**3GPP TSG-CT WG4 Meeting #101eC4-205**

**E-Meeting, 03rd – 13th November 2020 was C4-205305**

**Source: Nokia, Nokia Shanghai Bell**

**Title: Pseudo-CR on Routing of IMS traffic via a localized UPF**

**Spec: 3GPP TR 23.700-12 v0.0.0**

**Agenda item: 6.2.1**

**Document for: Decision**

**1. Introduction**

<Introduction part (optional)>

**2. Reason for Change**

Add key issue and solution for Routing of IMS traffic via a localized UPF

**3. Conclusions**

<Conclusion part (optional)>

**4. Proposal**

It is proposed to agree the following changes to 3GPP TR 23.700-12 initial version.

\* \* \* First Change \* \* \* \*

## 5.x Key issue #X: Routing of IMS traffic via a localized UPF

### 5.x.1 Description

The 5GC enables traffic to route via localized UPF close to the edge of the network (in some cases adjacent to the RAN nodes). Some IMS services may be able to benefit from the lower latency and/or lower backhaul requirements that such deployments can enable, however current IMS applications and services are not able to leverage these capabilities. This key issue investigates the interactions required to leverage localized routing of IMS media and signalling traffic, the changes to enable effective control and management of such routing, and impacts of mobility and roaming.

### 5.x.2 Requirements

The existing 5GC and IMS architecture does not specifically support having user plane and IMS media plane entities in the same location and hence user plane path handling is not optimized. To optimise the user plane path, a location of the MGCF and MRF close to the actual UPF (that the user plane needs to traverse) is desirable. For instance, UPF and MGCF could be located in the same data centre.

When selecting an MGCF or MRF, IMS nodes shall be enabled to base this selection on the actually used UPF.

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

## 6.x Solution #X: Conveying UPF FQDN to IMS nodes

### 6.x.1 Description

This is a solution to key issue #X

This solution proposes to convey the UPF FQDN or a more generic information like "user-plane-locality" or "voice-media-locality" for the IMS PDU session from SMF to UDM during SMF registration. The UDM stores the IMS PDU session's UPF FQDN (or "user-plane-locality" or voice-media-locality") in the UDR as part of the SMF registration.

When the IMS node determines that selection of MGCF or MRF close to the actual UPF is required, it retrieves the UPF FQDN (or "user-plane-locality" or voice-media-locality") via HSS from the UDR and selects (based on a configured list) the optimal MGCF/MRF for the actual UPF.

### 6.x.2 Impacts on existing nodes and functions

#### 6.x.2.1 SMF

When the SMF makes use of the Nudm\_UECM\_registration service operation to register for the IMS PDU session at the UDM, it needs to convey the actual UPF FQDN (or "user-plane-locality" or voice-media-locality") to the UDM.

#### 6.x.2.2 UDM

When the UDM receives the actual UPF FQDN (or "user-plane-locality" or voice-media-locality") within the Nudm\_UECM\_registration service operation, it needs to store the UPF FQDN (or "user-plane-locality" or voice-media-locality") as part of the SmfRegistration in the UDR.

#### 6.x.2.3 UDR

When the UDM makes use of the Nudr\_DR\_Create service operation to store the SMF registration for the IMS PDU session, it needs to store the received UPF FQDN (or "user-plane-locality" or voice-media-locality").

When the HSS makes use of the Nudr\_DR\_Query service operation to retrieve SMF registration for the IMS PDU session, the UDR needs to respond with the SmfRegistration including the stored UPF FQDN (or "user-plane-locality" or voice-media-locality").

#### 6.x.2.4 HSS

When the HSS receives a request from the IMS-AS or S-CSCF to provide the UPF FQDN (or "user-plane-locality" or voice-media-locality"), in needs to make use of the Nudr\_DR\_Query service operation to retrieve the UPF FQDN (or "user-plane-locality" or voice-media-locality") from the UDR as part of the SmfRegistration for the IMS PDU session, and return the retrieved UPF FQDN (or "user-plane-locality" or voice-media-locality") to the IMS-AS or S-CSCF.

#### 6.x.2.5 S-CSCF and IMS-AS

When the S-CSCF or IMS-AS determine that an MGCF or MRF close to the actual UPF need to be selected, it needs to retrieve the actual UPF FQDN (or "user-plane-locality" or voice-media-locality") for the IMS PDU session from the HSS. The IMS node then checks locally configured information to see which MGCRs/MRFs are close to the actual UPF identified by the retrieved UPF FQDN (or "user-plane-locality" or voice-media-locality").

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