Origination Date: 01/05/05

Originator: NeuStar

Change Order Number: NANC 399

Description: SV Type and Alternative SPID 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:

SV Type Field:

While a SPID-level indicator (NANC 357) is being provided in order to identify the service type (wireline, wireless, non-carrier), this SPID-level categorization does not accommodate the case where a carrier is providing ~~VoIP service as well as conventional wireline or wireless service~~multiple service types. In order to be precise, the categorization should be made at the subscription version (SV) level, since two SVs belonging to the same SPID could potentially have different service types. ~~Thus, a ported or pooled TN is not recognized as being served by VoIP service when only a SPID-level type indication is available, unless, of course, the carrier is a VoIP-only provider.~~

This field will also allow for quickly adapting to new service types (e.g., ~~–~~ VoIP and VoWIFI) by adding new values. These new service types may often be offered by existing SPIDs and therefore require the SV-level granularity that this field provides. While ~~T~~the number of TNs served by VoIP or VoWIFI today is relatively small, ~~but~~ it is growing rapidly. It is also likely that a very high percentage of ~~VoIP~~ these TNs will appear in the NPAC, either as ported TNs (in the case of customers moving their existing service), or within a pooled block (for newly assigned numbers), so a decision to rely on NPAC to provide ~~VoIP~~service type ~~-specific~~ information for ported and pooled TNs will have little impact on the size of the NPAC data base or the quantity of NPAC transactions.

~~The exact utility of identifying VoIP-served ported and pooled TNs has not been fully determined, but one can safely predict that it will be very useful for routing and/or billing.~~

Given NPAC data's involvement in rating and routing, and the role of NPAC data in telemarketers' *do-not-call* lists for wireless numbers, a SV and pooled block level SV Type field will:

- Enable ~~dynamic~~ routing efficiency decisions to be made, where such decisions are based on the terminating network type
- Provide more accurate information to a new service provider when porting in a number (for a pooled or previously ported TN)
- Enable greater billing flexibility by allowing originating and terminating network technologies to be definitively identified at the TN level
- Provide a precise method for determining the technology of a ported or pooled TN in the NPAC; this level of accuracy ~~is needed~~is useful in cases such~~ as~~ ~~that~~ the wireless *do-not-call*

lists ~~can be enhanced~~<u>which need</u> to recognize all TNs ported from wireline to wireless. (FCC Order 04-204 deems NPAC's intermodal porting data as the basis for an official timestamp for a 15-day safe harbor period.)

Alternative SPID Field:

Currently, in cases where a reseller or non -facility facility-based SP is involved in offering service for a particular ported or pooled TN, it is often difficult and time-consuming to identify this SP. Carriers, PSAPs, and Law Enforcement Agencies all depend on NPAC data to identify the service provider associated with a particular ported and pooled TN, but today this data only identifies the facility-based carrier. The facility-based carrier, in this case, often has no subscriber information and frequently cannot easily identify even the associated non-facility based SPreseller. An accelerated market trend toward both Mobile Virtual Network Operators (MVNOs) and VoIP/VoWIFI providers, typically without their own PSTN presence and essentially following a reseller model from a PSTN perspective, both regarded as non-facility based SPs, will only cause this issue to worsen.

Allowing the establishment of a SPID on behalf of non-facility-based SPs [1]to establish a SPID at the NPAC, and providing an Alternative SPID field in the SV and pooled block records, will enable rapid look-up methods for identifying these SPs. In cases where a second service provider (acting as a non facility-based provider or reseller) is involved in the service provided to a TN or pooled block, the SPID associated with this second service provider will be entered into the "Alternative SPID" field. The facility-based service provider's SPID will continue to be entered in the "SPID" field. It is not anticipated that these non-facilities-based service providers will be given access to the NPAC to port and pool TNs.

The current issue is relatively small, butIssues surrounding reseller[2] identification stands to grow considerably given increased intermodal porting activity, as well as accelerated MVNO and VoIP penetration in the marketplace. These issues result from the inability to quickly identify the reseller associated with a particular TN. This field will greatly improve this situation over time.

Time is of the essence in implementing both of these fields while a release window is open to the industry. If this release window is not used, these developments plus other related issues will be causing significant operating inefficiencies and costs by the time the next opportunity to address them within a software release is available.

Description of Change:

The NPAC/SMS will provide a SV Type indicator for each SV and Pooled Block record. This new indicator shall initially distinguish every TN and Pooled Block as being served by Wireline Service, Wireless Service, VoIP, or VoWIFI service. The SV Type indicator will be able to distinguish additional "types" as deemed necessary in the future by adding additional values (e.g., it may be advantageous in the future to identify other TN Types such as WIFI or others). This information will be provisioned by the SOA and broadcast to the LSMS upon initial creation of the SV or Pooled Block and upon modification of the SV for those SOA and LSMS associations optioned "on" to send and receive this data.

The SV Type indicator will be added to the Bulk Data Download file, available to a Service Provider's SOA/LSMS.

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

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[1] The establishment of this SPID does not qualify the non facility-based service provider to become a NPAC user.
[2] "Reseller" includes all cases where a non facility-based service provider or a facility-based carrier acting as a reseller is involved in providing service to a TN.

Upon adoption in the NPAC, the field will be initialized in all existing NPAC records based on the Service Provider "/" indicator embedded in the SP Name field during installation of the release. As SPs opt-in to the field, this new data will be ~~propagated~~ available to them off-line (via bulk data download) and not over the interface, such that no NPAC transactions will result. If necessary, service providers can override the defaulted, initial SV Type, by performing a modify action on the SV.

The NPAC/SMS shall provide an Alternative SPID field for each SV and Pooled Block record. This new field shall identify (if applicable) a ~~non-facility based Service Provider~~reseller[3] associated with each ported or pooled TN or Pooled Block via their 4-digit SPID.

This information shall be provisioned by the SOA and broadcast to the LSMS upon initial creation of the SV or Pooled Block and upon modification of the Alternative SPID.

The Alternative SPID field shall be added to the Bulk Data Download file, available to a Service Provider's SOA/LSMS.

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.~~

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[3] "Reseller" includes all cases where a non facility-based service provider or a facility-based carrier acting as a reseller is involved in providing service to a TN.

Requirements:

Section 1.2, NPAC SMS Functional Overview

Add a new section that describes the functionality of the SV Type and Alternative SPID fields (Description of Change above).

Section 3.1, NPAC SMS Data Models

Add new attributes for SV Type and Alternative SPID. See below:

NPAC CUSTOMER DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
[snip]			
NPAC Customer SOA SV Type Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports SV Type (or Number Pool Block SV Type) information from the NPAC SMS to their SOA. The default value is False.
NPAC Customer SOA Alternative SPID Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports Alternative SPID information (a second service provider, acting as a non facility-based provider or reseller) from the NPAC SMS to their SOA. The default value is False.
NPAC Customer LSMS SV Type Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports SV Type (or Number Pool Block SV Type) information from the NPAC SMS to their LSMS. The default value is False.
NPAC Customer LSMS Alternative SPID Indicator	B	√	A Boolean that indicates whether the NPAC Customer supports Alternative SPID information (a second service provider, acting as a non facility-based provider or reseller) from the NPAC SMS to their LSMS. The default value is False.
[snip]			

Table 3-2 NPAC Customer Data Model

SUBSCRIPTION VERSION DATA MODEL			
Attribute Name	**Type (Size)**	**Required**	**Description**
[snip]			
Alternative SPID	C (4)		An alphanumeric code which uniquely identifies Alternative SPID information (a second service provider, acting as a non facility-based provider or reseller) for this SV. This field may only be specified if the service provider SOA supports Alternative SPID.
SV Type	E	√	Subscription Version Type. Valid enumerated values are: • Wireline – (0) • Wireless – (1) • VoIP – (2) • VoWIFI – (3) • SV Type 4– (4) • SV Type 5– (5) • SV Type 6– (6) This field is only required if the service provider supports SV Type data.
[snip]			

Table 3-6 Subscription Version Data Model

NUMBER POOLING BLOCK HOLDER INFORMATION DATA MODEL			
Attribute Name [snip]	**Type (Size)**	**Required**	**Description**
Alternative SPID	C (4)		An alphanumeric code which uniquely identifies Alternative SPID information (a second service provider, acting as a non facility-based provider or reseller) for this Number Pool Block. This field may only be specified if the service provider SOA supports Alternative SPID.
Number Pool Block SV Type	E	√	Number Pool Block SV Type. Valid enumerated values are: • Wireline – (0) • Wireless – (1) • VoIP – (2) • VoWIFI – (3) • SV Type 4– (4) • SV Type 5– (5) • SV Type 6– (6) This field is only required if the service provider supports Number Pool Block SV Type data.
[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, SV Type, Alternative SPID (if the requesting SOA supports Alternative SPID 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), SV Type, Alternative SPID (if the requesting SOA supports Alternative SPID 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]
    - SV Type (for Local SMSs that support SV Type data)
    - Alternative SPID (for Local SMSs that support Alternative SPID data)
    - [snip]
- Block Data
    - [snip]
    - Number Pool Block SV Type (for Local SMSs that support ~~Number Pool Block~~ SV Type data)
    - Alternative SPID (for Local SMSs that support Alternative SPID 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]
    Number Pool Block SV Type (if supported by the Block Holder SOA)
    Alternative SPID (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]
    Number Pool Block SV Type (if supported by the Block Holder SOA)
    Alternative SPID (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)), Number Pool Block SV Type (if supported by the Block Holder SOA), and, Alternative SPID (if supported by the Block Holder SOA), for a 1K Block as stored in the NPAC SMS. (Previously B-320)

RR3-182   Query of Number Pool Filtered Block Holder Information – Query Block

NPAC SMS shall return, to the NPAC Personnel or requesting Service Provider, all Block data <mark>supported by the requestor</mark> that match the query selection criteria. (Previously B-557)

R4-8   Service Provider Data Elements

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

> [snip]
> <mark>NPAC Customer SOA SV Type Indicator</mark>
> <mark>NPAC Customer SOA Alternative SPID Indicator</mark>
> <mark>NPAC Customer LSMS SV Type Indicator</mark>
> <mark>NPAC Customer LSMS Alternative SPID Indicator</mark>

R5-15.1   Create "Inter-Service Provider Port" Subscription Version - New Service Provider Input Data

NPAC SMS shall require the following data from NPAC personnel or the new Service Provider upon Subscription Version creation for an Inter-Service Provider port when **NOT** "porting to original":

- [snip]
- <mark>SV Type (if supported by the Service Provider SOA)</mark>

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]
- <mark>Alternative SPID (if supported by the Service Provider SOA)</mark>

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]
- <mark>SV Type (if supported by the Service Provider SOA)</mark>
- <mark>Alternative SPID (if supported by the Service Provider SOA)</mark>

RR5-4   Create "Intra-Service Provider Port" Subscription Version - Current Service Provider Input Data

NPAC SMS shall require the following data from the NPAC personnel or the Current (New) Service Provider at the time of Subscription Version Creation for an Intra-Service Provider port when **NOT** porting to original:

- [snip]
- SV Type (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]
- Alternative SPID (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]
- SV Type (if supported by the Service Provider SOA)
- Alternative SPID (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]
- SV Type (if supported by the Service Provider SOA)
- Alternative SPID (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]
- Alternative SPID (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]
- SV Type (if supported by the Service Provider SOA)

- Alternative SPID (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]
- SV Type (if supported by the Service Provider SOA)
- Alternative SPID (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]
- Alternative SPID (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]
- SV Type (if supported by the Service Provider SOA)
- Alternative SPID (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]
- SV Type (if supported by the Service Provider SOA)
- Alternative SPID (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]
- SV Type (if supported by the Service Provider LSMS)
- Alternative SPID (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]
- SV Type (Value set to same field as Block)
- Alternative SPID (Value set to same field as Block)

Req 1 – Service Provider SOA SV Type Edit Flag Indicator

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

Req 2 – Service Provider SOA SV Type Edit Flag Indicator Default

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

Req 3 – Service Provider SOA SV Type Edit Flag Indicator Modification

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

Req 4 – Service Provider LSMS SV Type Edit Flag Indicator

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

Req 5 – Service Provider LSMS SV Type Edit Flag Indicator Default

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

Req 6 – Service Provider LSMS SV Type Edit Flag Indicator Modification

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

Req 7 – Service Provider SOA Alternative SPID Edit Flag Indicator

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

Req 8 – Service Provider SOA Alternative SPID Edit Flag Indicator Default

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

Req 9 – Service Provider SOA Alternative SPID Edit Flag Indicator Modification

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

Req 10 – Service Provider LSMS Alternative SPID Edit Flag Indicator

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

Req 11 – Service Provider LSMS Alternative SPID Edit Flag Indicator Default

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

Req 12 – Service Provider LSMS Alternative SPID Edit Flag Indicator Modification

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

Req 13   Activate Subscription Version - Send SV Type Data to Local SMSs

NPAC SMS shall, for a Service Provider that supports SV Type, send the SV Type 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 14   Activate Subscription Version - Send Alternative SPID to Local SMSs

NPAC SMS shall, for a Service Provider that supports Alternative SPID, send the Alternative SPID 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 15   Activate Number Pool Block - Send Number Pool Block SV Type Data to Local SMSs

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

Req 16   Activate Number Pool Block - Send Alternative SPID to Local SMSs

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

Req 17   Audit for Support of SV Type

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

Req 18   Audit for Support of Alternative SPID

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

Appendix E – Bulk Data Download File Examples.

NOTE: If a Service Provider supports SV Type or Alternative SPID, the format of the Bulk Data Download file will contain delimiters for both attributes.

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

[snip]
If the "SOA Supports Number Pool Block SV Type Indicator" is set in the service provider's profile on the NPAC SMS, the following attributes must be included:
   Number Pool Block SV Type

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

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 must be provided unless subscriptionPortingToOriginal-SP is true:
   [snip]
   SV Type – if supported by the Service Provider SOA

The following items may optionally be provided unless subscriptionPortingToOriginal-SP is true:
   [snip]
   Alternative SPID – 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]
   SV Type – if supported by the Service Provider SOA
   Alternative SPID – if supported by the Service Provider SOA

Flow B.5.6 – Subscription Version Query

[snip]

The query return data includes:

[snip]

<mark>SV Type – if supported by the Service Provider (SOA, LSMS)</mark>
<mark>Alternative SPID – if supported by the Service Provider (SOA, LSMS)</mark>

GDMO:

Note – the GDMO shown below is the same that is contained in NANC 400. 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 : SV Type 4

```
                    5 : SV Type 5
                    6 : SV 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 : SV Type 4
                    5 : SV Type 5
                    6 : SV 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 400. 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>
```