

Agenda Item: 8.5

Source : NORTEL

Title : Iub interface Protocol Structure : splitting of Radio Network functionality and Transport Network functionality

Document for: UMTS ZZ.13 v 0.1.0 section 8

ABSTRACT

This contribution is relative to section 8 of ZZ.13 : Iub Interface Protocol Structure. A new model, which offers a better split between Radio Network and Transport Network functions, is proposed to represent the Iub Interface Protocol.

BACKGROUND

In “ZZ.13, section 6.2 : Iub Interface General Principles and Specification Objectives”, separation of Radio Network functionality and Transport Network functionality is stated as a “general principle for specification in order to facilitate the introduction of future technology”.

In section 8, the Interface Protocol Structure model mixes Radio Network and Transport Network functions. It also refers to a specific ATM/AAL2 implementation of the Transport Network User Plane :

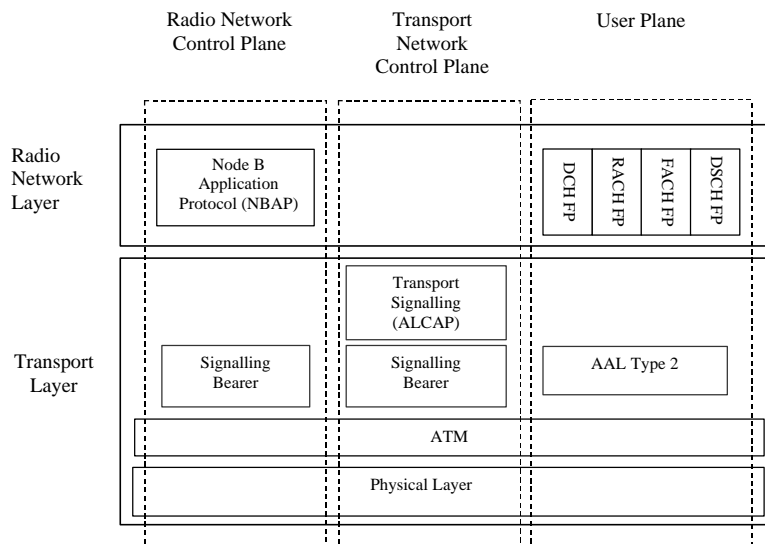
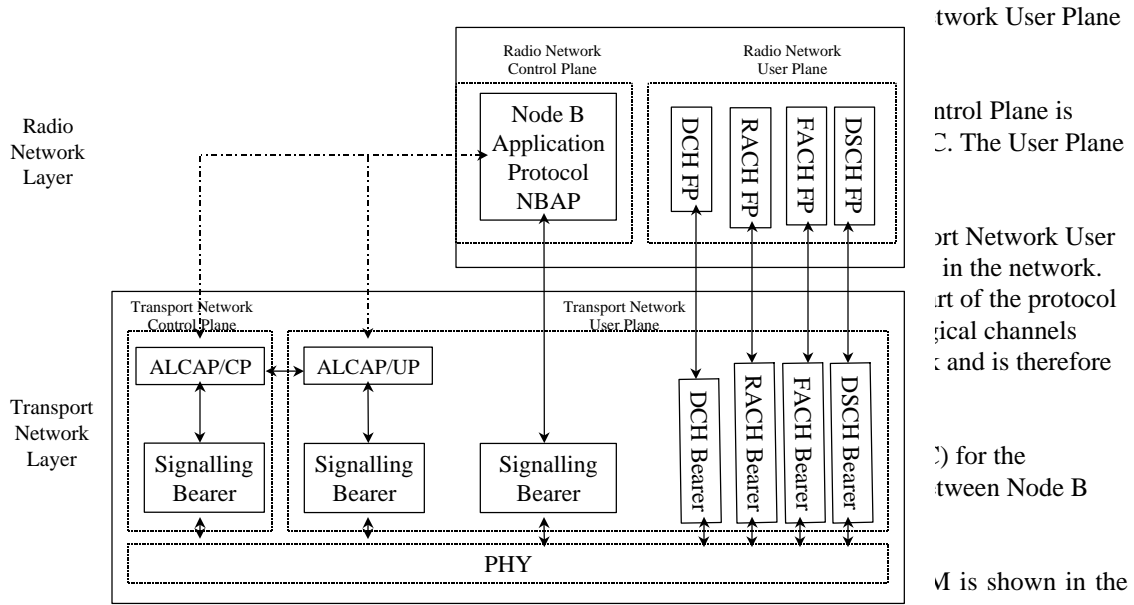


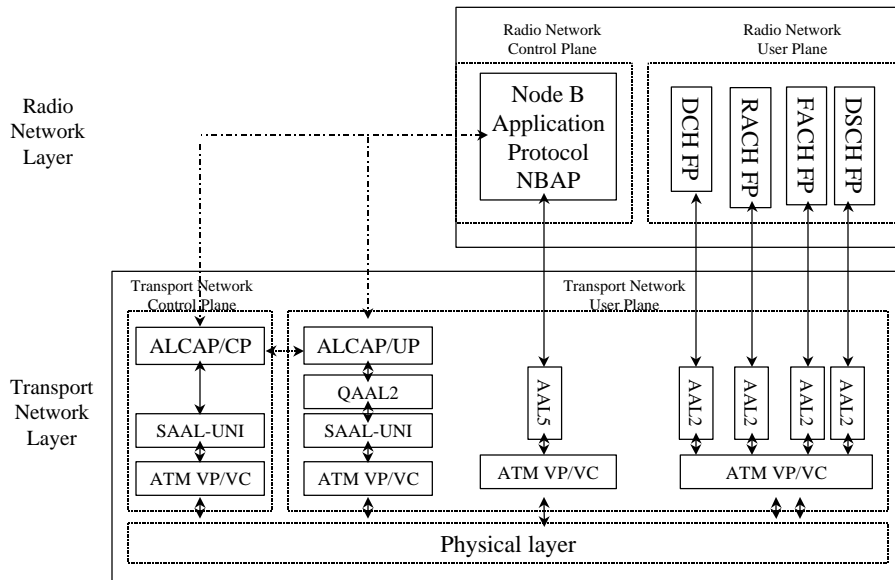
Figure 1: Iub Interface Protocol Structure.

PROPOSED PROTOCOL STRUCTURE



- **ATM**

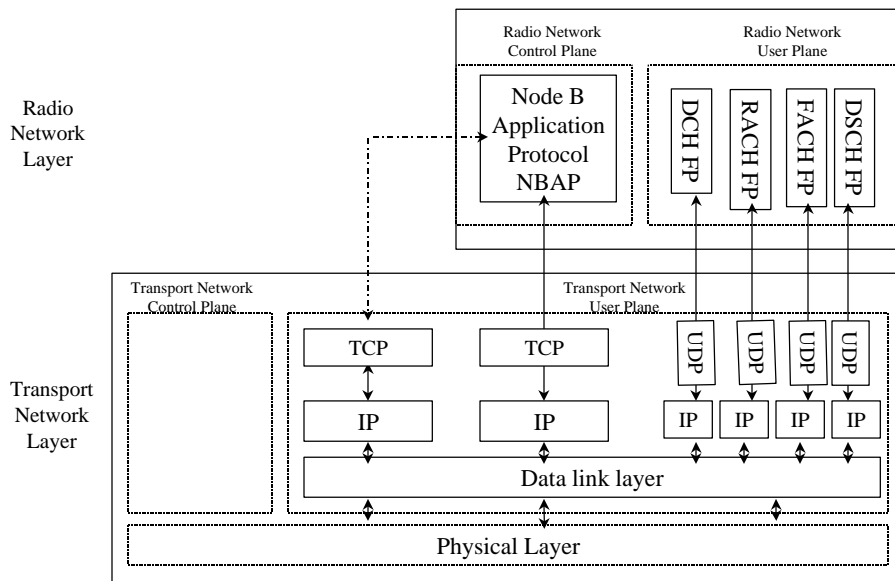
In an ATM environment, Virtual Path are manually configured and Virtual Channels are setup using SAAL. The ALCAP/CP protocol will be used to created/destroy ATM VC using the reserved signalling link associated with each VP (identified by VC = 5) based on existing SAAL protocol. The ALCAP/UP protocol will be used for end to end service negotiation between Node B and RNC, eg AAL2 multiplexing over ATM VP/VC and type of AAL to use. Qaal2 signalling is used for this purpose and the protocol mapping will be :



Mapping of Iub Interface Protocol Structure on an ATM Transport Network

- IP

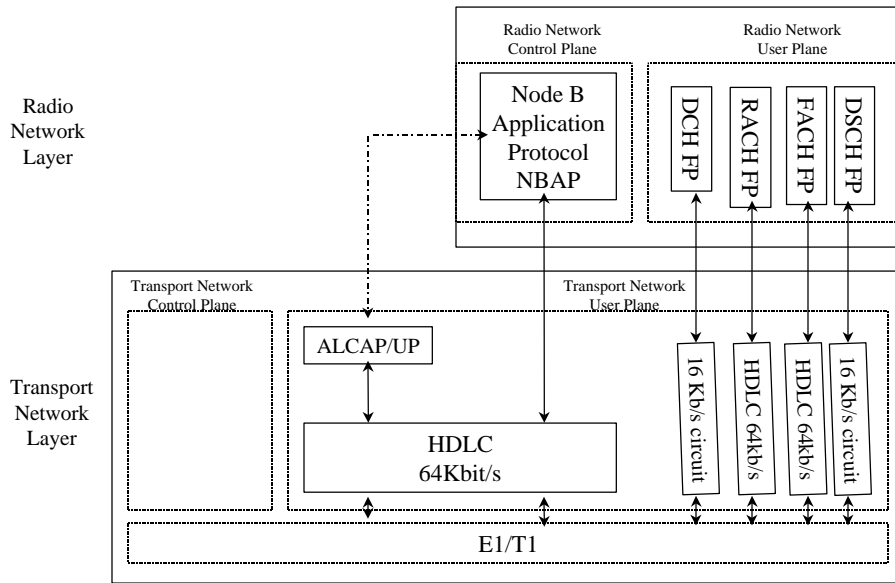
In an IP based network, using typically frame relay over $n \times 64\text{Kbit/s}$ in a WAN environment, channels are allocated on a semi-permanent basis ($n \times 64\text{Kbit/s}$) the data link layer is based on an HDLC protocol and user plane data are transmitted connection less using datagrams. The (IP) transport layer provides either connection oriented (TCP) or connection less service (UDP). In that case, the Network Control Plane is not used.



Mapping of Iub Interface Protocol Structure on an IP based Transport Network

- GSM PCM

In a GSM PCM environment, data bearers are 16Kbit/s channels (1/4 of a PCM Time Slot). The NBAP protocol uses one 64Kbit/s PCM time slot and LAPB frames. The Network Transport Control Plane is empty as PCM links are established on a semi permanent basis.



Mapping of Iub Interface Protocol Structure on a GSM Transport Network

PROPOSAL

This contribution has introduced a new model of Iub Interface Protocol with a better split between Radio Network and Transport Network functions. The Transport Network plane was splitted into Control and User Plane. The ALCAP protocol of the Transport Network was splitted into ALCAP/CP and ALCAP/UP parts. Mapping of this protocol structure on existing transport network technology has been shown. It is suggested to accept the following propositions :

Proposition 1 : replace the existing figure 1 of section 8 by the figure 1 of this contribution and replace the the text describing the transport layer functionality by :
“2 – Transport layer, defines procedures for establishing physical and logical connections between Node and the RNC. The transport network layer consist of transport network control plane and transport network user plane”

Proposition 2 : add the text and figure relative to ATM mapping of the protocol structure in a subsection section 8 : Iub Protocol structure called “ATM protocol structure”

Proposition 3 : add the text and figure relative to IP and GSM PCM mapping of the protocol structure in an informative annex of ZZ.13

REFERENCES

[1] ZZ.13, Description of Iub Interface