3GPP TSG-RAN3 #38 Meeting **RP-030718**
Maui, Hawai, USA, 9th – 12th December, 2003

Title: **DCH Information Response Issue (reply to RP-030700)**

Agenda Item: **7.4.3**

Source: **Nortel Networks, Alcatel, Siemens**

Document for: **Discussion & Approval**

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1. INTRODUCTION

There have been long discussions in RAN3 on the *DCH Information Response* IE issue. In the latest paper on the subject, Motorola, Huawei and NEC propose to align RNSAP on NBAP. The present contribution discusses the approach taken in RP-030700 and the reasons why choosing such an approach would be disastrous when considering existing implementations in frozen releases of the 3GPP specifications.

As a reminder, the different interpretations on the table are:
Interpretation 1:
The DRNC may include one or several DCH Ids in the *DCH Information Response* IE for DCHs in a set of coordinated DCHs.
Corrections in line with Interpretation 1 have been technically endorsed by RAN3 in R3-031724/25/26.
Interpretation 2:
The DRNC shall include only one DCH Id in the *DCH Information Response* IE for DCHs in a set of coordinated DCHs.
Corrections in line with Interpretation 2 have been proposed in R3-031548/49/50 and rejected in RAN3.

2. DISCUSSION

2.1 CRITERIA CHOSEN IN RP-030700

Criteria in RP-030700 are oriented towards one solution without taking into account market constraints: one interface (the Iub) is prioritised on another one (the Iur) when comparing Criteria 2 and 3. When considering existing deployed or soon-to-be-deployed networks, multi-vendor Iur is currently much more common than multi-vendor Iub, so if one interface was to be prioritised over the other one, it should be the Iur.
It is thus proposed, in the spirit of fairness, to have similar criteria for the Iub and the Iur:
Criterion 2: solution shall be backwards compatible with current NBAP R99 specification.
Criterion 3 (modified): solution shall be backwards compatible with current RNSAP R99 specification.

When considering the modified criterion 3, it becomes clear that the solution proposed in RP-030700 does not fulfill this criterion of utmost importance for operators as they already have running networks with multivendor Iur:
If an SRNC implements the proposed correction and a DRNC does not (i.e. the DRNC still sends all the DCH Ids in the *DCH Information Response* IE), then the SRNC will reject all the attempts to set up e.g. a voice call or to perform mobility via Iur on e.g. an existing voice call.

Furthermore, solution #1 only has impact on the CRNC, whereas solution #2 has impacts on the RNC in both its SRNC and DRNC roles.

2.2 ADDITIONAL CRITERION

It is proposed to add another criterion to the list in RP-030700.
Criterion 5: Solution shall not introduce any compatibility issue with other frozen releases of the specifications.

When considering the *DCH Information Response* IE in TS 25.423 v 3.14.0:

***Extract from TS 25.423 v 3.14.0, § 9.2.1.16A* DCH Information Response**

The *DCH Information* IE provides information for DCHs that have been established or modified.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
DCH Information Response		*1..<maxnoofDCHs>*			–	
>DCH ID	M		9.2.1.16		–	
>Binding ID	O		9.2.1.3		–	
>Transport Layer Address	O		9.2.1.62		–	

Range bound	Explanation
maxnoofDCHs	Maximum number of DCHs for one UE.

and TS 25.423 v 4.10.0:

***Extract from TS 25.423 v 4.10.0, § 9.2.1.16A* DCH Information Response**

The *DCH Information* IE provides information for DCHs that have been established or modified.

IE/Group Name	Presence	Range	IE Type and Reference	Semantics Description	Criticality	Assigned Criticality
DCH Information Response		*1..<maxnoofDCHs>*			–	
>DCH ID	M		9.2.1.16		–	
>Binding ID	O		9.2.1.3		–	
>Transport Layer Address	O		9.2.1.62		–	
>Allowed Rate Information	O		9.2.1.2A		YES	ignore

Range bound	Explanation
maxnoofDCHs	Maximum number of DCHs for one UE.

The *Allowed Rate Information* IE has been added in Rel-4 to handle the problems of congestion in the DRNC. Furthermore, the Release 4 RNSAP specification has been frozen since March 2002 and several deployed products are relying on it now.

Given the way the Allowed Rate Information is defined (TFI corresponding to the highest allowed bit rate for the uplink and/or the downlink of a DCH), this can only be a per-DCH information. If it is to be used on a set of coordinated DCHs, the only possibility is to provide it per DCH. So the Rel-4 DRNC would be including the following structure in the *DCH Information Response* IE:

IE/Group Name	Criticality	Assigned Criticality
DCH Information Response repetition #1	–	
>DCH ID	–	
>Binding ID	–	
>Transport Layer Address	–	
>Allowed Rate Information	YES	ignore
DCH Information Response repetition #2	–	
>DCH ID	–	
>Allowed Rate Information	YES	ignore
DCH Information Response repetition #3	–	
>DCH ID	–	
>Allowed Rate Information	YES	ignore

A R99 SRNC decoding this particular sequence would have the following result due to the usage of the Criticality "Ignore":

IE/Group Name	Criticality	Assigned Criticality
DCH Information Response repetition #1	–	
>DCH ID	–	
>Binding ID	–	
>Transport Layer Address	–	
DCH Information Response repetition #2	–	
>DCH ID	–	
DCH Information Response repetition #3	–	
>DCH ID	–	

So, if a R99 SRNC is implemented according to interpretation 2, this would result in the SRNC rejecting the procedure and thus being unable to set up a voice call towards this Rel-4 DRNC or to handle mobility of voice call on this Rel-4 DRNC.

Thus, any sensible implementation would rely on interpretation 1 in order to ensure compatibility with Rel-4 implementations using the *Allowed Rate Information* IE.

2.3 RIGHTING HISTORY

Most of the argumentation on history in RP-030700 and in R3-01834 is based on the claiming that the modification between 25.423 v 3.3.0 (Sept 2000) and 25.423 v 3.4.0 (Dec 2000) is due to an unrecorded change or a CR implementation error.
This is simply not true: this modification was implemented due to the approval of CR 278 (in RP-000696) on TS 25.423 at the RAN#10 that Motorola/Huawei/NEC are referring to in RP-030700. So, based on this, one cannot claim that this change went unrecorded and 3GPP-compliant implementations can still rely on an old interpretation of the specification that was present in 25.423 v 3.3.0.
Furthermore, it has to be noted is that in CR 253 approved in RAN#10, the *DCH Information Response* IE that was introduced in TS 25.423 did not include any Semantics Description in the tabular format.
Finally, one should also remember that the 25.423 specification was frozen in December 2000 and one can hope that 3GPP-compliant implementations in the field do not rely on a 3-years-old unfrozen version of the specification.

3. CONCLUSION

So the table in RP-030700 should be updated as follows:

	Criterion #1	Criterion #2	Criterion #3	Criterion #4	Criterion #5
Solution#1 (R3-031724/25/26**)**	YES	NO (medium impact)	YES	YES	YES
Solution#2 (R3-031548/49/50**)**	YES	YES	NO (high impact)	YES	NO

Based on the above, as well as history, it is clearly not possible to change the RNSAP specification as one cannot claim that the current state of the specification is due to a CR implementation error or an unrecorded change of the specification.
Furthermore, the less impacting solution clearly is Solution #1, especially since it has no impact on Iur. So, it is proposed that RAN approves the CRs in R3-031724/25/26 that were technically endorsed in RAN3#39.