

**3GPP TSG CN Plenary Meeting #16**  
**5<sup>th</sup> – 7<sup>th</sup> June 2002 Marco Island, USA.**

**NP-020267**

**Source:** TSG CN WG4  
**Title:** CR on Rel-5 luFLEX  
**Agenda item:** 8.1  
**Document for:** APPROVAL

---

**Introduction:**

This document contains a CR on Rel-5 Work Item "IUFLEX", that have been agreed by TSG CN WG4, and are forwarded to TSG CN Plenary meeting #16 for approval.

| <b>Spec</b> | <b>CR</b> | <b>Rev</b> | <b>Doc-2nd-Level</b> | <b>Phase</b> | <b>Subject</b>   | <b>Cat</b> | <b>Ver_C</b> |
|-------------|-----------|------------|----------------------|--------------|--|------------|--------------|
| 23.003      | 037       | 1          | N4-020513            | Rel-5        | luFlex support for determining old SGSN during handover/relocation | C          | 5.2.0        |

## CHANGE REQUEST

⌘ **23.003 CR 037** ⌘ rev **1** ⌘ Current version: **5.2.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

**Proposed change affects:** ⌘ (U)SIM  ME/UE  Radio Access Network  Core Network

|                        |  |   |             |
|------------------------|--|---|-------------|
| <b>Title:</b>          | ⌘ luFlex support for determining old SGSN during handover/relocation   |   |             |
| <b>Source:</b>         | ⌘ CN4  |   |             |
| <b>Work item code:</b> | ⌘ IUFLEX   | <b>Date:</b>  | ⌘ 11.4.2002 |
| <b>Category:</b>       | ⌘ <b>C</b>   | <b>Release:</b>   | ⌘ REL-5     |
|                        | <i>Use one of the following categories:</i><br><b>F</b> (correction)<br><b>A</b> (corresponds to a correction in an earlier release)<br><b>B</b> (addition of feature),<br><b>C</b> (functional modification of feature)<br><b>D</b> (editorial modification)<br>Detailed explanations of the above categories can be found in 3GPP TR 21.900. | <i>Use one of the following releases:</i><br><b>2</b> (GSM Phase 2)<br><b>R96</b> (Release 1996)<br><b>R97</b> (Release 1997)<br><b>R98</b> (Release 1998)<br><b>R99</b> (Release 1999)<br><b>REL-4</b> (Release 4)<br><b>REL-5</b> (Release 5) |             |

|                                      |   |
|--------------------------------------|---|
| <b>Reason for change:</b>            | ⌘ Adding luFlex support for the procedure of determining old SGSN during handover/relocation  |
| <b>Summary of change:</b>            | ⌘ If new SGSN is not able to extract NRI from old P-TMSI/TLLI, then default SGSN serving old RA is contacted, otherwise old SGSN is determined directly based on NRI-to-SGSN assignment information got by configuration or retrieved from DNS. |
| <b>Consequences if not approved:</b> | ⌘ If direct determination of old SGSN by the new SGSN is not possible, then default SGSN will have to be contacted in all cases, which may result in performance decrease.  |

|                              |   |   |
|------------------------------|---|---|
| <b>Clauses affected:</b>     | ⌘ Annex C.1   |   |
| <b>Other specs affected:</b> | ⌘ <input type="checkbox"/> Other core specifications<br><input type="checkbox"/> Test specifications<br><input type="checkbox"/> O&M Specifications | ⌘ |
| <b>Other comments:</b>       | ⌘   |   |

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

---

## Annex C (normative): Naming convention

A naming convention that will make it possible for DNS servers to translate logical names for GSNs and RAs to physical IP addresses is described in this normative annex. The use of logical names is optional, but if the option is used, it shall comply with the naming convention described in this annex.

---

### C.1 Routing Area Identities

A possible way to support inter-PLMN roaming is discussed very briefly in this clause.

When an MS roams between two SGSNs within the same PLMN, the new SGSN finds the address to the old SGSN by the association old RA - old SGSN. Thus, each SGSN knows the address to every other SGSN in the PLMN.

When an MS roams from an SGSN to an SGSN in another PLMN, the new SGSN may not itself have access to the address to the old SGSN. Instead, the SGSN transforms the old RA information to a logical name of the form:

*RACxxx.LACyyyy.MNCzzzz.MCCwww.GPRS;*      x,y,z and w shall be Hex coded digits.

If there are less than 4 significant digits in xxxx, yyyy, zzzz, www, one or more "0" digit(s) is/are inserted at the left side to fill the 4 digits HEX coding.

The SGSN may then acquire the IP address of the old SGSN from a DNS server, using the logical address. Every PLMN should include one DNS server each. Note that these DNS servers are GPRS internal entities, unknown outside the GPRS system.

The above implies that at least MCC + MNC + RAC + LAC (= RAI) is sent as RA parameter over the radio when an MS roams to another RA.

If the new SGSN for any reason fails to obtain the address of the old SGSN, the same actions as when the corresponding event occurs within one PLMN are taken.

Introducing the DNS concept in GPRS gives a general possibility to use logical names instead of IP addresses when referring to e.g. GSNs, thus providing flexibility in addressing of PLMN nodes.

Another way to support seamless inter-PLMN roaming is to store the SGSN IP addresses in HLR and request them when necessary.

If Intra Domain Connection of RAN Nodes to Multiple CN Nodes [21] is applied then the Network Resource Identifier (NRI) identifies uniquely a given SGSN node out of all SGSNs serving the same pool area.

- If the new SGSN is not able to extract the NRI from the old P-TMSI, it shall retrieve the address of the default SGSN [21] serving the old RA, using the logical name described earlier in this section. The default SGSN in the old RA relays the GTP signalling to the old SGSN identified by the NRI in the old P-TMSI unless the default SGSN itself is the old SGSN.

- If the new SGSN is able to extract NRI from old P-TMSI, then it shall attempt to derive the address of the old SGSN from the NRI and the old RAI. NRI-to-SGSN assignments may be either configured (by O&M) in the new SGSN, or retrieved from DNS. If DNS is used, it shall be queried using the following logical name, derived from old RAI and NRI information:

*NRIxxxx.RACyyyy.LACzzzz.MNCvvvv.MCCwww.GPRS*

x,y,z,v and w shall be Hex coded digits. If there are less than 4 significant digits in xxxx, yyyy, zzzz, vvvv, www, one or more "0" digit(s) is/are inserted at the left side to fill the 4 digits Hex coding.

If the new SGSN for any reason fails to obtain the address of the old SGSN using this method, then as a fallback method it shall retrieve the address of the default SGSN serving the old RA.