Nationwide Number Portability Update

IETF 100 MODERN WG Meeting

11-15-17

Tom McGarry

Background

- draft-mcgarry-nnp-use-case-00
  - Feb. 24, 2016, informational, expired Aug. 27, 2016
  - Describes possible MODERN use cases related to a proposed non-geographic routing number (NGRN) solution to nationwide number portability (NNP)
  - https://tools.ietf.org/html/draft-mcgarry-nnp-use-case-00
- Use cases based on a request by the US FCC to evaluate the ability to provide NNP
  - See Nov. 16, 2015 letter from FCC to the North American Numbering Council (NANC), http://www.nanc-chair.org/docs/mtg_docs/FCC_Letter_NANC_Wireless_Portability_Referral_111615.pdf
- The Alliance for Telecommunications Industry Solutions (ATIS) submitted a report to the NANC on NNP on June 20, 2016
  - Section 8 of this document describes the NGRN solution that was the subject of draft-mcgarry-nnp-use-case-00 (called NGLRN in the ATIS doc)
  - https://apps.fcc.gov/edocs_public/attachmatch/DOC-340865A1.pdf

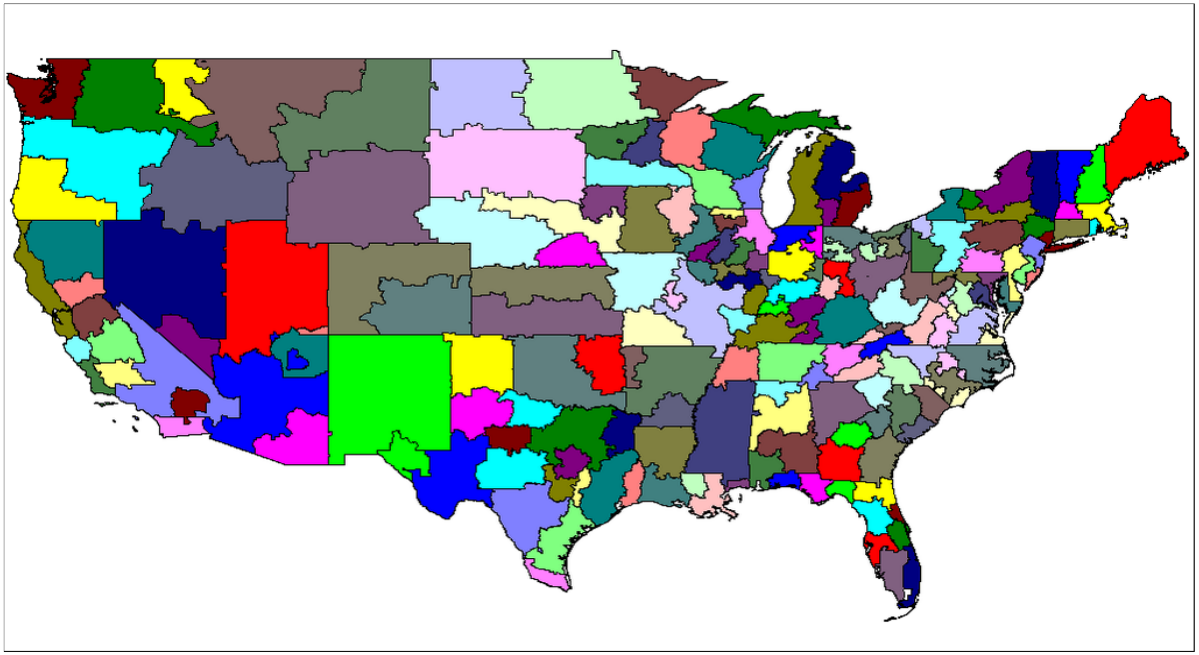
Recent activity – "It's Back"

- The FCC adopted a Notice of Proposed Rule Making (NPRM) and Notice of Inquiry (NOI) on Oct. 24, 2017 on NNP
  - https://www.fcc.gov/document/fcc-seeks-comment-moving-toward-nationwide-number-portability-0
- The NPRM proposes to eliminate some obsolete rules that may impede deployment of NNP – not of interest here
- In para. 37 the NOI seeks
  - *"… comment on how number administration might be improved to realize more efficient technical, operational, administrative, ... processes."*
- Much of the document is based on Section 8 of the ATIS document
  - NPRM is largely based on Sections 8.1.1 and 8.1.2
  - Para. 50-55 of the NOI seek comment on the "Non-geographic LRN Solution", aka, the NGRN solution
- Para. 54 asks questions about number administration
  - "The ATIS Report also raises several specific questions with regard to administration of non-geographic resources with an NGLRN system. The ATIS Report notes that certain current systems can be simplified with the adoption of non-geographic codes, such as combining the processes of number allocation and porting, or allowing distributed registries to handle processes currently managed by a single authoritative registry. We seek comment on the potential for such reforms, and their integration with existing systems and authorities."

What is NNP and NGRN?

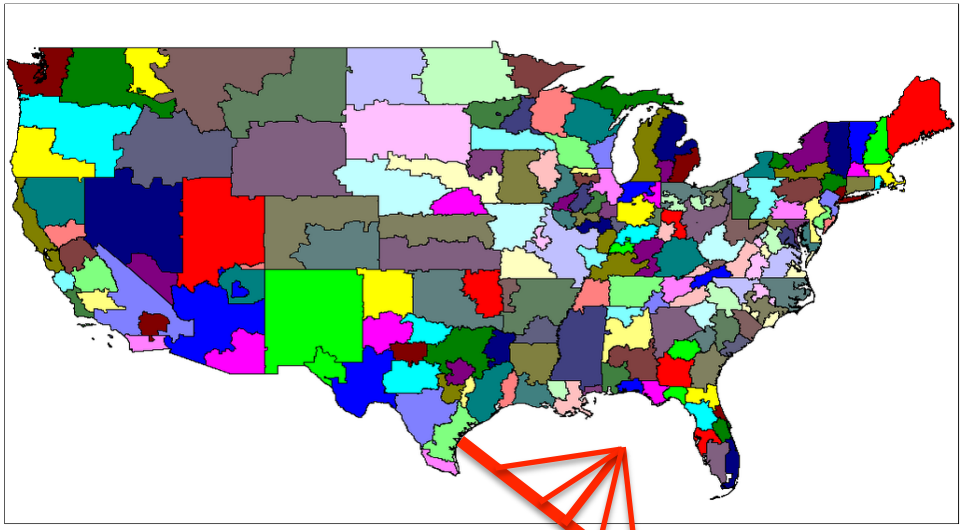
- No agreed to definition of NNP, but …
  - "Ability to port a geographic number to an address that is not restricted to the geography of the porting number."
  - For example, a NYC TN has a routing number (RN) that is not linked to NYC, i.e., not a 212 RN
  - An NGRN would qualify, a URI would also qualify
- NGRN solution calls for a new non-geographic numbering resource (area code) to be used as RNs, i.e., NGRNs
- It also calls for a new, parrallel IP PSTN where geographic TNs are not subject to the geographic restrictions of the existing TDM PSTN
- The NGRN provides the ability to route calls from the existing TDM PSTN to the new IP PSTN w/o software development on the TDM network
- Calls to NGRNs would always terminate on the IP PSTN
- Because the NGRNs are native to the IP PSTN they could be administered in a way that leverages IP technology
  - Conserve numbering resources, i.e., no block assignments
  - More relevant telephone-related information model (TeRI)
  - New binding(s) and encoding(s) for accessing TeRI
  - Distributed registry model (DRiP)

What's the problem? LATAs, lots of them



- US is divided into 204 distinct geographic areas called LATAs
- Each LATA has a tandem switch provided by an ILEC
- Interconnection and numbering are tightly entwined
  - To get numbers in a specific LATA a service provider (SP) must connect to the ILEC tandem in that LATA
  - If an SP wants numbers everywhere they must connect to 204 LATA tandems
- In the US, TNs must be ported to an RN that is in the LATA associated with the TN
  - Legacy networks are configured and designed with this limitation in mind
  - Y2K problem – we don't even know where the problems are in the TDM network if we tried to change this paradigm

A parallel IP PSTN and a bridge between the two



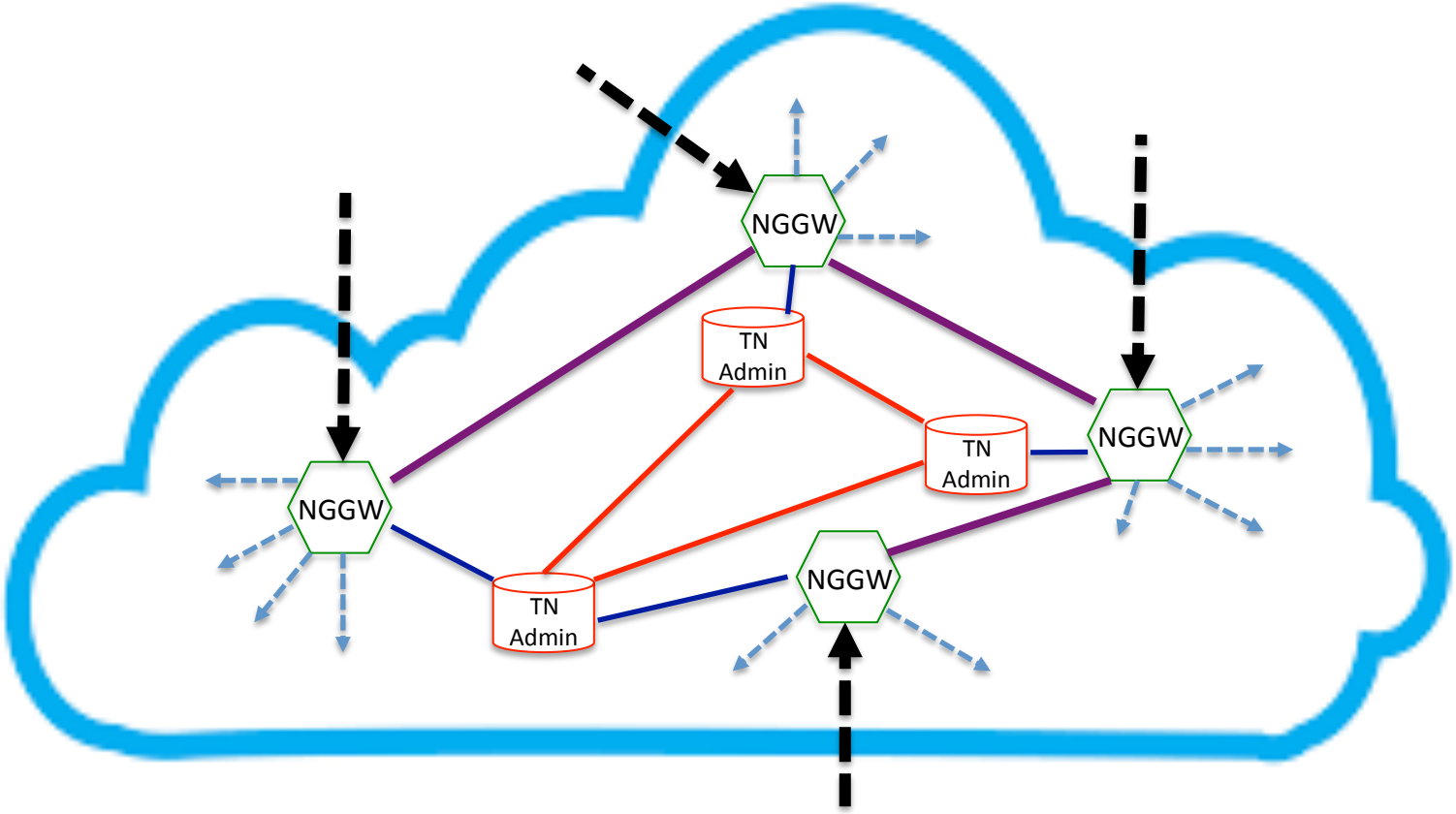
TDM PSTN

NGRNs

IP PSTN

- NNP TNs are ported to an NGRN in the existing number portability database
- Calls to NGRNs on the TDM PSTN are routed to the IP PSTN for call handling
- All TDM switches have the ability to route calls based on the area code, i.e., no new functionality required

The IP PSTN



NGGW connection to the TDM PSTN
NGGW connection to the terminating SP
NGGW connection to other NGGWs
NGGW connection to TN Admin, i.e., acquisition, management and retrieval
TN Admin connection to other TN Admin, i.e., distributed registry

The IP PSTN and TN administration

- On the TDM PSTN, an existing process
  - Geographic TN = NGRN
- On the IP PSTN, a new process
  - NGRN = NGGW
  - NGGW providers *acquire* NGRNs
  - NGGW providers *manage* NGRN info, e.g., NGRN=NGGW address
  - Networks *retrieve* NGRN=NGGW
- SPs can use this process to migrate their customers/TNs from the TDM PSTN to the IP PSTN
  - Cap the TDM PSTN, grow the IP PSTN

What does this mean?

- US FCC is still interested in future of numbering issues
- MODERN is still the only group working on global standards for numbering in an IP environment
- We'll learn more in the near future

- THANK YOU

QUESTIONS?