Agenda Item: *Sync Ad Hoc 4.5*

Source: **Ericsson**

Title: **A potential merged sync solution including two approaches**

Document for: **Discussion (related to the R3-99 873 contribution)**

1.   Introduction

This contribution presents a merge of the present 3GPP standard and the presented proposals R3-99 687 and 688 by NTT DoCoMo and the proposal R3-99 873 from Ericsson. These describe a node sync procedure using the parameters t1, t2 and t3 over Iub for Node Offset Measurements (NOM).

The purpose with the figure on page 2 is to give an overview of such a merged solution of the two approaches.

Node Offset Measurements is based on time-stamping Sync Control frames in RNC (using RFN) and in Node B (using BFN). The parameters t1, t2 and t3 are visible over Iub, t4 is used locally in RNC.

2.   State diagram of the merged sync solution

The present 3GPP sync solution uses 'on-the-fly' measurements on data-frames for finding out offset values. Sync Control frames could also be used before sending the real non-disturbed data-frames.

As described in R3-99 873, Ericsson wants to extend Sync Control frames with Node Offset Measurements.

Both approaches can use the optional refinement of the transport delay offset values during connection. Timing adjustment Control frames are sent when frames are received outside the defined receiving window.

The final sync solution in 3GPP could very well be a merged one. A merged sync solution contains both approaches, i.e. to offer both the possibility to use the Node Offset Measurements or the CFN / Cell FN and ToA parameters (in Sync Control frames). A combination of both approaches could also be used.

As far as understood, the Ericsson view is in line with the NTT DoCoMo proposals R3-99 687 and 688.
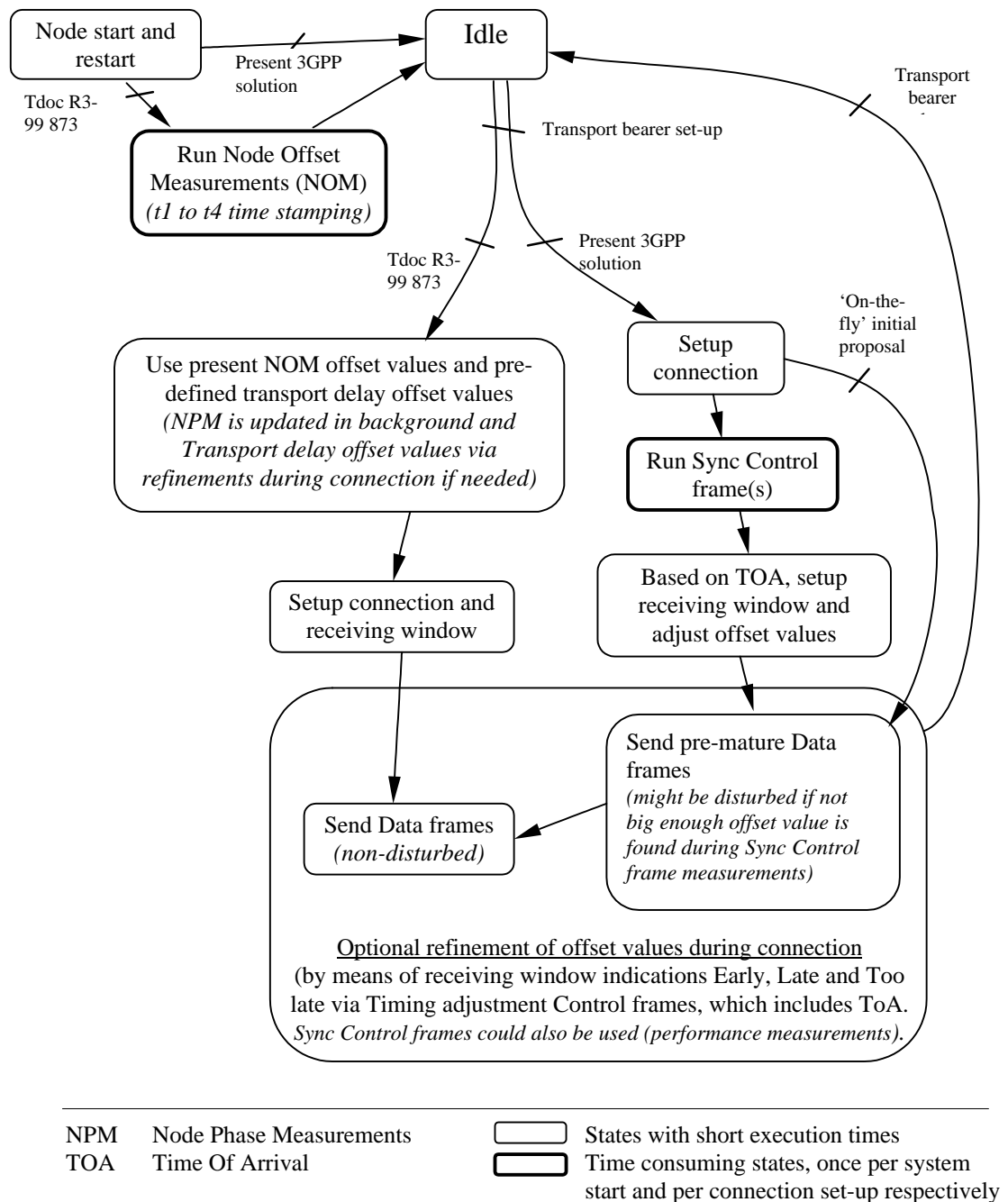
Figure 1 gives an overview of a combined sync solution which includes both the approach with and without Node Offset Measurements (t1, t2 and t2 over Iub).

3. References

[1]   R3-99 687 (NTT DoCoMo): Synchronisation between RNC and NodeB.

[2]   R3-99 688 (NTT DoCoMo): Proposed Iub node synchronisation procedure.

[3]   R3-99 873 (Ericsson): Node offset measurements using Synchronisation Control frames.