TSG-RAN Working Group 3 meeting #2
Nynäshamn, Sweden, 15 - 19 March 1999

TSGW3#2(99)115

Agenda Item: 6.1

Source: Editor (Fujitsu Europe Telecom R&D Centre)

Title: S3.30: I_{ub} Interface: General Aspects and Principles V0.0.2

Document for: Discussion

Introduction

Version 0.0.2 of the TSG-RAN WG3 specification S3.30: I_{ub} Interface: General Aspects and Principles (attached) has been developed by extracting relevant sections from the TSG-RAN WG3 Baseline Document "Description of I_{ub} Interface" Version 0.0.2 (merged version).

The structure of the specification is the same as Version 0.0.1 previously distributed by email.

Section 6: "General aspects" of the Merged version becomes section 4 "General aspects" of the S3.30 with appropriate renumbering of the subsections. Subsection 6.2 "I_{ub} -Interface General Principles and Specification Objectives" has been split into two subsection in S.30 - Subsection 4.2 " I_{ub} Interface General Principles" and Subsection 4.3 " I_{ub} Interface Specification Objectives ". This maintains consistency with the corresponding specifications S3.20 and S3.10 on the Iu and Iur interfaces.

Section 7: " I_{ub} -Interface Protocol Functions " of the Merged version becomes section 5 " Functions of the I_{ub} Interface Protocols " of the S3.30. Subsection 7.1 " Interface Functions" title in the merged version has been removed as a subsection - the text has been retained.

Section 8: " I_{ub} -Interface Protocol Structure " of the Merged version becomes section 6 " I_{ub} Interface Protocol Structure " of the S3.30.

TS S3.30 V0.0.2 (1999-02)

Technical Specification

3rd Generation Partnership Project (3GPP);
Technical Specification Group (TSG) RAN;

I_{ub} Interface: General Aspects and Principles

UMTS <spec>

3GPP

Reference
<Workitem> (<Shortfilename>.PDF)

Keywords
<keyword[, keyword]>

3GPP

Postal address

Office address

Internet
secretariat@3gpp.org
Individual copies of this deliverable
can be downloaded from
http://www.3gpp.org

Contents

Intellectual Property Rights

Foreword

This Technical Specification (TS) has been produced by the 3rd Generation Partnership Project (3GPP).
The contents of this TS are subject to continuing work within 3GPP and may change following formal TSG approval. Should the TSG modify the contents of this TS, it will be re-released with an identifying change of release date and an increase in version number as follows:

Version m.t.e

where:

- m indicates [major version number]
- x the second digit is incremented for all changes of substance, i.e. technical enhancements, corrections, updates, etc.
- y the third digit is incremented when editorial only changes have been incorporated into the specification.

Introduction

This clause is optional. If it exists, it is always the third unnumbered clause.
No text block identified.

1 Scope

The present document …

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.
- A non-specific reference to an ETS shall also be taken to refer to later versions published as an EN with the same number.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the [following] terms and definitions [given in ... and the following] apply.

3.2 Symbols

For the purposes of the present document, the following symbols apply:

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

4 General Aspects

4.1 UTRAN Architecture

[Editor´s note: This chapter should describe the UTRAN architecture from I_{ub} point of view. The RNS architecture with its elements RNC and NodeB is described to facilitate the description of functional split in chapter 5.
In order to avoid inconsistency between documents, appropriate references should be included.]

4.2 I_{ub} Interface General Principles

[Editor´s note: It was proposed in creating the structure of this specification that the General Principles is separated out from the Specification Objectives unlike the Iub Baseline document. This section is extracted from the combined section within the baseline document.]

The general principles for the specification of the Iub interface are as follows:

- Transmission sharing between the GSM/GPRS Abis interface and the Iub interface shall not be precluded.
- The functional division between RNC and NodeB shall have as few options as possible;
- Iub should be based on a logical model of NodeB;
- NodeB controls a number of cells and can be ordered to add/remove radio links in those cells;
- Neither the physical structure nor any internal protocols of the NodeB shall be visible over Iub and are thus not limiting factors, e.g., when introducing future technology.
- Operation and Maintenance of NodeB hardware and software resources is not a part of the Iub standardisation. Note: It is FFS which functions belong to this group.
- Complex functionality shall as far as possible be avoided over Iub. This is important so that the Iub specification is ready on time. Advanced optimisation solutions may be added in later versions of the standard.
- The Iub functional split shall take into account the probability of frequent switching between different channel types.

4.3 I_{ub} Interface Specification Objectives

[Editor´s note: It was proposed in creating the structure of this specification that the General Principles is separated out from the Specification Objectives unlike the Iub Baseline document. This section is extracted from the combined section within the baseline document.]

The I_{ub} interface specifications shall facilitate the following:
- Inter-connection of RNCs and NodeBs from different manufacturers;
- Separation of I_{ub} interface Radio Network functionality and Transport Network functionality to facilitate introduction of future technology.

The Iub parts to be standardised by TSG-RAN are:
1. User data
2. Signalling for handling the user data
3. Management of logical resources of Node B
   Note: The definition of logical resources is FFS.

It should be possible to transport the O&M information via the Iub interface and, hence, the lower layer transport mechanisms should be standardised to this effect. The content of the O&M information is not specified in this document but will be described in an external document which is tbd.

4.3 I_{ub} Interface Capabilities

The Iub interface connects a RNC and a Node B.
The information transferred over the Iub reference point can be categorised as follows:
1. Radio application related signalling

   The Iub interface allows the RNC and the Node B to negotiate about radio resources, for example to add and delete cells controlled by the Node B to support communication of the dedicated connection between UE and SRNC. Information used to control the broadcast and paging channels, and information to be transported on the broadcast and paging channels, belong to this category also.
2. Iub/Iur DCH data stream

   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. The DCH Iub frames can be carried on pre-defined transmission links or switched connections.
   One Iub/Iur DCH data stream is carried on one transport bearer.
3. Iub RACH data stream

   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. The transport frames can be carried on pre-defined transmission links or switched connections. One Iub RACH data stream is carried on one transport bearer.
   For each RACH in a cell, a Iub RACH data stream must be established over the Iub interface.
4. Iub FACH data stream

   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. The transport frames can be carried on pre-defined transmission links or switched connections. One Iub FACH data stream is carried on one transport bearer.
   For each FACH in a cell, a Iub FACH data stream must be established over the Iub Interface.
5. Iub DSCH data stream

   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. The DSCH Iub frames can be carried on pre-defined transmission links or switched connections.
   One Iub DSCH data stream is carried on one transport bearer.

4.4 I_{ub} Interface Characteristics

[Editor´s note: This chapter should shortly describe the I_{ub} -Interface Characteristics.]

5 Functions of the I_{ub} Interface Protocols

[Editor´s note: This chapter should describe the functions of the Iub interface. For information about the Iub interface functional division, see [appropriate specification].]
The list of functions on the Iub interface is the following:
1. Management of Iub Transport Resources

2. Logical OA&M of Node B
    - Iub Signalling Bearer Management
    - Cell Configuration Management
    - Interference Measurements
    - Notification of Available Logical Resources
    - Common Channels Management
    - Radio Resource Management
3. Physical OA&M Transport
4. Traffic Management of Common Channels
    - Admission Control
    - Power Management
    - Data Transfer
5. Traffic Management of Dedicated Channels
    - Channel Allocation / De-allocation
    - Power Management
    - Measurement Reporting
    - Dedicated Transport Channel Management
    - Data Transfer
6. Traffic Management of Downlink Shared Channels (FFS)
    - Channel Allocation / Deallocation
    - Power Management
    - Transport Channel Management
    - Data Transfer
7. Timing and Synchronisation Management

6 I_{ub} Interface Protocol Structure

[Editor´s note: This chapter should provide an introduction to the structure of the Iub interface protocols.

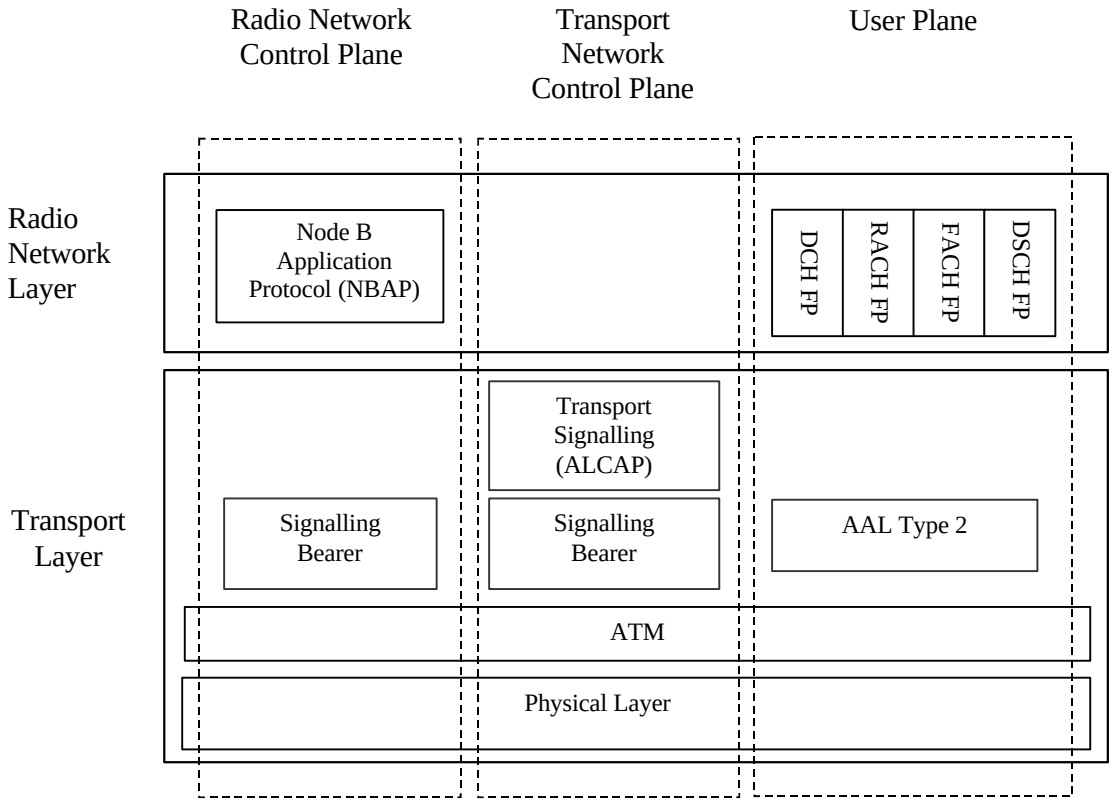

Figure 1: Iub Interface Protocol Structure.
Note: The possibility to share AAL2 needs further clarification; the FAUSCH FP is FFS.

The Iub interface protocol architecture consists of two functional layers:

1. Radio Network Layer, defines procedures related to the operation of Node B. The radio network layer consists of a radio network control plane and a radio network user plane.
2. Transport Layer, defines procedures for establishing physical connections between Node B and the RNC.

Figure 2 shows the TTC/ARIB proposal for the Iub interface protocol structure. This proposal is FFS.

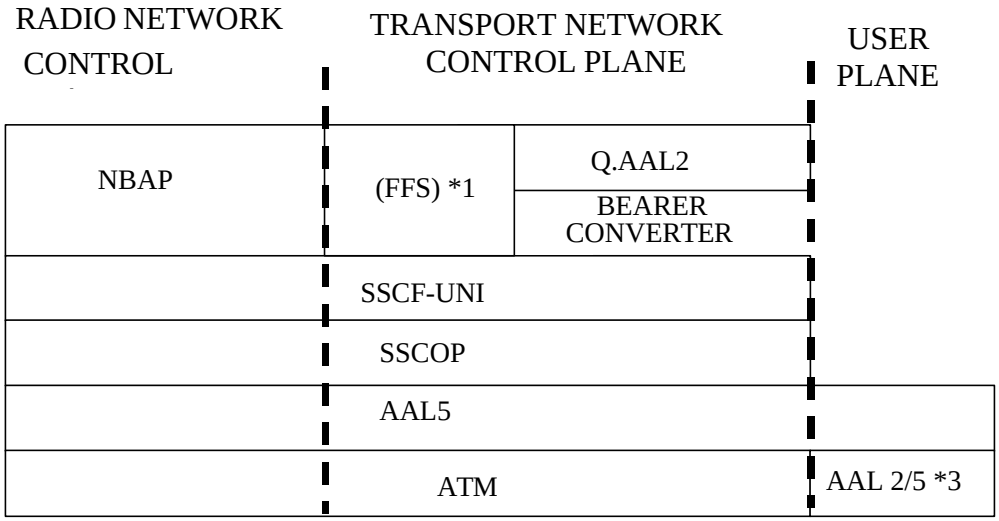

Figure 2: TTC/ARIB Iub Interface Protocol Structure.

Note *1: It is FFS which signalling protocol sets up AAL5 connections. Note *3: It is FFS whether AAL5 is applied to User plane. Note: It is FFS how to distinguish NBAP from signalling protocol.

7 Other I_{ub} Interface Specifications

8 Bibliography

The following material, though not specifically referenced in the body of the present document (or not publicly available), gives supporting information.

9 History

Document history		
V0.0.1	1999-02	Initial Specification Structure
V0.0.2	1999-02	Inclusion of complete text from sections 6,7 and 8 of the baseline specification entitled "Merged Description of Iub Interface, Version 0.0.2"

Editor for 3GPP RAN S3.30 is:

Mick Wilson
Fujtsu Europe Telecom R&D Centre

Tel.: +44 181 606 4801
Fax : +44 181 573 3602
Email : m.wilson@fujitsu.co.uk

This document is written in Microsoft Word version 7/97.