**3GPP TSG-CT3 Meeting #123e C3-224495**

**E-Meeting, 18th – 26th August 2022** (revision of C3-224385)

**Source: Ericsson, Huawei**

**Title: Resolve ENs on data model in Nmbsf\_MBSUserDataIngestSession API**

**Spec: 3GPP TS 29.580 v1.0.0**

**Agenda item: 17.31**

**Document for: Decision**

**1. Introduction**

This pCR resolve the editor’s notes on data model in Nmbsf\_MBSUserDataIngestSession API to align with clause 4.5.5 MBS User Data Ingest Session parameters and clause 4.5.6 MBS Distribution Session parameters of TS 26.502.

**2. Reason for Change**

This pCR resolve editor’s notes on data model in Nmbsf\_MBSUserDataIngestSession API to align with clause 4.5.5 MBS User Data Ingest Session parameters, clause 4.5.6 MBS Distribution Session parameters, clause 4.5.7 MBS User Service Announcement parameters and clause 4.5.8 MBS Distribution Session Announcement parameters of TS 26.502.

**3. Conclusions**

Resolve the editor’s notes on data model in Nmbsf\_MBSUserDataIngestSession API by adding MBS User Service Announcement in MBSUserDataIngSession data type with embedded data models and adding target service areas in MBSDistributionSessionInfo data type aligned with clause 4.5.5, clause  4.5.6, clause  4.5.7, clause  4.5.8 of TS 26.502.

**4. Proposal**

It is proposed to agree the following changes to 3GPP TS 29.580 v.1.0.0.

\* \* \* 1st Change \* \* \* \*

##### 5.3.2.2.2 Create an MBS User Data Ingest Session including a set of subordinate MBS Distribution Session(s)

Figure 5.3.2.2.2-1 depicts a scenario where an NF service consumer create an MBS User Data Ingest Session including a set of subordinate MBS Distribution Session(s) to the MBSF.



Figure 5.3.2.2.2-1: NF service consumer create an MBS User Data Ingest Session, including a set of subordinate MBS Distribution Session(s)

In order to create an MBS User Data Ingest Session including a set of subordinate MBS Distribution Session(s), the NF service consumer shall send an HTTP POST request message to the resource URI "{apiRoot}/nmbsf-mbsuserdataing/<apiVersion>/userdataing-sessions" as shown in step 1 of figure 5.3.2.2.2-1, the request body shall include the MBSUserDataIngSession data structure which shall include:

- the identifier of the parent MBS User Service, within the "mbsUserServiceId" attribute; and

- one or more MBS Distribution Sessions composed in the MBS User Data Ingest Session as the "mbsDisSessInfos" attribute.

and may include:

- period(s) of time during which the MBS User Data Ingest Session is active in the MBS System.in the "actPeriods" attribute.

Upon successful reception of an HTTP POST request, the MBSF shall create an " Individual MBS User Data Ingest Session" resource, the MBSF shall respond with "201 Created" status code with the message body containing a representation of the created resource, as shown in figure 5.3.2.2.2-1, step 2, including the MBSUserDataIngSession data structure in the response body. The MBSF shall include a Location HTTP header field. The Location header field shall contain the URI of the created subscription i.e. "{apiRoot}/nmbsf-mbsuserdataing/<apiVersion>/userdataing-sessions/{sessionId}".

When invoking the Nmbsmf\_MBSSession\_Create service operation to establish the corresponding MBS Session(s):

- the MBSF may derive the DNN and/or the S-NSSAI from the AF (i.e. MBS Application Provider) identifier based on authorization or local configuration; and

- the MBSF shall derive the remaining parameters from the attributes of the MBS Distribution Session(s) provided within the corresponding MBSUserDataIngSession data structure(s).

If the MBSF cannot successfully fulfil the received HTTP POST request due to an internal error or an error in the HTTP POST request, the MBSF shall send an HTTP error response as specified in clause 6.2.7.

\* \* \* 2nd Change \* \* \* \*

#### 6.2.6.1 General

This clause specifies the application data model supported by the Nmbsf\_MBSUserDataIngestSession API.

Table 6.2.6.1-1 specifies the data types defined for the Nmbsf\_MBSUserDataIngestSession service based interface protocol.

Table 6.2.6.1-1: Nmbsf\_MBSUserDataIngestSession specific Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Clause defined | Description | Applicability |
| DistributionMethod | 6.2.6.3.3 | Represents MBS Distribution method. |  |
| DistributionOperatingMode | 6.2.6.3.4 | Represents MBS Distribution operating mode. |  |
| Event | 6.2.6.3.6 | Represents status change event. |  |
| EventNotification | 6.2.6.2.10 | Represents Event Notification. |  |
| State | 6.2.6.3.5 | Represents the current state of the MBS Distribution Session. |  |
| MBSDistSessionAnmt | 6.2.6.2.12 | Represents the set of MBS Distribution Session Announcements currently associated with this MBS User Service Announcement. |  |
| MBSDistributionSessionInfo | 6.2.6.2.3 | Represents MBS Distribution Session information. |  |
| MBSUserDataIngSession | 6.2.6.2.2 | Represents MBS User Data Ingest Session. |  |
| MBSUserDataIngSessionPatch | 6.2.6.2.4 | Represents MBS User Data Ingest Session parameters may be modified. |  |
| MBSUserDataIngStatNotif | 6.2.6.2.9 | Represents MBS User Data Ingest Session Status Notification. |  |
| MBSUserDataIngStatSubsc | 6.2.6.2.7 | Represents MBS User Data Ingest Session Status Subscription. |  |
| MBSUserServAnmt | 6.2.6.2.11 | Represents the MBS User Service Announcement currently associated with the MBS User Data Ingest Session. |  |
| ObjectAcqMethod | 6.2.6.3.7 | Represents the Object Acquisition Method. |  |
| ObjectDistMethAnmtInfo | 6.2.6.2.13 | Represents MBS Distribution Session Announcement parameters for Object Distribution Method. |  |
| ObjectDistrMethInfo | 6.2.6.2.5 | Represents additional MBS Distribution Session parameters for Object Distribution Method. |  |
| PacketDistrMethInfo | 6.2.6.2.6 | Represents additional MBS Distribution Session parameters for Packet Distribution Method. |  |
| PacketIngestMethod | 6.2.6.3.8 | Represents packets ingest method. |  |
| SubscribedEvent | 6.2.6.2.8 | Represents a subscribed MBS User Data Ingest Session Status event and the related information. |  |

Table 6.2.6.1-2 specifies data types re-used by the Nmbsf\_MBSUserDataIngestSession service based interface protocol from other specifications, including a reference to their respective specifications and when needed, a short description of their use within the Nmbsf\_MBSUserDataIngestSession service based interface.

Table 6.2.6.1-2: Nmbsf\_MBSUserDataIngestSession re-used Data Types

|  |  |  |  |
| --- | --- | --- | --- |
| Data type | Reference | Comments | Applicability |
| BitRate | 3GPP TS 29.571 [n] | Represents Bit Rate. |  |
| MbsServInfo | 3GPP TS 29.571 [17n] | Represents MBS Service Information. |  |
| ExternalMbsServiceArea | 3GPP TS 29.571 [17] | Represents an external MBS Service Area. |  |
| DateTime | 3GPP TS 29.122 [18] | Represens an absolute date time with the format "date-time", as defined in OpenAPI Specification [6]. |  |
| MbsFsaId | 3GPP TS 29.571 [17] | Represents an MBS Frequency Selection Area ID, for a broadcast MBS session. |  |
| MbsServiceArea | 3GPP TS 29.571 [17] | Represents an MBS service area. |  |
| MbsSessionId | 3GPP TS 29.571 [17] | Represents an MBS Session Identifier. |  |
| PacketDelBudget | 3GPP TS 29.571 [17] | Represents Unsigned integer indicating Packet Delay Budget expressed in milliseconds. |  |
| ServiceNameDescription | Clause 6.1.6.2.3 | Represents a set of per language service Name and/or service description. |  |
| TimeWindow | 3GPP TS 29.122 [18] | Represents a Time Window. |  |
| Tmgi | 3GPP TS 29.571 [17] | Represents Temporary Mobile Group Identity. |  |
| Uri | 3GPP TS 29.571 [17] | Represents Uniform Resource Identifier. |  |
| SupportedFeatures | 3GPP TS 29.571 [17] | Used to negotiate the applicability of optional features. |  |

\* \* \* 3rd Change \* \* \* \*

##### 6.2.6.2.2 Type: MBSUserDataIngSession

Table 6.2.6.2.2-1: Definition of type MBSUserDataIngSession

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| actPeriods | array(TimeWindow) | O | 1..N | Represents periods of time during which the MBS User Data Ingest Session is active in the MBS System.  If omitted, the session is active until further notice. |  |
| mbsDistSessInfos | array(MBSDistributionSessionInfo) | M | 1..N | Represents one or more MBS Distribution Sessions composed in the MBS User Data Ingest Session and these shall be provisioned in the same operation as the enclosing MBS User Data Ingest Session. |  |
| mbsUserServAnmt | MBSUserServAnmt | O | 0..1 | Represents the MBS User Service Announcement currently associated with the MBS User Data Ingest Session.  This attribute may only be present in an HTTP POST/PATCH response to an MBS User Data Ingest Session creation/modification request and only if all the constituent MBS Distribution Sessions are in the "ESTABLISHED" or "ACTIVE" state and the "PASSED\_BACK" service announcement mode is provisioned within the service announcement modes supported for the parent Individual MBS User Service identified by the "mbsUserServId" attribute. |  |
| mbsUserServId | string | M | 1 | Represents the Identifier of the parent MBS User Service. |  |
| suppFeat | SupportedFeatures | O | 0..1 | Used to negotiate the supported optional features of the API as described in clause 6.2.8. |  |

\* \* \* 4th Change \* \* \* \*

##### 6.2.6.2.3 Type: MBSDistributionSessionInfo

Table 6.2.6.2.3-1: Definition of type MBSDistributionSessionInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mbsSessionId | MbsSessionId | O | 0..1 | Represents the MBS Distribution Session Identifier with the Temporary Mobile Group Identity (TMGI) or Source-Specific Multicast (SSM) IP address of the MBS Session supporting this MBS Distribution Session. |  |
| qosInfo | 5Qi | M | 1 | Represents a 5G QoS Identifier (5QI) to be applied to the traffic flow for this MBS Distribution Session. |  |
| maxBitRate | BitRate | M | 1 | Represents the maximum bit rate for this MBS Distribution Session. |  |
| maxDelay | PacketDelBudget | O | 0..1 | Represents the maximum end-to-end distribution delay that is tolerated for this MBS Distribution Session by the MBS Application Provider. |  |
| distrMethod | DistributionMethod | M | 1 | Represents the distribution method for this MBS Distribution Session. |  |
| distrOpMode | DistributionOperatingMode | O | 0..1 | Represents the operating mode in the case where multiple modes are defined for the indicated distribution method. |  |
| fecConfig | string | O | 0..1 | Represents configuration for FEC information added by the MBSTF to protect this MBS Distribution Session. |  |
| objDistrInfo | ObjectDistrMethInfo | O | 0..1 | Represents MBS Distribution Session parameters for Object Distribution Method.  May only be present when the "distrMethod" attribute value is set as "OBJECT". |  |
| pckDistrInfo | PacketDistrMethInfo | O | 0..1 | Represents MBS Distribution Session parameters for Packet Distribution Method.  May only be additionally present when the "distrMethod" attribute value is set as "PACKET". |  |
| tgtServAreas | MbsServiceArea | O | 0..1 | Represents the set of target service area(s) constituting the MBS Service Area of the MBS Distribution Session.  This attribute may be present only in the case of a trusted/internal AF (i.e. MBS Application Provider). |  |
| extTgtServAreas | ExternalMbsServiceArea | O | 0..1 | Represents the set of target service area(s) constituting the external MBS Service Area (i.e. list of geographical area(s) or civic address(es)) of the MBS Distribution Session.  This attribute may be present only in the case of an untrusted/external AF (MBS Application Provider). |  |
| mbsFSAId | MbsFsaId | O | 0..1 | Represents MBS Frequency Selection Assistance information corresponding to this MBS Distribution Session.  This attribute may be included only if the parent MBS User Service is of Broadcast service type. |  |
| locationDependent | boolean | O | 0..1 | Represents an indication that this MBS Distribution Session belongs to a location-dependent MBS.  This attribute shall be:   * set to "true" to indicate that the MBS Distribution Session belongs to a location-dependent MBS; or * set to "false" to indicate that the MBS Distribution Session does not belong to a location-dependent MBS.   The default value is "false", if omitted. |  |
| multiplexedServFlag | boolean | O | 0..1 | Represents an indication that this MBS Distribution Session belongs to a multiplex, i.e. forms part of a set of MBS Distribution Sessions under the same parent MBS User Data Ingest Session with identical or empty sets of target service areas and multiplexed onto the same MBS Session at the MB-SMF.  This attribute shall be:   * set to "true" to indicate that the MBS Distribution Session belongs to a multiplex; or * set to "false" to indicate that the MBS Distribution Session does not belong to a multiplex.   The default value is "false", if omitted. |  |
| restrictedFlag | boolean | O | 0..1 | Represents an indication that this MBS Distribution Session is not open to any UE, i.e. restricted to a set of UEs according to their MBS related subscription information.  This attribute may be included only if the parent MBS User Service is of Multicast service type.  This attribute shall be:   * set to "true" to indicate that this MBS Distribution Session is restricted to a set of UE(s); or * set to "false" to indicate that this MBS Distribution Session is open to any UE.   The default value is "false", if omitted. |  |

\* \* \* 5th Change \* \* \* \*

##### 6.2.6.2.4 Type: MBSUserDataIngSessionPatch

Table 6.2.6.2.4-1: Definition of type MBSUserDataIngSessionPatch

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| actPeriods | array(TimeWindow) | O | 1..N | Represents periods of time during which the MBS User Data Ingest Session is active in the MBS System. |  |
| mbsDistSessInfos | array(MBSDistributionSessionInfo) | O | 1..N | Contains one or more MBS Distribution Sessions composed in the MBS User Data Ingest Session may be modified. |  |

\* \* \* 6th Change \* \* \* \*

##### 6.2.6.2.5 Type: ObjectDistrMethInfo

Table 6.2.6.2.5-1: Definition of type ObjectDistrMethInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| objAcqMethod | ObjectAcqMethod | M | 1 | Represents the object(s) acquisition method. |  |
| objAcqIds | array(Uri) | M | 1..N | Represents the object(s) to be ingested and distributed by the MBSTF during this MBS Distribution Session. |  |
| objIngUri | Uri | O | 0..1 | Represents a prefix substituted by the MBSTF with the Object distribution base URL prior to distribution of ingested objects. |  |
| objDistrUri | Uri | O | 0..1 | Represents a prefix substituted by the MBSTF in place of the Object ingest base URL prior to distribution of ingested objects. |  |

\* \* \* 7th Change \* \* \* \*

##### 6.2.6.2.6 Type: PacketDistrMethInfo

Table 6.2.6.2.6-1: Definition of type PacketDistrMethInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| pckIngMethod | PacketIngestMethod | M | 1 | Represents packets ingest method. |  |

\* \* \* 8th Change \* \* \* \*

##### 6.2.6.2.7 Type MBSUserDataIngStatSubsc

Table 6.2.6.2.7-1: Definition of type MBSUserDataIngStatSubsc

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mbsIngSessionId | string | M | 1 | Represents the identifier of the MBS User Data Ingest Session to which the subscription is related. |  |
| eventsubscs | array(SubscribedEvent) | M | 1..N | Represents the list of subscribed MBS User Data Ingest Session Status event(s). |  |
| notifUri | Uri | M | 1 | Represents the notification URI to be used for MBS User Data Ingest Session Status event(s) reporting. |  |

\* \* \* 9th Change \* \* \* \*

##### 6.2.6.2.8 Type SubscribedEvent

Table 6.2.6.2.8-1: Definition of type SubscribedEvent

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| statusEvent | Event | M | 1 | Represents the subscribed MBS User Data Ingest Session Status event. |  |
| mbsDistSessionId | string | C | 0..1 | Represents the identifier for the MBS Distribution Session to which the subscribed MBS User Data Ingest Session Status event is related.  This attribute shall be provided if the subscribed event is related to a particular MBS Distribution Session within the concerned Individual MBS User Data Ingest Session. |  |

\* \* \* 10th Change \* \* \* \*

##### 6.2.6.2.9 Type MBSUserDataIngStatNotif

Table 6.2.6.2.9-1: Definition of type MBSUserDataIngStatNotif

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mbsIngSessionId | string | M | 1 | Represents the identifier for the MBS User Data Ingest Session to which the notification is related . |  |
| eventNotifs | array(EventNotification) | M | 1..N | Represents the set of reported MBS User Data Ingest Session Status event(s) and the related information. |  |

\* \* \* 11th Change \* \* \* \*

##### 6.2.6.2.10 Type EventNotification

Table 6.2.6.2.10-1: Definition of type EventNotification

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| statusEvent | Event | M | 1 | Represents the reported MBS User Data Ingest Session Status event. |  |
| mbsDistSessionId | string | C | 0..1 | Represents the identifier for the MBS Distribution Session to which the reported event is related.  This attribute shall be provided if the reported event relates to a particular MBS Distribution Session within the concerned Individual MBS User Data Ingest Session. |  |
| statusAddInfo | string | O | 0..1 | Represents additional information on the reported MBS User Data Ingest Session Status event within the "statusEvent" attribute. |  |
| timeStamp | DateTime | M | 1 | Represents the time at which the MBS User Data Ingest Session Status event is observed. |  |

\* \* \* 12th Change \* \* \* \*

##### 6.2.6.2.11 Type MBSUserServAnmt

Table 6.2.6.2.11-1: Definition of type MBSUserServAnmt

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| extServiceIds | array(string) | M | 1..N | Represents the external service identifier(s) of this MBS User Service. |  |
| servClass | string | M | 1 | Represents the class of the MBS User Service, expressed as a term identifier from the OMA BCAST Service Class Registry [19]. |  |
| startTime | DateTime | O | 0..1 | Represents the start time from which this MBS User Service Announcement is valid.  If not present, the announcement is already valid. |  |
| endTime | DateTime | O | 0..1 | Represents the end time after which this MBS User Service Announcement is no longer valid.  If not present, the announcement is valid indefinitely. |  |
| servNameDescs | array(ServiceNameDescription) | M | 1..N | Contains one or several set(s) of per language distinguishing service name and/or service description for this MBS User Service. |  |
| mainServLang | string | O | 0..1 | Represents the main service language of this MBS User Service. |  |
| mbsDistSessAnmt | map(MBSDistSessionAnmt) | C | 1..N | Represents the set of MBS Distribution Session Announcements currently associated with this MBS User Service Announcement.  The key of the map shall be set to any string value. |  |

\* \* \* 13th Change \* \* \* \*

##### 6.2.6.2.12 Type MBSDistSessionAnmt

Table 6.2.6.2.12-1: Definition of type MBSDistSessionAnmt

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| mbsSessionId | MbsSessionId | O | 0..1 | Represents the MBS Distribution Session Identifier with the Temporary Mobile Group Identity (TMGI) or Source-Specific Multicast (SSM) IP address of the MBS Session supporting this MBS Distribution Session. |  |
| mbsFSAId | MbsFsaId | O | 0..1 | Represents MBS Frequency Selection Assistance information corresponding to the MBS Distribution Session.  This attribute may be included only if the parent MBS User Service is of Broadcast service type. |  |
| distrMethod | DistributionMethod | M | 1 | Represents the distribution method of this MBS Distribution Session. |  |
| objDistrAnnInfo | ObjectDistMethAnmtInfo | O | 0..1 | Represents MBS Distribution Session Announcement parameters for Object Distribution Method.  May only be present when the "distrMethod" attribute value is set as "OBJECT". |  |
| sesDesInfo | array(string) | M | 1..N | Represnts the additional parameters needed to receive the MBS Distribution Session from which this announcement is derived, including relevant User Plane traffic flow parameters. |  |

\* \* \* 14th Change \* \* \* \*

##### 6.2.6.2.13 Type ObjectDistMethAnmtInfo

Table 6.2.6.2.13-1: Definition of type ObjectDistMethAnmtInfo

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Attribute name | Data type | P | Cardinality | Description | Applicability |
| objDistrSched | TimeWindow | O | 0..1 | Represents a schedule indicating when individual objects are to be delivered on the corresponding MBS Distribution Session.  This attribute may be present only when this information has been provided in the Object acquisition identifiers of the corresponding MBS Distribution Session. |  |
| objDistrBaseUri | Uri | O | 0..1 | Represents a URI prefix substituted by the MBSTF Client with the *Object repair base URI* when repairing objects not received completely intact from the corresponding MBS Distribution Session.  This attribute may be present only when object repair is provisioned for the corresponding MBS Distribution Session. |  |
| objRepBaseUri | Uri | O | 0..1 | Represents the base URI of the MBS AS to be used for object repair of the corresponding MBS Distribution Session.  This attribute may be present only when object repair is provisioned for the corresponding MBS Distribution Session. |  |

\* \* \* 15th Change \* \* \* \*

##### 6.2.6.3.6 Enumeration: Event

The enumeration Event represents MBS User Data Ingest Session status change event. It shall comply with the provisions defined in table 6.2.6.3.6-1.

Table 6.2.6.3.6-1: Enumeration Event

|  |  |  |
| --- | --- | --- |
| Enumeration value | Description | Applicability |
| USER\_DATA\_ING\_SESS\_STARTING | Indicates that the MBS User Data Ingest Session is starting.  This is an "MBS User Data Ingest Session" level event. |  |
| USER\_DATA\_ING\_SESS\_STARTED | Indicates that the MBS User Data Ingest Session started.  This is an "MBS User Data Ingest Session" level event. |  |
| USER\_DATA\_ING\_SESS\_TERMINATED | Indicates that the MBS User Data Ingest Session is terminated.  This is an "MBS User Data Ingest Session" level event. |  |
| DIST\_SESS\_STARTING | Indicates that the MBS Distribution Session is starting.  This is an "MBS Distribution Session" level event. |  |
| DIST\_SESS\_STARTED | Indicates that the MBS Distribution Session started.  This is an "MBS Distribution Session" level event. |  |
| DIST\_SESS\_TERMINATED | Indicates that the MBS Distribution Session is terminated.  This is an "MBS Distribution Session" level event. |  |
| DIST\_SESS\_SERV\_MNGT\_FAILURE | Indicates that the MBS Distribution Session could not be started (e.g. the necessary resources could not be allocated by the MBS system).  This is an "MBS Distribution Session" level event. |  |
| DIST\_SESS\_POL\_CRTL\_FAILURE | Indicates that the MBS Distribution Session could not be started because of a policy authorization/control failure or rejection.  This is an "MBS Distribution Session" level event. |  |
| DATA\_INGEST\_FAILURE | The MBS User Data Ingest failed because the MBSTF is expecting data (the MBS Session is active), but not receiving it.  This is an "MBS Distribution Session" level event. |  |

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