TSG-RAN Meeting #11
Palm Springs, CA, U.S.A., 13-16 March 2001

RP-010155

Title: **Agreed CRs to WI "QoSPS-PSdoRTS"**

Source: **TSG-RAN WG3**

Agenda item: **5.3.3**

Tdoc_Num	Specification	CR_Num	Revision_Num	CR_Subject	CR_Category	WG_Status	Cur_Ver_Num	New_Ver_Num	Workitem
R3-011043	25.413	252	1	Support of PS realtime relocation in RANAP	B	agreed	3.4.0	4.0.0	QoSPS-PSdoRTS

3GPP TSG-RAN WG3 Meeting #19 ***Tdoc R3-011043***
Cardiff, WALES, 26 February- 2 March 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.413** **CR** **252** ⌘ rev **1** ⌘ Current version: **3.4.0** ⌘

*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 **X** Core Network **X**

Title:	⌘	Support of PS realtime relocation in RANAP
Source:	⌘	R-WG3
Work item code:	⌘	QoSPS-PSdoRTS
Date:	⌘	2001-03-01
Category:	⌘	**B**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential correction)*
A *(corresponds to a correction in an earlier release)*
B *(Addition of feature),*
C *(Functional modification of feature)*
D *(Editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	According to 23.107 QoS Concept and Architecture, in Packet Switch Domain side, the Interactive and the Background QoS classes require loss-less relocation. The Conversational and the Streaming QoS classes require realtime relocation. According to TR 25.936 Handover for realtime services from PS domain, the RANAP Release 4 requires the introduction of a new type of PS relocation procedure, called at this moment seamless. However, "seamless" seems to be ambiguous and undefined. This new relocation case should be called by a clear name and that should be well defined. Moreover currently RANAP mentions the lossless relocation type without further explanation or reference.
Summary of change:	⌘	Add a new value "realtime" for Relocation requirement Type IE. This corresponds to the seamless handling. Also a new reference is made to 23.060, where the User Plane Handling during SRNS relocation especially the lossless and realtime handling are explained .
Consequences if not approved:	⌘	

Clauses affected:	⌘	2, 9.2.1.3 and 9.3.4
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

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. 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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

For a specific reference, subsequent revisions do not apply".

For a non-specific reference, the latest version applies".

[1] 3GPP TR 23.930: "3rd Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspects; Iu Principles".

[2] 3GPP TS 25.410: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Iu Interface: General Aspects and Principles".

[3] 3GPP TS 25.401: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Overall Description".

[4] 3GPP TR 25.931: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Functions, Examples on Signalling Procedures".

[5] 3GPP TS 25.412: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Iu Interface Signalling Transport".

[6] 3GPP TS 25.415: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; UTRAN Iu Interface User Plane Protocols".

[7] 3GPP TS 23.107: "3rd Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspects; QoS Concept and Architecture".

[8] 3GPP TS 24.008: "3rd Generation Partnership Project (3GPP); Mobile radio interface layer 3 specification, Core Network Protocols – Stage 3".

[9] 3GPP TS 25.414: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; Iu Interface Data Transport and Transport Signalling".

[10] 3GPP TS 25.331: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; RRC Protocol Specification".

[11] 3GPP TS 08.08: "Mobile services Switching Centre – Base Station System (MSC – BSS) interface".

[12] 3GPP TS 12.08: "Subscriber and equipment trace".

[13] X.691 (12/94): "Information Technology - ASN.1 encoding rules - Specification of Packed Encoding Rules (PER)".

[14] X.680, (12/94): "Information Technology - Abstract Syntax Notation One (ASN.1):Specification of basic notation".

[15] X.681 (12/94): "Information Technology - Abstract Syntax Notation One (ASN.1): Information object specification".

[16] 3GPP TS 23.110: "3rd Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspects, UMTS Access Stratum, Services and Functions".

[17] 3GPP TS 25.323: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; Packet Data Convergence Protocol (PDCP) Specification".

[18] 3GPP TS 25.921: "3rd Generation Partnership Project (3GPP) Technical Specification Group Radio Access Network; Guidelines and principles for protocol description and error handling".

[19] 3GPP TS 23.003: "3rd Generation Partnership Project (3GPP) Technical Specification Group Core Network; Numbering, addressing and identification".

[20] 3GPP TS 23.032: "3rd Generation Partnership Project (3GPP) Technical Specification Group Core Network; Universal Geographical Area Description (GAD)".

[21] 3GPP TS 23.060: "3rd Generation Partnership Project (3GPP) Technical Specification Group Services and System Aspect; General Packet Radio Service (GPRS); Service description; Stage 2".

9.2.1.3 RAB Parameters

The purpose of the *RAB parameters* IE group and other parameters within the *RAB parameters* IE group is to indicate all RAB attributes as defined in [7] for both directions.

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Traffic Class	M		ENUMERATED (conversational, streaming, interactive, background, ...)	**Desc.:** This IE indicates the type of application for which the Radio Access Bearer service is optimised
>RAB Asymmetry Indicator	M		ENUMERATED (Symmetric bidirectional, Asymmetric Uni directional downlink, Asymmetric Uni directional Uplink, Asymmetric Bidirectional, ...)	**Desc.:** This IE indicates asymmetry or symmetry of the RAB and traffic direction
>Maximum Bit Rate	M	1 to <nbr-SeparateTrafficDirections>	INTEGER (1..16,000,000)	**Desc.:** This IE indicates the maximum number of bits delivered by UTRAN and to UTRAN at a SAP within a period of time, divided by the duration of the period. The unit is: bit/s **Usage**: When nbr-SeparateTrafficDirections is equal to 2, then Maximum Bit Rate attribute for downlink is signalled first, then Maximum Bit Rate attribute for uplink
>Guaranteed Bit Rate	C-iftrafficConv-Stream	0 to <nbr-SeparateTrafficDirections>	INTEGER (0..16,000,000)	**Desc.:** This IE indicates the guaranteed number of bits delivered at a SAP within a period of time (provided that there is data to deliver), divided by the duration of the period. The unit is: bit/s **Usage:** 1. When nbr-SeparateTrafficDirections is equal to 2, then Guaranteed Bit Rate for downlink is signalled first, then Guaranteed Bit Rate for uplink 2. Delay and reliability attributes only apply up to the guaranteed bit rate 3. Conditional value: Set to lowest rate controllable RAB Subflow Combination rate given by the largest RAB Subflow Combination SDU size, when present and calculated Iu Transmission Interval

IE/Group Name	Presence	Range	IE type and reference	Semantics description
RAB parameters				
>Delivery Order	M		ENUMERATED (delivery order requested, delivery order not requested)	**Desc:** This IE indicates that whether the RAB shall provide in-sequence SDU delivery or not **Usage:** Delivery order requested: in sequence delivery shall be guaranteed by UTRAN on all RAB SDUs Delivery order not requested: in sequence delivery is not required from UTRAN
>Maximum SDU Size	M		INTEGER (0..32768)	**Desc.:** This IE indicates the maximum allowed SDU size The unit is: bit. **Usage:** Conditional value: set to largest RAB Subflow Combination compound SDU size when present among the different RAB Subflow Combination
> SDU parameters		1 to <maxRABSubflows>	See below	**Desc.:** This IE contains the parameters characterizing the RAB SDUs **Usage** Given per subflow with first occurence corresponding to subflow#1 etc…
>Transfer Delay	C-iftrafficConv-Stream		INTEGER (0..65535)	**Desc.:** This IE indicates the maximum delay for 95th percentile of the distribution of delay for all delivered SDUs during the lifetime of a RAB, where delay for an SDU is defined as the time from a request to transfer an SDU at one SAP to its delivery at the other SAP The unit is: millisecond. **Usage:** **-**
>Traffic Handling Priority	C - iftrafficInteractiv		INTEGER {spare (0), highest (1), lowest (14), no priority used (15)} (0…15)	**Desc.:** This IE specifies the relative importance for handling of all SDUs belonging to the radio access bearer compared to the SDUs of other bearers **Usage:** -
>Allocation/Retention priority	O		See below	**Desc.:** This IE specifies the relative importance compared to other Radio access bearers for allocation and retention of the Radio access bearer. **Usage:** If this IE is not received, the request is regarded as it cannot trigger the pre-emption process and it is vulnerable to the pre-emption process.
>Source Statistics Descriptor	C-iftrafficConv-Stream		ENUMERATED (speech, unknown, …)	**Desc.:** This IE specifies characteristics of the source of submitted SDUs **Usage:** -
>Relocation Requirement	C-ifPS		ENUMERATED (lossless, none, …, realtime)	**Desc.:** This IE specifies in which way the radio access bearer shall be treated in case of relocation **Usage:** Lossless : lossless relocation is required for this RAB, as defined in [21]. Realtime : realtime relocation is required for this RAB, as defined in [21].

9.3.4 Information Element Definitions

```
-- **************************************************************
--
-- Information Element Definitions
--
-- **************************************************************

RANAP-IEs {
itu-t (0) identified-organization (4) etsi (0) mobileDomain (0)
umts-Access (20) modules (3) ranap (0) version1 (1) ranap-IEs (2) }
```

… Lots of unaffected ASN.1 not shown …

```
-- R
RAB-AsymmetryIndicator::= ENUMERATED {
    symmetric-bidirectional,
    asymmetric-unidirectional-downlink,
    asymmetric-unidirectional-uplink,
    asymmetric-bidirectional,
    ...
}

RAB-ID                  ::= BIT STRING (SIZE (8))

RAB-Parameter-GuaranteedBitrateList ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF
GuaranteedBitrate

RAB-Parameter-MaxBitrateList        ::= SEQUENCE (SIZE (1..maxNrOfSeparateTrafficDirections)) OF
MaxBitrate

RAB-Parameters ::= SEQUENCE {
    trafficClass            TrafficClass,
    rAB-AsymmetryIndicator          RAB-AsymmetryIndicator,
    maxBitrate          RAB-Parameter-MaxBitrateList,
    guaranteedBitRate       RAB-Parameter-GuaranteedBitrateList OPTIONAL
    -- This IE is only present when traffic class indicates Conversational or Streaming --,
    deliveryOrder           DeliveryOrder,
    maxSDU-Size         MaxSDU-Size,
    sDU-Parameters          SDU-Parameters,
    transferDelay           TransferDelay OPTIONAL
    -- This IE is only present when traffic class indicates Conversational or Streaming --,
    trafficHandlingPriority     TrafficHandlingPriority OPTIONAL
    -- This IE is only present when traffic class indicates Interactiv --,
    allocationOrRetentionPriority   AllocationOrRetentionPriority OPTIONAL,
    sourceStatisticsDescriptor  SourceStatisticsDescriptor OPTIONAL
    -- This IE is only present when traffic class indicates Conversational or Streaming --,
    relocationRequirement   RelocationRequirement OPTIONAL
    -- This IE is only present for RABs towards the PS domain --,
    iE-Extensions           ProtocolExtensionContainer { {RAB-Parameters-ExtIEs} } OPTIONAL,
    ...
}

RAB-Parameters-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}

RAB-SubflowCombinationBitRate   ::= INTEGER (0..16000000)

RAB-TrCH-Mapping ::=    SEQUENCE ( SIZE (1..maxNrOfRABs)) OF
    RAB-TrCH-MappingItem

RAB-TrCH-MappingItem ::= SEQUENCE {
    rAB-ID          RAB-ID,
    trCH-ID-List    TrCH-ID-List,
    ...
}

RAC                 ::= OCTET STRING (SIZE (1))

RAI ::= SEQUENCE {
    lAI             LAI,
    rAC             RAC,
    iE-Extensions           ProtocolExtensionContainer { {RAI-ExtIEs} } OPTIONAL,
    ...
}

RAI-ExtIEs RANAP-PROTOCOL-EXTENSION ::= {
    ...
}
```

```
RateControlAllowed ::= ENUMERATED {
    not-allowed,
    allowed
}

RelocationRequirement ::= ENUMERATED {
    lossless,
    none,
    ...,
    realtime
}

RelocationType ::= ENUMERATED {
    ue-not-involved,
    ue-involved,
    ...
}

RepetitionNumber ::= INTEGER (1..256)

ReportArea ::= ENUMERATED {
    service-area,
    geographical-coordinates,
    ...
}
```

… Lots of unaffected ASN.1 not shown …