NATIONAL NUMBER POOLING

IIS FLOWS

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Table of Content

1 NUMBER POOL BLOCK.....3

1.1 NUMBER POOL BLOCK CREATE BY SOA.....4
1.2 NUMBER POOL BLOCK CREATE BY NPAC SMS.....6
1.3 NUMBER POOL BLOCK CREATE BROADCAST: SUCCESSFUL.....8
1.4 NUMBER POOL BLOCK CREATE BROADCAST TO LOCAL SMS: FAILURE.....12
1.5 NUMBER POOL BLOCK CREATE BROADCAST TO LOCAL SMS: PARTIAL FAILURE.....14
1.6 NUMBER POOL BLOCK MODIFY BY NPAC SMS.....18
1.7 NUMBER POOL BLOCK MODIFY BROADCAST TO LOCAL SMS SUCCESS.....20
1.8 NUMBER POOL BLOCK MODIFY BROADCAST TO LOCAL SMS FAILURE.....22
1.9 NUMBER POOL BLOCK MODIFY BROADCAST TO LOCAL SMS PARTIAL FAILURE.....24
1.10 NUMBER POOL BLOCK DE-POOL BY NPAC SMS.....27
1.11 NUMBER POOL BLOCK DE-POOL BROADCAST SUCESS.....28
1.12 NUMBER POOL BLOCK DE-POOL BROADCAST TO LOCAL SMS FAILURE.....31
1.13 NUMBER POOL BLOCK DE-POOL BROADCAST TO LOCAL SMS PARTIAL FAILURE.....33

2 PORT-TO-ORIGINAL SUBSCRIPTION VERSION FLOWS.....36

2.1 SUBSCRIPTION VERSION PORT-TO-ORIGINAL OF A POOL TN ACTIVATION BY SOA.....37
2.2 SUBSCRIPTION VERSION CREATE PORT-TO-ORIGINAL OF A POOL TN: FAILURE TO ALL LOCAL SMSS.....45
2.3 SUBSCRIPTION VERSION CREATE PORT-TO-ORIGINAL OF A POOL TN: PARTIAL FAILURE TO ONE OR MORE LOCAL SMSS.....53
2.4 SUBSCRIPTION VERSION CREATE PORT-TO-ORIGINAL OF A POOL TN: RESEND SUCCESSFUL TO LOCAL SMS.....61
2.5 SUBSCRIPTION VERSION CREATE PORT-TO-ORIGINAL OF A POOL TN: RESEND FAILURE TO LOCAL SMS.....69

3 DISCONNECT SUBSCRIPTION VERSION SCENARIOS.....78

3.1 SUBSCRIPTION VERSION IMMEDIATE DISCONNECT.....79
3.2 SUBSCRIPTION VERSION DISCONNECT WITH EFFECTIVE RELEASE.....83
3.3 SUBSCRIPTION VERSION DISCONNECT: FAILURE TO LOCAL.....85
3.4 SUBSCRIPTION VERSION DISCONNECT: PARTIAL FAILURE TO LOCAL SMS.....88
3.5 SUBSCRIPTION VERSION DISCONNECT: RESEND SUCCESSFUL TO LOCAL SMS.....91
3.6 SUBSCRIPTION VERSION DISCONNECT: RESEND FAILURE TO LOCAL SMS.....95

4 RESYNCHRONIZATION.....99

4.1 SEQUENCING OF EVENTS ON INITIALIZATION/RESYNCHRONIZATION OF EDR LOCAL SMS 100

5 AUDITS.....102

5.1 SOA AUDIT CREATE.....103
5.2 NPAC AUDIT CREATE.....104

1 Number Pool Block

This section contains the flows that demonstrate number pool block creation, modification and deletion.

1.1 Number Pool Block Create by SOA

In this scenario, the block holder service provider sends in the M-CREATE for the number pool block to be created.

Action is taken by the block holder service provider SOA to create a number pool block.

1. The block holder service provider SOA sends the M-CREATE for the number PoolBlock to the NPAC SMS. The block holder service provider must provide the following attributes:

numberPoolBlockStartTN
numberPoolBlockEndTN
numberPoolBlockSPID
numberPoolBlockLRN
numberPoolBlockCLASS-DPC
numberPoolBlockCLASS-SSN
numberPoolBlockCNAM-DPC
numberPoolBlockCNAM-SSN
numberPoolBlockISVM-DPC
numberPoolBlockISVM-SSN
numberPoolBlockLIDB-DPC
numberPoolBlockLIDB-SSN
numberPoolBlockEndUserLocationValue
numberPoolBlockEndUserLocationType
numberPoolBlockBillingID
numberPoolBlockDownloadReason

The NPAC SMS verifies there are no subscription version objects within the given TN range with a status of pending, conflict, cancel-pending or failed and no active subscription version for that TN or the “pending” subscription version is a Port-to-Original request. If such objects exist, the NPAC SMS will reject the block creation with an appropriate error message.

If no objectionable subscription version exists, the NPAC SMS creates the numberPoolBlockNPAC object. The numberPoolBlockSOA-Origination flag is set to TRUE. The numberPoolBlockCreationTimeStamp, numberPoolBlockBroadcastTimeStamp and numberPoolBlockModifiedTimeStamp are set. The numberPoolBlockStatus is set to “sending”.

2. The NPAC SMS will respond with the M-CREATE response. If any attribute fails validation on the NPAC SMS, an action failure will be returned indicating invalidArgumentValue. Other appropriate errors will also be returned.

If the M-CREATE is successful, the numberPoolBlockId will be returned in the M-CREATE response.

3. If the request is valid, the NPAC SMS will create the corresponding subscriptionVersionNPAC object(s). The subscriptionLNPType will be set to ‘POOL’, subscriptionVersionStatus will be set to “sending” and the subscriptionModifiedTimeStamp and subscriptionCreationTimeStamp will be set.

4. NPAC SMS responds to the M-CREATE.

5. NPAC SMS sends the M-EVENT-REPORT objectCreation for the numberPoolBlockNPAC to the SOA. The following attributes will be sent in the objectCreation notification:

numberPoolBlockId
numberPoolBlockCreationTimeStamp
numberPoolBlockBroadcastTimeStamp
numberPoolBlockModifiedTimeStamp
numberPoolBlockSOA-OriginationTimeStamp
numberPoolBlockStatus
numberPoolBlockStartTN
numberPoolBlockEndTN
numberPoolBlockSPID
numberPoolBlockLRN
numberPoolBlockCLASS-DPC
numberPoolBlockCLASS-SSN
numberPoolBlockCNAM-DPC
numberPoolBlockCNAM-SSN
numberPoolBlockISVM-DPC
numberPoolBlockISVM-SSN
numberPoolBlockLIDB-DPC
numberPoolBlockLIDB-SSN
numberPoolBlockEndUserLocationValue
numberPoolBlockEndUserLocationType
numberPoolBlockBillingID
numberPoolBlockDownloadReason

6. The service provider SOA confirms the M-EVENT-REPORT.

The next scenario is ‘Number Pool Block Create Broadcast to Local SMS’.

1.2 Number Pool Block Create by NPAC SMS

In this scenario, the NPAC SMS creates the number pool block. Since the SOA does not send in the creation request, all notifications (M-EVENT-REPORTs) to the SOA will be suppressed.

Action is taken by the NPAC SMS to create a number pool block.

1. NPAC SMS personnel M-CREATE the numberPoolBlockNPAC on the NPAC SMS for a service provider block holder. The following attributes are required:

    numberPoolBlockStartTN
    numberPoolBlockEndTN
    numberPoolBlockSPID
    numberPoolBlockLRN
    numberPoolBlockCLASS-DPC
    numberPoolBlockCLASS-SSN
    numberPoolBlockCNAM-DPC
    numberPoolBlockCNAM-SSN
    numberPoolBlockISVM-DPC
    numberPoolBlockISVM-SSN
    numberPoolBlockLIDB-DPC
    numberPoolBlockLIDB-SSN
    numberPoolBlockEndUserLocationValue
    numberPoolBlockEndUserLocationType
    numberPoolBlockBillingID
    numberPoolBlockDownloadReason

The NPAC SMS verifies there are no subscription version objects within the given TN range with a status of pending, conflict, cancel-pending or failed and no active subscription version for that TN or the “pending” subscription version is a Port-to-Original request. If such objects exist, the NPAC SMS will reject the block creation with an appropriate error message.

The numberPoolBlockSOA-Origination flag is set to FALSE. The numberPoolBlockCreationTimeStamp, numberPoolBlockBroadcastTimeStamp and numberPoolBlockModifiedTimeStamp are set. The numberPoolBlockStatus is set to “sending”.

2. The NPAC SMS responds to the M-CREATE. An appropriate error will be returned if objectionable subscriptions exist, an attribute is invalid or other validation problems occur.

3. The NPAC SMS creates the corresponding subscriptionVersionNPAC object. The subscriptionLNPType will be set to ‘POOL’, the subscriptionVersionStatus will be set to “sending” and the subscriptionModifiedTimeStamp and subscriptionCreationTimeStamp will be set.

4. NPAC SMS responds to the M-CREATE.

The next scenario is ‘Number Pool Block Create Broadcast to Local SMS’.

1.3 Number Pool Block Create Broadcast: Successful

In this scenario, the number pool block and corresponding subscription versions have been created on the NPAC SMS. The NPAC SMS now begins to broadcast the subscriptionVersions and numberPoolBlock data.

1.3.1 Number Pool Block Create Broadcast to Local SMS

1. NPAC SMS issues the subscriptionVersionLocalSMS-Create action to the non-EDR Local SMS, if it is accepting downloads for the NPA-NXX of the subscription versions. This action contains all data required to create the subscription versions with the subscriptionLNPType of 'POOL'.
2. The non-EDR Local SMS verifies the action is valid and returns an acknowledgment.
3. The non-EDR Local SMS proceeds to execute all the creates specified by the action. The non-EDR Local SMS sends to the NPAC SMS the M-EVENT-REPORT specifying the success or failure of the creates.
4. NPAC SMS confirms the M-EVENT-REPORT.
5. NPAC SMS sends the M-CREATE for the numberPoolBlock to the EDR Local SMS.
6. The EDR Local SMS sends to the NPAC SMS the results of the M-CREATE.

The NPAC SMS now waits for all responses a tunable amount of time (default 1 hours).

1.3.2 Number Pool Block Create: Successful Broadcast

In this scenario, the NPAC SMS has just completed the successful broadcast of a numberPoolBlock and corresponding subscriptionVersions.

1. NPAC SMS updates all the subscriptionVersionNPACs that were broadcasted by setting the subscriptionVersionStatus to ‘active’ and setting the subscriptionVersionModifiedTimeStamp to the current date and time.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS updates the numberPoolBlock by setting the numberPoolBlockStatus to ‘active’ and setting the numberPoolBlockModifiedTimeStamp and numberPoolBlockBroadcastCompleteTimeStamp to the current date and time.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus set to ‘active’.

6. Block holder SOA confirms the M-EVENT-REPORT.

1.4 Number Pool Block Create Broadcast to Local SMS: Failure

In this scenario, the NPAC SMS has a numberPoolBlock and corresponding subscriptionVersions in ‘sending’ state for creation to the Local SMSs.

1. NPAC SMS sends the M-ACTION subscriptionVersionLocalSMS-Create request to all the non-EDR Local SMSs.

2. NPAC SMS sends the M-CREATE numberPoolBlock request to all the EDR Local SMSs.

NPAC SMS waits for all the responses.

NPAC SMS retries any Local SMS who does not respond.

NPAC SMS receives no responds or receives errors in response to the create requests from all Local SMSs (EDR and non-EDR).

3. NPAC SMS sets the subscriptionVersionNPAC's subscriptionVersionStatus to 'failed'. The subscriptionFailedSP-List gets updated with the failed service providers and the subscriptionVersionModifiedTimeStamp gets set.
4. NPAC SMS responds to the M-SET.
5. NPAC SMS sets the numberPoolBlock's numberPoolBlockStatus to 'failed'. The subscirptionFailedSP-List gets updated with the failed service providers and the subscriptionVersionModifiedTimeStamp gets set.
6. If the numberPoolBlock's SOA Origination flag is set to 'true', the NPAC SMS sends the M-EVENT-REPORT for the numberPoolBlock with the numberPoolBlockStatus set to 'failed' and the subscriptionFailedSP-List to the originating SOA.
7. The SOA confirms the M-EVENT-REPORT.

8. Number Pool Block Create Broadcast to Local SMS: Partial Failure

In this scenario, the NPAC SMS has a numberPoolBlock and corresponding subscriptionVersions in ‘sending’ state for creation to the Local SMSs.

1.4.1 Broadcast to Local SMSs

1. NPAC SMS issues the subscriptionVersionLocalSMS-Create action to the non-EDR Local SMS, if it is accepting downloads for the NPA-NXX of the subscription versions. This action contains all data required to create the subscription versions with the subscriptionLNPType of ‘POOL’.
2. The non-EDR Local SMS verifies the action is valid and returns an acknowledgment.
3. The non-EDR Local SMS proceeds to execute all the creates specified by the action. The non-EDR Local SMS sends to the NPAC SMS the M-EVENT-REPORT specifying the success or failure of the creates.
4. NPAC SMS confirms the M-EVENT-REPORT.

5. NPAC SMS sends the M-CREATE for the numberPoolBlock to the EDR Local SMS.
6. The EDR Local SMS sends to the NPAC SMS the results of the M-CREATE.

The NPAC SMS now waits for all responses a tunable amount of time (default 1 hours) and retries any non-responding Local SMSs.

1.4.2 Broadcast Partially Failed

NPAC SMS receives a successful response to the create request from at least one, but not all, Local SMSs (EDR and non-EDR).

1. NPAC SMS issues an M-SET to the subscriptionVersionNPAC(s) setting the subscrptionVersionStatus to ‘partially-failed’ and setting the subscriptionFailedSP-List to the list of failed service providers. The subscriptionModifiedTimeStamp is also set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues an M-SET to the number PoolBlockNPAC setting the numberPoolBlockStatus to ‘partially-failed’ and setting the subscriptionFailedSP-List to the lsit of failed service providers. The numberPoolBlockModifiedTimeStamp is also set.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to ‘true’, the NPAC SMS sends the originating SOA the M-EVENT-REPORT attributeValueChange for the numberPoolBlockStatus set to ‘partially-failed’ and the subscriptionFailedSP-List.
6. The Originating SOA confirms the M-EVENT-REPORT.

1.5 Number Pool Block Modify by NPAC SMS

This scenario shows the modification of a number pool block object by NPAC Personnel.

Action is taken by NPAC personnel to modify the data on a number pool block.

1. NPAC SMS issues the M-SET to modify attribute data on the numberPoolBlock. The following attributes can be modified:

   numberPoolBlockLRN
   numberPoolBlockCLASS-DPC
   numberPoolBlockCLASS-SSN
   numberPoolBlockCNAM-DPC
   numberPoolBlockCNAM-SSN
   numberPoolBlockISVM-DPC
   numberPoolBlockISVM-SSN
   numberPoolBlockLIDB-DPC
   numberPoolBlockLIDB-SSN
   numberPoolBlockEndUserLocationValue
   numberPoolBlockEndUserLocationType
   numberPoolBlockBillingID
   numberPoolBlockDownloadReason

In addition, the numberPoolBlockStatus gets set to ‘sending’ and the numberPoolBlockBroadcastTimeStamp gets set.

2. NPAC SMS responds to the M-SET.

3. NPAC SMS issues the M-SET to modify the attribute data on the corresponding subscriptionVersionNPAC object(s). Only the following attribute can be modified:

subscriptionVersionLRN
subscriptionVersionCLASS-DPC
subscriptionVersionCLASS-SSN
subscriptionVersionCNAM-DPC
subscriptionVersionCNAM-SSN
subscriptionVersionISVM-DPC
subscriptionVersionISVM-SSN
subscriptionVersionLIDB-DPC
subscriptionVersionLIDB-SSN
subscriptionVersionEndUserLocationValue
subscriptionVersionEndUserLocationType
subscriptionVersionBillingID
subscriptionVersionDownloadReason

In addition, the NPAC SMS sets the subscriptionVersionStatus.

4. NPAC SMS responds to the M-SET.

5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus set to ‘sending’.

6. Block holder SOA confirms the M-EVENT-REPORT.

The next scenario is ‘Number Pool Block Modify Broadcast to Local SMS’.

1.6 Number Pool Block Modify Broadcast to Local SMS Success

In this scenario, the NPAC SMS has made a modification to a number pool block object and is about to broadcast the data to the Local SMS.

1.6.1 Broadcast to Local SMS

The NPAC SMS has a number pool block object and corresponding subscription version objects in a state of 'sending'.

1. NPAC SMS sends the M-SET for the updated attributes on the subscription version object(s) to the non-EDR Local SMS who are accepting downloads for the NPA-NXX.
2. Non-EDR Local SMS responds to the M-SET.
3. NPAC SMS sends the M-SET for the updated attributes on the number pool block object to the EDR Local SMS.
4. EDR Local SMS responds to the M-SET

1.6.2 Broadcast Successful

In this scenario, the NPAC SMS has received successful M-SET responses from all the Local SMS for the numberPoolBlock and corresponding subscriptionVersions.

1. NPAC SMS updates all the subscriptionVersionNPACs that were broadcasted by setting the subscriptionVersionStatus to ‘active’ and setting the subscriptionVersionModifiedTimeStamp to the current date and time.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS updates the numberPoolBlock by setting the numberPoolBlockStatus to ‘active’ and setting the numberPoolBlockModifiedTimeStamp and numberPoolBlockBroadcastCompleteTimeStamp to the current date and time.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus.
6. Block holder SOA confirms the M-EVENT-REPORT.

7. Number Pool Block Modify Broadcast to Local SMS Failure

NPAC SMS has a numberPoolBlock and corresponding subscriptionVersion in ‘sending’ state for modifications.

1. NPAC SMS sends the M-SET with the modifications for the subscriptionVersion to the non-EDR Local SMS.
2. NPAC SMS sends the M-SET with the modifications for the numberPoolBlock to the EDR Local SMS.
3. NPAC SMS sets the subscriptionVersionStatus to ‘active’, sets the subscriptionFailedSP-List to the list of failed service providers and sets the subscriptionVersionModifiedTimeStamp.
4. NPAC SMS responds to the M-SET.

5. NPAC SMS sets the numberPoolBlockStatus to ‘active’ and sets the subscriptionFailedSP-List to the list of failed service providers. The numberPoolBlockModifiedTimeStamp also gets set.

6. NPAC SMS responds to the M-SET.

7. If the numberPoolBlockSOA-Origination flag is set to ‘true’, the NPAC SMS sends the originating SOA the M-EVENT-REPORT attributeValueChange with the numberPoolBlockStatus and subscriptionFailedSP-List.

8. SOA confirms M-EVENT-REPORT.

1.7 Number Pool Block Modify Broadcast to Local SMS Partial Failure

In this scenario, the NPAC SMS has a numberPoolBlock and corresponding subscriptionVersion object(s) in a state of ‘sending’ for a modification to the Local SMS.

1.7.1 Broadcast to Local SMSs

The NPAC SMS has a number pool block object and corresponding subscription version objects in a state of ‘sending’.

1. NPAC SMS sends the M-SET for the updated attributes on the subscription version object(s) to the non-EDR Local SMS who are accepting downloads for the NPA-NXX.
2. Non-EDR Local SMS responds to the M-SET.
3. NPAC SMS sends the M-SET for the updated attributes on the number pool block object to the EDR Local SMS.
4. EDR Local SMS responds to the M-SET.

NPAC SMS waits for a response from all Local SMSs.

NPAC SMS retries any Local SMS that has not responded.

1.7.2

1.7.3 Broadcast Partial Failure Updates

1. NPAC SMS updates all the subscriptionVersionNPACs that were broadcasted by setting the subscriptionVersionStatus to ‘active’ and updating the subscriptionFailedSP-List to the list of failed service providers. The subscriptionVersionModifiedTimeStamp is set to the current date and time.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS updates the numberPoolBlock by setting the numberPoolBlockStatus to ‘active’ and setting the subscriptionFailedSP-List to the list of currently failed service providers. It also sets the numberPoolBlockModifiedTimeStamp and numberPoolBlockBroadcastCompleteTimeStamp to the current date and time.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus set to ‘active’ and the subscritpionFailedSP-List.
6. Block holder SOA confirms the M-EVENT-REPORT.

1.8 Number Pool Block De-Pool by NPAC SMS

This scenario reflects the events that occur when a block is “De-Pooled”. Only NPAC Personnel are allowed to remove a number pool block object.

Action is taken by NPAC personnel to ‘de-pool’ a block of TNs.

1. NPAC SMS issues the M-SET to update the numberPoolBlockStatus gets set to ‘sending’ and the numberPoolBlockBroadcastTimeStamp gets set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues the M-SET to update the corresponding subscriptionVersions to ‘sending’ and the subscriptionVersionModifiedTimeStamp gets set. NPAC SMS responds to the M-SET.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus set to ‘sending’.
6. Block holder SOA confirms the M-EVENT-REPORT.

The next scenario is ‘Number Pool Block De-Pool Broadcast to Local SMS’

1.9 **Number Pool Block De-Pool Broadcast Sucess**

In this scenario, the NPAC personnel have initiated the “De-Pool” of a block of TNs. The NPAC SMS already has the numberPoolBlock and corresponding subscriptionVersions in the “sending” state.

1.9.1 Broadcast to Local SMS

The NPAC SMS has a number pool block
object and corresponding subscription
version objects in a state of ‘sending’.

1. NPAC SMS sends the M-DELETE
for the subscription version
object(s) to the non-EDR Local SMS
who are accepting downloads for the
NPA-NXX.

2. Non- EDR Local SMS responds
to the M- DELETE.

3. NPAC SMS sends the M-DELETE
for the number pool block object to
the EDR Local SMS.

4. EDR Local SMS responds to the
M- DELETE.

1.9.2 Broadcast Successful Updates

NPAC SMS has received successful responses to all numberPoolBlock and subscriptionVersion M-DELETE requests.

1. NPAC SMS updates all the subscriptionVersionNPACs that were broadcasted by setting the subscriptionVersionStatus to ‘old’ and setting the subscriptionVersionModifiedTimeStamp to the current date and time.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS updates the numberPoolBlock by setting the numberPoolBlockStatus to ‘old’ and setting the numberPoolBlockModifiedTimeStamp and numberPoolBlockBroadcastCompleteTimeStamp to the current date and time.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus set to ‘old’.
6. Block holder SOA confirms the M-EVENT-REPORT.

7. Number Pool Block De-Pool Broadcast to Local SMS Failure

This scenario shows the failure of a broadcast for a de-pool of a number pool block.

1. NPAC SMS sends the M-DELETE with the modifications for the subscriptionVersion to the non-EDR Local SMS.

2. NPAC SMS sends the M-DELETE with the modifications for the numberPoolBlock to the EDR Local SMS.

3. NPAC SMS sets the subscriptionVersionStatus to ‘active’, sets the subscriptionFailedSP-List to the list of failed service providers and sets the subscriptionVersionModifiedTimeStamp.

4. NPAC SMS responds to the M-SET.

5. NPAC SMS sets the numberPoolBlockStatus to ‘active’ and sets the subscriptionFailedSP-List to the list of failed service providers. The numberPoolBlockModifiedTimeStamp and numberPoolBlockBroadcastCompleteTimeStamp also gets set.

6. NPAC SMS responds to the M-SET.

7. If the numberPoolBlockSOA-Origination flag is set to ‘true’, the NPAC SMS sends the originating SOA the M-EVENT-REPORT attributeValueChange with the numberPoolBlockStatus and subscriptionFailedSP-List.

8. SOA confirms M-EVENT-REPORT.

1.10 **Number Pool Block De-Pool Broadcast to Local SMS Partial Failure**

This scenario shows the processing of a partial-failure for the de-pool of a number pool block.

1.10.1 Broadcast to Local SMS

The NPAC SMS has a number pool block object and corresponding subscription version objects in a state of 'sending'.

1. NPAC SMS sends the M-DELETE for the subscription version object(s) to the non-EDR Local SMS who are accepting downloads for the NPA-NXX.
2. Non-EDR Local SMS responds to the M-DELETE.
3. NPAC SMS sends the M-DELETE for the number pool block object to the EDR Local SMS.
4. EDR Local SMS responds to the M-DELETE.

NPAC SMS waits for a response from all Local SMSs.

NPAC SMS retries any Local SMS that has not responded.

1.10.2 Broadcast Partial Failure Updates

No response or an error is received from at least one Local SMS.

1. NPAC SMS updates all the subscriptionVersionNPACs that were broadcasted by setting the subscriptionVersionStatus to 'old' and updating the subscriptionFailedSP-List to the list of failed service providers. The subscriptionVersionModifiedTimeStamp is set to the current date and time.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS updates the numberPoolBlock by setting the numberPoolBlockStatus to 'old' and setting the subscriptionFailedSP-List to the list of currently failed service providers. It also sets the numberPoolBlockModifiedTimeStamp and numberPoolBlockBroadcastCompleteTimeStamp to the current date and time.
4. NPAC SMS responds to the M-SET.
5. If the numberPoolBlockSOA-Origination flag is set to TRUE, the NPAC SMS sends the M-EVENT-REPORT for the attribute value change to the block holder SOA. The attribute value change would contain the numberPoolBlockStatus set to 'old' and the subscritpionFailedSP-List.
6. Block holder SOA confirms the M-EVENT-REPORT.

2 Port-to-Original Subscription Version Flows

This section contains Port-to-Original flows whose subscription version TNs are part of a pooled block and therefore the behavior of these scenarios are different than normal LISP or LSSP subscription version processing.

2.1 Subscription Version Port-to-Original of a Pool TN Activation by SOA

The following scenarios show the broadcast of a Port-to-Original subscription version that is successfully sent to all of the Local SMSs. In this scenario:

- SV1 is the currently active Subscription Version.
- SV2 is the current pending Subscription Version with the Port-To-Original flag set to TRUE.
- SV3 is the pool reinstatement Subscription Version with LNPType = Pool that reinstates default routing to the block holder.

2.1.1 SOA Activation and SV2 Set to Sending

This scenario shows the activation by the new service provider SOA and the update to ‘sending’ of SV2.

1. The new service provider SOA issues a subscriptionVersionActivate M-ACTION to the NPAC SMS lnpSubscriptions object to activate the pending subscription version SV2 by specifying the subscription version ID, subscription version TN, or a range of subscription version TNs.

2. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV2.

3. NPAC SMS responds to the M-SET.

4. The NPAC SMS responds with the M-ACTION response. An error will be returned if the service provider is not the new service provider (accessDenied) or if there is no version to be activated (invalidArgumentValue) or if any other failures occur.

5. If the M-ACTION was successful, the NPAC SMS sends to the new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

6. The new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

7. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

8. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.1.2

2.1.3 SV1 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV1.

2. NPAC SMS responds to the M-SET.

3. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA, who is the current service provider for SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV1.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. NPAC SMS issues the M-DELETE to the EDR Local SMS for the SV1. The EDR Local SMS will revert back to using the routing information in the number pool block object for the TN in the subscription version.

6. The EDR Local SMS responds to the M-DELETE.

2.1.4 SV3 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV3.

2. NPAC SMS responds to the M-SET.

3. NPAC SMS sends out an M-CREATE on the subscription version SV3 to all non-EDR Local SMSs, that are accepting downloads for the NPA-NXX of subscription Version SV3. If the M-CREATE is for multiple subscription versions, a scoped and filtered operation will be sent. The SV3 created on the non-EDR Local SMS systems contains the default block routing information and has an LNP Type of “POOL”. The NPAC SMS would put this information on SV3 in the NPAC SMS for the port since no routing information is sent for this type of port (POOL) over the SOA to NPAC SMS interface. The NPAC SMS schedules an LSMS Response Timer for each subscription version.

4. Each Local SMS responds to the M-CREATE.

2.1.5 Broadcast Complete SV1 and SV3 Updates

All Local SMSs respond successfully.

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV3 to active. The subscriptionModifiedTimeStamp is also set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV1 to old. It also sets the subscriptionModifiedTimeStamp.
4. NPAC SMS responds to the M-SET.

5. The NPAC SMS sends to the old service provider SOA, who is the current service provider on SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV1.
6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS

2.1.6 Broadcast Complete SV2 Updates

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV2 to old. It also sets the subscriptionModifiedTimeStamp.

2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV2.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the current/new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV2.

6. The current/new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

After a tunable amount of days, the subscription versions SV1 and SV2 are purged by the NPAC SMS housekeeping process.

Subscription Version Create Port-to-Original of a Pool TN: Failure to All Local SMSs

This scenario shows the broadcast of a Port-to-Original subscription version that fails to all of the Local SMSs.

- SV1 is the active Subscription Version.
- SV2 is the pending Subscription Version with the Port to Original flag set to TRUE.
- SV3 is the pool reinstatement Subscription Version with LNPType = Pool that reinstates default routing to the block holder.

2.1.7 SOA Activation and SV2 Set to Sending

This scenario shows the activation by the new service provider SOA and the update to ‘sending’ of SV2.

1. SOA

The new service provider issues a subscriptionVersionActivate M-ACTION to the NPAC SMS lnpSubscriptions object to activate the pending subscription version SV2 by specifying the subscription version ID, subscription version TN, or a range of subscription version TNs.

2. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV2.

3. NPAC SMS responds to the M-SET.

4. The NPAC SMS responds with the M-ACTION response. An error will be returned if the service provider is not the new service provider (accessDenied) or if there is no version to be activated (invalidArgumentValue) or if any other failures occur.

5. If the M-ACTION was successful, the NPAC SMS sends to the new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

6. The new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

7. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

8. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.1.8 SV1 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV1.

2. NPAC SMS responds to the M-SET.

3. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA, who is the current service provider for SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV1.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. NPAC SMS issues the M-DELETE to the EDR Local SMS for the SV1. The EDR Local SMS will revert back to using the routing information in the number pool block object for the TN in the subscription version.

2.1.9 SV3 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV3.

2. NPAC SMS responds to the M-SET.

3. NPAC SMS sends out an M-CREATE on the subscription version SV3 to all non-EDR Local SMSs, that are accepting downloads for the NPA-NXX of subscription Version SV3. If the M-CREATE is for multiple subscription versions, a scoped and filtered operation will be sent. The SV3 created on the non-EDR Local SMS systems contains the default block routing information and has an LNP Type of “POOL”. The NPAC SMS would put this information on SV3 in the NPAC SMS for the port since no routing information is sent for this type of port (POOL) over the SOA to NPAC SMS interface. The NPAC SMS schedules an LSMS Response Timer for each subscription version.

The NPAC SMS waits for a response from all Local SMSs (EDR and non-EDR).

The NPAC SMS retries any Local SMS that has not responded.

No response or an error is received from all of the EDR and non-EDR Local SMSs.

2.1.10

2.1.11 Broadcast Failure SV1 and SV3 Updates

None of the non-EDR Local SMSs has responded successfully to the M-CREATE request for SV3 nor have any of the EDR Local SMSs responded succesfully to the M-DELETE for SV1.

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV3 to failure. The subscriptionFailedSP-List is set to the list of failed service providers. The subscriptionModifiedTimeStamp is also set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV1 to active. It also sets the subscriptionModifiedTimeStamp.
4. NPAC SMS responds to the M-SET.
5. The NPAC SMS sends to the old service provider SOA, who is the current service provider on SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to active on SV1.

6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.1.12

2.1.13 Broadcast Failure SV2 Updates

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV2 to failed. It also sets the subscriptionModifiedTimeStamp and sets the subscriptionFailedSP-List.

2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange with the subscriptionVersionStatus being set to failed and the subscriptionFailedSP-List for SV2.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the current/new service provider SOA a subscriptionVersionStatusAttributeValueChange with the subscriptionVersionStatus being set to failed and the subscriptionFailedSP-List for SV2.

6. The current/new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.2 Subscription Version Create Port-to-Original of a Pool TN: Partial Failure to One or More Local SMSs

This scenario shows the broadcast of a Port-to-Original subscription version that fails to one or more, but not all, of the Local SMSs.

SV1 is the active Subscription Version.

SV2 is the pending Subscription Version with the Port-To-Original flag set to TRUE.

SV3 is the pool reinstatement Subscription Version with LNPType = Pool that reinstates default routing to the block holder.

2.2.1 SOA Activation and SV2 Set to Sending

1. The new service provider SOA issues a subscriptionVersionActivate M-ACTION to the NPAC SMS lnpSubscriptions object to activate the pending subscription version SV2 by specifying the subscription version ID, subscription version TN, or a range of subscription version TNs.

2. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV2.

3. NPAC SMS responds to the M-SET.

4. The NPAC SMS responds with the M-ACTION response. An error will be returned if the service provider is not the new service provider (accessDenied) or if there is no version to be activated (invalidArgumentValue) or if any other failures occur.

5. If the M-ACTION was successful, the NPAC SMS sends to the new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

6. The new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

7. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

8. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.2.2

2.2.3 SV1 to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV1.

2. NPAC SMS responds to the M-SET.

3. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA, who is the current service provider for SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV1.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. NPAC SMS issues the M-DELETE to the EDR Local SMS for the SV1. The EDR Local SMS will revert back to using the routing information in the number pool block object for the TN in the subscription version.

6. The EDR Local SMS responds to the M-DELETE.

2.2.4

2.2.5 SV3 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV3.

2. NPAC SMS responds to the M-SET.

3. NPAC SMS sends out an M-CREATE on the subscription version SV3 to all non-EDR Local SMSs, that are accepting downloads for the NPA-NXX of subscription Version SV3. If the M-CREATE is for multiple subscription versions, a scoped and filtered operation will be sent. The SV3 created on the non-EDR Local SMS systems contains the default block routing information and has an LNP Type of “POOL”. The NPAC SMS would put this information on SV3 in the NPAC SMS for the port since no routing information is sent for this type of port (POOL) over the SOA to NPAC SMS interface. The NPAC SMS schedules an LSMS Response Timer for each subscription version.

4. Each Local SMS responds to the M-CREATE.

2.2.6

2.2.7 Broadcast complete SV1 and SV3 Updates

At least one of the non-EDR Local SMSs has not responded successfully to the M-CREATE for SV3 and/or at least one of the EDR Local SMSs has not responded successfully to the M-DELETE for SV1.

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV3 to partial failure. The subscriptionModifiedTimeStamp is also set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV1 to old. It also sets the subscriptionModifiedTimeStamp.
4. NPAC SMS responds to the M-SET.
5. The NPAC SMS sends to the old service provider SOA, who is the current service provider on SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV1.

6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.2.8

2.2.9 Broadcast Complete SV2 Updates

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV2 to partially failed. It also sets the subscriptionModifiedTimeStamp and sets the subscriptionFailedSP-List.

2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange with the subscriptionVersionStatus being set to partially failed and the subscriptionFailedSP-List for SV2.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the current/new service provider SOA a subscriptionVersionStatusAttributeValueChange with the subscriptionVersionStatus being set to partially failed and the subscriptionFailedSP-List for SV2.

6. The current/new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.3 Subscription Version Create Port-to-Original of a Pool TN: Resend Successful to Local SMS

This scenario shows how the successful resend of a failed port-to-original broadcast is processed.

- SV1 is the active Subscription Version.
- SV2 is the pending Subscription Version with the Port-To-Original flag set to TRUE.
- SV3 is the pool reinstatement Subscription Version with LNPType = Pool that reinstates default routing to the block holder.

2.3.1 NPAC SMS Initiates Resend

1. The NPAC SMS sets the subscriptionVersionStatus to sending on the subscriptionVersionNPAC on SV2.
2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

4. The new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.3.2

2.3.3 SV1 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV1.

2. NPAC SMS responds to the M-SET.

3. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA, who is the current service provider for SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV1.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. NPAC SMS issues the M-DELETE to the EDR Local SMS for the SV1. The EDR Local SMS will revert back to using the routing information in the number pool block object for the TN in the subscription version.

6. The EDR Local SMS responds to the M-DELETE.

2.3.4

2.3.5 SV3 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV3.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS sends out an M-CREATE on the subscription version SV3 to all non-EDR Local SMSs, that are accepting downloads for the NPA-NXX of subscription Version SV3. If the M-CREATE is for multiple subscription versions, a scoped and filtered operation will be sent. The SV3 created on the non-EDR Local SMS systems contains the default block routing information and has an LNP Type of “POOL”. The NPAC SMS would put this information on SV3 in the NPAC SMS for the port since no routing information is sent for this type of port (POOL) over the SOA to NPAC SMS interface. The NPAC SMS schedules an LSMS Response Timer for each subscription version.
4. Each Local SMS responds to the M-CREATE.

All previously failed EDR and non-EDR Local SMSs have responded successfully.

2.3.6

2.3.7 Broadcast Complete SV1 and SV3 Updates

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV3 to active. The subscriptionModifiedTimeStamp is also set.

2. NPAC SMS responds to the M-SET.

3. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV1 to old. It also sets the subscriptionModifiedTimeStamp.

4. NPAC SMS responds to the M-SET.
5. The NPAC SMS sends to the old service provider SOA, who is the current service provider on SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV1.
6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS

2.3.8

2.3.9 Broadcast Complete SV2 Updates

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV2 to old. It also sets the subscriptionModifiedTimeStamp.

2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV2.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the current/new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old on SV2.

6. The current/new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

After a tunable amount of days, the subscription versions SV1 and SV2 are purged by the NPAC SMS housekeeping process.

2.4 Subscription Version Create Port-to-Original of a Pool TN: Resend Failure to Local SMS

This scenario shows how the successful resend of a failed port-to-original broadcast is processed.

- SV1 is the active Subscription Version.
- SV2 is the pending Subscription Version with the Port-To-Original flag set to TRUE.
- SV3 is the pool reinstatement Subscription Version with LNPType = Pool that reinstates default routing to the block holder.

2.4.1 NPAC SMS Initiates Resend

1. The NPAC SMS sets the subscriptionVersionStatus to sending on the subscriptionVersionNPAC on SV2.

2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the new service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

4. The new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV2.

6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.4.2

2.4.3 SV1 Set to Sending

7. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV1.

8. NPAC SMS responds to the M-SET.

9. If the M-ACTION was successful, the NPAC SMS sends to the old service provider SOA, who is the current service provider for SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to sending on SV1.

10. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

11. NPAC SMS issues the M-DELETE to the EDR Local SMS for the SV1. The EDR Local SMS will revert back to using the routing information in the number pool block object for the TN in the subscription version.

12. The EDR Local SMS responds to the M-DELETE.

2.4.4

2.4.5 SV3 Set to Sending

1. The NPAC SMS issues an M-SET request setting the subscriptionVersionStatus to “sending”, subscriptionBroadcastTimeStamp and subscriptionModifiedTimeStamp on the subscriptionVersionNPAC on SV3.

2. NPAC SMS responds to the M-SET.

3. NPAC SMS sends out an M-CREATE on the subscription version SV3 to all non-EDR Local SMSs, that are accepting downloads for the NPA-NXX of subscription Version SV3. If the M-CREATE is for multiple subscription versions, a scoped and filtered operation will be sent. The SV3 created on the non-EDR Local SMS systems contains the default block routing information and has an LNP Type of “POOL”. The NPAC SMS would put this information on SV3 in the NPAC SMS for the port since no routing information is sent for this type of port (POOL) over the SOA to NPAC SMS interface. The NPAC SMS schedules an LSMS Response Timer for each subscription version.

4. Each Local SMS responds to the M-CREATE.

2.4.6

2.4.7 Resend Broadcast Failure SV1 and SV3 Updates

At least one of the non-EDR Local SMSs has not responded successfully to the M-CREATE for SV3 and/or at least one of the EDR Local SMSs has not responded successfully to the M-DELETE for SV1.

1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV3 to partial failure or failure. The subscriptionModifiedTimeStamp, subscriptionBroadcastTimeStamp and subscriptionActivateBroadcastStartTimeStamp are set accordingly.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV1 to old or active. It also sets the subscriptionModifiedTimeStamp and subscriptionBroadcastTimeStamp.
4. NPAC SMS responds to the M-SET.

5. The NPAC SMS sends to the old service provider SOA, who is the current service provider on SV1, a subscriptionVersionStatusAttributeValueChange for the subscriptionVersionStatus being set to old or active on SV1.
6. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

2.4.8

2.4.9 Resend Broadcast Failure SV2 Updates

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1. NPAC SMS issues an M-SET updating the subscriptionVersionStatus of SV2 to failed or partially failed. It also sets the subscriptionModifiedTimeStamp and sets the subscriptionFailedSP-List.

2. NPAC SMS responds to the M-SET.

3. The NPAC SMS sends to the old service provider SOA a subscriptionVersionStatusAttributeValueChange with the subscriptionVersionStatus being set to failed or partially failed and the subscriptionFailedSP-List for SV2.

4. The old service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

5. The NPAC SMS sends to the current/new service provider SOA a subscriptionVersionStatusAttributeValueChange with the subscriptionVersionStatus being set to failed or partially failed and the subscriptionFailedSP-List for SV2.

6. The current/new service provider SOA returns an M-EVENT-REPORT confirmation to the NPAC SMS.

3 Disconnect Subscription Version Scenarios

This section contains the flows describing disconnects of subscription versions whose TNs are part of a pooled TN block.

3.1 Subscription Version Immediate Disconnect

The current service provider can disconnect an active subscription version that will return to the block holder. In this scenario, the disconnect is immediate where the TN returns to the block holder. In this scenario:

- SV1 is the currently active Subscription Version.
- SV2 is the pool reinstatement Subscription Version with LNPType = POOL that reinstates default routing to the block holder.

3.1.1 SOA Initiates Disconnect Request

Current service provider SOA personnel take action to disconnect a subscription version.

1. Service provider SOA issues an M-ACTION request to disconnect to the lnpSubscriptions object. The M-ACTION specifies either the subscriptionVersionId, or subscriptionTN or range of TNs, and also has NOT future dated (i.e., used the current date) the subscriptionEffectiveReleaseDate and the subscriptionCustomerDisconnectDate. The subscription version status must be active and no pending, failed, conflict or cancel-pending versions can exist.

2. NPAC SMS issues an M-SET to set the subscriptionCustomerDisconnectDate according to the disconnect action for SV1. The subscriptionVersionStatus for SV1 goes to "sending ". The subscriptionModifiedTimeStamp, subscriptionBroadcastTimeStamp and customerDisconnectDate are set accordingly.

3. NPAC SMS responds to whether M-SET was successful.

4. NPAC SMS responds to the M-ACTION. If the action failed, an error will be returned and processing will stop on this flow.

5. NPAC SMS notifies service provider SOA of status change to "sending" for SV1.

6. Service provider SOA confirms event report.

7. NPAC SMS sends the Donor service provider SOA notification that the subscription version is being disconnected with the customer disconnect date. This SOA is the block holder SOA.

8. The Donor service provider SOA confirms the M-EVENT-REPORT.

9. NPAC SMS sends the M-DELETE request to the EDR Local SMS to delete the existing subscription version and cause the routing to return to the number pool block.

10. EDR Local SMS sends its M-DELETE reply.

3.1.2

3.1.3 SV2 Set to Sending

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NPAC SMS issues M-SET updating the subscriptionVersionStatus to sending for subscriptionVersionNPAC objects for SV2.

2. NPAC SMS responds to M-SET.

3. NPAC SMS sends out an M-CREATE of a subscriptionVersion to all non-EDR Local SMSs that are accepting downloads for the NPA-NXX of the subscriptionVersion for SV2. If the M-CREATE is for multiple subscription versions, the subscriptionVersionLocalSMS-Create M-ACTION will be sent. The subscription version created on the Local SMS systems contains the default block routing information for the TN and has an LNP Type of “POOL”. The NPAC SMS schedules an LSMS Response Timer for each subscriptionVersion SV2.

4. Each Local SMS responds with a successful M-CREATE reply.

3.1.4 Broadcast Complete Updates

All Local SMSs respond successfully.

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NPAC SMS issues M-SET updating the subscriptionVersionStatus to active for subscriptionVersionNPAC objects for SV2. The subscriptionModifiedTimeStamp, and subscriptionActivateBroadcastSuccessTimeStamp (on first successful LSMS response) are set accordingly.

2. NPAC SMS responds to M-SET.

3. NPAC SMS issues M-SET updating the subscriptionVersionStatus to old for subscriptionVersionNPAC objects for SV1. It also sets the subscriptionModifiedTimeStamp and subscriptionDisconnectCompleteTimeStamp.

4. NPAC SMS responds to M-SET.

5. NPAC SMS issues an M-EVENT-REPORT to current service provider SOA of subscriptionVersionStatusAttributeValueChange being set to old on SV1.

6. The current service provider SOA confirms the M-EVENT-REPORT.

7. Subscription Version Disconnect With Effective Release

In this scenario, a future dated request is submitted to disconnect an active subscription version that will return to the block holder.

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Current service provider SOA personnel take action to disconnect a subscription version.

2. Current service provider SOA issues an M-ACTION request to disconnect the lnpSubscriptions object. The M-ACTION specifies either the subscriptionVersionId, or subscriptionTN, or range of TNs, and also has future dated the subscriptionEffectiveReleaseDate and the subscriptionCustomerDisconnectDate. The subscription version status must be active and no pending, failed, conflict, conflict-pending, or cancel-pending versions can exist.

3. NPAC SMS issues an M-SET to set the status to disconnect-pending, and set the subscriptionEffectiveReleaseDate, subscriptionCustomerDisconnectDate and the subscriptionModifiedTimeStamp of the existing subscriptionVersionNPAC.

4. NPAC SMS responds to M-SET.

5. NPAC SMS responds to M-ACTION. If the action fails, no modifications are applied and the processing stops.

6. NPAC SMS sends the subscriptionVersionStatusAttributeValueChange M-EVENT-REPORT to the current service provider SOA.

7. The current service provider SOA issues the M-EVENT-REPORT confirmation.

8. The NPAC SMS waits for the subscriptionEffectiveReleaseDate date to arrive.

3.2 Subscription Version Disconnect: Failure to Local

This scenario shows the broadcast of a disconnect subscription that fails to all of the Local SMSs. In this scenario:

- SV1 is the currently active Subscription Version.
- SV2 is the pool reinstatement Subscription Version with LNPType = POOL that reinstates default routing to the block holder.

3.2.1 NPAC SMS Sends M-DELETE and M-CREATE requests

NPAC SMS has a subscription version that is in the process of being disconnected. The subscription version TN is part of a number pool block. SV1, the subscription being disconnected, and SV2, the reinstatement of the routing data in the number pool block, are in a state of ‘sending’.

1. NPAC SMS sends the M-DELETE request to the EDR Local SMS for SV1.
2. NPAC SMS sends the M-CREATE request to the non-EDR Local SMS for SV2.

NPAC SMS waits for responses from all Local SMSs.

NPAC SMS retries each Local SMS that has not responded.

3.2.2 Broadcast Failure Updates to SV1 and SV2

NPAC SMS is attempting to disconnect a subscription version whose TN is a part of a number pool block.

No response occurs from any of the Local SMS, or all return failures to the M-CREATE or M-DELETE request, or a combination of the two.

1. NPAC SMS issues the M-SET to update the SV2 subscriptionVersionStatus from “sending” to “failed”. It also updates the subscriptionFailed-SPList with the service provider ID and name of all the Local SMSs. The subscriptionModifiedTimeStamp is also set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues the M-SET to update the SV2 subscriptionVersionStatus from “sending” to “active”. It also updates the subscriptionFailed-SPList with the service provider ID and name of all the Local SMSs. The subscriptionModifiedTimeStamp is also set.
4. NPAC SMS responds to the M-SET.
5. NPAC SMS sends the subscriptionVersonStatusAttributeValueChange M-EVENT-REPORT to the current service provider SOA with the current status for SV1 along with the subscrptionFailedSP-List.
6. Current service provider SOA issues the M-EVENT-REPORT confirmation.

3.3 Subscription Version Disconnect: Partial Failure to Local SMS

This scenario shows the broadcast of a disconnect subscription version that fails to one or more, but not all, Local SMSs. In this scenario:

- SV1 is the currently active Subscription Version.
- SV2 is the pool reinstatement Subscription Version with LNPType = POOL that reinstates default routing to the block holder.

3.3.1 NPAC SMS Sends M-CREATE and M-DELETE

NPAC SMS has a subscription version that is in the process of being disconnected. The subscription version TN is part of a number pool block. SV1, the subscription being disconnected, and SV2, the reinstatement of routing data in the number pool block, are in a state of 'sending'.

1. NPAC SMS sends the M-DELETE request to the EDR Local SMS for SV1.
2. The EDR Local SMS responds to the M-DELETE.
3. NPAC SMS sends the M-CREATE request to the non-EDR Local SMS for SV2.
4. The non-EDR Local SMS responds to the M-CREATE.

NPAC SMS waits for responses from all Local SMSs.

NPAC SMS retries each Local SMS that has not responded.

3.3.2

3.3.3 Broadcast Failure Updates to SV1 and SV2

NPAC SMS is attempting to disconnect a subscription version whose TN is a part of a number pool block.

A response does not occur from at least one, but not all Local SMSs and/or at least one, but not all, Local SMSs respond with an error to the M-DELETE or M-CREATE request.

1. NPAC SMS issues the M-SET to update the SV2 subscriptionVersionStatus from “sending” to “partially-failed”. It also updates the subscriptionFailed-SPList with the service provider ID and name of all the Local SMSs. The subscriptionModifiedTimeStamp and subscriptionActivationTimeStamp are also set.
2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues the M-SET to update the SV2 subscriptionVersionStatus from “sending” to “old”. It also updates the subscriptionFailed-SPList with the service provider ID and name of all the Local SMSs. The subscriptionModifiedTimeStamp and subscriptionDisconnectCompleteTimeStamp are also set.
4. NPAC SMS responds to the M-SET.
5. NPAC SMS sends the subscriptionVersonStatusAttributeValueChange M-EVENT-REPORT to the current service provider SOA with the status of ‘old’ for SV1 along with the subscriptionFailedSP-List.
6. Current service provider SOA issues the M-EVENT-REPORT confirmation.

3.4 Subscription Version Disconnect: Resend Successful to Local SMS

This scenario shows a successful resend of a disconnect for a subscription that fails to one or more of the Local SMSs. The resend of a failed disconnect can only be performed by authorized NPAC personnel. In this scenario:

- SV1 is the currently active Subscription Version.
- SV2 is the pool reinstatement Subscription Version with LNPType = POOL that reinstates default routing to the block holder.

3.4.1 NPAC SMS Initiates Resend

NPAC Personnel take action to resend a failed disconnect for a subscription version (SV1).

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1. NPAC SMS issues an M-SET to the existing subscriptionVersonNPAC object to set the status to “sending” for SV2 and set the subscriptionModifiedTimeStamp.

2. NPAC SMS responds to the M-SET.
3. NPAC SMS issues an M-CREATE on the subscriptionVersion SV2 to all previously failed non-EDR Local SMSs that are accepting downloads for the NPA-NXX of the subscriptionVersion SV2 TN.
4. Each non-EDR Local SMS responds successfully to the M-CREATE.
5. NPAC SMS issues an M-SET to the existing subscriptionVersionNPAC object to set the status to “sending” for SV1 and the subscriptionModifiedTimeStamp.
6. NPAC SMS responds to the M-SET.
7. NPAC SMS issues an M-EVENT-REPORT to the current service provider SOA of status change to “sending” for SV1.
8. Current service provider confirms the M-EVENT-REPORT.
9. NPAC SMS issues an M-DELETE on the subscriptionVersion SV1 to all previously failed EDR Local SMSs that are accepting downloads for the NPA-NXX of the subscriptionVersion SV1 TN.
10. EDR Local SMS responds successfully to the M-DELETE.

3.4.2

3.4.3 Broadcast Success Updates to SV1 and SV2

All non-EDR Local SMSs have responded successfully to the M-CREATE and all EDR Local SMSs have responded successfully to the M-DELETE.

1. NPAC SMS issues M-SET updating the subscriptionVersionStatus to ‘active’ for SV2. The subscriptionModifiedTimeStamp is also set.
2. NPAC SMS responds to M-SET.
3. NPAC SMS issues M-SET updating the subscriptionVersionStatus to ‘old’ for SV1. The subscriptionModifiedTimeStamp is also set.
4. NPAC SMS responds to M-SET.
5. NPAC SMS issues M-EVENT-REPORT subscriptionVersionAttributeValueChange to the current service provider for SV1 with the subscriptionVersionStatus set to ‘old’.
6. Current service provider confirms the M-EVENT-REPORT.

7. Subscription Version Disconnect: Resend Failure to Local SMS

This scenario shows a successful resend of a disconnect for a subscription that fails to one or more of the Local SMSs. the resend of a failed disconnect can only be performed by NPAC personnel. In this scenario:

- SV1 is the currently active Subscription Version.
- SV2 is the pool reinstatement Subscription Version with LNPType = POOL that reinstates default routing to the block holder.

3.4.4 NPAC SMS Initiates Resend

NPAC Personnel take action to resend a failed disconnect for a subscription version (SV1).

1. NPAC SMS issues an M-SET to the existing subscriptionVersonNPAC object to set the status to “sending” for SV2 and set the subscriptionModifiedTimeStamp.
2. NPAC SMS responds to the M-SET.

3. NPAC SMS issues an M-CREATE on the subscriptionVersion SV2 to all previously failed non-EDR Local SMSs that are accepting downloads for the NPA-NXX of the subscriptionVersion SV2 TN.
4. NPAC SMS issues an M-SET to the existing subscriptionVersionNPAC object to set the status to “sending” for SV1 and the subscriptionModifiedTimeStamp.
5. NPAC SMS responds to the M-SET.
6. NPAC SMS issues an M-EVENT-REPORT to the current service provider SOA of status change to “sending” for SV1.
7. Current service provider confirms the M-EVENT-REPORT.
8. NPAC SMS issues an M-DELETE on the subscriptionVersion SV1 to all previously failed EDR Local SMSs that are accepting downloads for the NPA-NXX of the subscriptionVersion SV1 TN.

NPAC SMS waits for responses from all Local SMSs.

NPAC SMS retries each Local SMS that has not responded.

3.4.5 Broadcast Failure Updates to SV1 and SV2

At least one of either the non-EDR Local SMSs has not responded successfully to the M-CREATE and/or at least one of the EDR Local SMSs has not responded successfully to the M-DELETE.

1. NPAC SMS issues M-SET updating the subscriptionVersionStatus to failed or partially-failed for SV2. The subscriptionVersionFailedSP-List and subscriptionModifiedTimeStamp are also set.
2. NPAC SMS responds to M-SET.
3. NPAC SMS issues M-SET updating the subscriptionVersionStatus to active or old for SV1. The subscriptionVersionFailedSP-List and subscriptionModifiedTimeStamp is also set.
4. NPAC SMS responds to M-SET.
5. NPAC SMS issues the M-EVENT-REPORT subscriptionVersionAttributeValueChange to the current service provider for SV1 with the subscriptionVersionStatus set to ‘old’.
6. Current service provider confirms the M-EVENT-REPORT.

7. Resynchronization

This section shows the flows related to resynchronization.

3.5 Sequencing of Events on Initialization/Resynchronization of EDR Local SMS

This scenario demonstrates how an EDR Local SMS resynchronizes itself with the NPAC SMS.
The EDR Local SMS establishes an association to the NPAC SMS with the resynchronization flag on.

1. EDR Local SMS sends M-ACTION to start network data download. The Local SMS specifies the start time.
2. NPAC SMS responds to M-ACTION with updates.
3. EDR Local SMS sends M-ACTION to start subscription data download. The Local SMS specifies the start time.
4. NPAC SMS responds to M-ACTION with updates.
5. EDR Local SMS sends M-ACTION to start number pool block data download. The Local SMS specifies the start time.
6. NPAC SMS responds to M-ACTION with updates.
7. EDR Local SMS sends M-ACTION to set resynchronization flag off.
8. NPAC SMS replies with data updates since association establishment.

Normal processing resumes.

4 Audits

4.1 SOA Audit Create

Issues need to be resolved before the flow can be implemented. Specifically:

1. How to report block discrepancies vs subscription version discrepancies?
2. How to report block discrepancies to a non-EDR SOA?

3. NPAC Audit Create

In this scenario, the NPAC SMS initiates an audit due to suspected subscriber data discrepancies. For non-EDR Local SMSs, this involves the subscription version objects. For EDR Local SMSs, this involves both subscription version objects and number pool block objects.

If discrepancies are found, the NPAC SMS will create, modify or delete subscription version and number pool objects, as necessary.

Action is taken by NPAC personnel to start an audit due to suspected network discrepancies.

1. The NPAC SMS does a Local M-CREATE request for the subscriptionAudit object.
2. The NPAC SMS responds with an M-CREATE response indicating that the subscriptionAudit was created successfully.
3. The NPAC SMS sends an M-GET request to the non-EDR Local SMS to retrieve the subscription data for audit processing. The request uses the CMIP scoping and filtering options to retrieve only the subscriptionVersion objects to be audited.
4. The non-EDR Local SMS responds to the M-GET request by returning the subscription version objects that satisfy the scope and filter data.
5. The NPAC SMS sends an M-GET request to the EDR Local SMS to retrieve the number pool block for audit processing.
6. The EDR Local SMS responds to the M-GET request by returning the number pool object block requested.

7. The NPAC SMS sends an M-GET request to the EDR Local SMS to retrieve the subscription version objects for audit processing. The request uses the CMIP scoping and filtering options to retrieve only the subscriptionVersion objects to be audited.

8. The EDR Local SMS responds to the M-GET request by returning the subscription version objects that satisfy the scope and filter criteria.

The NPAC SMS performs the comparisons. If any discrepancies are found, the NPAC SMS will perform the necessary fix to the Local SMSs.

The NPAC SMS completes the audit.

9. The NPAC SMS issues an M-DELETE request to remove the subscriptionAudit object from the NPAC SMS.

10. The NPAC SMS response is received by the NPAC SMS indicating whether the subscriptionAudit object was deleted successfully.