3GPP TSG-RAN3 Meeting #109-E R3-205509

E-meeting, 17 – 28 August 2020

Agenda Item: 10.2.4

Source: Ericsson

Title: SoD for SONMDT\_InterSystemLoad

Document for: Discussion, Decision

# Introduction

This is a summary of offline discussions for the topic of Inter System Load Balancing in AI 10.2.4.

The scope of the SoD is as follows:

**CB: # 1010\_SONMDT\_InterSystemLoad**

**- Topics to discuss:**

**- Load reporting for inter-RAT and inter-system**

**- Periodic, event-triggered**

**- NG, S1, stage-2 impacts**

**- Metrics: CAC, PRB usage, TNL load, HW load, CAC and Number of Active UEs**

**- Other information, e.g. overload flag, list of cells/beams/slices**

**- Number of measurement reporting levels**

**- Any other topics based on contributions submitted**

**- If there are agreements, can proceed to CRs**

(E/// - moderator)

Summary of offline disc [R3-205517](https://www.3gpp.org/ftp/tsg_ran/WG3_Iu/TSGR3_109-e/Inbox/Drafts/CB%20%23%201010_SONMDT_InterSystemLoad/Inbox/R3-205517.zip)

# For the Chairman’s Notes

Following agreements were proposed on the first round of offline discussion:

# Discussion

## Signalling for Inter System Load Balancing

There seems to be consensus on the introduction of inter system load balancing at least in a way that mirrors the solution in LTE. In a similar way to LTE, a number of papers propose that Inter System Load Balancing information are transferred across systems via a mechanism that resembles or reuses the *SON Configuration Transfer* IE.

The *SON Configuration Transfer* IE containing information on configuration of inter system load balancing and updates of measurement reports, may be transferred between RAN nodes of an E-UTRAN and an NG-RAN system by means of the S1: eNB CONFIGURATION TRANSFER, S1: MME CONFIGURATION TRANSFER, NG: UL RAN CONFIGURATION TRANSFER and NG: DL RAN CONFIGURATION TRANSFER.

**Proposal 1: It is proposed to agree to the introduction of Inter System Load Balancing mechanisms on the basis of the solution available in E-UTRAN**

**Proposal 2: It is proposed to agree to the introduction of Inter System Load Balancing by means of mechanisms that resemble or reuses the *SON Configuration Transfer* IE for the purpose of configuring load balancing metrics and reporting load balancing measurements**

**Proposal 3: It is proposed to agree to the use of the S1: eNB CONFIGURATION TRANSFER, S1: MME CONFIGURATION TRANSFER, NG: UL RAN CONFIGURATION TRANSFER and NG: DL RAN CONFIGURATION TRANSFER for the transfer of inter system load balancing via the SON Configuration Transfer (or similar) IEs**

Companies are invited to provide their feedback on the proposals above:

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| --- | --- |
| Company | Comments |
| CATT | Agree with all. |
| ZTE | Agree |
| Samsung | Agree |
| CMCC | Agree. |

## Inter System Load Balancing Metrics

All companies agree that at least the Cell Capacity Class value and Capacity Value also used in LTE shall be adopted for inter system load balancing.

Three companies (R3-204801, R3-205020, R3-5332) further envision the possibility of extending such metric to include per SSB area capacity.

One company (R3-205429) proposes to include all the load balancing metrics defined in NG RAN for inter system load balancing.

Companies are invited to express their view on the load balancing metrics to be used for inter system load balancing.

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| Company | Comments |
| CATT | We could discuss one by one based on the metrics for intra-system load balancing. |
| ZTE | In addition to the Cell Capacity Class Value and Capacity Value, the Number of Active UEs can be considered which is an explicit metric for operators to compare the load status. |
| Samsung | Agree with CATT |
| CMCC | On one hand, we can discuss load metrics one by one, which are defined in intra-LTE scenario, for inter-system load reporting from E-UTRAN to NR; on the other hand, we can discuss load metrics one by one, which are defined in intra-system scenario, for inter-system load reporting from NR to E-UTRAN.  In our opinion, at least RRC Connections can be supported for load reporting which reflect control plane load for NR node both from NR to E-UTRAN and from E-UTRAN to NR; PRB usage can be supported as well for load reporting both from NR to E-UTRAN and from E-UTRAN to NR.  CAC can also be considered but inter-operability issue may remain. |

## Reporting rules

The majority of companies seems to agree that inter system signalling for Inter System Load Balancing should be limited. This is due to the load across different parts of the EPS and 5GS that could be generated and due to the delays such signalling is subject to (which makes frequent reporting less effective).

It is proposed to agree to the following principle:

**The Inter System Load Balancing solution should not generate excessive inter system signalling**

Companies are invited to express their view if the above principle is not agreed.

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| Company | Comments |
| Samsung | Agree |

It is also important to identify the type of reporting that Inter System Load Balancing should produce. Two main classes of reporting can be identified:

* Event Based Reporting
* Periodic Reporting, e.g. in case specific conditions are met

Companies are invited to provide their views on the type of reporting that should be adopted for Inter System Load Balancing.

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| --- | --- |
| Company | Comments |
| CATT | Both approaches are acceptable for us. |
| ZTE | Both of two reporting types should be supported. |
| CMCC | As operators start to deploy 5G SA network, there’s a large demand for operators to perform inter-system load balancing between 5G SA and LTE. So both can be considered. |

# Conclusion, Recommendations [if needed]

If needed