**3GPP TSG- S4 Meeting #117e *S4-220150***

**, – 23rd February 2022**

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| *CR-Form-v12.1* |
| **Pseudo CHANGE REQUEST** |
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|  |  | **CR** |  | **Rev** |  | **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 |  |

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| ***Title:***  | [5MBUSA] Annex B: Nmb8 User Plane ingest examples |
|  |  |
| ***Source to WG:*** |  |
| ***Source to TSG:*** | S4 |
|  |  |
| ***Work item code:*** | 5MBUSA |  | ***Date:*** |  |
|  |  |  |  |  |
| ***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 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)* |
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| ***Reason for change:*** |   |
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| ***Summary of change:*** | The intention of this informative annex is to start illustrating different ingest options. The terminology of properties is based on xMB and may get aligned to MBUSA Terminology at a later stage. Note: the document is not intended to drive naming of features or features.  |
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| ***Consequences if not approved:*** |  |
|  |  |
| ***Clauses affected:*** |  |
|  |  |
|  | **Y** | **N** |  |  |
| ***Other specs*** |  |  |  Other core specifications  | TS/TR ... CR ...  |
| ***affected:*** |  |  |  Test specifications | TS/TR ... CR ...  |
| ***(show related CRs)*** |  |  |  O&M Specifications | TS/TR ... CR ...  |
|  |  |
| ***Other comments:*** |  |
|  |  |
| ***This CR's revision history:*** |  |

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

Annex B (informative):
Nmb8 User Plane ingest examples

# B.1 General

This annex provides an overview of the different Nmb8 User Plane protocol stacks for the Distribution Methods defined in clause 6. The Nmb2 Reference Point is used to select and configure the Distribution Method.

# B.2 Object Distribution Method

## B.2.1 Object Distribution Method with pull-based ingest

Figure B.2.1-1 illustrates a setup in which the AF/AS provides an object manifest to the MBSF listing the URLs of objects to be ingested and distributed. This is passed to the MBSTF at reference point Nmb2, and the MBSTF then fetches these objects using HTTP. The MBSTF handles all MBS-related complexity, e.g. converting the HTTP message payload into an IP multicast suitable protocol, adding AL-FEC, etc. The AF/AS delegates to the MBSF the delivery of MBS Service Announcement metadata to the MBS Client (i.e. IP multicast protocol details, etc).



Figure B.2.1-1: Object Distribution Method using Pull ingest mode (HTTP GET)

The following Parameters are used by the AF/AS at reference point Nmb2 to provision this setup:

*- Distribution method* is set to *Object*.

*- Distribution operating mode* is set to *File* or *Collection* or *Carousel* or *Real-time*, as appropriate.

*- Object acquisition method* (property specific to the distribution method) is set to *Pull*.

- The *Object acquisition identifiers,* which refers to a manifest here, describing the set of objects.

## B.2.2 Object Distribution Method with push-based ingest

Figure B.2.2-1 illustrates a setup in which the AF/AS pushes the objects directly into the MBSTF at Nmb8 using HTTP PUT. The MBSTF handles all MBS-related complexity, e.g. converting the HTTP message payload into an IP multicast suitable protocol, adding AL-FEC, etc. The AF/AS delegates MBS delivery of Service Announcement metadata destined for the MBS Client (i.e. DASH MPD, IP multicast protocol details, etc.) to the MBSTF via MBSF.



Figure B.2.2-1: Object Distribution Method using Push ingest mode (HTTP PUT)

The following MBS Distribution Session properties are used by the AF/AS at reference point Nmb2 to provision this setup:

*- Distribution method* is set to *Object*.

*- Distribution operating mode* is set to *File* or *Collection* or *Carousel* or *Real-time*, as appropriate.

*- Object acquisition method* is set to *Push*.

- The *Object acquisition identifiers* containshere the Push base URL, which is used to ingest objects.The MBSF provides the *Push base URL* (property specific to the Distribution Method) to the AF/AS.

*- Distribution base URL* contains the base URL for the objects. The MBSF replaces the Push base URL part of the object ingest URL with the value of the *Distribution base URL* for inclusion in FLUTE FDT instance(s) and (in some cases) in the Service Announcement.

# B.3 Packet Distribution Method

## B.3.1 Proxy mode

Figure B.3.1-1 illustrates a setup in which the AF/AS injects UDP datagrams directly into the MBSTF at reference point Nmb8. The MBSTF handles all MBS-related complexity, e.g. restamping the UDP datagram headers and/or the IP packet headers, as required for distribution.



Figure B.3.1-1: Packet Distribution Method using Proxy mode

The following MBS Distribution Session properties are used at reference point Nmb10 to provision this setup:

*- Distribution method* is set to *Packet.*

*- Distribution operating mode* is set to *Proxy.*

*- Session Description Parameters for User Plane* (property specific to the distribution method) indicates UDP flow mapping descriptions. The MBSTF provides the *MBSTF tunnel endpoint address* (property specific to the distribution method) to the AF/AS and joins the multicast group in the *MBSTF traffic flow information* (property specific to the distribution method) in order to receive the UDP datagram stream.

## B.3.2 Forward-only mode

Figure B.3.2-1 illustrates a setup in which the AF/AS injects multicast IP packets encapsulated in a unicast UDP/IP tunnel directly into the MBSTF. The MBSTF decapsulates the multicast IP packets from the tunnel and forwards them unmodified to the MBS Session at reference point Nmb9.



Figure B.3.2‑1: Packet Distribution Method using Forwardonly mode

The following MBS Distribution Session properties are used at reference point Nmb10 to provision this setup:

*- Distribution method* is set to *Packet.*

*- Distribution operating mode* is set to *Forward-only.*

*- Session Description Parameters for User Plane* (property specific to the distribution method) indicates UDP flow mapping descriptions. The MBSTF provides the *MBSTF tunnel endpoint address* (property specific to the distribution method) to the AF/AS so that it can establish the UDP/IP tunnel with the MBSTF and start sending tunnelled IP packets.

## [B.3.3 RTP Streaming mode

Figure B.3.3-1 illustrates a setup in which the AF/AS pushes RTP/UDP packets directly into the MBSTF at reference point Nmb8. The MBSF provides the necessary information to the MBSTF via reference point Nmb2. The MBSTF handles all MBS-related complexity, e.g. converting the RTP payload into an IP multicast suitable protocol, adding AL-FEC, etc.



Figure B.3.3-1: Packet Distribution Method using RTP Streaming mode

The following MBS Distribution Session properties are used at reference point Nmb10 to provision this setup:

*- Distribution method* is set to *Packet.*

*- Distribution operating mode* is set to *RTP Streaming.*

*- Session Description Parameters for User Plane* (property specific to the distribution method) indicates UDP flow mapping descriptions. The MBSTF provides the *MBSTF tunnel endpoint address* (property specific to the distribution method) to the AF/AS and joins the multicast group indicated in the *MBSTF traffic flow information* (property specific to the distribution method) to receive the RTP stream.

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\*\*\*\* Last Change \*\*\*\*