

Agenda Item: 7.1

Source: Nortel Networks

Title: Enhancement of the Node B Logical Model

Document for:

1 Introduction

This contribution proposes an enhancement of the logical Model of Node B to reflect the Common Channel management. It is presented as revision marks from the current S3.01 content.

2 Enhanced Node B Model

The model described in Figure 1. shows the Node B as seen from the controlling RNC. The model includes:

- the logical resources provided by Node B to UTRAN (via its Controlling RNC)
- the dedicated channels which have been established on Node B
- the common channels that Node B provides to the RNC

The procedures for controlling the connections between radio links and Iub DCH data ports are sent from the RNC to the Node B via the Communication Control Ports.

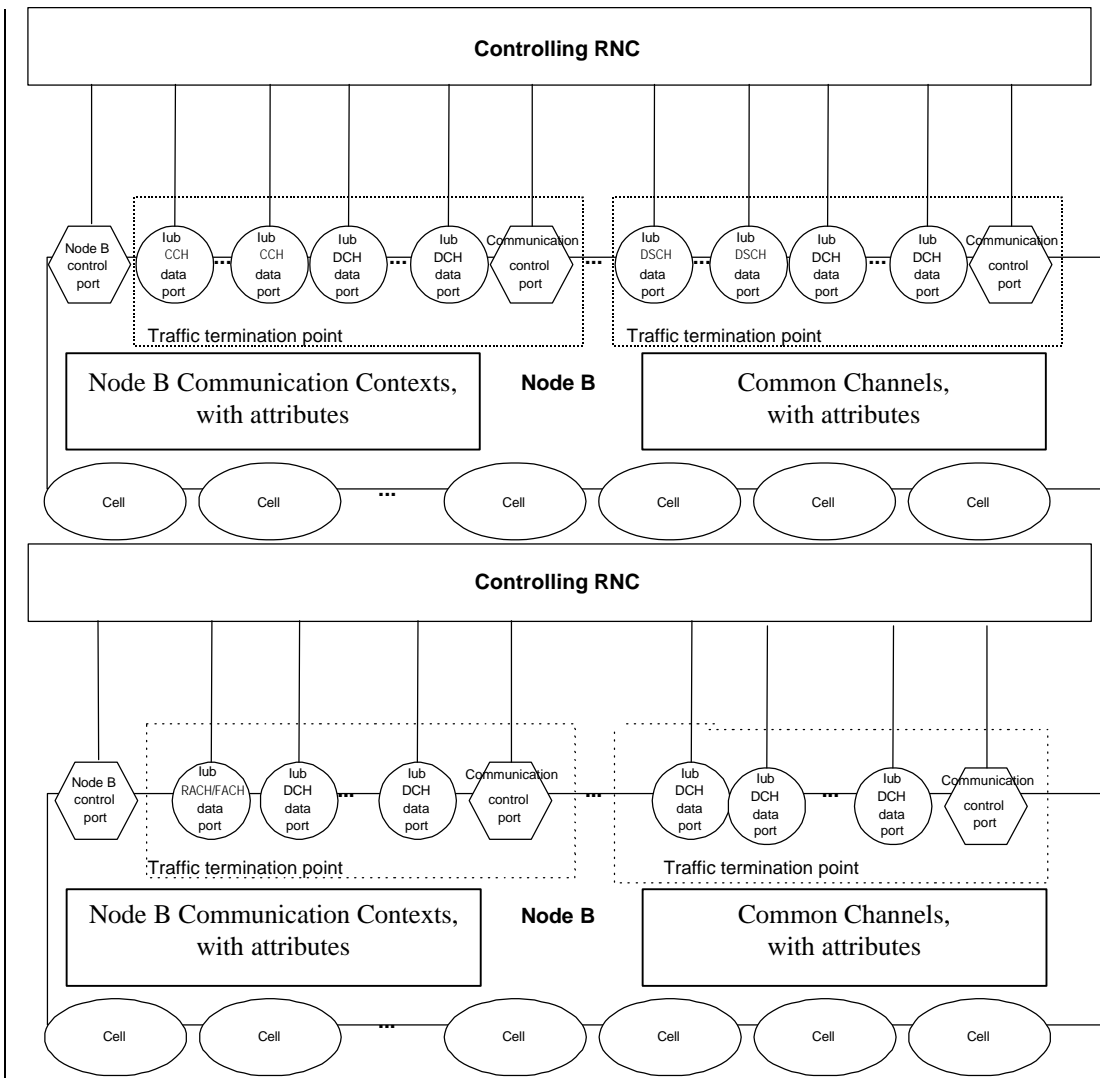


Figure 1. Logical Model of Node B

2.1 Elements of the logical model

2.1.1 Radio Network Logical resources

1. Cell :

The notion of cell is the same as defined for the DRNC. Node B may have one or more cells.

2.1.2 Transport network logical resources

1. Node B Control Port

The Node B Control Port is used to exchange the signalling information for the logical O&M of Node B resources, the creation of Node B Communication Contexts, the configuration of the common transport channels that Node B provides in a given cell, PCH and BCH control information between the RNC and the Node B. The Node B Control Port corresponds to one signalling bearer between the controlling RNC and the Node B. Whether there a Node B can have multiple Node B Control Ports (multiple signalling bearers), e.g. for load sharing or redundancy purposes, is FFS.

2. Communication Control Port

A Communication Control Port corresponds to one signalling bearer between the RNC and Node B for the control of Node B Communication Contexts. Node B may have multiple Communication Control Ports (one per Traffic Termination Point). The Communication Control Port is selected at creation of the Node B Communication Context.

3. Traffic Termination Point

Traffic Termination Point represents DCH data streams belonging to one or more Node B Communication Contexts (UE

contexts), which are controlled via one Communication Control Port. The Traffic Termination Point is thus a descriptive entity which neither is controlled over Iub nor by O&M.

4. **Iub DCH Data Port**

An Iub DCH Data Port represents a user plane bearer (carrying one Iub DCH Data Stream) between the Node B and RNC.

5. **Iub CCH Data Port**

An Iub CCH Data Port represents a user plane bearer carrying one Iub RACH or FACH Data Stream between the Node B and the RNC. There is one CCH Data Port for each FACH and RACH channel of Node B.

6. **Iub DSCH Data Port**

An Iub DSCH Data Port represents a user plane bearer carrying one Iub DSCH Data Stream between the Node B and the RNC. For each DSCH, there is one Iub DSCH Data port per Communication multiplexed on this DSCH.

2.1.3 Node B Communication Contexts for Dedicated Channels

A Node B Communication Context corresponds to all the dedicated resources which are necessary for a user in dedicated mode and using dedicated channels as restricted to a given Node B.

There are a number of Node B Communication Contexts inside a given Node B.

The attributes to a Node B Communication Context are the following (not exhaustive):

- The list of Cells where dedicated physical resources are used
- The list of DCH which are mapped on the dedicated physical resources for that Node B Communication Context
- For each DCH, the complete characteristics as defined in [8]
- The list of Iub DCH Data Ports
- For each Iub DCH Data Port, the corresponding DCH and cells which are carried on this data port
- Physical layer parameters (outer loop power control, etc)

2.1.4 Common Channels

A Common Channel corresponds to a radio Common Channel as configured by the Node B.

The BCCH and the PCCH are carried directly on the Node B control port using NBAP procedures. These Common Channels will not be mapped to individual data ports.

~~the RACH, and the FACH (and possibly the DSCH, FFS) will have an associated Iub CCH data port similar to an Iub DCH data port for a dedicated channel (i.e. AAL2 transport is used).~~

The attributes of a Common channel are (not exhaustive)

- Type (RACH, FACH, DSCH)
- Cell (only one)
- Associated Iub CCH data port for RACH or FACH (if applicable)
- List of associated Iub DSCH Data ports for DSCH
- Physical parameters

3 Proposal

Nortel Proposes to update section "11.2.2.3 Node B logical Model over Iub" of [1] according to section 2 of this contribution

4 References

[1] S3.01 RAN Overall Description