TSG-RAN Working Group 3 meeting #1
Bonn 2nd - 5th February 1999

TSGW3#1(99)029

Agenda Item:

Source: **Alcatel**

Title: **Point to multipoint configuration in the CN**

Document for:

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1. Introduction

Currently, several SMG12 and SMG2 ARC documents are referring to a ”bit stream combining function within the CN” which would allow to perform streamlining without interrupting the data flow.

E.g. :

UMTS 23.30 “Iu principles” (SMG12):

> Bullet 8 in section 4: “In case the Iu connection point is changed (e.g. SRNS relocation, streamlining), the prevention of the loss of data may not be guaranteed autonomously by the UTRAN but would rely on some function in the CN.”

UMTS ZZ.11 “Description of the Iu Interface” v0.0.5 (SMG2 ARC):

> Section 9.2.2.1: “Serving RNS relocation is a procedure in which the serving RNS functionality of a specific RRC connection is relocated from one RNS to another without changing the radio resources or even without interrupting the user data flow.”

UMTS ZZ.01 “UTRAN Architecture Description” v0.0.11 (SMG2 ARC):

> Section 11.2.3.3: “In some cases, depending on the physical network configuration, there may be several entities which combine the different information streams, e.g. one entity combines information streams on radio signal basis, another combines information streams on wireline signal basis.
> This function is typically located in the UTRAN. However, depending on the physical network architecture, some bit stream combining function within the CN may have to be included in the control.”

2. Discussion

It is clear that at the highest level of switching in the CN, either an ARQ mechanism or a splitting/combining function needs to be implemented to prevent loss of data during streamlining procedures. It is however nowhere stated whether a break in transmission is allowed or not allowed during such a procedure.
For non real-time services, an ARQ function is probably sufficient to cope with the loss of data during streamlining procedures. For real-time services (e.g. speech and video), it is probably affordable to lose some data (streamlining will not occur very often). This implies that a break in the transmission could be allowed during streamlining.
Moreover, the benefit of a combining/splitting function in the CN is questionable:

- It is not obvious to avoid frame loss since the frames are sent towards two different paths, implying that they will arrive in an asynchronous manner.
- Except if the transcoder is located at the PSTN gateway, a SRNS relocation procedure always implies a transcoder change.

3. Proposal

To write a LS to SMG12, proposing a change to bullet 8 in section 4 “Iu requirements” of UMTS 23.30 “Iu principles”:

“In case the Iu connection point is changed (e.g. SRNS relocation, streamlining), the prevention of the loss of data may not be guaranteed autonomously by the UTRAN but would rely on an ARQ mechanism in the CN. This means that, when the Iu connection point is changed, a break in transmission can occur and the loss of data during that break is to be be solved by an ARQ mechanism.”