

R3.4 Change Orders

Updated: ~~031~~/019/09

Jan '09: During the January 2009 LNPAWG meeting the group reviewed and approved the change orders prioritized for the next release, and agreed to send these change orders from the LNPAWG to the NAPM LLC. The purpose of this document is to provide only those change orders prioritized and not the entire change order list.

Feb'09: [NeuStar clarification changes.](#)

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Backwards Compatibility Definition

There are two areas of Backwards Compatibility. These are defined below:

- Pure Backwards Compatibility – implies that interface specification has NOT been modified and therefore, no recompile is necessary. Also, no behavior on the NPAC SMS has been modified to provide any change to the previously existing functionality accessible over the interface.
- Functional Backwards Compatibility – implies that the interface may have been modified, however the changes are such that only a recompile is necessary to remain backward compatible. Any new functionality is optionally implemented by accessing the newly defined features over the interface. Also, no changes may be made to any existing interface functionality that will require modifications to SOA and/or LSMS platforms.

The general guideline is that subsequent releases of a major release (e.g., 2.0, 2.1, 2.1.1, etc.) must support Pure Backward Compatibility. Also, major releases should support at least one version of Functional Backward Compatibility (i.e., R3.0 should be Functional Backward Compatible to R2.0). The objective is that all releases remain Functional Backwards Compatible, if possible.

Origination Date: 8/27/97

Originator: AT&T

Change Order Number: NANC 147

Description: Version ID Rollover Strategy

Cumulative SP Priority, Average: #6, 10.36

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Low	None	None

Business Need:

Currently there is no strategy defined for rollover if the maximum value for any of the id fields (sv id, lrn id, or npa-nxx id) is reached. One should be defined so that the vendor implementations are in sync. Currently the max value used by Lockheed is a 4 byte-signed integer and for Perot it is a 4 byte-unsigned integer.

Sep '99 LNPA-WG (Chicago), since the version ID for all data is driven by the NPAC SMS, the rollover strategy should be developed by Lockheed. SPs/vendors can provide input, but from a high level, the requirement is to continue incrementing the version ID until the maximum $([2^{*31}] - 1)$ is achieved, then start over at 1 ([Jan/Mar/May '07 LNPAWG mtgs – it was mentioned that the reference here to “1” is confusing since that is not the decimal equivalent when a 32-bit number is rolled over, so instead of “1” the correct reference should say “minus \$\[2^{*31}\] - 1\$ ”.](#)), and use all available numbers at that point in time when a new version ID needs to be assigned (e.g., new SV-ID for a TN).

Dec '05 LNPAWG: NeuStar provided a list of five record types that could have numbers that roll over (since they come across the interface). Local vendors have action item to determine if they will have a problem with numbers that come “out of order”.

Description of Change:

A strategy on how we look for conflicts for new version id’s must be developed as well as a method to provide warnings when conflicts are found.

Oct '98 LNPAWG (Kansas City), it was requested that we begin discussing this in detail starting with the Jan 99 LNPAWG meeting. Beth will be providing some information on current data for the ratio of SV-ID to active TNs (so that we can get a feel for how much larger the SV-ID number is compared to the active TNs).

Sep '99 LNPA-WG (Chicago), Lockheed will begin developing a strategy for this.

Jun '00 LNPA-WG (Chicago), AT&T analysis and calculation (using current and projected porting volumes) indicate that a need for a version ID rollover strategy is more than five years away. Therefore, this change order is removed from R5, and will be discussed internally by NeuStar technical staff.

Jul '00 LNPAWG: NeuStar will track the problem. It will be a NeuStar internal design. Change order to stay on open list for possible later Document Only changes.

Jan '06 LNPAWG: Moved to accepted.

Mar '06 LNPAWG: Action IDs and Audit IDs are now expected to rollover in 7 months in the SE Region. NANC 147 will document the rollover strategy. There will be no initiative to go to 64 bit IDs.

Sep '06 LNPAWG: Action IDs and Audit IDs are now expected to rollover in less than two (2) months in the SE Region. Since these numbers are really transaction numbers and are purged on a regular basis, reuse is not an issue. The rollover strategy is to begin at 1. No vendor reported an issue with this approach. [\(Jan/Mar/May '07 LNPAWG mtgs – it was mentioned that the reference here to “1” is confusing since that is not the decimal equivalent when a 32-bit number is rolled over, so instead of “1” the correct reference should say “minus \$\[2^{31}\] - 1\$ ”. As discovered during industry testing in early 2007, some vendors did have a problem with this; these vendors plan to address the problem with software patches to their customers\).](#)

NANC 147 is still needed to document the rollover strategy for long-term data (like SV-ID), where an inventory of available numbers needs to be established. At last check, this will be needed in ~850 months. NeuStar will continue to monitor the usage of SV-IDs.

Requirements:

Req-1 NPAC SMS Record ID Maximum Value Rollover

NPAC SMS shall roll over a record ID attribute in instances when the ID reaches the maximum value of $(2^{31}) - 1$, and start with an ID that is equal to the minimum value of minus $(2^{31}) - 1$.

Note: Record ID attributes include audit ID, action ID, subscription version ID, LRN ID, NPA-NXX ID, NPA-NXX-X ID, and Number Pool Block ID.

Req-2 NPAC SMS Record ID Inventory Mechanism

NPAC SMS shall provide an inventory mechanism for persistent ID attributes (Subscription Version ID, LRN ID, NPA-NXX ID, NPA-NXX-X ID, Number Pool Block ID) in instances when the ID reaches the maximum value of $(2^{31}) - 1$, and must roll over to the minimum value of minus $(2^{31}) - 1$.

Req-3 NPAC SMS Record ID Inventory – adding ID Values

NPAC SMS shall, after a roll over, add ID values to the ID inventory for a specific persistent ID attribute (Subscription Version ID, LRN ID, NPA-NXX ID, NPA-NXX-X ID, Number Pool Block ID) when that specific ID value **does not** exist in either the active database or history database, based on the frequency defined in the inventory mechanism.

Req-4 NPAC SMS Record ID Inventory – skipping ID Values

NPAC SMS shall, after a roll over, skip ID values when adding to the ID inventory for a specific persistent ID attribute (Subscription Version ID, LRN ID, NPA-NXX ID, NPA-NXX-X ID, Number Pool Block ID) when that specific ID value **does** exist in either the active database or history database, based on the frequency defined in the inventory mechanism.

Req-5 NPAC SMS Record ID Inventory – issuing new ID Values

NPAC SMS shall issue an ID value from the ID inventory for a specific persistent ID attribute (Subscription Version ID, LRN ID, NPA-NXX ID, NPA-NXX-X ID, Number Pool Block ID) when creating a record that requires a new ID value, and the ID attribute has been rolled over.

Req-6 NPAC SMS Record ID Inventory – skipping ID Value of Zero

NPAC SMS shall, after a roll over, skip ID value zero (0) when adding to the ID inventory for a specific persistent ID attribute (Subscription Version ID, LRN ID, NPA-NXX ID, NPA-NXX-X ID, Number Pool Block ID), based on the frequency defined in the inventory mechanism.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 4/12/02

Originator: SBC

Change Order Number: NANC 355

Description: Modification of NPA-NXX Effective Date (son of ILL 77)

Cumulative SP Priority, Average: #2, 5.27

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

When the NPAC inputs an NPA Split requested by the Service Provider and the effective date and/or time of the new NPA-NXX does not match the start of PDP, the NPAC cannot create the NPA Split in the NPAC SMS. To correct this problem the NPAC can contact the Service Provider and have them delete and re-enter the new NPA-NXX specified by the NPA Split at the correct time, or the NPAC can delete and re-enter the NPA-NXX for the Service Provider.

However, the NPA-NXX may already be associated with the NPA Split at the Local SMS, and the subsequent deletion of the NPA-NXX will cause that specific record to be old time-stamped. When the NPA-NXX is re-created, that new record will have a different time stamp, and it requires a manual task for the Service Provider to search for new NPA-NXX records which might match the NPA Split. If identified and corrected, it will be added. If not identified, it will affect call routing after PDP.

Description of Change:

This activity would only be allowed by NPAC personnel, via the GUI, to modify the NPA-NXX Effective Date.

At the time of modification request, all existing pending subscription versions must have a due date greater than the new effective date in order for the change to occur. If one or more pending subscription versions have a due date less than the new effective date, a change would not be made and an error message would be returned to the NPAC user.

It would be the responsibility of the owner of the NPA-NXX to resolve issues of pending versions with due dates prior to the new effective date before a change could be made.

For valid requests, the NPAC will notify the SOA/LSMS of a modified effective date (M-SET).

Jan '03 LNPAWG, approved, move to accepted category.

Nov '08 LNPAWG, discussion. Minor clarifications on the requirements. The IIS Flow and GDMO should be included for the next meeting:

Requirements:

Nov '08 LNPAWG, discussion. Requirements 1 through 17 are only applicable when requirement 18 (regional tunable) is set to TRUE.

Req-18 Regional NPA-NXX Modification Flag Indicator – Tunable Parameter

NPAC SMS shall provide a Regional NPA-NXX Modification Flag Indicator tunable parameter, which is defined as an indicator on whether or not NPA-NXX Modification capability will be supported by the NPAC SMS for a particular NPAC region.

Req-19 Regional NPA-NXX Modification Flag Indicator – Tunable Parameter Default

NPAC SMS shall default the NPA-NXX Modification Flag Indicator tunable parameter to TRUE.

Req-20 Regional NPA-NXX Modification Flag Indicator – Tunable Parameter Modification

NPAC SMS shall allow NPAC SMS Personnel, via the NPAC Administrative Interface, to modify the NPA-NXX Modification Flag Indicator tunable parameter.

Req-1 Modify NPA-NXX data for a Service Provider

NPAC SMS shall allow NPAC personnel to modify an existing NPA-NXX for a Service Provider via the NPAC Administrative Interface.

Req-2 NPAC SMS download of network data to the Local SMS and SOA – Modification

NPAC SMS shall be able to communicate modification of NPA-NXX data for a Service Provider to Local SMSs and SOAs.

Req-3 Service Provider NPA-NXX Data Modification

NPAC SMS shall reject a Service Provider request to modify their NPA-NXX data via the NPAC SMS to Local SMS interface, the SOA to NPAC SMS interface, or the SOA Low-tech Interface.

Req-4 Modification of NPA-NXX – Effective Date Modification from OpGUI

NPAC SMS shall allow NPAC personnel to modify the effective date for an NPA-NXX as stored in the NPAC SMS via the NPAC Administrative Interface.

Req-5 Modification of NPA-NXX – Effective Date versus Current Date

NPAC SMS shall allow the NPAC personnel to modify the effective date for an NPA-NXX if the current date is less than the existing effective date for the NPA-NXX.

Req-6 Modification of NPA-NXX – New Effective Date versus No Pending SVs

NPAC SMS shall allow the NPAC personnel to modify the effective date for an NPA-NXX if no pending-like Subscription Versions exist within the NPA-NXX [where the Subscription Version Due Date contains a value that is prior to the new effective date value.](#)

Req-7 Modification of NPA-NXX – Validation Error

NPAC SMS shall report an error to the NPAC Personnel and reject the modification of an NPA-NXX, if validation errors occur as defined in Requirements Req-5 and Req-6.

Req-8 Service Provider SOA NPA-NXX Modification Flag Indicator

NPAC SMS shall provide a Service Provider SOA NPA-NXX Modification Flag Indicator tunable parameter which defines whether a SOA supports NPA-NXX Modification.

Req-9 Service Provider SOA NPA-NXX Modification Flag Indicator Default

NPAC SMS shall default the Service Provider SOA NPA-NXX Modification Flag Indicator tunable parameter to FALSE.

Req-10 Service Provider SOA NPA-NXX Modification Flag Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider SOA NPA-NXX Modification Flag Indicator tunable parameter.

Req-11 Service Provider LSMS NPA-NXX Modification Flag Indicator

NPAC SMS shall provide a Service Provider LSMS NPA-NXX Modification Flag Indicator tunable parameter which defines whether a LSMS supports NPA-NXX Modification.

Req-12 Service Provider LSMS NPA-NXX Modification Flag Indicator Default

NPAC SMS shall default the Service Provider LSMS NPA-NXX Modification Flag Indicator tunable parameter to FALSE.

Req-13 Service Provider LSMS NPA-NXX Modification Flag Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider LSMS NPA-NXX Modification Flag Indicator tunable parameter.

Req-14 Modification of NPA-NXX – Service Provider SOA NPA-NXX Modification Flag Indicator set to FALSE

NPAC SMS shall process an NPA-NXX modification request when a Service Provider SOA NPA-NXX Modification Flag Indicator tunable parameter is set to FALSE, by sending the following:

- NPA-NXX Delete
- NPA-NXX Create (with new Effective Date)

Req-15 Modification of NPA-NXX – Service Provider SOA NPA-NXX Modification Flag Indicator set to TRUE

NPAC SMS shall process an NPA-NXX modification request when a Service Provider SOA NPA-NXX Modification Flag Indicator tunable parameter is set to TRUE, by sending the following:

- NPA-NXX Modification (with new Effective Date)

Req-16 Modification of NPA-NXX – Service Provider LSMS NPA-NXX Modification Flag Indicator set to FALSE

NPAC SMS shall process an NPA-NXX modification request when a Service Provider LSMS NPA-NXX Modification Flag Indicator tunable parameter is set to FALSE, by sending the following:

- NPA-NXX Delete
- NPA-NXX Create (with new Effective Date)

Req-17 Modification of NPA-NXX – Service Provider LSMS NPA-NXX Modification Flag Indicator set to TRUE

NPAC SMS shall process an NPA-NXX modification request when a Service Provider LSMS NPA-NXX Modification Flag Indicator tunable parameter is set to TRUE, by sending the following:

- NPA-NXX Modification (with new Effective Date)

IIS:

IIS Change: add a new flow for the Modification of NPA-NXX Effective Date.

B.x.y Modification of NPA-NXX Effective Date Using M-SET

This scenario reflects the message flow for a Modification of an NPA-NXX Effective Date.

1. M-SET Request serviceProvNPA-NXX (NPAC SMS internal)
2. M-SET Response serviceProvNPA-NXX (NPAC SMS internal)

3. M-SET Request serviceProvNPA-NXX (from NPAC SMS to SOA if SP SOA tunable TRUE) or M-DELETE and M-CREATE Request serviceProvNPA-NXX (from NPAC SMS to SOA if SP tunable FALSE)
4. M-SET Response serviceProvNPA-NXX (from SOA to NPAC SMS if SP SOA tunable TRUE) or M-DELETE and M-CREATE Response serviceProvNPA-NXX (from NPAC SMS to SOA if SP tunable FALSE)
5. M-SET Request serviceProvNPA-NXX (from NPAC SMS to LSMS if SP LSMS tunable TRUE) or M-DELETE and M-CREATE Request serviceProvNPA-NXX (from NPAC SMS to LSMS if SP LSMS tunable FALSE)
6. M-SET Response serviceProvNPA-NXX (from LSMS to NPAC SMS if SP LSMS tunable TRUE) or M-DELETE and M-CREATE Response serviceProvNPA-NXX (from NPAC SMS to LSMS if SP LSMS tunable FALSE)

GDMO:

Attribute and Behavior description for Modification of NPA-NXX Effective Date. (modified in yellow)

```
-- 18.0 LNP Service Provider NPA-NXX Managed Object Class
serviceProvNPA-NXX MANAGED OBJECT CLASS
...
serviceProvNPA-NXX-PKG PACKAGE
  ATTRIBUTES
    serviceProvNPA-NXX-EffectiveTimeStamp GET-REPLACE,
...
serviceProvNPA-NXX-Behavior BEHAVIOUR
  DEFINED AS !
  All attributes (except NPA-NXX Effective Date) are read-only.
  The serviceProv-NPA-NXX_EffectiveTimeStamp can only be modified
  if the current date is prior to the current value of the
  Effective Date, and can only be modified by NPAC Personnel.
```

ASN.1:

No change required.

Origination Date: 9/9/04

Originator: LNPAWG

Change Order Number: NANC 396

Description: NPAC Filter Management – NPA-NXX Filters

Cumulative SP Priority, Average: #16, 14.43

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Med	None	None

Business Need:

The existing NPAC Filter Management process only allows a filter to be applied for a particular NPA-NXX if that particular NPA-NXX has previously been opened within NPAC. The NPAC also supports the ability for a SOA/LSMS to manage their own filters over the CMIP interface. Using this method, however, SOA/LSMS administrators must still wait upon receipt of a new code opening from the NPAC to create a new filter for those cases where they do not want to receive any Subscription Versions for that NPA-NXX. Because of how the NPAC Filter Management process works in conjunction with the SOA/LSMS implementation options, SOA/LSMS administrators are manually unable to efficiently filter out unnecessary Subscription Versions based on NPA-NXX for the purpose of SOA/LSMS capacity management. As a result, unnecessary Subscription Versions are sent to a SOA/LSMS or an unnecessary amount of resources are spent by the end user monitoring NPA-NXX activity at the NPAC in real-time to ensure Subscription Versions that are not needed are indeed not being sent to their SOA/LSMS. An unnecessary amount of resources are also spent by the NPAC maintaining these filters for carriers.

Alternatively, a SOA/LSMS could implement an automated mechanism to manage filters over the CMIP interface, based on a local database table (or file). This table (or file) would contain codes that the SOA/LSMS wishes to filter out. So, when a new code is opened in NPAC and broadcast to the SOA/LSMS, the automated mechanism could issue a new filter request to the NPAC over the CMIP interface. The issue with this approach is that it requires every SOA/LSMS (that wishes to use this functionality) to implement this feature.

Description of Change:

This Change order proposes that filters may be implemented for an NPA-NXX before it is entered into the NPAC or a filter should be able to be implemented at the NPA level to account for any NXX in a particular NPA, even before an NXX may exist under that NPA within NPAC.

Major points/processing flow/high-level requirements:

1. The NPAC will **continue to support** filters at the NPA-NXX level.
 - a. The NPAC will keep the existing edit rule where an NPA-NXX must already exist in the NPAC in order to create a filter for that NPA-NXX.
 - b. The existing NPA-NXX filters will continue to be supported for NPAC personnel to maintain, via the NPAC GUI, for a requesting Service Provider.
 - c. The existing NPA-NXX filters will continue to be supported across the CMIP interface.
2. The NPAC will **add support** of filters at the NPA level.
 - a. The NPAC existing “*NPA-NXX must exist*” edit rule will NOT apply when creating NPA filters.
 - b. The new NPA filters will be supported for NPAC personnel to maintain, via the NPAC GUI, for a requesting Service Provider.
 - c. Once an NPA filter is added, all subordinate NPA-NXX filters will be deleted.
 - d. The new NPA filters can also be removed by NPAC Personnel via the NPAC GUI.
3. Existing filter functionality related to broadcasts will remain in the NPAC (i.e., the NPAC will NOT broadcast data to an LSMS that has a filter for a given NPA or NPA-NXX).
4. No modifications required to local systems (SOA, LSMS).
5. No tunable changes.
6. No report changes.

Jul '08 LNPAWG, discussion. Need to develop requirements for Sep '08 review. The existing Filter requirements are sufficient for existing NPA-NXX functionality, so only those below for NPA filters are needed:

Requirements:

Req 1 Create Filtered NPA for a Local SMS – Existing NPA-NXX not Required

NPAC SMS shall allow NPAC Personnel on behalf of a requesting Service Provider to create a filtered NPA for a given Local SMS, via the NPAC Administrative interface, for all NPA-NXX combinations under that NPA.

~~**Req 2 Create Filtered NPA for a Local SMS – Delete Subordinate NPA-NXXs**~~

~~NPAC SMS shall delete all subordinate NPA-NXX filters when a filtered NPA is created for a given Local SMS.~~

Req-3 Filtered NPA Behaviour for a Local SMS

NPAC SMS shall treat a filtered NPA the same as a filtered NPA-NXX for broadcasts, query results, and BDD files for a given Local SMS.

Note: A filtered NPA is equivalent to a filtered NPA-NXX for every NXX under that NPA.

Req-4 Delete Filtered NPA for a Local SMS

NPAC SMS shall allow NPAC Personnel on behalf of a requesting Service Provider to delete a filtered NPA for a given Local SMS, via the NPAC Administrative interface, for all NPA-NXX combinations under that NPA.

~~**Req-5 Create Filtered NPA for a SOA – Existing NPA-NXX not Required**~~

~~NPAC SMS shall allow NPAC Personnel on behalf of a requesting Service Provider to create a filtered NPA for a given SOA, via the NPAC Administrative interface, for all NPA-NXX combinations under that NPA.~~

~~**Req-6 Create Filtered NPA for a SOA – Delete Subordinate NPA-NXXs**~~

~~NPAC SMS shall delete all subordinate NPA-NXX filters when a filtered NPA is created for a given SOA.~~

~~**Req-7 Filtered NPA Behaviour for a SOA**~~

~~NPAC SMS shall treat a filtered NPA the same as a filtered NPA-NXX for broadcasts, query results, and BDD files for a given SOA.~~

~~Note: A filtered NPA is equivalent to a filtered NPA-NXX for every NXX under that NPA.~~

~~**Req-8 Delete Filtered NPA for a SOA**~~

~~NPAC SMS shall allow NPAC Personnel on behalf of a requesting Service Provider to delete a filtered NPA for a given SOA, via the NPAC Administrative interface, for all NPA-NXX combinations under that NPA.~~

Req-9 Filtered NPA Behaviour – Overlap Allowed

NPAC SMS shall allow the creation of an NPA-NXX Filter (6-digits) even if the corresponding NPA Filter (3-digits) already exists.

Note: Allowing overlap allows the Service Provider to maintain filtering functionality when moving from a 3-digit basis to a 6-digit basis.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 7/28/04

Originator: Verizon Wireless and SNET Diversified Group

Change Order Number: NANC 397

Description: Large Volume Port Transactions and SOA Throughput

Cumulative SP Priority, Average: Mandatory

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	High	Med-High	Med-High

Business Need:

Overview – Service Providers have voiced concerns about the volume of port transactions that the NPAC can process per second when mass changes need to be made and broadcasted to the industry. Now that wireless service providers are porting throughout the United States, the volume of port transactions has increased and will continue to increase in general, and mass changes will need to be made more frequently as well. The consolidations of Carriers and Switches will also generate an increase in the number of Mass Modifications for the update of the Network Data Tables (LIDB, CNAM, CLASS, ISVM and SMSSC).

As wireless service providers are continually managing their networks and load-balancing the traffic and subscribers on them, the need for HLR and DPC database changes may become more frequent and of larger volumes in the future. For example, the wireless carrier may need to modify LRNs for 100,000 ported in subscribers to effectively change their switch designations. Ultimately, the NPAC must be able to handle those 100,000 transactions in a short amount of time. The desired process would be to modify all the records in one evening rather than having to split up the changes over a period of days or weeks. Similarly, Service Providers who have consolidated or have changed business plans need to update the Network Tables in order to ensure proper routing to Database Storage (LIDB, CNAM, etc.).

Intense coordination is required to effect the changes necessary to properly route the queries associated with these databases, including LERG, LARG and CNARG updates, GTT changes in STPs and end office routing changes. Additionally, modifications need to be made to the Network Tables in the NPAC and the transaction limitations force such modifications to be spread over weeks and/or months straining the resources of an industry already processing changes on a 24X7 basis. The two methods available for large volume NPAC changes are 1) modifications done through the SOA and 2) modifications done using the industry Mass Modification process. Processing through the SOA, at the current rate of 4 to 6 transactions per second, it could take more than 4 hours to make LRN changes to 100,000 subscribers. If something goes wrong and the Service Provider needs to back out of the changes, then another 4

hours would be required to make the corrections. This could start to creep into regular business hours in large volume ports. There is a concern about technology migrations and the current 25K/night operational limitation (originally submitted as PIM 43, and now turned into a change order). This is not an immediate need, but something that should be planned for the three-five years out timeframe.

(May '07 LNPAWG mtg – the following paragraph is retained for historical purposes, even though the quantity limitation on the industry Mass Modification notification process has been updated. The current value as of Mar '07 is set to 10,000 changes per hour, per region, seven days a week). The industry Mass Modification process is limited to 25,000 changes per region per day Monday through Friday and 50,000 changes per region per day Saturday and Sunday. This limitation applies to all service providers requesting a change, so if more than one service provider wishes to make changes on a particular day, the limitation encompasses all service providers wishing to modify records. A wireless subscriber migration involves more than just that service provider; it also involves each of that service provider's roaming partners updating their networks on the same night, resulting in a very large coordinated effort among many parties.

There are also concerns about multiple wireless service providers doing these same types of migrations on the same nights and what coordination needs to take place to ensure that all service providers are able to manage their networks as needed and when needed. Using the Mass Modification method for large volume projects requires a high level of coordination and scheduling especially if other service providers in the region also need to do large modifications at the same time.

Additional updates between the NPAC and the SOA may be needed using the Mass Modification process. This adds additional time and coordination to fully complete a large volume project.

Description of Change:

The performance impacts to the SOAs, NPAC, and LSMSs need to be determined for large volume ports.

As porting volumes increase, it will be very important for all systems to be capable of reliably receiving downloads while retaining their association under heavier loads.

All systems should be able to maintain their current required availability level under heavy loads. Large volume porting should not require scheduled downtime.

The current plan is for service providers to start compiling technology migration forecast estimates and provide this information to Steve Addicks by March '05. At that time, the Architecture Team will begin a review of the data (without service provider names) and begin some analysis on next steps.

Jan '06 LNPAWG – moved to Accepted per LNPAWG discussion.

Jan, Mar '07 LNPAWG – continued discussion in Architecture Planning Team's meeting.

For the May meeting, the requirements will be included to reflect current values and new values that would be necessary for 25K/hr.

The current (Mar '07) industry Mass Modification notification process is set to 10,000 changes per hour, per region, seven days a week.

May '07 LNPAWG – continued discussion in Architecture Planning Team's meeting.

The updated requirements were reviewed. The performance increase would likely affect more than just software changes (i.e., hardware, network). When questioned again on the need to allow half the time for the backout, Verizon Wireless responded that a problem may not be known until the entire migration was completed, and therefore the back-out requirement would need a comparable time interval to perform the backout.

NeuStar suggested an option that would use a new message to indicate "starting migration now", and a subsequent message to indicate "migration complete" or "migration should be backed out". This approach allows a potential to use much more of the maintenance window for the initial broadcast, since database backout or commits will be much faster than additional SV modification broadcasts. Discussion will continue during the Jul '07 APT mtg.

Jul '07 LNPAWG – continued discussion in Architecture Planning Team's meeting.

The discussion was centered on the volume number and the various options on the approach to accomplishing the 100K updates overnight. Pros and cons for each of these were discussed.

- 1.) is it 100K in eight hours with a single message to indicate begin and another single message to indicate end? (effectively up to 100,002 messages, assuming no ranges),
- 2.) is it 100K in four hours to allow a full backout by sending 100K backout messages? (effectively up to 200,000 messages, assuming no ranges),
- 3.) is it 100K in eight hours utilizing TN lists where there is enough time to perform both the updates as well as a potential back-out? (potentially as few as two messages, assuming one message with a list of 100K TNs, and another single message with a list of 100K TNs to back-out)
- 4.) is it a case where 100K+ could be accomplished using a selection criteria rather than TNs or TN-Ranges? (a single message that says "update where LRN =xyz")
- 5.) is it a case where associating DPC data with an LRN and broadcasting as network data rather than SV data would help? (much fewer messages, but quantity unknown at this time) or
- 6.) is it a higher number than 100K to accommodate a large company merger where millions of numbers may be involved? This item reflects the discussion on NANC 349 and the batch offline mode, since the group agreed to stop working on 349 and just work the volume issues here in 397. (could possible use any method)

1. The single message approach. This method clearly cuts down on the number of messages sent across the CMIP interface. However, the updates to the SCP have been identified as the bottleneck, so this method might not be that effective. Additionally, this method is only effective if vendors and Service Providers implement the functionality to process this new message. This would require development on the NPAC side as well.

2. The full-backout approach. This method requires 50% of the time to be allocated for updates to be sent out, and the other 50% for revert-back messages to be sent out. It is expected that the quantity of messages would be the same for both the initial updates and the back-outs. The benefit of this method is that existing messages could be used, so no new development is required.

3. The TN range approach. This method reduces the number of messages sent across the CMIP interface. The current ASN.1 definition does not support a TN/TN-range list for modify requests, so there would be development required (GDMO/ASN.1 changes and NPAC code changes). The max size of the message would have to be discussed.
4. The selection criteria approach. This method reduces the number of messages sent across the CMIP interface AND minimize the size of those messages. The selection criteria may be subdivided to better manage the groups of updates.
5. The single DPC associated to an LRN approach. This method could potentially cut down many messages. However, it loses the flexibility to associate more than one pair of DPC/SSN values to a single LRN, which several Service Providers indicated they use in production today. With this approach, the NPAC network data would be expanded to include associated DPC/SSN with each LRN. Other desired DPC values will continue to be populated at the SV level on an exception basis.
6. The larger volume question. This question is currently under discussion at the LNPAWG.

Sep '07 LNPAWG – continued discussion in both the LNPAWG meeting (Change Management agenda item) and the Architecture Planning Team's meeting.

The discussion during the LNPAWG meeting centered on the selection criteria. VZW, as originator of this change order, indicated that the LRN selection (change from value A to value B) is one way that changes are made. Would also want capability to perform a subset of the LRN. Very unlikely to use NPA as a criteria. The selection criteria could include any/all of the following: SPID, LRN, NPA or NPA ranges or lists, NPA-NXX or NPA-NXX ranges or lists, LNP Type. One problem that has not been discussed is "how best to handle failed lists?", since it's criteria based, and not TN based like production today.

Another option to include in this list is to add capacity. After some discussion, the group agreed to use 397 as the increase in performance numbers, and move all of the alternative options into a new change order. That new change order will be discussed during the APT meeting.

The discussion during the APT meeting provided a re-cap of the LNPAWG discussion, and walked through each of the six points from the Jul '07 meeting notes (above).

- 1.) not needed for new change order,
- 2.) not needed for new change order,
- 3.) look at message efficiency and incorporate both TN lists and TN-range lists,
- 4.) the issue is determining the failed list. This assumes that the DBs are in sync. There are complex queries in both places. May need to break out these issues and talk through them to get agreement that we won't pursue these at this time.
- 5.) today there are SPs that use more than one DPC for a single LRN code. Continue discussion on having the DPC at the LRN level and DPC at the SV level for exception basis (what are the pros/cons). Would want to explicitly broadcast at the LRN level, so that we know they have this data. Also a conversion effort to clean up or sync up the SVs to use this new approach,
- 6.) continue to discuss large volume as necessary.

For NANC 397, the group agreed to document that this 25K/hr would occur in no more than four regions at a time.

Nov '07 LNPAWG– continued discussion in the LNPAWG meeting (Change Management agenda item). The group accepted 397 as the change order that updates the transaction rate from 4.0/sec up to 7.0/sec. All other options have been moved into NANC 425, and will be discussed as necessary under that change order.

No additional requirements work is anticipated for NANC 397 now that the numbers have been updated. This change order is now awaiting prioritization and implementation.

Requirements:

Current requirements, NANC 393, FRS 3.3, downloads to the LSMS are 14,760/hr. Change bars indicate new numbers to support 25K/hr.

R6-28.1 SOA to NPAC SMS interface transaction rates - sustained

A transaction rate of ~~4.0~~ 7.0 CMIP transactions (sustained) per second shall be supported by each SOA to NPAC SMS interface association.

R6-28.2 SOA to NPAC SMS interface transaction rates - peak

NPAC SMS shall support a rate of 10.0 CMIP operations per second (peak for a five minute period, within any 60 minute window) over a single SOA to NPAC SMS interface association.

R6-29.2 NPAC SMS to Local SMS interface transaction rates - peak

~~NPAC SMS shall support a rate of 5.2 CMIP operations per second (peak for a five minute period, within any 60 minute window) over each NPAC SMS to Local SMS interface association.~~

This requirement will be deleted. Therefore, the LSMS performance rate will be strictly a sustained rate.

RR6-107 SOA to NPAC SMS interface transaction rates – total bandwidth

NPAC SMS shall support a total bandwidth of ~~40.0~~ 70.0 SOA CMIP transactions per second (sustained) for a single NPAC SMS region. (previously NANC 393, NewReq 1)

RR6-108 NPAC SMS to Local SMS interface transaction rates – sustained

NPAC SMS shall support a rate of ~~4.0~~ 7.0 CMIP transactions per second (sustained) over each NPAC SMS to Local SMS interface association. (previously NANC 393, NewReq 2)

RR6-109 NPAC SMS to Local SMS interface transaction rates – total bandwidth

NPAC SMS shall support a total bandwidth of ~~156~~ 210 Local SMS CMIP transactions per second (sustained) for a single NPAC SMS region. (previously NANC 393, NewReq 3)

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 10/20/05

Originator: T-Mobile

Change Order Number: NANC 408

Description: SPID Migration Automation Change

Cumulative SP Priority, Average: #1, 4.00

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

NANC 323 SPID Migration – Currently Service Providers and the NPAC require a fair amount of manual processing, beginning with the initial SPID migration request form, through performing the actual SPID migration during the maintenance window. With the frequency of SPID Migrations (several times every month), this creates a personnel resource situation that could be helped through software automation.

As discussed during the Oct '05 LNPAWG meeting, an effort will be started to identify areas of most concern and/or areas for improvement. Possible discussion areas include:

- Automating the request form process (online web GUI). Incorporate edits to ensure valid data is entered and submitted.
- Incorporating an online scheduling function (i.e., if it's available, you can reserve/book it).
- Self-maintenance of scheduled migrations (modify or delete).
- Automated checking/warning/cancelling/reporting of pending-like SVs that need to be handled prior to the migration.
- Enhancing the interface to pass SMURF (SPID Migration Update Request Files) data across the interface (new messages).
- Automatic generation of both preliminary and final SMURF data.
- Changes to data definitions, such that the SPID attribute can be updated automatically via messages.
- Other reporting functions that are automatically generated after a SPID migration (e.g., SV counts).
- E-mail notifications to the SPID Migration distro.

Nov '05 LNPAWG mtg comments:

Discussion on Issues:

1. Manual handling of SMURF files. Can we have some type of automation?
2. Number of migrations. Since have to process serially, can we limit the number of migrations?
3. SP1, changes with Linux with secure FTP, since we had previously done automated downloads.
4. SP2, auto push down instead of having to go pick them up. However, SP3, concern about auto push, rather than allowing us to decide when to go get them. Right now not real excited about automation. Have some security issues, and cost-benefit issues. Major concern is how can this reduce our costs.
5. SP4, our pull down is automated, but would want the SMURF files earlier. SP3, yes need to get the SMURF files earlier. NeuStar comment – main issue is that things could change as long as the NPAC is up and available. NeuStar to look at what can be done to make it earlier in the maint window.
6. SP6, feedback from his IT folks. What automation that can save me time and labor costs on the weekends. Really need something that is cost justifiable. Never heard about the forms internally.
7. SP7, not a whole lot of interest. Area of automation, with getting SMURF file sooner, and getting some type of notification when they're ready on the FTP site. E-mail notif (this is what several people want). Never heard about the online forms internally.

Discussion on Potential New Features:

1. SP5, we have received positive internal feedback on online GUI access. Also ability to adjust the schedule online (trade online, swap with other migrations that we already have sched).
2. Online scheduling was positive feedback. Want the real-time feedback, rather than waiting for a day or more to get feedback.
3. Where should the online sched be located? On public web, secure web, or require an LTI user account? Answer, secure website. Prob, is that won't have immediate access to NPAC data.
4. Also some back office validation. Need to get more info on this from SPs. This will be provided at a later date from the SPs.
5. Clean up of Pending-likes. Right now get e-mail from NeuStar. SP tries to get them activated, or will get them cancelled. Helpful feature would be a Web site that shows the pending-likes, rather than the e-mail that goes through multiple groups before getting to the right person. When automated, provide the list of what was auto cancelled (not sure if from e-mail or on the web).
6. SP3, method or rpt that shows the actual count of what was modified. This would help with verifying or reconcile against our numbers. NeuStar comment – we currently

provides an estimate ahead of time, but no count of actuals. SP3 wants something post migration on number of SVs that were migrated with current SP value. In some cases would want the details as well.

7. SP8, questions internally about the count. Does this include EDR or non-EDR? NeuStar comment – we have recently changed the method.
8. Interface changes. First thing would be to be able to modify the SPID over the interface. Some vendors have pure CMIP implementation that would prohibit this over the interface, since SPID is part of distinguished name. No problem on NPAC side. Vendor1, indicated not a problem with the SMURF files, but would have problem with modifying the SPID. Vendor2, we've talked more about modifying the whole thing. We could handle SPID modify.

Nov '05 Summary, SPs want SMURF files sooner, notif on when it's available, post migration SV counts and reporting, and automating pieces of current process, rather than enhancing the interface.

Mar '06 LNPAWG mtg comments: (discussed three areas, prior to migration, during migration, after migration)

Discussion on Potential New Features:

1. SPID Migration Form. Available online, available to enter on web site. Have Drop-Down list of SP contacts (for us to contact them for Q&A, agreement, etc.). Also incorporate edits such as LRN.
2. SPID Migration Calendar. Available online, and able to “pick” our own timeslot.
3. Automated Distribution. We have scripts to automatically grab the SMURF files already, so no need for automated distro. FTP works today.
4. Clean up of Pending-Like process. SP1 explained the process. Question to every else, “*are you comfortable with this process?*” What about if we just default to having NPAC do this for us? NeuStar comment – not part of the documented process. Also, manual effort on NPAC side. Not the best idea to move from one manual process to another. SP2, what about automating the clean up process? NeuStar comment – yes it could be done. SP2, we don't see a problem if there is a charge for those that use this feature. NeuStar to discuss with NAPM.

Discussion on Current Process:

1. Preliminary SMURF files. NeuStar, “*does anyone still need or use them?*” SP3, yes we continue to use them for sizing and estimating purposes.
2. No comments or concerns about activities during the migration window (maintenance).
3. After the migration, SP3, looking for actual counts.

Jul '06 LNPAWG mtg comments: (discussed three areas, prior to migration, during migration, after migration)

NeuStar discussed some of the New Features coming up in R3.3.1:

1. SPID Migration SMURF Files. An enhancement is being made that allows SMURF files to be saved after initial distribution. Currently NPAC Personnel must manually create SMURF files for each distribution. With this enhancement subsequent distribution will use the saved files, allow necessary updates to occur, then re-generate the SMURF files for additional distributions.
2. Clean up of Pending-Like SVs. An enhancement is being made that allows NPAC Personnel to initiate the clean-up of Pending-Like SVs in an automated fashion. Currently, the process requires manual handling of all Pending-Like SVs.

Discussion on Potential New Features:

1. SPID Migration Form. Available online, available to enter on web site.
2. SPID Migration Calendar. Available online, and able to “pick” our own timeslot. For both the Form and the Calendar, self service is desired by multiple SPs. The analogy was used to equate the new process to being able to perform online airline reservations and bookings (obtain list of flights, check availability and times, make a reservation, obtain a confirmation number).
3. Post Migration Counts. SP1 indicated again, a desire to obtain post migration counts (similar to the pre migration estimated counts that are currently provided).
Dec '06, new change order NANC 418 (Post-SPID Migration SV Counts) has been opened in the change management list.

Jul '07 LNPAWG mtg comments:

Discussion on Potential New Features:

1. The “self-service” function has been raised again. Several SPs see the value in scheduling SPID Migrations themselves (similar to web-based airline reservation bookings that are available for consumers today).
2. SMURF File Automation. Some SPs want to investigate the possibility of sending SMURF or SMURF equivalent information over the interface rather than continue to use the FTP manual batch process. The group was reminded on the initial concerns and why the implementation included SMURF files to begin with:
 - a. A concern about the volume of transactions over the CMIP interface.
 - b. Modifying the SPID value over the interface violates the CMIP standard, since it's a naming attribute in the managed object class hierarchy.

NeuStar will investigate both of these items and provide more information to be discussed during the Sep '07 meeting.

Sep '07 LNPAWG mtg comments:

Discussion on Potential New Features:

1. As a follow-up to the July discussion on SMURF File Automation, the group discussed and agreed that not only for migrations that involved no SVs (i.e., just NPA-NXXs), but also for migrations that involved a small volume of SVs (e.g., less than 25K), it would be appropriate to allow those to be automated as well. Based on YTD figures, this would encompass 95% of SPID Migrations (332 of 353). Using a cap would help to ensure that the load over the interface was manageable.
2. Using the new “self-service” function, need to figure out a way to get the proper authorization by SPID B when requesting a migration. Group recommendation was to use the company PIN. Also need to figure out how best to get concurrence from SPID A, and also what to do if the contact for SPID A is no good. What are the options to do the validation that SPID A is OK with SPID B doing the migration?
3. During the development of NANC 323, the industry agreement was that the SPID Migration date should be as close to, but not before the LERG Effective Date. To accommodate timely migrations a “process it now” feature should be incorporated. May want to consider only allowing this for LERG ED in the past, and not in the future. Are there any negative impacts on not enforcing any synchronization between the migration date and the LERG ED?
4. The issue of modifying the SPID value over the interface was discussed. This is not an issue for the NPAC, and for some vendors. It is unclear whether or not other vendors (not present during the discussion) have issues.

Nov '07 LNPAWG mtg comments:

No issues were identified with the Sep '07 notes, however two items were requested for the next meeting, 1.) detail on the SV counts (of the 353 identified in #1 above), and 2.) a sample ACTION message for the modify (#4 above).

Description of Change:

This change order recommends that SPID Migration Automation Changes be added to the NPAC. From the Jul '07 meeting, there are two changes being discussed.

1. Self-service feature for requesting SPID Migrations. This change adds a web-based solution that allows a Service Provider to input their SPID migration data, then check for and reserve available slots based on their input data. The following items would apply:
 - A Service Provider may only schedule migrations for its own data.
 - Each migration request must be designated for a single migration window (i.e., weekend). If multiple weekends are desired, they must be broken down into multiple migration requests.

- Once a reserved slot has been allocated for a SPID migration, the Service Provider may change the migration to a different slot based on availability. If changed, the original (previous) slot is released, and becomes available to other Service Providers.
- A Service Provider may cancel a reserved SPID migration up to *tunable* number of days/hours before the actual migration.
- Once a SPID Migration is scheduled for a specific data item, that same data item cannot be scheduled for another SPID Migration. This prevents a Service Provider from “double booking” different weekends.

2. Sending NPA-NXX ownership change information to Service Providers. This change allows the NPAC to send NPA-NXX ownership changes via CMIP messages over the interface. The following items would apply:

- A new set of CMIP messages (M-ACTIONS) would be incorporated to indicate the ownership change.
- The messages will be sent in a real-time fashion, and are not dependent on a SPID migration window.
- These messages would apply for SPID Migrations where no (zero) SVs were involved. If SVs were involved, that SPID Migration would use the current SMURF file approach. **Sep '07 update**, the group agreed that a manageable number of SVs should be considered for online updates (rather than the SMURF file approach). This is captured in the Sep '07 discussion above.

Jul '08 LNPAWG, discussion. Need to develop requirements for Sep '08 review. See below requirements.

Nov '08 LNPAWG, discussion. Minor clarifications on the requirements. Requirements 1 through 11 are only applicable when requirement 12 (regional tunable) is set to TRUE. The IIS Flow and new message should be included for the next meeting:

Requirements:

Req 1 SPID Migration Update – GUI Availability/Selection function for Service Provider

NPAC SMS shall allow Service Provider Personnel, via ~~an online mechanism~~ [the NPAC Low-Tech Interface](#), to query for available SPID Migration timeslots.

Req 2 SPID Migration Update – GUI Entry by Service Provider

NPAC SMS shall allow Service Provider Personnel, via ~~an online mechanism~~ [the NPAC Low-Tech Interface](#), to “select and request” a SPID Migration, by entering selection input criteria (mandatory: migrating away from SPID, migrating to SPID; at least one of the following three: NPA-NXX, LRN, and/or NPA-NXX-X) for a partial SPID Migration Update Request Process.

Req-2.1 SPID Migration Update – GUI Cancellation by Service Provider Prior to NPAC Personnel Confirmation

[NPAC SMS shall allow Service Provider Personnel, via the NPAC Low-Tech Interface, to cancel a currently scheduled SPID Migration where they are the migrating-to SPID, if NPAC Personnel have not confirmed the SPID Migration.](#)

Req-2.2 SPID Migration Update – GUI Error for Double Booking

[NPAC SMS shall reject a request from Service Provider Personnel, via the NPAC Low-Tech Interface, for a SPID Migration when the requested data is already part of a pending SPID Migration request.](#)

Req-3 SPID Migration Update – GUI Entry Service Provider – Confirmation by NPAC Personnel

NPAC SMS shall, via ~~an online mechanism~~ [the NPAC Administrative Interface](#), require NPAC Personnel to “confirm” a SPID Migration as defined in Req-2.

Note: In an A-to-B migration, “confirmation” will involve validation by SPID A. M&Ps will be defined for this function.

Req-4 SPID Migration Update – Cancellation Window – Tunable Parameter

NPAC SMS shall provide a SPID Migration Cancellation Window tunable parameter, which is defined as the minimum length of time between the current date (exclusive) and the SPID Migration date (inclusive), when a Service Provider is cancelling a currently scheduled [confirmed](#) SPID Migration.

Req-5 SPID Migration Update – Cancellation Window – Tunable Parameter Default

NPAC SMS shall default the SPID Migration Cancellation Window tunable parameter to two (2) business days.

Req-6 SPID Migration Update – Cancellation Window – Tunable Parameter Modification

NPAC SMS shall allow NPAC SMS Personnel, via the NPAC Administrative Interface, to modify the SPID Migration Cancellation Window tunable parameter.

Req-7 SPID Migration Update – GUI Cancellation by Service Provider

NPAC SMS shall allow Service Provider Personnel, via ~~an online mechanism~~ [the NPAC Low-Tech Interface](#), to cancel a currently scheduled [confirmed](#) SPID Migration where they are the migrating-to SPID, if the SPID Migration date is at least SPID Migration Cancellation Window tunable parameter number of days into the future.

Req-8 SPID Migration Update – GUI Cancellation by Service Provider – Notification to NPAC Personnel

NPAC SMS shall, via ~~an online mechanism~~ [the NPAC Administrative Interface](#), require NPAC Personnel to “confirm” a SPID Migration Cancellation as defined in Req-7.

[Note: NPAC Personnel are not required to “confirm” a SPID Migration Cancellation as defined in Req-2.1.](#)

Req-9 SPID Migration Update – GUI Modification of NPA-NXX Owner by NPAC Personnel

NPAC SMS shall, via ~~an online mechanism~~ [the NPAC Administrative Interface](#), allow NPAC Personnel to ~~perform an online SPID Migration~~ [modify the NPA-NXX Service Provider ID \(code owner\)](#), in cases when there are no (zero) active-like subscription versions [that would have the New SPID value changed](#) in that NPA-NXX that is being migrated.

Note: [This online activity allows a SPID Migration that will modify the NPA-NXX Service Provider ID \(code owner\).](#) Unlike other SPID Migration activity (i.e., SMURF file generation), this function is allowed during any NPAC uptime. ‘Active-like’ Subscription Versions are defined as Subscription Versions that contain a status of active, sending, partial failure, old with a Failed SP List, or disconnect pending. M&Ps will indicate that this online activity [\(the actual update\)](#) will be performed as close to the Maintenance window as practical. [Online GUI modification works on an all-or-nothing basis \(e.g., if attempting to modify five NPA-NXXs, and three of the five have zero SVs, but two of the five have some SVs, then the entire request of five will fail\).](#)

Req-10 SPID Migration Update – GUI Modification of NPA-NXX Owner by NPAC Personnel – Notification to Local SMS and SOA

NPAC SMS shall notify all accepting Local SMSs and SOAs of the modification of the NPA-NXX owning Service Provider, immediately after validation of a modification as defined in Req-9.

[Note: In conjunction with the online GUI activity defined in Req-9, the message will be sent out prior to the beginning of the maintenance window.](#)

Req-11 SPID Migration Update – Pending-Like SVs Cleaned Up

NPAC SMS shall clean up pending-like Subscription Versions at the time of SPID Migration where the migrating-from Service Provider in the NPA-NXX that is being migrated is the Old Service Provider SPID in those Subscription Versions, by setting the status to Cancelled.

Req-12 Regional SPID Migration Online Functionality Indicator – Tunable Parameter

NPAC SMS shall provide a Regional SPID Migration Online Functionality Indicator tunable parameter, which is defined as an indicator on whether or not SPID Migration Online Functionality capability will be supported by the NPAC SMS for a particular NPAC region.

Req-13 Regional SPID Migration Online Functionality Indicator – Tunable Parameter Default

NPAC SMS shall default the SPID Migration Online Functionality Indicator tunable parameter to TRUE.

Req-14 Regional SPID Migration Online Functionality Indicator – Tunable Parameter Modification

NPAC SMS shall allow NPAC SMS Personnel, via the NPAC Administrative Interface, to modify the SPID Migration Online Functionality Indicator tunable parameter.

Req-15 Service Provider SOA Automated SPID Migration Indicator

NPAC SMS shall provide a Service Provider SOA Automated SPID Migration Indicator tunable parameter which defines whether a SOA will receive/not-receive automated SPID Migration transactions over their SOA connection.

Req 16 Service Provider SOA Automated SPID Migration Indicator Modification

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

Req 17 Service Provider SOA Automated SPID Migration Indicator Usage

NPAC SMS shall send automated SPID Migration transactions over the SOA connection only when the Service Provider SOA Automated SPID Migration Indicator tunable parameter is set to TRUE.

Req-18 Service Provider LSMS Automated SPID Migration Indicator

NPAC SMS shall provide a Service Provider LSMS Automated SPID Migration Indicator tunable parameter which defines whether an LSMS will receive/not-receive automated SPID Migration transactions over their LSMS connection.

Req 19 Service Provider LSMS Automated SPID Migration Indicator Modification

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

Req 20 Service Provider LSMS Automated SPID Migration Indicator Usage

NPAC SMS shall send automated SPID Migration transactions over the LSMS connection only when the Service Provider LSMS Automated SPID Migration Indicator tunable parameter is set to TRUE.

Req-21 Service Provider SOA FTP SMURF File and Automated SPID Migration Indicator

NPAC SMS shall provide a Service Provider SOA FTP SMURF File and Automated SPID Migration Indicator tunable parameter which defines whether a SOA will receive/not-receive SMURF Files in their FTP directory in cases where they received automated SPID Migration transactions over their SOA connection.

Req 22 Service Provider SOA FTP SMURF File and Automated SPID Migration Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider SOA FTP SMURF File and Automated SPID Migration Indicator tunable parameter.

Req 23 Service Provider SOA FTP SMURF File and Automated SPID Migration Indicator Usage

NPAC SMS shall place SMURF Files in a Service Provider's FTP directory in cases where they received automated SPID Migration transactions over their SOA connection only when the Service Provider SOA FTP SMURF File and Automated SPID Migration Indicator tunable parameter is set to TRUE.

Req-24 Service Provider LSMS FTP SMURF File and Automated SPID Migration Indicator

NPAC SMS shall provide a Service Provider LSMS FTP SMURF File and Automated SPID Migration Indicator tunable parameter which defines whether an LSMS will receive/not-receive SMURF Files in their FTP directory in cases where they received automated SPID Migration transactions over their LSMS connection.

Req 25 Service Provider LSMS FTP SMURF File and Automated SPID Migration Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider LSMS FTP SMURF File and Automated SPID Migration Indicator tunable parameter.

Req 26 Service Provider LSMS FTP SMURF File and Automated SPID Migration Indicator Usage

NPAC SMS shall place SMURF Files in a Service Provider’s FTP directory in cases where they received automated SPID Migration transactions over the LSMS connection only when the Service Provider LSMS FTP SMURF File and Automated SPID Migration Indicator tunable parameter is set to TRUE.

Req-27 SPID Migration Update – Migration Quota Tunable Parameter

NPAC SMS shall provide a SPID Migration Quota tunable parameter, which is defined as the maximum number of SPID Migrations timeslots within a region for a given SPID Migration maintenance window.

Req-28 SPID Migration Update – Migration Quota Tunable Parameter Default

NPAC SMS shall default the SPID Migration Quota tunable parameter to seven (7) migrations.

Req-29 SPID Migration Update – Migration Quota Tunable Parameter Modification

NPAC SMS shall allow NPAC SMS Personnel, via the NPAC Administrative Interface, to modify the SPID Migration Quota tunable parameter.

IIS:

IIS Change: add a new flow for the SPID Migration Action.

B.x.y Online SPID Migration Using SPID Migration Action

This scenario reflects the message flow for a SPID Migration from the NPAC SMS to the SOA and the NPAC SMS to the Local SMS. This action is used to change SPID ownership of NPA-NXX, NPA-NXX-X, and LRN during a SPID Migration.

1. M-ACTION Request InpSpidMigration (from NPAC SMS to SOA if SP SOA tunable TRUE) or SMURF file processing (from NPAC SMS to SOA FTP site if SP tunable FALSE)
2. M-ACTION Response InpSpidMigration (from SOA to NPAC SMS if SP SOA tunable TRUE) or SMURF file processing (from NPAC SMS to SOA FTP site if SP tunable FALSE)
3. M-ACTION Request InpSpidMigration (from NPAC SMS to LSMS if SP LSMS tunable TRUE) or SMURF file processing (from NPAC SMS to SOA FTP site if SP tunable FALSE)
4. M-ACTION Response InpSpidMigration (from LSMS to NPAC SMS if SP LSMS tunable TRUE) or SMURF file processing (from NPAC SMS to SOA FTP site if SP tunable FALSE)

GDMO:

GDMO: (new)

-- x.0 LNP SPID Migration Action

```
lnpSpidMigration ACTION
  BEHAVIOUR
    lnpSpidMigrationDefinition,
    lnpSpidMigrationBehavior;
  MODE CONFIRMED;
  WITH INFORMATION SYNTAX LNP-ASN1. +lnpSpidMigrationAction;
  WITH REPLY SYNTAX LNP-ASN1. +lnpSpidMigrationReply;
  REGISTERED AS {LNP-OIDS.lnp-action x};
```

```
lnpSpidMigrationDefinition BEHAVIOUR
  DEFINED AS !
    The lnpSpidMigration is the action that is
    used on the NPAC SMS via the SOA to NPAC SMS interface and the
    NPAC SMS to Local SMS interface to initiate SPID ownership
    changes related to a SPID Migration.
  !;
```

```
lnpSpidMigrationBehavior BEHAVIOUR
  DEFINED AS !
    Preconditions: This action is issued from an lnpNetwork object.

    Postconditions: After this action has been executed by the NPAC, the
    SOA or LSMS receiving this message will update all applicable local
    records for NPA-NXX, NPA-NXX-X, and LRN.
    The SOA or LSMS must change the SPID attribute on the applicable
    records to the migrating-to-sp value.

    The action success or failure and reasons for failure will be
    returned in the Action Reply.
```

```
lnpSpidMigrationPkg PACKAGE
  BEHAVIOUR lnpSpidMigrationPkgBehavior;
  ACTIONS
    lnpSpidMigration;
  REGISTERED AS {LNP-OIDS.lnp-package xx};
```

```
lnpSpidMigrationPkgBehavior BEHAVIOUR
  DEFINED AS !
    This package provides for conditionally including the
    lnpSpidMigration action.
  !;
```

GDMO: (modified)

```
lnpNetwork MANAGED OBJECT CLASS
  DERIVED FROM "CCITT Rec. X.721 (1992) | ISO/IEC 10165-2 : 1992":top;
  CHARACTERIZED BY
    lnpNetworkPkg;
  CONDITIONAL PACKAGES
    lnpDownloadPkg PRESENT IF
      !the object is instantiated on the NPAC SMS!,
    lnpSpidMigrationPkg PRESENT IF
      !the object is instantiated on the NPAC SMS!;
```

```
REGISTERED AS {LNP-OIDS.lnp-objectClass 11};
```

ASN.1:

```
lnpSpidMigrationReply ::= ResultsStatus
```

Overview:

=====

This new migration ACTION would fall under the LNPNetwork MO.

ASN.1 definitions:

=====

```
LocalSMSSpidMigrationAction ::= SEQUENCE {  
  actionId [1] INTEGER,  
  migration-from-sp [2] ServiceProvId,  
  migration-to-sp [3] ServiceProvId,  
  migration-creation-timestamp [4] GeneralizedTime OPTIONAL,  
  migration-due-date [5] GeneralizedTime OPTIONAL,  
  migration-activation-timestamp [6] GeneralizedTime OPTIONAL,  
  spidMigrationObjects [7] SET OF SpidMigrationObject,  
}
```

```
SpidMigrationObject ::= CHOICE {  
  npa-nxx-data [0] MigrationNPANXX-Data,  
  lrn-data [1] MigrationLRN-Data,  
  npa-nxx-x-data [2] MigrationNPA-NXX-X-Data  
}
```

```
MigrationNPANXX-Data ::= SEQUENCE {  
  npa-nxx-id NPA-NXX-ID,  
  npa-nxx-value NPA-NXX,  
}
```

```
MigrationLRN-Data ::= SEQUENCE {  
  lrn-id LRN-ID,  
  lrn-value LRN,  
}
```

```
MigrationNPA-NXX-X-Data ::= SEQUENCE {  
  npa-nxx-x-id NPA-NXX-X-ID,  
  npa-nxx-x-value NPA-NXX-X,  
}
```

Sample ACTION:

=====

```
LocalSMS-SpidMigrationAction ::= {  
  actionId 999  
  migration-from-sp "XXXX"  
  migration-to-sp "YYYY"  
  migration-creation-timestamp "20070101000000Z"  
  migration-due-date "20071211000000Z"  
  migration-activation-timestamp "20071212000000Z"  
  more-data True  
}
```

```
spidMigrationObjects ::= {  
  npa-nxx-data ::= {  
    npa-nxx-id 6001  
    npa-nxx-value "500100"  
  }  
  npa-nxx-data ::= {  
    npa-nxx-id 6002  
    npa-nxx-value "500101"  
  }  
  lrn-data ::= {  
    lnr-id 7000  
    lrn-value "2221111000"  
  }  
  lrn-data ::= {  
    lnr-id 7001  
    lrn-value "2221111001"  
  }  
  npa-nxx-x-data ::= {  
    npa-nxx-x-id 8001  
    npa-nxx-x-value "4001001"  
  }  
  npa-nxx-x-data ::= {  
    npa-nxx-x-id 8002  
    npa-nxx-x-value "4001002"  
  }  
}
```

Origination Date: 5/31/06

Originator: NeuStar

Change Order Number: NANC 413

Description: Doc Only Change Order: GDMO

Cumulative SP Priority, Average: not rated, included

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
N	N	Y	N	Low	None	None

Business Need:

The current documentation needs to be updated.

Description of Change:

Correct the current documentation.

Requirements:

No change required.

IIS:

No change required.

GDMO:

added in Aug '06

1. subscriptionVersionNewSP-Create ACTION. Behavior clarification (new text in **bold**).

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

subscriptionPortingToOriginal-SPSwitch is FALSE (ignored if value set to TRUE) :

subscriptionSvType

When the subscriptionPortingToOriginal-SPSwitch is FALSE (ignored if value set to TRUE) the new service provider may specify valid values for the following attributes:

subscriptionEndUserLocationValue
subscriptionEndUserLocationType
subscriptionBillingId

added in Aug '06

2. subscriptionVersionModify ACTION. Behavior clarification (new text in **bold**).

New service providers can only modify the following attributes for pending or conflict subscription versions, **and when the subscriptionPortingToOriginal-SPSwitch is FALSE (ignored if value set to TRUE) :**

added in Apr '07

3. Behavior clarification (new text in **bold**) for the following attributes:
auditDiscrepancyVersionId, serviceProvLRN-ID, serviceProvNPA-NXX-ID,
subscriptionAuditId, subscriptionVersionId, lsmsFilterNPA-NXX-ID, numberPoolBlockId,
serviceProvNPA-NXX-X-ID.

For the attribute actionId, this entire paragraph will be added.

The NPAC SMS currently uses a 32-bit signed integer for the Naming ID Value. The maximum value is $([2^{31}] - 1)$ or ~~2.14B~~ **2147483647** and the minimum value is $-(2^{31})$ or **-2147483648**. Rollover will take place when an ID of maximum value is incremented. The next ID value after the maximum of 2147483647 will be **-2147483648**. It is anticipated that all Service Providers will be able to successfully handle Naming ID Values ~~up to this maximum~~ **within this range as well as rollover after the maximum value is reached.**

added in Jun '07

4. Behavior clarification (new text in **blue**) for the incorrect usage of >:

--

-- 21.0 LNP NPAC Subscription Version Managed Object Class

--

subscriptionVersionNPAC-Behavior-2 BEHAVIOUR
DEFINED AS !

been returned. The subscription version linked replies will be sorted by TN and then by subscription version ID so a filter can be treated to return the next set of data where the TN value is greater than **or equal to** the last TN returned **plus one**, OR the TN is equal to the last TN returned AND the subscription version id is greater than **or equal to** the last subscription version id returned **plus one**. (e.g., (TN >= 123-456-789**01** OR (TN = 123-456-7890 AND

```
ID >= 12345))  
!;
```

ASN.1:

No change required.

Origination Date: 11/14/06

Originator: LNPAWG (from PIM 51)

Change Order Number: NANC 414

Description: Validation of Code Ownership in the NPAC

Cumulative SP Priority, Average: #3, 5.67

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Med	None-Low	None-Low

Business Need:

Because there is no validation of ownership when a code is opened in NPAC’s network data, codes sometimes are opened in NPAC under the wrong SPID. When code ownership is incorrectly indicated in the NPAC’s network data, SOA failures occur whenever a carrier submits a new SP create request for a non-ported number. Further, some carriers rely on the NPAC’s network data to determine the proper destination for the LSR/WPR. Code ownership errors thus can cause fall-out and delay the porting process.

There have been instances of carriers working around the NPAC’s validation of TN ownership when code ownership data is not correct in NPAC. This is done by entering the wrong old-SP SPID value, to match the NPAC’s code ownership data, in the new SP’s create request. This allows the pending SV create request to pass the NPAC’s TN ownership validation. While this approach allows the NPAC porting processes to proceed, but the actual current service provider does not receive NPAC notifications about the impending port. In the long term, this work around could impact all carriers in a region because correcting the code ownership (and SV ownership) errors requires a time-consuming manual or NANC 323 SPID migration.

An incorrect code ownership indication in NPAC’s network data delays the porting process and can create a substantial burden on industry to correct subsequent errors in individual ported TN records.

Open Issues:

There appear to be two open questions that must be answered in order to design and implement this change order.

- Source of code-ownership data

The source of code ownership data must be reliable and must be public. Should the NPAC rely on NANPA data? Or should some other methodology be used to verify code ownership?

Dec '06 LNPAWG con call: The logical choice is the NANPA public data. This provides OCN to code cross reference.

- Source of all OCN related to each NPAC SPID

Each NPAC SPID may be associated with more than one OCN. A public source for the related OCN data must be determined and a method to keep this information current must be developed.

Dec '06 LNPAWG con call: The major question raised and discussed is the source for code ownership. Several other discussion items included:

How will we get and maintain the table for this data?

Do we really need to have all this data?

In previous discussions, the thought was to store the OCNs in the NPAC (implementation side). This way we would have a cross-reference to NPAC SPID. It could be based on their NPAC profile.

It appears that the big issue is how to get the data started. We would need everyone to provide the initial data.

We could have one option where we reject the NPA-NXX Create if the cross-reference is not found.

Aren't we just moving the problem to a different area? What prevents the cross-reference table from getting problems?

One benefit is that we eliminate the typo question that was raised previously.

How do we keep problems from happening on an on-going basis?

Can't we be more proactive, rather than reactive?

The NPAC would request that they fill out the profile as things change. However, it still relies on the SP providing the data.

Would carriers have access to this data?

Collectively, we need to decide what we want because we're starting to define requirements here.

This seems like a big problem and hard to administer (the maintenance of the data).

One question we need to answer is whether or not we should allow an SP to add their own cross-reference entries.

If we're going to do it, this sounds like it is the simplest way to do it.

Another question to ask, whether we want a manual effort to do this on a monthly basis until we get this implemented, since this was also part of the PIM. We would have to do a one-time clean-up regardless of whether we do the manual process as an interim solution.

We need to determine the M&P on how to get the data to NeuStar. Is it an Excel spreadsheet, Help Desk, on the web site, over the interface?

We also still need to determine if carriers can view other carrier's data.

The Change Order was accepted on a consensus vote. Service Providers should come prepared to the January '07 meeting to discuss the issues raised during the con call.

Jan '07 LNPAWG meeting: Logical choice would be for code holder to provide data to NeuStar:

- Using SP-provided OCN to SPID relationship data, NPAC can resolve operational items.
- Issues come up if OCN to SPID relationship data is not provided to NPAC in timely fashion: NPAC would inappropriately reject, or accept, a request if ownership information is missing or outdated.
- Initially, SPs provide set of OCNs associated with each NPAC SPID.
- Initially, NPAC performs manual review to identify code ownership errors. (This can be done as part of the NPAC SMS software change proposed in this change order, when the new validation is implemented, or can be performed as a separate manual activity performed as time permits once the new validation is implemented.)
- Ongoing, SPs notify NPAC when their OCN to SPID association information changes.

Maintenance of OCN to SPID relationship information will be described in the M&P write-up.

Manual portion of this change order (if industry decides to perform) adds the following:

- Perform an initial review
- Perform manual or NANC 323 migration to correct code ownership errors.
- Perform subsequent reviews on some regular basis (e.g., monthly) of codes opened since previous review.
- Perform subsequent manual or NANC 323 migrations as new code ownership errors are revealed.

Next step. NeuStar to develop requirements.

Meeting Discussions:

Mar '07 LNPAWG meeting: Additional points from meeting discussion:

- A routine creation of the discrepancy list should be provided.
- The update of the code assignee table needs to be done on a regular basis (daily, weekly, monthly). After some discussion it was generally agreed, that a daily occurrence was logical. The NPAC would implement a tunable for the update interval, granularity will be number of days.
- Any discrepancies must be resolved by the appropriate SP. In most cases this will require the code holder to correct the NANP's code assignee record before the NPAC can change the code assignee value that is used by the NPAC for the code validation process defined in this change order. For the Canadian region the source is "CNA". The edit or validation step will only work once the SP corrects the data source. Upon correction, the SP should notify NPAC personnel of the updated/correct information.

May '07 LNPAWG meeting: Additional points from meeting discussion:

- The group agreed that the manual code validation process should be implemented. The request from the LNPAWG will be sent to the NAPM LLC.
- The Service Providers will be collecting OCN-to-SPID relationship information and providing that information to NeuStar.

Jul '07 LNPAWG meeting: Additional points from meeting discussion:

- The focus of this change order is now on the mechanized validation since the manual validation process was finalized at the last meeting.
- As discussed during the May '07 meeting, it was assumed that Service Providers were using a single SPID per OCN (today's environment generally has one NPAC SPID for all of that Service Provider's valid OCNs). One SP reported that this is not the case for them (they have two SPIDs on the same OCN). This means that the SPID-to-OCN relationship can be many-to-many (rather than the assumed one-to-many), which complicates the mechanized validation.
- The OCN-to-SPID relationship data will not be entered over the CMIP interface, but would be entered by NPAC Personnel via the NPAC GUI. Detailed M&Ps would need to be developed to address the "duplicate" entry issue (many-to-many).

Description of Change:

The proposed change is to verify code ownership when new NPA-NXXs are opened in the NPAC. This will alleviate the problem of NPA-NXXs that are opened under the wrong SPID, which causes operational issues for both back-office systems and port requests. The following items apply:

- NANPA website is the public data source for code ownership.
- SPs provide the set of OCNs associated with each NPAC SPID.
- SPs notify NeuStar for any code ownership changes that are not reflected accurately on the NANPA website. (This can occur if SP performs code transfer without notifying NANPA.)
- NeuStar enhances the NPA-NXX Create request validation rules to verify code ownership.

Nov '08 LNPAWG, discussion. Requirements 1 through 7 in the attachment are only applicable when requirement 8 (regional tunable) is set to TRUE.

Requirements:

Req 1 Valid NPA-NXXs for each SPID

NPAC SMS shall establish a list of valid NPA-NXXs for each SPID using information obtained from an industry source.

Req 2 Maintaining List of Valid NPA-NXXs for each SPID

NPAC SMS shall maintain the list of valid NPA-NXXs for each SPID using information obtained from an industry source.

Req 3 Updating List of Valid NPA-NXXs for each SPID

NPAC SMS shall update the list of valid NPA-NXXs for each SPID using information obtained from an industry source.

Req 4 Valid OCNs for each SPID

NPAC SMS shall establish a list of valid OCNs for each SPID using information obtained from each SPID entity.

Req 5 Maintaining List of Valid OCNs for each SPID

NPAC SMS shall maintain the list of valid OCNs for each SPID using information obtained from each SPID entity.

Req 6 Updating List of Valid OCNs for each SPID

NPAC SMS shall update the list of valid OCNs for each SPID using information obtained from each SPID entity.

Req 7 Rejection of NPA-NXXs that Do Not Belong to the OCN/SPID

NPAC SMS shall reject a Service Provider request to open an NPA-NXX for portability if the associated OCN/SPID does not own that NPA-NXX.

Req 8 Regional NPAC NPA-NXX Ownership Edit Flag Indicator

NPAC SMS shall provide a Regional NPA-NXX Ownership Edit Flag Indicator, which defines whether or not NPA-NXX Ownership edits will be enforced by the NPAC SMS for a particular NPAC Region.

Req 9 Regional NPAC NPA-NXX Ownership Edit Flag Indicator Modification

NPAC SMS shall provide a mechanism for NPAC Personnel to modify the Regional NPA-NXX Ownership Edit Flag Indicator.

Req 10 Regional NPAC NPA-NXX Ownership Edit Flag Indicator – Default Value

NPAC SMS shall default the Regional NPA-NXX Ownership Edit Flag Indicator to TRUE.

Assumptions:

1. If Service Providers do not provide a list of OCNs for each SPID, then only the SPID value will be populated in the ownership table.
2. All OCN-to-SPID ownership data must be provided by a date determined by NeuStar, prior to the rollout of this feature.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 9/13/06

Originator: LNPAWG

Change Order Number: NANC 416

Description: BDD File for Notifications – Adding New Attributes

Cumulative SP Priority, Average: #14, 13.62

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Low	Low	None

Business Need:

As indicated in NANC 412, doc-only FRS updates, two attributes are not included in the Notification BDD file, even though they are part of the actual notification that is sent to the SOA. With this change order (action item 0906-02), those two attributes will be added to the BDD file, Business Type and Timer Type for Object Creation Notifications, so that the CMIP notification and the BDD file are consistent.

This change order would require development effort for both SOA systems and the NPAC.

Description of Change:

Nov '08 LNPAWG, discussion. Minor clarification on the requirements. The attached shows the placement of the two attributes in the BDD file. These attributes will be included when the Service Provider Notification BDD Attributes Indicator is set to TRUE.

Requirements:

Req 1 Service Provider Notification BDD Attributes Indicator

NPAC SMS shall provide a Service Provider Notification BDD Attributes Indicator tunable parameter which defines whether a Service Provider supports the Timer Type and Business Hours attributes in their BDD Files.

Req 2 Service Provider Notification BDD Attributes Indicator Default

NPAC SMS shall default the Service Provider Notification BDD Attributes Indicator tunable parameter to FALSE.

Req 3 Service Provider Notification BDD Attributes Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider Notification BDD Attributes Indicator tunable parameter.

subscriptionVersionNPAC-ObjectCreation		
1	Creation TimeStamp	For example: 19960101155555
2	Service Provider ID	1001
3	System Type	0
4	Notification ID	1006
5	Object ID	21
6	New Service Provider Creation Time Stamp	20050518231625
7	New Service Provider Due Date	20050530230000
8	Old Service Provider Authorization Time Stamp	
9	Old Service Provider Due Date	
10	Old Service Provider Authorization	
11	New Current Service Provider ID	1001
12	Old Service Provider ID	1003
13	Conflict Time Stamp	
14	Status Change Cause Code	
15	Subscription Version Status	1
	Timer Type	
	Business Hours	
16	Version TN	3034401000
17	Version ID	1239999909
subscriptionVersionRangeObjectCreation (* if a consecutive list)		
1	Creation TimeStamp	For example: 19960101155555
2	Service Provider ID	1003
3	System Type	0
4	Notification ID	16

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5	Object ID	14
6	New Service Provider Creation Time Stamp	20050518231625
7	New Service Provider Due Date	20050530230000
8	Old Service Provider Authorization Time Stamp	
9	Old Service Provider Due Date	
10	Old Service Provider Authorization	
11	New Current Service Provider ID	0001
12	Old Service Provider ID	1003
13	Conflict Time Stamp	
14	Status Change Cause Code	
15	Subscription Version Status	1
	Timer Type	
	Business Hours	
16	Range Type Format	1
17	Starting Version TN	3034401000
18	Ending Version TN	3034402000
19	Starting Version ID	1234500001
20	Ending Version ID	1234501002
subscriptionVersionRangeObjectCreation (* if <u>not</u> a consecutive list)		
1	Creation TimeStamp	For example: 19960101155555
2	Service Provider ID	1003
3	System Type	0
4	Notification ID	16
5	Object ID	14
6	New Service Provider Creation Time Stamp	20050518231625
7	New Service Provider Due Date	20050530230000
8	Old Service Provider Authorization Time Stamp	
9	Old Service Provider Due Date	
10	Old Service Provider Authorization	

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11	New Current Service Provider	0001
12	Old Service Provider ID	1003
13	Conflict Time Stamp	
14	Status Change Cause Code	
15	Subscription Version Status	1
	Timer Type	
	Business Hours	
16	Range Type Format	2
17	Starting Version TN	3034401000
18	Ending Version TN	3034401097
19	Variable Field Length	Indicates the number of dynamic values for the following field (e.g. 98).
20	Version ID	2050505050
21	Version ID	2050505059
22	... Version ID "n"	2050507019

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 12/18/06

Originator: Syniverse Technologies

Change Order Number: NANC 417

Description: Provide record count(s) for BDD Files and Delta BDD Files

Cumulative SP Priority, Average: #8, 11.86

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

When a BDD file is distributed, the number of records that are included in the file is not known. In order to ensure that the file was completely generated and received intact, a record count for the file should be included.

Since the NPAC is considered the database of record, alternatives such as counting the lines in the BDD file to compare it to what is currently in the LSMS are not considered genuinely accurate since the number of records could match, yet the content could be different. Even a small difference in the pool block BDD file can make a significant impact on the network, because of the 1000-to-1 representation. Therefore it is prudent to take steps to eliminate errors before processing the BDD files. This could include creating a record count or “snapshot” of the file contents when the BDD file is created. This will provide a reference point to compare to the BDD files received. Currently, there is no way to validate the record counts in the BDD files as they are received, thereby ensuring data integrity.

Description of Change:

This change order would add a record count to the BDD file. Since the BDD file contains detailed information on a row-by-row basis, the count would have to be added in either the file name or in a comment record, depending on the technical implementation.

There may be backward-compatibility issues that need to be discussed and resolved.

The requested record count would apply to all five file types (SPID, NPA-NXX, dash-X, LRN, NPB, SV).

In the case of delta BDDs, which are run from the NPAC GUI, the same principal(s) would be applied for the record count

Requirements:

Req 1 Service Provider BDD Record Count Indicator

NPAC SMS shall provide a Service Provider BDD Record Count Indicator tunable parameter which defines whether a Service Provider supports the commented record count information in their BDD Files.

Req 2 Service Provider BDD Record Count Indicator Default

NPAC SMS shall default the Service Provider BDD Record Count Indicator tunable parameter to FALSE.

Req 3 Service Provider BDD Record Count Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider BDD Record Count Indicator tunable parameter.

Updates (larger font *blue italics*) to Appendix E of the FRS.

Appendix E. Download File Examples

The NPAC can generate Bulk Data Download files for Network Data (including SPID, LRN, NPA-NXX and NPA-NXX-X), Subscription Versions (including Number Pool Blocks) and Notifications.

All fields within files discussed in the following section are variable length. The download reason in all “Active-like” download files is always set to new. The download reason in all “Latest View” download files is set to the appropriate download reason based on activation/modification/deletion activity. ASCII 13 is the value used as the value for carriage return (CR) in the download files.

All Time Stamps contained within the download files and SMURF files, and file names are in GMT (Greenwich Mean Time). Files that contain three timestamps reference the time the files is created, and start and end time range. When the time range is not specified, the default start timestamp is 00-00-0000000000 and the default end timestamp is 99-99-9999999999.

The record count information will be added to the end of the BDD files. It will start with a pound sign (#) followed by the number of data records in the file. For example, if there are twenty-two (22) LRN records in the file, the 23rd line would contain a pound sign, a space, and the number 22. The record count information will only be included in the BDD file if the Service Provider’s BDD Record Count Indicator is set to TRUE.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 12/18/06

Originator: Syniverse Technologies

Change Order Number: NANC 418

Description: Post-SPID Migration SV Counts

Cumulative SP Priority, Average: #4, 8.33

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Low	None	None

Business Need:

In an effort to avoid errors during a SPID Migration, and the resulting down-time to correct them, this is a request to provide record count information of the contents of the SMURF files that are distributed to perform updates to the LSMS platforms throughout the industry. This information could be provided either as a part of the distributed file, or in some other industry notification.

The current SMURF file provides a count of the number of LRNs that are changing. However, it does not provide a count of SVs that are changing per (each) LRN. When the SMURF files are run, every SV that is assigned to an affected LRN is changed in the LSMS. It would be very helpful to know how many SVs are assigned to each LRN that will be changed during the update process.

The notices that are sent out include only an estimate of the number of SVs, as they are created well in advance of the actual creation of the production SMURF file. Performing spot checks to confirm those estimates has led to the conclusion that there are extremely wide disparities between the estimates provided in the notice and the actual number of SVs that are updated using the LRNs included in the SMURF file. For the purpose of ensuring the integrity of the file received, as well as the update process results, the actual number of SVs per LRN that are transmitted in the SMURF file should be provided.

Description of Change:

This change order would add a post-migration SV count for each LRN in a SMURF file. The logistics on this would need to be worked out, but the general process is that NeuStar would provide some type of industry notification on the actual quantity, at the LRN level, of SVs updated during the migration.

The current proposal is to provide a separate post-migration report to the industry. This report would capture, by LRN, the quantity of SVs updated by the NPAC during the migration.

Mar '07 LNPAWG meeting: The name of this change order is being changed to reflect the post-migration report approach rather than the modified LRN SMURF file approach.

Nov '08 LNPAWG, discussion. Minor clarification on the requirements. This count includes all SVs (LSPP, LISP, POOL) under an LRN. For this change order, it will be broken down by pooled and non-pooled counts.

Requirements:

Req 1 SPID Migration Reports – Post-Migration SV Count Report

NPAC SMS shall support a region-specific SPID Migration Report that lists each designated LRN for the SPID Migration, and the associated quantity of SVs, for each LRN, that was updated by the NPAC SMS during the SPID Migration.

Assumptions:

1. The distribution method for the Post-Migration SV Count Report will be FTP (same as SMURF file). This will be addressed in the M&P document.
2. The Post-Migration SV Count Report will be available approximately 24 hours after the conclusion of an NPAC maintenance window where a SPID Migration was processed. This will be addressed in the M&P document.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 3/31/07

Originator: NeuStar

Change Order Number: NANC 420

Description: Doc-Only Change Order: FRS Updates

Cumulative SP Priority, Average: not rated, included

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	None	None	None

Business Need:

Update the current documentation to be consistent and reflect the current behavior.

Description of Change:

Update the FRS.

Requirements:

1. Remove unnecessary page break in Table 0-1 Notation Key between RR and RX abbreviation description. Remove RR table entry described as “This is a requirement that was identified in a NPAC SMS release subsequent to 1.X.” – this description was erroneously added in version 3.0.0. The original RR description (last table entry), “This is a requirement that was identified as a new requirement for the system, during post-award meetings with the Illinois LCC.” – should remain (with correction of LCC to LLC).
2. Prepaid Wireless SV Type -- With the implementation of NANC 399 and SV Type, several placeholder values were set aside for future use. During the Mar '07 LNPAWG mtg, it was agreed to begin using one of these placeholder values. In both the intro section (1.2.16) and the data model section (SV data model – table 3-6, and Number Pool Block data model – table 3-8), the text for “SV Type 4” should be replaced with “Prepaid Wireless”.

added in Apr'08

3. Text correction for the following requirement:
RR5-179 Create Inter-Service Provider PTO 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, when the Porting to Original flag is set to True.

New text should read:

RR5-179 Create Inter-Service Provider PTO Subscription Version – New Service Provider ~~Optional input~~ data attributes – Rejected

NPAC SMS shall ~~accept~~ reject an Inter-Service Provider Create Request that includes the following ~~optional fields~~ data attributes from NPAC personnel or the new Service Provider ~~upon Subscription Version creation for an Inter-Service Provider port~~, when the Porting to Original flag is set to True.

- [LRN](#)
- [Class DPC](#)
- [Class SSN](#)
- [LIDB DPC](#)
- [LIDB SSN](#)
- [CNAM DPC](#)
- [CNAM SSN](#)
- [ISVM DPC](#)
- [ISVM SSN](#)
- [WSMSC DPC \(if supported by the Service Provider SOA\)](#)
- [WSMSC SSN \(if supported by the Service Provider SOA\)](#)
- [Porting to Original](#)
- Billing Service Provider ID
- End-User Location - Value
- End-User Location - Type
- [SV Type](#)
- [Alternative SPID](#)

added in Apr'08

4. Text correction for the following requirement:

RR5-180 Create “Intra-Service Provider Port” (PTO) Subscription Version – Current 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, when the Porting to Original flag is set to True.

New text should read:

RR5-180 Create “Intra-Service Provider Port (PTO) Subscription Version – Current Service Provider ~~Optional input~~ data attributes – Rejected

NPAC SMS shall ~~accept~~ reject an Intra-Service Provider Create Request that includes the following ~~optional fields~~ data attributes from NPAC personnel or the Current Service Provider ~~upon Subscription Version creation for an Inter-Service Provider port~~, when the Porting to Original flag is set to True.

- [LRN](#)
- [Class DPC](#)

- [Class SSN](#)
- [LIDB DPC](#)
- [LIDB SSN](#)
- [CNAM DPC](#)
- [CNAM SSN](#)
- [ISVM DPC](#)
- [ISVM SSN](#)
- [WSMSC DPC \(if supported by the Service Provider SOA\)](#)
- [WSMSC SSN \(if supported by the Service Provider SOA\)](#)
- [Porting to Original](#)
- Billing Service Provider ID
- End-User Location - Value
- End-User Location - Type
- [SV Type](#)
- [Alternative SPID](#)

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 3/31/07

Originator: NeuStar

Change Order Number: NANC 421

Description: ASN.1 and GDMO Updates for Prepaid Wireless SV Type

Cumulative SP Priority, Average: not rated, included

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

The current documentation needs to be updated.

Description of Change:

Update GDMO and ASN.1 for Prepaid Wireless SV Type.

Requirements:

No change required.

IIS:

No change required.

GDMO:

GDMO Behavior clarification (new text in blue) for both the SV Type attribute (#153, shown below) and the Number Pool Block SV Type attribute (#155, not shown below, but same change):

```
--
-- 153.0 Subscription Version SV Type
--
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 prepaid-wireless
        5 : sv-type-5
        6 : sv-type-6
!;
```

ASN.1:

With the implementation of NANC 399 and SV Type, several placeholder values were set aside for future use. During the Mar '07 LNPAWG mtg, it was agreed to begin using one of these placeholder values. The ASN.1 change is shown below:

```
SVType ::= ENUMERATED {
  wireline (0),
  wireless (1),
  voIP (2),
  voWiFi (3),
  sv-type-4 prepaid-wireless (4),
  sv-type-5 (5),
  sv-type-6 (6)
}
```

Origination Date: 6/30/07

Originator: NeuStar

Change Order Number: NANC 422

Description: Doc-Only Change Order: IIS Updates

Cumulative SP Priority, Average: not rated, included

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
N	Y	N	N	None	None	None

Business Need:

Update the current documentation to be consistent and reflect the current behavior.

Description of Change:

Update the IIS.

Requirements:

No change required.

IIS:

1. Correct section 4.8, Subscription Version Queries, for the enhanced SV Query functionality over the SOA/LSMS interfaces. The text gives an example using the > operator. CMIP does not support >, so the reference text should be changed from "> value", to ">= value + 1", as shown below:

All subscription versions where ((TN >= 303-555-0150~~1~~) OR (TN = 303-555-0150 AND subscription version ID >= 123~~4~~5)).

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 9/11/07

Originator: VeriSign

Change Order Number: NANC 424

Description: Number Pool Block (NPB) Donor Disconnect Notification Priority Indicator

Cumulative SP Priority, Average: #10, 12.00

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Low	None-Low	None

Business Need:

(PIM 65) – When Number Pool Blocks (NPBs) are disconnected, the defined flow (IIS B.4.4.24) includes an SV Donor Disconnect notification to the Donor SOA. In some instances, the Donor SOA may not wish to receive these notifications. In the current notification prioritization functionality, there is no option to indicate a priority level specific to a de-pool and the associated SV Donor Disconnect notifications. Without this option, the Donor SOA may receive unwanted notifications (if not supporting range notifications, could receive up to 1000 notifications).

Nov '07 LNPAWG, VeriSign validated that the documented description and proposed resolution meets the business need.

Description of Change:

The NPAC SMS would add a notification category specific to the SV Donor Disconnect notification when an NPB is disconnected.

Requirements:

Req 1 – Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Notification Indicator

NPAC SMS shall provide a Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Flag Indicator tunable parameter which defines whether a SOA will receive/not-receive SV Donor Disconnect Notifications as a result of a Number Pool Block Disconnect.

Req-1.1 Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Notification Indicator Default

NPAC SMS shall default the Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Flag Indicator tunable parameter to FALSE.

Req 2 – Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Notification Indicator Modification

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Flag Indicator tunable parameter.

Req 3 – Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Notification Indicator Usage

NPAC SMS shall send Number Pool Block Disconnect initiated SV Donor Disconnect notifications only when the Service Provider SOA Suppress NPB De-Pool SV Donor Disconnect Notification Flag Indicator tunable parameter is set to FALSE.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 10/10/07

Originator: VeriSign

Change Order Number: NANC 426

Description: Provide Modify Request Data to the SOA from Mass Updates

Cumulative SP Priority, Average: #5, 9.64

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	Y	N	N	Med	Low-Med	None

Business Need:

(PIM 66) – Currently, when the NPAC conducts a mass update ([modify](#)) for a SOA customer; the SOA does not receive any notifications containing the modified attributes. For SOAs that maintain SV data beyond the time of port activation, this creates an out-of-synch situation between the SOA database and the NPAC database.

Nov '07 LNPAWG, VeriSign validated that the documented description and proposed resolution meets the business need.

Description of Change:

The NPAC SMS would add a tunable parameter to the SPID-level customer profile that could be set to allow the sending/suppression of modify data to the respective SOA as a result of a mass update ([modify](#)).

Requirements:

~~**Req 1 – Service Provider SOA Mass Update Notification Indicator**~~

~~NPAC SMS shall provide a Service Provider SOA Mass Update Notification Flag Indicator-tunable parameter which defines whether a SOA will receive/not-receive notifications containing modified attributes as a result of a Mass Update.~~

~~**Req 2 – Service Provider SOA Mass Update Notification Indicator Modification**~~

~~NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to modify the Service Provider SOA Mass Update Notification Flag Indicator tunable parameter.~~

Req 3 – Service Provider SOA Mass Update Notification Indicator Usage

~~NPAC SMS shall send notifications containing modified attributes as a result of a Mass Update over the SOA connection only when the Service Provider SOA Mass Update Notification Flag Indicator tunable parameter is set to TRUE.~~

FRS, Table C-7, SOA Notification Priorities Tunables. Create a new row in S-3.00, Attribute Value Change, For Mass Update, ~~Medium~~None.

IIS:

IIS Change: add a new notification for the modified attributes to flow B.8.3, Mass Update.

Current flow.

1. M-SET Request subscriptionVersion
2. M-SET Response subscriptionVersion
3. M-EVENT-REPORT Request subscriptionVersionStatusAttributeValueChange
4. M-EVENT-REPORT Response subscriptionVersionStatusAttributeValueChange

Updated flow.

1. M-SET Request subscriptionVersion
2. M-SET Response subscriptionVersion
3. M-EVENT-REPORT Request subscriptionVersionStatusAttributeValueChange
4. M-EVENT-REPORT Response subscriptionVersionStatusAttributeValueChange
5. M-EVENT-REPORT Request subscriptionVersionAttributeValueChange (include the modified attributes)
6. M-EVENT-REPORT Response subscriptionVersionAttributeValueChange

For flow B.8.3.1, Mass Update for a range of TNs that contains a Number Pool Block, the same type of change will apply. In this case, two notifications will be added, one for the SVs, and one for the NumberPoolBlock.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 1/8/08

Originator: Qwest

Change Order Number: NANC 427

Description: Error Reduction for DPC entries in new ported and pooled records

Cumulative SP Priority, Average: #7, 11.36

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	N	N	N	Med-High	None	None

Business Need:

Qwest has found that some Service Providers do not populate the Vertical Services (CNAM/LIDB/CLASS/ISVM) Destination Point Code entries correctly on ported and pooled records. This creates a three-part problem: 1.) a large volume of Message Transfer Part (MTP) routing errors in participating networks, 2.) the need for trouble reports and the necessary manual work to follow up on the trouble reports, and 3.) the need for Modify broadcasts to get the ported and pooled records corrected.

Besides the impact on Service Providers that have to deal with the routing data errors, consumers are impacted when their SS7-based services do not operate correctly. Because the current Service Provider’s Final GTT values override the vertical service point codes used on the NPAC’s ported and pooled records, for numbers served within its network, the current Service Provider may not be aware of the problem unless contacted by another provider.

This change order improves the accuracy of all DPC values on new ported and pooled records.

Description of Change:

The proposed change modifies the NPAC, by maintaining a table of “valid” Vertical Service Destination Point Codes for each SPID (hereafter called “VST” or Vertical Service Table). The VST allows the NPAC to implement a business rule to detect a port request with one or more incorrect Destination Point Codes. Two options were initially documented, however, during the **March ’08 LNPAWG meeting**, both Option 1 and Option 2 were broken into two categories of “reporting the error back to the SOA”.

May ’08 LNPAWG meeting, discussion that some local systems already do this validation, so possibly do optional by Service Provider. However, this would defeat the purpose of this change order (required versus optional). All options require additional development effort, and in an

effort to minimize this effort, a new Option 3 was proposed, whereby the VST is only used for LTI-initiated transactions. This is added to the list below:

- **Option 1a:** Accept request that contains a DPC entry not on VST for the SPID, but delete the DPC/SSN not found on the VST and provide notification of this change over the SOA interface.
 - **Pro:** No delay in porting. No additional SOA Create message required. Ensures that incorrect DPC entry is not used on ported or pooled records. No SS7 routing errors are generated in carrier networks. NPAC VST updates are not time critical.
 - **Con:** Allows ported number record to be established with missing DPC value. May require SOA software changes to handle new SOA error message. Likely to require Modify transaction to correct missing DPC value. Requires a new SOA notification with hybrid information that indicates the Request message was processed to completion, but the DPC value was blanked out. SOA may need to track the initial value if the NPAC blanks it out.
- **Option 1b:** Reject request that contains a DPC entry not on the VST for the SPID and provide notification of reason for rejection over the SOA interface
 - **Pro:** Prevents incorrect DPC from being used on ported or pooled records. No SS7 routing errors are generated in carrier networks. Avoids Modify transaction to correct DPC error.
 - **Con:** Could delay the port. Requires SOA to send second Create message. May require SOA software changes to handle new SOA error message. NPAC VST updates are time critical and all service providers must maintain up-to-date information.
- **Option 2a:** Same as 1a, but provide notification of deleted DPC entry via off-line report.
 - **Pro:** No delay in porting. No additional SOA Create message required. Ensures that incorrect DPC entry is not used on ported or pooled records. Error report provided to requesting New Service Provider so they can research and correct the problem at their convenience. No SS7 routing errors are generated in carrier networks. NPAC VST updates are not time critical.
 - **Con:** Allows ported number record to be established with missing DPC value. Likely to requires Modify transaction to correct the missing DPC value. Requires SOA operational process change to handle new error report. Requires NPAC to store data that is used in the off-line report.
- **Option 2b:** Accept request that contains a DPC entry not on VST for the SPID and provide notification of incorrect DPC entry via off-line report.
 - **Pro:** No delay in porting. No additional SOA Create message required. Error report sent to requesting New Service Provider so they can research and correct the problem at their convenience. NPAC VST updates are not time critical.
 - **Con:** SS7 errors are generated in carrier networks. Requires Modify transaction to correct the DPC error. Requires SOA operational process change to handle new error report. Requires NPAC to store data that is used in the off-line report.

- **Option 3:** Same as 1b, but only for LTI-initiated transactions.
 - **Pro:** Prevents incorrect DPC from being used on ported or pooled records initiated via the LTI. No SS7 routing errors are generated in carrier networks for LTI-initiated transactions. Avoids Modify transaction to correct DPC error for LTI-initiated transactions.
 - **Con:** Could delay the port. Requires LTI to send second Create message. NPAC VST updates are time critical and all service providers must maintain up-to-date information for successful completion of LTI-initiated transactions.

This change order will require input from each carrier, in order to obtain the valid point code entries to populate the VST. Each carrier will be responsible for providing any necessary updates to their point code entries. The data will be maintained in the NPAC by NPAC Personnel.

Jul '08 LNPAWG, discussion. Need to develop requirements for Sep '08 review. See below:

Requirements:

Req 1 DPC Entries Information Source for LTI or NPAC Personnel entries

NPAC SMS shall obtain DPC information from each Service Provider that will be making subscription version create [and modify](#) requests as the New Service Provider via the SOA Low-Tech Interface or NPAC Administrative Interface.

Req 2 DPC Entries Information Maintenance

NPAC SMS shall allow NPAC Personnel, via the NPAC Administrative Interface, to maintain the Service Provider DPC information.

Req-3 DPC Entries Information – Multiple Entries

NPAC SMS shall allow multiple entries of DPC-SSN pair for each GTT Type (CLASS, LIDB, CNAM, ISVM, WSMSC).

Req-4 Create [“Inter-Service Provider Port”](#) Subscription Version – DPC Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the values for the following input data, if supplied, is valid according to the Service Provider DPC source data, when Creating Subscription Versions via the SOA Low-Tech Interface or NPAC Administrative Interface for an Inter-Service Provider port:

- Class DPC
- Class SSN
- LIDB DPC
- LIDB SSN
- CNAM DPC
- CNAM SSN

- ISVM DPC
- ISVM SSN
- WSMSC DPC
- WSMSC SSN

Req-5 Create “Intra-Service Provider Port” Subscription Version – DPC Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the values for the following input data, if supplied, is valid according to the Service Provider DPC source data, when Creating Subscription Versions via the SOA Low-Tech Interface or NPAC Administrative Interface for an Intra-Service Provider port:

- Class DPC
- Class SSN
- LIDB DPC
- LIDB SSN
- CNAM DPC
- CNAM SSN
- ISVM DPC
- ISVM SSN
- WSMSC DPC
- WSMSC SSN

Req-6 Create Subscription Version – Validation of DPCs for Subscription Version Creates

NPAC shall reject New Service Provider Subscription Version Create requests from the SOA Low-Tech Interface or NPAC Administrative Interface if a valid DPC reference does not exist in the Service Provider DPC source data.

Req-6.1 Modify “Inter-Service Provider Port” Subscription Version – DPC Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the values for the following input data, if supplied, is valid according to the Service Provider DPC source data, when Modifying Subscription Versions via the SOA Low-Tech Interface or NPAC Administrative Interface for an Inter-Service Provider port:

- Class DPC
- Class SSN
- LIDB DPC
- LIDB SSN
- CNAM DPC
- CNAM SSN
- ISVM DPC
- ISVM SSN
- WSMSC DPC
- WSMSC SSN

Req-6.2 Modify “Intra-Service Provider Port” Subscription Version – DPC Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the values for the following input data, if supplied, is valid according to the Service Provider DPC source data, when Modifying Subscription Versions via the SOA Low-Tech Interface or NPAC Administrative Interface for an Intra-Service Provider port:

- Class DPC
- Class SSN
- LIDB DPC
- LIDB SSN
- CNAM DPC
- CNAM SSN
- ISVM DPC
- ISVM SSN
- WSMSC DPC
- WSMSC SSN

Req-6.3 Modify Subscription Version – Validation of DPCs for Subscription Version Creates

NPAC shall reject New Service Provider Subscription Version Modify requests from the SOA Low-Tech Interface or NPAC Administrative Interface if a valid DPC reference does not exist in the Service Provider DPC source data.

Req-6.4 Create Number Pool Block – DPC Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the values for the following input data, if supplied, is valid according to the Service Provider DPC source data, when Creating Number Pool Blocks via the SOA Low-Tech Interface or NPAC Administrative Interface:

- Class DPC
- Class SSN
- LIDB DPC
- LIDB SSN
- CNAM DPC
- CNAM SSN
- ISVM DPC
- ISVM SSN
- WSMSC DPC
- WSMSC SSN

Req-6.5 Create Number Pool Block – Validation of DPCs for Number Pool Block Creates

NPAC shall reject New Service Provider Number Pool Block Create requests from the SOA Low-Tech Interface or NPAC Administrative Interface if a valid DPC reference does not exist in the Service Provider DPC source data.

Req-6.6 Modify Number Pool Block – DPC Field-level Data Validation

NPAC SMS shall perform field-level data validations to ensure that the values for the following input data, if supplied, is valid according to the Service Provider DPC source data, when Modifying Number Pool Blocks via the SOA Low-Tech Interface or NPAC Administrative Interface:

- Class DPC
- Class SSN
- LIDB DPC
- LIDB SSN
- CNAM DPC
- CNAM SSN
- ISVM DPC
- ISVM SSN
- WSMSC DPC
- WSMSC SSN

Req-6.7 Modify Number Pool Block – Validation of DPCs for Number Pool Block Modifies

NPAC shall reject New Service Provider Number Pool Block Modify requests from the SOA Low-Tech Interface or NPAC Administrative Interface if a valid DPC reference does not exist in the Service Provider DPC source data.

Nov '08 LNPAWG, discussion. Minor clarification on the requirements. Requirements 1 through 6 in the attachment are only applicable when requirement 7 (regional tunable) is set to TRUE.

Req-7 Regional LTI DPC Validation Indicator – Tunable Parameter

NPAC SMS shall provide a Regional LTI DPC Validation Indicator tunable parameter, which is defined as an indicator on whether or not LTI DPC validation capability will be supported by the NPAC SMS for a particular NPAC region.

Req-8 Regional LTI DPC Validation Indicator – Tunable Parameter Default

NPAC SMS shall default the LTI DPC Validation Indicator tunable parameter to TRUE.

Req-9 Regional LTI DPC Validation Indicator – Tunable Parameter Modification

NPAC SMS shall allow NPAC SMS Personnel, via the NPAC Administrative Interface, to modify the LTI DPC Validation Indicator tunable parameter.

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 3/12/08

Originator: NeuStar

Change Order Number: NANC 428

Description: Update NPAC file transfer method from FTP to Secure-FTP

Cumulative SP Priority, Average: #9, 11.93

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

In essence, SFTP is an interactive file transfer program, similar to FTP, except that SFTP performs all operations in an encrypted manner. It utilizes public key authentication and compression. It connects and logs into a specified host, then enters an interactive command mode. Utilizing SFTP requires the installation of the OpenSSH suite of tools. OpenSSH encrypts all traffic (including passwords) to reduce the likelihood of eavesdropping and connection hacking.

Description of Change:

The major reason for implementing SFTP versus FTP is security. In FTP all data is passed back and forth between the client and server without the use of encryption. Therefore data, passwords, and usernames are all transferred in clear text making them susceptible to eavesdropping, man-in-the-middle attacks, and integrity issues. The implementation of SFTP (Secure File Transfer Protocol) is estimated to be a 6-12 month coordinated effort between NeuStar and the industry.

Jul '08 LNPAWG, discussion. Need to develop requirements for Sep '08 review. See below:

Requirements:

The following existing requirements need to have text changed from “FTP” to “Secure FTP”. (R3-8, R3-15, RR3-311, RR3-227, RR3-118, RR3-207, RR3-469, RR3-328, RR3-330, RR3-333, RR6-112, R7-107.5, R7-108.1)

IIS:

No change required.

GDMO:

No change required.

ASN.1:

No change required.

Origination Date: 3/12/08

Originator: LNPAWG

Change Order Number: NANC 429

Description: URI Fields (Voice)

Cumulative SP Priority, Average: #15, 13.69

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	Y	N	N	Low	Med	Med-High (new downstream interface). After first URI field, all subsequent ones Low.

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 providers¹ 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

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

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.

Description of Change:

The NPAC/SMS will provide the ability to provision a Voice URI for each SV and Pooled Block record.

This information will be provisioned by the SOA and broadcast to the LSMS upon activation of the SV or Pooled Block and upon modification for those SOA and LSMS associations optioned “on” to send and receive this data.

This field shall be added to the Bulk Data Download file, and be 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.

The OptionalData CMIP attribute will be populated with an XML string. The string is defined by the schema documented in the XML section below. XML is used to provide future flexibility to add additional fields to the SV records and Pool Block records when approved by the LLC.

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

Mar ’08 LNPAWG, discussion, with the FCC lifting abeyance on NANC 400, discussion took place on the change order. Several Service Providers requested that NANC 400 be broken up into four separate and distinct change orders, one for each URI Type. These four will be 429, 430, 431, and 432.

Requirements:

Section 1.2, NPAC SMS Functional Overview

Add a new section that describes the functionality of the Voice URI (Uniform Resource Identifier) Field (Optional Data). See description of Change above.

Section 3.1, NPAC SMS Data Models

Add new attribute for the Voice URI (Uniform Resource Identifier) Field (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.
[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.
[snip]			

Table 3-6 Subscription Version Data Model

NUMBER POOLING BLOCK HOLDER 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.
[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)**, 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)**), 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)**
 - [snip]
- Block Data
 - [snip]
 - **Voice URI (for Local SMSs that support Voice 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)

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)

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 field (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

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)

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)

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)

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)

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)

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)

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)

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)

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)

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)

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)

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)

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)

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 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 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 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.

Appendix B – Glossary

URI – Uniform Resource Identifier

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.

EXPLANATION OF THE FIELDS IN THE SUBSCRIPTION DOWNLOAD FILE		
Field Number	Field Name	Value in Example

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.

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

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

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

Flow B.5.6 – Subscription Version Query

[snip]

The query return data includes:

[snip]

Voice URI – if supported by the Service Provider (SOA, LSMS)

GDMO:

No change required.

ASN.1:

No change required.

XML:

Note – the XML shown below is existing NANC 399 and new NANC 429.

```
<?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:sequence>
  </xs:complexType>
  <xs:element name="OptionalData" type="OptionalData"/>
</xs:schema>
```

Origination Date: 3/12/08

Originator: LNPAWG

Change Order Number: NANC 430

Description: URI Fields (MMS)

Cumulative SP Priority, Average: #18, 14.73

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	Y	N	N	Low	Med	Med-High (new downstream interface). After first URI field, all subsequent ones Low.

Business Need:

Multimedia Media Messaging Service (MMS) Field

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 this field 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. This IP-service routing field is in fact directly analogous to the existing SS7-based DPC/SSN routing fields already supported by NPAC (i.e. – ISVM, LIDB, WSMSC, etc...).

Description of Change:

The NPAC/SMS will provide the ability to provision an MMS URI for each SV and Pooled Block record.

This information will be provisioned by the SOA and broadcast to the LSMS upon activation of the SV or Pooled Block and upon modification for those SOA and LSMS associations optioned “on” to send and receive this data.

This field shall be added to the Bulk Data Download file, and be 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.

The OptionalData CMIP attribute will be populated with an XML string. The string is defined by the schema documented in the XML section below. XML is used to provide future flexibility to add additional fields to the SV records and Pool Block records when approved by the LLC.

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

Requirements:

Section 1.2, NPAC SMS Functional Overview

Add a new section that describes the functionality of the MMS URI (Uniform Resource Identifier) Field (Optional Data). See description of Change above.

Section 3.1, NPAC SMS Data Models

Add new attribute for the MMS URI (Uniform Resource Identifier) Field (Optional Data). See below:

NPAC CUSTOMER DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[snip]			
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.

NPAC CUSTOMER DATA MODEL			
Attribute Name	Type (Size)	Required	Description
			The default value is False.
[snip]			

Table 3-2 NPAC Customer Data Model

SUBSCRIPTION VERSION DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[snip]			
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.
[snip]			

Table 3-6 Subscription Version Data Model

NUMBER POOLING BLOCK HODER INFORMATION DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[snip]			
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.

NUMBER POOLING BLOCK HODER INFORMATION DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[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, **MMS URI (if the requesting SOA supports MMS 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), **MMS URI (if the requesting SOA supports MMS 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]
 - **MMS URI (for Local SMSs that support MMS URI)**
 - [snip]
- Block Data
 - [snip]
 - **MMS URI, (for Local SMSs that support MMS)**
 - [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]

MMS 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]

MMS 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 MMS URI field (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 MMS URI Support Indicator

NPAC Customer LSMS MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS 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]
- MMS URI (Value set to same field as Block)

Req 1 – Service Provider SOA MMS URI Edit Flag Indicator

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

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

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

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

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

Req 4 – Service Provider LSMS MMS URI Edit Flag Indicator

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

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

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

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

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

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

NPAC SMS shall, for a Service Provider that supports MMS URI, send the MMS 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 8 Activate Number Pool Block - Send MMS URI to Local SMSs

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

Req 9 Audit for Support of MMS URI

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

Appendix B – Glossary

URI – Uniform Resource Identifier

Appendix E – Bulk Data Download File Examples.

NOTE: If a Service Provider supports MMS URI, the format of the Bulk Data Download file will contain delimiters for the attribute.

EXPLANATION OF THE FIELDS IN THE SUBSCRIPTION DOWNLOAD FILE		
Field Number	Field Name	Value in Example
1	Version Id	0000000001
[snip]		
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.

EXPLANATION OF THE FIELDS IN THE SUBSCRIPTION DOWNLOAD FILE		
Field Number	Field Name	Value in Example

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	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.

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 MMS URI Indicator” is set in the service provider’s profile on the NPAC SMS, the following attributes may optionally be included:

MMS 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]

MMS 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]

MMS URI – if supported by the Service Provider SOA

Flow B.5.6 – Subscription Version Query

[snip]

The query return data includes:

[snip]

MMS URI – if supported by the Service Provider (SOA, LSMS)

GDMO:

No change required.

ASN.1:

No change required.

XML:

Note – the XML shown below is existing NANC 399 and new NANC 430.

```
<?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="MMSURI" type="Generic-URI" nillable="true" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="OptionalData" type="OptionalData"/>
</xs:schema>
```


Origination Date: 3/12/08

Originator: LNPAWG

Change Order Number: NANC 433

Description: VoIP SV Type

Cumulative SP Priority, Average: #11, 12.44

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

During the discussion of FCC Order 07-188, participants agreed that the SV Type values should be modified to align with the definition in the Order. This led to the following three changes.

Description of Change:

Update the current definitions.

Nov '08 LNPAWG, discussion on adding additional placeholders. The group agreed to add 7,8,9.

Requirements:

VoIP SV Type in the FRS-- In both the intro section (1.2.16) and the data model section (SV data model – table 3-6, and Number Pool Block data model – table 3-8), the text for “voIP” should be replaced with “Class 2 Interconnected VoIP”, and “SV Type 5” should be replaced with “Class 1 Interconnected VoIP”.

IIS:

No change required.

GDMO:

VoIP SV Type in the GDMO – The text should be changed.

GDMO Behavior clarification (new text in blue) for both the SV Type attribute (#153, shown below) and the Number Pool Block SV Type attribute (#155, not shown below, but same change):

```
--
-- 153.0 Subscription Version SV Type
--
subscriptionSvTypeBehavior BEHAVIOUR
  DEFINED AS !
    This attribute is used to specify the subscription version
    type.

    The possible values are:

        0 : wireline
        1 : wireless
        2 : class2InterconnectedVoIP
        3 : voWiFi
        4 : prepaid-wireless
        5 : sv-type-5 class1InterconnectedVoIP
        6 : sv-type-6
        7 : sv-type-7
        8 : sv-type-8
        9 : sv-type-9

!;
```

ASN.1:

VoIP SV Type in the ASN.1 – The text should be changed.

```
SVType ::= ENUMERATED {
  wireline (0),
  wireless (1),
  class2InterconnectedVoIP (2),
  voWiFi (3),
  prepaid-wireless (4),
  sv-type-5 class1InterconnectedVoIP (5),
  sv-type-6 (6),
  sv-type-7 (7),
  sv-type-8 (8),
  sv-type-9 (9)
}
```

Origination Date: 3/12/08

Originator: LNPAWG

Change Order Number: NANC 434

Description: VoIP SP Type

Cumulative SP Priority, Average: #13, 13.31

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

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

Business Need:

During the discussion of FCC Order 07-188, participants agreed that the SP Type values should be modified to align with the definition in the Order. This led to the following three changes:

Description of Change:

Update the current documentation.

Requirements:

VoIP SP Type in the FRS-- In the data model section (NPAC Customer data model – table 3-2), the text for “SP Type3” should be replaced with “class1Interconnected VoIP”.

IIS:

No change required.

GDMO:

VoIP SP Type in the GDMO – The text should be changed.

GDMO Behavior clarification (new text in blue) for the SP Type attribute (#151, shown below):

```
--  
-- 151.0 LNP Service Provider Type  
--  
serviceProviderTypeBehavior BEHAVIOUR  
    DEFINED AS !
```

This attribute is used to specify the service provider type. The valid values are "wireline, wireless, ~~and~~ non-carrier, and class 1 Interconnected VoIP.

!;

ASN.1:

VoIP SP Type in the ASN.1 – The text should be changed.

```
ServiceProviderType ::= ENUMERATED {  
  wireline (0),  
  wireless (1),  
  non-carrier (2),  
  sp-type-3class1InterconnectedVoIP (3),  
  sp-type-4 (4),  
  sp-type-5 (5)  
}
```

Origination Date: 3/12/08

Originator: LNPAWG

Change Order Number: NANC 435

Description: URI Fields (SMS)

Cumulative SP Priority, Average: #17, 14.53

Functional Backwards Compatible: YES

IMPACT/CHANGE ASSESSMENT

FRS	IIS	GDMO	ASN.1	NPAC	SOA	LSMS
Y	Y	N	N	Low	Med	Med-High (new downstream interface). After first URI field, all subsequent ones Low.

Business Need:

Short Messaging Service (SMS) Field:

SMS (texting) is a store and forward messaging service that allows SMS-compatible subscribers to send and receive short text messages. SMS subscribers are addressed via their 10-digit telephone number and an e-mail address. SMS is transported via IP by the originating network using URIs to indicate the network address or gateway SMSC of the terminating user. Historically SMS has been a feature for wireless users only, but today it is growing into a broadband wireline feature as a result of the growth of IP-based broadband networks.

SMS originating Carriers need to know if a terminating 10 digit TN is SMS capable (wireless or broadband) and if SMS capable the address of the SMSC. This allows a message to be efficiently transported between the originating and terminating carrier networks. Having a standardized central source to locate the TN/SMS mapping will eliminate attempts to deliver messages to non-SMS capable TNs and reduce customer complaints over dropped or missed messages that have not, nor could be delivered. The NPAC SMS URI parameter function would be analogous to the DPC/SSN gateway data in the NPAC; that is, the “URI” would merely identify the carrier gateway (SMSC) appropriate for sending/receiving an SMS message to a particular ported or pooled TN.

The availability of the SMS URI will allow originating carriers to recognize SMS capable TNs so that IP based carriers delivering service to traditionally “landline” numbers from wireless TNs can determine if the TN is SMS capable and use the URI for terminating network routing information. Increased usage and a high success rate on message delivery are the two primary benefits of this new NPAC feature.

Jun '08 LNPAWG, discussion:

After walking through the Business Need section, and a brief explanation of the Description of Change, the group agreed to accept this change order, and allow it to be prioritized along with the change orders for the next package.

Description of Change:

The NPAC/SMS will provide the ability to provision an SMS URI for each SV and Pooled Block record.

This information will be provisioned by the SOA and broadcast to the LSMS upon activation of the SV or Pooled Block and upon modification for those SOA and LSMS associations optioned “on” to send and receive this data.

This field shall be added to the Bulk Data Download file, and be 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.

The OptionalData CMIP attribute will be populated with an XML string. The string is defined by the schema documented in the XML section below. XML is used to provide future flexibility to add additional fields to the SV records and Pool Block records when approved by the LLC.

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

Requirements:

Section 1.2, NPAC SMS Functional Overview

Add a new section that describes the functionality of the SMS URI (Uniform Resource Identifier) Field (Optional Data). See description of Change above.

Section 3.1, NPAC SMS Data Models

Add new attribute for the SMS URI (Uniform Resource Identifier) Field (Optional Data). See below:

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

Table 3-2 NPAC Customer Data Model

SUBSCRIPTION VERSION DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[snip]			
SMS URI	C (255)		SMS URI for Subscription Version. This field may only be specified if the service provider SOA supports SMS URI. The SMS URI is the network address to the Service Provider's gateway for short messaging service.

SUBSCRIPTION VERSION DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[snip]			

Table 3-6 Subscription Version Data Model

NUMBER POOLING BLOCK HOLDER INFORMATION DATA MODEL			
Attribute Name	Type (Size)	Required	Description
[snip]			
SMS URI	C (255)		SMS URI for Number Pool Block. This field may only be specified if the service provider SOA supports SMS URI. The SMS URI is the network address to the Service Provider's gateway for short messaging service.
[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, **SMS URI (if the requesting SOA supports SMS 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), **SMS URI (if the requesting SOA supports SMS 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]
 - SMS URI (for Local SMSs that support SMS URI)
 - [snip]
- Block Data
 - [snip]
 - SMS URI, (for Local SMSs that support SMS)
 - [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]

SMS 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]

SMS 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 SMS URI field (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 SMS URI Support Indicator

NPAC Customer LSMS SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS 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]
- SMS URI (Value set to same field as Block)

Req 1 – Service Provider SOA SMS URI Edit Flag Indicator

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

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

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

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

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

Req 4 – Service Provider LSMS SMS URI Edit Flag Indicator

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

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

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

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

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

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

NPAC SMS shall, for a Service Provider that supports SMS URI, send the SMS 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 8 Activate Number Pool Block - Send SMS URI to Local SMSs

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

Req 9 Audit for Support of SMS URI

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

Appendix B – Glossary

URI – Uniform Resource Identifier

Appendix E – Bulk Data Download File Examples.

NOTE: If a Service Provider supports SMS URI, the format of the Bulk Data Download file will contain delimiters for the attribute.

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

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	SMS URI	Not present if LSMS or SOA does not support the SMS URI as shown in this example. If it were present the value would be as defined in the SV Data Model.

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 SMS URI Indicator” is set in the service provider’s profile on the NPAC SMS, the following attributes may optionally be included:

SMS 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]

SMS 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]

SMS URI – if supported by the Service Provider SOA

Flow B.5.6 – Subscription Version Query

[snip]

The query return data includes:

[snip]

SMS URI – if supported by the Service Provider (SOA, LSMS)

GDMO:

No change required.

ASN.1:

No change required.

XML:

Note – the XML shown below is existing NANC 399 and new NANC 435.

```
<?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="SMSURI" type="Generic-URI" nillable="true" minOccurs="0"/>
    </xs:sequence>
  </xs:complexType>
  <xs:element name="OptionalData" type="OptionalData"/>
</xs:schema>
```