3GPP TSG-RAN, Meeting #11 **Tdoc TSGRP#11(01)0253**
Palm Spring, USA, 13-16 March 2001

Source: Alcatel
Title: Work Item Description 'Node B Resource Model improvements'
Document for: Approval

Work Item Description

Title

Node B Resource Model improvements

1 3GPP Work Area

X	Radio Access
	Core Network
	Services

2 Linked work items

none

3 Justification

The Node B resource model, image of the physical resources implemented in a Node B, should be as accurate as possible to ensure an efficient Admission Control in the CRNC. Currently, the consumption law used in the credit mechanism is based on the spreading factor, which ~~is not~~may not be representative of the processing power resource in many cases.
For example:

- Channel decoding requires a large amount of processing. ~~This processing depends on the net bit rate, i.e. the bit rate before the channel decoder, rather than the physical channel rate (or equivalently the spreading factor). For example, considering a spreading factor of 128 (and therefore a physical channel rate of 30 kbps), the net bit rate may have different values depending on the coding rate and matching rate (repetition or puncturing rate), e.g. 5 and 15 kbps. Therefore, for~~ For a fixed spreading factor, the processing effort in the Node B may vary significantly ~~(by a factor larger than 3),~~ , depending on the coding rate and matching rate (repetition or puncturing).

~~The number of Rake fingers required for the channel and data estimation is highly dependent on the number of radio links. The maximum number of Rake fingers in the Node B cannot currently be taken into account in admission control, considering the current capacity modelling in the 'resource status indication' message, since this limitation is not related to the spreading factor.~~

- The processing power may also depend on the kind of channel coding (convolutional coding, turbo-coding).

This cannot be taken into account by the current modelling of the Node B resources.

The following benefits of the Node B resource model improvements are seen:

- A substantial improvement in the accuracy of admission control in the controlling RNC.
- A decrease of the credit updates from the Nodes B.

4 Objective

The ~~purpose~~ objectives of this new work item ~~is to enhance the Node B resource model by e.g. basing the consumption law, used in the credit mechanism over Iub, on better parameters and algorithms. Credit mechanism principle should be kept.~~ are:

1) Study and prove the benefits of enhanced Node B resource models.
2) Agree on an enhanced Node B resource model.
3) Agree on a mechanism to support the enhanced Node B model. The credit mechanism principle should be kept.

5 Service Aspects

None

6 MMI-Aspects

None

7 Charging Aspects

None

8 Security Aspects

None

9 Impacts

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

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

New specifications						
Spec No.	Title	Prime rsp. WG	2ndary rsp. WG(s)	Presented for information at plenary#	Approved at plenary#	Comments

Affected existing specifications				
Spec No.	CR	Subject	Approved at plenary#	Comments
25.430		Node B resource model	RAN #12	
25.433		Credits and consumption law	RAN #12~~9~~	

11 Work item rapporteurs

Nicolas Drevon, Alcatel

12 Work item leadership

RAN WG3

13 Supporting Companies

Alcatel, xxxx

14 Classification of the WI (if known)

	Feature (go to 14a)
	Building Block (go to 14b)
X	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

14c The WI is a Work Task: parent Building Block "TA Improvement Feature"