**3GPP TSG-SA WG6 Meeting #48-e S6-220613**

**e-meeting, 5th – 14th April 2022 (revision of S6-22xxxx)**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.289** | **CR** | **0050** | **rev** | **1** | **Current version:** | **18.1.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME | **x** | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** | Update to service continuity procedure from an MBS session to 5G ProSe UE-to-network relay | | | | | | | | | |
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| ***Source to WG:*** | Ericsson | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | MCOver5GProSe | | | | |  | ***Date:*** | | | 2022-04-05 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **C** |  | | | | | ***Release:*** | | | Rel-18 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
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| ***Reason for change:*** | | The introduced CR addresses the EN related to the trigger upon which the remote MC service UE starts 5G ProSe relay discovery once it is out of network coverage.  Furthermore, the procedure is updated to be aligned with 3GPP TS 23.304 as service continuity upon direct switching between 5G ProSe UE-to-network relay and MBS sessions is not yet supported. Therefore, in alignment with 3GPP TS 23.304, a path switch via a unicast PDU session is necessary to support the transition between an MBS session and a 5G ProSe UE-to-network relay.  Additionally, the procedure is updated to address the case when the 5G ProSe UE-to-network relay is done via the support of N3IWF, the procedure describes subsequent steps to be considered in this case. | | | | | | | | |
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| ***Summary of change:*** | | * The term service continuity is changed to path switch since service interruption may occur during the switching. * The trigger to initiate a 5G ProSe UE-to-network relay discovery by the remote MC service UE is described. * The procedure is updated to clearly describe the path switch via a unicast PDU session. * The path switch procedure is considered for the case when 5G ProSe UE-to-network relay is done via the support of N3IWF. | | | | | | | | |
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| ***Consequences if not approved:*** | | The EN related to 5G ProSe UE-to-network relay discovery is not addressed. Furthermore, the available procedure is not completely aligned with 3GPP TS 23.304. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 7.3.3.8.4, 7.3.3.8.4.1, 7.3.3.8.4.2, and 2 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **x** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **x** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **x** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

\* \* \* \* First change \* \* \* \*

##### 7.3.3.8.4 Path switch between MBS session and 5G ProSe UE-to-network relay

###### 7.3.3.8.4.1 General

The MC service communications over 5G ProSe UE-to-network relay is supported for unicast delivery.

NOTE: In this release of the specification, service continuity is supported for unicast PDU session over 5G ProSe UE-to-network relay, however it is not yet supported for multicast/broadcast MBS sessions for MC service communications.

The path switch procedures for MC service communications between MBS session and 5G ProSe UE-to-network relay is specified in this clause.

The architecture of MC service utilizing IMS service continuity is specified in Annex B.

###### 7.3.3.8.4.2 Path switch procedure from MBS session to a 5G ProSe UE-to-network relay

This clause describes the procedures for path switch from MBS session to a 5G ProSe UE-to-network relay.

Figure 7.3.3.8.4.2-1 illustrates the path switch procedure from MBS session to a 5G ProSe UE-to-network relay.



Figure 7.3.3.8.4.2-1 Path switch from MBS session to a 5G ProSe UE-to-network relay.

1. The DL media is transmitted over an MBS session to a (remote) MC service UE.

2. The MC service client sends an MBS listening status report indicating that the MBS reception quality associated with the TMGI is not sufficient to receive media. The MC service client may also map the determined MBS reception quality to an MBS reception quality level. The MBS reception quality level indicates at which specific MBS reception quality level the MC service media has been received.

3. The MC service server based on the report from the MC service client determines that the (remote) MC service UE is unable to receive the media or the QoS requirements are not satisfied. The MC service server determines to send the MC service communications (e.g., DL media, application layer control signalling) via the unicast delivery to the reported MC service client.

4. The MC service server sends the DL media to the (remote) MC service UE over a unicast PDU session.

NOTE 1: Steps 2 to 4 may occur after step 6 if the MBS listening status report towards the MC service server has failed due to connection lost.

5. The remote MC service UE discovers and utilizes a 5G ProSe UE-to-network relay UE in its proximity once it has detected being out of the network coverage. This step applies to both 5G ProSe Layer-3 and Layer-2 UE-to-network relay.

NOTE 2: An NG-RAN based measurement report triggers the remote MC service UE to perform a 5G Prose UE-to-Network relay discovery over PC5, as indicated in 3GPP TS 38.331 [y]. The remote MC service UE establishes a secure point-to-point link with the relay UE in its proximity over PC5. As part of this process the remote MC service UE is mutually authenticated at PC5 layer with either the relay or with the network as specified in 3GPP TS 23.304 [17].

6. For the case of 5G ProSe Layer-3 UE-to-network relay without the support of N3IWF, as described in 3GPP TS 23.304 [17], the remote MC service client performs SIP re-registration over the relay UE due to the change in IP address of the remote MC service UE and initiates IMS service continuity procedures as described in Annex B.

NOTE 3: For the case of 5G ProSe Layer-3 UE-to-Network relay with the support of N3IWF, the relay UE performs registration and authentication procedures towards the 5GC to support the remote MC service UE with an end-to-end confidentiality and IP address reservation requirements, as described in 3GPP TS 23.304 [17].

NOTE 4: For the case of 5G ProSe Layer-2 UE-to-network relay, the 5GC can provide the service continuity for the remote MC service UE with the UE's original IP address, as described in 3GPP TS 23.304 [17].

7. The MC service server sends the MC service communications using the unicast delivery via the 5G ProSe MC service UE-to-Network relay UE towards the remote MC service client. The MC service client then receives the DL MC service communication via the relay UE.

\* \* \* \* Second change \* \* \* \*

# 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 23.228: "IP Multimedia Subsystem (IMS); Stage 2".

[3] 3GPP TS 23.280: "Common functional architecture to support mission critical services; Stage 2".

[4] 3GPP TS 23.281: "Functional architecture and information flows to support Mission Critical Video (MCVideo); Stage 2".

[5] 3GPP TS 23.282: "Functional architecture and information flows to support Mission Critical Data (MCData); Stage 2".

[6] 3GPP TS 23.379: "Functional architecture and information flows to support Mission Critical Push To Talk (MCPTT); Stage 2".

[7] 3GPP TS 23.501: "System architecture for the 5G System (5GS)".

[8] 3GPP TS 23.002: "Network Architecture".

[9] 3GPP TS 23.503: "Policy and Charging Control Framework for the 5G System (5GS); Stage 2".

[10] 3GPP TS 23.502: "Procedures for the 5G System (5GS)".

[11] 3GPP TS 22.179: "Mission Critical Push to Talk (MCPTT); Stage 1".

[12] 3GPP TS 22.280: "Mission Critical Services Common Requirements (MCCoRe); Stage 1".

[13] 3GPP TS 22.281: "Mission Critical (MC) Video".

[14] 3GPP TS 22.282: "Mission Critical (MC) Data".

[15] 3GPP TS 23.247: "Architectural enhancements for 5G multicast-broadcast services; Stage 2".

[16] 3GPP TS 23.468: "Group Communication System Enablers for LTE (GCSE\_LTE); Stage 2".

[17] 3GPP TS 23.304: "Proximity based Service (ProSe) in the 5G System (5GS); Stage 2".

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

\* \* \* \* End of changes \* \* \* \*