**3GPP TSG-SA WG2 Meeting #146-e *S2-2105516***

**Electronic meeting, 2021‑08‑16 -- 2021‑08‑27**

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| **Source: Ericsson**  **Title: AF Request for Simultaneous Connectivity over Source and Target PSA at Edge Relocation**  **Document for: Agreement**  **Agenda Item: 8.3**  **Work Item / Release: eEDGE\_5GC /Rel-17**  ***Abstract of the contribution:*** *This contribution proposes content to clause 6.3.4 related to AF request for simultaneous connectivity over source and target PSA at edge relocation* |
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# 1 Discussion

EAS relocation may benefit from connection coexistence, as described in Annex F.

AF may influence that certain traffic is redirected through a certain UL CL/BP and PSA but AF cannot influence how the relocation procedure happens e.g., at UE mobility, i.e., whether simultaneous connectivity should be temporarily maintained for source and target PSAs.

The study phase has concluded in TR 23.748. Clause 9.2.8: “It is recommended for normative phase to consider enhancing the runtime coordination so AF can issue a request to SMF in relation to former and new connection coexistence at Edge Relocation.”. This contribution proposes to include the above mechanism in TS 23.548 by adding two optional attributes through which AF can provide this request, a “Keep existing path” indication, and a “Keep existing path timer” value.

# 2 Proposal

It is proposed to insert the following changes in TS 23.548

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| \*\*\*\*\* 1st Change \*\*\*\*\* |

### 6.3.1 General

Edge Relocation refers to the procedures supporting EAS changes and/or PSA UPF relocation.

Edge Relocation may be triggered by an AF request (e.g. due to the load balance between EAS instances in the EHE) or by the network (e.g. due to the UE mobility).

With Edge Relocation, the user plane path may be re-configured to keep it optimized. This may be done by PDU Session re-establishment using SSC mode 2/3 mechanisms or Local PSA UPF relocation using UL CL and BP mechanisms. The corresponding procedures are defined in TS 23.501 [2] and TS 23.502 [3].

Due to Edge Relocation, the UE may need to re-discover a new EAS and establish the connectivity to the new EAS to continue the service. The re-discovery of EAS is specified in clause 6.2.

Edge Relocation may result in AF relocation, for example, as part of initial PDU session establishment, a central AF may be involved. However, due to Edge relocation another AF serving the Edge Applications is selected.

The trigger of Edge relocation by the network is specified in clause 4.3.6.3 of TS 23.502 [3]. Some EAS (re-)Discovery procedures in clause 6.2 may also trigger Edge Relocation.

This clause further describes the following procedures:

- Edge Relocation triggered by AF.

- Edge Relocation using EAS IP replacement.

- AF request for simultaneous connectivity for source and target PSA.

- Packet buffering for low Packet Loss.

- Edge relocation considering User Plane Latency Requirements.

Annex F describes example procedure for EAS relocation on Release 16 capabilities.

\*\*\*\*\* Next Change \*\*\*\*\*

##### 6.3.4 AF Request for Simultaneous Connectivity over Source and Target PSA at Edge Relocation

EAS relocation can make use of network capabilities that, at PSA change, provide simultaneous connectivity over the source and the target PSA during a transient period. This is described in Annex F.

AF may issue a request to the network on whether to provide simultaneous connectivity over the source and the target PSA at edge relocation. This may trigger the SMF to use a re-anchoring procedure that provides simultaneous connectivity over the source and target PSA, as described in TS 23.502 [3]:

- For Session Breakout, in clause 4.3.5.7 for Simultaneous change of Branching Point or UL CL and additional PSA for a PDU Session. This could involve the establishment of a temporary N9 forwarding tunnel between the source UL CL and target UL CL.

The AF request may include the following information:

- “Keep existing PSA” indication: If this indication is included, the SMF may decide to use a re-anchoring procedure that provides simultaneous connectivity over the source and target PSA, as described above.

- “Keep existing PSA timer”: its value indicates the minimum time interval to be considered for inactivity for the traffic described. It may overwrite the SMF configurable period of time for how long the existing PSA is to be maintained after all active traffic ceases to flow on it.

AF traffic influence request via NEF is described in TS 23.502 [3], clause 5.2.6.7. The request to PCF is described in TS23.502 [3], clauses 5.2.5.3.2 and 5.2.5.3.3. The AF request for simultaneous connectivity over the source and the target PSA at relocation is authorized by PCF. The PCF checks whether the AF has an authority to make such a request.

Once the simultaneous connectivity over the source and the target PSA at relocation requested by AF is authorized by the PCF, the AF request including the requirements is informed to the SMF via AF influenced Traffic Steering Enforcement Control (see TS 23.503 [4] clause 6.3.1) in PCC rules.

\*\*\*\*\* End of Changes \*\*\*\*\*