**3GPP TSG-SA2 Meeting #166 *S2-2411573rev-1***

**Orlando, FL, USA, November 18 - 22, 2024**

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| *CR-Form-v12.2* |
| **CHANGE REQUEST** |
|  |
|  | **23.503** | **CR** | **1433** | **rev** | **-** | **Current version:** | **19.1.0** |  |
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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 |  | Radio Access Network |  | Core Network | **X** |

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| ***Title:***  | Support of MPS priority for Messaging |
|  |  |
| ***Source to WG:*** | Peraton Labs, CISA ECD, AT&T, Verizon, T-Mobile USA |
| ***Source to TSG:*** | SA2 |
|  |  |
| ***Work item code:*** | MPS4msg |  | ***Date:*** | 2024-11-18 |
|  |  |  |  |  |
| ***Category:*** | F |  | ***Release:*** | Rel-19 |
|  | *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 canbe 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)Rel-19 (Release 19)* |
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| ***Reason for change:*** | The text currently specifies that a request for media be given priority treatment. The intent was that the media flow be given priority. |
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| ***Summary of change:*** | First change:Replace "request" with "flow(s)", plus miscellaneous editorials. |
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| ***Consequences if not approved:*** |  The media itself will not get priority. |
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| ***Clauses affected:*** | 6.1.3.11 |
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|  | **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 \*\*\*\*\*

#### 6.1.3.11 Multimedia Priority Service support

Multimedia Priority Services (MPS) is defined in TS 23.501 [2], TS 23.502 [3] and in TS 23.228 [5], utilising the architecture defined for 5GS.

Subscription data for MPS is provided to PCF through the N36/Nudr. To support MPS service, the PCF shall subscribe to changes in the MPS subscription data for Priority PDU connectivity service. Dynamic invocation for MPS provided from an AF using the Priority indicator over N5 takes precedence over the MPS subscription. Dynamic invocation for Data Transport Service is provided by sending an MPS for Data Transport Service request to the PCF over N5. Dynamic invocation for MPS for Messaging Service may be supported by sending an MPS for Messaging request to the PCF over N5.

ARP and/or 5QI may be modified. It shall be possible to override the default Priority Level associated with the standardized 5QI.

For dynamic invocation of MPS service, the PCF shall generate the corresponding PCC rule(s) with the ARP and 5QI parameters as appropriate for the prioritized service, as defined in TS 23.501 [2].

Whenever one or more AF sessions of an MPS service are active within the same PDU Session, the PCF shall ensure that the ARP priority level of the QoS Flow for signalling as well as the QoS Flow associated with the default QoS rule is at least as high as the highest ARP priority level used by any authorized PCC rule belonging to an MPS service. If the ARP pre-emption capability is enabled for any of the authorized PCC rules belonging to an MPS service, the PCF shall also enable the ARP pre-emption capability for the QoS Flow for signalling as well as the QoS Flow associated with the default QoS rule.

In the case of IMS MPS, in addition to the above, the following QoS Flow handling applies:

- At reception of the indication from subscription information that the IMS Signalling Priority is set for the PDU Session or at reception of service authorization from the P-CSCF (AF) including an MPS session indication and the service priority level as defined in TS 23.228 [5], the PCF shall (under consideration of the requirement described in clauses 5.16.5 and 5.22.3 in TS 23.501 [2]) modify the ARP in all the PCC rules that describe the IMS signalling traffic to the value appropriate for IMS Multimedia Priority Services, if upgrade of the QoS Flow carrying IMS Signalling is required. To modify the ARP of the QoS Flow associated with the default QoS rule the PCF shall modify the Authorized default 5QI/ARP.

 - When the PCF detects that the P-CSCF (AF) released all the MPS sessions and the IMS Signalling Priority is not set for the PDU Session the PCF shall consider changes of the requirement described in clauses 5.16.5 and 5.22.3 in TS 23.501 [2] and modify the ARP in all PCC rules that describe the IMS signalling traffic to an appropriate value according to PCF decision. The PCC rules bound to the QoS Flow associated with the default QoS rule have to be changed accordingly.

NOTE 1: To keep the PCC rules bound to this QoS Flow, the PCF can either modify the ARP of these PCC rules accordingly or set the Bind to QoS Flow associated with the default QoS rule.

The Priority PDU connectivity service targets the ARP and/or 5QI of the QoS Flows, enabling the prioritization of all traffic on the same QoS Flow.

For non-MPS service, the PCF shall generate the corresponding PCC rule(s) as per normal procedures (i.e. without consideration whether the MPS Priority PDU connectivity service is active or not), and shall upgrade the ARP/5QI values suitable for MPS when the Priority PDU connectivity service is invoked. When the Priority PDU connectivity service is revoked, the PCF shall change the ARP/5QI values modified for the Priority PDU connectivity service to appropriate values according to PCF decision.

The PCF shall, at the activation of the Priority PDU connectivity service:

- modify the ARP of PCC rules installed before the activation of the Priority PDU connectivity service to the ARP as appropriate for the Priority PDU connectivity service under consideration of the requirement described in clause 5.16.5 of TS 23.501 [2]; and

- if modification of the 5QI of the PCC rule(s) is required, modify the 5QI of the PCC rules installed before the activation of the Priority PDU connectivity service to the 5QI as appropriate for this service.

The PCF shall, at the deactivation of the Priority PDU connectivity service modify any 5QI and ARP value to the value according to the PCF policy decision.

For PCC rules modified due to the activation of Priority PDU connectivity service:

- modify the ARP to an appropriate value according to PCF decision under consideration of the requirement described in clauses 5.16.5 and 5.22.3 in TS 23.501 [2]; and

- if modification of the 5QI of PCC rule(s) is required, modify the 5QI to an appropriate value according to PCF decision.

MPS for Data Transport Service enables the prioritization of all traffic on the QoS Flow associated with the default QoS rule and other QoS Flows upon AF request. The QoS modification to the QoS Flow associated with the default QoS rule and other QoS Flows is done based on operator policy and regulatory rules by means of local PCF configuration.

NOTE 2: If no configuration is provided, MPS for Data Transport Service applies only to the QoS Flow associated with the default QoS rule.

Upon receipt of an MPS for Data Transport Service invocation/revocation request from the UE, the AF or the PCF authorizes the request. If the UE has an MPS subscription, MPS for Data Transport Service is authorized by the AF or the PCF, based on AF decision. If the Service User is using a UE that does not have an MPS subscription, the AF authorizes MPS for Data Transport Service:

- In the case that the AF authorizes the MPS for Data Transport Service request, after successful authorization, the AF sends the MPS for Data Transport Service request to the PCF over N5/Npcf for QoS Flow modifications, including an indication that PCF authorization is not needed. In this case, the PCF shall not perform any MPS subscription check for the MPS for Data Transport Service request. The AF also indicates to the PCF whether the request is for invoking or revoking MPS for Data Transport Service.

- In the case that the AF does not authorize the MPS for Data Transport Service request, the AF sends the request to the PCF over N5/Npcf for authorization and QoS Flow modifications, including an indication that PCF authorization is needed. In this case, the PCF shall perform an MPS subscription check for the MPS for Data Transport Service request. The AF also indicates whether the request is for invoking or revoking MPS for Data Transport Service. The PCF will inform the AF when the UE does not have an MPS subscription associated with the request.

After successful authorization by either AF or PCF as described above, the PCF shall, at the invocation/revocation of MPS for Data Transport Service, perform the same steps for QoS modifications as described above for the activation/deactivation of the Priority PDU connectivity service.

NOTE 3: To keep the PCC rules bound to the QoS Flow associated with the default QoS Rule, the PCF can either modify the ARP/QCI of these PCC rules accordingly or set the PCC rule attribute Bind to QoS Flow associated with the default QoS rule.

The PCF shall inform the AF of the success or failure of the MPS for Data Transport Service invocation/revocation request. If the PDU Session is deactivated for other reasons that an AF request, the PCF shall notify the AF by deleting the N5 session context.

For MPS for Data Transport Service, the AF may also request an SDF for priority signalling between the UE and the AF, where the AF includes the Priority indicator over N5/Npcf, in order to enable the PCF to set appropriate QoS values for the QoS Flow.

MPS for Messaging (specified in clauses 5.16.5 and 5.22.3 of TS 23.501 [2]) requires MPS priority on the QoS Flow for IMS signalling traffic, including messages delivered via SMS over IP (TS 23.204 [45]) and via IMS Messaging (clause 5.16 of TS 23.228 [39]). IMS Session-based Messaging also requires MPS priority for media flow(s).

When the P-CSCF obtains the MPS for Messaging indication, as specified in TS 23.228 [39], the P-CSCF may send an MPS for Messaging indication to the PCF over the N5 interface to request the PCF to modify the QoS Flow for IMS signalling traffic for MPS for Messaging. If the QoS Flow for IMS signalling traffic does not already receive MPS priority treatment, for example based on a prior request for MPS Service that upgraded the QoS Flow for IMS signalling traffic, or based on the IMS Signalling Priority attribute in the UDR, the PCF shall modify the ARP, 5QI, and optionally, the Priority Level of the QoS Flow(s) for the IMS signalling to values appropriate for MPS for Messaging Service.

When the PCF receives an MPS for Messaging clearing (disabling) indication via N5, the PCF may, while considering other services simultaneously requiring priority treatment of the QoS Flow for IMS signalling traffic, modify the ARP, 5QI and, optionally, the Priority Level of the QoS Flow for IMS signalling to appropriate values according to PCF decision.

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