**3GPP TSG- Meeting #4 *5364***

**Orlando, United States, 18th Nov 2024 - 22nd Nov 2024 *5022***

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| *CR-Form-v12.3* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **281** | **CR** | **238** | **rev** | **1** | **Current version:** |  |  |
|  | | | | | | | | |
| *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:*** | MCVideo control plane user plane separation | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Kontron Transportation France, Nokia, Ericsson, Deutsche Bahn AG, UIC, BDBOS | | | | | | | | | |
| ***Source to TSG:*** | SA6 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** |  | | | | |  | ***Date:*** | | | 28 |
|  |  | | | |  | |  | | |  |
| ***Category:*** |  |  | | | | | ***Release:*** | | |  |
|  | *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-17 (Release 17) Rel-18 (Release 18) Rel-19 (Release 19)  Rel-20 (Release 20)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | The FRMCS\_Ph5 WID contains an objective to specify the architecture and procedures to support the separation of the signalling and the media paths within an MC system. This CR contains the necessary changes to allow separate path for signalling and media for MCVideo. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | 6.2.2.3.3: Add option to deploy the MDF separate from the MCVideo server  6.2.2.3.6: Add option to deploy the transmission control server separate from the MCVideo server | | | | | | | | |
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| ***Consequences if not approved:*** | | Requirement for FRMCS is not fufilled | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 6.2.2.3.3, 6.2.2.3.6. | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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 \* \* \* \*

### 6.1.1 On-network functional model

Figure 6.1.1-1 shows the functional model for the application plane of MCVideo service for on-network operations.



Figure 6.1.1-1: Functional model for application plane of MCVideo service

In the model shown in figure 6.1.1-1, the following apply:

- The MCVideo server is an instantiation of a MC service server in accordance with 3GPP TS 23.280 [6].

- The MCVideo server is an instantiation of a GCS AS in accordance with 3GPP TS 23.468 [9].

- MCVideo-9 carries signalling over multicast bearer between the transmission control server of the MCVideo server and the transmission control participant of the MCVideo UE.

- MCVideo-4 carries signalling over unicast bearer between the transmission control server of the MCVideo server and the transmission control participant of the MCVideo UE.

It is up to implementation whether the media distribution function and the transmission control server are deployed inside the MCPTT server or as separate servers. The behaviour of the reference points MCVideo-4/MCVideo-9 and MCVideo-7/MCVideo-8 are not affected by the deployment option.

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

##### 6.2.2.3.3 Media distribution function

The media distribution function is responsible for the distribution of media to MCVideo clients. It is co-located with the MCVideo server and may utilize different IP address for MCVideo-7/MCVideo-8 interfaces than the other interface served by the MCPTT server. By means of information provided by the MCVideo server (e.g. IP addresses, transport layer ports), it will provide the following functionality:

- provide for the reception of uplink MCVideo UE media transmission by means of the MCVideo-7 reference point;

- storing the received media stream as MCVideo content files;

- replicate the media as needed for distribution to those participants using unicast transport;

- distribute downlink media to MCVideo UEs by IP unicast transmission to those participants utilizing unicast transport by means of the MCVideo-7 reference point;

- distribute downlink media to MCVideo UEs using multicast downlink transport of media for the call by means of the MCVideo-8 reference point; and

- provide a media mixing function where multiple media streams are combined into a single media stream for transmission to the MCVideo UE.

NOTE 1: If media mixing function occurs within the media distribution function, it operates independently of the media mixer in the UE.

NOTE 2: A media mixing function within the media distribution function is not possible where the media is end to end encrypted.

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

##### 6.2.2.3.6 Transmission control server

This functional entity provides support for centralised transmission control for on-network and distributed transmission control for off-network operation. It may schedule transmission requests according to uplink criteria from different transmission control participants, send an notification to all transmission control participants to allow them to receive the video according to downlink criteria if the transmission request is granted, and provide queuing in cases of contention. Transmission control applies to all MCVideo communications including group call and private call. For on-network operation, this functional entity is co-located with the MCVideo server and may use a different IP address for MCVideo-4/MCVide-9 interfaces than other MCVideo server interfaces (e.g. MCVideo-1). For off-network operation, this functional entity is located in the UE.

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