

REPORT ON NATIONWIDE NUMBER PORTABILITY

BY THE NORTH AMERICAN NUMBERING COUNCIL

MAY 16, 2016

BACKGROUND:

In a letter from Matthew DeNero, Chief, Wireline Competition Bureau to Betty Ann Kane, Chairman, North American Numbering Council (“NANC”), dated November 16, 2015, the Federal Communications Commission (“FCC”) requested the NANC to evaluate and develop recommended actions “to enable nationwide number portability through technical modifications to the Location Routing Number (“LRN”) system used to route wireless- and wireline- originated calls to ported numbers.” (Exhibit 1). The FCC requested the NANC to submit progress reports every 45 days and a Final Report by May 16, 2016.

The request for the NANC to evaluate and develop recommended actions in this matter was discussed by the full body at the NANC’s December 1, 2015 meeting. The NANC determined that the most effective and efficient means to provide the advice requested within the required time frame was to utilize the NANC’s existing working groups. Following and in accordance with that discussion, Chairman Kane assigned responsibility for the reviewing and making recommendations on the various issues that the FCC requested the NANC to address to three of the NANC Working Groups as noted:

1. Potential impacts to the life of the North American Numbering Plan (Numbering Oversight Working Group (“NOWG”));
 2. Numbering Resource Utilization and Forecasting form impacts (Numbering Oversight Working Group);
 3. Applicability and assessment of tolls, tariffs, and taxes (Future of Numbering Working Group (“FON WG”));
 4. The role of state regulatory commissions (Future of Numbering Working Group);
 5. Costs, including cost recovery (Future of Numbering Working Group);
 6. Conforming edits to relevant federal rules (Future of Numbering Working Group);
- and

7. How long will the need for LRNs continue to exist once voice over internet protocol (“VoIP”) interconnection is fully implemented, including an analysis of the role of LRNs for carriers that implement both time division multiplexing- (“TDM”) and VoIP-based interconnection during the VoIP interconnection transition (Local Number Portability Administration Working Group (“LNPA WG”)).

ISSUE ASSESSMENTS AND RECOMMENDATIONS:

ISSUE 1:

What are the potential impacts to the life of the North American Numbering Plan when Nationwide Number Portability is implemented?

RESPONSE:

Recognizing the subject matter expertise that the North American Numbering Plan Administrator (“NANPA”) and the ATIS Industry Numbering Committee (“INC”) have on these topics, the NOWG asked the NANPA for its input on Issues #1 and #2, and asked the ATIS INC for its input on Issue #1. The ATIS INC first reviewed the NANPA’s input provided to the NOWG, and then responded to the NOWG that the ATIS INC agreed with the NANPA’s assumptions and input related to both issues.

In examining this issue, NANPA based its assessment on the impact of non-geographic number portability on the North American Numbering Plan (“NANP”) exhaust.¹ NANPA used the definition of Non-Geographic Number Portability (“NGNP”)² contained in the [NANC LNPA Working Group’s White Paper on Non-Geographic Number Portability](#).³ In this White Paper, NGNP:

“refers to the ability of users of telecommunications services to keep their assigned telephone numbers when relocating within the United States, regardless of the Rate Center associated with the phone number’s origin, or the distance between the associated Rate Center and the end user’s physical location. In other words, an end user could retain a phone number when moving

¹ Non-geographic number assignment is not addressed in this paper.

² It should be noted that NGNP and Nationwide Number Portability (“NNP”) are considered to be two synonymous terms, but it has become the preference of the NANC Working Groups to use the term NNP.

³ “*White Paper on Non-Geographic Number Portability*”; North American Numbering Council, Local Number Portability Administration Working Group; February 19, 2015.

to a new physical location within the same local access transport area (LATA), within the same State or in a different State.”

The NANPA documented the assumptions it used to provide its input to the NOWG (Exhibit 2).

After reviewing the NANPA's and ATIS INC's input and agreeing that the assumptions documented were reasonable, the NOWG concludes that the implementation of NNP is unlikely to have a significant positive or negative impact to the life of the NANP.

However, if a new technical routing solution is developed that requires service providers to need to establish additional LRNs, then assignment of additional central office codes to facilitate those additional LRN needs could negatively impact the lives of particular NPAs and the overall life of the NANP.

RECOMMENDATION:

No action is recommended at this time.

ISSUE 2:

What impact will the implementation of Nationwide Numbering Portability have on the FCC's Numbering Resource Utilization and Forecasting ("NRUF") Form ("Form 502")?

RESPONSE:

In examining this issue, the NANPA again based its assessment on the impact of NGNP on the NRUF using the same definition of NNP as defined above, and documented the assumptions it used to provide its input to the NOWG. (Exhibit 2)

After reviewing the NANPA's and ATIS INC's input and agreeing that the assumptions documented were reasonable, the NOWG agrees that there would be no changes in the assignment process of resources to service providers, and that ported out numbers would continue to be reported as Assigned by the block holder or code holder on the NRUF Form 502. As such, the NOWG concludes that there would be no impact to the NRUF Form 502 as a result of the implementation of NNP.

RECOMMENDATION:

No action is recommended at this time.

ISSUE 3:

What impact will the implementation of Nationwide Numbering Portability have on the applicability and assessment of tolls, tariffs, and taxes?

RESPONSE:

In support of this task, the FON WG concluded that it was appropriate to make the following assumptions to enable the required evaluation and development of recommendations:

Assumption #1: When the consumer engages in NNP they physically move and their interconnect point is associated within their new geographic location.

Assumption #2: A consumer who engages in NNP will be considered as being subject to the new local governments' (porting to a different rate center or LATA within the same state) or new state's laws/regulation(s).

Assumption #3: NNP should be implemented up to and including crossing state lines (i.e. porting from CA to NY).

Assumption #4: The use of LRNs shall continue until such time that alternate preferred industry technical solutions for NNP are defined, adopted, and implemented.

In support of this task, a Subgroup comprised of state regulators and representatives from incumbent competitive telecommunications service providers and vendors was established by the FON WG to support the development of an initial assessment regarding whether the implementation of NNP would have potential impact upon existing telecommunications taxes, fees, surcharges, tariffs and tolls.

Based on the aforementioned assumptions and other NNP implementation parameters, the Subgroup found there are likely impacts in the following areas:

Mandated Fees and Surcharges assessed upon Telecommunications Services based upon Physical Address⁴:

⁴ Both the wireless industry and interconnected VoIP service providers rely upon different state and federal statutory and regulatory requirements associated with the assessment of such fees. The wireless industry relies upon the Mobile Telecommunications Sourcing Act ("MTSA") which states that a customer's home service provider will be subject to the states sales and use tax regardless of where transmissions originate or terminate within the home service provider's licensed service area. This act determines that mobile communications services are taxable at the location of the customer's "primary place of use". This is the residential or business address of the customer, which must be located in the service provider's licensed service area (P.L. 106-252; Effective: August 1, 2002). Customers of interconnected VoIP service providers self-identify an address to the VoIP service provider for the assessment of such fees consistent with FCC Order 05-166 (WC Docket Nos. 04-36 and 05-196; Released: June 3, 2005).

Any mandated fee or surcharge assessed by a segment of the telecommunications industry which relies upon the physical address of the service location, will be impacted by NNP. For example: mandated 911 service, state universal service, and telecommunications relay service fees for all segments, except for wireless and interconnected VoIP services, rely upon the physical address of the service location. Enabling a wireline or wireless service customer to port their telephone number to another rate center, LATA or state, will likely preclude the original assessing jurisdiction for such fees to retain such assessment jurisdiction based on the original physical location of the service even though the telephone number's area code and exchange code appear to be tied to the original service location.

Mandated State and Local Sales Taxes⁵:

Mandated state and local sales taxes are assessed based upon the use of such goods and services within a given jurisdiction. As previously noted, for wireless services the state and local sales taxes are assessed in accordance with the MTSA which prescribes that mobile telecommunications services are taxable at the location of the customer's "primary place of use".⁶ Whereas, for wireline services the state and local sales taxes are assessed based on where the call originates; or, if unable to be determined, based on where the call is billed.

The FON WG's Subgroup preliminarily concluded that it is very likely that NNP may adversely impact the current assessment methods for state and local sales taxes. While it is reasonable to assume that wireless service providers will continue to assess state and local taxes in accordance with the MTSA and companion state tax laws and regulations for customers' wireless and wireline numbers that are ported, pursuant to a NNP capability, to a new geographic location for the "primary place of use". However, enabling a wireline or wireless service customer to port their telephone number to a wireline service provider in another rate center, LATA or state, will likely preclude the original tax assessing jurisdiction to retain such assessment jurisdiction based on the original physical location of the service or billing address even though the telephone number's area code and exchange code appear to be tied to the original service location. Further, certain segments of the industry and, in the foregoing assessment

⁵ Wireless and interconnected VoIP service providers' customers are assessed differently, as previously noted, in relation to 911 service, state USF and TRS fees. The assessment of those state and local sales taxes upon wireless service relies upon the MTSA; and, a VoIP service customer self-identifies to the VoIP service provider its service address for the assessment of sales taxes.

⁶ Forty-eight states, including the District of Columbia, have enacted legislation which complies with the MTSA. Maryland and West Virginia used non-legislative action to comply. Source: Sales Tax Institute; <http://www.salestaxinstitute.com/resources/news/mobile-telecommunications-act> Updated to reflect Montana's adoption of the MTSA; http://revenue.mt.gov/home/businesses/misctaxes_fees#Telecommunications-Taxes-and-Fees-731

scenarios, the originating physical service location, billed location of the call, or “primary place of use” may be in a previously unknown rate center, LATA or state than currently supported by the service provider’s operating and back office systems. Thereby, requiring significant costs and adjustments to such providers’ systems to ensure compliance with the proper taxing authority, among other regulatory concerns.

Intrastate Tariffed Telecommunications Services:

The timing of any NNP implementation will likely require detailed consideration and actions by service providers and state regulators to address its impact on certain intrastate tariffed telecommunications services, including potential revisions to existing tariffs or the elimination of certain tariffed arrangements which rely upon the previous geographic association of the telephone number or where the local calling has been modified to support broader benefits to consumers. For example: Extended Area Service (“EAS”), which is typically a tariffed service that enables all calls with a defined geographical boundary (in certain instances the boundary can include multiple rate centers, LATAs and state boundaries) to remain local and free of toll charges, will likely require review and potential modifications with the implementation of NNP. In addition, the implementation of NNP will also require review by both service providers and state regulators as it relates to the existence of any current tariffed intrastate service, including mileage based services, tiered basic services, and tiered calling rates, since a significant number of tariffs continue to exist that relate to not only the geographic association of the call but also the distance measurements related to such calls. The extent to which these arrangements are impacted by NNP will require review on a case by case basis. Beyond technical tariff issues, impacts on customers, including consumer confusion over what constitutes a local or toll call and education efforts relating to any revisions thereto, must be examined and addressed.

Intrastate Toll Telecommunications Services:

The timing of any NNP implementation will likely require consideration and potential action by service providers and state regulators regarding any existing toll service arrangements, particularly any toll service arrangement which relies upon the geographic association of the telephone number. Note the fact that further transition of federal Intercarrier Compensation Reform (i.e. implementation of Bill and Keep) and also those remaining Intercarrier Compensation elements that are not subject to such a transition must also be considered in the context of this potential impact from NNP.

RECOMMENDATION:

Based on the analysis of this issue, the implementation of NNP would have potential adverse impacts upon the assessment, collection and remittance of certain existing

telecommunications taxes, fees, surcharges, tariffs and tolls, in particular those assessed, collected or which are based exclusively on geography.

Accordingly, the NANC recommends that the FCC undertake a more detailed public inquiry to enable evaluation of this information by individuals and organizations with broad tax and tariffing expertise within the telecommunications industry at the state and federal level.

ISSUE 4:

What is the role of state regulatory commissions in implementing Nationwide Numbering Portability?

RESPONSE:

In evaluating the role of state regulatory commissions, the FON WG benefitted throughout this process from regular representation from several state public utility commission representatives from across the country. Those representatives routinely noted the fact that each state has its own unique authority and jurisdiction over the regulation of the telecommunications industry and public safety services (i.e. 911/NG911)' and that such roles evolve frequently based on changes in state laws. Therefore, as a general matter the regulations and processes impacted by NNP will likely vary state by state. However, in an effort to support a general overview of NNP's potential impacts, the following items were noted as likely to need further detailed evaluation and consideration by relevant regulatory bodies in a given state, among the carriers operating in multiple jurisdictions and other stakeholders:

State Regulatory Roles Potentially Impacted & Required with NNP:

Tariffs and Rulemaking:

Each state has its own specific methodology for rulemaking and tariffing. With NNP these processes may require some changes to accommodate an interstate program and rules.

State Coordination & Collaboration:

Since each state creates its rules based on state law, the establishment of consistent rules and common practices for NNP would minimize consumer confusion and industry coordination.

Ten Digit Dialing:

Additional public comments are needed on whether a uniform national dialing plan is required with the implementation of NNP so as to determine what actions, if any, may be required or individually available to a state public utility commission.

Customer Complaints⁷:

Since not all carriers operate throughout the United States, management and coordination of customer complaints and resolution among state public utility commissions will need to be considered and potentially addressed in an NNP environment.

Public Safety:

It is critical that all 911/NG911 and public safety answering points coordinate and collaborate to provide seamless services in a NNP environment. Since many state public utility commissions do not have the authority to manage such activities, the FCC will need to address and ensure that the appropriate state regulatory bodies, with jurisdiction to coordinate emergency service and public safety issues, are included in any further evaluation of NNP.

RECOMMENDATION:

The implementation of NNP will have potential negative impacts upon the existing roles of state regulators and may require additional roles to be established in such an NNP environment so as to ensure no adverse impacts to consumers of telecommunications services and the ability of state regulators to comply with individual state laws, including public safety matters related to the provision of emergency services (i.e. 911/NG911).

Accordingly, the NANC recommends that the FCC should undertake a more detailed public inquiry to enable evaluation of this information and any additional information and for further consideration by other state public utility commissions and public safety agencies. In addition, the NANC requests the FCC to seek public comment on whether Ten Digit Dialing (i.e. a uniform national dialing plan), as a separate or NNP-related matter should be further pursued and the potential impacts on consumers in terms of confusion and education efforts must be examined and addressed.

⁷ At the core of this concern is a jurisdictional question that will need to be resolved as to whether the port is a local or an interstate issue; and, how to assess jurisdiction (i.e. which state has jurisdiction, if any) in an NNP environment.

ISSUE 5:

What are the costs, including cost recovery mechanisms, for the implementation of Nationwide Numbering Portability?

RESPONSE:

The ability to quantify and/or identify specific systems and operational costs related to NNP does not exist with the absence of a preferred industry recommended technical solution for NNP to date. However, in support of the requested evaluation of costs and cost recovery, the FON WG evaluated general categories of items that could likely be impacted by the implementation of NNP. More specifically, the FON WG attempted to focus as requested by the FCC and the NANC Chair on the potential costs related to a telephone number being associated with any given LRN. In addition, the FON WG evaluated several practical timing considerations that could likely impact the costs associated with NNP and the scope of anticipated cost recovery; and, contemplated the need to reserve consideration of any costs associated with public education and consumer outreach.

As a general matter, NNP would likely require changes to all existing industry databases and systems which support the routing of individual telephone calls, as well as every telecommunications carrier's specific network facility architecture which ensures the proper routing and delivery of a call.

Accordingly, the FON WG identified the following categories likely requiring modification or replacement with NNP implementation:

Industry Systems and Databases:

- North American Numbering Plan Administration Systems and Databases⁸;
- Local Number Portability Administration Systems and Databases; and
- Call Routing and Rating Systems and Databases (i.e. LERG, BIRRDs).

Individual Carrier Systems and Operations:

- Switching equipment and other network architecture supporting call routing;
- Billing systems and databases; and

⁸ While the FON WG did not evaluate whether NNP would also trigger the need to assess or investigate nationwide number assignment; and whether such changes to the assignment of numbers in this regard should be implemented simultaneously, the NANC suggests that the FCC should seek public comment on the potential need for and means to implement this linkage. In support of those efforts, please see attached Exhibit 3 which incorporates background materials entitled "Modal Reasoning for Nationwide Number Portability (NNP) Implementation and Nationwide Number Assignment to be Implemented Concurrently" and "Changes in TDM to make NNP Operate".

□ Back office and provisioning systems.

The above referenced items are by no means exhaustive of the potential categories of implementation functions and costs. In the absence of a preferred technical industry solution for NNP, the FON WG was also unable to determine the ongoing operational costs to support NNP. However, the FON WG generally concluded that such ongoing costs are likely to be based on the existence of current local number portability carrier operational costs (i.e. system maintenance, interfaces, et. al.).

NNP will require significant adjustment to both the national telecommunications network and all carriers' networks supporting the ability of a consumer to make a call in the United States. As a result, the FON WG determined that with such significant adjustments to support NNP it would be important to conduct and analyze the consumer and competitive benefits of NNP (i.e. a cost-benefit analysis). To those ends, no participant in the FON WG had empirical or anecdotal customer or other consumer information to support the existence of strong consumer demand for NNP, nor complaints related to the current porting paradigm limitations (i.e. service provider portability within a local calling area). However, the FON WG believes that such information is critical to any further investigation of NNP by the NANC or the FCC.

Timing Considerations:

The FON WG also evaluated several practical timing considerations related to the ongoing transition of the telecommunications networks in the United States to Internet Protocol technology (i.e. "the IP Transition"). Specifically, the FON WG assessed and concluded that as a general principle the implementation of any preferred industry technology solution for NNP prior to the completion of the IP Transition could result in unnecessary and possibly duplicative costs in advance of the necessary network upgrades required to support the IP Transition.

The FON WG further concluded that any general cost category identified herein would not be eliminated if NNP were to be implemented in conjunction with or after the IP Transition – realizing that to date the IP Transition of carrier networks and industry infrastructure are contingent upon many variables, including but not limited to a carrier's own decision to upgrade network architecture and provisioning systems, as well as, the possibility of specific regulatory mandates to retire legacy networks. Therefore, the ongoing IP Transition is very relevant to the consideration of NNP, in that the carrier, industry and consumer costs and any plans to recover those costs from customers of telecommunications services should carefully consider the most appropriate timing of NNP so as to minimize such costs.

Customer Education & Outreach Costs:

Assuming consumers of telecommunications services would be the ultimate beneficiary of NNP, whether based on the pure ability to port a number anywhere in the country or gaining access to additional products and services from competitors, such changes will require significant efforts to educate consumers. Accordingly, customer education and outreach will need to be conducted in collaboration with all stakeholders. Such education will not only need to advise of what benefits NNP provides to consumers, but also the impacts of NNP to existing services, including such items as calling patterns and billing information (i.e. toll calls may need to be reviewed for potential changes and noticed accordingly). The FON WG believes these costs would likely be significant to all stakeholders.

RECOMMENDATION:

The implementation of NNP will likely require the industry to incur significant costs to implement and maintain systems and operations and ultimately require consumers to incur service price increases, since it is anticipated that cost recovery mechanisms from consumers would be supported by state and federal regulators.

Deploying NNP prior to the completion of the IP Transition could result in unnecessary and duplicative costs, thus its timing should coincide with implementation of the all-IP network.

With respect to the significant costs that the industry will incur to implement NNP, the FCC should examine whether the service providers benefitting directly from providing NNP to their customers should bear the full responsibility for ensuring that functionality does not impose NNP implementation costs on the customers of other service providers.

Accordingly, the NANC recommends that the FCC undertake a more detailed public inquiry to enable evaluation by all types and sizes of carriers, vendors of existing national databases and systems (i.e. LERG, BIRRDs, NPAC, et al.), consumer advocates and public interest organizations, as well as, an inquiry into the need and opportunity to accommodate cost recovery akin to that provided with the initial implementation of local number portability.

ISSUE 6:

What conforming edits to relevant federal rules are needed to implement Nationwide Number Portability?

RESPONSE:

The FON WG briefly discussed over the course of several meetings what if any adjustments would need to be made to existing federal rules to support NNP as a general proposition and in the absence of preferred industry technical solutions.

Consistent with those discussions, the following list of items were highlighted as likely requiring evaluation, revision, elimination or other changes:

- All relevant sections of 47 CFR Part 52, including but not limited to current porting definitions, carrier and database administration requirements found in §52.21 thru 52.36.
- LNPA WG process flows, as previously adopted in FCC orders, must be evaluated and aligned with any adjustments made to support NNP process flows, architecture and carrier obligations (i.e. N-1 carrier obligations) where appropriate;
- Industry Standards Documentation Relating to Numbering Administration and Local Number Portability:
 - o ATIS-0300051 – COCAG (Central Office Code Assignment Guidelines)
 - o ATIS-0300056 – Report on Number Portability
 - o ATIS-0300065 – LRN Assignment Practices
 - o ATIS-0300089 – Pseudo Automatic Number Identification (p-ANI) Administration Guidelines
 - o LNPA WG Local Number Portability Best Practices

In addition, the FON WG generally notes that the ATIS Packet Technology & Systems Committee (“PTSC”) is currently reviewing possible technical solutions for NNP and is expected to have possible recommendations available in the coming months that may provide further information related to preferred industry technical solutions related to NNP.

RECOMMENDATION:

The implementation of NNP will require changes to the existing federal rules and various industry process documentation as highlighted herein.

Accordingly, the NANC recommends that the FCC undertake a more detailed public inquiry to enable evaluation of this information by appropriate experts.

ISSUE 7:

How long will the need for LRNs continue to exist once VoIP interconnection is fully implemented? Include an analysis of the role of LRNs for carriers that implement both time division multiplexing- (“TDM”) and VoIP-based interconnection during the VoIP interconnection transition.

RESPONSE:

The current porting environment was designed and engineered around the use of LRNs for call routing to ported and pooled telephone numbers for all telecommunications service providers. Some companies that are implementing IP technology today also use systems designed around LRNs.

LRNs will continue to be needed until such time as a new non-LRN routing scheme is designed and agreed to by the industry via the technical routing experts such as the ATIS PTSC.

RECOMMENDATION:

The NANC recommends that the FCC undertake a more detailed public inquiry to enable evaluation of the overall timing considerations to implement NNP in the context of the ongoing transition of nation’s telecommunications infrastructure to IP technology – particularly, if such preferred NNP industry technical solutions recommend changes to the existing national porting architecture (i.e. use of LRNs).