

July 16, 2014

VIA ECFS

Ms. Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, DC 20554

Re: *Telephone Number Portability, et al.*, CC Docket No. 95-116, WC Docket Nos.
07-149 & 09-109

Dear Ms. Dortch:

On July 1, 2014, Telcordia Technologies, Inc., d/b/a iconectiv (“Telcordia”) submitted redacted public versions of the bid documents it is making available to those who have signed the *Revised Protective Order* issued in this proceeding.¹ As part of that filing, Telcordia designated a Transaction Network Services (“TNS”) study (T00218-00234) as Confidential in its entirety. Telcordia subsequently obtained TNS’s permission to file the unredacted study in the public record. Telcordia is therefore submitting the attached revised version of the TNS study.

Sincerely,

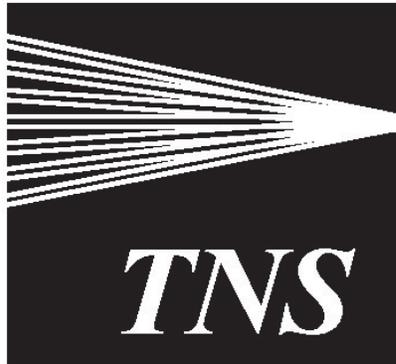
/s/ Mark D. Davis

Mark D. Davis
*Counsel for Telcordia Technologies,
Inc., d/b/a/ iconectiv*

cc: Joel Rabinovitz
Aaron M. Panner
Nancy J. Victory

Attachment

¹ See *Petition of Telcordia Technologies, Inc. to Reform or Strike Amendment 70, to Institute Competitive Bidding for Number Portability Administration and to End the NAPM LLC’s Interim Role in Number Portability Administration Contract, Telephone Number Portability, Revised Protective Order, DA 14-881, WC Docket No. 09-109 & CC Docket No. 95-116* (rel. June 25, 2014).



**Impact of
Multiple Regional NPAC Administrators
to Service Providers**

February 5, 2013

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Chapter 1 - Executive Summary

This report was developed to examine, from a service-bureau service provider perspective, the technical viability of a Local Number Portability delivery model where more than one LNP administrator is selected to provide NPAC services to the industry (maximum of one administrator per NPAC region). Additionally, this report discusses the business and operational impacts and benefits derived from the proposed change to the service provider.

In mid-2012, the FCC released for public comment an RFP for the next generation of the NPAC SMS services. Included in this RFP is a description of a potential change to the NPAC service delivery model which would permit the award of a partial set of the NPAC services (regional award) instead of an award to one administrator to service all seven regions. To assist in understanding the value and impacts that this multi-vendor regional model can afford to local system vendors and the industry TNS determined it should perform this analysis.

Transaction Network Services offers a full-line of LNP service-bureau solutions to its customers across the United States and has worked closely with the LNP industry since its inception in 1997. TNS offers LSMS, SOA, ICP and other services to more than one hundred wireless and wireline operators nationwide. These systems interface directly with the regional NPAC systems or depend on NPAC systems as their reference data source. Any change to the delivery model of the NPAC services has the potential to be disruptive to the TNS operations and the users of the TNS services.

The TNS technical team performed an analysis of the touch points in our systems and processes with the existing NPAC and LNP administrator. Then the team analyzed what impacts or changes would be required if there were two LNP administrators, each supporting three or four NPAC regions respectively. The team looked into the interfacing and interactions with the TNS application operations team, the software development team, the testing team, the network operations team and the business support teams.

The touch point analysis identified four categories of tasks that will likely require some incremental effort or cost to overcome:

1. Tasks that are expected to require changes to existing processes and procedures to fulfill the specific needs of the two LNP administrators. With one administrator one set of process and procedures would apply to all NPAC regional systems and administrators.
2. Duplicate or redundant tasks that must be performed at least once for each administrator. In a single administrator model, many of these tasks would only be required to be completed once.
3. Tasks which are more complex due to planning and coordination issues between the two administrators. A one administrator model would not have the coordination issues expected with two administrators.
4. Increased infrastructure and connectivity costs to the two LNP administrators as compared to one.

The team also identified several benefits that the industry might reasonably expect to derive long-term advantage from, these include:

1. Promote new technology and technical innovation in the NPAC application. This includes the development of new application features, usability improvements, simplified or automated application functionality and performance improvements.

-
2. Introduction of competitive bidding for the NPAC service offerings. Competitive bidding should lower the costs of the NPAC services reducing barriers for new entrant service providers.
 3. Reward LNP administrators who provide a greater level of customer service and support offerings which promote customer satisfaction.

Overall, the TNS team has determined that a multiple LNP administrator model is a technically viable implementation model. There were no “show-stopper” or major technical or operational issues identified. Nearly all operational and functional issues expected to be introduced by the change were categorized as having minor mitigation efforts. The biggest concern of the TNS team is insuring that the functional rigors and performance demands of the industry are met prior to the first production implementation.

The benefits of a multiple LNP administrator model holds significant promise for a more advanced, innovative, user-friendly and economical NPAC solution. Because of the unique role of the NPAC application to the service providers, the NPAC’s future capabilities should not be encumbered or limited by the technological or innovation boundaries of a single exclusive NPAC vendor – be it either the incumbent vendor or a new entrant vendor. This is especially true as the US moves from a TDM to IP ecosystem.

The TNS team supports the proposed NPAC service delivery model with more than one LNP administrator. We believe the long-term benefits to the industry outweigh the short-term impacts and costs.

Chapter 2 - Purpose

In July 2012, the FCC and its Advisory Committees published the ‘2015 LNPA RFP,’ which describes the vendor selection process for the next-generation of NPAC/SMS. The current contract expires on June 30, 2015.

The RFP describes a change in the proposed service delivery model that is documented in section 14.1. It reads:

A Respondent may submit proposals for one, all, or any combination of some but not all of the seven Regions, either individually or in combinations. A Respondent may submit proposals for one or more Regions individually (each referred to as a “Regional Proposal”), for one or more combinations of Regions together, either for fewer than all Regions (each referred to as a “Partial Combined Proposal”) or for all seven Regions (referred to as a “Full Combined Proposal”). In addition to being evaluated as individual Regional Proposals, all of a Respondent’s Regional Proposals automatically shall be combined and evaluated as Partial Combined Proposals and, if for all Regions, as a Full Combined Proposal, unless a Respondent expressly submits one or more Partial Combined Proposals or a Full Combined Proposal covering the same Regions, or the Respondent expressly limits any of its Regional Proposals from being evaluated as Partial Combined Proposals and, if for all Regions, as a Full Combined Proposal.

The change described in this section potentially affects how the NPAC/SMS contract may be awarded and operated. Currently, one NPAC administrator manages all seven NPAC regions (systems). The verbiage of the RFP describes several different NPAC implementation models which the advisory committee may consider, including:

1. One respondent may submit a ‘Regional Proposal’ for the administration of one or more NPAC regions.
2. One respondent may submit a ‘Partial Combined Proposal’ proposal for fewer than all of the NPAC regions.
3. One respondent may submit a ‘Full Combined Proposal’ for the administration of all of the NPAC regions.

This implies that starting in July 2015, there could be as many as seven NPAC/SMS administrators, depending on the evaluation of the components and merits of the respective vendor’s proposals.

Any change in the number of NPAC administrators may result in changes to the service providers’ daily methods and procedures as they interact with multiple NPAC systems and LNP administrators with different operating procedures.

The purpose of this document is to describe the impacts to the business and operations of a service provider when more than one NPAC administrator is active in the industry.

Chapter 3 - Transaction Network Services

Who is Transaction Network Services?

Since the mid-1990's, Transaction Network Services (TNS) has been a leading provider of signaling, interoperability, risk mitigation, and information validation solutions to the telecommunications industry. Today, TNS continues to lead by delivering innovative solutions that enable the TNS customers to increase their competitive edge and improve their bottom line.

TNS offers simple, service-oriented solutions to complex problems. TNS has gained expertise in understanding the types of problems that customers typically encounter in their respective industries, ensuring that the TNS solutions will fit their specific environment and can be integrated seamlessly and cost-effectively within their business processes.

As a single-source provider of the full range of Signaling Systems 7 (SS7)-based services that industries demand today, TNS systems are interconnected with other SS7 networks nationwide and can provide access to virtually any SS7 legacy or IP network. By partnering with TNS, customers can enhance their services and offer additional value to their subscribers. Each year, TNS processes billions of inquiries to industry-leading intelligent databases, providing access to more than 300 million listings. Customers can use TNS services to validate information and minimize exposure to loss from un-collectibles with full confidence that the information they receive is the most accurate and current available.

TNS commits to service excellence by incorporating industry-leading service level standards in every agreement. TNS' innovative solutions, industry expertise, unique technology, and commitment to best-in-class service make TNS the smart choice for communications services for the telecommunications and financial services industries.

TNS and Number Portability Services

Since the inception of Number Portability in the United States in 1997, TNS has been a leader in providing an end-to-end service-bureau of Number Portability solutions for customers, including fully integrated systems and interfaces for wireless, wireline, and inter-modal operators. TNS manages the connections to all seven regional Number Portability Administration Centers (NPACs) in multiple systems. In some cases, TNS builds and maintains its own hardware and software systems, and in other cases, purchases third-party (vendor supplied) software systems to perform Number Portability operations and provide contracted services. TNS Number Portability services reside on a private network infrastructure, widely accessible via SS7 or IP protocols.

Over 100 service providers in the United States entrust TNS for their LNP solutions. The value to TNS customers is a combination of technology, process knowledge, and business domain expertise of the LNP industry. The TNS service bureau approach allows service provider customers to reduce management of complex and expensive hardware and software systems.

TNS offers a turn-key solution for all critical elements to perform LNP operations, or customers can purchase a subset of the services that TNS offers.

Some of the more popular hosted LNP services include:

- Local Service Management System (LSMS)

The TNS LSMS helps ensure the accuracy of data records with real-time downloads that flow seamlessly from the NPAC to the TNS LSMS and are provisioned to the TNS Number Portability database.

- Service Order Administration (SOA)

The TNS SOA provides a single, full-featured interface with all of the regional NPACs. The TNS SOA implementation supports GUI/web access or direct access via published APIs. The TNS SOA handles service-provider order entry and provisioning of ported numbers from all Metropolitan Statistical Areas (MSAs) with the appropriate regional NPAC. Real-time NPAC notifications and standard or custom reporting options help to track the TNS client's porting activity.

- Wireless Intercarrier Communications Process (ICP)

The TNS industry-compliant ICP helps TNS wireless clients achieve pre-port intervals that the industry requires. The TNS ICP system's front-end field validation increases accuracy and enhances processing of customer and trading partner requests by reducing halted or stalled porting activity and associated delayed billing and activation.

- Wireless Number Portability-Local Service Request (WNP-LSR)

The TNS WNP-LSR supports wireline-to-wireless port-in scenarios, serving as a single interface with wireline trading partners. The WNP-LSR simplifies and streamlines the porting process, alleviating the need to switch between several applications.

- Line Ownership Validation Service (LVS)

The TNS LVS allows TNS customers to validate TN ownership and obtain the Service Provider ID (SPID) for ported, non-porting, and pooled numbers prior to submitting a port request, helping to reduce failed requests.

Chapter 4 - Impact on Operational Areas

The change described in section 14.1 of the 2015 LNPA RFP describes a new NPAC service delivery model. The new proposed delivery model has impacts to several of the TNS business operational groups.

This section describes the impacts to the internal business groups at TNS. Some of the impacts in the following lists affect more than one group within the organization.

For each NPAC function identified as being impacted in the following section the size of the impact and a potential mitigation strategy are provided.

Impacts on the Application Support Team

The TNS LNP Application Support team provides operational support for applications that are actively used for LNP service delivery. This team is responsible for the daily operations of the LNP systems, including configuration changes, restoration of application failures, application administration, maintenance, system enhancements and upgrades, troubleshooting, customer outreach, documentation and reporting, training, client relations, and product management. This internal TNS team would be impacted the most compared to the other areas in TNS by any change to the NPAC implementation or NPAC service delivery model, as they are the primary externally-facing group to the NPAC.

Managing contact with multiple NPAC administrators

In an NPAC model with multiple LNP administrators, the Application Support Team will be required to manage interactions with multiple LNP administrators for many operational activities. Some of these interactions include:

- Interacting with the NPAC Application Support

Frequency of use – The TNS application support team communicates with the NPAC support team approximately 2-4 times per week across all seven NPAC regions.

- Interacting with the NPAC Customer Management Subject Matter Expert regarding LNP process

Frequency of use – Approximately two times per year.

- Requests for Mass Update Requests

Frequency of use - Rarely requested by the TNS team.

- Ad-hoc Report Request

Frequency of use – Most frequently requested when TNS performs an LNP service turn-up for a new SOA customer.

- Resolution of Local System and NPAC Porting Errors

Frequency of use – Typically 1-2 times per week.

- Restoration and Management of Application and Network Outage Activities

Frequency of use – Less than one per month, on average.

- Creation and Administration of Network Connections to Multiple NPAC Administrators

Frequency of use – When TNS initiates providing service to a new SOA customer, a change to the connection configuration is required at the NPAC. During the initial turn-up of a new NPAC administrator, all new configurations would require modification. Typically, TNS would initiate a configuration change with the NPAC administrator 2-3 times per month.

In total, the Application Support team is in contact with the NPAC representatives about 3-5 times a week. We believe that the total number of interactions with the NPAC would not be increased beyond the current level though the instances of contact would be distributed between each of the LNP administrators. The application support team will create new processes to insure that the correct LNP administrator is contacted for a particular incident related to a regional system. Any impact would be eliminated over time as the team becomes familiar with the new contact method and procedures. Managing multiple LNP administrators would include keeping track of multiple support telephone numbers and email addresses, one (or more) for each LNP administrator, and conforming to different method and procedure processes that may be required for each LNP administrator. TNS would expect the contact methods and procedures to be very similar across LNP administrators for these tasks. TNS will work with the industry to insure that all LNP administrators work together to create common methods and procedures for the service providers.

Managing access to multiple NPAC administrators

In a model with more than one LNP administrator, the Application Support Team will be required to manage access and/or connect to servers on multiple NPAC administrators' systems. This may include URLs, IP addresses, Passwords and Security Tokens.

- Managing SFTP Access to Servers

Exchange of Security Keys, Download of SPID Migration files, Download of Bulk Data Download files, Download of NPAC Error code files

Frequency of use – SPID migrations occur three of every four weeks. Exchange of Security Keys and Bulk Data Download files are most frequently needed during an initial turn-up for a new LNP customer. Error code files change and are distributed to the service providers about once a year.

- Managing Access of the official NPAC Web Site (www.npac.com)

Frequency of use – Infrequently

These connectivity and access issues, while they do exist, are very minor in scope. The TNS team will make changes to existing Methods and Procedures documentation to reflect the new addressing and password/authentication requirements needed to access the new LNP administrator servers. No incremental staffing or significant process changes will be made to accommodate these changes.

Redundant or Duplicate Tasks

In a model with more than one LNP administrator, the Application Support Team will be required to perform some functions one or more times, once for each NPAC administrator. In a single NPAC administrator model, the operations in the following list will likely be performed one time for all NPAC regions. The implementation of each NPAC administrator will likely be unique or NPAC-administrator specific.

- Management of NPAC Profile Forms and Formats

Frequency of use – Anytime TNS prepares to provide service to a new SOA customer, there is a change to the NPAC Profile Forms. This will occur during the initial NPAC turn-up and at various other times during the operation of the TNS LNP systems.

- Managing NPAC Software updates

Frequency of use – During the initial NPAC software turn-up and approximately once per year to support normal NPAC roadmap development updates.

- Impacts on Testing Operations
 - Interoperability Testing, Performance Testing, Failover and Disaster Recovery Testing, Intercompany or Group (Service Provider to Service Provider) Testing
 - NPAC Server Access for Testing
 - Implementation and Management of NPA-NXX Filters

Frequency of use – During the initial NPAC software turn-up and approximately once per year to support testing efforts associated with planned NPAC software updates. Some of these activities, such as testing, take 3-5 days per application being tested.

Some duplicated or redundant tasks will be required for the service providers in a multiple LNP administrator model. The daily operational impact of such tasks is expected to be very small. However, during the development and testing phases of new software releases, we have estimated that the service providers would be required to allocate 5-10 additional days to support the incremental efforts associated with the execution of test cases on multiple NPAC systems. The impact of testing with multiple NPAC systems can be mitigated by allowing the appropriate time in the project plan to support those tasks. TNS will work with the industry to insure we collectively allocate enough time during the turn-up of new software to accommodate the work with multiple LNP administrators.

Coordination Issues

In a model with multiple LNP administrators, the Application Support Team may be required to coordinate and schedule activities for each of the NPAC administrators. It is possible that each of the NPAC administrators may make changes or deployment plans that interfere with one another, or interfere with other TNS systems. It is important that the Application Support Team understands the interactions and impacts of these activities and coordinates the activities across all related systems, both internal and external. These include:

- Application of NPAC Software Updates

Frequency of use – Approximately once per year.

- Preparation and Distribution of a Common List of Application Error Codes

Frequency of use – Approximately twice per year.

- More diligent creation of NPAC Software Requirements and Change Control process

Frequency of use – Approximately once per year.

- Common Maintenance Window Administration across LNP administrators

Frequency of use – Every weekend.

- Common planning for SPID Migration Activities

Frequency of use – Three weekend maintenance windows per month.

- Coordination of Scheduling of Large Port Requests

Frequency of use – One per week. TNS rarely initiates large port requests. TNS systems must manage large port requests initiated by other service providers in the region.

The coordination issues described above can be easily mitigated by minor changes to the industry ‘best practices’ requiring the LNP administrators to synchronize the planning and scheduling of these tasks with one another. If typical planned activities like SPID migrations, maintenance windows, and large port requests are adequately coordinated by the LNP administrators so that SPID migrations occur on the same week-ends, and maintenance windows are common across all administrators, the impact on the service providers would be very minor. Only minor changes to the TNS methods and procedures documentation would be required to insure that the correct LNP administrator’s procedures are followed and the correct regional systems are accessed and updated. TNS will work with the industry to insure these activities are coordinated.

Impacts on Application Software Development Team

The TNS Application Software Development Team is responsible for the development and support of software systems that interface with the NPAC application. The applications developed by the TNS development team are required to interoperate with all of the NPAC applications developed by the LNP administrators. The issues that most impact this team are:

- NPAC Software Requirements and Change Control

Frequency of use – Only during initial NPAC application turn-up, and for each subsequent new release of NPAC software.

- Subject Matter Expertise for technical or development questions

Frequency of use – Only during initial NPAC application turn-up, and for each subsequent new release of NPAC software.

- Interoperability Testing

Frequency of use – Only during initial NPAC application turn-up, and for each subsequent new release of NPAC software.

The three areas of concern that affect the TNS development team are all related to the changes of the NPAC software where the requirements, implementation, and testing of new functionality which introduce requirements which are “subject to interpretation”, and therefore are the source of rework or re-testing for TNS development and/or testing resources. These tasks can be mitigated by more thorough requirements analysis and longer project schedules which allow for more time for analysis and potential development rework and increased testing. TNS will work with the industry to insure that additional time is allocated, and a more thorough requirements analysis is performed for new feature development.

Impacts on the Network Operations Center (NOC)

The TNS NOC monitors many of the systems that support LNP operations and is staffed 7X24 hours. In many cases, the NOC becomes the contact point for outside organizations such as the NPAC administration representatives if the NPAC recognizes a problem that requires immediate attention, typically network or connectivity issues. In a model with multiple NPAC administrators, the TNS NOC would be required to manage service-affecting incidents from multiple NPAC administrators.

- Contact from multiple NPAC administrators

Frequency of use – The TNS NOC is contacted by the NPAC administrator with these kinds of issues very infrequently. Contact from the NPAC administrator would typically occur only a few times per year.

The TNS NOC team will be required to understand and take corrective action based on which NPAC administrator has contacted them in these scenarios, and take the appropriate steps to

resolve the issues reported by the NPAC administrators. The issue would be mitigated by documentation changes to the NOC methods and procedures.

Impacts on the TNS Business Support Teams

The TNS Legal, Finance and Accounting teams manage vendor contracts and administer the payments to the NPAC administrators for work that is completed.

- Billing Activities

Frequency of use – The TNS business support teams interact with the NPAC representatives about two times per year.

- Service Provider Advocacy

Frequency of use- Only during national emergency situations.

The issues described in this category occur very infrequently. The TNS business support team would be required to understand which NPAC region is involved with the issues in question, which would dictate which LNP administrator to contact. There would be no expected methods and procedures changes or impacts associated with more than one LNP administrator.

Other Impacts or Considerations

The analysis above assumes an NPAC service delivery model with no more than two LNP administrators. Adding additional LNP administrators beyond two (the RFP would appear to support up to seven administrators) would complicate some components of the implementation significantly. For example, the impacts on the TNS software development team to implement and test with two LNP administrators would appear manageable, but integrating with seven LNP administrators would be much more time intensive, complex and may ultimately become unmanageable.

Chapter 5 - Conclusions

Impact Summary

Any change to the current NPAC model where one LNP administrator manages all seven regions would have some Method and Procedures impacts to the service providers if the service delivery model was changed to include multiple LNP administrators. The most significant impacts would be on the technical staff associated with the support of the TNS internal applications and automated interfaces. Other impacts would be felt in many other organizations within the company.

The issues identified in Chapter 4 can be placed into two categories. Some of the impacts to the methods and procedures would be realized only during the initial turn-up of the new LNP administrator and NPAC application. Others would be perpetual or on-going operational (daily) impacts. The turn-up activities prior to and associated with the initial implementation of the new NPAC application by a new LNP administrator would be the most impactful to the TNS team from a time and personnel perspective.

Several industry well-established methods and procedures could become more complex without some modifications to the overall NPAC best practices. Other procedures may require more manual intervention and interaction and become vulnerable to human error.. The impact of these can be minimized by changes to the service provider's and industry methods and procedures.

The development of a new NPAC application is a very large software development, test and implementation project. A successful production implementation may take several incremental software releases over a period of months to identify and fix all application defects that are likely to exist in a new NPAC application. Thorough testing throughout the development and delivery process would be very important. The new LNP administrator(s) must take every possible precaution to eliminate any disruptions to the successful porting operations supported by the NPAC application.

Based on the current understanding of the proposed NPAC service delivery model and analyzing the impacts on the TNS service bureau operation, an NPAC model with more than one LNP administrator would be a technically viable implementation. The costs associated with a service delivery model with more than two LNP administrators may become cost prohibitive as more and more LNP administrators are awarded administrative regions in the industry (up to seven). At this time TNS would not be an advocate for more than two LNP administrators.

Conclusion

The TNS evaluation of this service delivery model has determined that while there would be some incremental cost to support the change it would not be prohibitive. We estimate that no new additional employees would be required to support the proposed new LNP administrator model. No new significant customer care initiatives or processes would be required to support the new NPAC service delivery model. TNS will leverage its existing number portability resources who currently operate under the regional porting model today. It would essentially be "business as usual," with some minor changes to the established TNS methods and procedures.

The proposed new service delivery model with more than one NPAC administrator would be expected to bring competition to the delivery of the NPAC services. Competition between the LNP administrators would motivate the respective administrators to gain a competitive edge in their service delivery models such as:

1. Promote new technology and technical innovation in the NPAC application. This will result in the implementation of new application features, simplified or automated application functionality and performance improvements which improve usability and productivity.
2. Introduction of competitive bidding for the NPAC service offerings. Competitive bidding should lower the costs of the NPAC services reducing barriers for new entrant service providers.
3. Reward LNP administrators who provide a greater level of customer service and support offerings which promote customer or end-user satisfaction.

Alternatively, the proposed NPAC service delivery model introduces several concerns or impacts to the service providers. These include:

1. Disruption to the stability of the NPAC application in a given region and the industry as a whole if the new LNP administrator(s) do not provide quality solutions in their new NPAC applications.
2. Increased costs for the purchase and management of additional leased lines (T1) and network terminating equipment to support connectivity to a new (additional) LNP administrator's applications.
3. Methods and procedures changes and increased complexity in supporting more than one LNP administrator's service delivery model and NPAC application.

Overall, the TNS team has determined that a multiple LNP administrator model is a technically viable implementation model. There were no "show-stopper" or major technical or operational issues identified. Nearly all operational and functional issues expected to be introduced by the change were categorized as having minor mitigation efforts. The biggest concern of the TNS team is insuring that the functional rigors and performance demands of the industry are met prior to the first production implementation.

The benefits of a multiple LNP administrator model holds significant promise for a more advanced, innovative, user-friendly and economical NPAC solution. Because of the unique role of the NPAC application to the service providers, the NPAC's future capabilities should not be encumbered or limited by the technological or innovation boundaries of a single exclusive NPAC vendor – be it either the incumbent or a new entrant.

The TNS team supports the proposed NPAC service delivery model with more than one LNP administrator. We believe the long-term benefits to the industry outweigh the short-term impacts and costs.

Chapter 6 - Glossary

The following table lists and defines acronyms and terms used in this document.

Term	Definition
API	Application Programming Interface
FCC	Federal Communications Commission
ICP	Inter-carrier Communication Process
IP	Internet Protocol
LNP	Local Number Portability
LNPA	Local Number Portability Administration
LSMS	Local Service Management System
LSR	Local Service Request
LVS	Line Validation Service
NPAC	Number Portability Administration Center
RFP	Request For Proposal
SMS	Service Management System
SOA	Service Order Administration
SS7	Signaling System 7
TN	Telephone Number
TNS	Transaction Network Services
WNP	Wireless Number Portability
XML	Extensible Markup Language