TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3) *TSGR2#6(99)805*
Sophia Antipolis, France, August 16th to 20th 1999

Agenda Item: 4.3

Source: **Nokia**

Title: CR to TS25.301 on Clarification on the usage of CCCH vs DCCH logical channels

Document for: Decision

3GPP TSG-RAN meeting #5 *Document* ***RP-99???***

Korea, 6-8 October 1999

3G CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

TS 25.301 **CR** **006** Current Version: 3.1.0

3G specification number ↑ *↑ CR number as allocated by 3G support team*

For submission to TSG RAN#5 *list TSG meeting no. here ↑* for approval [X] for information [ ] *(only one box should be marked with an X)*

Form: 3G CR cover sheet, version 1.0 *The latest version of this form is available from:* ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf

Proposed change affects: *(at least one should be marked with an X)* USIM [ ] ME [X] UTRAN [X] Core Network [ ]

Source: TSG-RAN WG2 **Date:** 09/07/99

Subject: Clarification on the usage of CCCH vs DCCH logical channels

3G Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in a 2G specification	[ ]
B	Addition of feature	[ ]
C	Functional modification of feature	[X]
D	Editorial modification	[ ]

Reason for change: The usage of CCCH vs DCCH logical channel for RRC messages like "Cell Update", "URA Update" and "RRC Connection Re-establishment" has been on open issue. It is proposed that these (uplink) messages always use the CCCH channel.

Clauses affected: 5.3.1.1.1.1, 5.6.2, 6.1

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other 2G core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

help.doc

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5.3.1.1.1.1. Control Channels

Control channels are used for transfer of control plane information only.

Common Control Channel (CCCH)

Bi-directional channel for transmitting control information between network and UEs. This channel is commonly used by the UEs having no RRC connection with the network and by the UEs using common transport channels when accessing a new cell after cell reselection.

5.6.2. Protocol termination for RACH/FACH

Figure 14 and Figure 15 show the protocol termination for RACH/FACH for the control and user planes, respectively. Control plane termination refers to the case where RACH/FACH carry dedicated or common control information (i.e. CCCH or DCCH). User plane termination refers to the case where RACH/FACH carry user data (DTCH) (two alternatives cases, referred to as case B and C, are described in the Annex).

It is assumed that macrodiversity/soft handover is not applied for RACH/FACH. Therefore, the physical layer terminates in Node B. For RACH/FACH carrying DCCH, MAC is split between Controlling and Serving RNC. RLC, and in the C plane also RRC terminate in the Serving RNC. Since Iur can support common channel data streams, the users of that common channel can depend on different SRNCs. However, they depend on the same Controlling RNC. Therefore, for a given user, the Controlling RNC and the Serving RNC can be separate RNCs.

For RACH/FACH carrying CCCH, MAC, RLC and RRC are terminated in the RNC.

~~*[Note: It is currently an open issue whether or not there are CCCH messages that need to be routed between Controlling and Serving RNC over Iur. If it is only the initial access message that is defined for CCCH, C-RNC and S-RNC are always identical and no routing would be needed. If messages such as "URA update", "Cell update" and "RRC connection re-establishment" would be signalled on CCCH, routing of these messages on RRC level would need to be performed]*~~

6.1. UE identification within UTRAN

A Radio Network Temporary Identity (RNTI) is used as an UE identifier on RACH/FACH or RACH+CPCH/FACH by the MAC protocol, or on PCH by the RRC, when a RRC connection exists.

Definition of UE identifiers

Two types of RNTI exist. One is used within the Serving RNC and it is denoted by Serving RNC RNTI (s-RNTI), the other is used within C-RNC, when applicable, and it is denoted by Controlling RNC RNTI (c-RNTI).

s-RNTI is allocated for all UEs having a RRC connection. It is allocated by the Serving RNC and it is unique within the Serving RNC. s-RNTI is reallocated always when the Serving RNC for the RRC connection is changed and deallocated when the RRC connection is released.

In addition for each UE having an RRC connection, there is an identifier of its current serving RNC, which is denoted as S-RNC identifier. The S-RNC identifier together with s-RNTI is a unique identifier of the RRC connection within PLMN.

c-RNTI for an UE is allocated by each controlling RNC through which UE is able to communicate on DCCH. c-RNTI is unique within the allocating C-RNC. c-RNTI is always allocated when a new UE context is created to a RNC. Serving RNC is always aware of all c-RNTIs allocated for the UE.

Usage of UE identifiers

s-RNTI together with the S-RNC identifier is used as a UE identifier in cell update, URA update, RRC connection reestablishment and (UTRAN originated) paging messages and associated responses on the air interface. S-RNC identifier is used by Controlling RNC to route the received uplink messages towards the Serving RNC. For the initial access two different methods of identification, a random number and a unique core network identifier are under consideration.

c-RNTI is used as a UE identifier in all other DCCH/DTCH common channel messages on the air interface.

[Note: Initial access, when no RRC connection exists, needs further study. The following two methods could be applied: (i) The initial access message carried on RACH/FACH transport channels and CCCH logical channel includes a unique UE identity (e.g. TMSI + LAI). (ii) The initial access message includes a random number as temporary identity. The unique UE identity is then exchanged in a second phase after establishment of DCH transport channels on DCCH. In TDD mode, the first approach may imply initial access message length too large to be carried on RACH. Therefore the above second approach is preferred for TDD. In FDD mode, the first approach would be preferable. It is thus currently not decided whether the same or different initial access methods will need to be applied in FDD and TDD modes. Further contributions on this issue are invited. ~~*Also, it is ffs. whether messages with s-RNTI and RNC-ID will use the CCCH or the DCCH logical channel and whether the protocol layer providing the address field (and C-RNC routing) is MAC or RRC.*~~*]*

A specific s-RNTI or c-RNTI (ffs.) is valid in several cells, thus decreasing the RNTI reallocation signaling for moving inactive packet data UE's.