



Louise L. M. Tucker
Vice President - Regulatory
Senior Counsel
www.iconectiv.com

Telcordia Technologies, Inc. dba iconectiv
1776 Eye Street, NW
Washington, D.C. 20007 USA

T +1 202.824.0130
M +1 202.368.5180
ltucker@iconectiv.com

March 5, 2014

Ex Parte
Via Electronic Submission
Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, S.W.
Washington, D.C. 20554

Re: Technology Transitions Policy Task Force, GN Docket 13-5; Numbering Policies for Modern Communications, WC Docket No. 13-97

Dear Ms. Dortch:

On Tuesday, March 4, Chris Drake, Gary Richenaker, Natalie McNamer and I of iconectiv met with Matthew DelNero, Deputy Chief, of the Wireline Competition Bureau, Henning Schulzrinne of the Office of Strategic Planning and Policy Analysis, Walter Johnston, Chief of the Electromagnetic Compatibility Division and Padma Krishnaswamy of the Office of Engineering and Technology, David Simpson, Chief of the Public Safety and Homeland Security Bureau, and Stephanie Weiner of the Office of General Counsel.

In the meeting, we discussed various options in front of the industry for carrier exchange of IP routing information, including three solutions proposed by iconectiv. In addition we covered number management, the future public PSTN database, and the numbering testbed. In our view, the adoption of Electronic Numbering (ENUM) for inter-carrier exchange of routing information is a major step for the industry and one that requires careful study. The current industry focus on the architectural options to exchange ENUM pointers must be broadened to evaluate the complete ENUM hierarchy, notably the implications of using real-time ENUM queries during call set up.

iconectiv will support the Numbering Testbed with an ENUM platform in order that the industry can experiment with this technology and make a more informed decision regarding use of ENUM between carriers in the evolving IP US telecommunications network. The attached presentation formed the basis of our discussion.

If you have any questions or need additional information, please do not hesitate to contact me. This *ex parte notice* is being filed electronically with your office pursuant to Section 1.1206 of the Commission's Rules, 47 C.F.R. 1.1206.

Respectfully submitted,



Louise L. M. Tucker
Vice President –Regulatory & Senior Counsel

Cc: Matthew DelNero
Henning Schulzrinne
Walter Johnston
Padma Krishnaswamy
David Simpson
Stephanie Weiner



experience
performance
results

Chris Drake
EVP & CTO
iconectiv
cdrake@iconectiv.com
732-699-2035

Presented to:

FCC

iconectiv Support for IP Transition

March 4th, 2014

Discussion Points

- Number Management
 - Status of Industry Activities
- iconectiv supporting the industry on IP Transition
 - PTSC, TOPS IP SI, INC, FON and the joint IP NNI taskforce
- Candidate solutions tabled via Industry Contributions
 - High level comparison of the various options
 - Highlights of iconectiv proposals
- Future “Public” PSTN database
 - Vehicle for advanced end to end services
 - Multi-provider, competitive model
- Numbering Testbed
 - iconectiv will support the testbed with an ENUM platform
 - Ability to trial data exchange rules and security

Number Management

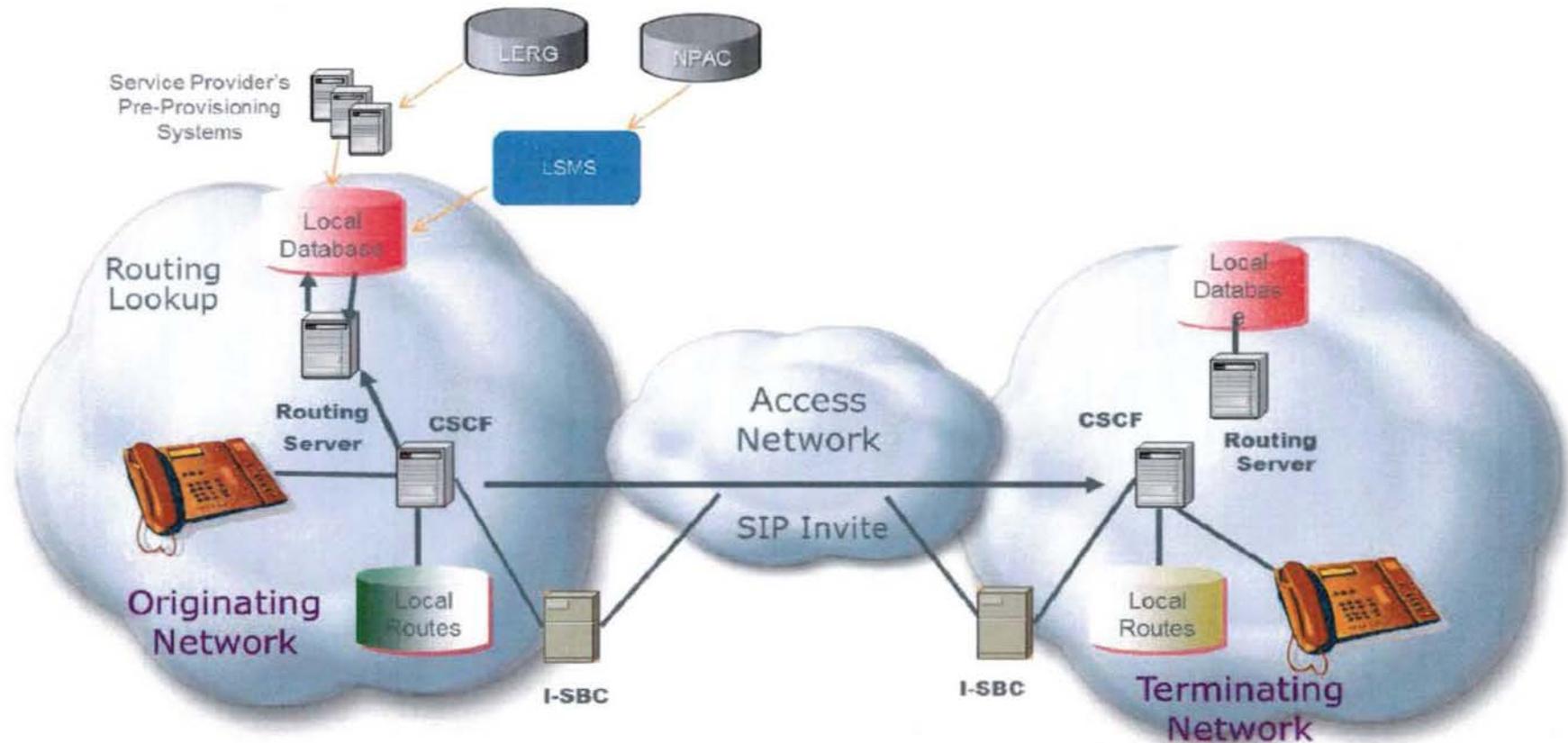
- Most recent NANP exhaust projection provided by the NANPA is 2043 or later
- Steps can be taken to conserve the NANP
 - Elimination of Rate Centers will allow assignment at an NPA level
 - Removal of LATA requirements will reduce the number of LRNs needed for interconnection
- Since exhaust is not critical at this time, allocation method changes to be worked for “future state” not transitional
- iconectiv is looking at numbering alternatives for M2M type services

Comparison of Industry Options

Option	Contributor	Description	Benefits	Impacts
Existing DBs	iconectiv	Enhance LERG with data elements for IP routing & interconnection	Minimize impacts to system processes. Use of web GUI and file distribution avoids 3rd party vendor impacts. SPs can implement IP routing without ENUM complexity	Existing service provider processes extended to incorporate IP interconnect provisioning and data exchange.
LERG-Thin Tier 1 w/ENUM	iconectiv	Enhance LERG to include ENUM NameServer records	Act as Tier 1 Registry for provisioning and distribution of NS records and other IP data attributes	Existing service provider processes extended to incorporate IP NS record provisioning in LERG and data exchange. Standardize network arch, system processes, and ENUM message flows and formats. Originator delegating route selection to the terminating network.
NPAC - Thin Tier 1 w/ENUM	AT&T	NPAC to provide ENUM NameServer records	Act as Tier 1 Registry for provisioning and distribution of NS records	Existing service provider processes extended to incorporate IP NS record provisioning in NPAC and data exchange. Standardize network arch, system processes, and ENUM message flows and formats. Originator delegating route selection to the terminating network.
Purpose built ENUM Registry	iconectiv	ENUM NameServer info is stored in a central Registry	Accommodate various IP attributes with rules allowing data compression. Supports distribution of data in local cache	Launch the Registry. Standardize network arch, system processes, and ENUM message flows and formats. Originator delegating route selection to the terminating network.
Current Routing Solution	Verizon	Mechanism in use/being deployed to facilitate IP traffic	Implementable, low cost, flexible, highly available	Limited scalability. SP use existing LERG/NPAC data and deploy private ENUM server to store data and implement service logic. The interconnecting SP associates its subscribers with call servers identified in the LERG via CLLI's. With each CLLI it associates a prioritized list of SBC addresses

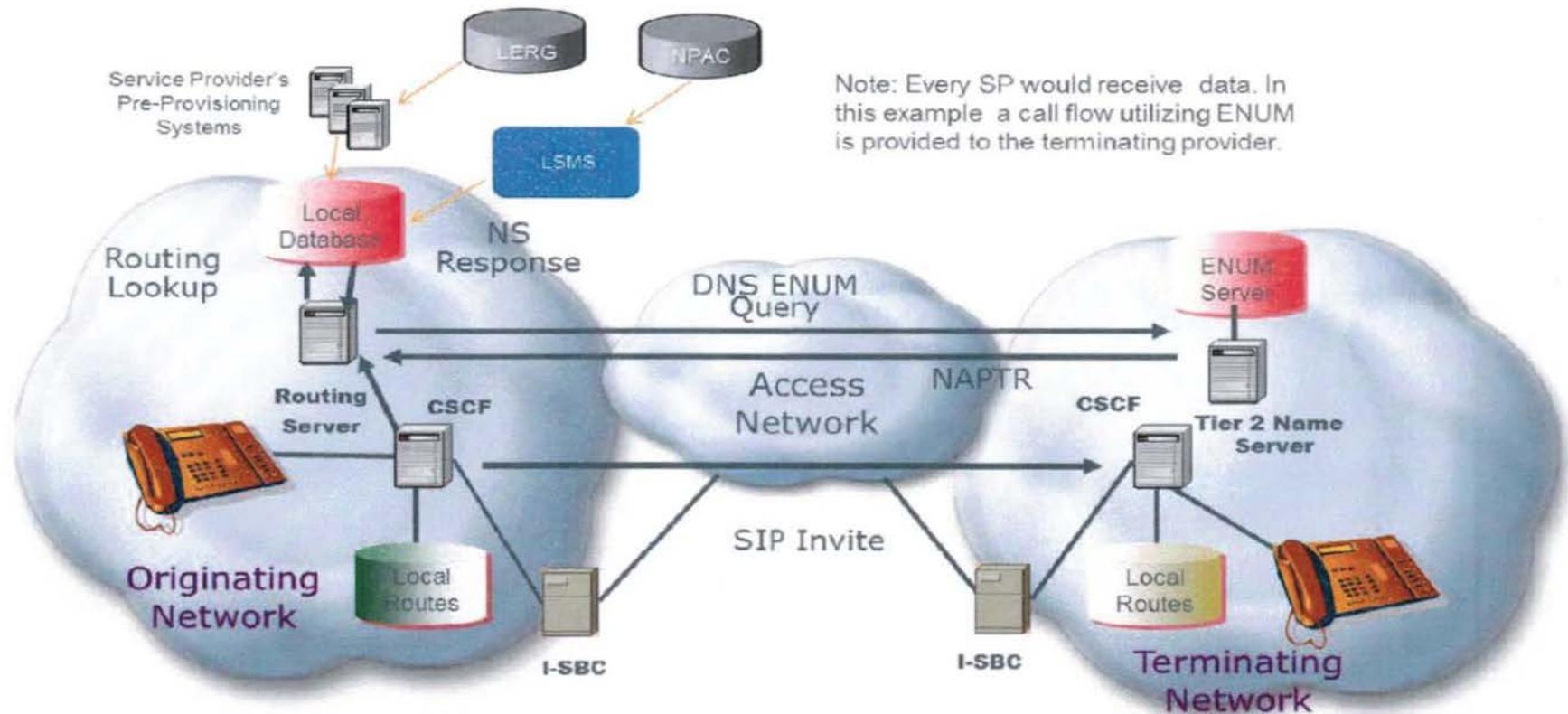
- Each option supports an industry transition to all IP environment
- The level of granularity defining interconnection points is a key criteria
- Some level of coexistence is possible
- PTSC and SIP IP-NNI forums to reach architectural consensus 4Q14

Existing Industry Databases



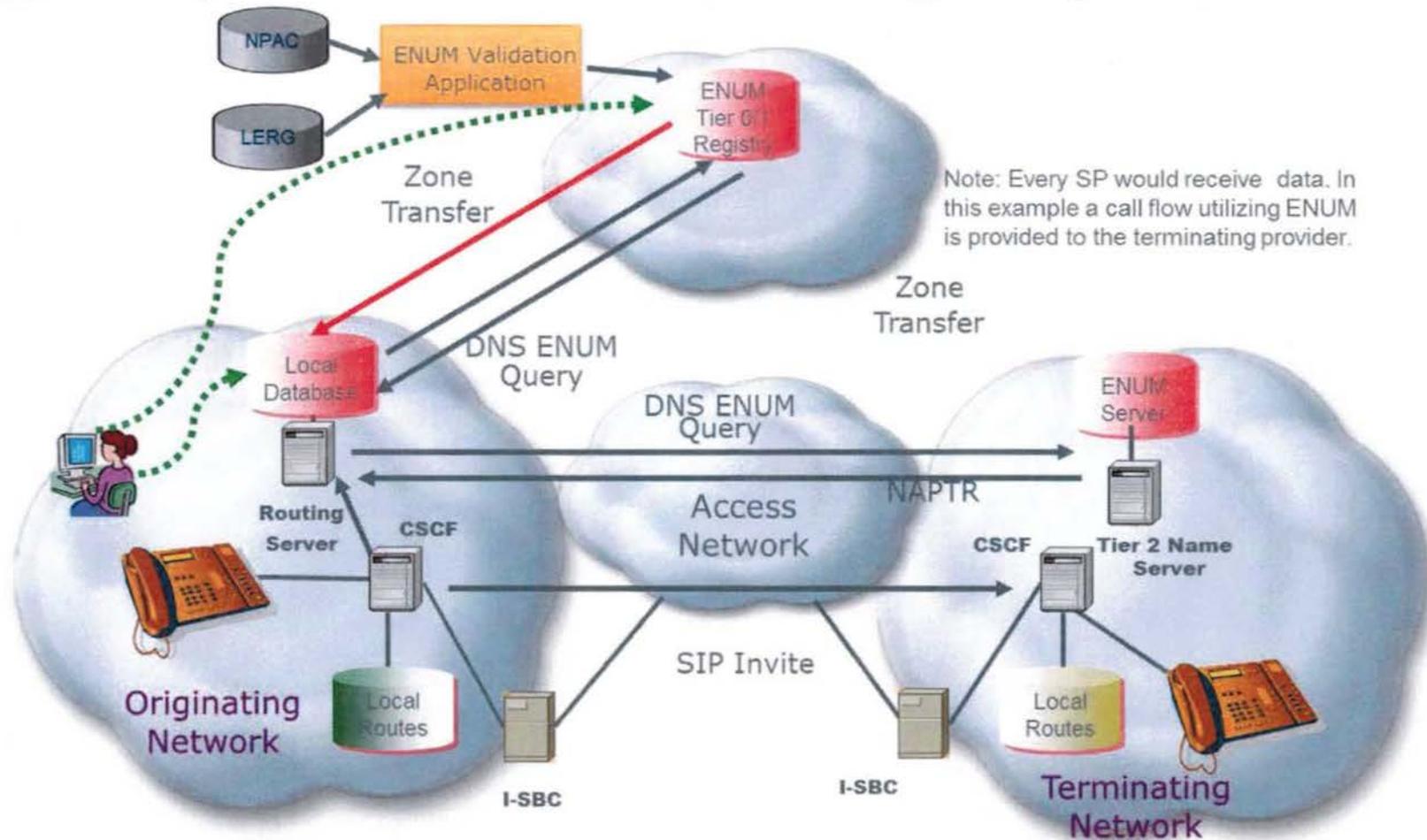
- LERG remains authoritative DB for NANP and NPAC handles exceptions for porting and pooling
- LERG use of file distribution avoids 3rd party vendor impacts
- SPs implement IP interconnection and routing but avoid ENUM complexity
- Existing industry databases evolve under neutral industry governance

LERG as Thin Tier 1 for ENUM



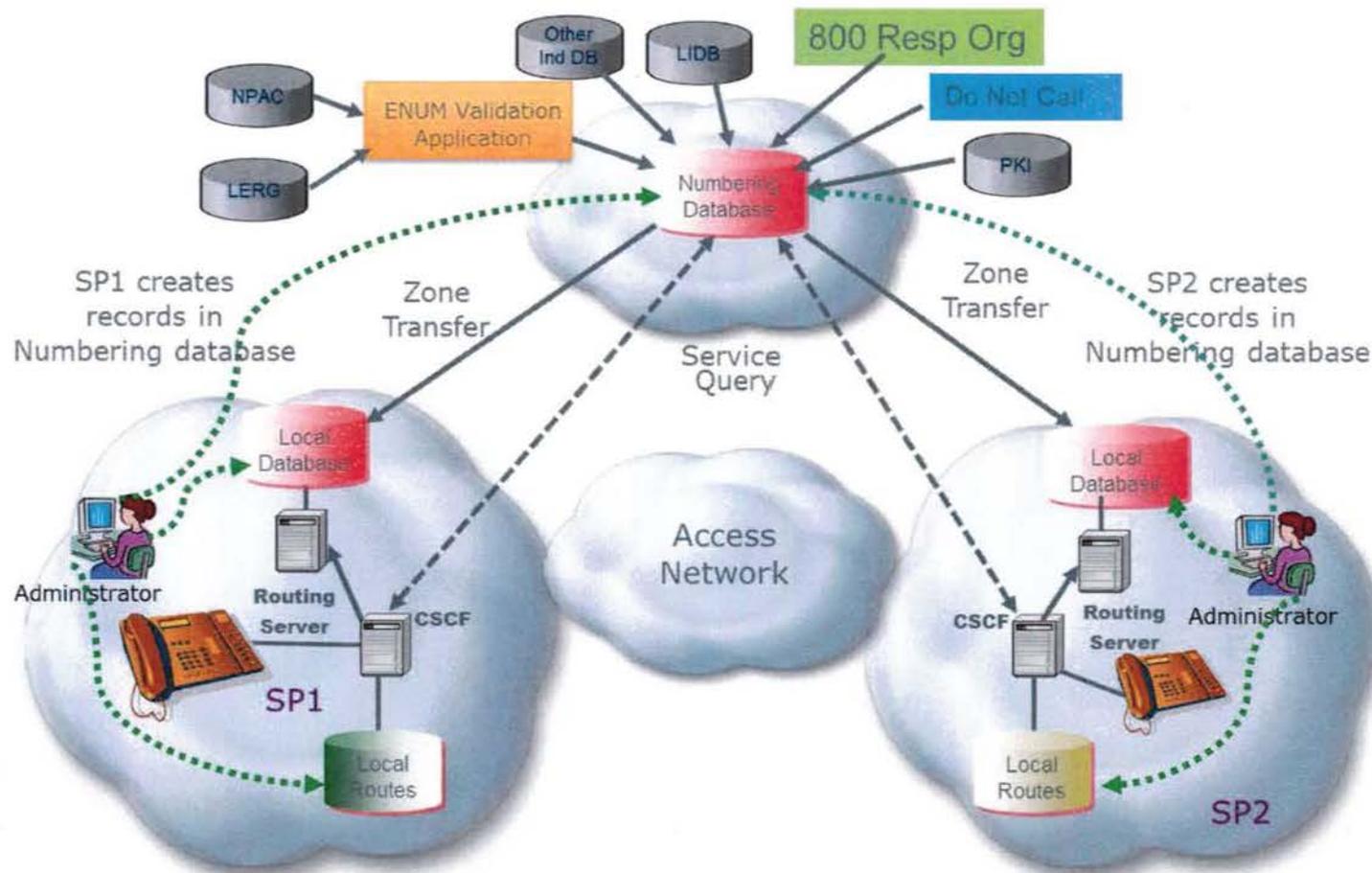
- Enhance LERG to accommodate Tier 2 NameServer records and other IP info
- Evolves under neutral industry governance
- ENUM Implementation Impacts
 - Introduces overhead and complexity to support ENUM queries in session setup
 - Significant paradigm shift with route selection delegated to the terminating network
 - Must standardize URIs for the format and content including domains, service parameters, alternative routing, etc.
 - Must evaluate the impact on network, systems, operational, and business processes

Purpose Built ENUM Registry



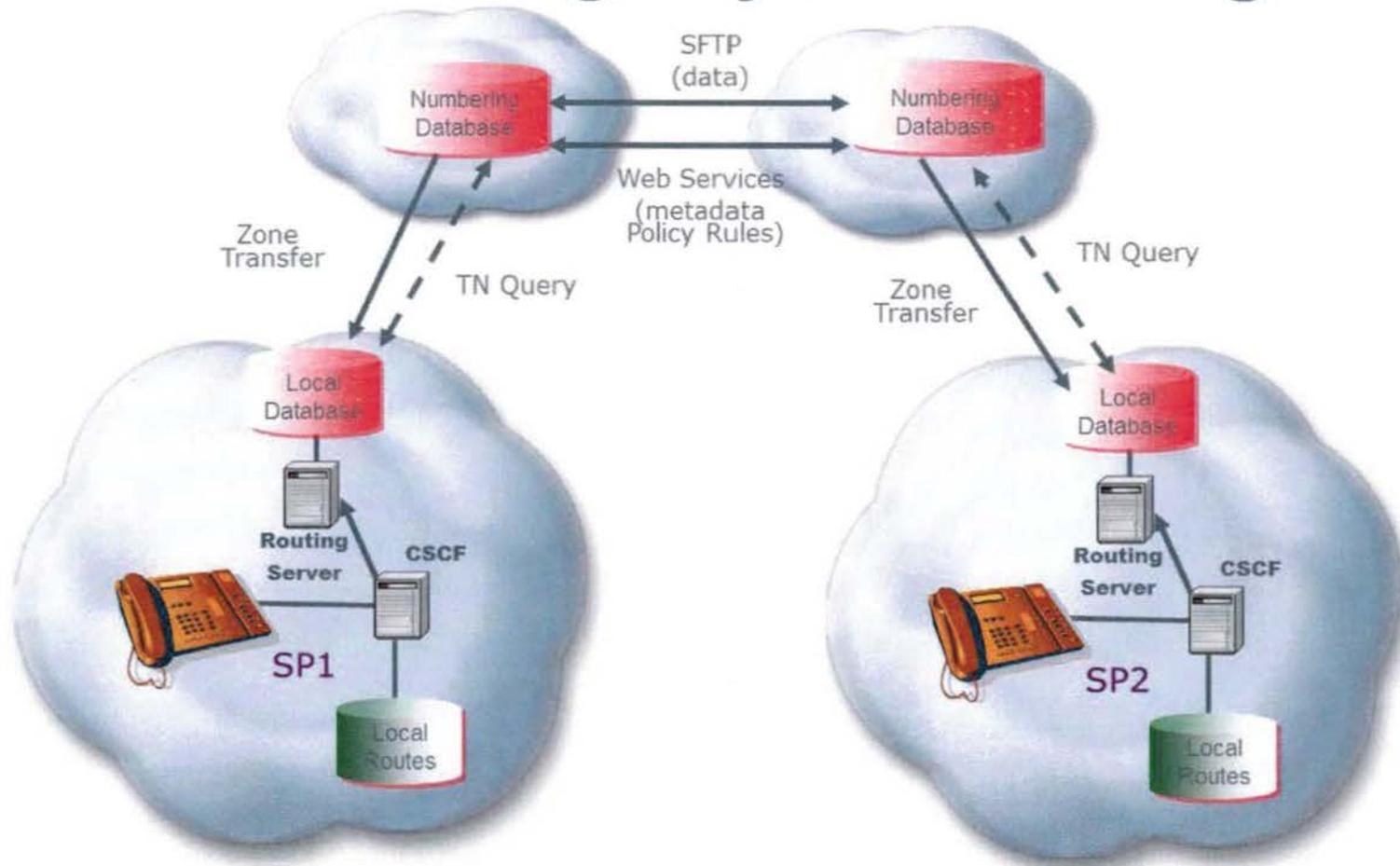
- ENUM Name Server info is stored in central registry
 - Contains rules relating to which SP gets what set of data (data exchange policy)
 - Supports distribution of data to local SP database/cache
- Can extend with other IP related data and evolve into Next Generation PSTN DB
- Similar implications to ENUM implementation as stated in chart 6

Future PSTN DB for All IP Interconnection



- For an all IP Numbering Database there are several criteria
 - Line Level would be required for most applications
 - Each TN would have attributes such as owner, service capabilities, etc
 - Database could include non-E.164 identifiers
- Enables rich end to end communications via far end service discovery

Multi-Vendor Registry Interworking



- Foster competitive environment for database services
- Architecture already supported in TV Whitespace certified by the FCC
- Allows synchronization of changes with high speed and precision

Industry Testbed

- iconectiv ENUM Tier 0/1 platform available for testbed
 - Evaluate various routing data exchange rules
 - Platform can incorporate IP Telephone Number Validation pilot project
 - Platform can incorporate other applications as the test bed evolves
- Test ecosystem can include service providers, vendors, application providers, and others
- Potentially test both E.164 and non-E.164 identifiers
- LERG available for a subsequent phase to evaluate transition strategies towards the end-state architecture

Summary

- Various options for IP routing are possible
- iconectiv working with the Industry to evaluate:
 - IP NNI interconnection and routing options
 - Deliverable due 4Q14
 - Transition strategies to the target all-IP network
- Open to participate in industry Testbed supporting iconectiv ENUM Tier 0/1 Registry
- Need to evaluate various routing architectures against FCC social contract of universal access, public safety, competition, and consumer protection

Questions???