297-8991-110

DMS-100 Family

Cost of Ownership Reduction

Feature Specification

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NORTEL
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Cost of Ownership Reduction

Feature Specification

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NA009 Standard 01.02. Editorial changes.
Added note that Reverse Translations Simplification does not use field NUMDIGS of table CUSTNTWK.
Changed release applicability throughout as required.
Added digit collection information.
Clarified DEFAULT_RTEREF information.
Removed two rows of information from Table 6.

February 1998

NA009 Standard 01.01.

Contents

About this document

When to use this document

This document describes NA009 feature deliverables for the cost of ownership reduction (COOR) program. This document applies to the NA009 release for the DMS-100 switches. It is intended for both operating company personnel and Nortel internal staff.

How to check the version and issue of this document

The version and issue of the document are indicated by numbers, for example, 01.01.

The first two digits indicate the version. The version number increases each time the document is updated to support a new software release. For example, the first release of a document is 01.01. In the next software release cycle, the first release of the same document is 02.01.

The second two digits indicate the issue. The issue number increases each time the document is revised but rereleased in the same software release cycle. For example, the second release of a document in the same software release cycle is 01.02.

To determine which version of this document applies to the software in your office and how documentation for your product is organized, check the release information in “Publication history,” on page v.

References in this document

The documents associated with the COOR program are identified in the following list.

- *Advanced Intelligent Network Essential Service Implementation Guide* 297-5161-021.
- *Automatic Message Accounting Reference Guide*, 297-1001-830
- *DMS-100/200 LRN-LNP Service Implementation Guide*, 297-8981-021
- *Draft Proposed American National Standard for Telecommunications - SS7 - TCAP*, Issue 2 of T1.114, November 1991.

- *North American DMS-100 Log Reports Reference Manual*, 297-xxxx-840
- *North American DMS-100 Office Parameters Reference Manual*, 297-xxxx-855
- *North American DMS-100 Operational Measurements Reference Manual*, 297-xxxx-814
- *North American DMS-100 Translations Guide*, 297-xxxx-350
- *Subscriber Services Product Guide*, 297-1421-010
- *Switching and Signaling Generic Requirements for Toll-Free Service using Advance Intelligent Network.* GR-2892-CORE, Issue 1. Bellcore, April 1995.

Chapter 1: Introduction

Cost of ownership reduction (COOR) program for NA009 consists of three features:

- reverse translations simplification
- residential enhanced services (RES) translations simplification
- automatic route selection (ARS) default public network routing

The following sections describe these features, with comparisons to pre-NA009 implementations.

A fourth feature, AU2509 “AIN Response Translations Simplification Part 2”, simplifies AIN response translations for private line and trunk agents. This feature also supports provisioning of OZZ/INX codes on a per call type and carrier basis for inter-tandem (IT) trunks using feature group D (FGD) signaling. This feature is not describe in this document. For more information, refer to *Advanced Intelligent Network Essential Service Implementation Guide* 297-5161-021.

1.1 Pre-NA009 implementation of reverse translations

Reverse translation converts a number in dialable format to a number in national format and vice versa. The implementation of reverse translation system prior to NA009 supports many features, including the following:

- automatic recall (AR)
- automatic call back (ACB)
- dialable directory number (DDN)
- long distance indicator (LDI)

The pre-NA009 implementation of reverse translations system uses the following data schema tables:

- table DNREGION, which creates groups of directory numbers that share a reverse translations plan
- table DNREVXLA, which provides the reverse translation algorithms to manipulate digit streams between the regions defined in table DNREGION

With AR and ACB features as examples, Figure 1 shows an example of how features use reverse translations prior to NA009.

Note: AR and ACB are representative of how features use reverse translations.

Figure 1 Pre-NA009 reverse translations for automatic call back and automatic recall features

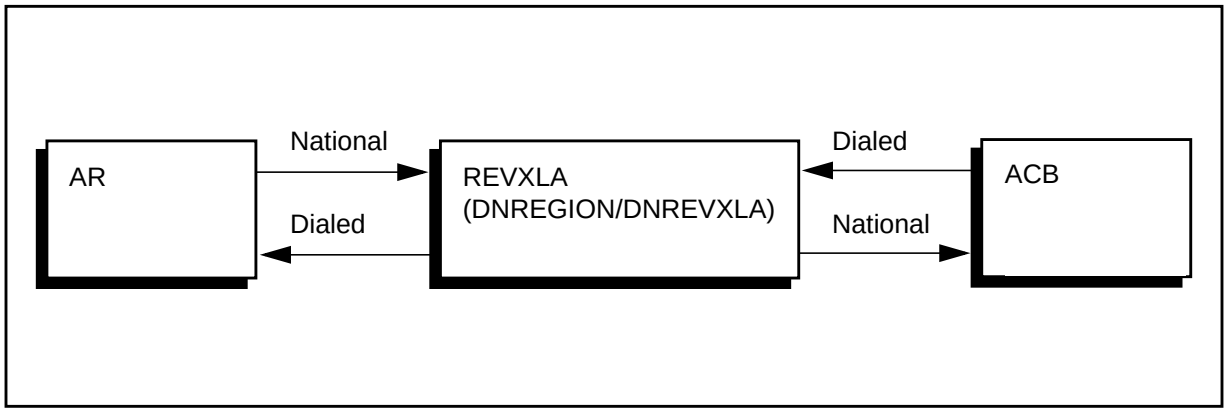


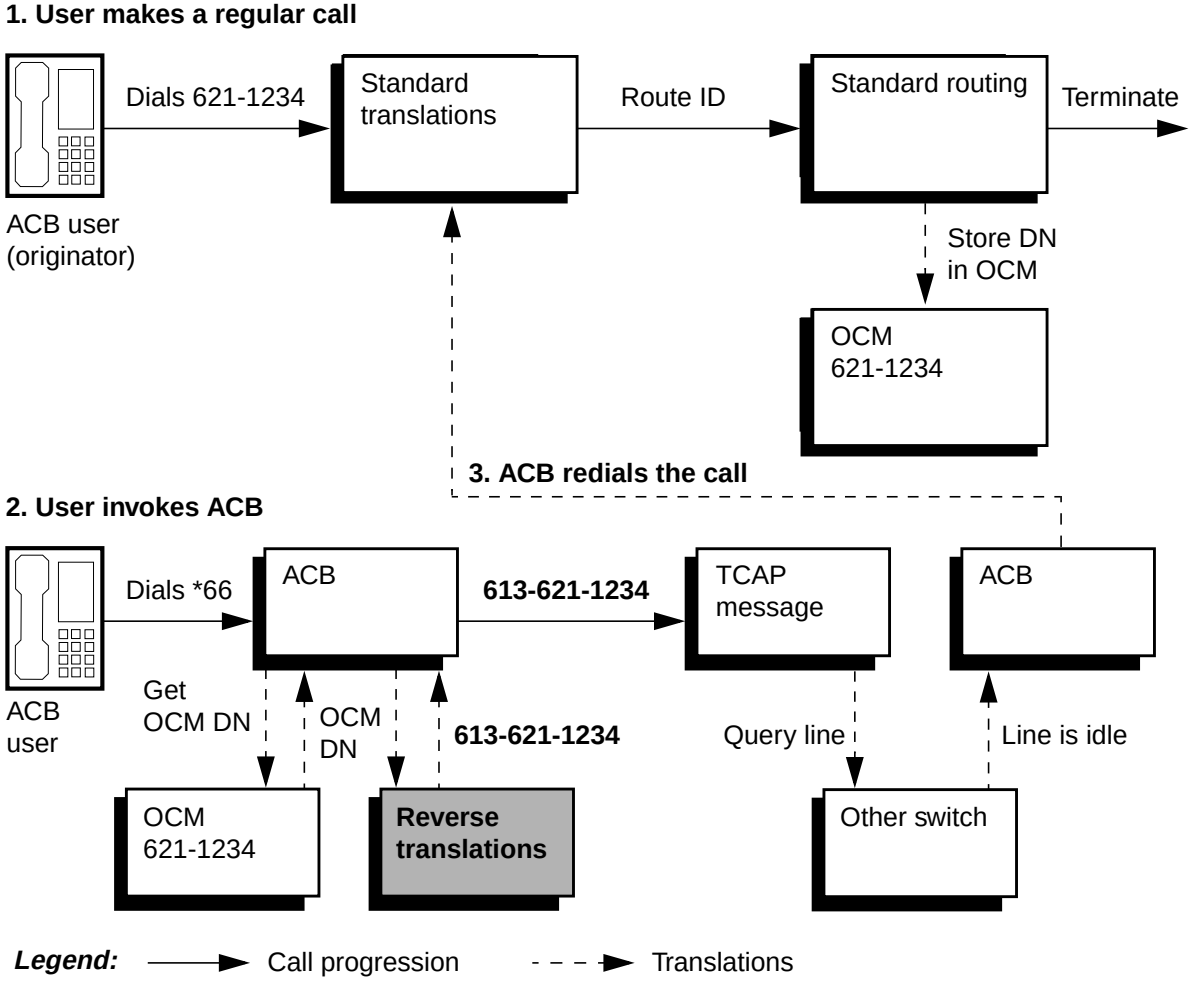
Figure 2 on page 15 and Figure 3 on page 16 show in greater detail how the pre-NA009 implementation of reverse translations supports the ACB- and AR-type features.

Since the caller is in the same region as the ACB user, reverse translations does not strip off digits. Reverse translations adds a prefix to 613 to build the correct ten-digit DN for ACB. In Figure 2, this example of translations flow appears under table DNREVXLA as follows:

- 0 (number of digits stripped off)
- 613 (the prefix required to build the correct ten-digit DN)
- N (no optional prefix)

Note: In the examples in Figure 2 on page 15, the 621-1234 seven-digit number is not required until after reverse translations and before standard CP translations.

Figure 2 Example of pre-NA009 reverse translations and automatic call back

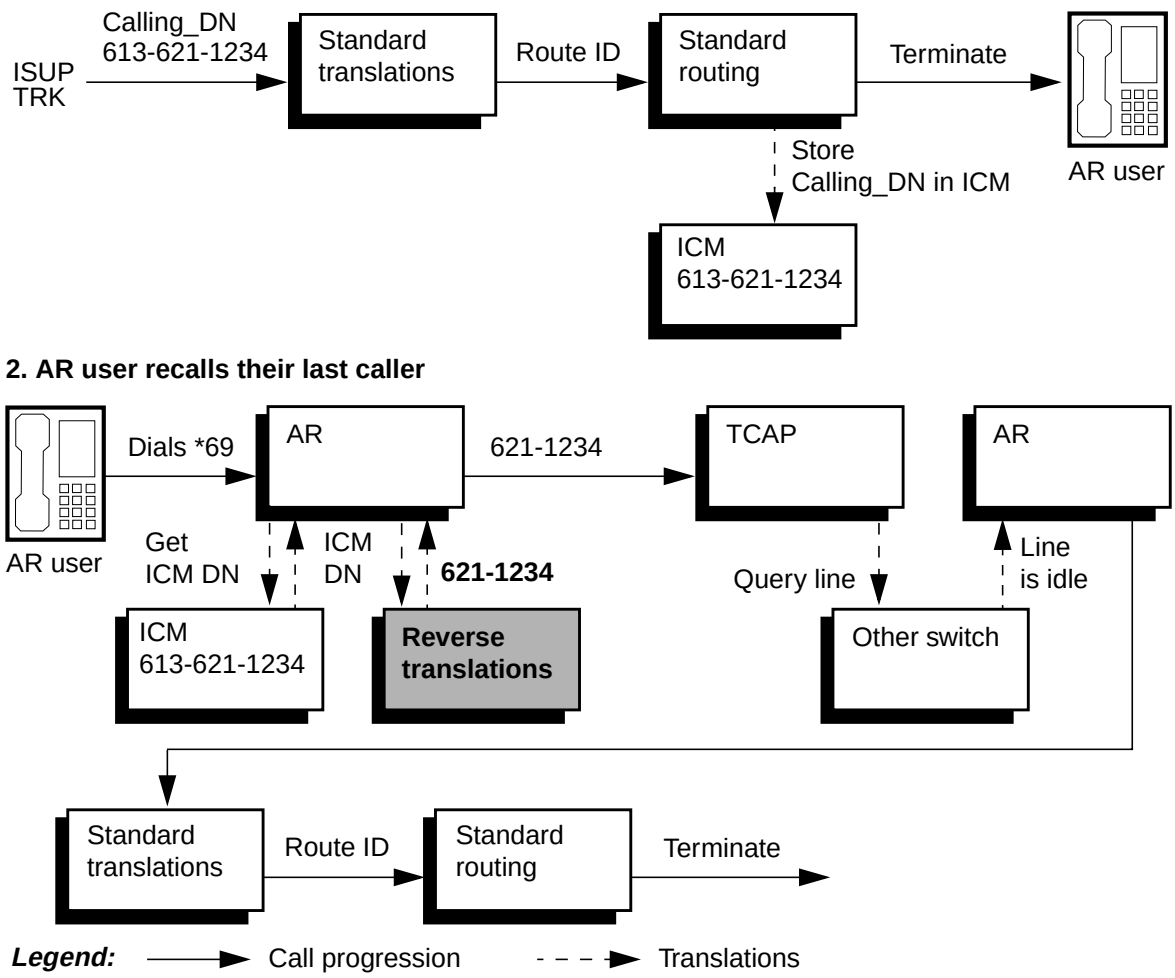



```
TABLE: CUSTHEAD
CUSTNAME CUSTXLA DGCOLNM IDIGCOL OPTIONS
----------------------------------------
RESGRP   RESXLA  RES     NIL     (PUBTCXLA RXCFN)$

TABLE: DNREVXLA
RXLANAME FROMDIGS TODIGS RESULTS
--------------------------------
RXCFN    621      621    (SOME_REGION 0 613 N) $

TABLE: DNREGION
REGION         FROMDIGS      TODIGS
-----------------------------------
SOME_REGION    621           621
```

Figure 3 Example of pre-NA009 reverse translations and automatic recall




```
TABLE: CUSTNTWK
CUSTNAME NETNAME NETCGID DNREVXLA           OPTIONS
-------------------------------------------------
RESGRP   PUBLIC  0       (PUBLIC RXCFN 10) $ $

TABLE: DNREVXLA
RXLANAME FROMDIGS TODIGS RESULTS
--------------------------------
RXCFN    613621   613621 (SOME_REGION 3 N N) $

TABLE: DNREGION
REGION         FROMDIGS      TODIGS
----------------------------------
SOME_REGION    613           613
```

Note: The automatic reverse translations utility does not use field NUMDIGS. The utility assumes a value of 10.

Again, the caller is in the same region as the AR user. In this case, reverse translations strips off three digits and adds no prefixes to build the correct seven-digit DN for AR.

In Figure 3 on page 16, this translations flow appears under table DNREVXLA as follows:

- 3 (number of digits stripped off)
- N (no prefix)
- N (no optional prefix)

The existing reverse translations system performs the reverse translations using digit manipulation algorithms in tables DNREVXLA and DNREGION.

1.2 NA009 reverse translations simplification

This feature lets the operating company reuse forward translations datafill (for example, tables HNPACONT and LCASCRCN) for the CLASS reverse translations. Simplified translations alleviates provisioning and maintenance requirements for datafill in tables DNREVXLA and DNREGION. The exception is the datafill requirement for private-to-private reverse translations.

This simplification activity addresses the following reverse translation scenarios:

- Public-to-Public
- Private-to-Public

This activity also encompasses the required changes for the REVXLVER tool to support transition to the simplified algorithm. Refer to "Transition strategy," on page 46 for information on the recommended strategy.

The simplified reverse translation system replaces the existing reverse translation system. The feature includes a utility that parses the forward translations datafill to perform the reverse translation.

The simplified reverse translation system categorizes the features that use the existing reverse translation system as follows:

- AR (Automatic Recall) type features—which use reverse translations to convert a ten-digit National number into a dialable format
- ACB (Automatic Callback) type features—which use reverse translations to convert a dialable number to a ten-digit national number

Figure 4 shows how the simplified reverse translation system flows through one of two predefined reverse translators, DIAL2NAT and NAT2DIAL (to handle ACB- and AR-type reverse translations respectively).

Figure 4 NA009 reverse translations simplification - functional overview

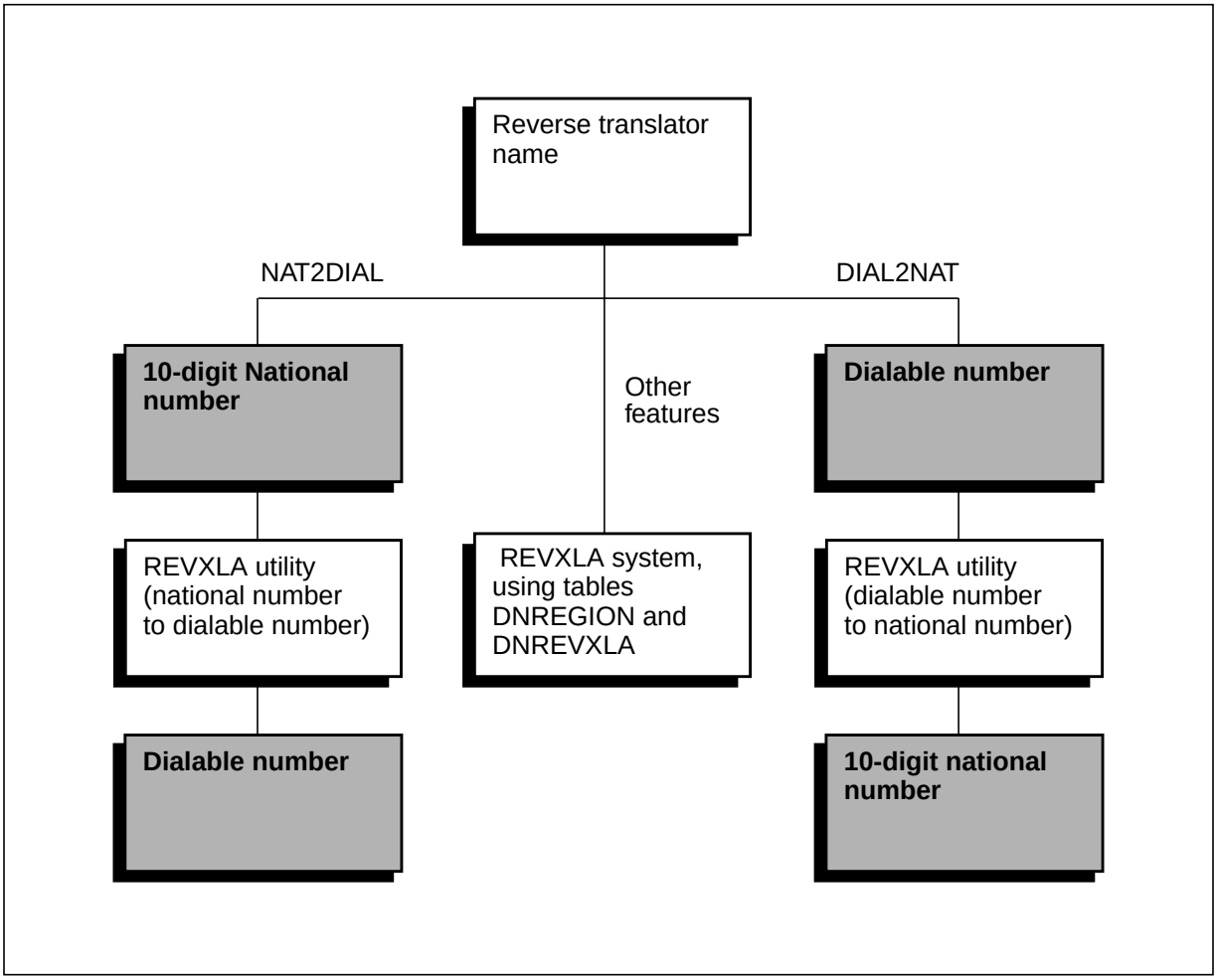
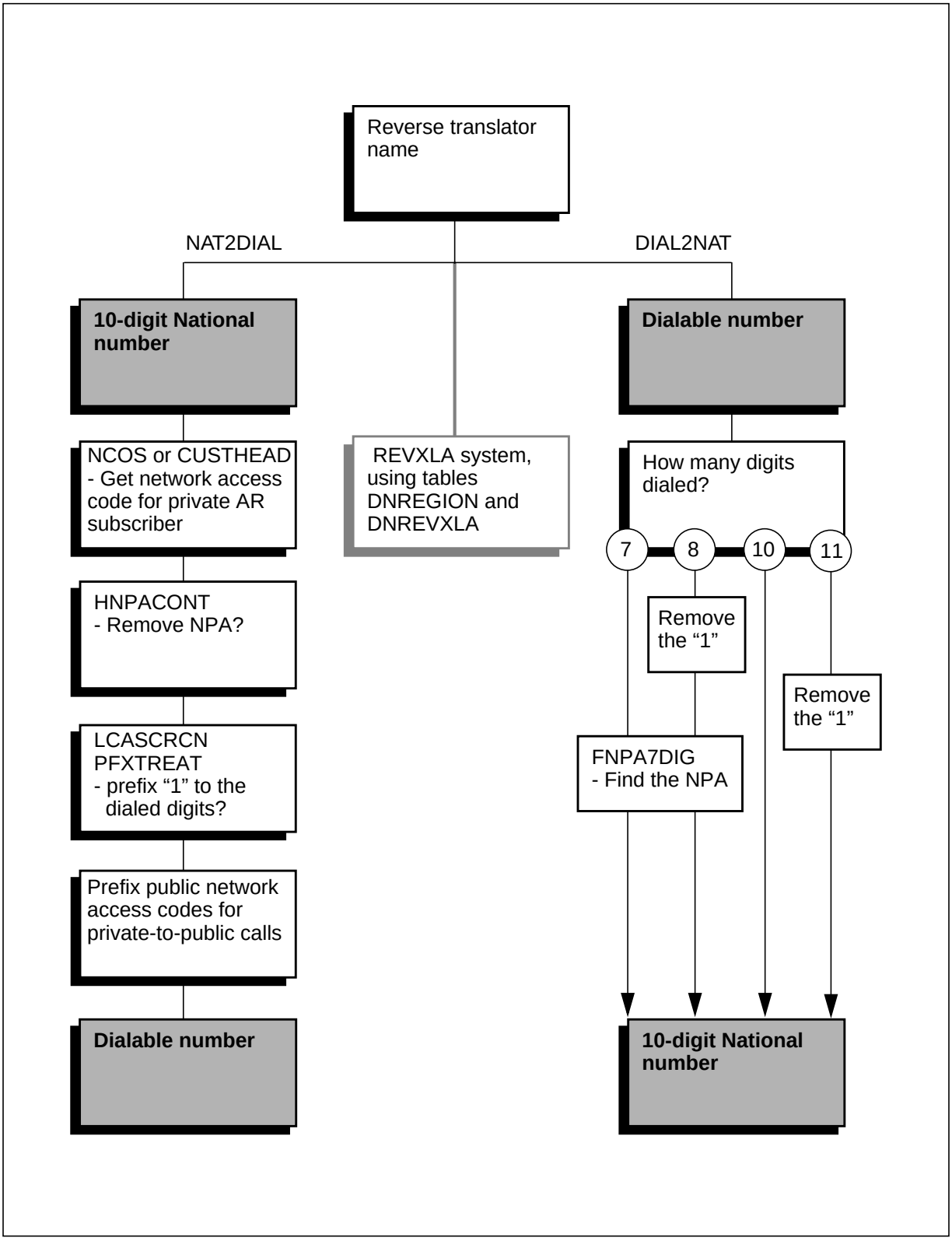


Figure 5 on page 19 shows the forward translations tables that the simplified translations system uses.

Figure 5 NA009 forward translations table usage - functional overview



1.3 Pre-NA009 implementation of RES translations

Residential enhanced services (RES) translations are a cross between public and private translations. RES translations provide public and home customers with features that were previously available only to private and business customers.

RES lines enter private translations and re-enter public translations through table LINEATTR. Even though datafill associates a RES line with a LINEATTR index (LAI) when it enters private translations, the LAI is explicit in private translations datafill. The datafill for private translations ensures that the call uses the LAI of the originator when it re-enters public translations.

This excess datafill for private translations represents a high cost of ownership to the operating company and is the focus of this feature. This feature modifies RES translations so that RES calls retain the LAI (with which they entered private translations) when they return to public translations. RES translations retain the LAI of the originator when it encounters option RES in the NET GEN selector (of table XLANAME and IBNXLA). This feature adds option RES.

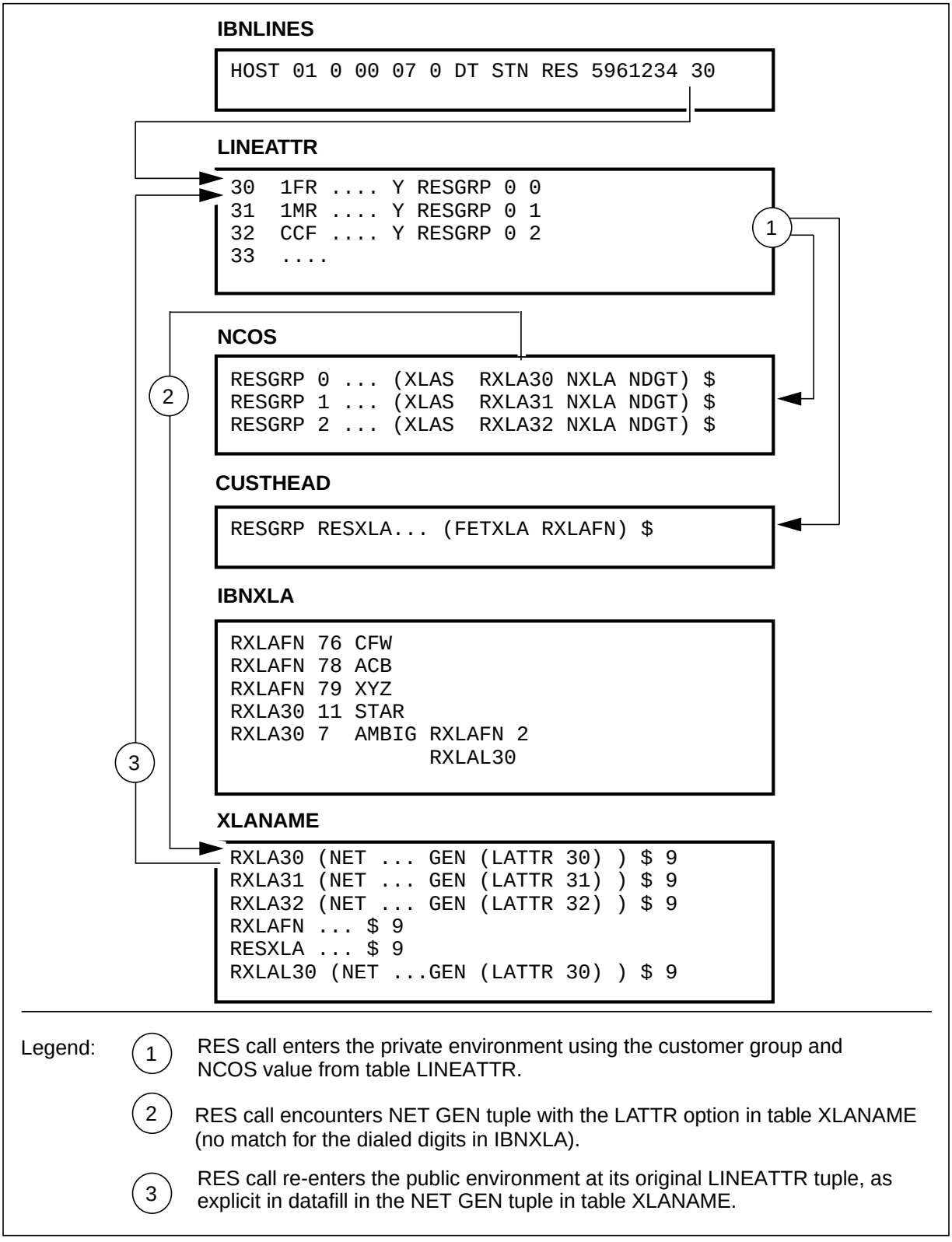
For releases prior to NA009, the following datafill is typical for RES translations:

- There is an entry in table IBNLINES that identifies the RES line and provides the key into table LINEATTR for the RES line.
- There is an entry in table LINEATTR that defines
  - — the public translation context for the RES line
  - — a customer group name (CUSTGRP) and an NCOS number, both of which define the private translation context
- There is an entry in table CUSTHEAD that provides the feature translator for RES calls. This translator supports calls where the first digit is an asterisk (*) or asterisk equivalent (typically 11). The key in table CUSTHEAD is the customer group name. If a feature translator (FEATXLA) value is in table NCOS, then NCOS FEATXLA takes precedence over CUSTHEAD FETXLA.
- There is an entry in table NCOS, in which the customer group name and the NCOS number is the key. Each RES NCOS tuple contains the XLAS option, which specifies
  - — the NCOS preliminary translator for this RES group
  - — the NCOS feature translator and the NCOS digit collection name
- There are entries in table IBNXLA that identify the features that the RES user can invoke. The keys in table IBNXLA are a translator and the digits dialed.

- There is an entry in table XLANAME. The key to table XLANAME is the table NCOS translator. If translations does not find a match in table IBNXLA (that is, if the RES customer has not invoked a feature), then the entry in this table points the call back to public translations. This translations flow uses the explicit LINEATTR index in table XLANAME.
- There is an entry in table XLANAME to define a long translator if the RES NCOS preliminary translator defines an AMBIG selector in table IBNXLA.

An example schema is shown in Figure 6 on page 22.

Figure 6 Example of pre-NA009 RES data schema (before simplification)



Legend:

1 RES call enters the private environment using the customer group and NCOS value from table LINEATTR.

2 RES call encounters NET GEN tuple with the LATTR option in table XLANAME (no match for the dialed digits in IBNXLA).

3 RES call re-enters the public environment at its original LINEATTR tuple, as explicit in datafill in the NET GEN tuple in table XLANAME.

In this schema, the key data for providing RES lines with access to IBN features is in table IBNXLA. The remainder of the data

- points to table IBNXLA
- points back to table LINEATTR if translations does not use table IBNXLA (that is, if the RES customer does not dial a feature access code)

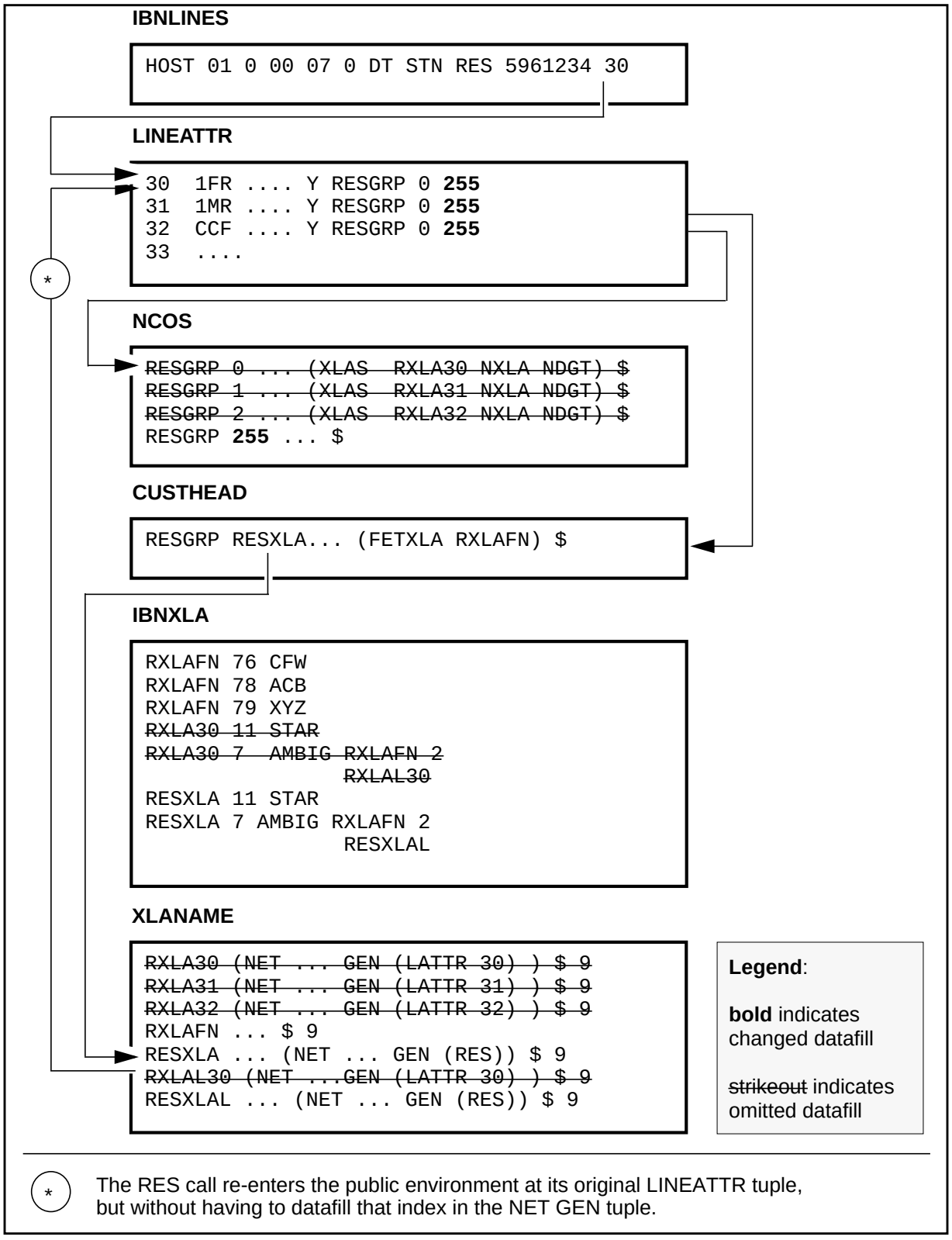
1.4 NA009 RES translation simplification

This change to datafill requirements reduces the cost of ownership to the operating company by allowing them to remove the excess datafill in private translations.

Figure 6 on page 22 shows the circular path that RES translations takes from the public environment, to the private environment, and lastly back to the public environment. The index into table LINEATTR includes datafill in table XLANAME to re-enter the public environment at the correct entry in table LINEATTR.

Using the simplified RES schema made possible by this feature, the LINEATTR index does not need to be datafilled in table XLANAME. This simplification greatly reduces the complexity and amount of the RES datafill, as shown in Figure 7 on page 24. In the figure, tuples shown in strike-through are not required after simplification, and tuples shown in bold are added or changed during simplification.

Figure 7 RES data schema after simplification



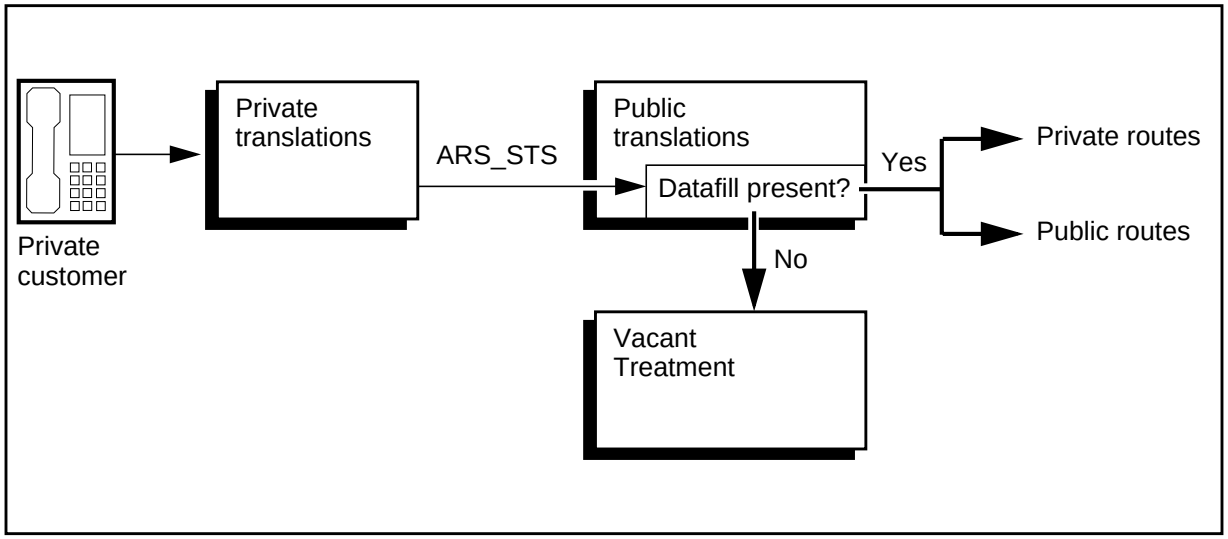
This feature also adds the office parameter RES_CHK_OOS (table OFCVAR). RES_CHK_OOS provides controlled access to changing the network class of service (NCOS) for a RES line. When RES_CHK_OOS is N, you can change the NCOS in table LINEATTR using the Table Editor without taking the RES line out-of-service.

The RESCONV tool assists with the transition from the existing to the simplified RES data schema. The RES transition tool analyzes a given RES group, and indicates the extent to which that group can convert to the simplified RES schema. It takes a file name for a DMOPRO that includes the commands to convert the given RESGRP from the current RES schema to the simplified schema. For more information on RESCONV, refer to Section 6.3.3, “User interface for RES translations simplification,” on page 48.

1.5 Pre-NA009 implementation of ARS default public network routing

The issue for ARS default public network routing is that the operating company must continually update translations in table HNPACONT behind the private STS (also called ARS STS). When operating company personnel do not continually update translations, the operating company risks having a switching network that sends private calls to vacant treatment (VACT) rather than to the correct special routing configuration. Figure 8 illustrates this problem.

Figure 8 Pre-NA009 ARS translations: overview



Specifically, the operating company must update table HNPACONT for private customers whenever it opens a new NPA/NXX code. For example, if the ARS datafill uses ARS STS 001, the datafill for subtable HNPACONT.HNPACODE datafill might look like the example shown in Figure 9 on page 26.

Figure 9 Example of pre-NA009 datafill for HNPACONT.HNPACODE

```
TABLE: HNPACONT

STS SNPA NORTREFS NOAMBIGC RTEREF HNPACODE ATTRIB RTEMAP
-------------------------------------------------------
001   N    20       1        (4)    (1)      (3)    (0)

TABLE: HNPACONT 001: HNPACODE

FROMDIGS TODIGS CDRRTMT
-----------------------
TOP
522 522 LRTE 1
BOTTOM
```

In Figure 9, private customers can make calls to the 522 exchange. All other calls route to VACT (the default result for codes not in subtable HNPACONT.HNPACODE). To allow private customers to call a newly opened exchange (for example 533), the operating company must add a tuple for this exchange (see Figure 10).

Figure 10 Example of pre-NA009 tuple addition for HNPACONT.HNPACODE

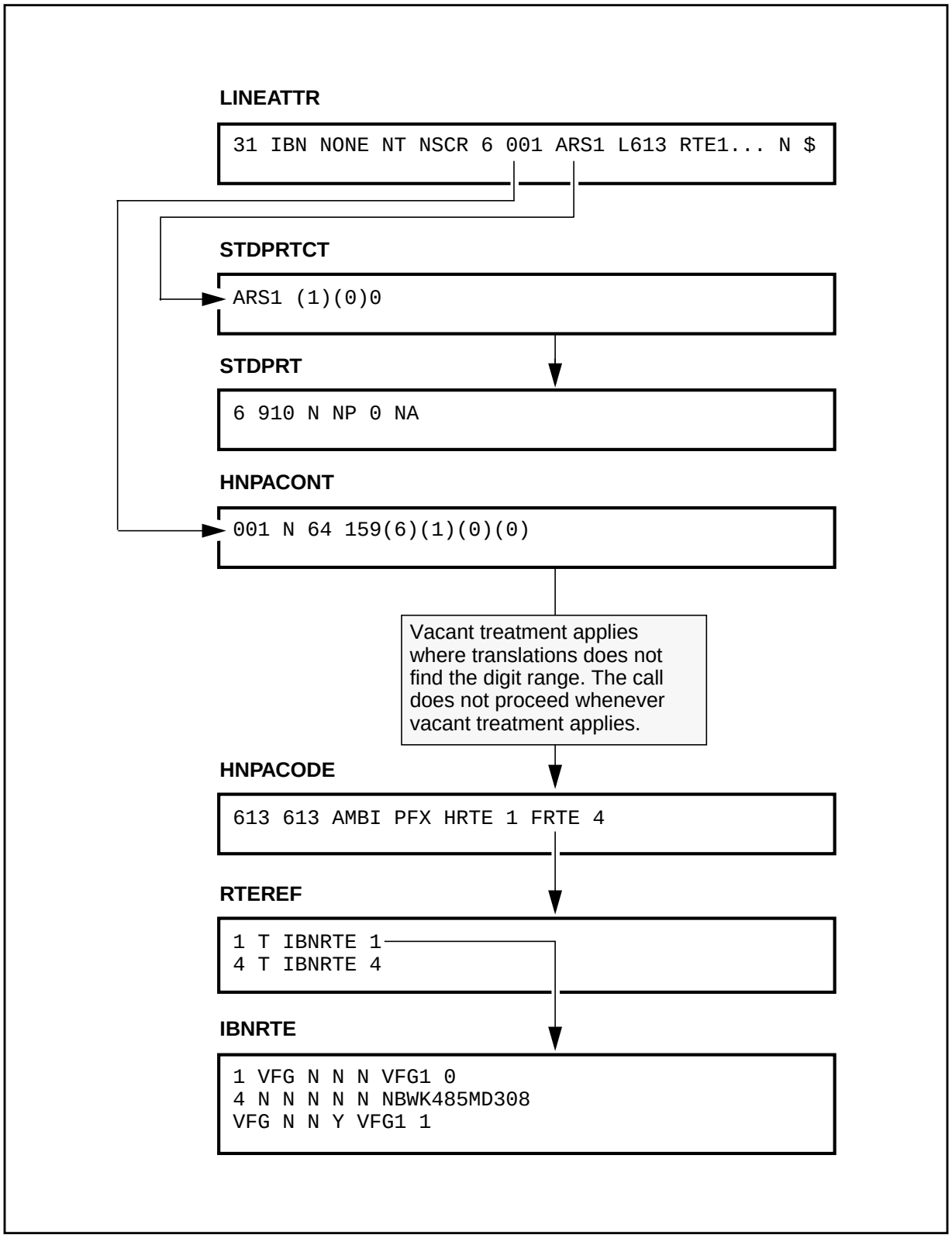
```
TABLE: HNPACONT 001: HNPACODE

FROMDIGS TODIGS CDRRTMT
-----------------------
TOP
522 522 LRTE 1
533 533 LRTE 1
BOTTOM
```

The operating company must add tuples to ensure that calls do not route to VACT. Rather than incurring the on-going maintenance costs as new exchanges open, the operating company can provide a default route for ARS calls.

For the current flow of ARS translations, see the example in Figure 11 on page 27.

Figure 11 Pre-NA009 ARS translation flow



1.6 NA009 ARS default public network routing

This feature provides the operating company with an ARS default route that handles ARS calls in the public network when the dialed code is not in subtable HNPACONT.HNPACODE.

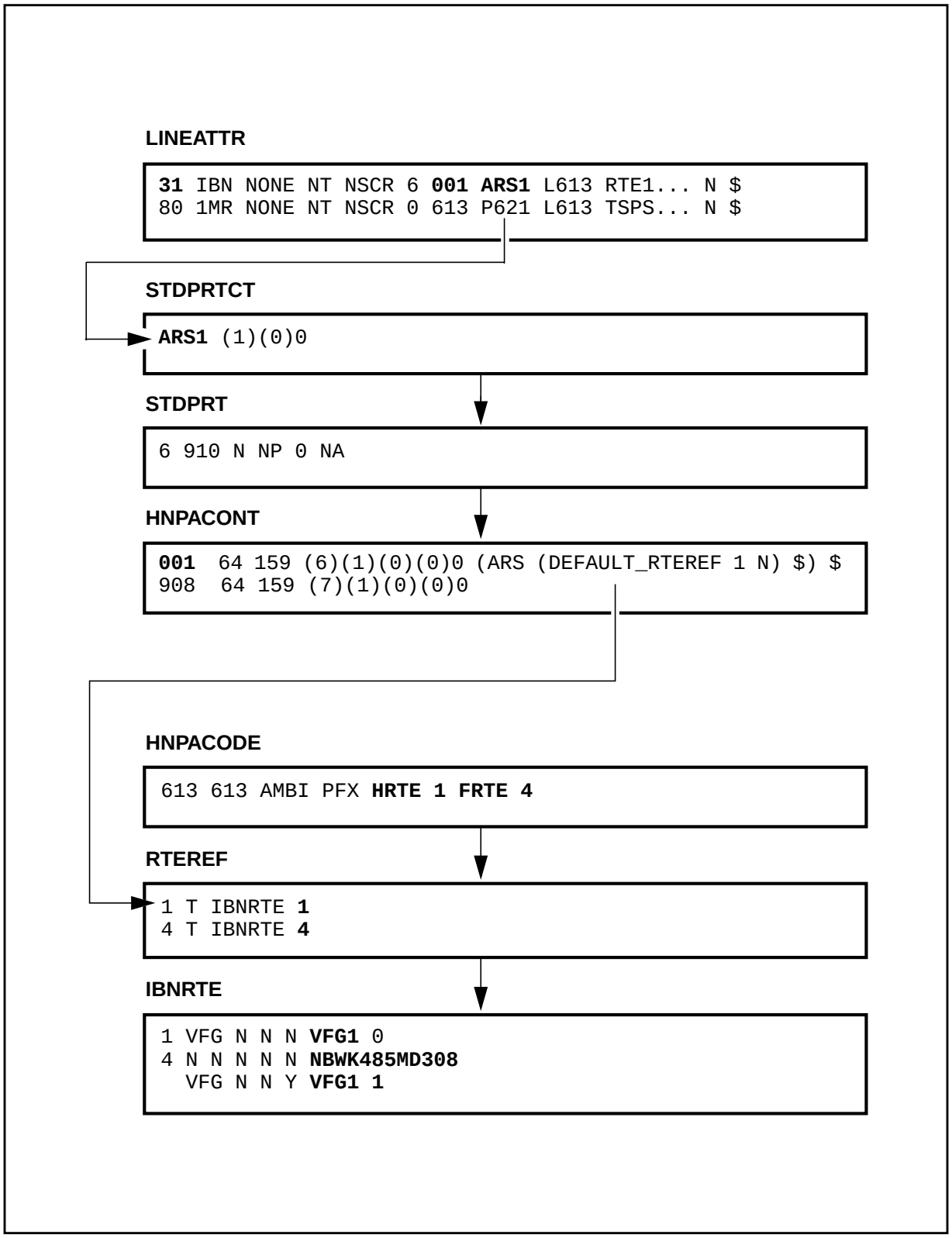
Previously, the operating company had to maintain the HNPA datafill for their ARS customers to ensure that calls did not go to VACT.

This feature adds option ARS to table HNPACONT, and suboption DEFAULT_RTEREF. With this feature in place, the operating company can provide an escape route and avoid VACT in these cases by datafilling the DEFAULT_RTEREF option for their ARS HNPACONT tuples, as shown in Figure 12.

> ***Note:*** The operating company can datafill option ARS without suboption DEFAULT_RTEREF (that is, suboption DEFAULT_RTEREF is optional). In this way, the operating company can mark translations as private without an escape route.

Along with suboption DEFAULT_RTEREF, this feature also includes subfield E10DIG. The value of E10DIG indicates whether or not the ARS customer is in an enforced ten-digit dialing environment, and directs the behavior of digit collection for ARS default routing. In an enforced ten-digit dialing environment (E10DIG = Y), the system collects ten post-prefix digits before sending the call over the ARS default route. If the ARS customer is not in an enforced ten-digit dialing environment (E10DIG = N), the number of post-prefix digits that the system collects before routing depends on if the customer dials a prefix 1. If the customer dials a 1, the system collects ten digits (1+SNPA+7D), otherwise the system collects seven digits (7D).

Figure 12 ARS Datafill with DEFAULT_RTEREF



Chapter 2: Requirements

This chapter provides details on the requirements that each feature in the cost of ownership reduction (COOR) program for NA009 must support. There are three sections in this chapter, including:

- requirements for reverse translation simplification
- requirements for residential enhanced services (RES) translation simplification
- requirements for automatic route selection (ARS) default public network routing

For COOR, translations issues were obtained from the following sources:

- customer input
- translations-related RFF and CSRs
- the translations switching administration forum

The following criteria are the most important considerations for developing the COOR features in NA009:

- opportunity to significantly reduce high cost of ownership
- synergy with other programs

2.1 Requirements for reverse translations simplification

Table 1 lists the requirements for reverse translation simplification.

Table 1 Requirements for reverse translations simplification

Requirement number and source	Description	Critical Compliant	Comments
TSA Feb.97	Provide a REVXLA algorithm, based on existing datafill, that eliminates the need for datafill in tables DNREGION and DNREVXLA.	Y Y	This is the basic requirement for the REVXLA simplification feature.
TSA Feb.97	Handle multiple RESGRP and REVXLA scenarios.	Y Y	This requirement pertains to operating company configurations with several RES groups. In these cases, the operating company personnel must understand the reasons for the RES groups so that the NA009 table REVXLA algorithm can handle scenarios involving any of the RES groups.
TSA Feb.97	Reflect REVXLA changes in REVXLVER	Y Y	The REVXLVER command indicates whether or not the simplified algorithm is used during an AR or ACB type reverse translation. Also, the REVXLVER command also helps the operating company during the transition to the simplified algorithm from their existing base of datafill in tables DNREGION and DNREVXLA.
(Sheet 1 of 2)			

Table 1 Requirements for reverse translations simplification

Requirement number and source	Description	Critical Compliant	Comments
PACBELL Nov.95	Comply with privacy regulations on calls subject to REVXLA.	Y Y	This requirement pertains to the calls that have privacy characteristics (for example, a line with caller ID blocking). With the NA009 reverse translation algorithm, calls must retain existing privacy characteristics. For example, a call with caller ID blocking must have its caller ID blocked both on the original call and on any subsequent call initiated by ACB. The simplified reverse translation algorithm does not change privacy requirements.
Internal	Preserve functionality of all services presently using REVXLA: automatic redial (AR), automatic call back (ACB), subscriber list editing (SLE), special delivery service (SDS)	Y Y	No comments.
Internal	Ensure that the reverse translator names chosen do not conflict with the ones being currently used by customer	Y Y	Check this requirement prior to NA009.
Internal	Ensure that other general requirements like ONP, real time etc. are met.	Y Y	No comments.
(Sheet 2 of 2)			

2.2 Requirements for RES translation simplification

Table 2 lists the requirements for RES translation simplification.

Table 2 Requirements for RES translations simplification

Requirement number and source	Description	Critical Compliant	Comments
DMS TSA Requirement	Remove the need for extraneous RES/NCOS datafill to facilitate re-use of IBN features for RES customers.	Y Y	This requirement is the problem statement underlying this feature.
DMS TSA Requirement	Enforce (Line Attribute Index (LAI) in NET GEN tuple for IBN lines.	Y Y	IBN lines do not use a NET GEN tuple (either in tables IBNXLA or XLANAME) that does not have a LAI. Unlike RES lines, IBN lines do not have a LAI in table IBNLINES. Calls on IBN lines that use the NET GEN tuples with the LAI go to datafill (DFIL) treatment.
DMS TSA Requirement Feb ‘97	Support exhausted NCOS tables during RES/NCOS transition.	Y Y	Do not need to create a new NCOS.
DMS TSA Requirement Feb ‘97	Support collapsing of multiple RESGRPs after transition.	N N	In existing DMS RES datafill, multiple RES groups are created because of NCOS limitations (0-511) per customer group.
(Sheet 1 of 3)			

Table 2 Requirements for RES translations simplification

Requirement number and source	Description	Critical Compliant	Comments
DMS TSA Requirement Feb '97	Allow modification to RES LINEATTR tuples without removing the RES lines from service.	Y Y	Currently, maintenance personnel cannot modify LINEATTR tuples if RES lines reference the tuples. The COOR program removes this restriction to facilitate transition to reduced COOR, since the transition involves the modification of several LINEATTR tuples that RES lines reference. By not removing this restriction, the transition to reduced COOR is cumbersome because the operating company must remove from service the RES lines that it wants to implement for reduced COOR. Use the RES_CHK_OOS office parameter to streamline the transition to the simplified reverse translations.
Internal	Modify TRAVER to reflect the modification to RES translations.	Y Y	TRAVER correctly indicates the flow of RES translations when the operating company has converted a RES group to reduced COOR (that is, the TRAVER output correctly shows a RES call re-entering public translations with the original LINEATTR index). Also, TRAVER correctly shows the flow of an improperly configured IBN call that uses a NET GEN tuple with no LINEATTR index datafilled.
Internal	Minimize real time impact	Y Y	No significant real-time impact on basic calls.
(Sheet 2 of 3)			

Table 2 Requirements for RES translations simplification

Requirement number and source	Description	Critical Compliant	Comments
Internal	Modify NTPs	Y Y	Add description of simplified RES schema to the relevant customer documentation.
(Sheet 3 of 3)			

2.3 Requirements for ARS default public network routing

Table 3 lists the requirements for ARS default public network routing.

Table 3 Requirements for ARS default public network routing

Requirement number and source	Description	Critical Compliant	Comments
DMS TSA Requirement	Simplify ARS translations so that all codes have a default route (that is, they should not go to VACT).	Y Y	This requirement is the basic issue.
DMS TSA Requirement	Do not bypass datafilled occurrences of VACT.	Y Y	This requirement emphasizes the need to differentiate between ARS calls that go to VACT because datafill is missing, and other calls that go to VACT for other reasons (for example, when datafill defines VACT as a translation result). This feature must not send all would-be VACT calls to default routing— only those calls to which VACT applies.
DMS TSA Requirement	Modify TRAVER to reflect simplified translation flow.	Y Y	No comments.
Internal	Retain billing nature of ARS calls.	Y Y	No comments.

Table 3 Requirements for ARS default public network routing

Requirement number and source	Description	Critical Compliant	Comments
DMS TSA Requirement	Support customers who use ARS to access the HNPACONT AMBI selector.	Y y	No comments.
(Sheet 2 of 2)			

Chapter 3: Development summary

This chapter describes the DMS-100 software design activities for the cost of ownership reduction (COOR) program.

3.1 NA009 development

Table 4 summarizes the COOR features for NA009.

A fourth feature, AU2509 “AIN Response Translations Simplification Part 2”, simplifies AIN response translations for private line and trunk agents. This feature also supports provisioning of OZZ/INX codes on a per call type and carrier basis for inter-tandem (IT) trunks using feature group D (FGD) signaling. This feature is not describe in this document. For more information, refer to *Advanced Intelligent Network Essential Service Implementation Guide* 297-5161-021.

Table 4 Activity listing for NA009

Activity numbers	Title	Description
AU2502	COOR: reverse translations simplification	This activity supports both ACB-type (dialable format to ten-digit) and AR-type (ten-digit to dialable format) public reverse XLA using existing XLA datafill. As a result, DNREGION and DNREVXLA tables do not need regular datafill changes to keep reverse translations synchronized with forward translations. This change reduces cost of ownership.
AU2503	COOR: RES translation simplification	This activity removes the need to define an NCOS and XLANAME NET GEN default result per RES LINEATTR tuple. The feature modifies the RESXLA algorithm to use the LINEATTR reference against a line rather than the LINEATTR reference that the NET GEN default result defines. This change allows all RES lines to belong to a single NCOS, resulting in significant reduction in datafill.

Table 4 Activity listing for NA009

Activity numbers	Title	Description
AU2666	COOR: ARS default public network routing	When a new NPA/NXX opens, XLA may fail if personnel do not make changes to the ARS datafill in subtable HNPACONT.HNPACODE. This activity provides default public net routing, thereby preventing calls to newly opened NPA/NXXs from receiving vacant treatment.
(Sheet 2 of 2)		

Chapter 4: Translations

The cost of ownership reduction (COOR) program focuses on simplifying overhead for the following:

- reverse translations
- residential enhanced services (RES)
- automatic route selection (ARS) default public network routing

A fourth feature, “AIN Response Translations Simplification Part 2”, simplifies AIN response translations for private line and trunk agents.

Chapter 1 “Introduction”, on page 13 describes the translations impact for these features with both before and after implementation descriptions.

Chapter 5: Billing

The cost of ownership reduction (COOR) program has no impact on billing.

Refer to *Automatic Message Accounting Reference Guide*, 297-1001-830 for more information on billing.

Chapter 6: Operations, administration, and maintenance

The cost of ownership reduction (COOR) program reduces operational, administrative, and maintenance costs for the operating company.

This chapter describes the following topics related to operations:

- software optionality control (SOC) for the features
- operational changes for each feature

The features do not introduce additional requirements for administration and maintenance.

6.1 Software optionality control

SOC is summarized in Table 5.

Table 5 Software optionality control for all features

Parameter	Value
SOC option name	N/A
SOC option title	N/A
SOC option control type	N/A
New SOC option	No
Option defined in DRU	N/A
Affected products	None

6.2 Operational changes for reverse translations simplification

The following subsections describe the transition and coexistence requirements for implementing reverse translations simplification.

6.2.1 Transition strategy

Transition from the existing table-based system to the simplified tableless algorithm can be gradual. To ensure a smooth transition, the operating company should follow these steps.

1 Verify that the simplified reverse translation algorithm supports the given scenario. Currently, COOR does not support the following scenarios:

a. Private to Private calls

b. calls using the OPTPRFX field in table DNREVXLA

2 Use the COMPARE option for the REVXLVER tool to verify that the given scenario produces the same result as the current DNREGION and DNREVXLA datafill.

3 If the simplified algorithm does give the same result as DNREGION and DNREVXLA, go to step 6, otherwise proceed to step 4.

Note: You use steps 4 and 5 only if there is a mismatch.

4 Ensure that table FNPA7DIG has the required tuples to identify agents. Use this step to find the correct NPA to construct a ten-digit national number from a seven-digit dialed number in offices where seven-digit dialing of foreign NPAs is allowed (see Figure 5 on page 19).

5 The simplified system has not provided the desired results (that is, the simplified algorithm gives a different result than DNREGION and DNREVXLA). Investigate the cause of this mismatch, which may be one of the following:

a. incorrect DNREGION or DNREVXLA datafill

b. limitation of the simplified algorithm, which you report to your Nortel regional Customer Service Centre (see Chapter 13, “Product support”)

6 The simplified reverse translations algorithm provides the same result as the datafill in tables DNREGION and DNREVXLA. Replace the custom translator in table CUSTNTWK or table CUSTHEAD with the default translator that triggers the simplified reverse translation algorithm (NAT2DIAL in CUSTNTWK, DIAL2NAT in CUSTHEAD).

6.2.2 Coexistence

The simplified algorithm can coexist with the existing reverse translations system.

The operating company can choose between the existing system and the simplified system. To implement the existing reverse translation for certain customized translations, the operating company needs to datafill CUSTHEAD or CUSTNTWK with one of the reverse translators defined in DNREVXLA (that is, not NAT2DIAL nor DIAL2NAT).

The operating company can activate the simplified reverse translation system whenever required by datafilling the special translators NAT2DIAL or DIAL2NAT in tables CUSTNTWK and CUSTHEAD respectively. Refer to Chapter 1, “Introduction” for datafill examples.

To handle the exceptional conditions that the simplified system may not be capable of handling, the operating company provides a simplified system with a capability to handle exceptions. The strategy is along the lines of the existing system. In case of an exception, the system does not alter the manipulated digits. The algorithm returns the same digit stream back to the feature that invoked reverse translations in the first place.

The advantages of this approach are:

- simplicity of datafill
- translations are not dependent on table DNREVXLA and DNREGION
- simplified translations is functional within the existing system
- datafill is less costly and easier to implement

6.2.3 User interface for reverse translations simplification

With this feature, the REVXLVER tool supports the simplified reverse translations algorithm. The “COMPARE” option addresses the issue of transition from the existing reverse translation system to the simplified system.

6.3 Operational changes for RES translations simplification

This section describes the transition requirements for implementing residential enhanced services (RES) translations simplification.

This section describes the transition strategy for RES translations simplification through a step-by-step process for identifying the RES datafill to remove when this feature is in place. Following the description of the strategy are some examples of how the tool works with sample datafill.

6.3.1 Multiple RES groups

This transition strategy focuses on the transition for a single RES group to the simplified RES translations schema. If the operating company then wants to merge multiple RES groups into a single RES group, they may do so at their discretion.

6.3.2 Selected strategy

This section describes the strategy for the transition of a RES group to the simplified RES data schema.

1. Identify the RES group to undergo transition to the simplified datafill.

   By convention, there is usually a customer group named RESGRP; other groups may have names like RESG100, RESG200, RESACCT1, RESACCT2, for example.

2. For each unique NCOS combination (that is, NCOS tuples that only differ by XLAS and NCOSNAME values) keep the first translator as the common translator.

3. Modify affected LINEATTR tuples to point to the new NCOS tuple.

4. Remove the old (now unused) NCOSs.

5. Check that other tuples/tables do not reference the translators that you want to delete in table XLANAME.

6. Remove the old (now unused) IBNXLA datafill only if other tuples/tables do not reference the corresponding translator in table XLANAME.

7. Remove the old (now unused) translators from XLANAME only if other tuples/tables do not reference this translator.

6.3.3 User interface for RES translations simplification

Updates to the user interface include modifications to TRAVER and development of the RESCONV tool. The following subsections describe these interface updates.

6.3.3.1 TRAVER modifications

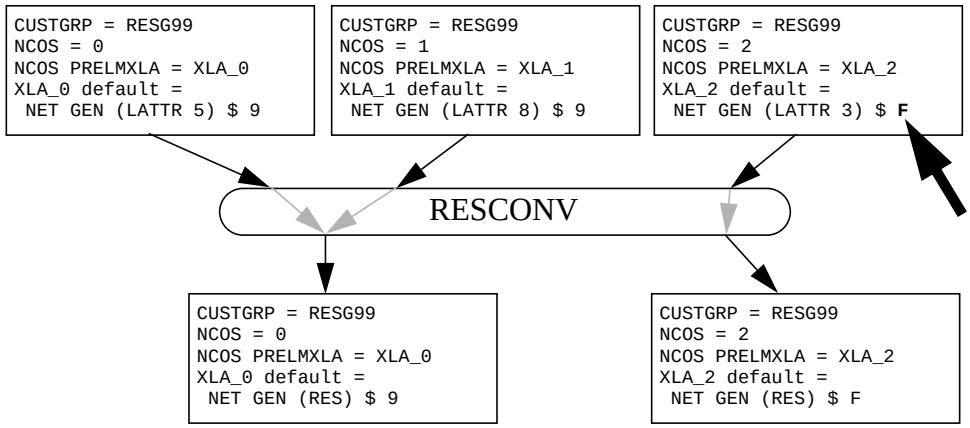
TRAVER correctly shows that a RES call retains its LINEATTR index from table IBNLINES when translations encounters the RES option in the NET GEN selector of tables XLANAME and IBNXLA.

6.3.3.2 RESCONV tool

The RESCONV tool helps transition existing RES data schema to simplified RES data schema. The tool analyzes a given RES group, and indicates the extent to which the operating company can convert the RES data schema to the simplified RES schema. The tool optionally takes a file name for a DMOPRO that includes the commands that convert the given RESGRP from the current RES schema to the simplified schema.

The following figure shows an overview of how the RESCONV tool works.

Figure 13 RESCONV Overview



Note: This figure illustrates how RESCONV determines that one or more NCOSs can be merged into a single NCOS. It does not show all of the data associated with a given NCOS. In this example, NCOSs 0 and 1 in customer group RESG99 are identical, except for the LATTR option of the NET GEN selector. Once this is replaced by the RES option, they can be merged. NCOS 2, on the other hand cannot be merged with these NCOSs, since it has a different MAXDIGS value (F) in the NET GEN tuple.

The following figure shows an example of a RESCONV command line where output is directed to a file.

Figure 14 Example of RESCONV command line

```
> resconv RESG200 sample1
RES analyzes customer group and creates file: SAMPLE1
Number of NCOS to keep is 4
Number of NCOS to delete is 3
Analysis completed.
DMOPRO file SAMPLE1 in SFDEV is created

Disclaimer:
The DMO (Data Modification Order) file generated
by this utility should be considered as a starting
point toward transition to the simplified RES
translation schema. The changes suggested in the
file should be verified before they are applied.
```

The following figure shows sample output for RESCONV.

Figure 15 Example of RESCONV results

```
TAB LINEATTR
PUT 6 CDF NONE LO FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00 Y
RESG200 0 1 $
PUT 264 CDF NONE NT FR01 0 613 EAP1 L613 TOPS 0 NIL NILSFC LATA1 0 NIL NIL 00 Y
RESG200 0 1 $
PUT 19 CSP NONE LO NSCR 0 613 P621 L613 NONE 10 NIL NILSFC NILLATA 0 NIL NIL 00 Y
RESG200 0 1 $
PUT 265 CSP NONE NT FR01 0 613 EAP1 L613 TOPS 0 NIL NILSFC LATA1 0 NIL NIL 00 Y
RESG200 0 1 $
PUT 266 CFD NONE NT FR01 0 613 EAP1 L613 TOPS 0 NIL NILSFC LATA1 0 NIL NIL 00 Y
RESG200 0 1 $
PUT 37 CFD NONE LO FR01 0 613 P621 L613 TSPS 10 NIL NILSFC NILLATA 0 NIL NIL 00 Y
RESG200 0 1 $

QUIT

TAB NCOS
DEL RESG200  2
DEL RESG200  3
DEL RESG200  4

QUIT

TAB IBNXLA
DEL RXCMD200 572
DEL RXCMD200 81
DEL RXCMD200 82
DEL RXCMS200 572
DEL RXCMS200 81
DEL RXCMS200 82
DEL RXCMF200 572
DEL RXCMF200 81
DEL RXCMF200 82

QUIT

TAB XLANAME
DEL RXCMD200
DEL RXCMS200
DEL RXCMF200

QUIT

TAB XLANAME

PUT RXCMC200 ( NET N N 0 N NDGT N Y GEN ( RES ) ( EA NILC Y 0)$ $)$ 9

QUIT

TAB IBNXLA
PUT RXCMC200 81 NET N Y 2 Y NDGT N Y GEN ( RES ) ( EA GTE Y 0)$ $

QUIT
```

6.4 Operational changes for ARS default public network routing

This feature offers the following advantages:

- retains the ability to send the ARS calls through VFGs: ARS default routing is available over VFGs.
- makes ARS visible: the option ARS in table HNPACONT makes the intent of the datafill for ARS obvious.
- simplifies implementation: only one default ARS route handles both DD and NP type of calls with appropriate digit manipulation.

6.4.1 User interface for ARS default public network routing

The TRAVER tool accurately reflects the progress of an ARS call. TRAVER shows an ARS call using the routes datafilled against the DEFAULT_RTEREF option in the OPTIONS field of table HNPACONT.

TRAVER accurately reflects the internal digit manipulation done by this feature to allow both DD and NP calls to use a single DEFAULT_RTEREF.

Chapter 7: Feature interactions

This chapter describes the feature interactions associated with the cost of ownership reduction (COOR) program.

7.1 Reverse translations simplification

Existing features that use reverse translations continue to function as before when using the simplified reverse translation system.

7.2 RES translations simplification

All RES features function as they did prior to implementing the simplified residential enhanced service (RES) data schema.

7.3 ARS default public network routing

This feature has the following interactions:

- The process to upgrade to NA009 adds option ARS in table HNPACONT, using the contents of the patched table ARSSTS as a basis.
- For a given tuple, the upgrade process sets the SNPA field in table HNPACONT to that of ARSSTS, using the contents of ARSSTS as a basis. This interaction implies that NA006-NA008 must receive table ARSSTS, and that the table contents are fixed to see the full benefit of this change.
- Regardless of changes to the contents of table ARSSTS, the behavior of AIN-LNP is identical before and after the upgrade to NA009 (behavior keys on of option ARS in table HNPACONT).
- After the upgrade, table ARSSTS is not usable. Any attempt to access it (write/read) generates a message indicating that it is no longer used in NA009, NA010, and NA011.
- The upgrade process removes table ARSSTS in the NA012 release.
- As of NA009, option ARS in table HNPACONT designates private customers whose calls translate in the public environment (that is, their STS is not an SNPA). The presence of option ARS on a given originator's STS in table HNPACONT prevents DN residency checking, LNP

triggering, and PODP triggering for that originator, as summarized in the following table:

Table 6 Affect of ARS option on triggers and residency checks

HNPACONT SNPA	LNP Trigger	DN Residency Check	PODP Trigger
Y	Yes	Yes	Yes
N	No	No	No

See also the *DMS-100/200 LRN-LNP Service Implementation Guide*, 297-8981-021.

Chapter 8: Hardware description

The cost of ownership reduction (COOR) program does not require hardware changes.

Chapter 9: Limitations and restrictions

This chapter describes the limitations and restrictions associated with the cost of ownership reduction (COOR) program.

9.1 Limitations for reverse translations simplification

This feature has the following limitations and restrictions:

- does not support private-to-private reverse translations (that is, customized dial plans)
- the simplified reverse translations algorithm cannot handle cases where the optional OPTPRFX field in table DNREVXLA is used, since this optional prefix does not appear elsewhere in forward translations datafill

9.2 Limitations for RES translations simplification

IBN lines and RES lines cannot share the same translators.

Do not use option RES on the NET GEN selector with IBN agents. IBN agents use the LATTR option of the NET GEN selector (since, unlike RES agents, IBN agents do not have a LINEATTR index in table IBNLINES). If an IBN agent does use the RES option, calls from that agent fail with the DFIL (datafill error) treatment.

Do not use option RES on the NET GEN selector with key sets (KSET) and attendant consoles. Datafill for KSETs and attendant consoles is in table KSETLINE (there is no LINEATTR field in table KSETLINE) and in table ATTCONS respectively. Like IBN lines, if a KSET encounters the NET GEN RES option, the call fails with the DFIL (datafill error) treatment.

Not all RESGRPs can be fully converted to the simplified schema, since there may be differences between their NCOSs other than the NCOS preliminary translator. In these cases, you can collapse the RESGRP to the number of distinct NCOSs that it contains. This approach is desirable, since NCOSs that provide different translation results must continue to do so after transition to the simplified schema.

The RESCONV tool assumes that the LINEATTR index datafilled against the NET GEN selector in table IBNXLA or XLANAME (that is, the LATTR

option) is the same as the LINEATTR index associated with the RES lines that encounter the NET GEN selector. If the LINEATTR index is not the same, a call from a RES line that encounters the new RES option can translate or screen differently than it does with the LATTR option. The difference occurs because the call uses the LINEATTR index associated with the RES line, rather than the LINEATTR index datafilled with the NET GEN selector.

9.3 Limitations for ARS default public network routing

This feature internally manipulates the dialed digits before sending the ARS call over the DEFAULT_RTEREF. Manipulation occurs so that the system restores a dialed prefix “1” to the dialed digits, if necessary. For this reason, translations does not need digit manipulation (That is, a DIGMAN index of 0 ensures that digit manipulation was not done.).

The route datafilled in the RR field is the escape route for ARS calls that encounter this tuple in HNPACONT. E10DIG is a boolean field which indicates whether or not enforced ten digit dialing is in effect for these ARS calls, and directs the behaviour of digit collection for ARS default routing. In an enforced ten digit dialing environment (E10DIG = Y), ten post-prefix digits are collected before sending the call over the ARS default route. If the ARS customer is not in an enforced ten digit dialing environment (E10DIG = N), the number of post-prefix digits collected before routing depends on whether or not a prefix ‘1’ is dialed. If a ‘1’ is dialed, ten digits are collected (1+SNPA+7D); otherwise, seven digits are collected (7D).

When adding a new HNPACONT entry, follow these steps:

1 Add the HNPACONT tuple without the DEFAULT_RTEREF option (The ARS option can be added initially.)

2 Enter subtable RTEREF and add an entry.

3 Return to the head table and change the HNPACONT tuple. Add the DEFAULT_RTEREF option.

9.3.1 Digit Collection

ARS default public routing does not support dialing environments where both seven and ten digit calls can be dialed without a prefix, or where some toll calls are dialed with a prefix. The following table summarizes the results of various dialing patterns with E10DIG=N and E10DIG=Y.

Dialed Digits	E10DIG =N	E10DIG = Y
7D	Ok	PDD
1+7D	PDD	PDD
10D	VACT	Ok
1+10D	Ok	Ok

Ok : call completes immediately
PDD : call completes after long post dial delay
VACT : call goes to VACT treatment

Chapter 10: Customer documentation

The customer documentation that supports the cost of ownership reduction (COOR) program appears in the following documents:

- *Advanced Intelligent Network Essentials Service Implementation Guide* 297-5161-021.
- *DMS-100/200 LRN-LNP Service Implementation Guide*, 297-8981-021
- *Feature Description Manual*, 297-8001-801
- *Translations Guide*, 297-8002-350

Refer to “About this document” on page xi for a list of related documents.

Chapter 11: System provisioning and engineering considerations

This chapter describes the miscellaneous system provisioning and engineering considerations for the cost of ownership reduction (COOR) program.

11.1 Reverse translations simplification

This feature affects real-time for all features using reverse translations. When an IBN-to-RES call with the IBN (private) line invokes any feature using the reverse translations, there is an increase in the real-time impact. The following table quantifies the impacts.

Table 7 Reverse translations real time impact

Parameter	Value
Processor(s)	All CM
(D) Decrease/ (I) Increase?	I
(H) high (> 1.0%), (M) moderate (0.1 to 1.0%), (S) small (<0.1%).	M

11.2 RES translations simplification

This feature has a very small impact on real-time for all RES calls because of the translator validation process in RES translation call processing logic. The following table quantifies the impacts.

Table 8 RES translations real time impact

Parameter	Value
Processor(s)	All CM
(D) Decrease/ (I) Increase?	I
(H) high (> 1.0%), (M) moderate (0.1 to 1.0%), (S) small (<0.1%).	S

11.3 ARS default public network routing

The following table quantifies the impacts for this feature.

Note: This feature does not have an impact on ARS real-time, since it is only activated when a call is about to go to vacant treatment.

Table 9 ARS default public network routing

Parameter	Value
Processor(s)	All CM
(D) Decrease/ (I) Increase?	I
(H) high (> 1.0%), (M) moderate (0.1 to 1.0%), (S) small (<0.1%).	S

Chapter 12: COOR provisioning

This chapter describes provisioning associated with the cost of ownership reduction (COOR) program.

12.1 Reverse translations simplification

Two predefined reverse translator names, DIAL2NAT and NAT2DIAL, are available in tables CUSTHEAD and CUSTNTWK respectively. Datafilling either of these reverse translator names in the appropriate table directs reverse translations to use the simplified reverse translation system (that is, translations does not need datafill in tables DNREGION and DNREVXLA).

You cannot datafill either DIAL2NAT or NAT2DIAL in table DNREVXLA. Note that reverse translations simplification does not use the NUMDIGS field in table CUSTNTWK (That is, when REVXLNAME = NATZDIAL2.)

The REVXLVER tool supports the transition to reverse translations simplification. Refer to Section 6.2.3, “User interface for reverse translations simplification,” on page 47 for more information on the REVXLVER tool.

12.2 RES translations simplification

This feature adds option RES to the NET GEN selector of the DEFAULT field in table XLANAME. Option RES directs call processing to use the LINEATTR index of the RES line in table IBNLINES. As well, it is mutually exclusive with the existing LATTR option, which supports datafill of the LINEATTR index for IBN lines (which does not have such an index in table IBNLINES).

Similarly, the NET GEN selector of the RESULT field in table IBNXLA now has an option RES that is mutually exclusive with the existing LATTR option.

RES_CHK_OOS is an office parameter (in table OFCVAR). When RES_CHK_OOS = N, you can modify the NCOS parameter for a RES line through the Table Editor. By default, RES_CHK_OOS = Y. When RES_CHK_OOS = Y, you must remove from service any RES lines that are using a given LINEATTR tuple before changing the NCOS in that tuple.

Use the RESCONV tool to assist in the transition to the simplified RES translation. RESCONV determines the extent to which a RES group can be converted to a simplified data schema.

The syntax for RESCONV is

```
RESCONV <resgrp_name> <dmo_filename>
```

where:

resgrp_name	is the name of the target RES group
dmo_filename	is the DMO file produced by the command

The optional data modification order (DMO) file that RESCONV generates is a starting point towards transition to the simplified RES translation schema. Verify the suggested changes in the file before you apply them.

12.3 ARS default public network routing

This feature adds an options field to table HNPACONT, and a single option called ARS with suboptions DEFAULT_RTEREF and E10DIG. The datafilled route in this option is the default route for ARS calls.

The value of E10DIG indicates whether or not the ARS customer is in an enforced ten-digit dialing environment, and directs the behavior of digit collection for ARS default routing. In an enforced ten-digit dialing environment (E10DIG = Y), the system collects ten post-prefix digits before sending the call over the ARS default route. If the ARS customer is not in an enforced ten-digit dialing environment (E10DIG = N), the number of post-prefix digits that the system collects before routing depends on if the customer dials a prefix 1. If the customer dials a 1, the system collects ten digits (1+SNPA+7D), otherwise the system collects seven digits (7D).

12.3.1 Dump and restore

During the upgrade to NA009, the default behaviour added a new ARS option to each tuple in HNPACONT which has its SNPA field set to ‘N’. Tuples with SNPA set to ‘Y’ do not get the new ARS option, and the DEFAULT_RTEREF sub-option is not added for any tuples (regardless of the value of the SNPA field). An example follows:

```
STS SNPA NORTREFS NOAMBIGC RTEREF HNPACODE ATTRIB RTEMAP
-------------------------------------------------------
613 Y    930      20       (122)  (1)      (0)    (0)
444 N    500      1        (1)    (1)      (0)    (0)
```

becomes...

```
STS SNPA NORTREFS NOAMBIGC RTEREF HNPACODE ATTRIB RTEMAP OPTIONS
-------------------------------------------------------------
613 Y    930      20       (122)  (1)      (0)    (0)    $
444 N    500      1        (1)    (1)      (0)    (0)    (ARS $)$
```

Note that this behaviour is modified if the patched table ARSSTS is present and has been modified on the dump side (NA007 or NA008 only, through patches LNP30, LNP31 and LNP32). Please refer to Bellcore Newsletter 98 004 for details on this patched table, and its impact on table HNPACONT on the upgrade to NA009.

12.3.2 Activation

The core functionality of this feature, ARS default public routing, is activated through the addition of the ARS option to an HNPACONT tuple, along with the DEFAULT_RTEREF sub-option, which defines the default route. Note that it is recommended that a POTS VFG be used as the default route, which will cause the call to re-translate in the public environment under an appropriate STS.

In NA009, LNP/AIN behaviour for a given STS depends on the presence or absence of the ARS option (regardless of whether or not the DEFAULT_RTEREF sub-option is datafilled). LNP/AIN behaviour is activated for a given STS when the ARS option is not present.

Example:An HNPACONT tuple with the ARS option, but no sub-option: An

```
STS SNPA NORTREFS NOAMBIGC RTEREF HNPACODE ATTRIB RTEMAP OPTIONS
-------------------------------------------------------------
444 N    500      1        (1)    (1)      (0)    (0)    (ARS $)$
```

HNPACONT tuple with the ARS option, and the DEFAULT_RTEREF sub-option, specifying HNPACONT:RTEREF tuple 5, and indicating that enforced ten digit dialing is in effect:

```
STS SNPA NORTREFS NOAMBIGC RTEREF HNPACODE ATTRIB RTEMAP OPTIONS
-------------------------------------------------------------------
444 N   500     1       (1)   (1)     (0)   (0) (ARS (DEFAULT_RTEREF 5 Y)$)$
```

Chapter 13: Product support

Nortel provides support for the cost of ownership reduction (COOR) product under standard Customer Service Centre (CSC) and Global Product Support (GPS) policies and procedures when the product achieves GA status.

When the OA&M personnel of an operating company encounter a problem they cannot resolve, they contact the Nortel regional Customer Service Centre (CSC). The regional prime opens a Customer Service Report (CSR).

The regional prime directs the problem to and works with the appropriate specialty group within the CSC organization. If CSC cannot resolve the problem at this time, the CSC refers the problem to the appropriate GPS group. The GPS either resolves the problem or provides additional information on the nature of the problem.

Corrective action may consist of one or more of the following:

- a work-around
- a fix in a future software release
- an incremental software update (a patch)
- a documentation change
- a request for feature toward new or changed functionality

When Nortel resolves the problem or provides additional information, the regional prime gives the solution to the customer who can then authorize closure of the CSR.

13.1 Customer acceptance

Customer acceptance of a load is generally the result of a successful VO at the customer premise.

A team consisting of Nortel and customer personnel evaluate product performance by completing a set of defined test cases and an in-service trial. The team members document exceptions to the expected results and prioritize problems or issues through service requests (SR). Nortel corrects serious faults prior to completing of the VO. The team may defer minor faults to a future

release. Regulatory approvals generally apply to hardware products but are not required for software.

13.2 Load build requirements

There are currently no identified load build requirements for COOR.

13.3 Documentation

In general, Nortel delivers a detailed documentation plan for COOR at Gate 1. For each new document, the plan provides a description, a definition, a prime who is responsible for preparing the documentation, and a scheduled delivery.

Required updates to existing documents, such as NTPs, are also described.

Terms

The following is a list of acronyms and abbreviations used in this product specification, and in related documents. For a definition of terms, please refer to *Advanced Intelligent Network: Glossary,* 297-5161-825.

3WC Three-way Calling

ACB Automatic Call Back (a.k.a. RAG, Ring Again)

ACG automatic code gapping

ACM address complete message

ACRJ Anonymous Caller Rejection

AIN advanced intelligent network

AMA automatic message accounting

ANM answer message

AR Automatic Recall

ARS automatic route selection

Note: ARS translation takes place in the public translation table HNPACONT.HNPACODE. ARS translation allows private environment calls (that is, IBN calls) to be analyzed through public translation to provide a cost-effective routing scheme. Typically, ARS translation is done to use the public network for non-toll calls, and the private customer's private network for toll calls.

CLASS Custom Local Area Signaling Service

CPG Call Progress

CT call type

CTR connect to resource

CWT call waiting

CUSTHEAD Customer Group Head Table

DD Direct Dial

DDN Dialable Display Number

DMS Digital Multiplex System

DN directory number

DOD Direct Outward Dial

IAM initial address message

IBN Integrated Business Network

IBNXLA Integrated Business Network Translations Table

ICM Incoming Call Memory

ISDN integrated services digital network

ISUP ISDN user part

LATA local access and transport area

LATTR Line Attribute

LDI Long Distance Indicator

LEN Line Equipment Number

LINEATTR Line Attribute Table

LNP Local Number Portability

MDC Meridian Digital Centrex

NANP North American Numbering Plan

NCOS Network Class of Service Table

NP No Prefix

NPA Numbering Plan Area

NTNA Northern Telecom North America

OA&M operation, administration, and maintenance

OCM originating call model, Outgoing Call Memory

OM operational measurement

POTS Plain Ordinary Telephone Service

PRI primary rate interface

PSDS public switched data service

RES Residential Enhanced Services (also known as Subscriber Services)

SCP service control point

SOC software optionality control

SS7 Signaling System Number 7

SSP service switching point

STS Serving Translation Scheme

TCAP transaction capabilities application part

TRAVER translation verification

VFG virtual facility group

XLA translations

XLANAME Translator Name Table

DMS-100 Family

Cost of Ownership Reduction

Feature Specification

Document number: 297-8991-110
Document issue: 01.02
Document status: Standard
Date: November 1998
Published in Canada

NORTEL
NORTHERN TELECOM