Author: Lucent Technologies
Subject: RRC and RFE functions
Object: Discussion and decision

Lucent has been reviewing the RRC documents specifically the modeling of the RRC in the UE and UTRAN. From these reviews Lucent has noticed that a routing function has been placed in the RRC layer.

Lucent doesn't understand why the routing function is part of the RRC layer as the fact that there are one or more CN should not concern the Radio layer at all.

Lucent propose that this function be removed from the RRC. Lucent believe that the functionality belongs in the AS part in the UE, and the UTRAN.
It has been written in previous version of the RRC is that the RRC SAP terminates in the UTRAN. The new modeling shown below allows the RRC SAP to terminate in the UTRAN as required.

The attached pages show the suggested changes to RRC definitions for UE and UTRAN.

Lucent believe that by splitting this functionality allows the RRC specification to concentrate on Radio related issues. The specification of this functionality can be used in the future for defining the exact services needed for transportation and routing of transparent NAS messaging (using RLC for example). Presently all Transparent messages are routed using the services of RRC.

4. General

The functional entities of the RRC layer are described below:

- Broadcast functions are handled in the broadcast control function entity (**BCFE**). BCFE offers RRC services by the GC-SAP and uses the lower layer services provided by Tr-SAP.

- Paging of idle mode UE(s) is controlled by the paging and notification control function entity (**PNFE**). PNFE offers RRC services by the Nt-SAP and uses the lower layer services provided by Tr-SAP.

- The Dedicated Control Function Entity (**DCFE**) handles all functions specific to one UE. The DCFE offers RRC services by the DC-SAP and can use lower layer services of UM/AM-SAP and Tr-SAP depending on the message to be sent and on the current UE service state.

- The Transfer Mode Entity (TME) handles the mapping between the different entities inside the RRC layer and the SAP's provided by RLC.

Logical information exchange is necessary also between the RRC sublayer functional entities. Most of that is implementation dependent and not necessary to present in detail in a specification.

Figure 1 shows the RRC model for the UE side and Figure 2 shows the RRC model for the UTRAN side.

*[Editors note: Some further clarification in the diagrams may be beneficial to acknowledge the fact that a DC-SAP for example might be offered over a dedicated channel (with RRC terminated in SRNC) whereas GC-SAP and Nt-SAP may be offered over BCCH, PCH respectively in which cases RRC is located in Node B. It could be concluded from the figure that these channels use the same SAP offered by RLC (Tr-SAP, UM-SAP, AM-SAP) whereas in fact they will use different SAP's, though the SAP **type** might be the same]*
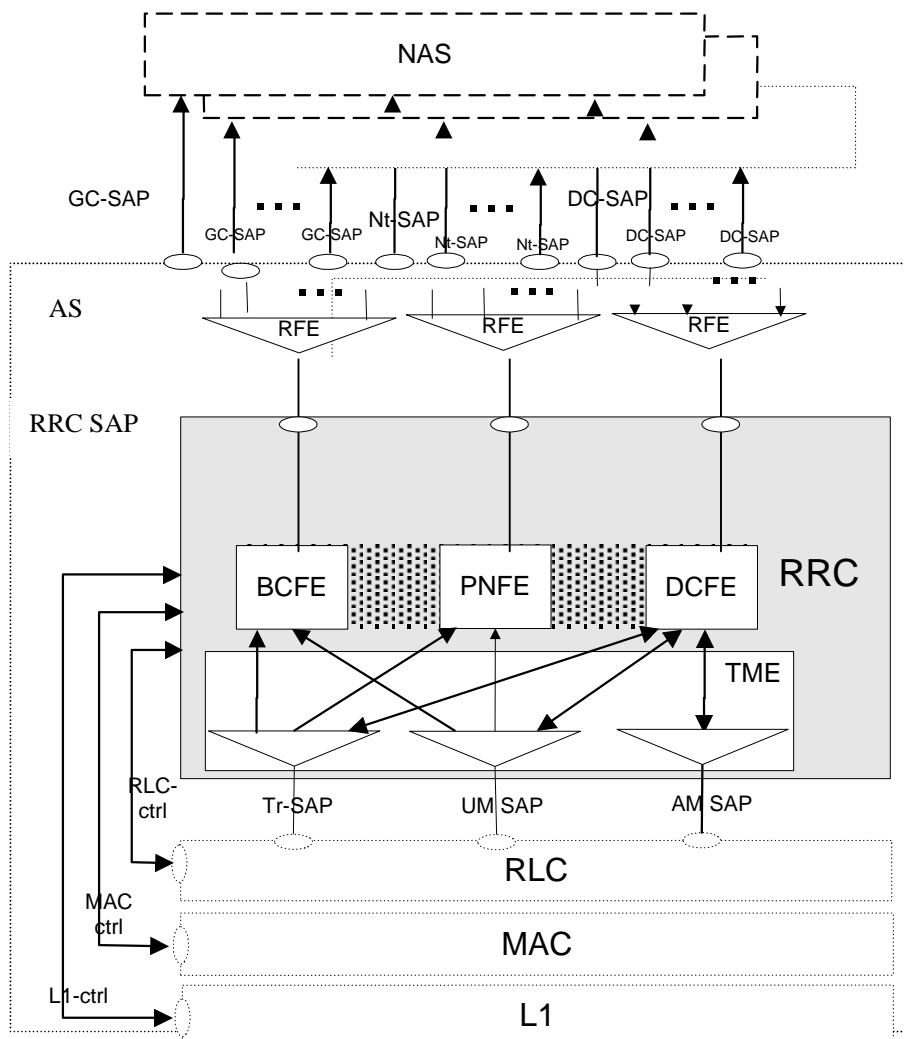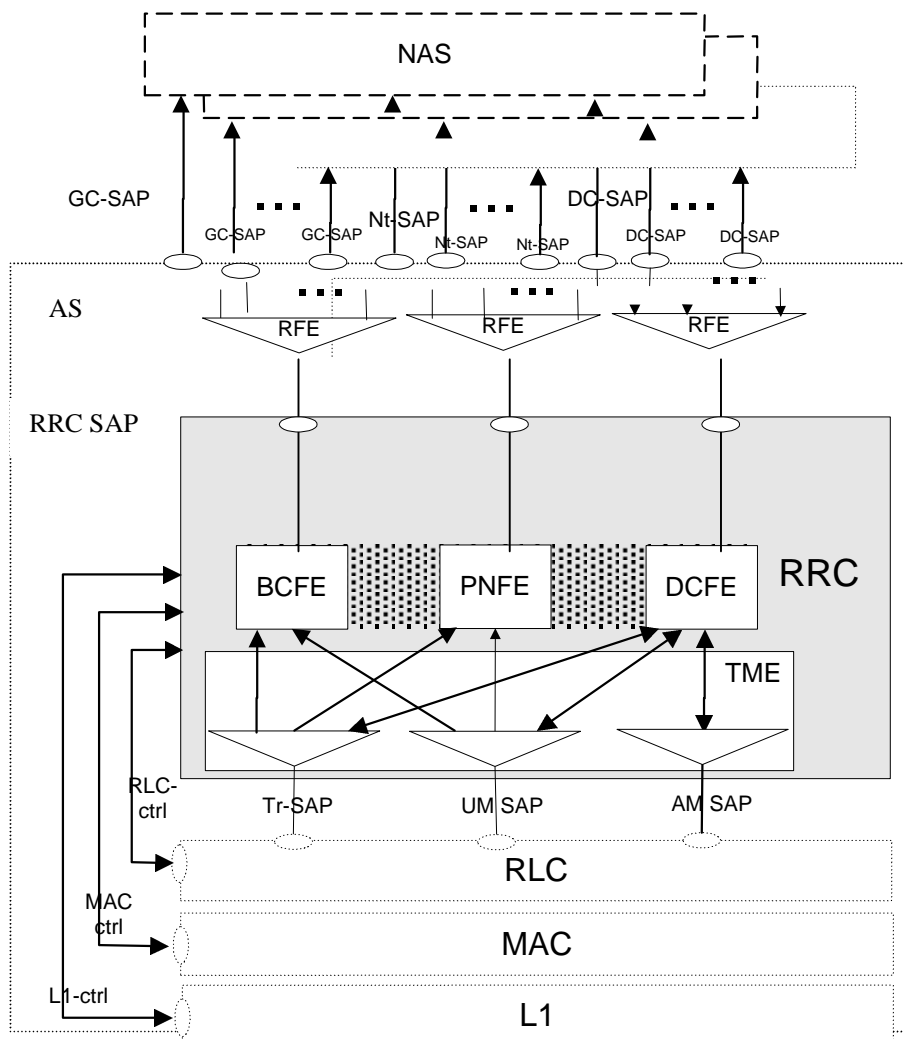
Figure 1) UE side model of RRC

Figure 2) UTRAN side RRC model