Industry Update - National Number Portability (NNP)

SIPNOC 2017

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introduction

LRN

When porting was introduced, the concept of a Location Routing Number (LRN) was utilized to route calls to ported numbers

Rate Center

porting is allowed within a rate center only, since rating is based on the original rate center of the TN

2015

The Energy and Commerce Committee sent the FCC Chairman a letter to address the need to support nationwide number portability This implies the ability to port a number outside of the existing geographical area (ie. Rate Center or LATA)

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background

FCC

requested The Wireless Association (CTIA), the Competitive Carriers Association (CCA), and four largest wireless providers to assess and develop a plan

CTIA and CCA

conducted workshops and presented initial assessment of issues to FCC

2015

FCC Wireline Competition Bureau (WCB) directed the North American Numbering Council (NANC) to work on the CTIA recommendations

WCB instructions expanded the scope beyond wireless porting:
"evaluate and recommend actions to enable nationwide number portability through technical modifications to the LRN system used to route wireless and wireline calls to ported numbers"

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background

2015

At the December 2015 NANC meeting, the NANC chair assigned the following action items to its working groups:

Numbering Oversight Working Group (NOWG):
Assess impacts to North American Numbering Plan (NANP), and numbering resource utilization and forecasting
NOWG reached out to ATIS INC and NANP for additional input

Future of Numbering Working Group (FON WG):
Assess impacts to tolls, tariffs, and taxes; role of state regulatory commissions; costs, including cost recovery; and conforming edits to relevant federal rules
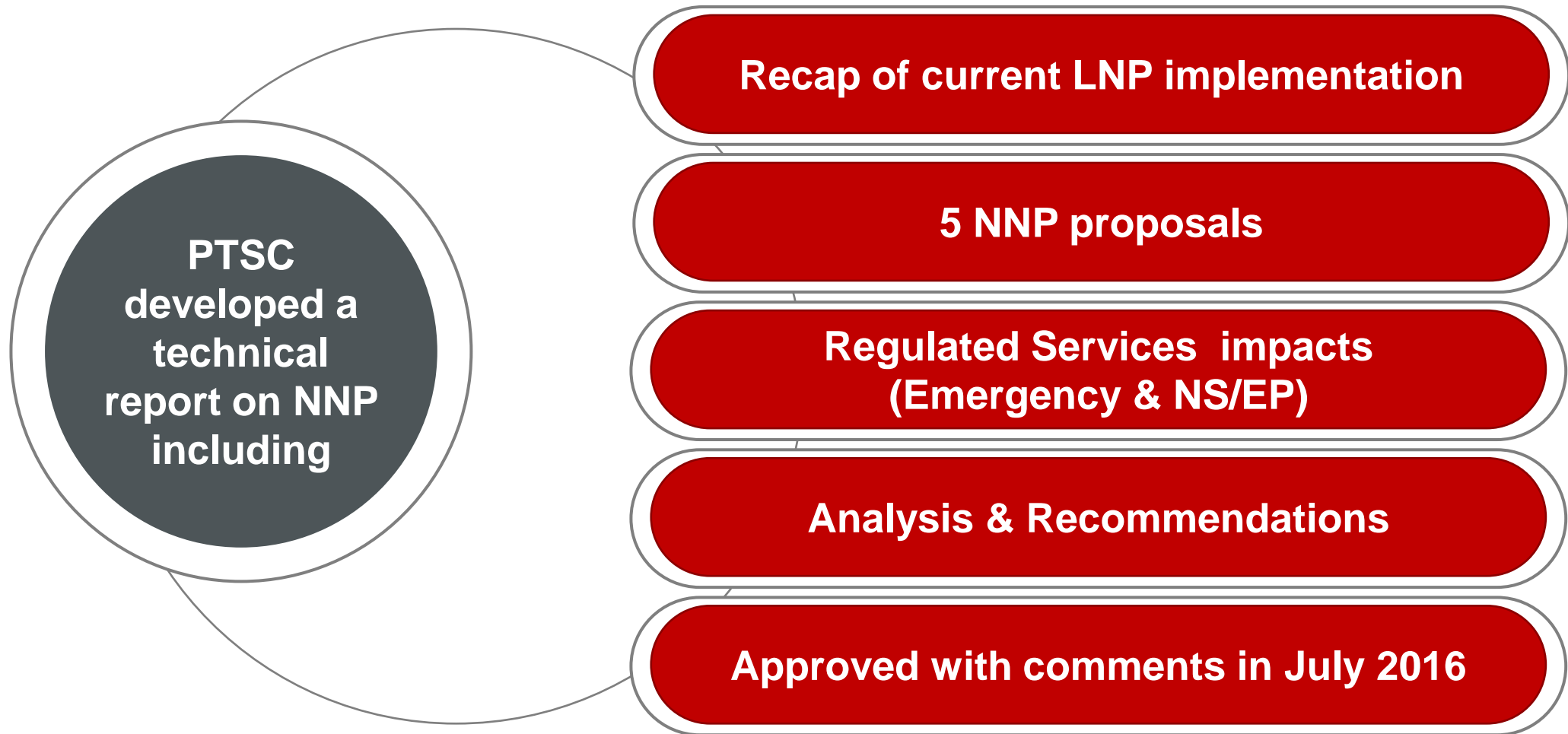
Local Number Portability Administration Working Group (LNPA WG):
Assess role of LRNs for TDM and VoIP based interconnection
LNPA WG reached out to ATIS PTSC to assess technical issues with routing, including 911 Emergency calls

The LNPA (Local Number Portability Working Group) and the FoN (Future of Numbering Working Group) have in turn indicated that changes to the technical solution for number portability would most appropriately come from the PTSC

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PTSC Review

PTSC developed a technical report on NNP including

- Recap of current LNP implementation
- 5 NNP proposals
- Regulated Services impacts (Emergency & NS/EP)
- Analysis & Recommendations
- Approved with comments in July 2016

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overview of approaches

Interim solution proposed by CCA/CTIA

- Third parties provide a point of interconnection in the ported-from LATA and transport terminating calls to recipient carrier network

National LRNs

- Enables Nationwide Number Portability (NNP) using Location Routing Numbers (LRNs).
- Allows LRNs to be used outside of the current LATA boundaries thereby allowing TNs to be "ported" nationally

Location Portability per GR–2982–CORE

- Maintains current billing/interconnection/settlements paradigms
- Additional signaling parameter (GUBB – geographic unit building block NPA-NXX format), administered by the NPAC, used in call set up (for carrier selection), signaling and recording

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overview of approaches

Non-Geographic LRN

- A new numbering resource (non-geographic area code) to be used for routing numbers (NGLRN) for NNP TNs
- The area code of the NGLRN can be used as an indicator to the network that the call would be treated differently.
- NNP TNs are ported to an NGLRN

Internet Interconnection

- Post IP transition approach
- All service providers must be able to resolve telephone numbers to IP addresses for interconnection

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emergency service and ns/ep

- Issue with the ability of one type of legacy PSAP call delivery interface to accommodate more than four NPAs
  - Next Generation (NG) 9-1-1will eliminate problem

- NS/EP requires further study

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analysis and recommendations

PTSC — did not recommend an approach but has documented alternatives
Each alternative has varying degrees of impacts on interconnection, billing, routing, call processing and settlements

GR-2982 — which preserves existing interconnection, billing, and settlements paradigms IS NOT feasible due to the inability to make changes to manufacture discontinued network elements

True NNP — preserving existing interconnection, billing, and settlements paradigms IS NOT feasible changes to existing paradigms could facilitate NNP

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analysis and recommendations

NNP   will be more feasible in an IP environment

LRNs   will be necessary unless & until the industry comes to consensus on an alternative to central office code based routing

Each of the approaches in the Report may need further assessment by the appropriate industry committees

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NANC LNPA WG – White Paper – Aug 30

- Created a sub-team to determine the probable impacts of implementing Non-Geographic Number Portability (NGNP).

- The team considered two approaches for implementing NGNP and evaluated the possible regulatory and technical constraints associated with each approach.

1

One approach considered was to consolidate Rate Centers and LATAs thereby allowing a telephone number (TN) and LRN to be utilized in a much wider area than available today.

2

Another approach considered was to permit the LRN associated with the TN to be changed, thereby allowing a TN to be associated with any LRN in the United States.
The LRNs could continue to be assigned within specific LATAs and/or Rate Centers

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recent regulatory activity

The Commission released an NPRM and NOI on NNP that proposes amending the existing Commission rules as well as seeking comment on the industry models.

The NRPM seeks comment on:

- Removing the Commission's "N-1" requirement, which requires the second-to-last carrier to perform the number portability database query, to allow carriers flexibility in conducting number portability database queries to promote NNP and efficient network routing.
- Eliminating the Commission's dialing parity requirement as it applies to interexchange service to remove barriers to NNP and better reflect the competitive realities of today's marketplace.

The NOI seeks comments on:

- NNP models proposed by industry.
- Ways number administration might be improved for more efficient technical, operational, administrative, and legal processes.

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ATIS industry committees activity

The ATIS Committees objectives is to provide input for inclusion in the response to the NPRM/NOI.

The ATIS Committees are confining the scope of the ATIS response to the NPRM topics; elimination of N-1 and the dialing parity requirement, to the 5 technical PTSC proposals which are included in the NOI

ATIS has drafted its comments and it is still under review by the Industry.

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regulatory impact observations

- Regulations governing E911, Public Safety Answering Point (PSAP) systems, emergency Service Providers, and telecommunications Service Providers will need to be updated to accommodate calls with NPA-NXXs from other counties and/or states

- National Emergency Number Association (NENA) and Emergency Services Interconnection Forum (ESIF) should conduct the analysis and evaluation of the full impacts of NGNP on the emergency routing systems

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regulatory impact observations

- Regulators and industry standard groups must decide how existing numbering assignment rules and LNP rules should be updated
  - The ATIS Industry Numbering Committee (INC) should address impacts to non-geographic number assignment, Numbering Resource Utilization/Forecast (NRUF) Report impacts, and number management rules and standards

- The LNPA WG concludes that regulatory changes made should be technology and provider agnostic.
  - Customer confusion may result if a subset of providers are allowed to port any number nationwide while other Service Providers are limited.
  - Would need to be implemented across all providers simultaneously for increased efficiency and decreased customer confusion

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regulatory impact observations

- Will drive changes to the existing routing and rating mechanisms requiring a full regulatory impact analysis and potential subsequent FCC action.

- In addition, regulatory considerations may be needed in the following areas:
  - Large-scale Rate Center consolidation
  - Changes in the link between Rate Centers and LATAs
  - A nationwide ten-digit uniform dialing plan
  - Any NPA/NXX codes or blocks that are not marked portable or set to support pooling would need to be evaluated
  - Changes in LRN assignment practices
  - Changes to toll tariffs and taxing rules

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regulatory impact observations

- State Public Service/Utility/Regulatory Commissions
  - Any new FCC Rules implementation that includes dissolution or altering of Rate Centers or LATAs could impact the numbering oversight capabilities of state public service, utility, and regulatory commissions

- Federal Rules
  - A number of Federal rules for determining inter vs. intra state jurisdiction and local vs. interexchange service will need to be reviewed
  - Additionally, allowing Service Providers to recover costs associated with implementation would need to be evaluated at the Federal level.

- Interconnection and Trading Partner Relationships
  - Many Interconnection Agreements (ICAs) have language which limits porting within the established Rate Centers.
  - In order to properly implement restrictions and policy rules regarding POIs will need to be re-evaluated and revised.
  - Contract language and reports that reference or use elements related to local number portability will all have to be evaluated and may need to be renegotiated or revised

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technical impacts

- OSS and Billing Systems
- Calling Name Products
- Number Management Systems
- SS7 query modifications
- Impacts to Toll Free services
- NPAC
  - Could require significant NPAC software code changes to enable each of the seven regional databases to communicate with each other and exchange porting information.
  - Another architectural alternative would be to develop a single, national NPAC database.

consumer issues

rate plans

geographic based rate plans keyed on rate center or LATA considerations need to be clearly aware of when something may be in or out of their plan.

call completion

issues may arise for those that may have calls moving about geographically if processes utilized are dependent on geography.

toll/call blocking software

that blocks calls based on the local/toll relationship the calling number has to the called number based on NPA NXX, would need to determine local/toll at a TN level or rely on some indication that a call is toll / not toll, etc. .

billing confusion

This is especially true if local/toll plans are involved, and having calls to the same NPA NXX that are sometimes local and sometimes toll.

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summary

- Any implementation will encounter significant consumer, industry, regulatory, and technical challenges

- An industry move will require a mandate by the FCC.

- The current regulations, standards, and infrastructure were constructed for the TDM network and are based upon a premise that telephone numbers and geography are intertwined

- The massive complexity and cost of this undertaking will certainly require significant analysis and an extended duration of time to design, re-engineer, and implement

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thank you

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