Agenda Item: 8.5

Source   : NORTEL

**Title   : Iub interface Capability : splitting of Radio Network
                    functionality and Transport Network functionality**

Document for: UMTS ZZ.13 v 0.1.0 section 6.3

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ABSTRACT

This contribution is relative to section 6.3 of ZZ.13 : Iub Interface capability. Two proposals are made to obtain a better split between Radio/Transport Network and capability/characteristics.

INTRODUCTION
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 6.3, the following subsections :
- 2-Iub/Iur DCH data streams
- 3-Iub RACH data streams
- 4-Iub FASH data streams
- 5-Iub DSCH data streams

describe both the data stream frame capability (frame header and frame body), transport network capability and characteristics of the Iub interface
This contribution proposes some changes to be more aligned with the separation principle and to fit to the document structure.

DISCUSSION
In section 6.3, the following subsections :
- 2-Iub/Iur DCH data streams
- 3-Iub RACH data streams
- 4-Iub FASH data streams
- 5-Iub DSCH data streams

state that :
> *"One Iub DCH (resp RACH, FACH, DSCH) data stream is carried on one transport bearer "*

and that :
> *"For each RACH (resp FACH) in a cell, a Iub RACH (resp. FACH) data stream must be established over the Iub interface"*

Mapping of Iub data streams on transport bearer and the fact that there must be one Iub data stream for each RACH/FACH in a cell is part of the characteristics of the Iur interface : It is relative to how to do a function rather than to a functionality or to a capability. It should therefore be included in a subsection of paragraph 6.4 : Iub interface characteristic instead of paragraph 6.3 : Iub interface capability.

Proposal 1 : move the text relative to data stream mapping into a new subsection of section 6.4 : Iub Interface characteristic containing the following text :
"1-Mapping of Iub data streams
- DCH
  One Iub DCH data stream is carried on one transport bearer.
- RACH
  One Iub RACH data stream is carried on one transport bearer. For each RACH in a cell, an Iub RACH data stream must be established over the Iub interface.
- FACH
  One Iub FACH data stream is carried on one transport bearer. For each FACH in a cell, an Iub FACH data stream must be established over the Iub Interface.
- DSCH
  One Iub DSCH data stream is carried on one transport bearer.
"

In section 6.3, the following subsections :
- 2-Iub/Iur DCH data streams
- 3-Iub RACH data streams
- 4-Iub FASH data streams
- 5-Iub DSCH data streams
state that
> *"The DCH (resp. RACH, FACH, DSCH) Iub frames can be defined on pre-defined transmission links or switched connections."*

The use of "pre-defined transmission link", which is relative to link establishment and "switched connection", which could be relative to UE connection establishment, is ambiguous.
- In a pure ATM context, a user connection is defined by its VP/VC identifier. The Permanent Virtual Path is established on a fixed basis, typically through manual configuration and is shared between several VC users. New user connections are added using signaling on the reserved VC.
- In an IP based network, leased line are used to transmit IP packets in a connection less mode.
- In the GSM PCM Network, 16kbit/s circuit can be established via signaling on leased lines between Node B and RNC to transmit the 13 kbit/s compressed voice.

In addition, the definition of "transmission link" and "switched connection" is usually Transport Network Technology dependent. It should therefore not be part of the Iub data stream capability description but be part of a section relative to the Iub Transport Capability.

The text to describe the Iub Transport Capability should avoid the ambiguity between link and connection and reflect the multiple possible Transport Network technologies.
> - To avoid the ambiguity for transport bearer establishment the terms "**pre-established**" and "**dynamically set up**" can be used for the **transport bearer** instead of "pre-defined transmission links" and "switched connection".
> - To reflect the multiple combination of connection establishment, we suggest to explicitly state that pre-defined transmission links and switched connection can be used simultaneously by using the word "**combination**".

A clear separation of Radio and Transport capabilities could also be increased **grouping all Iub data stream** relative subsections **into one subsection named "Iub data streams"** with several paragraphs named "DCH(resp RACH, FACH, DSCH)".

Proposal 2 : Remove the text *"The DCH (resp. RACH, FACH, DSCH) Iub frames can be defined on pre-defined transmission links or switched connections."* from each subsection and replace the text of section 6.3.2 to 6.3.5 by :
"

2. Iub data streams

- DCH
  The Iub interface provides means for transport of uplink and downlink DCH Iub frames between RNC and Node B. The DCH Iub frame header includes uplink quality estimates and synchronisation information. The DCH Iub frame body comprises of data to be transferred over the radio interface.
- *RACH*
  The Iub interface provides means for transport of uplink RACH transport frames between RNC and Node B. The RACH transport frame header includes synchronisation information. The RACH transport frame body includes the data received over radio interface.
- *FACH*
  The Iub interface provides means for transport of downlink FACH transport frames between RNC and Node B. The FACH transport frame header includes synchronisation information. The FACH transport frame body includes the data to be sent over radio interface.
- *DSCH*
  The Iub interface provides the means for transport of downlink shared channel, DSCH, data frames between RNC and Node B. The DSCH Iub frame body comprises of data to be transferred over the radio interface.

3. Iub Transport
 A combination of pre-established and dynamically set-up transport bearer can be used for the transport of Iub data frames.
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CONCLUSION
It is proposed to accept proposal 1and 2 to obtain a better separation of Transport and Radio Network functionality and to fit to the document structure.

REFERENCES
[1] ZZ.13, Description of Iub Interface