TSG-RAN Meeting #13 ***RP-010641***
Beijing, China, 18 - 21 September 2001

Source: Vodafone Group plc

Title: Clarification of the scope of "Open Interface between the SMLC and the SRNC within UTRAN to support Rel-4 methods"

Agenda: 9.4.4

Document for: Discussion

Introduction

During RAN plenary #12, a WI was proposed by Hutchison 3G, Nokia, Siemens, and Vodafone Group. This WI was agreed by the RAN plenary. Subsequently, work has begun on this WI in RAN WG2 (group that has been assigned as the prime responsibility by RAN). As a result, of these discussions there is a misunderstanding with respect to the scope of the agreed WI.

The location service architecture is provided for information in Figure 1. [25.305 v5.1.0]

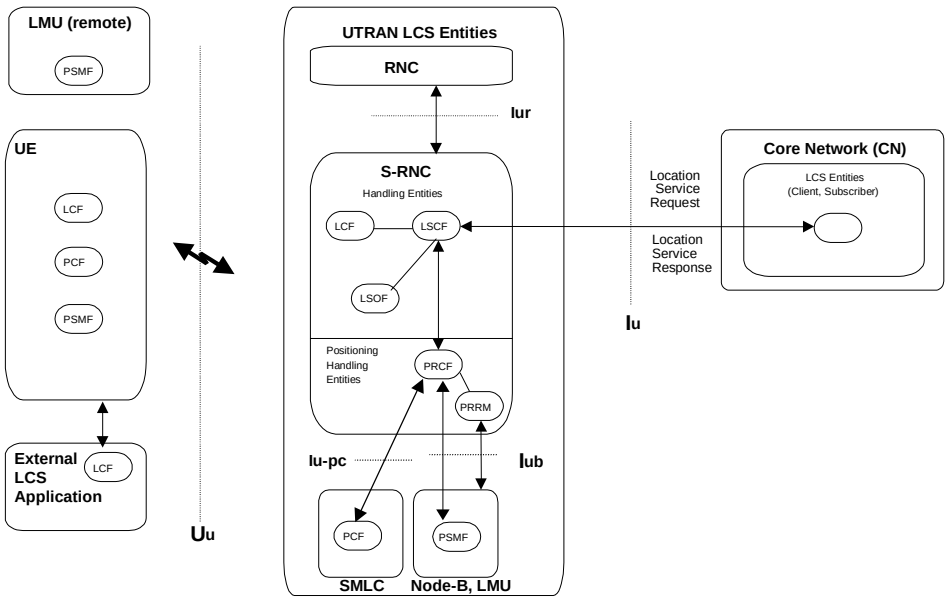

Figure 1: UTRAN UE Positioning Functional Entities – SAS version

Several functional groupings may be defined to describe the UE Positioning functions. These groupings occur in both the CN and the UTRAN. Each grouping encompasses a number of functional components and functions.

Within UTRAN the functional entities may be grouped as follows:

- *the Internal Client group that includes:*
  - Internal UTRAN Location Client Function (U-LCF);
  - the UTRAN System Handling group that includes:
  - UTRAN Location System Control Function (U-LSCF),
  - UTRAN Location System Operations Function (U-LSOF);

- *the UTRAN Positioning group that includes:*
  - UTRAN Position Radio Co-ordination Function (U-PRCF),
  - UTRAN Position Calculation Function (U-PCF),
  - UTRAN Position Signal Measurement Function (U-PSMF),
  - UTRAN Position Radio Resource Management (U-PRRM).

Logically there are two main proposals with regard to the scope of "Open Interface between the SMLC and the SRNC within UTRAN to support Rel-4 methods".

Proposal 1: PCF only to be contained in the stand alone SMLC.

If the PCF only is contained in the SMLC for the support of all Rel-4 methods, then the Iu-pc interface will just be expanded to cover the processing of Rel-4 location method measurements, such as OTDOA.

Advantage:

1. Interface remains relatively simple.
2. Provide a mechanism to 'export' some of the processing required to process the OTDOA measurements.

Disadvantage:

1. Does not provide one single unit containing all UP functionality, and therefore there is a strong dependency upon the provision of location service functionality from the RNC vendor.
2. Less opportunity for 'intelligent' user positioning in the SMLC. i.e. if all measurement information is contained in one unit, then this can be easier utilized by an intelligent user positioning algorithm.

Proposal 2: Provide a method of obtaining full self contained UE positioning functionality through the stand alone SMLC.

This proposal proposes to move all of the current SRNC UP/LCS functionality to the SMLC.

Advantage:

1. Single product may be used to perform all (and 'intelligent') user positioning.
2. Simple upgrade path for new positioning methods.

Disadvantage:

1. More complex interface needs to be defined due to the increased functionality that needs to be carried over the Iu-pc interface. [e.g. handling of RRM in order to perform a given positioning method.]

Proposal

Vodafone propose to increase the functionality of the SMLC, thereby allowing easier provision of timely and consistent UP QoS in a large multi-vendor network.

56. Open interface between the SMLC and the SRNC within the UTRAN to support Rel-4 positioning methods

Last distributed as: RP-010210

Work Item Description

Title: **Open interface between the SMLC and the SRNC within the UTRAN to support Rel-4 positioning methods**

1 3GPP Work Area

X	Radio Access
	Core Network
	Services

2 Linked work items

None identified.

3 Justification

At the 3GPP LCS Work Shop held in London on 1/11/01and 1/12/01 it was agreed standalone SMLC could be specified for A-GPS method and other positioning methods should be also considered for standalone SMLC.

4 Objective

The objective of this work item is to provide for support of ~~an~~ through an open interface between a stand alone~~the~~ SMLC and the SRNC within the UTRAN for the support of all Rel'4 positioning methods positioning, i.e. Cell ID based, OTDOA based and A-GPS.

The use of the ~~Whether~~ standalone SMLC ~~is used or not needs to~~ should be transparent for the UE and hence ~~will~~ only impact the SRNC which supports standalone SMLC.

The stand alone SMLC shall be able to perform all RNC user positioning functionality.

In UTRAN is shall be also transparent to other network elements besides SRNC, whether standalone SMLC or integrated SMLC is supported.

5 Service Aspects

None identified.

6 MMI-Aspects

None identified.

7 Charging Aspects

None identified.

8 Security Aspects

None identified.

9 Impacts

Affects:	USIM	ME	AN	CN	Others
Yes			X		
No	X	X		X	
Don't know					

10 Expected Output and Time scale (to be updated at each plenary)

This is a Release 5 Work Item

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments
New TR	SRNC – SMLC Location Protocol	RAN 2	RAN 3	RAN #12	RAN #13	See Note 1.
Affected existing specifications						
Spec No.	CR	Subject		Approved at plenary#		Comments
25.401		UTRAN architecture description; Stage 2		RAN #14		~~Add new Iux interface and new SMLC network entity.~~Revised current description of Iu-pc interface.
25.305		UTRAN Stage 2		RAN #14		Modify Network Reference Model add stage 2 call flows for Cell ID based, OTDOA and A-GPS positioning methods.
25.450		UTRAN Iupc interface general aspects and principles		RAN #14		
25.451		UTRAN Iupc interface layer 1		RAN #14		
25.452		UTRAN Iupc interface signalling transport		RAN #14		
25.453		UTRAN Iupc interface Positioning Calculation Application Part (PCAP) signalling		RAN #14		

Note 1 : There exists ~~(not yet RAN appoved)~~ a WI for A-GPS only, and in this case intention is to use the defined A-GPS call flows/messages/protocols when ~~applicaple~~applicable assuming the interface is done with consideration for extending to other methods. Whether the same specification can be extended or whether a new one needs to be created is to be evaluated once the needed signalling elements are concluded.

To allow for a stand alone SMLC, the Iu-pc will need to be enhanced or a new interface will ~~is~~ be required between the SMLC and the SRNC.
~~The~~ All measurements in support for LCS defined in Rel'99/Rel'4 for UE/LMU are usable for the SMLC and can be relayed by the SRNC to the standalone SMLC for UE location calculation purposes.

11 Work item raporteurs

Antti Toskala, Nokia, Finland

12 Work item leadership

RAN WG2

13 Supporting Companies

Hutchison3g, Nokia, Siemens, Vodafone Group

14 Classification of the WI (if known)

	Feature (go to 14a)
X	Building Block (go to 14b)
	Work Task (go to 14c)

14a The WI is a Feature: List of building blocks under this feature

14b The WI is a Building Block: parent Feature UE positioning

14c The WI is a Work Task: parent Building Block