Origination Date: 01/05/05

Originator: NeuStar

Change Order Number: NANC 400

Description: URI Fields

Cumulative SP Priority, Weighted Average: N/A

Functionally Backwards Compatible: Yes

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	Y	Y	Y	Y	Y	Y

Business Need:

Voice URI Field

No solution currently exists to address the issue of industry-wide distribution of IP end-point addressing information for IP-based Voice service. No solution addresses portability of such service. A call originating from one provider's IP service typically has no information as to whether the dialed TN's service is IP-based or not, nor what its address is, forcing the use of the PSTN as an intermediary between IP networks. This need not be the case. Look up databases are not the issue, as many methods of looking up the data exist. Typically, VoIP providers[1] have their own intra-network look up capability in order to terminate calls. The issue lies in the availability of a sharing and distribution mechanism for TN-level routing information between all interested service providers. The provisioning and distributing of routing information is the precise charter of the NPAC for all ported and pooled TNs.

It so happens that today, the vast majority of TNs using IP-based Voice service involve an NPAC transaction (existing TNs migrating to VoIP are ported, new assignments are typically taken from a pooled block). The ability for IP-based SPs to share routing data associated with a ported or pooled TN surely will be desired (it is on the "to do" list of IP-groups within many SPs offering or planning to offer VoIP service). The addition of a Voice URI and the various URIs below, because the URIs are merely addressing information, is directly analogous to adding DPC and SSN information to ported and pooled TNs. The addition of the URI fields described in this change order is unlikely to cause additional NPAC activates, because the fields are intended for numbers that would be ported or pooled anyway. This is therefore the most cost effective method of provisioning IP look up engines (in whatever flavor they happen to take) with URI information relating to a ported or pooled TN.

The addition of these URI fields to the NPAC also benefits the industry in that it inherently coordinates and synchronizes the update of the SS7-based number portability look up databases with that of the IP-based look up databases. Should the updates not be synchronized, service could be affected for an indeterminate amount of time.

---

[1] Meaning any service provider (facility-based or otherwise) providing voice service over IP

Multimedia Media Messaging Service (MMS), Push to Talk Over Cellular (PoC) & Presence URI Fields:

There is a need to enable the ability for SPs and Clearinghouses to look up routing information for IP-based services associated with ported and pooled numbers. Since default, CO code level data does not apply for these TNs, query engines need to be provisioned with a portability and pooling correction. The addition of these three fields will satisfy this need and enable both individual SPs, as well as Service Bureaus, to automatically update their look up engines with the new routing data. As indicated above, these IP-service routing fields are in fact directly analogous to the existing SS7-based DPC/SSN routing fields already supported by NPAC (i.e. – ISVM, LIDB, WSMSC, etc…).

~~Neustar believes this pro-active approach to be in the best interest and of value to the industry. It provides incremental value to a wide industry segment at a very reasonable cost when added to the present SOW. To delay the implementation of the change order would engender increased cost and a potentially lengthy delay in its implementation, not to mention increased complexity due to a far larger quantity of affected TNs in the future.~~

Description of Change:

The NPAC/SMS will provide the ability to provision Voice, MMS, PoC and Presence URIs for each SV and Pooled Block record.

This information will be provisioned by the SOA and broadcast to the LSMS upon initial creation of the SV or Pooled Block and upon its for those SOA and LSMS associations optioned "on" to send and receive this data.

These fields shall be added to the Bulk Data Download file, and be available to a Service Provider's SOA/LSMS.

These fields will be supported across the interface on an opt-in basis only and will be functionally backward compatible.

Major points/processing flow/high-level requirements:

This change order proposes to add new fields to the subscription version and number pool block objects. Hence, the FRS, IIS, GDMO, and ASN.1 will need to reflect the addition of these fields. These new fields will cause changes to the NPAC CMIP interface, however they will be functionally backward compatible and optional by service provider.

~~Upon LLC acceptance, NeuStar will formalize and present the requirements and assumptions, as well as the IIS, GDMO, and ASN.1 changes associated with the change order at the December 2004 LNPA WG meeting.~~

Requirements:

Section 1.2, NPAC SMS Functional Overview

Add a new section that describes the functionality of the Voice/MMS/PoC/Presence URI Fields (Optional Data). See description of Change above.

Section 3.1, NPAC SMS Data Models

Add new attribute for the Voice/MMS/PoC/Presence URI (Uniform Resource Identifier) Fields (Optional Data). See below:

NPAC CUSTOMER DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
[snip]			
NPAC Customer SOA Voice URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports Voice URI information from the NPAC SMS to their SOA. The Voice URI is the network address to the Service Provider's gateway for voice service. The default value is False.
NPAC Customer LSMS Voice URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports Voice URI information from the NPAC SMS to their LSMS. The Voice URI is the network address to the Service Provider's gateway for voice service. The default value is False.
NPAC Customer SOA MMS URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports MMS URI information from the NPAC SMS to their SOA. The MMS URI is the network address to the Service Provider's gateway for multi-media messaging service. The default value is False.
NPAC Customer LSMS MMS URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports MMS URI information from the NPAC SMS to their LSMS. The MMS URI is the network address to the Service Provider's gateway for multi-media messaging service. The default value is False.

NPAC CUSTOMER DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
NPAC Customer SOA PoC URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports PoC URI information from the NPAC SMS to their SOA. The PoC URI is the network address to the Service Provider's gateway for Push-To-Talk over Cellular service. The default value is False.
NPAC Customer LSMS PoC URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports PoC URI information from the NPAC SMS to their LSMS. The PoC URI is the network address to the Service Provider's gateway for Push-To-Talk over Cellular service. The default value is False.
NPAC Customer SOA Presence URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports Presence URI information from the NPAC SMS to their SOA. The Presence URI is the network address to the Service Provider's gateway for IMS service (IP Multimedia Subsystem), an interactive session of real-time communication-centric services. The default value is False.
NPAC Customer LSMS Presence URI Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports Presence URI information from the NPAC SMS to their LSMS. The Presence URI is the network address to the Service Provider's gateway for IMS service (IP Multimedia Subsystem), an interactive session of real-time communication-centric services. The default value is False.
[snip]			

Table 3-2 NPAC Customer Data Model

SUBSCRIPTION VERSION DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
[snip]			
Voice URI	C (255)		Voice URI for Subscription Version. This field may only be specified if the service provider SOA supports Voice URI. The Voice URI is the network address to the Service Provider's gateway for voice service.
MMS URI	C (255)		MMS URI for Subscription Version. This field may only be specified if the service provider SOA supports MMS URI. The MMS URI is the network address to the Service Provider's gateway for multi-media messaging service.
PoC URI	C (255)		PoC URI for Subscription Version. This field may only be specified if the service provider SOA supports PoC URI. The PoC URI is the network address to the Service Provider's gateway for Push-To-Talk over Cellular service.
Presence URI	C (255)		Presence URI for Subscription Version. This field may only be specified if the service provider SOA supports Presence URI. The Presence URI is the network address to the Service Provider's gateway for IMS service (IP Multimedia Subsystem), an interactive session of real-time communication-centric services.
[snip]			

Table 3-6 Subscription Version Data Model

NUMBER POOLING BLOCK HODER INFORMATION DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
[snip]			
Voice URI	C (255)		Voice URI for Number Pool Block. This field may only be specified if the service provider SOA supports Voice URI. The Voice URI is the network address to the Service Provider's gateway for voice service.

NUMBER POOLING BLOCK HODER INFORMATION DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
MMS URI	C (255)		MMS URI for Number Pool Block. This field may only be specified if the service provider SOA supports MMS URI. The MMS URI is the network address to the Service Provider's gateway for multi-media messaging service.
PoC URI	C (255)		PoC URI for Number Pool Block. This field may only be specified if the service provider SOA supports PoC URI. The PoC URI is the network address to the Service Provider's gateway for Push-To-Talk over Cellular service.
Presence URI	C (255)		Presence URI for Number Pool Block. This field may only be specified if the service provider SOA supports Presence URI. The Presence URI is the network address to the Service Provider's gateway for IMS service (IP Multimedia Subsystem), an interactive session of real-time communication-centric services.
[snip]			

Table 3-8 Number Pooling Block Holder Information Data Model

R3-7.2   Administer Mass update on one or more selected Subscription Versions

NPAC SMS shall allow NPAC personnel to specify a mass update action to be applied against all Subscription Versions selected (except for Subscription Versions with a status of old, partial failure, sending, disconnect pending or canceled) for LRN, DPC values, SSN values, Voice URI (if the requesting SOA supports Voice URI data), MMS URI (if the requesting SOA supports MMS URI data), PoC URI (if the requesting SOA supports PoC URI data), Presence URI (if the requesting SOA supports Presence URI data), Billing ID, End User Location Type or End User Location Value.

RR3-210   Block Holder Information Mass Update – Update Fields

NPAC SMS shall allow NPAC Personnel, via a mass update, to update the block holder default routing information (LRN, DPC(s), and SSN(s), Voice URI (if the requesting SOA supports Voice URI data), MMS URI (if the requesting SOA supports MMS URI data), PoC URI (if the requesting SOA supports PoC URI data), Presence URI (if the requesting SOA supports Presence URI data)), for a 1K Block as stored in the NPAC SMS. (Previously B-762)

R3-8   Off-line batch updates for Local SMS Disaster Recovery

NPAC SMS shall support an off-line batch download (via 4mm DAT tape and FTP file download) to mass update Local SMSs with Subscription Versions, NPA-NXX-X Information, Number Pool Block and Service Provider Network data.

The contents of the batch download are:

- Subscriber data:
    - [snip]
    - Voice URI (for Local SMSs that support Voice URI data)
    - MMS URI (for Local SMSs that support MMS URI)
    - PoC URI (for Local SMSs that support PoC URI)
    - Presence URI (for Local SMSs that support Presence URI data)
    - [snip]
- Block Data
    - [snip]
    - Voice URI (for Local SMSs that support Voice URI data)
    - MMS URI, (for Local SMSs that support MMS)
    - PoC URI, (for Local SMSs that support PoC URI data)
    - Presence URI (for Local SMSs that support Presence URI data)
    - [snip]

RR3-79.1 Number Pool NPA-NXX-X Holder Information – Routing Data Field Level Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, are valid according to the formats specified in the Block Data Model upon Block creation scheduling for a Number Pool, or when re-scheduling a Block Create Event: (Previously N-75.1).

[snip]
Voice URI (if supported by the Block Holder SOA)
MMS URI (if supported by the Block Holder SOA)
PoC URI (if supported by the Block Holder SOA)
Voice URI, MMS URI, PoC URI, Presence URI (if supported by the Block Holder SOA)

RR3-149 Addition of Number Pooling Block Holder Information – Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, is valid according to the formats specified in the Subscription Version Data Model upon Block creation for a Number Pool: (Previously B-250)

[snip]
Voice URI (if supported by the Block Holder SOA)
MMS URI (if supported by the Block Holder SOA)
PoC URI (if supported by the Block Holder SOA)
Presence URI (if supported by the Block Holder SOA)

RR3-157 Modification of Number Pooling Block Holder Information – Routing Data

NPAC SMS shall allow NPAC personnel, Service Provider via the SOA to NPAC SMS Interface, or Service Provider via the NPAC SOA Low-tech Interface, to modify the block holder default routing information (LRN, DPC(s), and SSN(s)), and Voice URI/MMS URI/PoC URI/Presence URI fields (if supported by the Block Holder SOA), for a 1K Block as stored in the NPAC SMS. (Previously B-320)

R4-8 Service Provider Data Elements

NPAC SMS shall require the following data if there is no existing Service Provider data:

[snip]
NPAC Customer SOA Voice URI Indicator
NPAC Customer LSMS Voice URI Indicator
NPAC Customer SOA MMS URI Support Indicator
NPAC Customer LSMS MMS URI Support Indicator
NPAC Customer SOA PoC URI Support Indicator
NPAC Customer LSMS PoC URI Support Indicator
NPAC Customer SOA Presence URI Support Indicator
NPAC Customer LSMS Presence URI Support Indicator

R5-16   **Create Subscription Version - New Service Provider Optional input data**

NPAC SMS shall accept the following optional fields from NPAC personnel or the new Service Provider upon Subscription Version creation for an Inter-Service Provider port:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-18.1   **Create Subscription Version - Field-level Data Validation**

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version creation for an Inter-Service Provider port:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

RR5-5   **Create "Intra-Service Provider Port" Subscription Version - Current Service Provider Optional Input Data**

NPAC SMS shall accept the following optional fields from the NPAC personnel or the Current Service Provider upon a Subscription Version Creation for an Intra-Service Provider port:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

RR5-6.1   **Create "Intra-Service Provider Port" Subscription Version - Field-level Data Validation**

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version creation for an Intra-Service Provider port:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-27.1   Modify Subscription Version - New Service Provider Data Values

NPAC SMS shall allow the following data to be modified in a pending or conflict Subscription Version for an Inter-Service Provider or Intra-Service Provider port by the new/current Service Provider or NPAC personnel:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-28   Modify Subscription Version - New Service Provider Optional input data.

NPAC SMS shall accept the following optional fields from the NPAC personnel or the new Service Provider upon modification of a pending or conflict Subscription version:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-29.1   Modify Subscription Version - Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version modification.

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-36   Modify Active Subscription Version - Input Data

NPAC SMS shall allow the following data to be modified for an active Subscription Version:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-37   Active Subscription Version - New Service Provider Optional input data.

NPAC SMS shall accept the following optional fields from the new Service Provider or NPAC personnel for an active Subscription Version to be modified:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-38.1   Modify Active Subscription Version - Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the value formats for the following input data, if supplied, is valid according to the formats specified in Table 3-6 upon Subscription Version modification of an active version:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-74.3   Query Subscription Version - Output Data

NPAC SMS shall return the following output data for a Subscription Version query request initiated by NPAC personnel or a SOA to NPAC SMS interface user:

- [snip]
- Voice URI (if supported by the Service Provider SOA)
- MMS URI (if supported by the Service Provider SOA)
- PoC URI (if supported by the Service Provider SOA)
- Presence URI (if supported by the Service Provider SOA)

R5-74.4   Query Subscription Version - Output Data

NPAC SMS shall return the following output data for a Subscription Version query request initiated over the NPAC SMS to Local SMS interface:

- [snip]
- Voice URI (if supported by the Service Provider LSMS)
- MMS URI (if supported by the Service Provider LSMS)
- PoC URI (if supported by the Service Provider LSMS)
- Presence URI (if supported by the Service Provider LSMS)

RR5-91   Addition of Number Pooling Subscription Version Information – Create "Pooled Number" Subscription Version

NPAC SMS shall automatically populate the following data upon Subscription Version creation for a Pooled Number port: (Previously SV-20)

- [snip]
- Voice URI (Value set to same field as Block)

- MMS URI (Value set to same field as Block)
- PoC URI (Value set to same field as Block)
- Presence URI (Value set to same field as Block)

Req 1 – Service Provider SOA Voice URI Edit Flag Indicator

NPAC SMS shall provide a Service Provider SOA Voice URI Edit Flag Indicator tunable parameter which defines whether a SOA supports Voice URI.

Req 2 – Service Provider SOA Voice URI Edit Flag Indicator Default

NPAC SMS shall default the Service Provider SOA Voice URI Edit Flag Indicator tunable parameter to FALSE.

Req 3 – Service Provider SOA Voice URI Edit Flag Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider SOA Voice URI Edit Flag Indicator tunable parameter.

Req 4 – Service Provider LSMS Voice URI Edit Flag Indicator

NPAC SMS shall provide a Service Provider LSMS Voice URI Edit Flag Indicator tunable parameter which defines whether an LSMS supports Voice URI.

Req 5 – Service Provider LSMS Voice URI Edit Flag Indicator Default

NPAC SMS shall default the Service Provider LSMS Voice URI Edit Flag Indicator tunable parameter to FALSE.

Req 6 – Service Provider LSMS Voice URI Edit Flag Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider LSMS Voice URI Edit Flag Indicator tunable parameter.

Req 1.1 through 6.1 same as Req 1 through 6. Replace "Voice URI" with "MMS URI".

Req 1.2 through 6.2 same as Req 1 through 6. Replace "Voice URI" with "PoC URI".

Req 1.3 through 6.3 same as Req 1 through 6. Replace "Voice URI" with "Presence URI".

Req 7   Activate Subscription Version - Send Voice URI to Local SMSs

NPAC SMS shall, for a Service Provider that supports Voice URI, send the Voice URI attribute for an activated Inter or Intra-Service Provider Subscription Version port via the NPAC SMS to Local SMS Interface to the Local SMSs.

Req 7.1 same as Req 7. Replace "Voice URI" with "MMS URI".

Req 7.2 same as Req 7. Replace "Voice URI" with "PoC URI".

Req 7.3 same as Req 7. Replace "Voice URI" with "Presence URI".

Req 8   Activate Number Pool Block - Send Voice URI to Local SMSs

NPAC SMS shall, for a Service Provider that supports Voice URI, send the Voice URI attribute for an activated Number Pool Block via the NPAC SMS to Local SMS Interface to the Local SMSs.

Req 8.1 same as Req 8. Replace "Voice URI" with "MMS URI".

Req 8.2 same as Req 8. Replace "Voice URI" with "PoC URI".

Req 8.3 same as Req 8. Replace "Voice URI" with "Presence URI".

Req 9   Audit for Support of Voice URI

NPAC SMS shall audit the Voice URI attribute as part of a full audit scope, only when a Service Provider's LSMS supports Voice URI.

Req 9.1 same as Req 9. Replace "Voice URI" with "MMS URI".

Req 9.2 same as Req 9. Replace "Voice URI" with "PoC URI".

Req 9.3 same as Req 9. Replace "Voice URI" with "Presence URI".

Appendix E – Bulk Data Download File Examples.

NOTE: If a Service Provider supports Voice URI, MMS URI, PoC URI, or Presence URI, the format of the Bulk Data Download file will contain delimiters for all four attributes.

EXPLANATION OF THE FIELDS IN THE SUBSCRIPTION DOWNLOAD FILE		
Field Number	**Field Name**	**Value in Example**
1	Version Id	0000000001
[snip]		
999	Voice URI	Not present if LSMS or SOA does not support the Voice URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
999	MMS URI	Not present if LSMS or SOA does not support the MMS URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
999	PoC URI	Not present if LSMS or SOA does not support the PoC URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
999	Presence URI	Not present if LSMS or SOA does not support the Presence URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
[snip]		

Table E- 1 -- Explanation of the Fields in The Subscription Download File

EXPLANATION OF THE FIELDS IN THE BLOCK DOWNLOAD FILE		
Field Number	**Field Name**	**Value in Example**
1	Block Id	1
[snip]		
999	Voice URI	Not present if LSMS or SOA does not support the Voice URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
999	MMS URI	Not present if LSMS or SOA does not support the MMS URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
999	PoC URI	Not present if LSMS or SOA does not support the PoC URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
999	Presence URI	Not present if LSMS or SOA does not support the Presence URI as shown in this example. If it were present the value would be as defined in the SV Data Model.
[snip]		

Table E- 6 -- Explanation of the Fields in The Subscription Download File

IIS

Addition to the current IIS flow descriptions that relate to SV and NPB attributes.

Flow B.4.4.1 – Number Pool Block Create/Activate by SOA

Flow B.4.4.2 – Number Pool Block Create by NPAC SMS

Flow B.4.4.12 – Number Pool Block Modify by NPAC SMS

Flow B.4.4.13 – Number Pool Block Modify by Block Holder SOA

If the "SOA Supports Voice URI Indicator" is set in the service provider's profile on the NPAC SMS, the following attributes may optionally be included:
   Voice URI

If the "SOA Supports MMS URI Indicator" is set in the service provider's profile on the NPAC SMS, the following attributes may optionally be included:
   MMS URI

If the "SOA Supports PoC URI Indicator" is set in the service provider's profile on the NPAC SMS, the following attributes may optionally be included:
   PoC URI

If the "SOA Supports Presence URI Indicator" is set in the service provider's profile on the NPAC SMS, the following attributes may optionally be included:
   Presence URI

Flow B.5.1.2 – Subscription Version Create by the Initial SOA (New Service Provider)

Flow B.5.1.3 – Subscription Version Create by Second SOA (New Service Provider)

Flow B.5.1.11 – Subscription Version Create for Intra-Service Provider Port

[snip]
The following items may optionally be provided unless subscriptionPortingToOriginal-SP is true:
   [snip]
   Voice URI – if supported by the Service Provider SOA
   MMS URI – if supported by the Service Provider SOA
   PoC URI – if supported by the Service Provider SOA
   Presence URI – if supported by the Service Provider SOA

Flow B.5.2.1 – Subscription Version Modify Active Version Using M-ACTION by a Service Provider SOA

Flow B.5.2.3 – Subscription Version Modify Prior to Activate Using M-ACTION

Flow B.5.2.4 – Subscription Version Modify Prior to Activate Using M-SET

[snip]
The current service provider can only modify the following attributes:

      [snip]
      Voice URI – if supported by the Service Provider SOA
      MMS URI – if supported by the Service Provider SOA
      PoC URI – if supported by the Service Provider SOA
      Presence URI – if supported by the Service Provider SOA

Flow B.5.6 – Subscription Version Query

[snip]
The query return data includes:

      [snip]
      Voice URI – if supported by the Service Provider (SOA, LSMS)
      MMS URI – if supported by the Service Provider (SOA, LSMS)
      PoC URI – if supported by the Service Provider (SOA, LSMS)
      Presence URI – if supported by the Service Provider (SOA, LSMS)

GDMO:

Note – the GDMO shown below is the same that is contained in NANC 399. For NANC 400, the references for SV Type are not needed, but are shown for continuity purposes. For both NANC 399 and NANC 400, the OptionalData references are identical.

```
-- 20.0 LNP subscription Version Managed Object Class

subscriptionVersion MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY
        subscriptionVersionPkg;
    CONDITIONAL PACKAGES
        subscriptionWSMSC-DataPkg PRESENT IF
            !the service provider is supporting WSMSC information!,
        subscriptionSvTypePkg PRESENT IF
            !the service provider is supporting SV type!,
        subscriptionOptionalDataPkg PRESENT IF
            !the service provider is supporting additional optional data!;
    REGISTERED AS {LNP-OIDS.lnp-objectClass 20};

-- 29.0 Number Pool Block Data Managed Object Class
--
numberPoolBlock MANAGED OBJECT CLASS
    DERIVED FROM "CCITT Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
    CHARACTERIZED BY
        numberPoolBlock-Pkg;
    CONDITIONAL PACKAGES
        numberPoolBlockWSMSC-DataPkg PRESENT IF
            !the service provider is supporting WSMSC information!,
        numberPoolBlockSvTypePkg PRESENT IF
            !the service provider is supporting number pool block type!,
        numberPoolBlockOptionalDataPkg PRESENT IF
            !the service provider is supporting additional optional information!;
    REGISTERED AS {LNP-OIDS.lnp-objectClass 29};

subscriptionVersionNPAC-Behavior BEHAVIOUR
…
     new service provider SOAs can only modify the following attributes:

        subscriptionLRN
        subscriptionNewSP-DueDate
        subscriptionCLASS-DPC
        subscriptionCLASS-SSN
        subscriptionLIDB-DPC
        subscriptionLIDB-SSN
        subscriptionCNAM-DPC
        subscriptionCNAM-SSN
        subscriptionISVM-DPC
        subscriptionISVM-SSN
        subscriptionWSMSC-DPC
        subscriptionWSMSC-SSN
        subscriptionEndUserLocationValue
        subscriptionEndUserLocationType
        subscriptionBillingId
        subscriptionSvType
        subscriptionOptionalData…

numberPoolBlockNPAC-Behavior BEHAVIOUR
```

…

       The object creation notification will be sent to the SOA once the
       number pool block object has been created on the NPAC SMS,
       if the SOA-origination flag is true, and contain the following
       attributes:

         numberPoolBlockId
         numberPoolBlockNPA-NXX-X
         numberPoolBlockHolderSPID
         numberPoolBlockSOA-Origination
         numberPoolBlockCreationTimeStamp
         numberPoolBlockStatus
         numberPoolBlockLRN
         numberPoolBlockCLASS-DPC
         numberPoolBlockCLASS-SSN
         numberPoolBlockLIDB-DPC
         numberPoolBlockLIDB-SSN
         numberPoolBlockCNAM-DPC
         numberPoolBlockCNAM-SSN
         numberPoolBlockISVM-DPC
         numberPoolBlockISVM-SSN
         numberPoolBlockWSMSC-DPC (OPTIONAL)
         numberPoolBlockWSMSC-SSN (OPTIONAL)
         numberPoolBlockType (OPTIONAL)
         numberPoolBlockOptionalData (OPTIONAL)
--

       The attribute value change notification will be sent out to the SOA,
       if the SOA-origination flag is true, when any of the following
       attributes change:

         numberPoolBlockSOA-Origination
         numberPoolBlockLRN
         numberPoolBlockCLASS-DPC
         numberPoolBlockCLASS-SSN
         numberPoolBlockLIDB-DPC
         numberPoolBlockLIDB-SSN
         numberPoolBlockCNAM-DPC
         numberPoolBlockCNAM-SSN
         numberPoolBlockISVM-DPC
         numberPoolBlockISVM-SSN
         numberPoolBlockWSMSC-DPC (OPTIONAL)
         numberPoolBlockWSMSC-SSN (OPTIONAL)
         numberPoolBlockType (OPTIONAL)
         numberPoolBlockOptionalData (OPTIONAL)
-- 149.0 Subscription Version SV Type
--
subscriptionSvType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX LNP-ASN1.SVType;
    MATCHES FOR EQUALITY, ORDERING;
    BEHAVIOUR subscriptionSvTypeBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 149};

subscriptionSvTypeBehavior BEHAVIOUR
    DEFINED AS !
       This attribute is used to specify the subscription version
       type.

          The possible values are:
              0 : wireline
              1 : wireless
              2 : VoIP~~—~~
              3 : VoWiFi
              4 : NPB Type 4

```
                           5 : NPB Type 5
                           6 : NPB Type 6
!;


--
-- 150.0 Subscription Optional Data
--
subscriptionOptionalData ATTRIBUTE
    WITH ATTRIBUTE SYNTAX LNP-ASN1.OptionalData;
    MATCHES FOR EQUALITY;
    BEHAVIOUR subscriptionOptionalDataBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 150};

subscriptionOptionalDataBehavior BEHAVIOUR
    DEFINED AS !
        This attribute is used to specify the optional data
        for the SV blocks.

        This attribute is an XML string defined by the
        XML schema in section 7.4 of the IIS.
!;


--
-- 151.0 Number Pool Block Type
--
numberPoolBlockType ATTRIBUTE
    WITH ATTRIBUTE SYNTAX LNP-ASN1.SVType;
    MATCHES FOR EQUALITY, ORDERING;
    BEHAVIOUR numberPoolBlockTypeBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 151};

numberPoolBlockTypeBehavior BEHAVIOUR
    DEFINED AS !
        This attribute is used to specify the number pool block
        type.

            The possible values are:
                    0 : wireline
                    1 : wireless
                    2 : VoIP
                    3 : VoWiFi
                    4 : NPB Type 4
                    5 : NPB Type 5
                    6 : NPB Type 6
!;


--
-- 152.0 Number Pool Block Optional Data
--
numberPoolBlockOptionalData ATTRIBUTE
    WITH ATTRIBUTE SYNTAX LNP-ASN1.OptionalData;
    MATCHES FOR EQUALITY;
    BEHAVIOUR numberPoolBlockOptionalDataBehavior;
    REGISTERED AS {LNP-OIDS.lnp-attribute 152};

numberPoolBlockOptionalDataBehavior BEHAVIOUR
    DEFINED AS !
        This attribute is used to specify the optional data
        for the Number Pool blocks.

        This attribute is an XML string defined by the
        XML schema in section 7.4 of the IIS.
```

```
!;

-- 44.0 LNP Subscription Version SV Type Package

subscriptionSvTypePkg PACKAGE
    BEHAVIOUR subscriptionSvTypePkgBehavior;
    ATTRIBUTES
        subscriptionSvType GET-REPLACE;
    REGISTERED AS {LNP-OIDS.lnp-package 44};

subscriptionSvTypePkgBehavior BEHAVIOUR
    DEFINED AS !
        This package provides for conditionally including the
        SV Type.
    !;


-- 45.0 LNP Subscription Version Optional Data Package

subscriptionOptionalDataPkg PACKAGE
    BEHAVIOUR subscriptionOptionalDataPkgBehavior;
    ATTRIBUTES
        subscriptionOptionalData GET-REPLACE;
    REGISTERED AS {LNP-OIDS.lnp-package 45};

subscriptionOptionalDataPkgBehavior BEHAVIOUR
    DEFINED AS !
        This package provides for conditionally including the
        additional optional data.
    !;


-- 46.0 LNP Number Pool Block SV Type Package

numberPoolBlockSvTypePkg PACKAGE
    BEHAVIOUR numberPoolBlockSvTypePkg;
    ATTRIBUTES
        numberPoolBlockType GET-REPLACE;
    REGISTERED AS {LNP-OIDS.lnp-package 46};

numberPoolBlockSvTypePkgBehavior BEHAVIOUR
    DEFINED AS !
        This package provides for conditionally including the
        Number Pool Block SV Type.
    !;


-- 47.0 LNP Number Pool Block Optional Data Package

numberPoolBlockOptionalDataPkg PACKAGE
    BEHAVIOUR numberPoolBlockOptionalDataPkgBehavior;
    ATTRIBUTES
        numberPoolBlockOptionalData GET-REPLACE;
    REGISTERED AS {LNP-OIDS.lnp-package 47};

numberPoolBlockOptionalDataPkgBehavior BEHAVIOUR
    DEFINED AS !
        This package provides for conditionally including the
        Number Pool Block additional optional data.
    !;

subscriptionVersionModifyBehavior BEHAVIOUR
…
```

New service providers may specify modified valid values for the
        following attributes, when the service provider's "SOA Sv Type
        Data" indicator is TRUE, and may NOT specify these values when the
        indicator is set to FALSE:

            subscriptionSvType

            New service providers may specify modified valid values for the
        following attributes, when the service provider's "SOA Optional
        Data" indicator is TRUE, and may NOT specify these values when the
        indicator is set to FALSE:

            subscriptionOptionalData…
New service providers may specify modified valid values for the
        following attributes, when the service provider's "SOA Sv Type
        Data" indicator is TRUE, and may NOT specify these values when the
        indicator is set to FALSE:

            subscriptionSvType

            New service providers may specify modified valid values for the
        following attributes, when the service provider's "SOA Optional
        Data" indicator is TRUE, and may NOT specify these values when the
        indicator is set to FALSE:

            subscriptionOptionalData…

subscriptionVersionNewSP-CreateBehavior BEHAVIOUR
…

New service providers may specify modified valid values for the
        following attributes, when the service provider's "SOA Sv Type
        Data" indicator is TRUE, and may NOT specify these values when the
        indicator is set to FALSE:

            subscriptionSvType

            New service providers may specify modified valid values for the
        following attributes, when the service provider's "SOA Optional
        Data" indicator is TRUE, and may NOT specify these values when the
        indicator is set to FALSE:

            subscriptionOptionalData…

numberPoolBlock-CreateBehavior BEHAVIOUR
…

if the SOA Sv/PoolBlock Type Data indicator is set in the service
        provider's profile, the following attributes must be provided:

            numberPoolBlockType

            if the SOA Optional Data indicator is set in the service
        provider's profile, the following attributes must be provided:

            numberPoolBlockOptionalData…

ASN.1:

Note – the ASN.1 shown below is the same that is contained in NANC 399. For NANC 400, the references for SV Type are not needed, but are shown for continuity purposes. For both NANC 399 and NANC 400, the OptionalData references are identical.

```
SVType ::= ENUMERATED {
    wireline (0),
    wireless (1),
    voIP     (2),
    voWiFi   (3),
    SV Type 4 (4),
    SV Type 5 (5),
    SV Type 6 (6)
}

OptionalData ::= GraphicString



BlockDownloadData ::= SET OF SEQUENCE {
    block-id [0] BlockId,
    block-npa-nxx-x [1] NPA-NXX-X OPTIONAL,
    block-holder-sp [2] ServiceProvId OPTIONAL,
    block-activation-timestamp [3] GeneralizedTime OPTIONAL,
    block-lrn [4] LRN OPTIONAL,
    block-class-dpc [5] EXPLICIT DPC OPTIONAL,
    block-class-ssn [6] EXPLICIT SSN OPTIONAL,
    block-lidb-dpc [7] EXPLICIT DPC OPTIONAL,
    block-lidb-ssn [8] EXPLICIT SSN OPTIONAL,
    block-isvm-dpc [9] EXPLICIT DPC OPTIONAL,
    block-isvm-ssn [10] EXPLICIT SSN OPTIONAL,
    block-cnam-dpc [11] EXPLICIT DPC OPTIONAL,
    block-cnam-ssn [12] EXPLICIT SSN OPTIONAL,
    block-download-reason [13] DownloadReason,
    block-wsmsc-dpc [14] EXPLICIT DPC OPTIONAL,
    block-wsmsc-ssn [15] EXPLICIT SSN OPTIONAL,
    block-sv-type [16] EXPLICIT  SVType OPTIONAL,
     block-optional-data [17] EXPLICIT OptionalData OPTIONAL
}

MismatchAttributes ::= SEQUENCE {
    seq0 [0] SEQUENCE {
        lsms-subscriptionLRN LRN,
        npac-subscriptionLRN LRN
    } OPTIONAL,
    seq1 [1] SEQUENCE {
        lsms-subscriptionNewCurrentSP ServiceProvId,
        npac-subscriptionNewCurrentSP ServiceProvId
    } OPTIONAL,
    seq2 [2] SEQUENCE {
        lsms-subscriptionActivationTimeStamp GeneralizedTime,
        npac-subscriptionActivationTimeStamp GeneralizedTime
    } OPTIONAL,
    seq3 [3] SEQUENCE {
        lsms-subscriptionCLASS-DPC DPC,
        npac-subscriptionCLASS-DPC DPC
    } OPTIONAL,
    seq4 [4] SEQUENCE {
        lsms-subscriptionCLASS-SSN SSN,
```

```
            npac-subscriptionCLASS-SSN SSN
        } OPTIONAL,
        seq5 [5] SEQUENCE {
            lsms-subscriptionLIDB-DPC DPC,
            npac-subscriptionLIDB-DPC DPC
        } OPTIONAL,
        seq6 [6] SEQUENCE {
            lsms-subscriptionLIDB-SSN SSN,
            npac-subscriptionLIDB-SSN SSN
        } OPTIONAL,
        seq7 [7] SEQUENCE {
            lsms-subscriptionISVM-DPC DPC,
            npac-subscriptionISVM-DPC DPC
        } OPTIONAL,
        seq8 [8] SEQUENCE {
            lsms-subscriptionISVM-SSN SSN,
            npac-subscriptionISVM-SSN SSN
        } OPTIONAL,
        seq9 [9] SEQUENCE {
            lsms-subscriptionCNAM-DPC DPC,
            npac-subscriptionCNAM-DPC DPC
        } OPTIONAL,
        seq10 [10] SEQUENCE {
            lsms-subscriptionCNAM-SSN SSN,
            npac-subscriptionCNAM-SSN SSN
        } OPTIONAL,
        seq11 [11] SEQUENCE {
            lsms-subscriptionEndUserLocationValue EndUserLocationValue,
            npac-subscriptionEndUserLocationValue EndUserLocationValue
        } OPTIONAL,
        seq12 [12] SEQUENCE {
            lsms-subscriptionEndUserLocationType EndUserLocationType,
            npac-subscriptionEndUserLocationType EndUserLocationType
        } OPTIONAL,
        seq13 [13] SEQUENCE {
            lsms-subscriptionBillingId BillingId,
            npac-subscriptionBillingId BillingId
        } OPTIONAL,
        seq14 [14] SEQUENCE {
            lsms-subscriptionLNPType LNPType,
            npac-subscriptionLNPType LNPType
        } OPTIONAL,
        seq15 [15] SEQUENCE {
            lsms-subscriptionWSMSC-DPC DPC,
            npac-subscriptionWSMSC-DPC DPC
        } OPTIONAL,
        seq16 [16] SEQUENCE {
            lsms-subscriptionWSMSC-SSN SSN,
            npac-subscriptionWSMSC-SSN SSN
        } OPTIONAL,
        seq17 [17] SEQUENCE {
            lsms-sv-type SVType,
            npac-sv-type SVType
        } OPTIONAL,
        seq18 [18] SEQUENCE {
            lsms-optional-data OptionalData,
            npac-optional-data OptionalData
        } OPTIONAL
}

NewSP-CreateData ::= SEQUENCE {
    chc1 [0] EXPLICIT CHOICE {
        subscription-version-tn [0] PhoneNumber,
```

```
                subscription-version-tn-range [1] TN-Range
        },
        subscription-lrn [1] LRN OPTIONAL,
        subscription-new-current-sp [2] ServiceProvId,
        subscription-old-sp [3] ServiceProvId,
        subscription-new-sp-due-date [4] GeneralizedTime,
        subscription-class-dpc [6] EXPLICIT DPC OPTIONAL,
        subscription-class-ssn [7] EXPLICIT SSN OPTIONAL,
        subscription-lidb-dpc [8] EXPLICIT DPC OPTIONAL,
        subscription-lidb-ssn [9] EXPLICIT SSN OPTIONAL,
        subscription-isvm-dpc [10] EXPLICIT DPC OPTIONAL,
        subscription-isvm-ssn [11] EXPLICIT SSN OPTIONAL,
        subscription-cnam-dpc [12] EXPLICIT DPC OPTIONAL,
        subscription-cnam-ssn [13] EXPLICIT SSN OPTIONAL,
        subscription-end-user-location-value [14]
            EndUserLocationValue OPTIONAL,
        subscription-end-user-location-type [15] EndUserLocationType OPTIONAL,
        subscription-billing-id [16] BillingId OPTIONAL,
        subscription-lnp-type [17] LNPType,
        subscription-porting-to-original-sp-switch [18]
            SubscriptionPortingToOriginal-SPSwitch,
        subscription-wsmsc-dpc [19] EXPLICIT DPC OPTIONAL,
        subscription-wsmsc-ssn [20] EXPLICIT SSN OPTIONAL,
        subscription-sv-type       [21] EXPLICIT  SVType OPTIONAL,
        subscription-optional-data [22] EXPLICIT OptionalData OPTIONAL
}

NewSP-CreateInvalidData ::= CHOICE {
        subscription-version-tn [0] EXPLICIT PhoneNumber,
        subscription-version-tn-range [1] EXPLICIT TN-Range,
        subscription-lrn [2] EXPLICIT LRN,
        subscription-new-current-sp [3] EXPLICIT ServiceProvId,
        subscription-old-sp [4] EXPLICIT ServiceProvId,
        subscription-new-sp-due-date [5] EXPLICIT GeneralizedTime,
        subscription-class-dpc [6] EXPLICIT DPC,
        subscription-class-ssn [7] EXPLICIT SSN,
        subscription-lidb-dpc [8] EXPLICIT DPC,
        subscription-lidb-ssn [9] EXPLICIT SSN,
        subscription-isvm-dpc [10] EXPLICIT DPC,
        subscription-isvm-ssn [11] EXPLICIT SSN,
        subscription-cnam-dpc [12] EXPLICIT DPC,
        subscription-cnam-ssn [13] EXPLICIT SSN,
        subscription-end-user-location-value [14] EXPLICIT EndUserLocationValue,
        subscription-end-user-location-type [15] EXPLICIT EndUserLocationType,
        subscription-billing-id [16] EXPLICIT BillingId,
        subscription-lnp-type [17] EXPLICIT LNPType,
        subscription-porting-to-original-sp-switch [18]
           EXPLICIT SubscriptionPortingToOriginal-SPSwitch,
        subscription-wsmsc-dpc [19] EXPLICIT DPC,
        subscription-wsmsc-ssn [20] EXPLICIT SSN,
        subscription-sv-type       [21] EXPLICIT  SVType,
        subscription-optional-data [22] EXPLICIT OptionalData }

NumberPoolBlock-CreateAction ::= SEQUENCE {
        block-npa-nxx-x NPA-NXX-X,
        block-holder-sp ServiceProvId,
        block-lrn LRN,
        block-class-dpc DPC,
        block-class-ssn SSN,
        block-lidb-dpc DPC,
        block-lidb-ssn SSN,
        block-isvm-dpc DPC,
        block-isvm-ssn SSN,
```

```
        block-cnam-dpc DPC,
        block-cnam-ssn SSN,
        block-wsmsc-dpc [0] DPC OPTIONAL,
        block-wsmsc-ssn [1] SSN OPTIONAL,
        block-sv-type [2]  SVType OPTIONAL,
        block-optional-data [3] OptionalData OPTIONAL }


NumberPoolBlock-CreateInvalidData ::= CHOICE {
        block-npa-nxx-x    [0] EXPLICIT NPA-NXX-X,
        block-lrn          [1] EXPLICIT LRN,
        block-class-dpc    [2] EXPLICIT DPC,
        block-class-ssn    [3] EXPLICIT SSN,
        block-lidb-dpc     [4] EXPLICIT DPC,
        block-lidb-ssn     [5] EXPLICIT SSN,
        block-isvm-dpc     [6] EXPLICIT DPC,
        block-isvm-ssn     [7] EXPLICIT SSN,
        block-cnam-dpc     [8] EXPLICIT DPC,
        block-cnam-ssn     [9] EXPLICIT SSN,
        block-wsmsc-dpc    [10] EXPLICIT DPC,
        block-wsmsc-ssn    [11] EXPLICIT SSN
        block-sv-type      [12] EXPLICIT SVType,
        block-optional-data [13] EXPLICIT OptionalData }


SubscriptionData ::= SEQUENCE {
        subscription-lrn               [1] LRN OPTIONAL,
        subscription-new-current-sp  [2] ServiceProvId OPTIONAL,
        subscription-activation-timestamp
                                       [3] GeneralizedTime OPTIONAL,
        subscription-class-dpc         [4] EXPLICIT DPC,
        subscription-class-ssn         [5] EXPLICIT SSN,
        subscription-lidb-dpc          [6] EXPLICIT DPC,
        subscription-lidb-ssn          [7] EXPLICIT SSN,
        subscription-isvm-dpc          [8] EXPLICIT DPC,
        subscription-isvm-ssn          [9] EXPLICIT SSN,
        subscription-cnam-dpc          [10] EXPLICIT DPC,
        subscription-cnam-ssn          [11] EXPLICIT SSN,
        subscription-end-user-location-value
                                       [12] EndUserLocationValue OPTIONAL,
        subscription-end-user-location-type
                                       [13] EndUserLocationType OPTIONAL,
        subscription-billing-id        [14] BillingId OPTIONAL,
        subscription-lnp-type          [15] LNPType,
        subscription-download-reason [16] DownloadReason,
        subscription-wsmsc-dpc         [17] EXPLICIT DPC OPTIONAL,
        subscription-wsmsc-ssn         [18] EXPLICIT SSN OPTIONAL,
        subscription-sv-type           [19] EXPLICIT SVType OPTIONAL,
        subscription-optional-data    [20] EXPLICIT OptionalData OPTIONAL }

SubscriptionModifyData ::= SEQUENCE {
        subscription-lrn [0] LRN OPTIONAL,
        subscription-new-sp-due-date [1] GeneralizedTime OPTIONAL,
        subscription-old-sp-due-date [2] GeneralizedTime OPTIONAL,
        subscription-old-sp-authorization [3] ServiceProvAuthorization OPTIONAL,
        subscription-class-dpc [4] EXPLICIT DPC OPTIONAL,
        subscription-class-ssn [5] EXPLICIT SSN OPTIONAL,
        subscription-lidb-dpc [6] EXPLICIT DPC OPTIONAL,
        subscription-lidb-ssn [7] EXPLICIT SSN OPTIONAL,
        subscription-isvm-dpc [8] EXPLICIT DPC OPTIONAL,
        subscription-isvm-ssn [9] EXPLICIT SSN OPTIONAL,
        subscription-cnam-dpc [10] EXPLICIT DPC OPTIONAL,
        subscription-cnam-ssn [11] EXPLICIT SSN OPTIONAL,
        subscription-end-user-location-value [12] EndUserLocationValue OPTIONAL,
        subscription-end-user-location-type [13] EndUserLocationType OPTIONAL,
```

```
        subscription-billing-id [14] BillingId OPTIONAL,
        subscription-status-change-cause-code [15]
             SubscriptionStatusChangeCauseCode OPTIONAL,
        subscription-wsmsc-dpc [16] EXPLICIT DPC OPTIONAL,
        subscription-wsmsc-ssn [17] EXPLICIT SSN OPTIONAL,
        subscription-customer-disconnect-date [18] GeneralizedTime OPTIONAL,
        subscription-effective-release-date [19] GeneralizedTime OPTIONAL,
        subscription-sv-type [20]  EXPLICIT SVType OPTIONAL,
        subscription-optional-data [21] EXPLICIT OptionalData OPTIONAL }

SubscriptionModifyInvalidData ::= CHOICE {
        subscription-lrn [0] EXPLICIT LRN,
        subscription-new-sp-due-date [1] EXPLICIT GeneralizedTime,
        subscription-old-sp-due-date [2] EXPLICIT GeneralizedTime,
        subscription-old-sp-authorization [3] EXPLICIT ServiceProvAuthorization,
        subscription-class-dpc [4] EXPLICIT DPC,
        subscription-class-ssn [5] EXPLICIT SSN,
        subscription-lidb-dpc [6] EXPLICIT DPC,
        subscription-lidb-ssn [7] EXPLICIT SSN,
        subscription-isvm-dpc [8] EXPLICIT DPC,
        subscription-isvm-ssn [9] EXPLICIT SSN,
        subscription-cnam-dpc [10] EXPLICIT DPC,
        subscription-cnam-ssn [11] EXPLICIT SSN,
        subscription-end-user-location-value [12] EXPLICIT EndUserLocationValue,
        subscription-end-user-location-type [13] EXPLICIT EndUserLocationType,
        subscription-billing-id [14] EXPLICIT BillingId,
        subscription-status-change-cause-code [15]
              EXPLICIT SubscriptionStatusChangeCauseCode,
        subscription-wsmsc-dpc [16] EXPLICIT DPC,
        subscription-wsmsc-ssn [17] EXPLICIT SSN,
        subscription-customer-disconnect-date [18] EXPLICIT GeneralizedTime,
        subscription-effective-release-date [19] EXPLICIT GeneralizedTime,
        subscription-sv-type [20] EXPLICIT SVType,
        subscription-optional-data [21] EXPLICIT OptionalData}
```

XML:

Note – the XML shown below is the same for both NANC 399 and NANC 400.

```xml
<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="urn:npac:lnp:opt-data:1.0" elementFormDefault="qualified"
attributeFormDefault="unqualified" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns="urn:npac:lnp:opt-data:1.0">
   <xs:simpleType name="SPID">
      <xs:restriction base="xs:string">
         <xs:length value="4"/>
      </xs:restriction>
   </xs:simpleType>
   <xs:simpleType name="Generic-URI">
      <xs:restriction base="xs:string">
         <xs:minLength value="1"/>
         <xs:maxLength value="255"/>
      </xs:restriction>
   </xs:simpleType>
   <xs:complexType name="OptionalData">
      <xs:sequence>
        <xs:element name="ALTSPID" type="SPID" nillable="true" minOccurs="0"/>
        <xs:element name="VOICEURI" type="Generic-URI" nillable="true" minOccurs="0"/>
        <xs:element name="MMSURI" type="Generic-URI" nillable="true" minOccurs="0"/>
        <xs:element name="POCURI" type="Generic-URI" nillable="true" minOccurs="0"/>
        <xs:element name="PRESURI" type="Generic-URI" nillable="true" minOccurs="0"/>
      </xs:sequence>
   </xs:complexType>
   <xs:element name="OptionalData" type="OptionalData"/>
</xs:schema>
```