TSG-RAN Working Group 2 (Radio layer 2 and Radio layer 3) ***TSGR2#6(99)882***
Sophia Antipolis 16th to 20th July 1999

Agenda Item: 13

Source: **Nokia**

Title: **RLC reset procedure**

Document for: Decision

---

1. Introduction

This paper presents some modifications to RLC reset procedure. These modifications are needed to improve data continuity after reset. Reset is used when one of the peer RLC entities is facing an unrecoverable error situation.

2. Description of the RESET procedure

In the present version of TS 25.322 it is stated that the RESET procedure resets all protocol states, protocol variables and protocol timers of the peer RLC entity. The resetting of the RLC sequence numbers to zero cannot be done without first ensuring that both peers make the reset from the same RLC-PDU sequence number, i.e. that the peers have the same HFN before the reset. If this is not done the resulting HFNs at peers can as well be different, which cannot be allowed. A simple way to solve this problem is to have the sequence number of the latest received RLC PU included in the RESET / RESET ACK messages.

The following two cases illustrate the reset procedure:

Case 1: The receiving RLC detects some unrecoverable error situation. The receiving RLC sends a RESET command to the transmitting RLC. In the RESET message the SN of the latest received RLC PU (SN(latest received)) is included. Transmitting RLC sends RESET ACK message and the next PU to be transmitted shall have the sequence number

SN(latest received)+1

Case 2: The transmitting RLC detects some unrecoverable error situation (e.g. maximum number of retransmissions is reached due to bad radio environment). The transmitting RLC sends RESET command containing the SN of the latest transmitted PU (SN(latest transmitted)). The receiving RLC responds with RESET ACK indicating the SN of the latest received PU (SN(latest received)). The next transmitted RLC PDU shall have the sequence number

SN(latest received)+1

To make the RESET/RESET ACK PDU structure as simple as possible it is suggested that the sequence number of the latest received/transmitted RLC PU (SN(latest)) is always included in the message. SN(latest transmitted) is sent to the receiving RLC but is omitted there.

3. Proposed changes in TS 25.322

- In 9.1.2 Control PDUs

a) RESET (Reset)
The RESET PDU is used in acknowledged mode to reset all protocol states, ~~protocol variables and~~ protocol timers and some of the protocol variables of the peer RLC entity in order to synchronise the two peer entities. The protocol variables that are not reset are the following: VT(S), VT(A), VT(MS), VR(R), VR(H) and VR(MR). The SN of the last received/transmitted PU is included in the RESET message.

b) RESET ACK (Reset Acknowledge)
The RESET ACK PDU is an acknowledgement to the RESET PDU. The SN of the last received/transmitted PU is included in the RESET ACK message. Upon reception of RESET ACK the transmission continues from RLC-PDU with sequence number SN(latest received)+1.

- In 9.2.1Formats

RESET, RESET ACK PDU

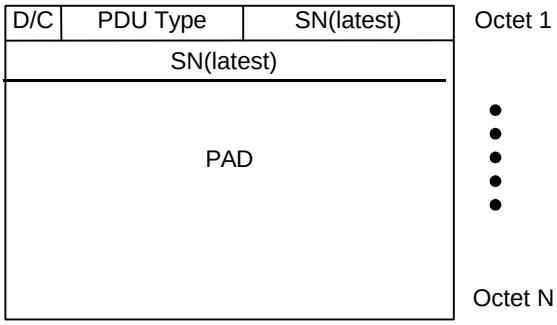

Figure 0-1. RESET, RESET ACK PDU