**3GPP TSG-SA6 Meeting #54-e *S6-23abcd***

**Online, , 17th Apr 2023 - 26th Apr 2023 (was S6-231123)**

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| *CR-Form-v12.2* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **23.379** | **CR** | **0340** | **rev** | **1** | **Current version:** | **18.5.1** |  |
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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 |  | Radio Access Network |  | Core Network | **x** |

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| ***Title:*** | Enhancements for functional alias | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Kontron Transportation France, Kyonggi University, KT | | | | | | | | | |
| ***Source to TSG:*** | S6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | enh4MCPTT | | | | |  | ***Date:*** | | | 2023-04-06 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***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-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Stage 1 3GPP TS 22.280 contains the following requirement:  [R-5.9a-019] The MCX Service shall provide a mechanism for an MCX Service Administrator to define a functional alias with related geographic areas that can be associated to MCX Users for the purpose of routing Location dependent communications, as part of handling MCX Service Private Communication requests, when the determination of the receiving party is based on the initiating MCX User’s current Location. So far it is not addressed in stage 2 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | In clauses 10.7.2.2.1 and 10.7.2.2.2 add to the existing NOTE 2 (which is related to the resolution of a functional alias) that the criteria to be used for selection of an appropriate MCPTT ID can be the location of the initiating user  In clause 10.15.3 add a new NOTE 1 that the MCPTT server can based on some selection criteria (e.g. current location of the initiating user to determine the dispatchers that are responsible for the related geographic areas) send MCPTT first-to-answer call requests only to a sub-set of the MCPTT users that have activated the functional alias. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | Stage 1 requirement [R-5.9a-019] will not be met in stage 2. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 10.7.2.2.1, 10.7.2.2.2.2, 10.7.5.2.2, 10.7.5.2.3, 10.7.5.2.3a, 10.7.6.2.1, 10.7.6.2.2, 10.7.6.2.3, 10.7.6.2.4, 10.15.3 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

##### 10.7.2.2.1 Private call setup in automatic commencement mode

The procedure focuses on the case where an MCPTT user is initiating an MCPTT private call for communicating with another MCPTT user, with or without floor control enabled, in an automatic commencement mode.

Procedures in figure 10.7.2.2.1-1 are the basic signalling control plane procedures for the MCPTT client initiating establishment of MCPTT private call with the chosen MCPTT user.

Pre-conditions:

1. The calling MCPTT user has selected automatic commencement mode for the call; or

2. The called MCPTT client is set to automatic commencement mode.

3. Optionally, MCPTT client 1 may use an activated functional alias for the call.

4. The MCPTT server has subscribed to the MCPTT functional alias controlling server within the MC system for functional alias activation/de-activation updates.



Figure 10.7.2.2.1-1: Private call setup in automatic commencement mode– MCPTT users in the same MCPTT system

1. MCPTT users on MCPTT client 1 and MCPTT client 2 are already registered for receiving MCPTT service, as per procedure in subclause 10.2.

2. User at MCPTT client 1 would like to initiate an MCPTT private call for the chosen MCPTT user. The MCPTT user at MCPTT client 1 may include a functional alias used within the MCPTT private call. For a private call with floor control, floor control is to be established.

3. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server (via SIP core) using a service identifier as defined in 3GPP TS 23.228 [5] for MCPTT, for establishing a private call with the chosen MCPTT user. The MCPTT private call request contains the MCPTT ID or the functional alias of the invited user, an SDP offer containing one or more media types. For a private call with floor control, the MCPTT private call request also contains an element that indicates that MCPTT client 1 is requesting the floor. The MCPTT client 1 may include a Requested commencement mode that indicates that the call is to be established in automatic commencement mode if automatic commencement mode is requested by the initiating user.

NOTE 1: As part of this step, MCPTT client 1 and MCPTT client 2 set up a security association (when no functional alias is present), if end-to-end encryption is used for this call.

4. If the MCPTT private call request contains a functional alias instead of an MCPTT ID as called party, the MCPTT server shall resolve the functional alias to the corresponding MCPTT ID(s) for which the functional alias is active. The MCPTT server shall also check whether MCPTT client 1 is allowed to use the functional alias of MCPTT client 2 to setup a private call and whether MCPTT client 2 is allowed to receive a private call from MCPTT client 1 using the functional alias. If authorized, proceed with step 5. Otherwise, the MCPTT server checks whether the MCPTT user at MCPTT client 1 is authorized to initiate the private call, and that MCPTT user at MCPTT client 2 is authorized to receive the private call. If the MCPTT private call request requested automatic commencement mode then the MCPTT server also checks whether the MCPTT user at MCPTT client 1 is authorized to initiate a private call in automatic commencement mode and proceed with step 6.

NOTE 2: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the private call request is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. This selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

5a. The MCPTT server responds with a functional alias resolution response message that contains the resolved MCPTT ID back to MCPTT client 1.

5b. If the MCPTT server replies with a MCPTT functional alias resolution response message, the MCPTT client 1 abandons the first MCPTT private call request in step 3 and sends a new MCPTT private call request towards the resolved MCPTT ID.

NOTE 3: MCPTT client 1 and MCPTT client 2 set up a security association for the media, if end-to-end encryption is used for this call.

6. MCPTT server may provide a progress indication to MCPTT client 1 to indicate progress in the call setup process.

NOTE 4: Step 6 can occur at any time following step 5b, and prior to step 10.

7. If authorized, MCPTT server includes information that it communicates using MCPTT service, offers the same media types or a subset of the media types contained in the initial received request, includes the requested automatic commencement mode indication based on a requested automatic commencement mode by the calling user or based upon the setting of the called MCPTT client and sends the corresponding MCPTT private call request towards the MCPTT client 2, including the MCPTT ID and, if available, the functional alias of the calling MCPTT user 1. If the called MCPTT user has registered to the MCPTT service with multiple MCPTT UEs and has designated the MCPTT UE for receiving the private calls, then the incoming MCPTT private call request is delivered only to the designated MCPTT UE.

8. The receiving MCPTT client 2 notifies the user about the incoming private call and displays the functional alias of calling MCPTT user 1.

9. The receiving MCPTT client 2 accepts the private call automatically, and an MCPTT private call response is sent to the MCPTT server (via SIP core).

10. Upon receiving the MCPTT private call response from MCPTT client 2 accepting the private call request, the MCPTT server informs the MCPTT client 1 about successful call establishment.

11. MCPTT client 1 and MCPTT client 2 have successfully established media plane for communication and either user can transmit media. For successful call establishment for private call with floor control request from MCPTT client 1, floor participant at MCPTT client 1 is granted floor by the floor control server, giving it permission to transmit. At the same time floor participant at MCPTT client 2 is informed by the floor control server that floor is taken.

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

###### 10.7.2.2.2.2 Procedure

Both clients are served by the primary MCPTT service provider in figure 10.7.2.2.2.2-1.

Pre-conditions:

1. The calling MCPTT user has selected manual commencement mode or has not specified a commencement mode for the call; and

2. The called MCPTT client is set to manual commencement mode.

3. Optionally, MCPTT client 1 may use an activated functional alias for the call.

4. The MCPTT server has subscribed to the MCPTT functional alias controlling server within the MC system for functional alias activation/de-activation updates.



Figure 10.7.2.2.2.2-1: MCPTT private call in manual commencement mode– MCPTT users in the same MCPTT system

1. MCPTT client 1 and MCPTT client 2 are both registered and their respective users, MCPTT user 1 and MCPTT user 2, are authenticated and authorized to use the MCPTT service, as per procedure in subclause 10.2.

2. MCPTT user at MCPTT client 1 would like to initiate an MCPTT private call for the selected MCPTT user. The MCPTT user at MCPTT client 1 may include a functional alias used within the MCPTT private call. For a private call with floor control, floor control is to be established. For private call without floor control, both users will have the ability to transmit without floor arbitration.

3. MCPTT client 1 sends an MCPTT private call request addressed to the MCPTT ID of MCPTT user 2 using an MCPTT service identifier as defined in 3GPP TS 23.228 [5] (possible for the SIP core to route the request to the MCPTT server). The MCPTT private call request contains the MCPTT ID or the functional alias of invited user and an SDP offer containing one or more media types. The MCPTT private call request may also contain a data element that indicates that MCPTT client 1 is requesting the floor, for a private call with floor control. The MCPTT client 1 may include a requested commencement mode that indicates that the call is to be established in manual commencement mode if manual commencement mode is requested by the initiating user.

NOTE 1: As part of this step, MCPTT client 1 and MCPTT client 2 set up a security association (when no functional alias is present), if end-to-end encryption is used for this call.

4. The MCPTT server confirms that both MCPTT users are authorized for the private call. MCPTT server verifies whether the provided functional alias, if present, can be used and has been activated for the user. The MCPTT server shall resolve the functional alias to the corresponding MCPTT ID(s) for which the functional alias is active. The MCPTT server shall also check whether MCPTT client 1 is allowed to use the functional alias of MCPTT client 2 to setup a private call and whether MCPTT client 2 is allowed to receive a private call from MCPTT client 1 using the functional alias. The MCPTT server checks the commencement mode setting of the called MCPTT client and also checks whether the MCPTT user at MCPTT client 1 is authorized to initiate a call in manual commencement mode.

NOTE 2: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the private call request is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. This selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

5a. If the MCPTT private call request contains a functional alias instead of an MCPTT ID as called party, the MCPTT server responds with a functional alias resolution response message that contains the resolved MCPTT ID back to MCPTT client 1.

5b. If the MCPTT server replies with a MCPTT functional alias resolution response message, the MCPTT client 1 abandons the first MCPTT private call request in step 3 and sends a new MCPTT private call request towards the resolved MCPTT ID.

NOTE 3: MCPTT client 1 and MCPTT client 2 set up a security association for the media, if end-to-end encryption is used for this call.

6. The MCPTT server includes information that it communicates using MCPTT service, offers the same media types or a subset of the media types contained in the initial received request and sends an MCPTT private call request for the call to MCPTT client 2, including the MCPTT ID and, if available, the functional alias of the calling MCPTT user 1. If the called MCPTT user has registered to the MCPTT service with multiple MCPTT UEs and has designated the MCPTT UE for receiving the private calls, then the incoming MCPTT private call request is delivered only to the designated MCPTT UE.

7. MCPTT server may provide a progress indication to MCPTT client 1 to indicate progress in the call setup process.

NOTE 4: Step 7 can occur at any time following step 5b, and prior to step 8b.

8a. The MCPTT user is alerted and may display the functional alias of calling MCPTT user 1. MCPTT client 2 sends an MCPTT ringing to the MCPTT server.

8b. The MCPTT server sends an MCPTT ringing to MCPTT client 1, indicating that MCPTT client 2 is being alerted.

9. MCPTT user 2 has accepted the call using manual commencement mode (i.e., has taken some action to accept via the user interface) which causes MCPTT client 2 to send an MCPTT private call response to the MCPTT server. If MCPTT user 2 has not accepted the incoming call, the MCPTT client 2 sends a call failure response to the MCPTT server without adding reason for call failure.

10. The MCPTT server sends an MCPTT private call response to MCPTT client 1 indicating that MCPTT user 2 has accepted the call, including the accepted media parameters.

11. The media plane for communication is established. Either user can transmit media individually when using floor control. For successful call establishment for private call with floor request from MCPTT client 1, the floor participant associated with MCPTT client 1 is granted the floor initially. At the same time the floor participant associated with MCPTT client 2 is informed that the floor is taken. The meaning of the floor request (give floor initially to originator [client 1], or give floor initially to target [client 2]) may be configurable. For a private call without floor control both users are allowed to transmit simultaneously.

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

##### 10.7.5.2.2 MCPTT immediate private call forwarding in a single MCPTT system

Figure 10.7.5.2.2-1 below illustrates the procedure of immediate call forwarding of MCPTT private calls.

Pre-conditions:

1. MCPTT client 2 is authorized to use call forwarding and has immediate call forwarding enabled with the destination MCPTT client 3.

2. MCPTT client 1 is authorized to make private calls to client 2.

3. The redirection counter is below the limit.

4. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3 if end2end encryption is required for the private call.



Figure 10.7.5.2.2-1: Call forwarding immediate for private calls

1. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server.

2. The MCPTT server detects that MCPTT client 2 has immediate call forwarding enabled.

3. The MCPTT server checks that the limit of immediate forwardings is not reached. The MCPTT server increments the redirection counter for immediate forwardings. If the target of the MCPTT private call forwarding is a functional alias instead of an MCPTT ID the MCPTT server resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 1: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call forwarding is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

3a. If the target of the call forwarding is a functional alias that is not active, or if the target functional is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call forwarding is cancelled, and the MCPTT server sends an MCPTT private call cancel request towards MCPTT client 1. Otherwise, the procedure continues with step 4.

3b. MCPTT client 1 sends an MCPTT call private cancel response back to the MCPTT server, and the procedure ends.

4. The MCPTT server sends an MCPTT private call forwarding request towards MCPTT client 1.

NOTE 2: The target MCPTT ID is based on the entry in the user profile for call forwarding immediate.

5. The user at MCPTT client 1 is notified that a call forwarding is in process.

6. MCPTT client 1 sends an MCPTT call private forwarding response back to the MCPTT server.

7. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server that includes a call forwarding indication set to true. MCPTT client 1 and MCPTT client 3 set up a security association if end-to-end encryption is used for this call.

8. The MCPTT server verifies that client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call forwarding request. The MCPTT server verifies that the MCPTT private call request contains MCPTT client 3 that is the authorized target from step 4, and the forwarding indication is set to true.

9. The MCPTT server sends an MCPTT private call request towards MCPTT client 3.

10. Optionally the MCPTT server sends an MCPTT progress indication to MCPTT client 1.

11. The user at MCPTT client 3 is alerted. MCPTT client 3 sends an MCPTT ringing to the MCPTT server. This step is not required in case of automatic commencement mode.

12. The MCPTT server sends an MCPTT ringing to MCPTT client 1. This step is not required in case of automatic commencement mode.

13. MCPTT client 3 sends an MCPTT private call response to the MCPTT server. In manual commencement mode this occurs after the user at MCPTT client 3 has accepted the call.

14. The MCPTT server sends an MCPTT private call response to MCPTT client 1 indicating that MCPTT client 3 has accepted the call.

15. The media plane for communication between MCPTT client 1 and MCPTT client 3 is established.

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

##### 10.7.5.2.3 MCPTT private call forwarding no answer in a single MCPTT system

Figure 10.7.5.2.3-1 below illustrates the procedure of call forwarding no answer of MCPTT private calls.

NOTE 1: The condition no answer covers both the cases in which the user does not answer because he is not reachable, as well as the case in which he is reachable but does not answer.

Pre-conditions:

1. MCPTT client 2 is authorized to use call forwarding and has call forwarding no answer enabled with the destination MCPTT client 3.

2. MCPTT client 1 is authorized to make private calls to MCPTT client 2.

3. No forwarding with no answer or based on manual user input has so far occurred in this call.

4. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3 if end2end encryption is required for the private call.



Figure 10.7.5.2.3-1: MCPTT call forwarding no answer

1. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server.

2. The MCPTT server checks if MCPTT client 2 has call forwarding no answer enabled. If the MCPTT server detects that MCPTT client 2 is not registered, the procedure continues with step 7. Otherwise, the MCPTT server starts a timer with the configured no answer timeout.

3. The MCPTT server sends an MCPTT private call request in manual commencement mode towards MCPTT client 2. If the MCPTT server detects that MCPTT client 2 is not reachable, the procedure continues with step 7.

4. The user at MCPTT client 2 is alerted. MCPTT client 2 sends an MCPTT ringing to the MCPTT server.

5. The MCPTT server sends an MCPTT ringing to the MCPTT client 1. This step is not required in case of automatic commencement mode.

6. The MCPTT server detects that MCPTT client 2 does not answer within the specified time interval.

7. The MCPTT server verifies that no other forwarding with the condition no answer or based on manual user input has occurred so far. If the target of the MCPTT private call forwarding is a functional alias instead of an MCPTT ID the MCPTT server resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 2: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call forwarding is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

7a. If the target of the call forwarding is a functional alias that is not active, or if the target functional is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call forwarding is cancelled, and the MCPTT server sends an MCPTT private call cancel request towards MCPTT client 1. Otherwise, the procedure continues with step 8.

7b. MCPTT client 1 sends an MCPTT call private cancel response back to the MCPTT server, and the procedure ends.

8. The MCPTT server sends an MCPTT private call forwarding request towards the MCPTT client 1.

NOTE 3: The target MCPTT ID is based on the entry in the user profile for call forwarding no answer.

9. The user at MCPTT client 1 is notified that a call forwarding is in process.

10. MCPTT client 1 sends an MCPTT private call forwarding response back to the MCPTT server.

11. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server that includes a call forwarding indication set to true. MCPTT client 1 and MCPTT client 3 set up a security association if end-to-end encryption is used for this call.

12. The MCPTT server verifies that client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call forwarding request. The MCPTT server verifies that the MCPTT private call request contains MCPTT client 3 that is the authorized target from step 8, and the forwarding indication is set to true.

NOTE 4: For call forwarding the MCPTT server does not check if the initial originating MCPTT user at MCPTT client 1 is authorized to make an MCPTT private call to the final target MCPTT user at MCPTT client 3.

13. The MCPTT server sends an MCPTT private call request towards MCPTT client 3.

14. Optionally the MCPTT server sends an MCPTT progress indication to MCPTT client 1.

15. The user at MCPTT client 3 is alerted. MCPTT client 3 sends an MCPTT ringing to the MCPTT server. This step is not required in case of automatic commencement mode.

16. The MCPTT server sends an MCPTT ringing to MCPTT client 1. This step is not required in case of automatic commencement mode.

17. MCPTT client 3 sends an MCPTT private call response to the MCPTT server. In manual commencement mode this occurs after the user at MCPTT client 3 has accepted the call.

18. The MCPTT server sends an MCPTT private call response to MCPTT client 1 indicating that MCPTT client 3 has accepted the call.

19. The media plane for communication between MCPTT client 1 and MCPTT client 3 is established.

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

##### 10.7.5.2.3a MCPTT private call forwarding based on manual user input in a single MCPTT system

Figure 10.7.5.2.3a-1 below illustrates the procedure of call forwarding based on manual user input of MCPTT private calls.

Pre-conditions:

1. MCPTT client 2 is authorized to perform call forwarding based on manual input.

2. MCPTT client 1 is authorized to make private calls to MCPTT client 2.

3. No forwarding with no answer or based on manual user input has so far occurred in this call.

4. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3 if end2end encryption is required for the private call.



Figure 10.7.5.2.3a-1: MCPTT call forwarding based on manual user input

1. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server.

2. The MCPTT server checks if MCPTT client 2 has call forwarding no answer enabled. If the MCPTT server detects that MCPTT client 2 is not registered, the procedure continues with step 10. Otherwise, the MCPTT server starts a timer with the configured no answer timeout.

3. The MCPTT server sends an MCPTT private call request in manual commencement mode towards MCPTT client 2. If the MCPTT server detects that MCPTT client 2 is not reachable, the procedure continues with step 10.

4. The user at MCPTT client 2 is alerted. MCPTT client 2 sends an MCPTT ringing to the MCPTT server.

5. In manual commencement mode the MCPTT server sends an MCPTT ringing to the MCPTT client 1.

6. During ringing the user at MCPTT client 2 requests the call to be forwarded based on manual input.

7. MCPTT client 2 sends an MCPTT private call forwarding request to the MCPTT server.

8. The MCPTT server verifies if the user at client 2 is allowed to perform forwarding based on manual input. If the target of the MCPTT private call forwarding is a functional alias instead of an MCPTT ID the MCPTT server resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 1: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call forwarding is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

8a. If the target of the call forwarding is a functional alias that is not active, or if the target functional is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call forwarding is cancelled, and the MCPTT server sends an MCPTT private call cancel request towards MCPTT client 1. Otherwise, the procedure continues with step 9.

8b. MCPTT client 1 sends an MCPTT call private cancel response back to the MCPTT server.

8c. The MCPTT server sends an MCPTT private call forwarding response with Result equals "fail" to MCPTT client 2, and the procedure ends.

9. The MCPTT server stops the timer for the no answer timeout.

10. The MCPTT server verifies that no other forwarding with the condition no answer or based on manual user input has occurred so far.

11.The MCPTT server sends an MCPTT private call forwarding response to MCPTT client 2.

12. The MCPTT server sends an MCPTT private call forwarding request towards the MCPTT client 1.

NOTE 2: The target MCPTT ID is based on the identity manually entered by the user at MCPTT client 2 in step 6.

13. The user at MCPTT client 1 is notified that a call forwarding is in process.

14. MCPTT client 1 sends an MCPTT private call forwarding response back to the MCPTT server.

15. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server that includes a call forwarding indication set to true. MCPTT client 1 and MCPTT client 3 set up a security association if end-to-end encryption is used for this call.

16. The MCPTT server verifies that client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call forwarding request. The MCPTT server verifies that the MCPTT private call request contains MCPTT client 3 that is the authorized target from step 12, and the forwarding indication is set to true.

NOTE 3: For call forwarding the MCPTT server does not check if the initial originating MCPTT user at MCPTT client 1 is authorized to make an MCPTT private call to the final target MCPTT user at MCPTT client 3.

17. The MCPTT server sends an MCPTT private call request towards MCPTT client 3.

18. Optionally the MCPTT server sends an MCPTT progress indication to MCPTT client 1.

19. The user at MCPTT client 3 is alerted. MCPTT client 3 sends an MCPTT ringing to the MCPTT server. This step is not required in case of automatic commencement mode.

20. The MCPTT server sends an MCPTT ringing to MCPTT client 1. This step is not required in case of automatic commencement mode.

21. MCPTT client 3 sends an MCPTT private call response to the MCPTT server. In manual commencement mode this occurs after the user at MCPTT client 3 has accepted the call.

22. The MCPTT server sends an MCPTT private call response to MCPTT client 1 indicating that MCPTT client 3 has accepted the call.

23. The media plane for communication between MCPTT client 1 and MCPTT client 3 is established.

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

##### 10.7.6.2.1 MCPTT private call unannounced transfer in a single MCPTT system

The procedure for MCPTT private call unannounced transfer covers the case where an MCPTT client requests an ongoing MCPTT private call (with or without floor control) to be transferred to another MCPTT user without prior announcement.

Figure 10.7.6.2.1-1 below illustrates the procedure for MCPTT private call unannounced transfer.

Pre-conditions:

1. MCPTT client 2 is authorized to use call transfer.

2. MCPTT client 1 is authorized to make private calls to MCPTT client 2.

3. MCPTT client 2 is authorized to transfer private calls to MCPTT client 3.

4. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3 if end2end encryption is required for the private call.



Figure 10.7.6.2.1-1: MCPTT private call unannounced transfer

1. MCPTT client 1 initiates an MCPTT private call to MCPTT client 2 using the normal MCPTT call establishment as described in subclause 10.7.2.2. The MCPTT private call is established, and the user at MCPTT client 1 can talk with the user at MCPTT client 2.

2. Now the MCPTT user at MCPTT client 2 decides to perform a call transfer.

3. The MCPTT client 2 sends an MCPTT call transfer request to the MCPTT server.

4. The MCPTT server verifies that MCPTT client 2 is authorized to transfer the MCPTT private call to MCPTT client 3. This check is based on entries in the user profile of the user at MCPTT client 2. First, the MCPTT server checks the value of the "Allow private call transfer" entry. If it is false, the authorization check has failed, and the procedure continues with step 5. Otherwise the MCPTT server checks if the "Authorised to transfer private calls to any MCPTT user" entry is true. If this is the case the check has passed, and for target type of MCPTT ID the procedure continues with step 5 and for target ID type of functional alias the procedure continues with step 4a. The subsequent checking depends on the type of target ID. If the target ID is a MCPTT ID, the MCPTT server checks for a matching entry of the target MCPTT ID in the "List of MCPTT users that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, if no matching entry is found the check has failed, for any outcome the procedure continues with step 5. If the target ID is a functional alias, the MCPTT server checks for a matching entry of the target functional alias in the "List of functional aliases that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, and the procedure continues with step 4a. If no matching entry is found, the authorization check has failed and the procedure continues with step 5.

4a. If the target of the MCPTT private call transfer is a functional alias instead of an MCPTT ID the MCPTT server resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 1: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call transfer is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

5. If the authorization check has failed, or the target of the transfer is a functional alias that is not active, or the target of the transfer is a functional alias that is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call transfer is cancelled, and the MCPTT server sends an MCPTT private call transfer response with result "fail" back to MCPTT client 2. The MCPTT private call between MCPTT client 1 and MCPTT client 2 remains up, and the procedure stops. Otherwise, the procedure continues.

6. MCPTT client 2 initiates release of the private call between MCPTT client 1 and MCPTT client 2 as described in subclause 10.7.2.2.3.1. This step can occur at any time after step 5, since a new private call between MCPTT client 1 and MCPTT client 3 is independent of the private call between MCPTT client 1 and MCPTT client 2.

7. The MCPTT server sends an MCPTT call transfer request towards the MCPTT client 1.

8. Optionally the user at MCPTT client 1 is notified that a call transfer is in progress.

9. MCPTT client 1 sends an MCPTT call transfer response back to the MCPTT server.

10. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server that includes a call transfer indication set to true.

11. The MCPTT server verifies that MCPTT client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call transfer request based on the fact that the transfer indication is present and set to true in the MCPTT private call request.

NOTE 2: For call transfer the MCPTT server does not check if the initial originating MCPTT user at MCPTT client 1 is authorized to make an MCPTT private call to the final target MCPTT user at MCPTT client 3.

12. The MCPTT server sends an MCPTT call request to MCPTT client 3.

13. The user at MCPTT client 3 is notified about the incoming call.

14. MCPTT client 3 sends an MCPTT private call response back to the MCPTT server.

15. The MCPTT server forwards the MCPTT private call response towards MCPTT client 1.

16. The media plane for communication between MCPTT client 1 and MCPTT client 3 is established.

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

##### 10.7.6.2.2 MCPTT private call announced transfer in a single MCPTT system

The procedure for MCPTT private call announced transfer covers the case where an MCPTT client requests an ongoing MCPTT private call (with or without floor control) to be transferred to another MCPTT user with prior announcement.

Figure 10.7.6.2.2-1 below illustrates the procedure for MCPTT private call announced transfer.

Pre-conditions:

1. MCPTT client 2 is authorized to use call transfer.

2. MCPTT client 1 is authorized to make private calls to MCPTT client 2.

3. MCPTT client 2 is authorized to make private calls to MCPTT client 3.

4. MCPTT client 2 is authorized to transfer private calls to MCPTT client 3.

5. MCPTT client 2 supports simultaneous sessions for MCPTT private calls (10.8).

6. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3, and MCPTT client 2 has the necessary security information to initiate a private call with MCPTT client 3 if end2end encryption is required for the private call.



Figure 10.7.6.2.2-1: MCPTT private call announced transfer

1. MCPTT client 1 initiates an MCPTT private call to MCPTT client 2 using the normal MCPTT call establishment as described in subclause 10.7.2.2. The MCPTT private call is established, and the user at MCPTT client 1 can talk with the user at MCPTT client 2. The user at MCPTT client 2 decides to transfer the call.

2. The MCPTT user at MCPTT client 2 puts the call on hold.

3. MCPTT client 2 initiates an MCPTT private call to MCPTT client 3 using the normal MCPTT call establishment procedures as described in subclause 10.7.2.2. The MCPTT private call is established, and the user at MCPTT client 2 can talk with the user at MCPTT client 3.

4. The user at MCPTT client 2 can talk with the user at MCPTT client 3 and announce the call transfer.

5. The MCPTT client 2 releases the MCPTT private call with MCPTT client 3 using the normal MCPTT call release procedure as described in subclause 10.7.2.2.3.1. This step can occur at any time after step 4.

6. Optionally the MCPTT user at MCPTT client 2 puts the call with MCPTT client 1 off hold and confirms that the call will be transferred.

7. The MCPTT client 2 sends an MCPTT call transfer request to the MCPTT server.

8. The MCPTT server verifies that MCPTT client 2 is authorized to transfer the MCPTT private call to MCPTT client 3. This check is based on entries in the user profile of the user at MCPTT client 2. First, the MCPTT server checks the value of the "Allow private call transfer" entry. If it is false, the authorization check has failed, and the procedure continues with step 10. Otherwise the MCPTT server checks if the "Authorised to transfer private calls to any MCPTT user" entry is true. If this is the case the check has passed, and for target type of MCPTT ID the procedure continues with step 10 and for target ID type of functional alias the procedure continues with step 9. The subsequent checking depends on the type of target ID. If the target ID is a MCPTT ID, the MCPTT server checks for a matching entry of the target MCPTT ID in the "List of MCPTT users that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, if no matching entry is found the check has failed, for any outcome the procedure continues with step 10. If the target ID is a functional alias, the MCPTT server checks for a matching entry of the target functional alias in the "List of functional aliases that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, and the procedure continues with step 9. If no matching entry is found, the authorization check has failed and the procedure continues with step 10.

9. If the target of the MCPTT private call transfer is a functional alias instead of an MCPTT ID the MCPTT server resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 1: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call transfer is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

10. If the authorization check has failed, or the target of the transfer is a functional alias that is not active, or the target of the transfer is a functional alias that is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call transfer is cancelled, and the MCPTT server sends an MCPTT private call transfer response with result "fail" back to MCPTT client 2. The MCPTT private call between MCPTT client 1 and MCPTT client 2 remains up, and the procedure stops. Otherwise, the procedure continues.

11. MCPTT client 2 initiates release of the private call between MCPTT client 1 and MCPTT client 2 as described in subclause 10.7.2.2.3.1. This step can occur at any time after step 10, since a new private call between MCPTT client 1 and MCPTT client 3 is independent of the private call between MCPTT client 1 and MCPTT client 2.

12. The MCPTT server sends an MCPTT call transfer request towards the MCPTT client 1.

13. Optionally the user at MCPTT client 1 is notified that a call transfer is in progress.

14. MCPTT client 1 sends an MCPTT call transfer response back to the MCPTT server.

15. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server that includes a call transfer indication set to true.

16. The MCPTT server verifies that MCPTT client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call transfer request based on the fact that the transfer indication is present and set to true in the MCPTT private call request.

NOTE 2: For call transfer the MCPTT server does not check if the initial originating MCPTT user at MCPTT client 1 is authorized to make an MCPTT private call to the final target MCPTT user at MCPTT client 3.

17. The MCPTT server sends an MCPTT call request to MCPTT client 3.

18. The user at MCPTT client 3 is notified about the incoming call.

19. MCPTT client 3 sends an MCPTT private call response back to the MCPTT server.

20. The MCPTT server forwards the MCPTT private call response towards MCPTT client 1.

21. The media plane for communication between MCPTT client 1 and MCPTT client 3 is established.

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

##### 10.7.6.2.3 MCPTT private call announced transfer with target in partner MCPTT system

The procedure for MCPTT private call announced transfer covers the case where an MCPTT client requests an ongoing MCPTT private call (with or without floor control) to be transferred to another MCPTT user with prior announcement.

Figure 10.7.6.2.3-1 below illustrates the procedure for MCPTT private call announced transfer with target in partner MCPTT system.

NOTE 1: The procedure for MCPTT private call unannounced transfer is very similar, the only difference is that steps 2-6 are skipped.

Pre-conditions:

1. MCPTT client 2 is authorized to use call transfer.

2. MCPTT client 1 is authorized to make private calls to MCPTT client 2.

3. MCPTT client 2 is authorized to make private calls to MCPTT client 3.

4. MCPTT client 2 is authorized to transfer private calls to MCPTT client 3.

5. MCPTT client 2 supports simultaneous sessions for MCPTT private calls (10.8).

6. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3, and MCPTT client 2 has the necessary security information to initiate a private call with MCPTT client 3 if end2end encryption is required for the private call.



Figure 10.7.6.2.3-1: MCPTT private call announced transfer with target in partner MCPTT system

1. MCPTT client 1 initiates an MCPTT private call to MCPTT client 2 using the normal MCPTT call establishment as described in subclause 10.7.2.2. The MCPTT private call is established, and the user at MCPTT client 1 can talk with the user at MCPTT client 2. The user at MCPTT client 2 decides to transfer the call.

2. The MCPTT user at MCPTT client 2 puts the call with MCPTT user at MCPTT client 1 on hold.

3. MCPTT client 2 initiates an MCPTT private call to MCPTT client 3 using the normal MCPTT call establishment procedures as described in subclause 10.7.2.3. The MCPTT private call is established, and the user at MCPTT client 2 can talk with the user at MCPTT client 3.

NOTE 2: The procedure for private call using functional alias towards a partner MC system is defined in clause 10.16.3 in 3GPP TS 23.280[16].

4. The user at MCPTT client 2 can talk with the user at MCPTT client 3 and announces the call transfer.

5. The MCPTT client 2 releases the MCPTT private call with MCPTT client 3 using the normal MCPTT call release procedure as described in subclause 10.7.2.3. This step can occur at any time after step 4.

6. The MCPTT user at MCPTT client 2 puts the call with MCPTT client 1 off hold and confirms that the call will be transferred.

7. The MCPTT client 2 sends an MCPTT call transfer request to the MCPTT server 1.

8. The MCPTT server 1 verifies that MCPTT client 2 is authorized to transfer the MCPTT private call to MCPTT client 3. This check is based on entries in the user profile of the user at MCPTT client 2. First, the MCPTT server 1 checks the value of the "Allow private call transfer" entry. If it is false, the authorization check has failed, and the procedure continues with step 10. Otherwise, the MCPTT server 1 checks if the "Authorised to transfer private calls to any MCPTT user" entry is true. If this is the case the check has passed, and for target type of MCPTT ID the procedure continues with step 10 and for target ID type of functional alias the procedure continues with step 9. The subsequent checking depends on the type of target ID. If the target ID is a MCPTT ID, the MCPTT server 1 checks for a matching entry of the target MCPTT ID in the "List of MCPTT users that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, if no matching entry is found the check has failed, for any outcome the procedure continues with step 10. If the target ID is a functional alias, the MCPTT server 1 checks for a matching entry of the target functional alias in the "List of functional aliases that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, and the procedure continues with step 9. If no matching entry is found, the authorization check has failed and the procedure continues with step 10.

9. If the target of the MCPTT private call transfer is a functional alias instead of an MCPTT ID the MCPTT server 1 resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 3: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call transfer is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

10. If the authorization check has failed, or the target of the transfer is a functional alias that is not active, or the target of the transfer is a functional alias that is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call transfer is cancelled, and the MCPTT server 1 sends an MCPTT private call transfer response with result "fail" back to MCPTT client 2. The MCPTT private call between MCPTT client 1 and MCPTT client 2 remains up, and the procedure stops. Otherwise the procedure continues.

11. The MCPTT server 1 sends an MCPTT call transfer request towards the MCPTT client 1.

12. Optionally the user at MCPTT client 1 is notified that a call transfer is in progress.

13. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server 1 that includes a call transfer indication set to true.

14. The MCPTT server 1 verifies that MCPTT client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call transfer request based on the fact that the transfer indication is present and set to true in the MCPTT private call request.

NOTE 4: For call transfer the MCPTT server does not check if the initial originating MCPTT user at MCPTT client 1 is authorized to make an MCPTT private call to the final target MCPTT user at MCPTT client 3.

15. The MCPTT server 1 sends an MCPTT call request to MCPTT server 2.

16. The MCPTT server 2 sends an MCPTT call request to MCPTT client 3.

NOTE 5: MCPTT server 2 detects that the private call request contains a transfer indication set to true and therefore skips the authorization checking.

17. The user at MCPTT client 3 is notified about the incoming call.

18. MCPTT client 3 sends an MCPTT private call response back to the MCPTT server 2.

19. MCPTT server 2 sends an MCPTT private call response back to the MCPTT server 1.

20. The MCPTT server 1 forwards the MCPTT private call response towards MCPTT client 1.

21. MCPTT client 1 sends an MCPTT call transfer response back to MCPTT server 1.

22. The MCPTT server 1 forwards the MCPTT private transfer response towards MCPTT client 2.

23. MCPTT client 2 initiates release of the private call between MCPTT client 1 and MCPTT client 2 as described in subclause 10.7.2.3.

24. The media plane for communication between MCPTT client 1 and MCPTT client 3 is established.

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

##### 10.7.6.2.4 MCPTT private call announced transfer with transferring MCPTT user in partner MCPTT system

The procedure for MCPTT private call announced transfer covers the case where an MCPTT client requests an ongoing MCPTT private call (with or without floor control) to be transferred to another MCPTT user with prior announcement.

Figure 10.7.6.2.4-1 below illustrates the procedure for MCPTT private call announced transfer with transferring MCPTT user in partner MCPTT system.

NOTE 1: The procedure for MCPTT private call unannounced transfer is very similar, the only difference is that steps 2-6 are skipped.

Pre-conditions:

1. MCPTT client 3 is authorized to use call transfer.

2. MCPTT client 1 is authorized to make private calls to MCPTT client 3.

3. MCPTT client 3 is authorized to make private calls to MCPTT client 2.

4. MCPTT client 3 is authorized to transfer private calls to MCPTT client 2.

5. MCPTT client 3 supports simultaneous sessions for MCPTT private calls (10.8).

6. MCPTT client 1 has the necessary security information to initiate a private call with MCPTT client 2 and MCPTT client 3, and MCPTT client 3 has the necessary security information to initiate a private call with MCPTT client 2 if end2end encryption is required for the private call.



Figure 10.7.6.2.4-1: MCPTT private call announced transfer transferring MCPTT user in partner MCPTT system

1. MCPTT client 1 initiates an MCPTT private call to MCPTT client 3 using the normal MCPTT call establishment as described in subclause 10.7.2.3. The MCPTT private call is established, and the user at MCPTT client 1 can talk with the user at MCPTT client 3. The user at MCPTT client 3 decides to transfer the call.

NOTE 2: The procedure for private call using functional alias towards a partner MC system is defined in clause 10.16.3 in 3GPP TS 23.280[16].

2. The MCPTT user at MCPTT client 3 puts the call with MCPTT user at MCPTT client 1 on hold.

3. MCPTT client 3 initiates an MCPTT private call to MCPTT client 2 using the normal MCPTT call establishment procedures as described in subclause 10.7.2.3. The MCPTT privat call is established, and the user at MCPTT client 3 can talk with the user at MCPTT client 2.

NOTE 3: The procedure for private call using functional alias towards a partner MC system is defined in clause 10.16.3 in 3GPP TS 23.280[16].

4. The user at MCPTT client 3 can talk with the user at MCPTT client 2 and announce the call transfer.

5. The MCPTT client 3 releases the MCPTT private call with MCPTT client 2 using the normal MCPTT call release procedure as described in subclause 10.7.2.3. This step can occur at any time after step 4.

6. The MCPTT user at MCPTT client 3 puts the call with MCPTT client 1 off hold and confirms that the call will be transferred.

7. The MCPTT client 3 sends an MCPTT call transfer request to the MCPTT server 2.

8. The MCPTT server 2 verifies that MCPTT client 3 is authorized to transfer the MCPTT private call to MCPTT client 2. This check is based on entries in the user profile of the user at MCPTT client 3. First, the MCPTT server 2 checks the value of the "Allow private call transfer" entry. If it is false, the authorization check has failed, and the procedure continues with step 10. Otherwise, the MCPTT server 2 checks if the "Authorised to transfer private calls to any MCPTT user" entry is true. If this is the case the check has passed, and for target type of MCPTT ID the procedure continues with step 10 and for target ID type of functional alias the procedure continues with step 9. The subsequent checking depends on the type of target ID. If the target ID is an MCPTT ID, the MCPTT server 2 checks for a matching entry of the target MCPTT ID in the "List of MCPTT users that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, if no matching entry is found the check has failed, for any outcome the procedure continues with step 10. If the target ID is a functional alias, the MCPTT server 2 checks for a matching entry of the target functional alias in the "List of functional aliases that the MCPTT user is authorised to use as targets for call transfer" list. If a matching entry is found, the check has passed, and the procedure continues with step 9. If no matching entry is found, the authorization check has failed and the procedure continues with step 10.

9. If the target of the MCPTT private call transfer is a functional alias instead of an MCPTT ID the MCPTT server 2 resolves the functional alias to the corresponding MCPTT ID for which the functional alias is active.

NOTE 4: Depending on implementation the MCPTT server can apply additional call restrictions and decide whether the call is allowed to proceed with the resolved MCPTT ID(s) (e.g. whether the MCPTT ID is within the allowed area of the functional alias). If the MCPTT server detects that the functional alias used as the target of the MCPTT private call transfer is simultaneously active for multiple MCPTT users, then the MCPTT server can proceed by selecting an appropriate MCPTT ID based on some selection criteria (e.g. current location of the initiating user to determine the dispatcher who is responsible for the related geographic area). The selection of an appropriate MCPTT ID is left to implementation. The selection criteria can include rejection of the call, if no suitable MCPTT ID is selected.

10. If the authorization check has failed, or the target of the transfer is a functional alias that is not active, or the target of the transfer is a functional alias that is simultaneously active by multiple users and the outcome of the selection is a rejection, the MCPTT private call transfer is cancelled, and the MCPTT server 2 sends an MCPTT private call transfer response with result "fail" back to MCPTT client 3. The MCPTT private call between MCPTT client 3 and MCPTT client 2 remains up, and the procedure stops. Otherwise the procedure continues.

11. The MCPTT server 2 sends an MCPTT call transfer request towards the MCPTT server 1.

12. The MCPTT server 1 sends an MCPTT call transfer request towards the MCPTT client 1.

13. Optionally the user at MCPTT client 1 is notified that a call transfer is in progress.

14. MCPTT client 1 sends an MCPTT private call request towards the MCPTT server 1 that includes a call transfer indication set to true.

15. The MCPTT server 1 verifies that MCPTT client 1 is authorized to perform the MCPTT private call as a result of the MCPTT private call transfer request based on the fact that the transfer indication is present and set to true in the MCPTT private call request.

NOTE 5: For call transfer the MCPTT server does not check if the initial originating MCPTT user at MCPTT client 1 is authorized to make an MCPTT private call to the final target MCPTT user at MCPTT client 2.

16. The MCPTT server 1 sends an MCPTT private call request to MCPTT client 2.

17. The user at MCPTT client 2 is notified about the incoming call.

18. MCPTT client 2 sends an MCPTT private call response back to the MCPTT server 1.

19. The MCPTT server 1 forwards the MCPTT private call response towards MCPTT client 1.

20. MCPTT client 1 sends an MCPTT call transfer response back to the MCPTT server 1.

21. The MCPTT server 1 sends an MCPTT call transfer response back to the MCPTT server 2.

22. The MCPTT server 2 sends an MCPTT call transfer response back to the MCPTT client 3.

23. MCPTT client 3 initiates release of the private call between MCPTT client 3 and MCPTT client 1 as described in subclause 10.7.2.3.

24. The media plane for communication between MCPTT client 1 and MCPTT client 2 is established.

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

### 10.15.3 Procedure

All clients are served by the primary MCPTT service provider in figure 10.15.3-1.

Pre-conditions:

1. The calling MCPTT user has selected first-to-answer call.

2. MCPTT clients 1 to n are registered and their respective users, MCPTT user 1 to MCPTT user n, are authenticated and authorized to use the MCPTT service, as per procedure in subclause 10.2.

3. MCPTT clients 2 to n have activated the same functional alias.

4. The MCPTT server has subscribed to the MCPTT functional alias controlling server within the MC system for functional alias activation/de-activation updates.



Figure 10.15.3-1: MCPTT first-to-answer call – MCPTT users in the same MCPTT system

1. MCPTT user at MCPTT client 1 would like to establish a MCPTT first-to-answer call indicating a set of potential target recipients or by calling a functional alias. For a MCPTT first-to-answer call with floor control, floor control is to be established. For first-to-answer call without floor control, both users will have the ability to transmit without floor arbitration.

2. MCPTT client 1 sends an MCPTT first-to-answer call request including a set of potential target recipients to the MCPTT server (via the SIP core as defined in 3GPP TS 23.228 [5]), using either a list of MCPTT IDs or a functional alias. The MCPTT first-to-answer call request contains the MCPTT ID and may contain the functional alias of originating user and an SDP offer containing one or more media types. The MCPTT first-to-answer call request may also contain a data element that indicates that MCPTT client 1 is requesting the floor, for a first-to-answer call with floor control. The MCPTT client 1 includes a first-to-answer call indication that the call is to be established only to the first answering user.

3. The MCPTT server confirms that MCPTT users are authorized for the call and whether the MCPTT user at MCPTT client 1 is authorized to initiate a first-to-answer call. The MCPTT server checks whether the provided functional alias of the calling user, if present, can be used and has been activated for the MCPTT user. If a functional alias is present, the MCPTT server shall also check whether MCPTT client 1 is allowed to use the functional alias of MCPTT client 2 (to MCPTT client n) to setup a private call and whether MCPTT client 2 (to MCPTT client n) is (are) allowed to receive a private call from MCPTT client 1 using a functional alias.

4. The MCPTT server determines the list of MCPTT users to send MCPTT first-to-answer call request, based on a set of potential target recipients obtained from the request from MCPTT client 1. Alternatively, when a functional alias is used as target address, the MCPTT server resolves the functional alias to a corresponding list of related MCPTT IDs of MCPTT client 2 to MCPTT client n who have activated the functional alias. The functional alias must have been activated to identify the MCPTT IDs of the called users.

NOTE 1: Based on some selection criteria (e.g. using the current location of the initiating user to determine the dispatchers that are responsible for the related geographic areas), the MCPTT server can send MCPTT first-to-answer call requests only to a sub-set of the MCPTT users that have activated the functional alias. The selection of the appropriate sub-set of MCPTT IDs is left to implementation.

Editor’s note: Whether the MCPTT server shall proceed only with those MCPTT IDs which are allowed to be called by MCPTT client 1 is FFS.

5a, 5b, 5c. The MCPTT server includes information that it communicates using MCPTT service, offers the same media types or a subset of the media types contained in the initial received request and sends similar MCPTT first-to-answer call request to each potential target recipient, including the MCPTT ID and, if present, the functional alias of the calling MCPTT user at MCPTT client 1. If one or more called MCPTT users have registered to the MCPTT service with multiple MCPTT UEs and has designated the MCPTT UE for receiving the calls, then the incoming MCPTT first-to-answer call request is delivered only to the designated MCPTT UE. Otherwise MCPTT first-to-answer call request may be delivered to all the registered MCPTT UEs. If a functional alias is present and more than one MCPTT client has activated that functional alias, then the MCPTT server sends an MCPTT first-to-answer call request to each MCPTT client.

6a, 6b, 6c. The MCPTT users are alerted, regardless of the commencement mode.

7. MCPTT user at MCPTT client 2 accepted the call which causes MCPTT client 2 to send an MCPTT first-to-answer call response to the MCPTT server.

NOTE 2: MCPTT server does not divert MCPTT first-to-answer call to voicemail if MCPTT user at MCPTT client 2 has not accepted the incoming call.

8. The MCPTT server sends an MCPTT first-to-answer call response to MCPTT client 1 indicating that MCPTT user at MCPTT client 2 has accepted the call, including the accepted media parameters.

9a. The MCPTT server sends a MCPTT first-to-answer call cancel request to MCPTT client 3.

9b. Optionally, MCPTT client 3 notifies the user.

10a. The MCPTT server sends a MCPTT first-to-answer call cancel request to MCPTT client n.

10b. Optionally, MCPTT client n notifies the user.

11. The media plane for communication is established. Either user can transmit media individually when using floor control. For successful call establishment for first-to-answer call with floor request from MCPTT client 1, the floor participant associated with MCPTT client 1 is granted the floor initially. At the same time the floor participant associated with MCPTT client 2 is informed that the floor is taken. For a first-to-answer call without floor control both users are allowed to transmit simultaneously.

NOTE 3: Prior to media plane establishment, MCPTT client 1 and MCPTT client 2 set up a security association for the media, if end-to-end encryption is used for this call.

Editor's note: It is assumed that MCPTT client 1 initiates the set up as is done for private calls, but the details for the media security establishment are FFS and are in the scope of SA3. Results provided by SA3 may require changes in the procedure.

NOTE 4: The steps 9a ,10a and 11 can occur in any order and can also be performed in parallel.

12. MCPTT client 3 sends an MCPTT first-to-answer cancel call response.

13. MCPTT client n sends an MCPTT first-to-answer cancel call response.

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