

**TSG-RAN Working Group 1 meeting No. 18
January 15-18, Boston, U.S.A.**

TSGR1-01-0170

Source: RAN WG1

Title: LS on:
"Liaison to 3GPP TSG RAN WG1 and 3GPP TSG RAN WG2 on the Efficiency of Packet-Switched Conversational Multimedia Service"

To: 3GPP TSG SA WG4

Cc: 3GPP TSG RAN WG2

Document for: Approval

Agenda Item: 11.5

3GPP TSG RAN WG1 thank 3GPP TSG SA WG4 for their LS on the Efficiency of Packet-Switched Conversational Multimedia Service (S4 (00)0700R).

3GPP TSG RAN WG1 agree with the conclusion that *taking into account that all media bits are transported by media specific RTP payload formats, radio resource will be wasted, because all bits will be protected by the highest QoS set, as required by the most sensitive bits*, if the RTP payload is mapped onto a unique RAB sub-flow. However, the level of radio resource wasted differs with the type of services. Responses to questions 1, 2 and 3 can be found in the following.

1) Has the above mentioned efficiency constraint been considered by RAN1 and/or RAN2 and are there efficient solutions for the transportation of such RTP encapsulated media available in Rel4?
The above mentioned efficiency constraint has been considered by RAN1 when the particular case of AMR circuit speech service appeared. The solution found was to allow to map different classes of bits onto different transport channels to obtain a better efficiency over the radio. It is necessary to map different classes of bits onto different RAB co-ordinated sub-flow with different QoS levels to perform Unequal Error Protection (UEP) over the radio interface.

2) If no solution is available for Rel4, will it be considered for Rel5?
This work is not under the responsibility of RAN1. But, the solution found for AMR circuit speech could be extended to RTP if the RTP payload could be mapped onto RAB sub-flow in an appropriate manner.

3) In case of a PS AMR conversational speech service, what is the expected overhead of using the same QoS requirement for all AMR bits?
During the analysis of AMR circuit speech service, simulations were made to evaluate the gains of Unequal Error Protection over Equal Error Protection. The typical gains achieved were in the order of 0.1 to 0.5 dB with 2 or 3 classes of bits depending on the codec mode. (TDoc R1-99887, R1-99c46). However, when comparing the efficiency over the air of the transmission of AMR circuit speech service compared to RTP payload whether equal error protection for RTP is used or some solution allowing UEP, additional loss of RTP vs. AMR circuit is to be considered as a function of the RTP overhead amount. SA2 is the appropriate group to provide indication on the overhead.