TSG-RAN Working Group 3 Meeting #7 ***TSGR3#7 (99) C03***
Sophia Antipolis, 20th to 24th September, 1999

Agenda Item: **15.3**

Source: **Siemens / Italtel**

Title: **Proposed changes to Event-triggered measurement reporting**

Document for: **Approval**

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1. Introduction

The NBAP Specification [1] provides procedures for Radio Network Performance Measurements, both as a Common Procedure (ch. 8.1.4.1) and as a Dedicated Procedure (ch. 8.2.6.1), with the Common Procedure message defined in chapter 9.1.18. In both procedures, the MEASUREMENT INITIATION REQUEST message contains an information field “Report Characteristics”. According to the current specification, this can assume the following three values: i) periodic, ii) event-triggered, and iii) immediate reporting.
However, for some measurement applications periodic measurement reports are required whenever the measurement is in a critical range between two certain thresholds. Within this document it is therefore proposed to provide the necessary characteristics of the event-triggered measurements in one Measurement Request command.

2. Description

2.1. Event-Triggered report characteristics

To provide the report characteristics as indicated within figure 1 below, a first and a second threshold has to be indicated within the measurement request. If in addition a periodic reporting is required between the certain thresholds the periodicity information element is added. The Node B shall apply the event-triggered report characteristics according following rules:

- If only Threshold A is indicated , the Node B shall report when the measured entity passes above an absolute threshold.
- If only Threshold B is indicated , the Node B shall report when the measured entity passes beneath an absolute threshold.
- In case two thresholds are indicated and Threshold A is before Threshold B, the first report is send when the measured entity passes above Threshold A. The last report is send when the measured entity passes beneath the value of Threshold B.
- In case two thresholds are indicated and Threshold B is before Threshold A, the first report is send when the measured entity passes beneath Threshold B. The last report is send when the measured entity passes above the value of Threshold A.
- Sending of additional reports between the Thresholds depends on setting the periodicity element.
- In case only one threshold is indicated together with the periodicity information element, the Node B shall send reports as long as the threshold is exceeded.

The advantage of this Event-triggered characteristic is the reduction of measurement signalling over Iub (since only in critical situations measurements are reported). In addition, measurement reports are avoided when only the 2nd Threshold is passed several times, but the starting threshold has never been passed.

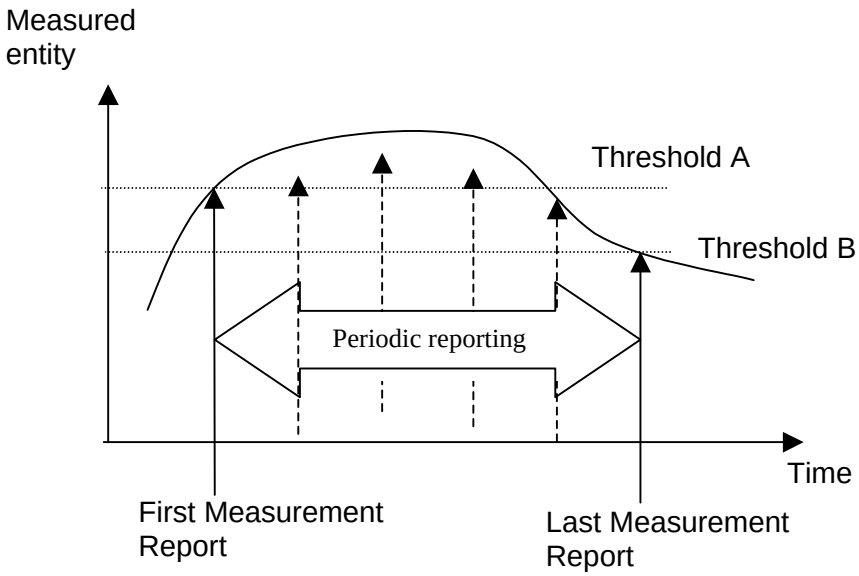

Figure 1: Periodic reporting between certain thresholds

3. Proposal

The following changes to the specification document TS 25.433 are suggested:

1. Modify the Measurement Request Procedures of section 8.1.4.1 and section 8.2.6.1 as follows

The .... MEASUREMENT INITIATION REQUEST message includes the following information:

- **Measurement Id: ...**
- **Measurement Object:** ...
- **Measurement Type:** ...
- **Measurement Characteristics:** ...
- **Report Characteristics:** The reporting could be any of the following classes:

  Periodic: Reports should be delivered in a periodic matter with some frequency. In this case the update frequency have to be specified.

  Event Triggered: Reports should be delivered upon a specific event in Node B e.g Performance threshold crossing. ~~In this case the event have to be specified.~~ Specific trigger points indicate if the report should be delivered on passing the threshold from the higher to the lower value or vice versa. In addition periodic event reports can be specified the measurement is between the two certain thresholds.

  Immediate Reporting: A report should be delivered immediately. Only one measurement report should be sent and after that the measurement is automatically cancelled.

2. Modify the Common Measurement Initiation Request of section 9.1.18

Information Element	Reference	Type
Message Discriminator		M
Message Type		M
Transaction ID		M
Measurement ID		M

Measurement Object		M
Measurement Type		M
Measurement Characteristic		M
Report Characterisitics[1]		**M**
On-Demand		**C1**
Periodic		**C1**
Report Frequency		M
Event-Triggered		**C1**
Event-Triggered Type A		**O**
Absolute Threshold		M
Event-Triggered Type B		**O**
Absolute Threshold		M
Event-Triggered periodicity		**O**
Report Frequency		M

C1 : One and only one of On-Demand, Periodic and Event-Triggered can be present at the same time.

3. Add the Dedicated Measurement Initiation Request in section 9.1.x

Information Element	**Reference**	**Type**
Message Discriminator		M
Message Type		M
Transaction ID		M
Measurement ID		M
Measurement Object		M
Measurement Type		M
Measurement Characteristic		M
Report Characterisitics[2]		**M**
On-Demand		**C1**
Periodic		**C1**
Report Frequency		M
Event-Triggered		**C1**
Event-Triggered Type A		**O**
Absolute Threshold		M
Event-Triggered Type B		**O**

Absolute Threshold		M
Event-Triggered periodicity		**O**
Report Frequency		M

C1 : One and only one of On-Demand, Periodic and Event-Triggered can be present at the same time.

4. Replace the Report Characteristics of section 9.2.1.24 by following section

Reporting can be any of the following:

- Periodic: Reports shall be delivered with a periodicity which shall be defined.
- Event: Reports shall be delivered upon a specified event in the node B.

  Event-Triggered Type A:
  Node B shall report when the measured entity passes above an absolute threshold.
  Event-Triggered Type B:
  Node B shall report when the measured entity passes beneath an absolute threshold.
  If both Event-Triggered types are indicated, the Node B shall send two reports.
  In case Event-Triggered Type A is indicated before Event-Triggered Type B, the first report is send the measured value passes above the indicated threshold A, the last report is send the measured value passes beneath threshold B.
  In case Event-Triggered Type B is indicated before Event-Triggered Type A, the first report is send the measured value passes beneath the indicated threshold B, the last report is send the measured value passes above threshold A.
  Periodic reports can be requested by means of the Event Triggered periodicity.
- Immediate: Reports shall be delivered immediately. Once the report is sent the measurement is cancelled.

4. References

[1] UMTS 25.433 v.1.2.0 (Tdoc R3-99A84): NBAP Specification