**3GPP TSG-SA5 Meeting #131e *S5-203079***

**e-meeting 25th May-3rd June 2020**

**Source: Huawei, Ericsson, Intel**

**Title: pCR TS 28.313 MRO Function**

**Document for: Approval**

**Agenda Item: 6.4.9**

# 1 Decision/action requested

***The group is asked to discuss and approve the proposals.***

# 2 References

[1] R3-201610 “Addition of SON features”;

[2] R3-201614 “Addition of SON features”;

# 3 Rationale

According to the baseline CR R3-201610, RAN3 has added the following ranges and paramters to support MRO:

#### 15.X.2.6 O&M Requirements

All automatic changes of the HO and/or reselection parameters for mobility robustness optimisation shall be within the range allowed by OAM.

The following control parameters shall be provided by OAM to control MRO behaviour:

- Maximum deviation of Handover Trigger  
 This parameter defines the maximum allowed absolute deviation of the Handover Trigger, from the default point of operation defined by the parameter values assigned by OAM.

- Minimum time between Handover Trigger changes  
This parameter defines the minimum allowed time interval between two Handover Trigger change performed by MRO. This is used to control the stability and convergence of the algorithm.

Furthermore, in order to support the solutions for detection of mobility optimisation, the parameter Tstore\_UE\_cntxt shall be configurable by the OAM system.

In addition, according to the baseline CR R3-201614, The detaied allowedValues of Maximum deviation of Handover Trigger is defined as following:

9.2.2.x1 Mobility Parameters Information

The *Mobility Parameters Information* IE contains the change of the Handover Trigger as compared to its current value. The Handover Trigger corresponds to the threshold at which a cell initialises the handover preparation procedure towards a specific neighbour cell. Positive value of the change means the handover is proposed to take place later.

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| --- | --- | --- | --- | --- |
| **IE/Group Name** | **Presence** | **Range** | **IE type and reference** | **Semantics description** |
| Handover Trigger Change | M |  | INTEGER (-20..20) | The actual value is IE value \* 0.5 dB. |

This contribution proposes to add MRO related ranges in order to enable the MRO Function.

# 4 Detailed proposal

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| **1st modified section** |

# 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. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".

[2] 3GPP TS 32.500: "Telecommunication Management; Self-Organizing Networks (SON); Concepts and requirements".

[3] 3GPP TS 28.532: "Management and orchestration; Generic management services”

[4] 3GPP TS 38.321 “NR; Medium Access Control (MAC) protocol specification”.

[5] 3GPP TS 28.552 “Management and orchestration; 5G performance measurements”

[6] 3GPP TS 32.511 " Telecommunication management; Automatic Neighbour Relation (ANR) management; Concepts and requirements"

[7] 3GPP TS 38.300 "NR; Overall description; Stage-2"

[8] 3GPP TS 36.300 "Evolved Universal Terrestrial Radio Access (E-UTRA) and Evolved Universal Terrestrial Radio Access Network (E-UTRAN); Overall description; Stage 2"

[9] 3GPP TS 38.331: "NR; Radio Resource Control (RRC) protocol specification".

[10] 3GPP TS 28.545 "Management and orchestration; Fault Supervision (FS)”

[11] 3GPP TS 28.531 "Management and orchestration; Provisioning"

[12] 3GPP TS 28.550: "Management and orchestration; Performance assurance".

[13] 3GPP TS 28.541: "Management and orchestration; 5G Network Resource Model (NRM); Stage 2 and stage 3".

[14] 3GPP TS 38.401: "NG-RAN; Architecture description".

[15] 3GPP TS 32.508: "Telecommunication management; Procedure flows for multi-vendor plug-and-play eNodeB connection to the network".

[16] 3GPP TS 38.133: "NR; Requirements for support of radio resource management".

[17] 3GPP TS 38.423: "NR; Xn application protocol (XnAP)".

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### 7.1.2 MRO (Mobility Robustness Optimisation)

#### 7.1.2.1 MnS component type A

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| --- | --- |
| MnS Component Type A | Note |
| Operations defined in clause 5 of TS 28.532 [3]:  - getMOIAttributes operation  - modifyMOIAttributes operation  - notifyMOIAttributeValueChange operation | It is supported by Provisioning MnS for NF, as defined in 28.531 [11]. |
| Operations defined in clause 11.3.1.1.1 in TS 28.532 [3] and clause 6.2.3 of TS 28.550 [12]:  - notifyFileReady operation  - reportStreamData operation | It is supported by Performance Assurance MnS for NFs, as defined in 28.550 [12]. |

#### 7.1.2.2 MnS Component Type B definition

##### 7.1.2.2.1 Targets information

The targets of MRO are shown in the Table 7.1.2.2.1-1.

Table 7.1.2.2.1-1. MRO targets

| Target Name | Definition | Legal Values |
| --- | --- | --- |
| Total handover failure rate | (the number of failure events related to handover) / (the total number of handover events) | [0..100] in unit percentage |
| Total intra-RAT handover failure rate | (the number of failure events related to intra-RAT handover) / (the total number of handover events) | [0..100] in unit percentage |
| Total inter-RAT handover failure rate | (the number of failure events related to inter-RAT handover) / (the total number of handover events) | [0..100] in unit percentage |

##### 7.1.2.2.2 Control information

The parameter is used to control the MRO function.

| Control parameter | Definition | Legal Values |
| --- | --- | --- |
| MRO function control | This attribute allows the operator to enable/disable the MRO functionality. See attribute mroControl in TS 28.541 [13]. | Boolean  On, off |

##### 7.1.2.2.3 Parameters to be updated

Table 7.1.2.2.3-1. Ranges of handover parameters

| Control parameters | Definition | Legal Values |
| --- | --- | --- |
| Maximum deviation of Handover Trigger | This parameter defines the maximum allowed absolute deviation of the Handover Trigger, from the default point of operation (see TS 38.300 [7] and TS 38.423 [17]). | [-20..20] in unit 0.5 dB |
| Minimum time between Handover Trigger changes | This parameter defines the minimum allowed time interval between two Handover Trigger change performed by MRO. This is used to control the stability and convergence of the algorithm (see TS 38.300 [7]). | [0.. 604800] in unit Seconds |
| Tstore\_UE\_cntxt | The timer used for detection of too early HO, too late HO and HO to wrong cell. Corresponds to Tstore\_UE\_cntxt timer described in TS 38.300 [7]. | [0..1023] in unit 100 milliseconds |

NOTE: The subclause references to TS 38.300 and TS 38.423 will be added, when they are available.

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| **End of modified section** |