



ATIS-0300037

Network Interconnection Interoperability Forum (NIIF)

**Network and Routing Resources Educational Document:
Intercompany Responsibilities in the Telecommunications
Industry**



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INTRODUCTION

PURPOSE

This document is intended to serve as a reference for many of the steps involved with a company becoming integrated within certain aspects of the telecommunications industry.

It is primarily directed for use by telecommunications service providers (SPs) as a source for understanding interconnection processes, data requirements, and data exchange processes among carriers related to network and routing resources.

SCOPE

This document has been designed to provide an overview of the various processes and procedures relative to general intercompany routing processes that a SP should acknowledge and understand. References are made to other sources where additional, more specific, information may be obtained. This document is not inclusive of all processes and procedures that may need to be followed. Variations and/or alternative processes to those documented herein may exist due to reasons such as interpretation issues, company-specific requirements, and regulatory variations (e.g., by state).

BACKGROUND/OVERVIEW OF PROCESSES

As underscored by the issuance of the Telecommunications Act of 1996, there has been a rapid increase in the number of participants in the telecommunications industry in recent years. The need to develop guidelines, provide information, and provide a means for efficient intercompany integration has become a major factor in maintaining an operable network. The Network Routing Resources Information Committee (NRRIC) determined the need for, and has prepared this document as an aid to new, as well as established providers. The Educational Workgroup was established in May, 1997 (NRRIC #2). Since its creation, many participants have contributed to the creation of "Network and Routing Resources Educational Document: Intercompany Responsibilities in the Telecommunications Industry."

In general, most SPs are involved in providing services to a "subscriber" (business or residence). These companies may own, lease, and/or resell various components of the network that support these services. Identification of these network elements and their interrelationships becomes increasingly important and complicated, as the number of providers and services increase.

To support an understanding of these elements and processes, this document covers topics such as Interconnection Agreements, Certification to Provide Service, COMMON LANGUAGE® Products, Company Codes/Operating Company Numbers (OCNs), Administrative Operating Company Number (AOCN), Revenue Accounting Office (RAO), Central Office Code (NXX) Assignment Guidelines (COCAG), Local Number Portability (LNP), Thousands-Block Pooling, NECA Tariff FCC No. 4, Industry Forums, Related Industry Guidelines, Telcordia™ Routing Administration (TRA), and Wireless. Please see the Glossary for more information on these items.

COMPANY CODES/ OCNs

OVERVIEW

Company Codes and OCNs are not exactly the same, but they are often used synonymously as terms for a code identifying a telecommunications company. As further detailed below, currently, Company Codes map one-to-one with numeric or alphanumeric OCNs, signifying the same company for OCNs that follow the NECA Company Code format. Historically, the values and assignments processes involved with these codes have varied slightly. Industry efforts in recent years have mapped these values closely together to minimize issues surrounding their similarity.

COMPANY CODES

A Company Code is a unique four-character numeric or alphanumeric code NXXX (N=0-9, X=0-9 or A-Z) that identifies SPs. NECA serves as the maintenance agent to administer Company Codes based on the ANSI Standard T1.251, Identification of Telecommunications Service Provider Codes for the North American Telecommunications System. The code set is used in mechanized systems and documents throughout the industry to facilitate the exchange of information. This standard is available through ATIS at www.atis.org.

Company Codes may be utilized for, but not limited to:

- NECA Tariff FCC No. 4
- Use as an OCN
- Use as a Service Provider Identifier (SPID)
- Routing and Rating Practices
- Industry recognized guidelines including:
 - Access/Local Service Requests (ASR/LSR)
 - Multiple Exchange Carrier Access Billing (MECAB)
 - Small Exchange Carrier Access Billing (SECAB)
 - Carrier Access Billing Systems (CABS)
 - Exchange Message Interface (EMI)
 - Exchange Message Record (EMR)
 - IXC systems used to audit Exchange Access bills

Under the ANSI T1.251 industry standard, Company Codes are assigned to SPs for unique identification. As maintenance agent, NECA assigns all Company Codes according to the ANSI T1.251 standard and the North American Company Code Assignment Procedures. The

terms 'Company Code' and 'OCN' are often used interchangeably, but they are in fact two separate code sets. Please see the OCN section for more information on how Company Codes are mapped to OCNs.

A Company Code is assigned to a company by NECA for each type of service category that may apply (e.g., Incumbent LEC, RBOC, PCS, local reseller (LRSL), wireless reseller, PCS reseller, CLEC, ULEC, wireless, Competitive Access Provider (CAP), Interexchange Carrier (IC), IPES). Companies offering more than one type of service are required to obtain multiple codes. Multiple Company Codes may apply to carriers that operate in different states. Company Codes will not be assigned for the exclusive use of internal company operations. For specific information regarding Company Code requirements, refer to ANSI T1.251.

Business entities can request a Company Code(s) online at www.neca.org or by calling the Company Code Administrator (973) 884-8249.

MERGERS, ACQUISITIONS AND COMPANY NAME CHANGES

As stated in the ANSI T1.251 standard, companies are responsible for notifying NECA of all mergers, acquisitions, corporate re-organizations, and name changes that affect Company Codes. Due to an acquisition, merger or re-organization, a company may operate in more than one state or change their name. To determine how the Company Codes will be assigned after a merger or acquisition, NECA requires a letter from the companies outlining the transaction, a copy of state and/or FCC approval, if necessary, and a copy of the acquisition or merger agreement. NECA may require additional information on the company's corporate structure. For new companies or legal entities, NECA requires a copy of the articles of incorporation or partnership agreement, in order to reflect the entity's legal name and a copy of the state and/or FCC approval, if necessary.

The NECA Company Code Administrator is responsible for assigning new Company Codes and coordinating the Company Code changes and name changes. The NECA Company Code Administrator will notify the company and Telcordia Routing Administration (TRA) in writing regarding new code assignments, mergers, acquisitions, and name changes.

CONTACT NAME CHANGES

As stated in the North American Company Code Procedures, companies are responsible for notifying NECA in writing of all contact name, address, and telephone number changes. Company Code contact changes should be documented in a signed letter on company letterhead and faxed to the NECA Company Code Administrator at (973) 884-8082. Questions should be directed to the Company Code Administrator via e-mail at ccfees@neca.org or via telephone at (973) 884-8249. The NECA Product Manager - Tariff No. 4 will notify the company and TRA in writing regarding the contact name, address and telephone number changes.

OPERATING COMPANY NUMBERS (OCNS)

Operating Company Number (OCN) is the identifier used in the TRA process to identify carriers and other companies involved with the process. The term is used in various industry guidelines and data flows as a means of associating information to a given company. For example, an OCN is required to request an NXX via the COCAG process or a Thousands-Block (NXX-X) via the Thousand Block Pooling Administration Guidelines (TBPAAG) process.

OCNs and Company Codes (assigned by NECA) are separate terms but are closely related. TRA and NECA past efforts have mapped OCN and Company Code values closely together to minimize issues surrounding their similarity. Company Codes map one-to-one with a subset of OCNs. As with Company Codes, multiple OCNs may apply to carriers that operate in different states and/or provide different functions (e.g. wireless, CLEC).

To avoid potential conflicts with assignments, Company Codes are assigned by NECA and are then concurrently identified as OCNs within the TRA process. Further, various industry forums are working to synchronize Company Codes, OCNs, Local Service Provider Identification (LSPI), and other company identifiers to aid with consistency and efficiency in managing data through various industry processes such as generating and processing Call Detail Records (CDRs).

Some existing OCNs are in an AXXX (A=A-Z, X=0-9, A-Z) format and are used exclusively for TRA database administration and for NPA 500 and NPA 900 assignments. Such OCNs are developed/assigned internally by TRA for TRA data and database purposes only and should not be used by a given company outside of those reasons.

Companies with no prior CO code (NXX) or Company Code assignments must contact NECA online at www.neca.org or by calling the Company Code Administrator (973) 884-8249 or (800) 228-8597 ext. 8249. Since multiple OCNs and/or Company Codes may be associated with a given company, companies with prior assignments should direct questions regarding appropriate OCN usage in TRA databases to the TRA Customer Service Center at 866-672-6997, or directly on 732-699-6700.

ADMINISTRATIVE OPERATING COMPANY NUMBER (AOCN)

OVERVIEW

An AOCN is a term used to identify a company that has assumed the responsibilities to enter its own and/or other companies' network routing and rating data into databases that include TRA's Business Integrated Routing and Rating Database System (BIRRDS).

BECOMING / OBTAINING AN AOCN

Companies (record holders) with data that needs to be created or updated in the BIRRDS database have two options: (1) They can directly input their own data by becoming an AOCN or, (2) they can reach an agreement with a third-party to perform the input function.

Direct Input:

Companies directly inputting their own data and/or that of others must have a signed agreement with TRA that addresses the services involved and related charges. The terms and conditions associated with these agreements are standard for all companies so that a fair and equitable process is maintained among all parties. These agreements are known as the TRA "Fair Share Plan" (FSP). Additional FSP information can be found at the TRA website (www.trainfo.com) or by calling the TRA Customer Care Center at 866-672-6997, or directly on 732-699-6700.

Third-Party (indirect) input:

A company needing to report data into the BIRRDS database may have data entry performed by another party. In these cases, it is the responsibility of that company to seek a third-party AOCN that can perform such input. A list of AOCNs that provide this function can be found at the TRA website (www.trainfo.com) or by calling the TRA Customer Care Center at 866-672-6997, or directly on 732-699-6700. Procedures, charges, and the extent of services offered, may vary among third-party AOCNs. TRA does not provide recommendations or assessments of third-party AOCNs.

AOCN RESPONSIBILITIES

It is expected that an AOCN will directly input the data it is responsible for into the TRA databases in a timely and accurate manner per industry practices and guidelines to permit its subsequent dissemination. It is expected that an AOCN will address data discrepancy reports and database changes (e.g., introduction of new data elements). Through a user group known as the Common Interest Group on Rating and Routing (CIGRR), an AOCN can participate in developing changes to the databases and/or surrounding processes.

Any specific responsibilities that a third-party AOCN has in serving as a database administrator for another company should be addressed in the individual agreements prepared between that

AOCN and each company for which it is performing the database administration. In cases of third-party AOCNs, the record holder is ultimately responsible for the accuracy of the data and the timeliness of its entry. As outlined in the COCAG and the TBPAG, a new NXX and/or block assignment not entered into BIRRDs by the AOCN within the appropriate time frame will have the effective date recalculated in BIRRDs to allow for proper industry notification.

PROCESS FOR CHANGING AN AOCN

Companies (record holders) that have data in TRA databases may, on occasion, need to change the AOCN administering their data. Record holders should note the following high level considerations. However, details regarding changing an AOCN can vary due to variances in AOCN-specific agreements and changes in the detail surrounding agreed-to industry procedures surrounding AOCN transfers. Please ensure appropriate dialogue occurs between your AOCN(s) and/or TRA, as may be necessary.

A. Changing third-party AOCNs:

- a.) The record holder company should identify any contractual obligations or conditions that may apply relative to its current third-party AOCN and appropriately consider any issues associated with the planned termination of their agreement with the third-party AOCN.
- b.) Identify the terms, conditions, pricing, and contractual obligations that may be required by the party being considered as the new third-party AOCN.
- c.) Negotiate an effective date for the change of AOCN responsibility that is mutually acceptable to the record holder company and the new third-party AOCN.
- d.) The new third-party AOCN must follow the current AOCN-transfer procedures relative to its interaction with TRA.

B. Changing from a third-party AOCN to direct input:

- a.) The record holder company should identify any contractual obligations or conditions that may apply relative to its current third-party AOCN and appropriately consider any issues associated with the planned termination of their agreement with the third-party AOCN.
- b.) A record holder company, to serve as its own AOCN, must establish a "Fair Share Plan" agreement with TRA, as previously reviewed.
- c.) The record holder company, serving as its own AOCN, should then coordinate efforts between TRA and its outgoing third-party AOCN relative to date of record transfer, specific records involved, access to the database, etc.

C. Changing from direct input to a third-party AOCN:

- a.) The record holder company wishing to relinquish direct input should first establish an agreement with a third-party AOCN.
- b.) The record holder company should then coordinate record transfer efforts with its new AOCN relative to date of record transfer, specific records involved, etc.
- c.) The new third-party AOCN must follow the current AOCN-transfer procedures relative to its interaction with TRA.

CONSEQUENCES OF NOT HAVING AN AOCN

Only AOCNs can enter data into BIRRDs. If your data is not entered into BIRRDs, your calls have a high probability of being blocked because industry required rating and routing information is not available. This will negatively impact call completion, from both originating and terminating perspectives, by your subscribers. Rating problems may also impact billing and collection.

Issues such as those just cited that result from missing data for newly assigned NPA NXXs or blocks are straightforward. However, network elements and configurations can change (e.g. switch re-homes), new required data may need to be reported, rate centers may be consolidated, etc. AOCN responsibilities include the ongoing maintenance of data, not just its initialization.

REVENUE ACCOUNTING OFFICE (RAO)

OVERVIEW

A Revenue Accounting Office (RAO) is identified by a three-character numeric or alphanumeric code used in the routing of billing records. RAO codes are used to exchange message details between the company recording a message at the point of origination, and the company billing the call to an end user.

Exchange message details are arranged in packs (groups) of common RAOs by the company recording a message and are then forwarded to the intended billing companies. These billing packs are electronically sent over the Centralized Message Distribution System (CMDS).

Only companies serving as “direct participants” may be linked directly to CMDS in order to originate or receive billing packs. Other companies may use CMDS, but only through a contract with a Direct Participant Company serving as a host agent.

RAO Code Guidelines issued by Telcordia Technologies addressing the assignment and use of RAOs can be downloaded from www.trainfo.com. Following is a summary of the RAO guidelines.

USES OF RAO CODES

An RAO code is utilized in the telecommunications industry for the following four functions:

- Message routing
- Intercompany Settlements
- NPA NXX activation
- Special Calling Card number

Note: Individual companies may have other locally defined uses for RAO codes.

An RAO code is an element used by numerous billing systems to manage the process of moving appropriate call detail information to the proper subscriber’s bill. An RAO code is also a data element associated with an NPA NXX and is part of the supporting NXX information entered into TRA's Business Integrated Routing and Rating Database System (BIRRDS) that generates the Telcordia TPM Data Source data files.

OBTAINING AN RAO CODE

RAO code requests are sent to the RAO Code Administrator in Telcordia Technologies, Inc. for assignment as described in the RAO Code Guidelines. RAO codes containing at least one alpha character will be assigned unless there is an expectation that the RAO code will be used to provide Special Calling Card services, in which case a fully numeric RAO code would be assigned. Currently four types of RAO codes are identified in the Guidelines: Full Status, Nationwide, Shared, and Non-hosted.

Also, a CMDS Direct Participant Company, in its capacity as a CMDS Host Company per a contract/agreement with a telecommunications SP requests a hosted RAO code (either full status or nationwide as defined in the guidelines) from the RAO Code Administrator on the behalf of the SP. Non-hosted RAO codes, however, are obtained directly from the RAO Code Administrator.

CENTRALIZED MESSAGE DISTRIBUTION SYSTEM (CMDS)

CMDS is owned and administered by Telcordia Technologies, Inc. as a national electronic data transmission system, based in St. Louis, Missouri, used to exchange Electronic Message Interface (EMI)-formatted data among CMDS Direct Participants. CMDS Direct Participants are those companies that are linked directly to CMDS for sending and/or receiving messages. Any company can be a CMDS Direct Participant provided it has negotiated a contractual agreement with Telcordia Technologies, Inc. However, other companies may become CMDS Indirect Participants by using CMDS through a CMDS Direct Participant that serves as a host agent.

CMDS is a clearinghouse for the distribution of many types of Electronic Message Interface (EMI) formatted records. These records types include:

- end user billing
- carrier access billing
- mutual compensation
- database queries
- customer account information
- copy records
- intra-LATA alternate billing

CMDS also incorporates a settlement report system for intra-LATA alternate billing records.

INTERCONNECTION AGREEMENTS

OVERVIEW

For calls to originate and terminate within the Public Switched Telephone Network (PSTN), numerous companies must interface physically, thus “interconnecting” with each other. Interconnection is NOT automatic. Contractual Agreements must be established between ALL physically interconnecting companies.

In addition to Agreements developed between companies that physically interconnect with each other, further agreements are often needed with ALL other local exchange carriers to complete a local or toll call.

Companies entering the industry or a new service area need to be keenly aware of this procedure. Companies already established in an area, also need to be aware that, due to the ever-changing networks and companies involved, interconnection agreements are subject to ongoing review and revision.

Interconnection agreements are contracts that must be established. Depending on the type of interconnection involved, the specific companies involved, and other related factors, it is possible for agreements to take several months, and sometimes longer, to establish.

Specific requirements for interconnection agreements may also vary from company to company, for example, Access Service Request (ASR) and Service Inquiry/Complex Services Profile System (CSPS) (wireless) processes.

Tandem Switch

A tandem switch connects one trunk to another and serves as a trunk concentration and distribution function to minimize direct end office interconnection. A tandem switch is an intermediate switch or connection between an originating switch and the final switch call destination. A tandem switch does not allow the origination or termination of telephone calls. Tandems serve a designated geographic area consisting of a specific rate center(s).

Tandem Homing Arrangements

Homing arrangements are the last choice trunk group(s) between switching systems in a specific routing ladder. An SP’s subtending switch serving a portion of an incumbent LEC’s franchise territory should home on the appropriate tandem as designated by the incumbent LEC. A competitive tandem in the same territory may have a different serving arrangement from the incumbent LEC. An SP needs to negotiate serving areas with the competitive tandem company to determine the homing arrangements for the SP’s subtending switch. Types of tandems include:

Suggested Change to “Tandem Homing Arrangements” from Revised AT&T Contribution

Homing arrangement(s) is the last choice trunk group(s) between switching system(s) in a specific routing ladder. An SP's subtending switch serving a portion of an incumbent LEC's franchise territory should home on the appropriate tandem as designated by the incumbent LEC. A competitive tandem in the same territory may have a different serving arrangement from the incumbent LEC. An SP needs to negotiate serving areas with the competitive tandem company to determine the homing arrangements for the SP's subtending switch.

There are three tandem homing jurisdictions, which are Inter-state, Intra-state/Intra-LATA, and Intra-state/Inter-LATA. (Due to regulatory constraints some service providers may be prohibited from establishing all three tandem homing jurisdictions.) There are six types of tandems that define the tandem homing arrangements possible which are addressed below.

Local Tandem

A Local Exchange Carrier (LEC) switching system specifically identified as a local tandem provides a traffic concentration and distribution function for local traffic originating and/or terminating within a local calling area as defined in the state tariffs on file with the appropriate regulatory body. A local tandem provides trunk-to-trunk connections to more than one end office within a local calling area(s).

Intra-LATA Tandem

An intra-LATA tandem switch connects one trunk to another and serves as a trunk concentration and distribution function of intra-LATA toll traffic to minimize direct end office interconnection. Intra-LATA tandem traffic can be either intrastate intra-LATA or interstate intra-LATA as defined in the tariffs on file with the appropriate regulatory body. An intra-LATA switch is a switch that completes billable toll messages that originate and terminate within the same LATA.

Inter-LATA Tandem

An inter-LATA tandem switch connects one trunk to another and serves as a trunk concentration and distribution function of inter-LATA toll traffic to minimize direct end office interconnection. The inter-LATA tandem serves as the Access Tandem that provides distribution of originating and terminating traffic between subtending end offices and Interexchange Carriers (IXC).

Intermediate Tandem

Independent Operating Companies can provide an Intermediate Tandem between end offices and the LATA Access Tandem. The design of the Intermediate Tandem must be done so that it poses no impediment to the Inter-LATA Toll Network.

Operator Services Tandem

An Operator Services (OS) tandem switch serves as the concentrated distribution point for providing a host of services that may include toll and intercept. The OS tandem is an integral part of the network as it performs alternate billing services, automated coin telephone service, AMA teleprocessing, and automatic call distribution for operator handling of calls.

9-1-1 Tandem

A 9-1-1 tandem provides trunk-to-trunk connections between end offices and a switch that serves Public Safety Answering Point(s) (PSAP).

INTERCONNECTION RELATIVE TO NXX ASSIGNMENTS

The following factors regarding interconnection agreements **MUST** be considered in the determination of a valid NXX effective date:

- The time to establish interconnection agreements between ALL applicable companies.
- Once an agreement is in place, the time needed for the completion of the actual provisioning of the specific network facilities involved to permit interconnection.
- Once facilities have been provisioned, the time needed for the actual completion of trunk group turn-up.

If delays are incurred such that it would impact the effective date in establishing the physical interconnection to support the traffic routing process prior to the original NXX effective date, the NXX effective date should be modified via submission of a modified Part 1 (Code Administrator¹) and Part 1A (Pooling Administrator). If such effective dates are not appropriately reassessed, this may affect the opening of an NXX in the PSTN, and the pooled blocks within that NXX.

REPORTING OF INTERCONNECTION ARRANGEMENTS

Once a valid effective date is determined, the NXX, valid switch, and supporting homing arrangement information must be entered in a timely manner into the Telcordia™ Business Integrated Routing and Rating Database System (referred to as BIRRDS), which is operated and maintained by Telcordia TRA, for notification to other carriers via the Telcordia™ LERG Routing Guide and related output from this database. Delays in entering this data will increase the probability of calls being blocked on the effective date (See Troubleshooting Section).

¹ The industry Code Administrator for the U.S. and its territories is the North American Numbering Plan Administration group (www.nanpa.com). For Canada, the code administration functions are managed by the Canadian Numbering Administrator (www.cnac.ca). Code Administration responsibilities for Bermuda and the NANP countries in the Caribbean vary.

Homing arrangements entered into the BIRRDS must be valid and denote connectivity between the two switching entities for the function(s) indicated. Hence, when a switching entity indicates that it subtends or homes on a given tandem, that becomes a confirmation that there is interconnection between the two entities. On a terminating basis, the homing tandem is considered the “last choice” for completing traffic destined for the switching entity.

Incorrect homing arrangements in BIRRDS may result in blocked calls destined for a switching entity. For example, if the BIRRDS data entries for a switching entity indicate that the switch homes on a particular local tandem when in fact, it does not, the local tandem company will, in all probability, know how to correctly route calls, which originate from its own subscribers. Other companies, however, will route the calls to the local tandem in accordance with LERG entries. The local tandem may block the calls, if there is no connectivity between the local tandem and the terminating switching entity. Likewise, there may not be interconnection between the local tandem and a toll tandem owned by the same company. Once the calls reach the local tandem there is nowhere for the local tandem to terminate the traffic, and it will be blocked.

WIRELESS

OVERVIEW

In conjunction with the 1984 AT&T divestiture, the FCC awarded two cellular licenses to each market (roughly two per market/city). These were called “A” market licenses and “B” market licenses. The local landline or wireline providers (e.g., the Regional Bell Companies (RBOCs)) received priority for the “B” licenses in each market.

To assign the “A” market license, the FCC accepted applications. Originally, most of the “A” licenses were awarded to Radio Common Carriers (RCCs). New “A” market licenses were awarded by lottery to non-local landline or non-wireline companies. No single company could hold both the “A” and “B” licenses for a particular market.

The Telecommunications Reform Act of 1996 provided for sweeping telecommunication reform. Within that bill were certain wireless provisions that directly benefited the wireless industry. Wireless carriers were allowed to offer long-distance service. Wireless carriers were given permission to collaborate with manufacturing of telecommunications equipment to further technology development.

Because of joint venture agreements, companies serve their customers under different brand names in different geographical regions.

Most cellular systems today use digital switches. However, when you talk on a cellular telephone, the sound of your voice may be transmitted via an analog signal. The trend is toward digital signal transmission. The industry trend is toward continued use of cellular telephones. Cellular growth continues to outpace expectations due to increased accessibility and productivity, reduced cost and data applications.

The FCC controls the use of radio frequency spectrum used to transmit cellular signals and grants licenses to build and operate cellular systems. To do business, a carrier must be licensed by the FCC. Wireless SPs may refer to information on Phase I and Phase II processes on the FCC web site at www.fcc.gov/wtb/cellular/cellfaq.html.

In addition to being licensed in either an “A” or a “B” market, cellular carriers must also be licensed to operate within a particular service area. The Cellular Geographic Service Area (CGSA) defines the area in which the cellular carrier is licensed to provide cellular service. To assist in defining CGSA the federal government uses two statistical definitions: Metropolitan Statistical Area (MSA) and Rural Statistical Area (RSA).

MSA refers to a Specific City or metropolitan area, which functions as the Anchor City for the CGSA it serves. A particular MSA, such as Los Angeles, refers to the entire region that is served by the Los Angeles market - not just the city of Los Angeles. The designated MSAs in the U. S. define territories that, in January 2000, serve 77% of the U. S. Population. MSAs generally have multiple cell sites.

RSA refers to a number of smaller cities or a specific geographic corridor within a state. RSA boundaries follow county lines. RSAs define cellular territories that, in January 2000, serve 23% of the U.S. Population. Many of the RSAs are located in states like Colorado and Idaho that have large rural and remote areas. RSAs generally have only one cell site.

As in the wireline arena, interconnection agreements and other facility requirements are necessary in order to provide service in a specific area. Check with the local Telephone Company in the area in which you are doing business to make sure you have provided all of the necessary agreements and requirements to make your NXX work.

SYSTEM IDENTIFICATION – SID

The System Identification Number (SID) is a 5-digit number stored in the mobile station and is used to identify the mobile station's home system in communications between the mobile and the base station. SIDs are assigned by the FCC.

SID assignments for the United States and its territories range from 00001 to 02094. SIDs are also used to associate roaming billing records for roamer calls and charges.

BILLING IDENTIFICATION – BID

BIDs are codes used to track smaller geographic areas and/or billing information. BIDs are currently coordinated, administered, and sold by the CIBERNET company. The SID or the BID is used in various parts of billing systems. Many billing systems use them interchangeably, hence the term SID BID. The SID BIDs are located within the switch and the customer's phone and the term SID BID is used to define a communication service area.

FCC DATA ON WIRELESS

The FCC maintains a database for all wireless (includes cellular) licensees. The database includes information for the various cell sites associated with each cellular system. While the database may include all of the sites associated with a particular cellular system, the FCC's rules only require licensees to provide information for those cell sites that make up the outer boundary of the cellular system

Information regarding cell sites associated with a particular cellular system can be obtained by accessing the FCC's data base from the Wireless home page at the FCC website, then click on Search Databases, then click on Search Wireless Databases Online, which bring up the GUNMEN program. Then choose state/county. You must choose a service type, use CL for cellular and CW for PCS broadband.

SEPARATION OF THE MOBILE IDENTIFICATION NUMBER (MIN) AND THE MOBILE DIRECTORY NUMBER (MDN) FOR COMMERCIAL MOBILE RADIO SERVICE (CMRS)

Advance Mobile Phone System (AMPS), CDMA, TDMA SPs perform registration, call processing, provisioning, customer care and billing based upon a single number – the MIN. Traditionally, the MIN has also been programmed by SPs within the NANPA serving area as the 10 digit MDN.

Given the changes in the administration of the NANP, the wireless industry finds it necessary to administer MINs separately to meet its unique requirements. Additionally, with the advent of capabilities such as Number Portability and Number Pooling, separation of the MDN and MIN is necessary.

In a post separation environment, mobile subscribers will require two types of numbers: a MDN and Mobile Station Identifier (MSID). The MDN will be the dialable NANPA telephone number and will be portable in a SP portability environment. The MSID will be non-portable and non-dialable. MSID can take the format of a 15 digit International Mobile Station Identifier (IMSI) or a 10 digit MIN. The MBI Assignment Guidelines and Procedures only address the administration of the 6-digit MBI associated with the 10- digit MIN format MSID.

In a number portability environment, existing AMPS, TDMA and CDMA subscribers not yet ported may possibly have the same number for both the MIN and MDN. When a subscriber ports, the MDN and MIN become separate and distinct. The ported subscriber's MDN will remain unchanged and port with the subscriber. The ported subscriber will surrender the MIN to the donor network and receive a new MIN from the recipient network. The donor network can reuse the relinquished MIN for another subscriber. In a post-separation environment, the same number may be used for a MDN in one network and a MIN in another network.

Conservation and control of MIN's within the NANP area will avoid conflicts with existing NANP assignments. Adherence to these guidelines will ensure the allocation of this resource in the most efficient and impartial manner.

Administrator

A neutral 3rd party entity, which is NCS Pearson (<http://www.mbiadmin.com/>), has been selected to be the MIN Block Identifier (MBI) Administrator. The MBI administrator will have a database of MBI's based on the existing NPA NXX assignments to wireless carriers. The MBI administrator will respond to carrier requests for additional MBI's.

The MBI Assignment Guidelines document provides guidelines and procedures for the assignment and use of MBIs. The Guidelines, Procedures and associated forms can be found on the NCS Pearson website: www.mbiadmin.com.

IP-ENABLED SERVICES (IPES)

Protocols which are used to carry voice over an IP network are commonly referred to as Voice over IP (VoIP). Some services using VoIP may only allow you to call other people using the same service (sometimes known as peer-to-peer services), while other services may allow you to call anyone who has a telephone number (known as interconnected VoIP services). This includes local, long distance, mobile and international numbers. While some services may only work over your computer or a special VoIP phone, other services may allow you to use a traditional phone through an analog telephone adapter.

An SP deploying IP-Enabled Services (IPES), which includes VoIP services, on a commercial basis to residential and business customers may obtain a Company Code specific to IPES. This Company Code shall be used to identify IPES SPs interconnecting to the PSTN and can be used to enable the deployment of any new IP-enabled service technology or advanced service.

Text located within AT&T contribution:

Voice over Internet Protocol (VoIP), is a technology that allows you to make telephone calls using a broadband connection. Some services using VoIP may only allow you to call other people using the same service (sometimes known as peer-to-peer services), while other services may allow you to call anyone who has a telephone number (known as interconnected VoIP services). This includes local, long distance, mobile and international numbers. While some services may only work over your computer or a special VoIP phone, other services may allow you to use a traditional phone through an adaptor.

A Service Provider deploying IP-Enabled Services (IPES), which includes VoIP services, on a commercial basis to residential and business customers may obtain a Company Code specific to IPES. This Company Code shall be used to identify IPES Service Providers interconnecting to the PSTN and can be used to enable the deployment of any new IP-enabled service technology or advanced service.

COMMON LANGUAGE® INFORMATION SERVICES

OVERVIEW

The growth in the telecommunications industry has been evidenced by the growth of the use of COMMON LANGUAGE Location Codes (CLLI™ Codes) for location identification. The Telecom Management and Operations Committee (TMOC) Coding and Language Data Representation (CLDR), recommended structure and format conforms to the Telcordia Technologies CLLI Code Set format and structure. The definitions and data representation for the CLLI Network Entity Codes are the intellectual property of Telcordia. CLLI Codes identify network sites that contain telephony equipment, switching and facility interface or interconnection points, network support sites, and customer sites.

Simply using common descriptions of network locations is not enough to achieve interoperability among carriers. CLLI Codes are engineered to provide exact names that people recognize. The engineered name can identify analog, digital, broadband, optical, and packet switches.

The Central Location On-line Entry System (CLONES) is maintained by Telcordia as the database for the creation and maintenance of CLLI Codes by COMMON LANGUAGE subscribers. For an 11-character location identifier to be termed a CLLI Code, it must have been created and currently reside in CLONES. Associated information includes postal code, latitude and longitude, vertical and horizontal coordinates, and switching system type.

Most telecommunication carriers in the United States and Canada subscribe to COMMON LANGUAGE Information Services. These codes are used in various network data exchange processes (e.g., ASRs, the Telcordia™ LERG Routing Guide (LERG), NECA FCC Tariff No. 4).

For more information on COMMON LANGUAGE Information Services, access <http://www.commonlanguage.com/> or contact the COMMON LANGUAGE Customer Support Center at (877) 699-5577.

The following page provides additional details on the structure and format of these codes.

ATIS-0325300.2005, Identification of Location Entities for Information Exchange (Revision of T1.253-1999)

Network Site Format

The network site format (8-characters), which is part of the eleven-character CLLI Code, uniquely identifies the telecommunications service company structure housing equipment or personnel. This format consists of a sequence of Place Code/Geographical Code, State Code/Geopolitical Code and Building Code/Network Site Code data elements, resulting in a code that totals eight characters in either of the following formats:

ELEMENTS/POSITIONS	1 2 3 4	5 6	7 8
Geographical Code	a a a a		
Geopolitical Code		a a	
Network Site Code			a a or nn

Network Entity Format

The CLLI Network Entity Code uniquely identifies the function of equipment or personnel housed in a telecommunications service company structure. This format consists of a sequence of Place Code/Geographical Code, State Code/Geopolitical Code, Building Code/Network Site Code and Entity Code/Network Entity Code data elements, resulting in a code that totals eleven characters in either of the following formats:

ELEMENTS/POSITIONS	1 2 3 4	5 6	7 8	9 10 11
Geographical Code	a a a a			
Geopolitical Code		a a		
Network Site Code			a a or n n	
Network Entity Code				x x x

a - indicates any alpha A-Z may be used.

n - indicates any numeric 0-9 may be used.

x - indicates any alphanumeric A-Z or 0-9 may be used.

CENTRAL OFFICE CODE (NXX) ASSIGNMENT GUIDELINES (COCAG)

OVERVIEW

The Central Office (CO) Code (NXX) Assignment Guidelines (COCAG) were developed during the mid-1990s at the direction of the FCC². They are updated ongoing and serve as the basis for the procedures a company must follow to request a CO Code (i.e., NXX).

The COCAG is maintained by the INC which is a committee under the auspices of the Alliance for Telecommunications Industry Solutions (ATIS). The latest version of the COCAG and forms can be found at www.atis.org on the page(s) that refer to the INC committee's documentation. Please check the ATIS web site periodically to download the most current version of the COCAG.

The COCAG has various components: (1) the basic body (text) of the Guidelines that identify procedures, rights and responsibilities of the various parties involved in requesting and assigning CO Codes, etc., (2) various appendices that are used to provide information by the Code requester, (3) Parts 1 through 4, which are used to request a CO code, provide supporting information, confirm the assignment, and confirm CO code activation, respectively.

The remaining portion of this section of this document summarizes:

- COCAG (body of the guidelines)
- Part 1 Form (i.e., form used to request an NPA NXX from the CO Code Administrator)
- Part 2 Forms
- Part 3 Form
- Part 4 Form
- NRUF (Form 502)

1. COCAG

The body (main text section) of the COCAG provides the basic guidelines that should be followed to request a CO Code and identifies the rights and responsibilities of the Code Applicant, Code Holder, and CO Code Administrator relative to CO Codes. References are

² The Canadian Central Office Code (NXX) Assignment Guidelines were developed during the late 1990s and were approved by the Canadian Radio-television Telecommunications Mission in June 1999. These guidelines can be accessed at <http://www.cnac.ca>.

made to the purpose and use of the various appendices and forms that are part of the guidelines and associated with various aspects of the process.

The following is information about the Purpose and Scope of the COCAG:

Purpose and Scope - COCAG

The COCAG provides guidelines for the assignment of central office codes (also referred to as CO codes in this document). The term CO code or NXX refers to digits D-E-F of a 10-digit NANP Area address, e.g., 740 is the CO code (NXX) in (201) 740-1111. Examples of uses for CO codes (NXX) for which these guidelines apply include Plain Old Telephone Service (POTS), Centrex, Direct Inward Dialing (DID), cellular mobile service, pagers, data lines, facsimile, coin phones, and customer owned pay phones. While these guidelines were developed at the direction of the FCC,³ they do not supersede controlling appropriate NANP Area governmental or regulatory principles, guidelines and requirements. These industry consensus guidelines are expected to apply throughout the NANP Area subject to guidelines and constraints of the NANP Area administrations.

These guidelines apply only to the assignment of CO codes (NXX) within geographic numbering plan areas (NPAs). This does not preclude a future effort to address non-geographic NPAs or CO codes in the same guidelines.⁴ CO codes (NXXs) are assigned for use at a Switching Entity or Point of Interconnection (POI). Entities assigned CO Codes are termed “code holders”. While the ultimate delivery of any call to a CO code (NXX) need not be geographically identified, by necessity initial routing is geographically defined to ensure accurate termination of traffic to CO codes. Therefore, for assignment and routing purposes, the CO code (NXX) is normally associated with a specific geographic location within an NPA, from which it is assigned. For some companies, this is also used for billing purposes.

When an NXX is assigned, it is required to be activated and placed in service in the PSTN within the 6 month time frame in accordance with the INC COCAG. If the NXX is not activated and placed in service within 6 months from the original effective date (returned on the original Part 3 or input on the ACD screen in BIRRDs), it should be returned to NANPA. If an extension beyond the 6 month time frame is needed, refer to the INC guidelines. In service has been defined (by the FCC and in the INC COCAG) as:

“A code or block for which local routing information has been input to the LERG Routing Guide and the carrier has begun to activate and assign numbers within the NXX code or NXX-X block to end users (FCC 00-104, 240).”

³ This effort has been undertaken at the direction of the Federal Communications Commission (FCC), in a letter to NANPA dated June 21, 1991, in an attempt to develop procedures that can be applied uniformly while using a finite numbering resource in the most efficient and effective manner possible.

⁴ Separate procedures apply to the assignment of NXX codes within currently assigned Service Access Codes (SACs), and others will be developed, as appropriate, as new SACs are assigned by NANPA. For example, NXX assignment guidelines for the 800 and 900 SACs are available. Guidelines will be developed as appropriate to address the assignment of numbering resources reserved for non-geographic applications.

Failure to activate and place in service an NXX may negatively impact the LERG Assignee and other SPs. Those impacts include but are not limited to the following:

- If the NXX was to be used in the creation of a Location Routing Number (LRN), the LRN NXX would not be usable until the NXX is activated.
- If the NXX was obtained in a pooling area, the unassigned blocks are not usable by other SPs in that rate center.
- If the NXX is not activated and placed in service in accordance with the FCC NRO rules, the NXX would be eligible for reclamation as outlined in the INC COCAG.

If for reasons that are not known at the time of an NXX assignment (e.g., equipment delays, facilities delays, etc.), the LERG Assignee is unable to activate and place an NXX in service, then the NXX may be returned to NANPA or an extension may be requested. If the NXX is returned to NANPA, the LERG Assignee would have to submit a new NXX request once the issues have been resolved.

An NXX can be requested from NANPA with an expedited effective date. Refer to the INC COCAG for the requirements to complete an expedite request.

The Central Office Codes Reclamation Process can be accessed at www.nanpa.com.

2. COCAG - PART 1

The COCAG Part 1 form is essentially the form used to request assignment of an NPA NXX. A Job Aid, maintained by the North American Numbering Plan Administration (NANPA) is available at www.nanpa.com (listed under Central Office Codes). The COCAG Part 1 Job Aid provides definitions and clarification of the data that a Code Applicant is required to provide on the form.

If the code request is for an initial assignment of a central office code, it must include evidence of certification, such as federal or state license-to-serve, and evidence documenting readiness to provide service within 60 days of the code effective date.

It is imperative that consideration be given to the following topics (as described in other sections of this document) prior to requesting a CO Code. Potential code holders should refer to the COCAG section that further outlines the Responsibilities of Code Applicants and Holders.

- Appropriate regulatory certification to provide service in the area (e.g., state) being considered.

- Establishment of appropriate interconnection agreements with all potentially impacted carriers.
- Proof and availability of existing facilities, switches, and any other plant items as may be needed to support service.
- Identification of proper switch identifiers (see COMMON LANGUAGE Products section) needed for Part 1 and Part 2 forms.
- Establishment of an AOCN (see AOCN section) to provide and maintain accurate and current data for industry information/notification databases that support various network processes.
- Obtaining a Company Code that will be used as an OCN (see Company Code/OCN section and the NECA website (www.neca.org)).

Consideration of the following may also be pertinent:

- Establishment of Directory and/or other Operator Services agreements, interconnections, etc., if not already established in existing interconnection agreements.
- Bill Number Screening (BNS) (i.e., third-party billing, collect calls, calling cards) as an alternate to direct payment at, or billing to, the originating calling party. This may include the need to establish agreements with providers of Line Information DataBase (LIDB) services, or equivalent "databases" where BNS information resides.
- Subscriber billing arrangements if not already established in existing interconnection agreements.
- Identifying or obtaining an appropriate RAO code needed for intercompany message exchange and certain settlements processes (see RAO section)
- Wireless carriers may need to obtain SID and BID codes.
- Participation in NECA Tariff FCC No. 4 - a requirement of an incumbent LEC in the United States, and optionally applicable to Type 2 wireless providers and other SPs operating within the NANP (North American Numbering Plan)

3. COCAG - PART 2

The COCAG Part 2 forms are a set of forms used to provide information supporting a CO Code assignment for input into the BIRRDS databases. These databases are used as an industry recognized means of centrally collecting and disseminating pertinent routing and rating data within the industry and to others (e.g., PBX maintenance) that may need to know. Technically, a Code Applicant must await receipt of a COCAG Part 3 form from the CO Code Administrator before actually proceeding with entering COCAG Part 2 information into the databases. However, a substantial part of COCAG Part 2 information can be prepared prior to, and in anticipation of, receipt of a COCAG Part 3 form.

A Job Aid, maintained by the TRA is available at www.trainfo.com (documents) or by calling the TRA Customer Service Center (732) 699-6700. The COCAG Part 2 Job Aid provides definitions and clarification of the data that a Code Applicant is required to provide on the forms.

Once a CO Code has been assigned, the Code Holder, as indicated in the COCAG, is responsible for entering correct routing and rating data into the BIRRDS databases within an appropriate timeframe. Parties known as AOCNs (see AOCN section) enter data (a company can be its own AOCN). Actual use of the COCAG Part 2 forms is not necessarily a requirement; they serve as a guide for identifying the necessary data. However, entry of correct data is required. If a company serves as its own AOCN or has an agreement with a third-party company for data entry, it is possible that alternate means (in lieu of COCAG Part 2 forms) will be used to provide data.

It is imperative that CO Code holders understand that reporting of current and accurate routing and rating data for a CO Code is an ongoing responsibility and not just an initial effort performed when obtaining the CO Code. The data may change over time (e.g., switch, homing arrangements, mergers and acquisitions that change the OCN, etc.) and must be processed by the Code Holder via its AOCN. Ongoing changes within a company may also require reconsideration of some of the items previously listed under COCAG Part 1 (e.g., new interconnection agreements, new billing arrangements (e.g., RAO impacts), etc.). The industry may also determine that new data elements are needed for which data must be entered.

Note that the Code Administrator must be notified of any changes to the information in Part 1 of the CO Code (NXX) Assignment Request form.

4. COCAG - PART 3

The COCAG Part 3 form is issued by the CO Code Administrator and serves to notify the Code Applicant as to the disposition of their CO Code (NXX) Assignment Request form (e.g., code assignment, suspension, denial, etc).

5. COCAG - PART 4

The Code Holder must send the COCAG Part 4 form, within a certain timeframe, to the CO Code Administrator. This form serves as an acknowledgement that the CO Code has been placed into service. The specific timeframe is identified in the COCAG and/or can be obtained from the CO Code Administrator.

6. NUMBERING RESOURCE UTILIZATION FORECAST (NRUF) REPORT (FORM 502)

The Federal Communications Commission FCC, in the 2nd Report and Order in the Matter of Numbering Resources Optimization, CC Docket No. 99-200, FCC 00-104 (March 31, 2000), mandated that SPs submit a semi-annual Form 502 utilization and forecast report. The code/block applicant must have a form 502 on file with NANPA in order to request resources. The form 502 must contain a forecasted need with NANPA for the NPA and rate center prior to submitting a code or block request for the rate center in the NPA where the applicant is requesting resources for pooling NPAs. The form 502 must contain a forecasted need for the NPA where the applicant is requesting resources in non-pooled NPAs (684, 670, and 671).

CANADIAN CENTRAL OFFICE CODE (NXX) ASSIGNMENT GUIDELINES (CANADIAN COCAG)

The Canadian Steering Committee on Numbering (CSCN) developed the Canadian Central Office Code (NXX) Assignment Guidelines for the administration of Central Office Codes (CO Codes) within Canadian Numbering Plan Areas (NPA) by a Canadian independent third party administrator called the Canadian Numbering Administrator (CNA). The purpose of the Guidelines is to provide direction to the CNA, Code Applicants, and current and prospective Code Holders with respect to the administration, assignment, activation, and use of CO Codes and the numbering resources contained therein.

These Guidelines apply throughout Canada subject to Canadian governmental policies and regulatory requirements. The Canadian Radio-television and Telecommunications Commission (CRTC) is the telecommunications regulator for all Telecommunications SPs in Canada. Under the Telecommunications Act, the Commission is authorized to administer numbering resources, including but not limited to CO Codes, in Canada.

The latest version of the CRTC-approved Canadian Central Office Code (NXX) Assignment Guidelines are located on the CRTC website at: <http://www.crtc.gc.ca/cisc/eng/cisf3fg.htm> and are also accessible from the CNA website at: http://www.cnac.ca/co_codes/co_code_guidelines.htm.

THOUSANDS-BLOCK POOLING

OVERVIEW

Thousands-block pooling allows for the sharing of Central Office Codes among multiple SPs serving the same rate area. All ten thousand telephone numbers within each NXX Code continue to be associated with the same rate area designation (i.e., V&H coordinates), but can be distributed among multiple SPs at the Thousands-block (NXX-X) level. Thousands-block pooling requires using LNP technology and is mandated by the FCC in the top 100 MSAs or pursuant to a state commission order for state pooling.

Per Section 12.0 of the Thousands-block (NXX-X) Pooling Administration Guidelines (TBPA), “Within the same rate center, Intra SP Porting can be used to port a thousands block of numbers from one switch to another using a port type of “pool”. This can be used in an area where pooling has or has not been established. An SP has the option of selecting from two methods: Option 1 dealing with the PA, Option 2 dealing directly with the NPAC”.

The Thousands-block (NXX-X) Pooling Administration Guidelines are maintained by the INC. The latest version of the guidelines and forms can be found on the INC website, which can be found through the ATIS home page at www.atis.org.

It is recommended that new SPs go to the Pooling Administration web site, www.nationalpooling.com and become familiar with/read the following documents and reports:

- New Service Provider checklist
- Frequently Asked Questions
- PAS User Guide for Service Providers
- NPA/Rate Center Reports

The following forms are associated with Thousands-block pooling:

- User Profile Application (PAS and NAS)
- NRUF/Form 502
- Thousands-block Forecast Report
- Thousands-block Donation Form
- Part 1A
- Thousands-Block Pooling Months to Exhaust Certification Worksheet - 1000 Block Level

- Months to Exhaust and Utilization Certification Worksheet – TN Level (Thousands-block Number Pooling Growth Block Request)
 - Part 1B
 - Part 1: Request for CO NXX Assignment
 - Part 3
 - Part 4
 - Part 5

The following NANPA forms are/may be required in conjunction with pooling requests:

- NRUF/Form 502
- Part 1: Request for CO NXX Assignment

User Profile Application

Each SP participating in pooling must complete a User Profile Application to access the Pooling Administration System and Numbering Administration System (NRUF/form 502 submission).

NRUF/Form 502

Each SP participating in pooling must complete the NRUF/Form 502 and must have a current NRUF/Form 502 on file for the rate center in which they plan to request resources.

Thousands-Block Forecast Report

Each SP must provide a Thousands-Block Forecast Report indicating the number of thousands-blocks they will need for the next 12 months by state, NPA and pooling rate area on a semi-annual basis, as new pools are added, and on an ad hoc basis (i.e., entering the number “1” on the forecast form equates to 1 block, which equals 1,000 TNs).

Thousands-Block Donation Form

The SP completes the Thousands-Block Donation form when donating protected thousands-block to the industry inventory pool. Any blocks with 10% contamination or less and in excess of a 6 month inventory should be donated to the pool.

Part 1A

The Part 1A is completed by the SP when applying, making informational changes and returning a thousands-block. Multiple thousands-blocks may be requested on one form if it is for the same switch and rate center.

Months to Exhaust and Utilization Certification Worksheet TN Level

A Months to Exhaust and Utilization Certification worksheet TN Level is completed by the SP when applying for additional (growth) thousands-block(s) in a pooling rate area.

Thousands-Block Pooling Months to Exhaust Certification Worksheet - 1000 Block Level

A Thousands-Block Pooling Months to Exhaust and Utilization Certification worksheet 1000 Block Level is completed by the PA when applying for additional CO codes in order to replenish the industry inventory pools (A SP would not complete this form).

Part 1B

The Part 1B is completed by the SP when applying for a thousands-block for blocks being activated in the Number Portability Administration Center (NPAC) or when NPAC information associated with a block needs to be modified.

Part 1: Request for CO NXX Assignment

Each SP participating in pooling must complete a manual CO Code Part 1 when requesting an NPA-NXX on behalf of the PA (for pool replenishment), for LRN purposes, for dedicated customer(s), and/or for changes/disconnects to NPA-NXXs that are pooled.

Part 3

The Part 3 is issued by the Pooling Administrator to notify the Block Applicant as to the disposition of their thousands-block request.

Part 4

An SP must submit a Part 4 to the Pooling Administrator within six months of the original Part 3 effective date once a thousands-block has been placed in service.

Part 5

The part 5 is produced by the PA for reclaimed or returned thousands-blocks that have been entered into the NPAC. NPAC notification should include the thousands-block range and the effective date of the return. Upon completion of the part 5 disconnect request in NPAC, the NPAC will notify the PA, LERG Assignee and Block Holder that the thousands-block has been removed from the NPAC by completing, Part 5, Section C of the NPAC Thousands-Block Reclamation form.

LERG Assignee Responsibilities

A LERG Assignee is the SP listed as the entity associated at the NXX code level with a pooled NXX code in the Telcordia LERG Routing Guide and is responsible for default routing functions associated with the pooled NXX code. More information on LERG Assignee responsibilities can be found in the INC TBPAG (See References section).

LOCAL NUMBER PORTABILITY (LNP)

OVERVIEW

LNP is a concept that permits greater flexibility in the association of a telephone number to a company and/or individual. Historically a NPA NXX is assigned to a single local SP. That provider would then have control of that number in its entirety. In an area where multiple local SPs may operate, subscribers changing their provider would then have to change their telephone number as well. To address this, LNP processes were developed in the mid-1990's and implementation began shortly thereafter.

LNP refers to the ability of end users to retain their telephone number when they change their physical location, SP or type of service. A telephone number that has been retained when one of these changes is made is called a "ported number".

There are three types of number portability:

- Service Provider Portability - the ability to change SPs (while at the same location / Rate Center) and retain the same number.
- Location Portability - the ability to change physical location (beyond the Rate Center area) and retain the same number. (Location portability is not in effect today.)
- Service Portability - the ability to change the type of service (while at the same location) and retain the same number.

As of this writing (January 10, 2007), Service Provider Portability is the only type of portability that has been mandated. Variations in a carrier being required to provide LNP currently exist: for example, smaller rural carriers may not be equipped to provide LNP and paging companies are currently exempt. As of this writing (January 10, 2007) Service Portability is not mandated but does exist if a carrier participates in intermodal porting (subscribers have the option of porting their telephone number to a wireless, wireline, or VoIP carrier).

Text regarding content within previous paragraph from AT&T Contribution:

As of this writing, Service Provider portability is the only type of portability in effect. Location portability requires a substantial number of issues to be addressed and resolved prior to its becoming a reality. [Why isn't service portability in effect? Carriers can port to wireless and/or VoIP while keeping their number.]

LNP implementation is based on various levels of service and other factors. Variations in a carrier being required to provide LNP currently exist: for example, smaller rural carriers may not be equipped to provide LNP and paging companies are currently exempt.

The minimum requirement for a LSP to provide LNP capability in its network is a Service Switching Point (SSP). While all component functionality is required to provide LNP capability, a new LSP may arrange component functionality from third-party sources.

The components for an LNP capable network include:

- Service Switching Point (SSP)
- Signal Transfer Point (STP)
- Service Control Point (SCP)
- Local Service Management System (LSMS)/Service Order Administration (SOA).

LNP RELATIVE TO A NEW LOCAL SERVICE PROVIDER

The FCC's First Report and Order on Telephone Number Portability (C.C. Docket No. 95-116, Document No. 96-286) Appendix B at ¶52.3(b) adopted June 27, 1996 requires certain requirements of all LSPs operating within the Top 100 Metropolitan Statistical Areas (MSAs). A new LSP should consult the FCC order to determine requirements that impact their company.

LOCATION ROUTING NUMBER (LRN)

LNP is made technically feasible by use of a Location Routing Number (LRN). An LRN is a 10-digit number used to uniquely identify a switch that has ported numbers from another switch (i.e., subscribers now work out of the new switch rather than the switch the NPA NXX was originally native to). The LRN for a particular switch must be a native/LENG Assignee NPA NXX (A) Record Holder assigned to the SP for that switch. Essentially, LRN assigns a unique 10-digit telephone number to each switch in a defined geographic area. The LRN serves as a network address.

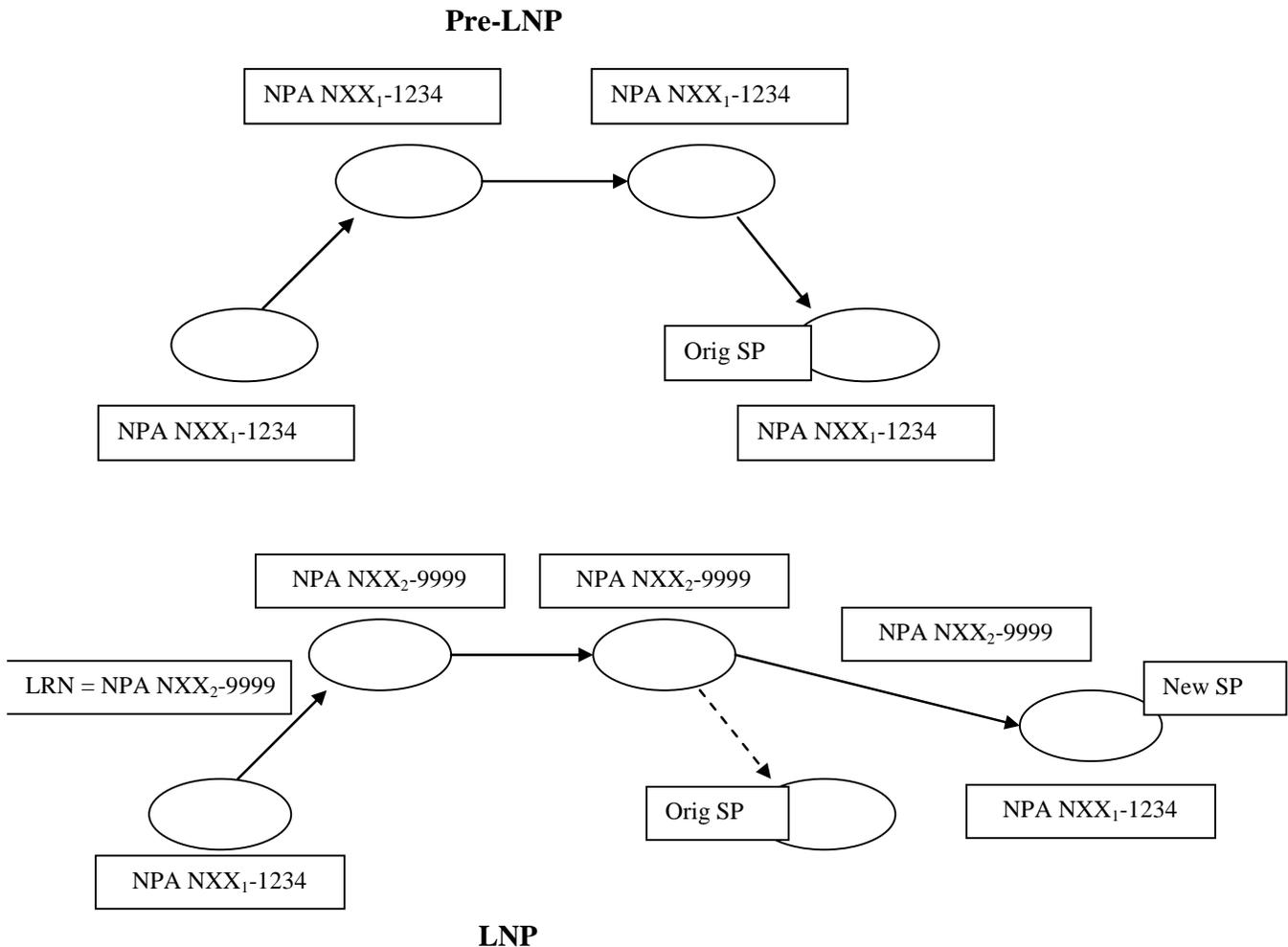
Carriers routing telephone calls to end-users that have transferred their telephone numbers from one carrier to another perform a database query to obtain the LRN that corresponds to the dialed telephone number. The database query is performed for all calls where the NPA NXX of the called number has been marked in the switch as portable. The carrier then would route the call to the new carrier based on the LRN. The Location Routing Number (LRN) depends on Advanced Intelligent Network (AIN) capabilities, which must be deployed in the participating LSPs networks.

For further information regarding LRNs, please refer to the INC Location Routing Number Assignment Practices document, located on the INC website, which can be found through the ATIS home page at www.atis.org.

LOCAL NUMBER PORTABILITY ROUTING EXAMPLE

In the pre-LNP example a call placed to NPA NXX₁-1234 is routing through the PSTN through as many switches as may be necessary to reach its destination, as NPA NXX₁-1234

In this example, note that NPA NXX₁ is associated with the switch of an “original” SP and NPA NXX₂ is native to the switch of a “new” SP. An LRN must have its first 6 digits associated with an NXX of a switch to which that NXX is native. The “new” SP switch needs to have at least one LRN that all numbers ported to it can be mapped to.



Under LNP, the dialed number (NPA NXX₁-1234) is determined to be “ported” via a database dip that occurs in the call setup. In this example, NPA NXX₁-1234 is “mapped” in the LNP database to a Location Routing Number (LRN) of NPA NXX₂-9999. This LRN is processed through the call setup as if it were the called number. The actual called number is stored in the message being sent. At a point prior to completing the call, the stored actual called number replaces the LRN and the call completes to that number.

MAINTENANCE GUIDELINES FOR TROUBLE SHOOTING, REPORTING AND CONTACT LISTS

GUIDELINES FOR MEETING MAINTENANCE PERFORMANCE SERVICE LEVELS

The NIIF Reference Document has identified the maintenance parameters and performance thresholds (tolerance range) in the guidelines for the various access services classes and the interconnected facilities between companies. Each type of access service classes and the interconnecting facilities service levels are within the various “Installation and Maintenance Responsibilities” sections as listed in the NIIF Reference Document, Master table of Contents.

MAINTENANCE PROCEDURES FOR STATUS AND TROUBLE REPORTING

Detailed procedures are outlined in the NIIF Reference Document for the various facilities, and access services as listed in the Master Table of Contents.

Trouble Reporting, Trouble Resolution

- Does your company have the NIIF Reference Document?
- Does your company support the maintenance procedures as outlined in the NIIF Reference Document, relating to trouble reporting, trouble resolutions and escalations?
- Does your company adhere to the time duration for status reporting to interconnecting companies?
- Does your company have a 7 by 24 contact number(s) for maintenance, trouble reporting, trouble resolution, escalation, and trouble status?

DOCUMENTATION REQUIREMENTS FOR CONTACTS

The NIIF outlines the requirements for documentation during interconnection and sets up troubleshooting contacts. During interconnection negotiations both parties need to discuss and agree upon the required documentation to ensure network reliability once interconnection has taken place.

Company Specific Contact Directory

The NIIF Company Specific Contact Directory lists specific functions for interconnected company contacts. These functions are critical to the reliability of the network during emergency situations and modifications of the network.

Contact Listing

- Does your company have contacts listed in the NIF Company Specific Contact Directory for these specific functional responsibilities?
- If not, for which specific functions will your company provide contact numbers?

Will these contacts be available 24 hours?

CALL COMPLETION FAILURE SITUATIONS

Troubleshooting tips for Call Completion Failure Situations

Due to the numerous factors involved in establishing a call through interconnected networks, failures of various types will undoubtedly occur. Although major network failures are rare due to the precautions, backups, and the extent of efforts placed in preventing them, the failure of an individual call is relatively more common.

Determining Root Causes:

When a call completion trouble report is received, it may be the “called” party who reports that they “cannot be called.” Frequently, only the city from which the call was placed is known. Even when the trouble report is received from the “calling” party (the person who actually placed the call and experienced the failure), the information obtained is often not specific enough to allow proper analysis to determine a clear solution for the problem.

For all call failures, it is critical to identify the root cause. This will allow appropriate action to be taken to correct the problem at its source. Unless this is done, failures will continue to occur.

In order to investigate call completion trouble reports effectively, it is necessary that detailed information be obtained to direct investigative efforts in the most productive manner.

Those receiving initial trouble reports should also realize that:

- the reporting party, especially if a subscriber, may not know the intricacies of routing a call or what pertinent information may be needed for assessing the situation.
- the “problem” area may well involve another or several other companies (than the one to whom the trouble was reported) in whole or part.

Potential points where a call failure may occur:

Customer premise/location equipment (originating end) (e.g., Private Branch Exchanges (PBXs), smart phone sets, telephone sets, coin telephones, etc.)

- Hardware problems related to the above customer equipment,
- Software problems, for example, translation or configuration of customer equipment.

Facility problems could affect the transmission path:

- Improper design of facilities
- Have facilities been ‘turned up’?

Switch software issues on originating call

- Possible translations problems at the originating switch
- Possible hardware problems at the originating switch

Customer Feature Action

- Customer directed blocks (e.g., on placement of 900 calls)

Other carrier issues

- Any carrier involved in “processing” the call up to and including the final terminating switching point may have hardware and/or software issues as described above.
- A recently-assigned CO code may not have been loaded in all applicable switching locations within the standard intervals outlined in the COCAG and prescribed in ATIS-0300010, Part II, Installation and Maintenance Responsibilities, Switched Access Services, Feature Group B, C, and D, of the NIIF Reference Document, and ATIS-0300032, Part X, Interconnection Between LECS Operations Handbook – Local Interconnection Service Arrangement, of the NIIF Reference Document.”
- Network congestion, for whatever reason may also be an issue.

Customer premise/location (terminating end)

- Possible problem areas as previously stated for the originating end can also occur at the terminating end. This includes software controls at the terminating end (e.g., blocks on calls for which originating ANI is unknown, etc.)

RESOLUTION PROCESSES FOR CALL COMPLETION FAILURE SITUATIONS:

General:

- Obtain call failure details from the party experiencing the call failure. This includes the calling and called line numbers.
- If possible, determine whether calls to the NPA itself are blocked (possible PBX or switch issue) or whether just the line being called.
- If possible, determine if the call can be completed from a different originating number (perhaps via different switch).
- Verify that internal switch translations are routing the call correctly for any switches for which your company may be responsible for or interacts with.

- Confirm that all local and tandem interconnection agreements are in-place.
- Refer failure details to affected interconnection company/companies if necessary.

INVESTIGATION CHECKLIST FOR CALL COMPLETION FAILURE LISTS

It is recommended that SPs utilize the checklist below when investigating call completion trouble reports. Each item listed provides a means to determine the possible root cause of call failures.

Code Holders Actions To Determine Root Cause

- Obtain call failure details from the party reporting the trouble.
- Use specific questions provided on “Trouble Reports – Call Failure Questions” table.
- Direct-customer-contact groups should be advised of necessity to obtain this data.
- Verify that the NXX code has been loaded in all applicable switching locations 5 days prior to the LERG Effective Date and the call is being routed correctly within own internal network.
- Ensure the called NXX code is opened in originating- and/or terminating-area switches
- Check that the proper routing translations tables have been entered into switches
- Confirm that all local and tandem interconnection agreements are in-place:
 - a. For all “independent” company switches subtending the interconnect tandem(s) and
 - b. For all interconnect tandem(s) in the originating and terminating call failure areas.
- Confirm that interexchange carrier interconnection agreements are in-place, if required.
- Verify that the call is not requesting traffic to/from ILEC switches to be transported across LATA boundaries.
- Verify that current and accurate routing data has been entered into BIRRDS utilizing the agreed to industry timeline intervals.
- If call failure report is from the calling party (the one who cannot complete the call)...
 - a. Provide call failure details to the terminating SP.
 - b. Provide results of internal investigation to the terminating SP.
 - c. Request SPs coordinate end to end testing on their networks.
- If call failure report is from the called party (the one who cannot be reached)...
 - a. Provide call failure details to the interconnected SP.
 - b. Provide results of internal end to end network investigation to testing companies.

MISCELLANEOUS OCCURRENCES, OTHER TROUBLE REPORTING SITUATIONS:

Centrex users can inadvertently bridge two calls together resulting in long duration calls.

Description

There are two circumstances that must be in place for this to occur. First, the called party location will not return disconnect supervision when it has concluded its portion of the call (Voice Response Unit, Voice Mail, audio conference bridge etc.). The second is the result of the calling customer invoking a call transfer when they make an outbound call and then flash hooking instead of hanging up prior to making the second call.

Even when call transfer features work correctly and the customer is provided a stutter dial tone, when the customer concludes the second call and hangs up, the switch is bridging the first and second legs of the calls together freeing the customer's line. Until an external action (switch restart, span failure, terminating PBX activity, etc.) is taken on the call path, the call will stay up. This may result in the customer receiving a large bill for the duration of the call, inadvertent access charges, unavailability of network resources, and potential fraud exposure.

Recommendations

The NIIF encourages the sending of disconnect supervision by terminating access equipment/CPE devices at the conclusion of the call. The NIIF also encourages that terminating access equipment/CPE equipment be designed and configured to include sufficient logic, such as timeouts and the detection of inactivity, so that the equipment will not stay off hook indefinitely.

To minimize the occurrence of the problem, Call Transfer for Centrex lines should not be provided without the customer's knowledge. If the call transfer feature is offered to individual lines, it should be done so with the customer's knowledge. The NIIF recommends that end users be provided with information on the use of stutter dial tone and call transfer features.

EMERGENCY COMMUNICATION; EMERGENCY PREPAREDNESS PLANS

The NIIF Reference Document recommends that each interconnected company have plans for Emergency Communications between other interconnected companies. ATIS-0300027, Part VI, Appendix A, of the NIIF Reference Document identifies Emergency and Restoration Planning Considerations, and the intent to subscribe to a communication system other than the PSTN. In ATIS-0300026, Part VI, Network Management Guidelines, Section 7, Emergency Communications, Subsection A, the recommendation is to subscribe to Public Packet Switched Network (PPSN). This emergency contact is to be accessed only during such catastrophic failures on the SS7 Network.

- Does your company have plans for disaster preparedness & recovery?
- Does your company list a contact for the Disaster Preparedness & Recovery function in the NIIF Company Specific Contact Directory?
- Does your company have emergency communications links with other interconnected companies?
- Does your company provide communication access other than PSTN, during a catastrophic SS7 failure?
- Does your company list a contact for any catastrophic failures in the NIIF Company Specific Contact Directory?

Equipment Supplier Participation

SPs are encouraged to negotiate agreements with their equipment suppliers to support emergency preparedness and emergency communications. Mutual Aid is an agreement with equipment suppliers and other SPs to loan equipment and/or manpower during catastrophic outages so as to restore the PSTN back to service as soon as possible.

- Does your company subscribe to Mutual Aid agreements?
- Does your company have Mutual Aid Agreements with your equipment suppliers or other SPs?
- Does your company list your Mutual Aid contact in the NIIF Company Specific Contact Directory?

Security Management Participation

Companies are encouraged to involve their Security organizations in emergency and network outage situations.

- Does your company involve your Security organization in network outages that maybe caused by vandalism or deliberate sabotage?
- Is the Security contact number posted for quick reference within your control locations?

National Security/Emergency Preparedness

During interconnection negotiations, companies should provide assurance to each other that they have in place an Emergency Preparedness plan and provide the contact name and number of the person responsible for this plan.

- Does your company have in place an Emergency Preparedness plan?

Telecommunication Service Priority (TSP) Guidelines

The NIIF Reference Document has identified the requirements for NSEP access service installation and maintenance. (See Part I, Section 3, TSP GUIDELINES)

TSP installation and maintenance guidelines for access services and provides generic administrative procedures and interfaces between Access Service Customers and Access SPs.

The TSP system provides for priority treatment of National Security Emergency Preparedness (NSEP) telecommunication services in order to prioritize their installation and maintenance.

- Does your company adhere to the NIIF guidelines for TSP?

Tones and Announcements for Unsuccessful Call Attempts and Toll Warnings

There are two resources for Tones and Announcements information that are recommended by the NIIF:

- The NIIF Cause Codes document may be found in the ATIS-0300019, NIIF Reference Document, Part III, Attachment H, SS7 Cause Codes & Tones and Announcements. This document contains recommended Cause Code applications for network failures.
- Issue 9 of BR780-200-020, Tones and Announcements

Catastrophic Outages

The NIIF Reference Document contains a directory of company contacts to be utilized during major outages.

- Does your company have a copy of this NIIF Company Specific Contact Directory?
- Is your company listed in this directory?

RED LIGHT RULE

To facilitate the implementation of the Debt Collection Improvement Act (DCIA), the Federal Communication Commission (Commission) established the red light rule. The red light rule became effective November 1, 2004.

The red light rule, found at 47 C.F.R. §1.1910, provides that anyone seeking a benefit from the Commission or one of its components (including the Universal Service Fund, the Telecommunications Relay Service, or the North American Numbering Plan Administrator) who is delinquent in debt owed to the Commission will be unable to obtain a benefit until there is resolution of that delinquency.

Anyone filing an application or seeking a benefit who is discovered to be delinquent in debt owed to the Commission will be notified of the delinquency and given 30 days to pay the debt in full or make other satisfactory arrangements. Failure to do so will result in dismissal of the application or other request for a benefit.

SPs may access the Red Light Display (RLD) system to see if they have outstanding delinquent debt with the Commission. Access to this system requires your FCC Registration Number (FRN), and an established password. The RLD system is located at www.fcc.gov/redlight.

You may also use Fee Filer's Bills & Receivables module to pay an outstanding delinquent debt on-line via credit card. Fee Filer is located at <https://svartifoss2.fcc.gov/Feefiler/login.cfm>. For further information, please contact 1-877-480-3201.

NECA TARIFF FCC NO. 4

OVERVIEW

NECA Tariff FCC No. 4 is the industry resource for ILEC, competitive carriers, and for wireless carriers' wire center and interconnection information used for the ordering, billing and provisioning of interstate access services in the North American Numbering Plan (NANP)⁵. NECA's Tariff FCC No. 4 is a company's legal authority to bill access service charges.

NECA Tariff FCC No. 4 is a centralized industry database containing the location and technical capabilities of participants' wire centers, which provide interstate access services. This database contains the information to determine the distance between telecommunications facilities, so charges based on distance can be calculated accurately. NECA Tariff FCC No. 4 also specifies billing percentage agreements when more than one company provides transport services.

NECA Tariff FCC No. 4 is a database maintained by NECA. This Tariff is updated and filed monthly with the FCC. Companies have through the 6th calendar day of each month to enter data. The changes are filed with the FCC on 15 days notice and become effective the first day of the following month.

PARTICIPATION IN NECA TARIFF FCC NO. 4

NECA members (ILECs) are required to file their wire center and interconnection information in NECA Tariff FCC No. 4. NECA submitted a request to the FCC in May 1995, which was the result of requests from non-members to be permitted to list data in NECA Tariff FCC No. 4. In January 1996, the FCC issued an Order authorizing NECA to include non-member data in NECA Tariff FCC No. 4.

As a result, competitive LECs and wireless carriers may participate in NECA Tariff FCC No. 4 for a cost-based fee. In addition, the OBF Multiple Exchange Carrier Access Billing (MECAB) and Small Exchange Carrier Access Billing (SECAB) guidelines encourage companies to participate in NECA Tariff FCC No. 4.

Participation in NECA Tariff FCC No. 4 can increase the competitiveness of a company's interstate access services in several ways:

⁵ NECA Tariff FCC No. 4 applies to companies under the FCC's jurisdiction (United States and the U.S. Territories).

- Improves the access ordering and billing process
- Advertises the location and technical capabilities of a company's network
- Creates a national reference for a company's billing percent agreements

ADVANTAGES OF PARTICIPATION IN NECA TARIFF FCC NO. 4

- NECA Tariff FCC No. 4 is a legal document. Each month, NECA files the Tariff No. 4 wire center and billing percent data with the FCC. As a result, NECA Tariff FCC No. 4 provides participating companies with a legal basis to resolve billing disputes and collect revenues. In addition, it may be referenced by other tariffs.
- NECA Tariff FCC No. 4 provides companies with an efficient means of providing billing and switch information to IXCs and other SPs. IXCs use NECA Tariff FCC No. 4 to order access services from their points of presence to the wire centers and to determine the accuracy of their access bills and meet point billing percentages.
- Since many companies use NECA Tariff FCC No. 4 as the centralized industry source for ordering, billing and provisioning information, participating companies enjoy a significant competitive advantage over non-participants, because it is easy to obtain participants' billing and switch information.

IMPACTS OF NON-PARTICIPATION IN NECA TARIFF FCC NO. 4

Companies that choose not to participate in NECA Tariff FCC No. 4 may experience the following impacts:

- Delays in the ordering and billing process, as manual intervention may be required
- Less visibility for the location and technical capability of a company's network
- Difficulty in resolving billing disputes pertaining to BP (Billing Percent)
- Loss of revenue

TELCORDIA™ ROUTING ADMINISTRATION (TRA)

OVERVIEW

Telcordia™ Routing Administration (TRA) is a set of Telcordia services and products surrounding the telecommunications process that centrally collects and disseminates pertinent routing and rating information within the industry and to other parties who may request the data.

The data dissemination process is via various output “products and services”. These are identified in the TRA Catalog of Product and Services.

TRA, as an industry neutral process, requires that all companies follow the same available processes as any other company relative to data input and in the ordering and billing for output products and services.

DATA COLLECTION

The data collection process involves companies who have chosen to be administrators of the data in the underlying databases. These companies are often identified by what is known as AOCNs (see AOCN section). These companies administer their own data and/or data for other companies for which they have established working relationships.

The specific databases involved are the Telcordia™ Business Integrated Routing and Rating Database System (BIRRDS), the Telcordia™ LIDB Access Support system (LASS), and the Telcordia™ Calling Name Access Support System (CNSS).

The data collection process is accomplished via TRA Fair Share Plan agreements (see AOCN section).

DATA DISSEMINATION

The data dissemination process is via various output products and services. The principal outputs of these databases are listed below. Additional outputs and additional specific information regarding those output listed below (e.g., issuance schedule, licensing fees, etc.) can be found at www.trainfo.com.

Telcordia	LERG	The Telcordia LERG Routing Guide (LERG) is an output of the
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Routing Guide	Telcordia Business Integrated Routing and Rating Database System (BIRRDs). The LERG is essentially considered an output in support of intercompany routing. Routing information supports new NPA NXX openings (as driven by the CO Code Administration process and by area code (NPA) splits). Routing information includes identifying switching information relative to a given CO Code (NXX) as well as switch-to-switch relationships needed in the routing of calls. Note that information in the LERG does not negate the need for establishing appropriate interconnection agreements (see Interconnection Agreements section). In addition, specific company to company interconnection agreements may supercede generic information that is provided via the LERG.
Telcordia TPM Data Source	The Telcordia TPM Data Source is an output of the Telcordia Business Integrated Routing and Rating Database System (BIRRDs). The TPM is used in support of rating calls and in some billing systems. Rates themselves are not part of the TPM. Rating information supports new NPA NXX openings (as driven by the CO Code Administration process and by Area Code (NPA) splits). Rate Center V&H coordinates, time zone information, a "place name" used in many billing systems, and RAO information (see RAO section) are among the elements included in the TPM.
Telcordia LARG	The Telcordia LIDB Access Routing Guide (LARG) is a source for Line Information Database (LIDB) access routing data used for administering and maintaining STP Global Title Translations (GTTs). It identifies the responsible signaling network control center, the intra-network LIDB data, the inter-network route effective date, and the capability code or pseudo point code. This provides routing information necessary to route an inquiry to the correct LIDB for the validation of calling cards and other Alternate Billing Services (ABS).
Telcordia CNARG	The Telcordia Calling Name Access Routing Guide (CNARG) is a single source for interconnection to various database points (e.g., LIDBs) that contain subscriber Calling Name information. CNARG data can be used to administer and maintain STP GTTs to route to points that contain Calling Name data.

INDUSTRY FORUMS, ASSOCIATIONS, GENERAL INDUSTRY SUPPORT

OVERVIEW

As in any broad industry arena, the telecommunications industry has numerous associations, groups, forums, and similar organizations, each of whose membership base reflects representation from many different companies. The areas in telecommunications that these groups may focus on may be wide in scope, covering operations, equipment, standards, etc., or, may be specific to a given technology or segment of the industry.

This section of this document identifies some of the broad-based organizations that serve the industry. Membership in most of these organizations is usually "optional", may require a company pay dues or similar membership fees, work within defined scopes and mission statements, and follow defined rules in conducting business.

Several of these organizations are an integral component in the development of industry (or industry segment) standards, operating guidelines, procedures that ultimately are intended for the entire industry or segment. Membership and active participation in appropriate organizations is encouraged to permit your company to have a say in the development of processes that will impact it and to gain insight into the ever-changing nature of the industry.

Alliance for Telecommunications Industry Solutions (ATIS)

ATIS is a membership organization that provides the tools necessary for the industry to identify standards, guidelines and operating procedures that make the interoperability of existing and emerging telecommunications products and services possible.

ATIS member companies are North American and World Zone 1 Caribbean providers of telecommunications services, and include SPs, competitive local carriers, cellular carriers, interexchange companies, local exchange companies, manufacturers, software developers, resellers, enhanced SPs, and providers of operations support. It works because telecommunications carriers, SPs and equipment manufacturers follow common standards and operating procedures -- standards and procedures that ensure reliable and seamless voice and data transmission over networks, and interoperability between equipment. Over 3,000 industry company representatives participate each year in ATIS committees and forums -- following strict guidelines that ensure fairness, equability, and industry-wide consensus in the development of standards and procedures.

The world of telecommunications faces many new and exciting challenges. ATIS member companies and sponsored committees are developing valuable and important products -- cutting-edge and industry-endorsed standards, procedures and reports -- that are changing the way the world communicates.

Association for Local Telecommunications Services (ALTS)

The ALTS is the trade association that represents the builders of high-speed local communications – CLECs that are "facilities-based." ALTS was founded to harness the shared energy and vitality of the new local competitors—and to help ensure regulations for robust competition, spawned by the 1996 Act, are implemented and enforced. ALTS produces important industry events, products and services to help CLECs WIN in the marketplace.

Canadian Radio-television and Telecommunications Commission (CRTC)

Information concerning how to register as a Canadian SP is available from the Canadian Radio-television and Telecommunications Commission website at: <http://www.crtc.gc.ca/eng/lists.htm>.

Canadian Wireless Telecommunications Association (CWTA)

The Canadian Wireless Telecommunications Association (CWTA) is the authority on wireless issues, developments and trends in Canada. It represents cellular, PCS, messaging, mobile radio, fixed wireless and mobile satellite carriers as well as companies that develop and produce products and services for the industry. Additional information regarding Wireless SPs is available from: <http://www.cwta.ca/CWTASite/english/index.html>.

NARUC

The National Association of Regulatory Utility Commissioners (NARUC) is a national association composed of governmental agencies of the fifty States, the District of Columbia, Puerto Rico and the Virgin Islands engaged in the regulation of utilities and carriers. Its chief objective is to serve the consumer interest by seeking to improve the quality and effectiveness of public regulation in America. NARUC sponsors numerous committees covering a range of global utility concerns, including telecommunications.

NARUC can provide direction on complying with all pertinent licensing and/or certification each state requires. The NARUC maintains an electronic hyperlink to each individual state utility commission on the NARUC website at www.naruc.org.

United States Telecom Association (USTA)

USTA is a trade association representing the United States' LEC industry. USTA provides a common ground where local telephone companies of all sizes can unite to advance the industry's concerns. The association represents more than 1,200 small, mid-size and large companies worldwide. USTA promotes the general welfare of the telephone industry, collects and disseminates industry information and provides a forum for the discussion and resolution of issues of mutual concern.

RELATED INDUSTRY GUIDELINES

This section briefly describes various numbers, codes, etc. that are used within the telecommunications industry that are also somewhat related to processes described in other sections of this document. If a source for additional information (e.g., guidelines) is known, it has been identified.

CARRIER IDENTIFICATION CODE (CIC)

CICs are used to route and bill calls from end users in the PSTN via trunk-side or line-side connections to access providers, IXCs and other entities. To obtain a CIC, an applicant must purchase access from an access provider, who will in turn apply to NANPA for the assignment on behalf of the access purchaser. If the application for a CIC is a LEC, Competitive Local Exchange Carrier (CLEC) or a “switchless reseller”, they can apply directly to NANPA for a CIC by completing a CIC application form and providing documentation from a State Public Utilities Commission verifying that they have been given authorization to do business as a LEC, CLEC or “switchless reseller” (note on www.nanpa.com, under “Numbering Resources” “Carrier Identification Codes” the list of those states which require switchless reseller certification) CICs are assigned according to the guidelines developed by the Industry Numbering Committee (INC) Carrier Identification Code Assignment Guidelines. Assignments of CICs are made by NANPA.

The following is information from the INC document “Carrier Identification Code Assignment Guidelines”:

Today, CICs are four-digit numeric codes that are currently used to identify customers who purchase Feature Group B (FG B) and/or Feature Group D (FG D) access services.⁶ These codes are primarily used for routing from the local exchange network to the access purchaser and for billing between the LEC and the access purchaser.

In addition to those CICs assigned by the CIC administrator (NANPA), there are 200 four-digit CICs, numbers 9000-9199, designated for intranetwork use and are therefore unassignable. These CICs are 1) intended for intranetwork use only, 2) not intended to be used between networks, 3) not intended to be dialable by end users as a CAC (defined in this section). Use of the 200 unassignable CICs is at the discretion of each network provider and will not place requirements on other network providers.

⁶ For purposes of these guidelines, “access services” includes the purchase of trunk access for FG B or D, and, in the case of FG B, translations access (where available). Although LECs are not formal “purchasers” of FG B or FG D access, these guidelines do not preclude LECs from being assigned CICs.

In addition to the use of CICs by the LECs for routing and billing of access, the CIC comprises part of the Carrier Access Code (CAC), a dialing sequence used by the general public to access a preferred provider of service.

For FG B, the CAC is in the format 950-XXXX, where XXXX is the FG B CIC.

For FG D, the CAC is in the format 101XXXX, where the XXXX is the FG D CIC.

555 LINE NUMBERS

Historically the 555 NXX was uniquely set-aside for purpose of providing directory assistance to other NPAs by dialing NPA-555-1212. Assignment of 555 line numbers follow guidelines developed by the INC, 555 NXX Assignment Guidelines. Assignments of 555 Line Numbers are made by NANPA.

The following is information from the INC document ATIS-0300048, 555 NXX Assignment Guidelines:

The 555 NXX Guidelines have been established as the result of an industry consensus that a unique number set (NPA-555-XXXX) is a solution to identified industry needs. The 555 NXX provides for types of public information service needs that may not be met by current numbering solutions, e.g., 976 and 900. These guidelines treat only the assignment of 555 numbers. Implementation of the 555 number assignments is beyond the scope of these guidelines. These guidelines are not intended to address local dialing arrangements for 555 numbers.

All number assignments are for 10-digit 555 numbers in the format NPA-555-XXXX. When a number is requested from the available resource and assigned, the 4-digit line number will be designated as either a national or a non-national number.

A national number is a unique line number in the 555 NXX assigned to an entity for use in all or most of the geographic NPAs in the NANP Area. A number will be designated as a national number if it is to be used in at least 30% of all NPAs or states or provinces in the NANP Area. National numbers cannot be assigned by the Administrator to any other entity.

A non-national number is a line number in the 555 NXX assigned to an entity for use in a specific geographic area or areas (NPAs, states, or provinces). A number will be designated non-national if it is to be used in fewer than 30% of NPAs or states or provinces. Non-national numbers are available for assignment to multiple entities, assuming those entities wish to use the non-national number in different geographic NPAs.

SS7 POINT CODES

“Point codes” are a means of addressing certain network elements within the Signaling System 7 (SS7) signaling protocol. The SS7 protocol permits signaling (e.g., call setup processes) to be handled outside the circuits they will actually control a call (as is done in inband analog signaling). Point codes are 9 digits (actually a 24 bit binary code) where the first three digits define the “network” (unique for “large” networks, generic for “small” networks), the next three define a “cluster” and the last three define a “member”.

More detailed information can be found in ANSI T1.111, Signaling System No.7, Message Transfer Part (Includes T1.111a-2002), Chapter T1.111.8. Telcordia Technologies serves as the maintenance agent for point code assignments. Requests for such assignments can be made via a request form available through the Telcordia Routing Administrative group in Telcordia (www.trainfo.com). If a company has been assigned numbers at the network or cluster level, cluster and network assignments are managed internally by that company. In all cases, the mapping of a point code to a specific network element is managed by the individual company directly.

There are three choices in this section of which you will choose one. If your company does not have its own STP, you will request a point code block, and complete that section only.

To be added at a later date:

- 500 NPA NXX Assignments
- 900 NPA NXX Assignments
- Country Codes
- Universal Service Order Codes (USOC)

INDUSTRY TRAINING/WORKSHOPS

This section identifies available training that is specifically related to the content and purpose of this document that is provided directly by the organizations involved. Numerous companies and organizations provide telecommunications training from many perspectives.

COMMON LANGUAGE® PRODUCTS

The Telcordia Technologies COMMON LANGUAGE ® Products Business Unit offers licensees training at its training center in Piscataway, NJ. Licensees should contact their Customer Account Manager or go to www.commonlanguage.com for training dates, course descriptions, and registration information.

NECA

Each year, NECA provides training on interstate pooling, revenue distribution, tariffs, average schedules, universal service accounting rules and other topics. Check the NECA website (www.neca.org) for the training schedule.

TELCORDIA ROUTING ADMINISTRATION (TRA) WORKSHOP

Provides an overview of the industry forums that are pertinent to TRA data processes and information flow. Specifically relates the COCAG process and data flow into TRA database (BIRRDS). Provides basic review of routing, LNP routing, and rating. Reviews the Telcordia LERG Routing Guide in detail relative to data elements, format, and data interactions among files. Discusses current industry issues that relate to assignment of NXXs and TRA data. Reviews and discusses NPA Code Relief from the data perspective. Schedule (dates, locations) of workshops as well as additional information is at www.trainfo.com (workshops).

In addition, BIRRDS training (an overview of the data input processes and capabilities of these systems) is provided. This is restricted to those companies performing direct data entry (i.e., AOCNs). These are scheduled in the same week as the workshop described above.

INDUSTRY REFERENCE WEB SITES:

ATIS	www.atis.org
CNA	www.cnac.ca
COMMON LANGUAGE	www.commonlanguage.com
CRTC	www.crtc.gc.ca
FCC	www.fcc.gov
NANC	www.fcc.gov/ccb/nanc
NANPA	www.nanpa.com
NARUC	www.naruc.org
NECA	www.neca.org
NPAC	www.npac.com
PA	www.nationalpooling.com
TRA	www.trainfo.com
USTA	www.usta.org

TELECOMMUNICATIONS PROVIDER OPERATIONAL REQUIREMENTS WORKSHEET

Document/Code	Contact Organization	Assignment	Date Completed	Notes
Becoming an AOCN	Telcordia Routing Administration (TRA) (732) 699-6700			
Becoming an AOCN	Telcordia Routing Administration (TRA) (732) 699-6700			
Carrier Identification Code	CIC Administrator www.nanpa.com			
Carrier Identification Code	CIC Administrator www.nanpa.com			
Central Office Code Assignment Guidelines	www.atis.org			
Central Office Code Assignment Guidelines	www.atis.org			
Company Codes/ Operating Company Number (OCN)	NECA (973) 884-8249 for Company Code Administrator. www.neca.org Telcordia Routing Administration (TRA) (732) 699-6700 for OCN questions			

Company Codes/ Operating Company Number (OCN)	NECA (973) 884-8249 for Company Code Administrator. www.neca.org Telcordia Routing Administration (TRA) (732) 699-6700 for OCN questions			
Facility-Readiness and trunking	Internal verification			
Facility-Readiness and trunking	Internal verification			
Interconnection Agreement	All physically interconnecting companies			
MBI Administrator	(785) 331-2323 www.mbiadmin.com			
National Exchange Carrier Association	www.neca.org			
Obtaining an AOCN	List is available through TRA at www.trainfo.com/documents			
Revenue Accounting Office (RAO) Code Assignment	RAO Administrator Telcordia Technologies (732) 699-5243			
Switch CLLI Codes	www.commonlanguage.com COMMON LANGUAGE Customer Service Center Hotline, (732) 699-5577. If you are not a licensee, obtain further information at www.commonlanguage.com			

Thousands-Block Number Pooling Administration Guidelines	www.atis.org			
TRA Products	www.trainfo.com			

REFERENCES

ATIS-0300010, Part II, Installation and Maintenance Responsibilities, Switched Access Services, Feature Group B, C, and D, of the NIIF Reference Document. This document outlines ASC and ASP installation and maintenance responsibilities for Switched Access Services (SAS) as established by the NIIF, and also includes TSP Guidelines. It includes procedures on installation and maintenance of trunk side connected Access Services Feature Groups B, C and D. It specifically includes areas such as NXX Code Openings, FG D CIC Testing, Network Modification Notification, Trouble Detection Responsibilities, Trouble Reporting Procedures, 500/800/900 NXX Services, Toll Free Database and LIDB Services Trouble Handling, and access services provided by multiple exchange carriers.

ATIS-0300026, Part VI, Network Management Guidelines, of the NIIF Reference Document. The purpose of this document is to provide the Network Management personnel of the Access Service provider (ASP), and the Access Service Customer (ASC) with alternatives guidelines for traffic management when the following conditions arise. Network congestion due to facility failure or abnormal calling periods. ASC Switch or Network failure or extended outages. SS7 Network failures. Termination of ASC Service.

ATIS-0300027, Part VI, Attachment A, Emergency SS7 Restoration Operations Planning Considerations, of the NIIF Reference Document. The purpose of this document is to provide planning considerations and restoration processes during failures of the Signaling System 7 (SS7) network. There are many potential network events are described that could trigger a potential SS7 outage and the possible remedies for restoral.

ATIS-0300032, Part X, Interconnection Between LECS Operations Handbook – Local Interconnection Service Arrangement, of the NIIF Reference Document. The purpose of this document is to outline the procedures for installation, testing, maintenance and arrangement of local interconnecting service trunks. Included within the document are: Responsibilities for Local Service Customers (LSC) and Local SPs; Telecommunication Service Priority (TSP) guidelines; NXX Code Opening Guidelines; Trunk trouble reporting, trunk make busy, clearance, restoration guidelines.

ATIS-0300048, Industry Numbering Committee (INC) 555 NXX Assignment Guidelines - This document specifies guidelines for the assignment of line numbers within the 555 NXX code. The intended use for 555 numbers for which these guidelines apply include the provisioning of information services but may include a broad range of existing and future services as well. These guidelines currently apply only to the assignment of 555 numbers in geographic NPAs.

ATIS-0300050, Industry Numbering Committee (INC) Carrier Identification Code Assignment Guidelines - This document describes guidelines for the assignment of Carrier Identification Codes (CICs) in the North American Numbering Plan (NANP) area. The assignment practices detailed in these guidelines apply to the assignment of CICs made directly by North American

Numbering Plan Administration (NANPA) to a specific entity. Therefore, the maximum number of CICs an entity may be assigned under these guidelines pertains to the number of CICs the administrator may directly assign to that entity. Accordingly, codes obtained via means other than direct assignment by the NANPA are outside the scope of these assignment guidelines. The requirements specified in these guidelines will apply to all CICs (e.g., the access and usage requirements for retaining CICs) regardless of the manner through which an entity obtained a code.

ATIS-0300051, Industry Numbering Committee (INC) Central Office Code (NXX) Assignment Guidelines (COCAG) - This document specifies guidelines for the assignment of central office (CO) codes. Examples of uses for CO codes (NXX) for which these guidelines apply include plain old telephone service (POTS), Centrex, Direct Inward Dialing (DID), cellular mobile service, pagers, data lines, facsimile, coin phones, and customer owned pay phones. While these guidelines were developed at the direction of the FCC, they do not supersede controlling appropriate NANP Area governmental or regulatory principles, procedures and requirements.

ATIS-0300065, Industry Numbering Committee (INC) Local Routing Numbers (LRN) Assignment Practices - This guideline establishes industry criteria for the assignment and administration of Local Routing Numbers (LRN), a new numbering resource.

ATIS-0300066, Industry Numbering Committee (INC) Thousand Block (NXX-X) Pooling Administration Guidelines - This document specifies guidelines for the process of assigning thousand block (NXX-X) to SPs for use at a switching entity or point of interconnection which they own or control. In addition, these guidelines outline the processes used between the Pool Administrator and Code Holder, Local Exchange Routing Guide (LERG) Assignee, Block Holder, CO Code Administrator, and the Number Portability Administration Center (NPAC). Number Pooling, in the context of these guidelines, allows for sharing of central office codes among multiple SPs serving the same rate area.

ATIS-0325300.2005, Identification of Location Entities for Information Exchange (Revision of T1.253-1999) - This standard defines the format and structure of data elements and the overall code necessary to provide a form of identification of location entities for the purpose of efficient information exchange. It also provides for instances of codes to represent geographical locations (e.g. cities, towns, and communities) within the states and territories of the United States and the provinces and territories of Canada, as well as in other countries and unique designations. This standard also provides information for the assignment of these codes. The provision of instances of the remaining data elements in the overall location code is also described. The remaining data elements needed to complete the assignment of unique location codes are administered by the maintenance agent in concert with its licensed customers. This standard is based on the description and assigned values of CLLI™ codes that are widely used in the industry. (COMMON LANGUAGE® is a registered trademark and CLLI™ is a registered trademark of Telcordia Technologies, Inc.)

ATIS T1.251-2001, Identification of Telecommunications Service Provider Codes for the North American Telecommunications System - This standard provides the specifications and

characteristics of codes used to represent telecommunications service providers operating in North America. Its intended use is to provide a telecommunications standard that facilitates information interchange among humans and machines.

ATIS ANSI T1.111, Signaling System No.7, Message Transfer Part (Includes T1.111a-2002) - This standard is made up of eight chapters. Chapter T1.111.1 provides the functional description of the Message Transfer Part of Signaling System Number (SS7). Chapter T1.111.2 describes signaling data link to be used for SS7 networks in the United States. Chapter T1.111.3 describes the functions and procedures for, and relating to, the transfer of signaling messages over one signaling data link.

Canadian Central Office Code (NXX) Assignment Guidelines (Guidelines) – Canadian Central Office Code (NXX) Assignment Guidelines (Canadian COCAG) - The Canadian Steering Committee on Numbering (CSCN) developed the Canadian Central Office Code (NXX) Assignment Guidelines for the administration of Central Office Codes (CO Codes) within Canadian Numbering Plan Areas (NPA) by a Canadian independent third party administrator called the Canadian Numbering Administrator (CNA). The purpose of the Guidelines is to provide direction to the CNA, Code Applicants, and current and prospective Code Holders with respect to the administration, assignment, activation, and use of CO Codes and the numbering resources contained therein.

FCC 00-104 - FCC Order 00-104 (CC Docket No. 99-200), released March 31, 2000 is the Report and Order and Further Notice of Proposed Rulemaking that addresses FCC decisions, requests comments, and summarizes plans for various aspects of “numbering” (NXX assignments). This order covers issues surrounding Thousands-block number pooling, number utilization tracking, definitions of numbering categories, and other numbering resource issues. The FCC issues such documents, as the case may dictate, to rule on and mandate processes involved with numbering and telecommunications in the U.S. and its territories.

FCC 96-286 - First Report and Order and FNPRM in CC Docket 95-116 (Telephone Number Portability), released July 2, 1996. Appendix B at 52.3(b) adopted June 27, 1996

GLOSSARY

Administrative Operating Company Number (AOCN): A four character numeric or alphanumeric that identifies the administrator of one (or more) data records contained in Telcordia's BIRRDs System. The AOCN further identifies the entity authorized by the Code Holder to input and maintain data into BIRRDs.

BIRRDs - The Business Information Rating & Routing System (BIRRDs) is a centralized database maintained by Telcordia Technologies through which Service Providers (SPs) enter and maintain routing and rating data in support of their NANP numbering assignments. Output from BIRRDs includes the Telcordia LERG Routing Guide and TPM Data Source.

Block Holder - The Service Provider to which a thousands-block (NXX-X) has been assigned for use.

Canadian Central Office Code (NXX) Assignment Guidelines (Canadian COCAG) - The Canadian Steering Committee on Numbering (CSCN) developed the Canadian Central Office Code (NXX) Assignment Guidelines (Guidelines) for the administration of Central Office Codes (CO Codes) within Canadian Numbering Plan Areas (NPAs) by a Canadian independent third party administrator called the Canadian Numbering Administrator (CNA). The purpose of these Guidelines is to provide direction to the CNA, Code Applicants, and Code Holders with respect to the administration, assignment, activation, and use of CO Codes and the numbering resources contained therein.

CAP - Competitive Access Provider - A telecommunications carrier that provides access services which are alternate to (or which bypass) a LEC.

Central Office (CO) Code: The three digit code following the NPA code in a TN, i.e., digits D-E-F of a 10-digit NANP Area address. Central office codes are in the form "NXX", where N is a number from 2 to 9 and X is a number from 0 to 9. Central office codes may also be referred to as "NXX codes"

Central Office Code (NXX) Assignment Guidelines (COCAG) – ATIS Industry Numbering Committee (INC) developed guidelines that address assignment of Central Office (CO) Codes.

CLEC - Competitive Local Exchange Carrier - In the United States, a CLEC is a facility based communications company that competes with the already established local telephone business by providing its own network and switching. The term distinguishes competitors from established local exchange carriers (LECs) and arises from the Telecommunications Act of 1996, which was intended to promote competition among both long-distance and local phone

service providers. Similarly in Canada, CLECs are addressed by Telecom Decision CRTC 97-8, 1 May 1997 (Decision 97-8).

CLLI™ Code - A COMMON LANGUAGE® Location Code (CLLI™ Code) is an eleven-character alphanumeric descriptor used to identify switches, points of interconnection, and other categories of telephony network elements and their locations. For an 11-character location identifier to be termed a CLLI™ Code, it must reside in CLONES. Companies that are subscribers of COMMON LANGUAGE® Location Information Service can refer questions to their company's CLLI™ Code Coordinator.

CLONES - Central Location On-line Entry System (CLONES) is maintained by Telcordia as the registry for the creation and maintenance of CLLI™ Codes by COMMON LANGUAGE® subscribers. For an 11-character location identifier to be termed a CLLI™ Code, it must have been created and currently reside in CLONES. Associated information includes postal code, latitude and longitude, vertical and horizontal coordinates, and switching system type.

CO Code Administrator - Responsible for the administration of the NXXs within an NPA.

Code Holder - An assignee of an NXX code which was allocated by the CO Code Administrator.

Company Code - A Company Code is a unique four-character alphanumeric code (NXXX) assignable to all telecommunications service providers. For purposes of this document N=0-9 and X=0-9 or A-Z.

Effective Date - The date by which routing and rating changes within the PSTN must be complete for the assigned thousands-block or the assigned CO Code. Also, the date by which the thousands-block becomes an active block. (Also referred to as “the LERG effective date.”)

IC (See also IXC) – Interexchange Carrier – A telecommunications company engaged for hire that provides interprovincial/intraprovincial (Canadian), interstate/interLATA (US), or intrastate/interLATA (US) services.

ILEC - Incumbent LEC - The term “incumbent local exchange carrier” means (as stated in FCC 1996 Act, Section 251(h) (1)), with respect to area, the local exchange carrier that on February 8, 1996 provided telephone exchange service in such area; and on February 8, 1996, was deemed to be a member of the National Exchange Carrier Association (NECA) pursuant to section 69.601(b) of the Commission’s regulation (47 C.F.R. 69.601(b)); or is a person or entity that, on February 8, 1996, became a successor or assign of a member described in clause (1). NOTE: The NECA categories of ILEC and RBOC are used in the Telcordia LERG Routing Guide to identify all incumbent exchange carriers. However, to differentiate between the incumbent independent telephone companies and the Bell Operating Companies prior to 1984,

the independent companies are identified by the ILEC category and the Bell Operating Companies are identified by the RBOC category.

INC - Industry Numbering Committee, a standing committee of the Alliance for Telecommunications Industry Solutions (ATIS) that provides an open forum to address and resolve industry-wide issues associated with the planning, administration, allocation, assignment and use of numbering resources and related dialing considerations for public telecommunications within the North American Numbering Plan (NANP) area.

Initial Code - The first geographic NXX code assigned in a unique rate center.

IPES – Internet Protocol Enabled Services – A Service Provider deploying IP-enabled services, including Voice over Internet Protocol (VoIP) services, on a commercial basis to residential and business customers. Company Codes in this Category shall be used to identify IP-enabled Service Providers interconnecting to the PSTN and can be used to enable the deployment of any new IP-enabled service, technology or advanced service. VoIP is transmission of voice (such as ordinary telephone calls) using Internet Protocol.

IXC (See also IC) – Interexchange Carrier – A telecommunications company engaged for hire that provides interprovincial/intraprovincial (Canadian), interstate/interLATA (US), or intrastate/interLATA (US) services.

LATA (Local Access and Transport Area) - Also referred to as service areas by some BOCs, a LATA serves two basic purposes: to provide a method for delineating the area within which the BOCs may offer services and, to provide a basis for determining how the assets of the former Bell System were to be divided between the BOCs and AT&T at divestiture.

LERG – See Telcordia™ LERG Routing Guide

Local Number Portability (LNP) - LNP permits telephone subscribers to retain their telephone numbers should they desire to change local SPs or their location within their Rate Exchange Area.

Local Reseller – An access customer who resells the access service obtained from a LEC.

Location Routing Number (LRN) - The ten-digit (NPA-NXX-XXXX) number assigned to a switch/POI used for routing in a permanent local number portability environment. See “Administrative Numbers” definition.

NANP (North American Numbering Plan) - The North American Numbering Plan is a numbering architecture in which every station in the NANP Area is identified by a unique ten-

digit address consisting of a three-digit NPA code, a three digit central office code of the form NXX, and a four-digit line number of the form XXXX.

NANPA (North American Numbering Plan Administration) - NANPA holds overall responsibility for the neutral administration of NANP numbering resources, subject to directives from regulatory authorities in the countries that share the NANP. NANPA's responsibilities include assignment of NANP resources, and, in the U.S. and its territories, coordination of area code relief planning and collection of utilization and forecast data.

NECA Tariff FCC No. 4 - The National Exchange Carrier Association (NECA) serves as the agent for this Federal Communications Commission (FCC) tariff. This tariff contains SPs' wire center and interconnection information that supports the ordering, billing, and provisioning of interstate access services.

OCN (Operating Company Number) - An Operating Company Number (OCN) is a four place alphanumeric code that uniquely identifies providers of local telecommunications service. OCN assignments are required of all SPs in their submission of utilization and forecast data (FCC 00-104 ¶ 41 and Public Notice DA 00-1549). Relative to CO Code assignments, NECA-assigned Company Codes may be used as OCNs. Companies with no prior CO Code or Company Code assignments should contact NECA at (973) 884-8249 to be assigned a Company Code(s). Since multiple OCNs and/or Company Codes may be associated with a given company, companies with prior assignments should direct questions regarding appropriate OCN usage to the Traffic Routing Administration (TRA) on (732) 699-6700.

PCS - A company that provides an all-digital, higher frequency (1900MHz) alternative to traditional cellular, telecommunications service.

PCS Reseller - A company that obtains numbers from another SP to resell PCS services to its customers.

Point of Interconnection (POI) - The physical location where an SP's connecting circuits interconnect for the purpose of interchanging traffic on the PSTN.

Pooling Administrator (PA) - The term Pooling Administrator refers to the entity or entities responsible for administering a thousands-block number pool (FCC 00-104, §52.7 (g)).

Public Switched Telephone Network (PSTN) - The PSTN is composed of all transmission and circuit switching facilities and signal processors supplied and operated by all telecommunications common carriers for use by the public. Every station on the PSTN is capable of being accessed from every other station on the PSTN via the use of NANP E.164 numbering plan.

Rate Area - Denotes the smallest geographic area used to distinguish rate boundaries.

Rate Center - A geographically specified point used for determining mileage-dependent rates for PSTN calls. A rate center point may be utilized for one or more rate areas.

RBOC – Regional Bell Operating Company - This term is used to identify the corporations (to provide local exchange and certain other services) that resulted from AT&T's January 1, 1984 divestiture.

Revenue Accounting Office (RAO) – A physical location where billing records are processed. An RAO is identified by a three-character numeric or alphanumeric code(s) used to route billing records across different physical locations.

Service Provider - The term “service provider” refers to a telecommunications carrier or other entity that receives numbering resources from the NANPA, a Pooling Administrator or a telecommunications carrier for the purpose of providing or establishing telecommunications service (FCC 00-104, § 52.5 (i)).

Switching Entity - An electromechanical, electronic, or digital system for connecting lines to lines, lines to trunks, or trunks to trunks for the purpose of originating/terminating calls. A single switching system may handle several Central Office (CO) codes.

Tandem Switch - A tandem switch connects one trunk to another and serves as a trunk concentration and distribution function to minimize direct end office interconnection. A tandem switch is an intermediate switch or connection between an originating switch and the final switch call destination. A tandem switch does not allow origination or termination of telephone calls. Tandems serve a designated geographic area consisting of specific rate centers.

Telcordia™ LERG Routing Guide - Contains information about the local routing data obtained from Telcordia's BIRRDs System. This information reflects the current network configuration and scheduled network changes for all entities originating or terminating PSTN calls within the NANP.

Telcordia™ Routing Administration (TRA) - TRA is a Telcordia Technologies organization that centrally collects and disseminates pertinent routing and rating information within the industry and to other parties who may request the data.

TPM™ Data Source - A set of data files issued by Telcordia Technologies, primarily to support call rating. The TPM includes all assigned NPA NXX and thousands-blocks within the NANP with associated data elements that include: OCN, Rate Center, Rate Center Major Vertical and

Horizontal Coordinates, Rate Center LATA , RAO, Placename, state/province/country, daylight savings indicator, time zone, and portability indicator.

Test Number: A three to ten digit number assigned for inter- and intra-network testing purposes.

Thousands-Block: A range of one thousand line numbers within an NPA-NXX beginning with X000 and ending with X999, where X is a value from 0 to 9.

Thousands-Block (NXX-X) Number Pooling - Thousands-block number pooling is a process by which the 10,000 numbers in a central office code (NXX) are separated into ten sequential blocks of 1,000 numbers each (thousands-blocks), and allocated separately within a rate center (FCC 00-104, § 52.20 (a)).

ULEC – Unbundled Local Exchange Carrier – A Competitive Local Exchange Carrier that purchases and combines unbundled network elements from the incumbent local exchange carrier in order to provide telecommunications service to customers. Network elements include the facility or equipment and its features, functions and capabilities used to provide telecommunications service.

VoIP (Voice over Internet Protocol) – VoIP services can be observed in several different scenarios, which operate in static or mobile configurations. First, VoIP can be deployed via cable or Digital Subscriber Loop (DSL) technologies, remain at a fixed location (e.g., a home), and employ the common North American Numbering plan. Second, campus or enterprise VoIP can be established in the traditionally static configuration, with the additional benefit that the end user can easily move his telephone anywhere within the enterprise. Third, an Internet Service Provider (ISP) or carrier offering is expected to support highly mobile VoIP such that the user can plug into any Internet-based connection to obtain voice telecommunications service. Fourth, using IEEE 802.11 Standards functionalities VoIP provides a mobile telephony configuration that allows the user to take a VoIP connection and roam within a wireless interconnected data network, in a manner similar to cellular telephony technologies.

Wireless - A company that provides wireless telecommunications service to customers (e.g., cellular service providers, radio common carriers, paging companies).

Wireless Reseller - A company that obtains numbers from another SP to resell wireless services to its customers.

ACRONYM LIST

ABS	Alternate Billing Services
AIN	Advanced Intelligent Network
ALTS	Association for Local Telecommunications Services
ANSI	American National Standards Institute
AOCN	Administrative Operating Company Number
ASR	Access Service Request
ATIS	Alliance for Telecommunications Industry Solutions
BID	Billing Identification
BIRRDS	Telcordia Business Integrated Routing and Rating Database System
BNS	Bill Number Screening
CABS	Carrier Access Billing System
CAC	Carrier Access Code
CAP	Competitive Access Provider
CGSA	Cellular Geographic Service Area
CIC	Carrier Identification Code
CLEC	Competitive Local Exchange Carrier
CLONES	Central Location On-line Entry System
CMDS	Centralized Message Distribution System
CMRS	Commercial Mobile Radio Service
CNARG	Telcordia® Calling Name Access Routing Guide
CNSS	Telcordia Calling Name Support System
COCAG	Central Office Code (NXX) Assignment Guidelines
EMI	Exchange Message Interface
EMR	Exchange Message Record
FCC	Federal Communications Commission
GTT	Global Title Translation
IC	Interexchange Carrier
ILEC	Incumbent Local Exchange Carrier
IN	Intelligent Network
INC	Industry Numbering Committee
IPES	Internet Protocol Enabled Services

IXC	Interexchange Carrier
LARG	Telcordia® LIDB Access Routing Guide
LASS	Telcordia LIDB Access Support System
LATA	Local Access Transport Area
LEC	Local Exchange Carrier
LIDB	Line Information DataBase
LNP	Local Number Portability
LRN	Location Routing Number
LSMS	Local Service Management System
LSP	Local Service Provider
MECAB	Multiple Exchange Carrier Access Billing
MSA	Metropolitan Statistical Area
NANP	North American Numbering Plan
NANPA	North American Numbering Plan Administration
NARUC	National Association of Regulatory Utility Commissioners
NECA	National Exchange Carrier Association
NIIF	Network Interconnection Interoperability Forum
NPAC	Number Portability Administration Center
NRRIC	Network Routing Resources Information Committee
OCN	Operating Company Number
PA	Pooling Administrator
PBX	Private Branch Exchange
PCS	Personal Communication Service
POI	Point of Interconnection
PSTN	Public Switched Telephone Network
RAO	Revenue Accounting Office
RBOC	Regional Bell Operating Company
RCC	Radio Common Carrier
RSA	Rural Statistical Area
SCP	Service Control Point
SECAB	Small Exchange Carrier Access Billing
SID	System Identification Number
SOA	Service Order Administration
SP	Service Provider

SS7	Signaling System 7 (SS7) signaling protocol
SSP	Service Switching Point
STP	Signal Transfer Point
TRA	Telcordia Routing Administration
ULEC	Unbundled Local Exchange Carrier
USTA	United States Telecom Association
VoIP	Voice over Internet Protocol