

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

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In the Matter of )  
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Long-Term Telephone Number )  
Portability Tariff Filings of )  
)  
Ameritech Operating Companies )  
GTE System Telephone Companies )  
GTE Telephone Operating Companies )  
Pacific Bell )  
Southwestern Bell Telephone Company )

CC Docket No. 99-35  
DA 99-374  
  
Transmittal Nos. 1186, 1187  
Transmittal No. 271  
Transmittal No. 1190  
Transmittal No. 2029  
Transmittal No. 2745

**DIRECT CASE OF  
GTE  
IN RESPONSE TO THE  
ORDER DESIGNATING ISSUES FOR INVESTIGATION**

Dated: April 5, 1999

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domestic telephone operating companies

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## TABLE OF CONTENTS

	<u>PAGE</u>
I. RECOVERY OF OSS COSTS .....	3
A. Explanation of Cost Development in Confidential Filings.. .....	3
B. Rate of Return.....	4
C. Itemized List of OSS Costs. ....	5
D. Eligible OSS Modifications or Upgrades. ....	5
E. Altered OSS Modifications Necessary "for the Provision of Portability." .....	13
F. 10-Digit Translations. ....	28
II. ALLOCATION OF NUMBER PORTABILITY COSTS AMONG NUMBER PORTABILITY SERVICES .....	28
A. Basis for Allocating Number Portability Costs. ....	28
III. JURISDICTIONAL SEPARATIONS.....	31
A. Treatment of Prior Year Costs.....	31
B. Treatment of Prospective Costs.....	32
IV. CONCLUSION .....	32

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**DIRECT CASE OF  
GTE  
IN RESPONSE TO THE  
ORDER DESIGNATING ISSUES FOR INVESTIGATION**

GTE Service Corporation and its affiliated domestic companies<sup>1</sup> (collectively "GTE") respectfully submit their Direct Case in response to the Commission's Order ("Investigation Order") in the above-captioned proceeding which designated issues for

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<sup>1</sup> GTE's affiliated domestic telephone operating companies are: GTE Alaska Incorporated, GTE Arkansas Incorporated, GTE California Incorporated, GTE Florida Incorporated, GTE Hawaiian Telephone Company Incorporated, The Micronesian Telecommunications Corporation, GTE Midwest Incorporated, GTE North Incorporated, GTE Northwest Incorporated, GTE South Incorporated, GTE Southwest Incorporated, Contel of Minnesota, Inc., and Contel of the South, Inc.

investigation into GTE's Service Provider Number Portability ("SPNP") tariff.<sup>2</sup> Specific questions presented here are shown bolded below, followed by GTE's response.

## I. RECOVERY OF OSS COSTS

- A. **GTE is required to supply a narrative explanation of how costs were developed in the confidential filings that have already been filed, as well as in any other confidential filings to be made as part of its direct case. This narrative will be subject to the same confidentiality arrangements as the confidential filings.**<sup>3</sup>

GTE did not include any confidential material in its initial Local Number Portability ("LNP") cost study support filed on January 15, 1999. Although GTE subsequently provided OSS detail under confidential cover,<sup>4</sup> the same OSS detail was later provided as public support material in GTE's February 25, 1999 tariff filing. The OSS costs provided were developed from vendor quotes for the various OSS systems. Any costs that are dedicated to either end user or query services are directly assigned to those services. All costs that are shared between end user and query services were allocated using the same methodology as other shared costs since it was not possible to determine the exact portion of costs that were related to the various services.

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<sup>2</sup> GTE originally submitted GTE Telephone Operating Companies ("GTOC") Tariff Transmittal No. 1190 and GTE System Telephone Companies ("GSTC") Tariff Transmittal No. 271 on January 15, 1999. GTE subsequently revised its tariffs and resubmitted them as GTOC Tariff Transmittal No. 1196 and GSTC Tariff Transmittal No. 275 on February 25, 1999.

<sup>3</sup> Investigation Order at ¶7.

<sup>4</sup> Letter from F. Gordon Maxson, GTE, to Magalie R. Salas, FCC, CC Docket No. 99-35, dated February 5, 1999.

- B. In its confidential cost support, GTE appears to have miscalculated its costs by improperly inflating expenditures anticipated after 1999. GTE also appears to have used an improperly high rate of return by compounding the rate of return monthly, producing an annual percentage rate above the 11.25 percent authorized in the *Third Report and Order*. GTE is directed to correct these errors or to explain why its method is correct.<sup>5</sup>**

In its original January 15, 1999 filing, GTE calculated the monthly rate of return ("ROR") by dividing 11.25 percent by 12. GTE corrected its calculation to reflect an annual ROR of 11.25 percent in its February 25, 1999 filing. Also in its February 25, 1999 filing, GTE corrected the inflation factors it used for post-1999 expenditures by adopting the Consumer Price Index factors shown below:

<u>YEAR</u>	<u>CPI FACTOR</u>
1999	2.0%
2000	2.3 %
2001	2.3%
2002	2.4%
2003	2.5%

As modified, GTE believes that its calculations are correct.

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<sup>5</sup> Investigation Order at ¶8.

- C. **GTE is directed to file as part of its direct case, an itemized list of OSS costs, arranged by functional area (for example, provisioning, maintenance, repair, billing, etc.)<sup>6</sup> For each OSS modification or augmentation, GTE must provide: (1) the total cost; (2) the cost assigned to number portability, (3) the cost allocations among number portability services; (4) an explanation of how each OSS modification related to performing queries; (5) an explanation of how each OSS modification relates to porting numbers between carriers; (6) an explanation of how each OSS modification relates to any other number portability function; (7) the basis for cost allocations between number portability and non-number portability services; and (8) the basis for cost allocations among number portability services.**

GTE provided the requested itemized information in response to Parts (1), (2), (3), (7) and (8) in its February 25, 1999 filing in a paper copy entitled Worksheet SUPP\_1-SUPP\_40.<sup>7</sup> A copy of GTE's February 25, 1999 Tariff Transmittal Nos. 1196 and 275 are attached as Attachments 1 and 2, respectively. GTE provides further detail herein. Refer to GTE Attachment 3, Column B for GTE's response to Part (4); Column C for the response to Part (5); and Column D for the response to Part (6) as requested.

- D. **For functions other than provisioning of number portability, GTE should explain with specificity why it believes a particular OSS modification or upgrade qualifies as eligible under the *Cost Classification Order*.<sup>8</sup>**

As stated in its Reply and Opposition to AT&T's Petition To Reject Or Suspend Tariffs,<sup>9</sup> GTE has made changes to its operations support systems (OSS) that were required by the implementation of Local Number Portability. GTE required six new

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<sup>6</sup> *Id.* at ¶10.

<sup>7</sup> See GTE's February 25, 1999 tariff filing; electronic File Name: LNPREV1, Tab: OSS Matrix.

<sup>8</sup> Investigation Order at ¶10.

<sup>9</sup> Reply and Opposition of GTE, filed January 27, 1999.

systems or interfaces solely for portability functions, and made adaptations to 32 out of 350 systems and applications in order to implement LNP. The criteria used to determine that these systems changes are a direct cost of number portability are the criteria adopted by the FCC. Specifically, GTE included only *incremental* costs that would meet the Commission's "two-part test": those that would not be incurred "but for" the provision of number portability and are specifically incurred "for the provision of" number portability.<sup>10</sup>

The costs GTE included as eligible LNP costs pass this required two-part test. GTE's costs associated with the LNP-specific OSS changes are all incremental costs, and include the following:

- Initial incremental costs for LNP-specific system development and enhancements.
- Vendor warranty costs associated with LNP-specific system development and enhancements.
- Incremental on-going operational costs for the six new LNP-specific systems for the cost recovery period.
- Incremental on-going operational costs for changes that were a direct result of LNP implementation for the cost recovery period.

The total GTE LNP-specific costs associated with new OSS or changes to existing OSS for 1998 was less than \$10 million, a small fraction of the total \$268 million GTE spent in 1998 on all systems development and enhancements.

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<sup>10</sup> In the Matter of Telephone Number Portability Cost Classification Proceeding, *Memorandum Opinion and Order*, CC Docket No. 95-116, RM 8535, DA 98-2534, (adopted and released December 14, 1998)("Cost Classification Order"), at ¶10.

GTE has taken a number of steps to ensure compliance with permissible recovery of OSS costs:

To identify costs associated with the LNP end user service, GTE evaluated whether an end user could port a telephone number *without* the modification at issue, and whether an end user whose serving wire center is *not* LNP-capable could benefit from the modification. Only if the responses to both questions were negative was the cost of the given modification considered for inclusion.<sup>11</sup>

Furthermore, GTE did not submit any expenses for changes for any systems enhancements that provided other revenue opportunities for GTE or supported any other product or service.

Finally, to ensure accurate identification of the incremental systems costs, GTE managed the systems developments and enhancements related to LNP as a separate project, with separate financial tracking and reporting of costs. Only those vendor warranties and on-going operational costs that are **incremental** and **specific** to LNP were included in the costs filed with the tariff.

As GTE explained in the detail provided with the "Description and Justification" ("D&J") accompanying its LNP tariff filing,<sup>12</sup> any OSS costs included comply with the Commission determination that "the costs of number portability are the costs of enabling telecommunications users to keep their telephone numbers *without degradation of*

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<sup>11</sup> GTE concluded that costs associated with compliance to NENA standards for service provider number portability would be recoverable, but did not include any costs associated with GTE as a 911 provider. GTE included costs that enabled the correct billing to customers with ported numbers, but excluded any costs that allow end users to be billed for other services.

<sup>12</sup> See GTE's January 15, 1999 tariff filing IV. Section C – OSS Costs at page 8.

service when they switch carriers.”<sup>13</sup> Accordingly, GTE has sought to recover only those expenses associated with those specific systems enhancements that enable telecommunications users to keep their telephone numbers when they switch carriers without degradation of service.

Part of the quality of service for telecommunications services is the ability to render and deliver an accurate bill for those services. In order to provide the service of number portability, GTE systems that accept, process, rate, and format billing information for ported telephone numbers required changes so that the bills to both end users and CLECs accurately reflect the costs of the services for those ported telephone numbers. The costs of the changes to ensure the integrity of the billing process are included herein.

GTE also notes that many of its systems changes were made to implement the Number Portability Administration Center Service Management System Provisioning Process Flows (Provisioning Process Flows) that were adopted in the Second Report And Order.<sup>14</sup> The Commission defines these flows as:

the detailed, standard procedures by which service providers and database administrators communicate between and among one another to port a telephone number to a new service provider, to cancel a porting request, to disconnect a ported number, or to deal with conflicts between, or audits of, service providers. The Technical & Operational Task Force developed, and the NANC recommends Commission adoption of, standard processes to carry out

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<sup>13</sup> In the Matter of Telephone Number Portability, *Third Report and Order*, CC Docket No. 95-116, 13 FCC Rcd 11701, 11723 (¶36)(1998) (“Third Report and Order”). GTE has interpreted the Cost Classification Order in a way that is consistent with the guidelines set forth in the Third Report and Order at ¶68-77.

<sup>14</sup> In the Matter of Telephone Number Portability, *Second Report and Order*, CC Docket No. 95-116, 12 FCC Rcd 12281, 12315 (¶55)(1997) (“Second Report and Order”).

every operation needed to implement local number portability. The primary Provisioning Process Flow diagram lays out the general process by which a customer's telephone number is ported from the customer's original service provider to the customer's newly-requested service provider. The subsequent Provisioning Process Flow diagrams set forth the processes by which service providers and local number portability administrators handle specific scenarios, such as porting numbers with or without unconditional ten-digit dialing triggers, canceling porting requests, disconnecting ported numbers, arranging audits of service providers to assist in resolution of repair problems, and resolving conflicts between service providers.<sup>15</sup>

The Commission concluded that these NANC standards "are essential to the efficient deployment of local number portability across the nation."<sup>16</sup> These changes are part of the provision of number portability, including these systems modifications that enable the following functions:

- Function: Pre-ordering ported telephone numbers.  
System:  
Business Express (BEX)
  
- Function: Creating, transmitting, and accepting porting orders.  
Systems:  
Desktop, Documentation, and Reference (DDR)  
Local Number Portability Gateway  
Local Number Portability Process  
National Order Collection Vehicle (NOCV)  
Service Order Loading and Retrieval (SOLAR)  
Service Order Record Computer Entry System (SORCES)  
Secure Integrated Gateway System (SIGS)  
Supplier Gateway
  
- Function: Setting and removing ten-digit triggers.  
Systems:  
Local Number Portability Process  
Mechanized Assignment and Record Keeping (MARK)  
National Order Collection Vehicle (NOCV)

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<sup>15</sup> *Id.* at ¶156.

<sup>16</sup> *Id.* at ¶158.

- Function: Provisioning ported telephone numbers (TNs).  
Systems:  
Automated Work Administration System (AWAS)  
Enhanced 911 (E911)  
Mechanized Assignment and Record Keeping (MARK)  
Subscription Services
- Function: Verifying the provisioning of ported TNs.  
Systems:  
Advanced Service Assurance Verification Platform/Service Assurance Voice System (ASAVP/SAVS)  
4TEL®  
Switch Access Manager (SAM)  
STARMEM
- Function: Identifying and updating location routing number (LRN) assignments, in both the switches and the NPAC.  
Systems:  
Network Element Data Administration System (NEDAS)  
Mechanized Assignment and Record Keeping (MARK)  
Local Number Portability Gateway  
Local Service Management System (LSMS) /Service Order Activation (SOA)
- Function: Communicating information regarding ported numbers to and from the NPAC, the LSMS, and the ISCPs.  
Systems:  
Local Number Portability Gateway  
Local Service Management System (LSMS) /Service Order Activation (SOA)

Based on its experience with number portability, GTE has also identified additional functions as *critical* to implementing number portability. Specifically, these additional functions provided in the OSS modifications enable number portability in the following manner:

Performs trouble isolation and repair

The NANC standard business process flows also include a flow for the "SMS

Service Repair Process<sup>17</sup>, which GTE implemented within the service assurance systems. With LNP's requirement to "dip" the number portability database to determine the routing of calls, trouble isolation and repair have taken on new levels of complexity. For example, when a trouble call is received for a TN in a portable NPA NXX, GTE must query the LSMS to determine the *network* view of the port status of that TN. Additionally, GTE must verify that NPAC downloads to other carriers' LNP databases have been successful to ensure proper routing of calls. Finally, GTE systems must then locate the serving switch of a TN by using the LRN rather than the NPA NXX.

The following systems used in trouble isolation and repair were modified to implement LNP:

- Advanced Service Assurance Verification Platform/Service Assurance Voice System (ASAVP/SAVS)
- Local Number Portability Gateway
- Local Service Management System (LSMS) /Service Order Activation (SOA) 4TEL®
- Automated Work Administration System (AWAS)
- Customer Care (Care)
- Computer Telephony Integration (CTI)/Interactive Voice Response Unit (IVRU)
- Digital Services Test System (DSTS)
- Switch Access Manager (SAM)
- STARMEM
- TONICS for Customer Access Facilities (TCAF)
- Trouble Administration System (TAS)

Performs network-monitoring/management functions

Changes to these systems allow GTE to monitor the new network components implemented with LNP. These modifications extend existing capabilities into the specific

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<sup>17</sup> North American Numbering Council (NANC) Functional Requirements Specification Version 1.10, July 8, 1998, Appendix A, Flow 2.3

alarms and alerts that are issued by LNP network components. Other modifications enable GTE to properly manage the network traffic associated with LNP.

The following network-monitoring/management systems were changed to implement LNP:

- NetMinder
- Network Operation Center (NOC)/Trouble Administration System (TAS) Interface SITES
- Telecommunications Data Collection System (TDCS)
- Telephone Operations Network Interface Control System (TONICS)/ LNP Gateway Interface
- TONICS Alarm Correlation Engine (ACE)
- Traffic Irregularity System (TIAS)

Performs usage processing

These systems changes enable the correct processing of new LNP industry standards for recording, editing, and using new AMA records for LNP usage processing. The modifications also ensure that usage for ported telephone numbers is directed to the CLEC who serves the end user with the ported telephone number rather than the LEC to which the NPA NXX is assigned.

Enhancements to the following systems are involved:

- Customer Billing Services System (CBSS)
- Secure Integrated Gateway System (SIGS)
- Toll Error Message Processing On-Line (TEMPO)
- Usage Messaging System (UMS)

Performs rating and pricing, and bill creation

These changes allow for calls from ported telephone numbers to be rated according to the local calling plans that are offered from the serving wire center to which those telephone numbers are ported.

Enhancements to the following systems are involved:

Customer Billing Services System (CBSS)  
Secure Integrated Gateway System (SIGS)

Performs payment/adjustment and settlement functions

These changes ensure that customer accounts that contain ported telephone numbers can be accurately adjusted and that inter-carrier compensation can be correctly applied once LNP is implemented.

Enhancements to the following systems are involved:

Bill inquiry, Voucher and Treatment (BVT)  
GTE Security Administration System (GSAS) / Security Toll Online Message Processing System (STOMPS)  
Network Profile System (NPS)  
Other Carrier Settlement System (OCSS)

- E. GTE is further directed to explain for each OSS modification the manner in which it alters the nature of the task or function previously performed, and why this alteration is necessary “for the provision of portability.”<sup>18</sup>**

GTE has grouped its explanations of OSS modifications into three functional areas identified as Service Fulfillment, Service Assurance and Billing and Usage Systems. These same functional designations have been consistently used by GTE in its LNP tariff filing for cost recovery.

**1. Service Fulfillment**

Advanced Service Assurance Verification Platform/Service Assurance Voice System (ASAVP/SAVS)

For ported telephone numbers, ASAVP/SAVS has been modified to use the Location Routing Number (LRN) assigned in the Local Service Management System (LSMS) in place of the NPA-NXX to access the correct switch when verifying service

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<sup>18</sup> Investigation Order at ¶11.

orders and trouble tickets. These changes are required so that the switch serving ported telephone numbers can be accessed. Without these changes, service order and repair order completion for ported telephone numbers would show an error condition when trying to access the switch.

#### Business Express (BEX)

BEX has been modified to use the LRN of a ported number instead of NPA-NXX to identify the proper serving switch during pre-ordering. Without these changes, pre-ordering would either not allow the use of a ported telephone number, or would provide service availability associated with an incorrect switch.

#### Desktop, Documentation and Reference (DDR)

The DDR enhancement provides new LNP information at order time regarding LNP capability in a switch (e.g., whether switch is LNP capable, NPA NXXs opened for porting in that switch), so that the Local Service Request (LSR) or order requesting number portability can be validated and processed. These changes are necessary to ensure that port requests can only be accepted for LNP capable switches.

#### Enhanced 911 (E911)

These changes implement the LNP standard recommended by the National Emergency Number Association (NENA) Recommended Standards For Service Provider Local Number Portability. This modification creates **new** transactions to “unlock” E911 records for ported out numbers, and to “migrate” 911 records to the new Service Provider on ported in telephone numbers. These changes ensure that the end user’s information is not deleted from the 911 database during the porting process. Without these changes, records would be deleted from the 911 database when an end

user ports their TN, and updates to the 911 database would not process due to the incorrect transaction type.

#### Local Number Portability Gateway

The LNP Gateway is a **new** system that manages the messages received from the Number Portability Administration Center (NPAC), for example, messages that indicate failure of updates to the LSMS. The LNP Gateway acts as a router/translator between GTE systems and the LSMS/SOA transmission protocols via the use of many types of system interfaces. The system provides a SOA interface for management of notification and error messages received from SOA or the Number Portability Administration Center (NPAC) such as messages regarding the subscription version updates provided by both carriers during the porting process. The Gateway retrieves information from the NPAC to create porting orders. These functions were not required before the implementation of LNP, and are necessary to manage the subscription version updates required for number portability.

#### Local Number Portability Process

The LNP Process is a **new** system required for LNP order processing. This system scans and validates new LNP information on service orders, and changes the GTE order flow to the LNP industry-defined flow of communication with the NPAC and other service providers. The LNP Process extracts and formats subscription version transactions from order entry and transmits them to the LNP Gateway. Without this system, GTE could not process LNP service orders in the manner defined by the industry.

#### Local Service Management System (LSMS) /Service Order Activation (SOA)

The functionality provided by LSMS/SOA is new functionality that was not required before the implementation of number portability. It provides an interface from GTE Operational Support Systems (OSS) and the regional number portability databases. Within a given area, individual number portability routing databases [ISCPs] will be administered and maintained by a local SMS. The LSMS database interconnects to an ISCP and sends to the ISCP the ported number information and call processing instructions needed for a network switch to process and complete a telephone call. The LSMS receives all ported number routing information from the NPAC and provisions the applicable LNP ISCPs with the active ported telephone number LNP routing information. SOA handles all subscription transactions for ported numbers and related LNP requests. It communicates subscription information to the NPAC. It permits the flow through between GTE's service order processing systems used for service activation. SOA is also the vehicle by which a service provider creates and updates ported number records, and sends this information to the regional SMS.

#### Mechanized Assignment and Record Keeping (MARK)

The changes to MARK, the TN inventory system, include the addition of new LNP information, e.g. LRN. They also provides for new status of ported telephone numbers so that non-native TNs will age and be returned to the donor switch, rather than being made available for re-assignment. With these changes, MARK also sets and removes the Ten Digit Trigger that is required by LNP for seamless provisioning between service providers. These system changes were required to allow non-native telephone numbers to be assigned in a switch. These changes are necessary to ensure

that telephone number inventories are correctly assigned, aged, identified and returned to original code holders.

#### Network Element Data Administration System (NEDAS)

The changes to NEDAS provide the ability to manage LNP information in the switch, e.g., open NPA NXXs for number portability and identify the LRN for a switch. These changes are necessary to ensure that switches are properly programmed with portable codes and local routing numbers (LRNs). These types of updates are not required where LNP is not implemented.

#### National Order Collection Vehicle (NOCV)

These system changes allow additional routing logic not previously available in GTE, based on the NANC industry-defined provisioning flow for number portability. They accept and store LNP information, e.g., LRN, and generate new transactions to MARK for LNP orders to set and remove the ten-digit trigger. The system changes accept and process non-native telephone numbers with their associated LRN. These changes are necessary to ensure that customer-requested LNP service orders are properly routed, according to NANC standards, allowing porting to occur as committed.

#### Service Order Loading and Retrieval (SOLAR)

These system changes allow additional routing logic not previously available in GTE, based on the NANC industry-defined provisioning flow for number portability. They accept and store LNP information, e.g., LRN, and generate new transactions to MARK for LNP orders to set and remove the ten-digit trigger. The system changes accept and process non-native telephone numbers with their associated LRN. These changes are necessary to ensure that customer-requested LNP service orders are

properly routed, according to NANC standards, allowing porting to occur as committed.

#### Service Order Record Computer Entry System (SORCES)

The changes to SORCES allow service orders to be processed according to the NANC industry-defined flow for number portability. The changes allow the order system to accept and store LNP information, e.g., LRN. These changes are necessary to ensure that customer-requested LNP service orders are properly handled, according to NANC standards, allowing porting to occur as committed.

#### Subscription Services

Subscription Services was changed to associate a non-native ported telephone number with an LRN so that ported non-native telephone numbers can be "PIC'd" to long distance carriers that offer services at the associated serving switch. Before this change, the NPA NXX was used to identify the serving switch. The change notifies long distance carrier when a telephone number has been ported so that these carriers will accept subscription information from the CLEC. It also provides new LNP information regarding porting activity to the other carriers. These changes are necessary to ensure that a customer's selection of a long distance carrier is correctly associated with a ported number, and that CLECs can change the long-distance carrier for customers with numbers ported from GTE.

#### Supplier Gateway

The Supplier Gateway is a **new** system required for LNP transactions with other carriers. The system is necessary to transmit porting order to CLECs, and to ensure that LNP orders can be created according to industry standards. It provides the ability to communicate LNP information on LSRs to other Local Exchange Carriers (LECs) via

the electronic data interchange (EDI) format, fax, or other methods. These functions were not performed prior to the implementation of LNP.

## **2. Service Assurance Systems**

### 4TEL®

The enhancement to 4TEL provides the ability to perform loop tests on non-native (ported) telephone numbers. 4TEL was changed to use the LRN associated with the ported telephone number (rather than the NPA NXX of the TN) to identify the serving switch before initiating a loop test during service order processing. This change is required to ensure that ported telephone numbers are provisioned correctly and in the same manner as non-ported telephone numbers. This change is also used to perform existing loop testing for ported telephone numbers on completion of trouble tickets.

### Automated Work Administration System (AWAS)

For ported telephone numbers, the AWAS changes identify correct routing destination on service orders and trouble tickets for work assignment. Before this change, the NPA NXX identified the destination for work assignment. This change allows LRN to identify the serving switch. The changes also provide and processes additional LNP information (e.g., LRN) on work distributed to technicians (both service orders and trouble tickets for ported telephone numbers). These changes are necessary to ensure that order and repair activity is correctly assigned to field and CO technicians when ported numbers are involved, as well as to provide the LNP-specific information that the technicians need so that they can provision the service correctly.

### Customer Care (Care)

Changes to Care were made to modify screens, tables, and interfaces to provide the new LNP information (e.g., LRN, LSPID) regarding the port status of telephone

numbers within the LSMS. Care was changed to use the LRN rather than the NPA NXX to identify serving switch of a ported telephone number so that repair functions can be properly applied. These enhancements changed the automated routing of trouble tickets to include the port status information received from the LSMS and NPAC download when determining how to route a ticket. Porting information (LRN, etc.) was added to the trouble isolation and analysis process so that verification of the telephone number designation in the LSMS can now be included in trouble analysis. These changes ensure that ported numbers are properly identified with the serving switch, and that the new LNP information regarding TN status can be analyzed.

#### Computer Telephony Integration (CTI)/ Interactive Voice Response Unit (IVRU)

The CTI/IVRU changes support the look-up of numbers in LSMS (using LRN) to determine if end user is served by GTE, rather than recognizing GTE NPA NXXs. Modifies windows to display new LSMS information. This change modifies IVRU scripts to address ported telephone numbers (e.g., to correctly advise customers to contact their current local service provider). The changes are necessary to ensure that the IVRU correctly handles ported numbers, and allows or prevents ported TNs from entering the repair process.

#### Digital Services Test System (DSTS)

For ported numbers, DSTS queries the LSMS to obtain the LRN to identify the correct central office switch to access for testing purposes, rather than using the NPA NXX. These changes are necessary to ensure proper maintenance of digital services when telephone numbers are ported.

#### NetMinder

An enhancement to NetMinder was necessary to perform network traffic management functions associated with LNP traffic volumes. This change required LNP-specific software upgrades. These changes are necessary to ensure that LNP traffic is properly identified, monitored and included as an integral part of network traffic management functionality. These changes allow traffic controls to be implemented in advance of network problems that may be experienced by customers and maintains network integrity by assuring that the network is not placed in a "loop" condition (i.e., the looping condition caused when the network tries unsuccessfully to locate a ported number).

#### Network Operation Center (NOC)/Trouble Administration System (TAS) Interface

The NOC/TAS interface is a **new** LNP interface that provides an electronic means of passing CLEC and end user trouble ticket information to the LNP support staff at the Network Operation Center once any LNP trouble has been isolated to the network. Prior to the implementation of LNP, this passing of trouble tickets to the NOC was not required. This interface also provides LNP information to the NOC work group that is involved in trouble flow of individual trouble tickets **only** for LNP-related trouble. These changes are necessary to expedite trouble tickets when there are network problems that prevent calls from being correctly routed to ported TNs (e.g., failures of LSMS downloads from the NPAC, or failures of ISCP loads from the LSMS).

#### SITES

For ported telephone numbers, SITES accepts the LRN and uses it, rather than the NPA NXX, to identify the serving switch. The LRN is also used in place of NPA NXX to determine the correct distribution for trouble tickets. These changes are

necessary to ensure that ported number and serving switch information is correctly contained in a central repository for use by other systems. SITES is used by numerous other systems, including TONICS, AWAS, NOC Track (a trouble ticketing system), and OUTS, an outage reporting system that is used for FCC/PUC filings.

#### Switch Access Manager (SAM)

Prior to the implementation of LNP, SAM used the NPA NXX to access network elements; now must identify and use the LRN for ported telephone numbers. This modification provides access to network elements that contain ported telephone numbers based on the LRN. The change enables recent change activity to be performed for a ported TN, as well as verifying switch-programmed features for ported TNs during service order and trouble ticket processing. The changes are necessary to enable access of the appropriate serving switch when telephone numbers are ported.

#### STARMEM

The change to STARMEM adds the ability to query the LSMS to determine the serving switch for a ported telephone number. STARMEM was enhanced to use the LRN to access switch information for ported telephone numbers for service order processing as well as trouble tickets. This change is necessary to ensure that ported telephone numbers and associated LRNs are correctly identified, and ensure that the correct switch is updated by using LRN (not NPA NXX) to identify serving switch.

#### Telecommunications Data Collection System (TDCS)

TDCS collects traffic and performance data from the LNP SCP, as well as new LNP data coming from digital Stored Program Control (SPC) switches. This change is

necessary to ensure that network additions can be identified and planned in a timely manner, in central offices in which number portability is implemented.

#### Telephone Operations Network Interface Control System (TONICS)/ LNP Gateway Interface

A new LNP interface was added to allow TONICS to monitor the LSMS and NPAC. This interface provides access to LSMS via the LNP Gateway so that LNP alarms and alerts (e.g., regarding associations to the NPAC) can be monitored in the same fashion as other network elements. This access was not required before the implementation of LNP. These changes are necessary to ensure that unique network configurations are correctly monitored for quality performance when number portability is implemented. This interface provides real-time notifications of severe LNP error conditions in the network that would prevent correct porting of telephone numbers and receipt of calls by CLEC customers with ported telephone numbers.

#### TONICS Alarm Correlation Engine (ACE)

TONICS-ACE translates multiple alarm events into a single derived alarm requiring action. This alarm correlation capability reduces the volume of alarm events processed through TONICS to the NOC network monitoring staff by correlating individual alarms with underlying (i.e., "root cause") network events. If ACE/TONICS-Switching were not enhanced to manage ported numbers, the system will not be able to correlate line-level LNP faults to the associated customers affected by these LNP-related faults, thereby adversely affecting time to restore.

#### TONICS for Customer Access Facilities (TCAF)

For ported telephone numbers, TCAF determines the LRN for a switch and uses that to initiate facilities testing (using 4TEL). These test results are patterned to

proactively isolate the trouble to a specific cable pair. These system enhancements are required to ensure that testing is done on the proper switch and that trouble reports are associated with the correct cable facility for ported numbers. Without these enhancements, facilities associated with ported numbers could not be monitored in a "real-time" manner; thus, customers with ported numbers could experience a lower quality of service than customers with native numbers.

#### Traffic Irregularity System (TIAS)

The changes to TIAS provide the ability to diagnose traffic problems in "real-time" related to LNP. These changes enable TIAS to collect link and traffic monitoring data as well as Failed Call and Failed SCP query events. TIAS was changed to associate the dialed digits with the appropriate called office using the LRN. These changes were necessary to ensure that traffic problems related to LNP can be diagnosed in a timely manner, such as identifying bottlenecks in the downloading of LNP routing information to the ISCP, thus minimizing the risk of service outages.

#### Trouble Administration System (TAS)

TAS was enhanced to provide the ability to query the LSMS regarding the status of a ported number, and store the information regarding ported telephone numbers on the trouble ticket. This query was not required prior to the implementation of LNP. TAS added new trouble resolution codes to reflect the source of trouble regarding ported telephone numbers (e.g., NPAC download failure) for reporting and analysis. These changes allow the use of the LRN (rather than NPA NXX) to identify serving switch of a non-native telephone number. These changes are necessary to ensure that trouble reports can be created for both CLECs and end users who have ported numbers.

### **3. Billing and Usage Systems**

#### Bill inquiry, Voucher and Treatment (BVT)

BVT was enhanced to provide information regarding ported telephone numbers and customer port status that appears on the end user bill. This information was introduced with the implementation of LNP. These system enhancements allow billing adjustments to be correctly identified and processed for telephone numbers ported to or from CLEC customers. Without these enhancements, customers would receive incorrect billing information because calling plans must correctly identify the serving switch of the ported number and correctly recognize unique CLEC switching and routing arrangements for ported numbers.

#### Customer Billing Services System (CBSS)

The CBSS changes split and redirect usage correctly based on owner of ported numbers (i.e., the service provider) rather than owner of NPA NXX. Using the LRN to identify serving switch rather than the NPA NXX of the TN, these changes provide the ability to rate messages according to local calling plans associated with non-native numbers. CBSS was changed to accept usage for ported telephone numbers into the end user billing systems so that ported TNs could be billed; without this change the usage would be erroneously rejected to the CLEC. These changes are necessary to ensure that customers' bills are correct when LNP is implemented and when telephone numbers are ported. Changes were also made to provide the ability to bill the LNP end user surcharge in accordance with the Commission's requirements in the Third Report and Order.

#### GTE Security Administration System (GSAS) / Security Toll Online Message Processing System (STOMPS)

The changes to GSAS/STOMPS accept and process new LNP data on billing file input. The modification allows fraud determination logic to use LRN rather than NPA NXX of ported TNs when necessary. The enhancements also provide access to number portability information (service provider, effective date, LRN, etc.) for ported telephone numbers in response to a court order or subpoena. This information was not available or required prior to LNP implementation. These changes are necessary to ensure that fraud protections and investigations can correctly identify the serving CLEC when a telephone number is ported.

#### Network Profile System (NPS)

This systems enhancement was required to accept and process new LNP data on billing file input. This new data identifies the LRN for ported TNs, as well as native/non-native telephone number attributes, for use in revenue assignment. These changes were necessary to allow proper financial, accounting and management reporting of LNP usage and revenues because the association of usage/revenues with geography can change with LNP. This change is necessary for GTE to correctly report LNP usage and revenue information in FCC/PUC reporting, including the ARMIS and Form M reports.

#### Other Carrier Settlement System (OCSS)

These changes allow the settlement process to handle ported telephone numbers, and accept and process new LNP data on billing file input. The changes modified existing logic to direct settlements to the proper carrier based on porting activity, according to LNP industry standards. These changes allow for proper carrier

revenue settlements based on billing of ported telephone numbers. The changes are necessary to ensure that settlements are correct when a telephone number is ported.

#### Secure Integrated Gateway System (SIGS)

This system enhancement enables SIGS to use new LNP information to identify which CLEC is serving ported telephone numbers. SIGS was modified to accept and transmit porting orders between LECs. SIGS was also modified to download new LNP information (e.g., service provider, effective date, release date) from the LSMS to establish service history records for all ported telephone numbers, for processing within the billing systems. These service history records are necessary to correctly reflect CLEC service changes to process billing usage data. These enhancements were necessary to properly direct billing usage to CLECs for CLEC customers, by identifying the CLEC that served the ported telephone number at the time the calls were made.

#### Toll Error Message Processing On-Line (TEMPO)

TEMPO was changed to process new LNP-related error messages associated with ported telephone numbers. These changes reflect information regarding ported telephone numbers. These changes are necessary to ensure that erred toll messages are correctly handled when a telephone number is ported.

#### Usage Messaging System (UMS)

UMS was modified to process new AMA record formats that were implemented with LNP, and add LRN and OCN/RAO information where defined by industry standards for ported numbers. The changes to UMS provide logic to interrogate LSMS information to identify service provider for ported telephone numbers. Changes reflect new

information regarding ported telephone numbers. The changes are necessary to ensure that usage records are correct when a telephone number is ported.

- F. In addition, some OSS costs appear related to revising OSS systems to perform 10-digit translations. GTE should identify these costs and demonstrate that they will not benefit CLASS services, area code overlays, or other services. In the alternative, GTE should show how costs were allocated among services that benefit from the changes.<sup>19</sup>**

GTE provided the requested information in a paper copy entitled Worksheet: SUPP\_1-\_40 in its February 25, 1999 filing.<sup>20</sup> GTE included no costs associated with performing 10-digit translations.

## **II. ALLOCATION OF NUMBER PORTABILITY COSTS AMONG NUMBER PORTABILITY SERVICES**

- A. GTE is directed to provide more complete explanations of its basis for allocating number portability costs among services and why its method is reasonable. In addition, GTE is directed to submit as part of its direct case the worksheet described in the *Cost Classification Order*, and specifically to include the allocation of each cost among the number portability services as required by the order. GTE must include sufficient data and calculations to show the assumptions used to allocate the costs of shared facilities, such as costs of the shared regional databases and links.<sup>21</sup>**

The Cost Classification Order states that costs specifically incurred to provide N-1 query services are to be allocated to N-1 query services and costs incurred specifically for end-users are to be allocated to the end-user surcharge.<sup>22</sup> The Cost

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<sup>19</sup> *Id.* at ¶11.

<sup>20</sup> See GTE electronic File Name: LNPREV1; Tab: OSS Matrix.

<sup>21</sup> Investigation Order at ¶35.

<sup>22</sup> Cost Classification Order at ¶40.

Classification Order also states that the remaining eligible LNP costs should be allocated based on the capacity requirements of each particular type of query service.<sup>23</sup>

GTE complied with the instructions in the Cost Classification Order. Any costs that were incurred for a specific service are dedicated to that service. All remaining costs are allocated based on busy hour capacity requirements for each type of query service. The worksheets described in the Cost Classification Order<sup>24</sup> were provided with the tariff support documents and work papers on January 15, 1999.<sup>25</sup>

Since GTE is not filing a query service tariff at this time it is not necessary to show a different costs relationship for peak and off peak queries. These capacity calculations were used only to determine the appropriate allocation of costs to the end-user.

The methodology used to calculate the capacities is described below and all worksheets used to calculate the capacities are provided in GTE Attachment 4, Chart A – Line Forecast; Chart B – Busy Hour Attempts; Chart C – Capacity Queries per Second; and Chart D – Busy Hour Queries.

The worksheet included here as GTE Attachment 4, Chart A entitled GTE Federal End User Surcharge Tariff Line Forecast includes total line counts that were used in the computation of the relative busy hour capacities described here.

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<sup>23</sup> *Id.* at ¶41.

<sup>24</sup> *Id.* at ¶46.

<sup>25</sup> See GTE's January 15, 1999 tariff filing, electronic File Name: FCCFILING.WK3, Tabs: H, I and J. See also GTE's February 25, 1999 tariff filing, paper copy of Worksheet WP\_1-WP\_9 or electronic File Name: LNPREV1, Tabs: Dedicated Costs, Joint Costs and Overheads.

Specifically, only the 1998 total line amounts (i.e., only the data in the rows labeled "Total Lines" for the column labeled "1998") from this worksheet were used.<sup>26</sup>

#### Allocation of Costs to LNP Services

The eligible LNP costs were allocated to the LNP services by the percent of relative busy hour capacity used. The relative busy hour capacities are shown in GTE Attachment 4, Chart D - Busy Hour Query Demand. First, the total busy query capacity of all the LNP intelligent service control points ("ISCPs") was calculated. Then, the busy hour queries for each query service was divided by the total busy hour capacity to determine the percent of busy hour capacity used. Finally, the dedicated LNP costs were multiplied by this percentage for each service to determine the amount to apply for that service.

#### LNP Query Demand Calculation Methodology

Product Management provided a forecasted demand for LNP query services. The busy hour demand provided on the forecast was divided by the busy hour capacity of the LNP ISCPs to determine an allocation percent provided in Attachment 4, Chart D.

#### Apportionment of Costs between Services

The amount of joint costs assigned to LNP services and non-LNP services was determined by applying the incremental percent increase in processor real time due to LNP as an allocation factor. This apportionment methodology is appropriate because

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<sup>26</sup> The distinction made in Chart A between lines "Deployed/Selected" and "Not Selected" is for LNP deployment/selection at a single point in time. None of the distinctions between "Deployed/Selected" and "Not Selected" made on this Chart A worksheet were utilized.

the only joint costs identified by GTE were the processor and memory upgrades in the switches.

GTE provided Worksheet WP\_1-WP\_9,<sup>27</sup> as described in the Cost Classification Order, with the cost study support filed with its Description and Justification on January 15, 1999. GTE has not included any shared facilities costs in its calculations. All link facilities and regional databases included in this study are dedicated to LNP services.

### III. JURISDICTIONAL SEPARATIONS

- A. GTE is directed to file an explanation of how prior year costs related to long-term number portability implementation were treated with respect to jurisdictional separations. GTE should demonstrate that the long-term number portability costs booked in past periods and included in the development of federal number portability charges have not been recovered already in the state jurisdiction. Alternatively, GTE should explain how state ratepayers will be made whole if the Commission allows federal recovery of costs previously assigned to the intrastate jurisdiction and included in the state ratemaking process.<sup>28</sup>**

The expenditures associated with Local Number Portability have been excluded from state ratemaking components on the regulated books of GTE's telephone operating companies. Procedures were put into place to track these costs and entries are made to reverse these costs to Other Deferred Charges on the regulated balance sheet. The Other Deferred Charge account is not a rate base component for state ratemaking purposes and thus does not flow through the jurisdictional separations process. Both investment and expenses are considered in this entry.

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<sup>27</sup> See GTE's January 15, 1999 tariff filing, electronic File Name: FCCFILING.WK3, Tabs: H, I and J. See also GTE's February 25, 1999 tariff filing: electronic File Name: LNPREV1, Tabs: Dedicated Costs, Joint Costs and Overheads.

<sup>28</sup> Investigation Order at ¶51.

- B. GTE is also directed to file an explanation of how costs related to long-term number portability implementation will be treated prospectively with respect to jurisdictional separations. GTE should demonstrate that long-term number portability costs included in the development of federal number portability charges will not be recovered prospectively in the state jurisdiction.<sup>29</sup>**

The recovery of GTE's Local Number Portability costs through the cost recovery mechanism and any forthcoming costs will be excluded for state ratemaking purposes. End user and switched access revenue associated with LNP recovery are booked to separate revenue accounts. A separate expense account has also been established and is used to offset the recovered revenue from the established Deferred Charge account. The explicit LNP recovery mechanism will be discontinued when the Commission prescribed time period for recovery has expired. Both the end user and switched access revenue accounts and the newly established expense account are excluded from the separations process.

#### **IV. CONCLUSION**

The information GTE provides in its responses only strengthens the documentation GTE previously submitted in support of its LNP tariff. GTE urges the Commission to remove GTE's LNP from this tariff investigation and allow GTE to proceed with the LNP cost recovery to which it is entitled.

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<sup>29</sup> *Id.* at ¶51.

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Respectfully submitted,

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domestic telephone operating companies

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