TSG-RAN Working Group 3, meeting # 6   *TSGR3#6(99)A17*

Sophia Antipolis, 23-27 August 1999

Agenda Item: 14.1

Source: Rapporteur

Title: **Report on silence detection study item**

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The rapporteur proposed three discussion items. An initial proposal was presented for each of them, and Ericsson commented the first discussion item. The discussion is summarised below.

1) BENEFITS OF THE SILENCE DETECTION

R3-99518 shows that it is required that one TFI is transmitted in each TTI in the DL, even if the TBS is empty. If the dedicated channel has frequent inactivity periods (speech, signalling, DCH with NRT packet data), there is a large amount of empty frames transported in Iub/Iur. The silence detection prevents the sending of empty frames. For a typical speech call, it was shown how the silence detection decreases of the 80% the number of FP frames, with sensible reduction of the required processing power and bandwidth.

⇨ **Initial Proposal:** Use the silence detection for the Dedicated Channels in DL, and consider the use of the silence detection for DCH UL in the study item for future releases.

⇨ **Ericsson comment:** Ericsson objected the need for a non silence mode (NSIL), and proposed to adopt always the silent mode for release '99.

Argument: NSIL was introduced in order to enable a node-B to detect that it lost a frame for a certain logical channel on Iub/Iur and in that case not send out any information in the corresponding Uu frame. If information for 1 logical channel is lost, the node-B should not send out any information in order to prevent harm to macro-diversity combined RL's in the UE. This motivation is considered not sufficiently relevant for the following reasons:

a) Frame loss rates should be low internally in the UTRAN;

b) For all UE's not in macro-diversity, it would be more beneficial to transmit the data for those logical channels for which there was data received then to stop transmission completely. E.g. if we have a speech call and the node-B fails to receive information for the signaling logical channel for a certain TTI, it would be preferable for all UE's not in macro-diversity to still transmit the speech data. Given that the percentage of UE's in macro-diversity will be low (e.g. 20%), the usability of the NSIL mode is limited.

c) Even for UE's in macro-diversity, it is assumed that the UE will often only be using the RL from the strongest node-B. In that case the consequences of transmitting different information from different node-B's will be limited.

2) HANDLING OF MDC IN DRNC

As noted in the last WG3 meeting, the current proposal for silence detection does not specify how the SRNC detect that the RSI is sent by all the Iub DCH data ports in case two or more of those ports are combined into one Iur DCH data port. 4 possible method were proposed in the reflector.

⇨ **Initial Proposal:** The MDC unit in DRNC waits for all the RSI control frames before forwarding the RSI to the SRNC. This requires that MDC unit somehow combines also the RSI frames.

No comments received.

3) SIGNALLING OF TSI AND RSI

Current assumption is that control frames are used for signalling both the Transmit Silence and Reception Silence Indicators. Tdoc R3-99673 (WG3#5) proposed to include the TSI in the data frame. This was justified in order to prevent sending both data frames AND control frames when switching mode. The proposal was not accepted and the decision was left to the study item discussion.

⇨ **Initial Proposal:** confirm the current assumption and use the control frames for TSI and RSI.

No comments received.