS 23.172. Introducing a one-step interrogation would break the compatibility requirement with non-compliant HLRs not used for the SCUDIF service. The one-step interrogation is in total contradiction with the approach taken by the WGs, enforcing updates to all HLRs of an operator and its roaming partners. This would probably be quite costly and leading to a complete backward incompatible interface for SRI.

It is also important to remember that up to now the logic for the SCUDIF service is mainly located in the MSC/GMSC. The new proposal will shift the "decision process" from the MSC to the HLR, whereas in the two-step interrogation, the capability requested from the HLR is only to withhold a PRN interrogation, and not to make decisions about the further progress of the call, especially as it might interfere with further routing of the call, notably when interworking with non-BICC network: if HLR replies that only the preferred service (e.g. Multimedia) is to be used, the GMSC cannot deduce whether it is because the speech service is barred, or because it goes to a different destination. If it turns out that the preferred service is routed to e.g. a PSTN network that does not support multimedia, the GMSC has then no possibility to take the decision to select the speech service instead.

In case one of the services is barred and the other results in PRN, HLR would report the barred call by sending back the error CallBarred. The roaming number would have to be reported in the result part of the SRI message. HLR can either send result or error, not both.

Similar to barring, the problem occurs also in the case when one of the services is forwarded and the other results in PRN.

To overcome these problems that again move the logic to the HLR, bigger changes are needed in the SRI.

Two-step interrogation does in fact not cause more signaling load towards non-compatible HLRs, as the GMSC would already be notified in the first SRI if the HLR does not support the service, and hence it would not send the second SRI interrogation to the HLR.

3. Proposal

The CN Plenary approves NP-030078 and NP-030106.