**3GPP TSG-SA WG1 Meeting #95-e S1-213103**

**Electronic Meeting, 23 Aug –2 Sep 2021** *(revision of S1-21xxxx)*

**Source: China Mobile, Interdigital, Huawei**

**pCR Title: pCR on consolidated requirements of FS\_TACMM**

**Draft Spec: 3GPP TR22.847**

**Agenda item: 7.12**

**Document for: Approval**

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*Abstract: This pCR provide the consolidated functional requirements of FS\_TACMM*

**1. Reason for Change**

In TR22.847, several functinal requirements have reached consensus in the former meeting, include the following ones:

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| PR number | Description  | Consolidate action |
| PR 5.6.6-1 | The 5G system shall support a mechanism to allow an authorized 3rd party to provide QoS policy for flows of multiple UEs associated with an application. The policy may contain e.g. the expected 5GS handling and the associated triggering event. | Create a new requirement:[CPR-1] The 5G system shall support a mechanism to allow an authorized 3rd party to provide QoS policy for flows of multiple UEs associated with an application. The policy may contain e.g. the expected 5GS handling and the associated triggering event.Alice: merging PR 5.8.6-3 into this CPR as following:[CPR-1] The 5G system shall support a mechanism to allow an authorized 3rd party to provide QoS policy for flows of multiple UEs associated with an application. The policy may contain e.g. the expected 5GS handling and the associated triggering event, expected synchronization thresholds between the multiple streams (e.g., haptic, audio and video) of a multi-modal communication session to avoid the negative impact on the user experience.BC: propose to delete words that are not necessary to the requirement. In response to Lola, the change yellow adds the criteria for coordinating deliveryAlice: I am fine with Betsy’s suggestion. The updated CPR-1 is as follow:[CPR-1] The 5G system shall support a mechanism to allow an authorized 3rd party to provide QoS policy for flows of multiple UEs associated with an application. The policy may contain e.g. the expected 5GS handling and the associated triggering event, expected synchronization thresholds between the multiple streams (e.g., haptic, audio and video).FW: QoS policy is too general as it already covered by existing specifications. Suggest to specify this policy is for coordination. |
| PR 5.6.6-2 | The 5G system shall support a mechanism to apply QoS policy for flows of multiple UEs associated with an application received from an authorized 3rd party. | Create a new requirement:[CPR-2] The 5G system shall support a mechanism to apply QoS policy (e.g., 5G handling, sync threshold) for flows of multiple UEs associated with an application received from an authorized 3rd party.BC: to Lola, with the change in CPR-1, the action by the network to meet the sync threshold is now covered here.  We could add some e.g. if really necessary.FW: The current wording is too general, as all flows are associated with a QoS policy. What is special about this QoS policy comparing existing technology? Per my understand the use case, the policy is the coordination policy as PR 5.6.6-1. Need to clearly specify that.  |
| PR 5.7.6-1 | The 5G system shall support a mechanism to ensure users’ QoE of the multi-modal communication service involving one or multiple devices at either end of the communication. QoE refers to the difference of the physical interaction across the 5G network and the same manipulation carried out locally. | Create a new requirement:[CPR-3] The 5G system shall support a mechanism to ensure users’ QoE of the multi-modal communication service involving one or multiple devices at either end of the communication. QoE refers to the difference of the physical   interaction across the 5G network and the same manipulation carried out locally.Betsy: How does 3GPP determine this QoE?  Could this requirement be replaced by the CPR-1 and CPR-2 which allow for an app to provide the QoS requirements and the 5G system to meet those?Xiaonan: I agree that 3GPP should not determin QoS, but we can determin if the network has satified application according to the QoE comparation result.Alice: this is intended as a generic requirement, which is related to CPR-1 and CPR-2.BC: So this can be considered merged to CPR-2 and no additional CPR is needed.Alice: I thought about this, and realized what was missing in this CPR – the support for IEEE P1918.1 architecture! I suggest the following revision  to capture the aspect of IEEE P1918.1 architecture:[CPR-3] The 5G system shall provide support for IEEE P1918.1 architecture a mechanism to ensure users’ QoE of the multi-modal communication service involving one or multiple devices at either end of the communication. QoE refers to the difference of the physical  interaction across the 5G network and the same manipulation carried out  locally.FW: There is QoE measurement in 5GS, but only QoS, it’s up to application to translate the QoE to QoS requirement to 5GS. So I also believe this requirement is covered by CPR-1 and CPR-2.  |
| PR 5.7.6-2 | The 5G system shall support a mechanism for a 3rd party application server to provide real-time feedback on the traffic characteristics and service requirements of the multiple streams of a multi-modal communication session. | Create a new requirement:[CPR-4] The 5G system shall support a mechanism for a 3rd party application server to provide real-time feedback on the traffic characteristics and service requirements of the multiple streams of a multi-modal communication session. Betsy: What does it mean to provide real-time feedback on traffic characteristics?  And what service requirements are meant here?  QoS?Xiaonan: Yes the service requirements here include QoS and also other KPIs sunch Alice: as described in use case 5.8, actual QoS (or QoE) achieved can be detected at the application level only. It is therefore important for the application to be able to provide feedback to the   5G network in real time (via a suitable API). The feedback is typically related to QoS. Suggest the following revision:[CPR-4] The 5G system shall support a mechanism for a 3rd party application server to provide real-time feedback on the traffic characteristics and service performance requirements of the multiple streams of a multi-modal communication session.BC: I still don’t know what is ‘real-time feedback on the traffic characteristics' or ‘performance requirements'.  It would help if someone can provide a brief  text description  of what this requirement is trying to convey.Alice: the original PR is in the context of IEEE P1918.1 architecture. Real-time feedback is one of the functions enabled in the tactile service manager  (TSM) (logical entity defined in the IEEE P1918.1 architecture), which allow the application layer to send information to the network domain about the certain events, typically when the actual QoS perceived by the application layer is below the requirements.  To make this CPR in the right context, how about this following revision:[CPR-4] In support of IEEE P1918.1 architecture, the 5G system shall enable a mechanism for a 3rd party application server to provide real-time feedback on the traffic characteristics and performance requirements of the multiple streams of a multi-modal communication session.NOTE: Real-time feedback is one of the functions enabled in the tactile service manager (TSM) (logical entity defined in the IEEE P1918.1 architecture), which allow  the application layer to send information to the network domain about the certain events, typically when the actual QoS perceived by the application layer does not meet the requirements. |
| PR 5.7.6-3 | The 5G system shall support a mechanism to assist the synchronisation between the multiple streams (e.g., haptic, audio and video) of a multi-modal communication session in order to avoid the negative impact on the user experience. | Create a new requirement:[CPR-5] The 5G system shall support a mechanism to assist the synchronisation between the multiple streams (e.g., haptic, audio and video) of a multi-modal communication session in order to avoid the negative impact on the user   experience.Betsy: Whatever the 5G system can do to assist should be based on receiving input from the app. This should be replaced with a requirement for the app to provide the input – along the lines of CPR-1.   And a requirement for the 5G system to be able to act on that input – along the lines of CPR-2.Xiaonan: I agree that 5G system can do to assist should be based on receiving input from the app. Could I rewrite this one into:[CPR-5] The 5G system shall support a mechanism to assist the synchronisation between the multiple streams (e.g., haptic, audio and video) of a multi-modal communication session   according to 3rd party requirement in order to avoid the negative impact on the user experience.Alice: the original PR make sense when it is associated with the use case in 5.8. .. but I see the concern expressed by Betsy and Daniel. I am ok to merge this into CPR1 and CPR2. |

And there are two more functional requirements are for FFS:

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| PR number | Description  | Consolidate action |
| PR 5.8.6-1 | 5G system shall be able to support the interaction with applications on UEs or data flows grouping information within one tactile and multi-modality communication service. | Create a new requirement:[CPR-6] 5G system shall be able to support the interaction with applications on UEs or data flows grouping information within one tactile and multi-modality communication service.Betsy: What does it mean to support an interaction with an app on a UE or a data flow grouping?Xiaonan: the intention is 5G system should get the information from application about which UEs and data flows belong to a same service. These UEs or data flows will be treat as a group.FW: this related to same discussion of S1-213104, suggest to use the latest wording from it:The 5G network shall support a mechanism for a 3rd party application to provide relationship information about which UEs or data flows belong to one tactile and multi-modality communication service, which 5G network can use to assist coordinating the communications for those UE and data flows.  |
| PR 5.8.6-2 | 5G system shall be able to provide a dynamic mechanism to transfer different data flows with different latency to achieve a certain transmission time difference within one tactile and multi-modality communication service. | Merge into [CPR-1] as latency requirements can be carried by QoS policy:[CPR-1] The 5G system shall support a mechanism to allow an authorized 3rd party to provide QoS policy for flows of multiple UEs associated with an application. The policy may contain e.g. the expected 5GS handling and the associated triggering event. |

**2. Proposal**

It is proposed to agree the following changes to 3GPP TR22.847.

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

6 Consolidated requirements

6.1 Functional requirements

[CPR-1] The 5G system shall support a mechanism to allow an authorized 3rd party to provide QoS policy for coordination between flows of multiple UEs associated with an application. The policy may contain e.g. the expected 5GS QoS handling(s) and associated triggering events, expected coordination assistance provided by 5G system between those multiple flows for different traffic types (e.g., haptic, audio and video).

[CPR-2] The 5G system shall support a mechanism to apply QoS policy for coordination between flows of multiple UEs associated with an application received from an authorized 3rd party. The policy may contain e.g. the expected 5GS QoS handling and associated triggering events, expected coordination assistance provided by 5G system between multiple streams (e.g., haptic, audio and video).

[CPR-4]  The 5G system shall enable a mechanism for a 3rd party application server to provide real-time feedback on the traffic characteristics and QoS performance requirements of the multiple streams of a multi-modal communication session.

[CPR-5] The 5G system shall enable means to assist an 3rd party application to coordinate the transmission of multiple streams (e.g., haptic, audio and video) of a multi-modal communication session to enable presenting related tactile and multi-modal  data  to the user within a certain time.

[CPR-6] The 5G network shall support a mechanism for a 3rd party application to provide relationship information about which UEs or data flows belong to one tactile and multi-modality communication service, which 5G network can use to assist coordinating the communications for those UE and data flows.\* \* \* End of Change \* \* \* \*