**3GPP TSG SA WG4 #116e *S4-211604***

**E-meeting, 10-19 November, 2021 revision of S4-211530r02**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| *CR-Form-v12.0* | | | | | | | | |
| **Pseudo CHANGE REQUEST** | | | | | | | | |
|  | | | | | | | | |
|  | **26.804** | **CR** | **<CR#>** | **rev** | **1** | **Current version:** | **0.5.0** |  |
|  | | | | | | | | |
| *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)*.* | | | | | | | | |
|  | | | | | | | | |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***Proposed change affects:*** | UICC apps |  | ME | **X** | Radio Access Network |  | Core Network | **X** |

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | | | | | | | | | | |
| ***Title:*** | [FS\_5GMS-EXT] HTTP/3 Deployment Architectures | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Tencent | | | | | | | | | |
| ***Source to TSG:*** | SA4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | FS\_5GMS-EXT | | | | |  | ***Date:*** | | | 2021-11-03 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **B** |  | | | | | ***Release:*** | | | Rel-17 |
|  | *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-12 (Release 12)* *Rel-13 (Release 13) Rel-14 (Release 14) Rel-15 (Release 15) Rel-16 (Release 16)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | Describe impact of HTTP/3 usage on deployment architectures | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Also adding Clause 5.4.7 Conclusion section, at Thorsten’s suggestion. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.4.3, 5.4.7 (new) | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **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:*** | |  | | | | | | | | |
| ***56*** | |  | | | | | | | | |
| ***This CR's revision history:*** | |  | | | | | | | | |

**===== CHANGE =====**

5.4.3 Deployment Architectures

5.4.3.1 General

Editor’s Note: Clause 6.2.1.2 of TS 26.512 [15] describes the required and supported versions of HTTP for the 5GMS AF and 5GMS AS. For these functions to use HTTP/3, that clause must be updated in a separate contribution, to add HTTP/3 as a supported HTTP version. This clause will assume that HTTP/3 has been added to the same 5GMS functions, in the same way, as HTTP/2.

A minimal deployment architecture that would provide HTTP/3 as transport for downlink and uplink media streaming is shown in figure 5.4.3.1-1.



Figure 5.4.3.1-1: Deployment Architecture for HTTP/3

The addition of HTTP/3 as a supported protocol at reference points M2 and M4 in the 5G media streaming architecture has little effect on the overall architecture. For example, a 5G System using HTTP/3 would resolve Fully-Qualified Domain Names (FQDNs) in the same way as with previous versions of HTTP, as described in Annex B of TS 26.501 [15].

The biggest impact would be on implementations adjusting the endpoints they expose.

To use HTTP/3 for downlink or uplink media streaming, the 5GMS AS would expose HTTP/3 endpoints at reference points M2 and M4 . This is in addition to the HTTP/1.1 and (optionally) HTTP/2 endpoints, as described in clause 6.2.1.2 of TS 26.512 [15].

In the following discussion, the term *HTTP/3 client* is used for the entity that initiates an HTTP/3 connection, and the term *HTTP/3 server* is used for the entity that the HTTP/3 client wishes to communicate with.

5.4.3.2 HTTP/3 deployment in downlink media streaming

To use HTTP/3 for pull-based content ingest, the 5GMSd Application Provider exposes an HTTP/3-based origin endpoint to the 5GMSd AS at reference point M2d. This is in addition to the HTTP/1.1 and (optionally) HTTP/2 endpoints, as described in clause 6.2.1.2 of TS 26.512 [15]. In this case, the 5GMS AS acts as an HTTP/3 client, the 5GMSd Application Provider acts as an HTTP/3 server, and HTTP operation proceeds as usual at M2d.

To use HTTP/3 for push-based content ingest, the 5GMSd AS exposes an HTTP/3-based origin endpoint to the 5GMSd Application Provider at reference point M2d. The 5GMSd Application Provider acts as an HTTP/3 client, the 5GMS AS acts as an HTTP/3 server, and HTTP operation proceeds as usual at M2d.

To use HTTP/3 between the 5GMSd Client and the 5GMSd AS at reference point M4d, the 5GMSd Client acts as an HTTP/3 client, and the 5GMS AS acts as an HTTP/3 server, so that HTTP operation would proceeds as usual at M4d.

Because, as described in clause 6.2.1.2 of TS 26.512 [15], the 5GMSd Application Provider may use any supported HTTP protocol version for push-based content ingest at interface M2d, and the Media Stream Handler may use any supported HTTP protocol version at interface M4d, no other changes to the architecture are needed.

5.4.3.3 HTTP/3 deployment in uplink media streaming

In order to use HTTP/3 for uplink media streaming, the 5GMSu AS would expose an HTTP/3-based endpoint to the 5GMSu Client at interface M4u. Here, the 5GMSu Client acts as an HTTP/3 client, the 5GMS AS would act as an HTTP/3 server, and HTTP operation proceeds as usual at M4u.

Separately, the 5GMSu AS may exposes an HTTP/3-based endpoint to the 5GMSu Application Provider at reference point M2u for media egest. The 5GMS AS here acts as an HTTP/3 client, the 5GMSu Application Provider acts as an HTTP/3 server, and HTTP operation proceeds as usual at M2u.

5.4.3.4 Usage of HTTP/3 at reference point M5

Editor’s Note: This section should be filled in as other key issues (clause 5.3 on traffic identification, clause 5.12 on network slicing) progress.

**===== CHANGE =====**

5.4.7 Conclusion

Editor’s Note: Summarize conclusions.

**===== END CHANGES =====**