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September 19, 2014

Via Email

Scott Jordan
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Federal Communications Commission
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Henning Schulzrinne
Technology Advisor
Federal Communications Commission
445 12th Street, SW
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Re: ATIS INC Input on Large-Scale Rate Center Consolidation

Dear Dr. Jordan and Dr. Schulzrinne:

The Alliance for Telecommunications Industry Solutions' (ATIS) Industry Numbering Committee (INC) is pleased to provide the attached White Paper "Large-Scale Rate Center Consolidation Considerations in the Transition from the PSTN to All-IP." This White Paper is part of INC's on-going efforts to address the impacts of transition to an all-IP network.

ATIS will continue to keep the Commission updated on INC's work pertaining to numbering-related transition issues.

If you have any questions or concerns regarding this matter, please feel free to contact me.

Sincerely,

Thomas Goode
ATIS General Counsel



Large-Scale Rate Center Consolidation Considerations in the Transition from the PSTN to All-IP

I. Executive Summary

As the industry transitions to all-IP networks, rate centers may lose relevance from a routing and rating perspective, but consideration must be given to the significance that rate centers have in carriers' networks and operational support systems. Over the last several years, periodic rate center consolidations involving limited areas have occurred across the United States, initiated by states and/or local exchange carriers. These rate center consolidations were implemented without major dialing, revenue or switching impacts, but only after industry work had been completed, including significant analysis of the impact of the consolidations and cooperation with the relevant state regulatory and E911 organization(s).

In an all-IP network, rate centers may not be technically necessary for routing or rating, but the operational impacts of consolidating these rate centers must be carefully considered. From an operational perspective, there are both positive and negative impacts (described in more detail in Section VII). The positive impacts of large scale rate center consolidation include more efficient use of numbering resources and a broader area within which local numbers can be assigned and ported. The negative impacts include potential customer confusion/frustration and the substantial resource commitments that would be associated with the acceleration of equipment replacement, changes to industry rating and routing systems, and significant changes to carriers' back-office billing and provisioning systems.

Large scale rate center consolidations would extensively impact carrier networks, carrier operating support systems, services offered, dialing plans, and the E911 network. Further, regulatory changes would be needed to initiate any large-scale rate center changes. Given the complexities related to large-scale rate center consolidation, it is premature to develop a plan for implementation. However, as carriers' network architecture and the market drives the need for such consolidation, the industry and regulators should work collaboratively to develop a plan.

II. Assumptions Underlying this White Paper

- The industry is in transition to an all-IP network.
- Large-scale rate center consolidations will be no larger than state-wide, but could be the size of a single NPA or as limited as two rate centers with different local calling areas.
- The impact is evaluated with regard to the current environment with the existing architecture and systems.
- There is an expectation that rate center consolidations will happen in a competitively-neutral fashion driven by competition in the marketplace.
- While consideration was given to a hybrid model, where VoIP providers are treated differently from non-VoIP providers, this was not considered to be competitively neutral and therefore not addressed
- There are regulatory constraints that will need to be addressed with any rate center changes.
- Rate center consolidations have impacts for the public safety community.
- The transition referenced in this document addresses E.164 numbers only.

III. Do Rate Centers Matter in the Transition to All-IP Networks?

As the industry transitions to all-IP networks, the perception that rate centers will no longer matter or be needed has surfaced. While the relevance of rate centers to consumers may be diminishing as some carriers offer unlimited flat-rate calling plans and consumers become less aware of what calls are “local” versus “toll”, the fact remains that some carriers continue to offer local/toll rated calling plans, regardless of whether their networks are all-IP or not. Further, while rate centers may lose relevance from a routing and rating perspective, consideration must be given to the significance that rate centers have in carriers’ networks and operational support systems.

IV. What is a Rate Center from a Numbering Perspective and How Does It Relate to Inter-Carrier Compensation Reform?

A rate center¹ is used for numbering resource applications and reports to associate telephone numbers with a geographic area, as defined by the relevant regulatory agency. A rate center is also a uniquely defined point (vertical and horizontal coordinates) located within an exchange area from which mileage measurements are determined. These measurements can be used with the tariffs in the message rating processes. A local calling area may include one or more rate centers. A call to a rate center outside the customer’s local calling area may incur a toll or long distance charge.

There is a perception today that the need for rate centers will be eliminated when the transition to “bill and keep” pursuant to Inter-carrier Compensation Reform², is completed by 2020. However, although certain terminating end office charges between carriers will transition to bill and keep, other inter-carrier compensation charges will remain, such as originating access charges, tandem switching charges, local transit charges, and transport charges during the transition.

In summary, the changes made through Inter-carrier Compensation Reform will not necessarily change end user pricing.

V. What is Rate Center Consolidation?

Rate center consolidation involves aggregating two or more rate centers into a single rate center so that a local carrier can use a single numbering resource unit (NXX or NXX-X) to serve any customer in the combined area rather than requiring numbers from separate NXXs to serve customers in each of the rate centers that were combined. When combined, these adjacent geographies are identified by one rate center name and use only one set of vertical and horizontal coordinates.

VI. Rate Center Consolidation Has Been Discussed Previously

August 2000: In its second NRO Order³, the FCC recognized that the quantity of rate centers in a given NPA can contribute to inefficient use of numbering resources within the NPA, and can contribute to NPA exhaust. In that order, the FCC reinforced that the states have the authority to consolidate rate centers, and encouraged states to consolidate rate centers where possible. The FCC also sought further comment, particularly on what policies could be implemented at the federal level to reduce the extent to which the rate center model contributes to and/or accelerates numbering resource exhaust. Further, the FCC recognized that rate center consolidation may be a difficult option for many states and carriers, especially incumbent local exchange carriers, because of the historic connection between rate centers and the billing and routing of calls.

¹ ATIS-0300051, *Central Office Code Assignment Guidelines*.

² *In the Matter of Connect America Fund, et al.*, 10-90, et al., Report and Order and Further Notice of Proposed Rulemaking, FCC 11-161 (released November 18, 2011), as modified by the Order On Reconsideration, FCC 11-189 (released December 23, 2011).

³ FCC 00-429, ¶ 144-148.

Since rate centers determine which calls are local versus toll, consolidation may deprive some carriers of toll revenue.

November 2002: The NANC's NANP Expansion/Number Optimization IMG (NENO IMG) presented its report to the NANC. The [NENO IMG Report](#) examined various number optimization measures in depth, including rate center consolidation, and then compared the cost scale and net number conservation effect against the cost of expanding the NANP from 10 digits to 12 digits.⁴ The NENO IMG report defined the scope of rate center consolidation and described the conservation effect on the NPA and the NANP through a simulation conducted by the NANPA, the advantages and disadvantages of rate center consolidation, and the relative cost scale of rate center consolidation. The NENO IMG Report, based on the assumptions in the report, concluded that rate center consolidation would only extend the life of the NANP by 6 to 9 years. The NENO IMG Report also concluded that the highest cost impacts of rate center consolidation would potentially be to 911 service and carriers.

May 2006: The NANC's Future of Numbering Working Group (FoN WG) began discussing rate center consolidation under the broader context of how a more mobile/nomadic society in the future might impact the geography of numbering resources. At the time, Qwest (now CenturyLink) submitted a [contribution](#) providing significant rate center consolidation information, considerations and history. A second Qwest [contribution](#) included a suggested checklist for carriers when analyzing rate center consolidation candidates. The content of these contributions remain relevant today.

Over the last fifteen or so years, periodic rate center consolidations involving limited areas have occurred across the United States as states and/or local exchange carriers have initiated them. These rate center consolidations were implemented without major dialing, revenue or switching impacts, but only after industry work had been completed, including significant analysis of the impact of the consolidations and cooperation with the relevant state regulatory and E911 organization(s). Most of the rate center consolidations completed to date involved collapsing rate centers with similar calling scopes in particular communities of interest and did not impact the services using rate centers to rate and bill customers subscribed to local/toll usage plans. If the industry considers collapsing rate centers on a much broader scale, such as creating a single statewide rate center, the complexity and potential infrastructure impacts accelerate exponentially. See Appendix A for a list of rate center consolidations that have occurred since 2005.

VII. Impacts of Large Scale Rate Center Consolidations

In an all-IP network, rate centers may not be technically necessary for routing or rating, but the impacts of consolidating them from an operational perspective need careful consideration.

A. Overall Positive Impacts

- More efficient use of numbering resources
- Fewer numbering inventories for carriers and administrators to manage
- Fewer local calling areas to maintain
- A broader area within which local numbers can be assigned and ported
- Simpler calling plans for customers
- Likely extend the life of the NANP

B. Overall Negative Impacts

- Upgrades to legacy equipment that might not otherwise be needed (network element table or capacity limitations in switch tables, home location registers [HLRs])

⁴ The INC's NANP Expansion recommendation had been submitted to the FCC in 2001 and the NENO IMG was subsequently created.

- Acceleration of complete replacement of some legacy equipment that can't be upgraded
- Acceleration of significant changes to industry rating and routing systems
- Acceleration of significant back-office billing and provisioning system changes
- If consolidation occurs in more than one NPA, then 10-digit dialing is introduced sooner than would otherwise naturally occur
- Potential customer confusion and frustration
- Acceleration of significant labor costs to carriers to implement such changes
- Significant revenue loss for some carriers
- State regulatory review and approval of tariff changes
- If consolidation occurs across LATA boundaries, federal regulatory changes would be needed to allow calls to be transported across those LATA boundaries
- Any transport across LATA boundaries would require changes to carrier facility growth and routing plans
- Increased time necessary for coordination among carriers for implementations
- E911 impacts – e.g. the need for 911 regulatory authority approval(s), possible 911 system upgrades, additional trunking or trunking rearrangements, significant testing and coordination, etc.

VIII. Large Scale Rate Center Consolidations Will Greatly Impact Legacy Networks, Equipment, and Customers

Implementing large-scale rate center consolidations is a significant network transformation undertaking that impacts most aspects of a carrier's business. Changing the products that are dependent upon rate centers to rate and bill toll calls and the supporting network infrastructure significantly impacts a carrier across multiple lines of business. Carrier's back-office systems used for billing and provisioning would need to be overhauled. Many voice and special service offerings are governed by state commissions under tariffs, and changes to those tariffs will require state commission review and approval. Also, business customer contracts may need to be renegotiated and calling plans redesigned. Further, some legacy switches have memory constraints which physically limit the number of NPA-NXX combinations they can handle. Other network elements such as HLRs may be unable to support any significant rate center consolidations as well due to records size limitations. Carriers cannot invest in aging legacy equipment that is manufacturer discontinued. Moreover, modifications to the E911 network would need careful scrutiny to ensure zero disruption in service.

If number conservation is a concern and the primary driver for considering large scale rate center consolidations, a first step would be to mandate thousands-block pooling in all rate centers. Although this could require some carriers to update their operational support systems and/or equipment to support thousands-block pooling, it would allow for consistency, efficiency, and competitive neutrality across all rate centers in numbering allocations, and would be less impactful to the industry as a whole when compared to large scale rate center consolidation.

In summary, large scale rate center consolidations would extensively impact carrier networks (physical and translations), local/toll/special services, dialing plans, customer contracts, customer education, billing and provisioning systems, and the E911 network. Further, regulatory changes would be needed, such as state modification or dissolution of tariffs, and elimination of federal restrictions of transporting calls across LATA boundaries. Given the complexities related to large-scale rate center consolidation, it is premature to develop a plan for implementation. However, as carriers' network architecture and the market drives the need for such consolidation, the industry and regulators should work collaboratively to develop a plan.

Appendix A – Rate Center Consolidations since 2005⁵

Description	Effective Date
Per the State of Iowa Department of Commerce Utilities Board Docket TF-21014-0038 of May 1, 2014, the following Iowa Rate Centers and their subtending localities will be consolidated into the DES MOINES IA Rate Center effective September 5, 2014: ALTOONA, ANKENY, CARLISLE, GRIMES, NORWALK, WAUKEE.	09/05/14
Per Washington State Utilities and Transportation Commission Rate Letters dated 02/19/14, the following Rate Center consolidations are effective 06/01/14: RANIER to YELM; KITTITAS, LAUDERDALE, THORP, VANTAGE to ELLENSBURG.	06/01/14
Per a Minnesota Public Utility docket (P-430/AM-13-807), the OSSEO MN Rate Center is consolidated into the TWINCITIES, MN Rate Center.	02/18/14
Per a Minnesota Public Utility docket (P426/AM-10-676) the PRIOR LAKE, NEW MARKET, and WEBSTER Rate Centers are to be consolidated, effective 04/08/13, into the TWIN CITIES Rate Center.	04/08/13
Per a Minnesota Public Utility docket (P430M-12-904) the CHASTA Rate Center is to be consolidated, effective 04/01/13, into the TWIN CITIES Rate Center.	04/01/13
Via a November 7, 2012 letter, filed in Docket UT-100224, the Washington Utilities and Transportation Commission concurs with CenturyLink's plans for the FOX ISLAND Rate Center to be consolidated into the GIG HARBOR Rate Center. Per CenturyLink, this is to be effective February 15, 2013.	02/15/13
Per a Washington Utilities and Transportation Commission docket (UT-100820 - Order 14) dated March 14 2011, and Appendix C Paragraph 28c, date 12/23/10, current Rate Centers of Hunters, Winthrop, Eltopia, Basin City, Mesa, and Kahlotus will cease to exist and effectively will be incorporated into several existing Rate Centers as described in the Order.	06/15/12
Via a June 1, 2012 letter to the Oklahoma Corporate Commission from Bixby pursuant to 17 O.S. §131 a Rate Center consolidation of BIXBYNORTH and BIXBY Rate Center into the BIXBY Rate Center, effective September 29, 2012 has been approved.	09/29/12
Per a Washington Utilities and Transportation Commission docket (UT-100820 - Order 14) dated March 14 2011, and Appendix C Paragraph 28c, date 12/23/10, current Rate Centers of Hunters, Winthrop, Eltopia, Basin City, Mesa, and Kahlotus will cease to exist and effectively will be incorporated into several existing Rate Centers as described in the Order.	06/15/12
Per a Washington Utilities and Transportation Commission docket (UT-951290) dated November 29, 1995, information has just been provided by PTI Communications merging the Benge exchange into the Ritzville exchange, and the Puget Island exchange into the Cathlamet exchange.	03/05/11
Via a Utah Public Service Commission Rate Center Consolidation letter dated August 9, 2010 there is a combining of four Salt Lake County Rate Centers (Holladay, Kearns Magna, and Midvale) into a single Midvale Rate Center with V&H changes from the current Midvale Rate Center.	11/16/10

⁵ Information sourced from iconectiv's BIRRDs GUI and Neustar's NAS and may not be an exhaustive list.

Description	Effective Date
<p>The South Dakota Public Utilities Commission, Order TC10-082 and TC10-083, dated August 2, 2010 has granted the following Rate Center consolidation, effective 11/16/10:</p> <p>COLMAN incorporated into existing FLANDREAU (FLANDREAU V&H modified)</p> <p>MORRISTOWN incorporated into existing MCINTOSH (MCINTOSH V&H modified)</p>	11/16/10
<p>Via a Washington Utilities and Transportation Commission letter dated August 2, 2010, filed in Docket UT-100224, the commission concurs with CenturyLink's plan for the Fox Island and Lake Bay Rate Centers to be consolidated into the existing Arletta Rate Center. Note: Per CenturyLink, (1) this WUTC letter incorrectly shows consolidation into Arletta, (2) a revision to the letter is to be issued that the consolidation is to be into Fox Island and, (3) the effective date is 10/13/10.</p> <p>Note: Through at least 12/1/12, the commission's documentation history at its website relative to this Docket still concurs with a consolidation into Arletta NOT into Fox Island.</p>	10/13/10
<p>The South Dakota Public Utilities Commission, Order TC10-024, dated May 25, 2010 has granted the following Rate Center consolidation, effective 9/28/10:</p> <p>Old Rate Centers: SPEARFISH, LEAD, DEADWOOD, WHITEWOOD</p> <p>New Rate Center: SPEARFISH</p>	09/28/10
<p>The Nebraska Public Service Commission, Application No. C-4246, dated March 9, 2010 consolidates several Rate Centers into Hyannis, Merna, and Thedford.</p>	06/15/10
<p>Per Order of the State of New York Public Service Commission (Case 09-C-0244), effective August 15, 2009:</p> <p>All central office codes in NWYRCYZN02 will be consolidated under NWYRCYZN01</p> <p>In addition, central office codes in the 212 and 646 area codes associated with NWYRCYZN03 will be moved to NWYRCYZN01</p> <p>Finally, 917-507, 917-521, and 917-529 will move from NWYRCYZN03 to NWYRCYZN01. The remainder of 917 central office codes currently assigned to NWYRCYZN03 will remain in NWYRCYZN03.</p>	8/15/09
<p>Per a Utah Public Service Commission Rate Center Consolidation letter dated April 2, 2009, the Hiram, Logan, Richmond, and Smithfield Rate Centers into a single Logan Springs Rate Center.</p>	07/20/09
<p>Per Texas Public Utility Commission Tariff Control No. 20452 the Dale and Lytton Springs Rate Centers are consolidated into a single Dale/Lytton Springs Rate Center.</p>	06/20/09
<p>Per Minnesota department of Commerce Dockets P407-EM-08-452 and P405-AM-08-453, Apple Valley, Belle Plain - Jordan, Mound, Almelund, and Wyoming Rate Centers are to be added to the existing Twin Cities Rate Center.</p>	11/12/08
<p>The Arkansas PSC has approved, via a letter to Arkansas Telephone Cooperation dated March 4, 2008 and signed by John P. Bethel, Director, their approval of a Rate Center consolidation of Garland into Trigg and Doddridge into Fouke.</p>	05/01/08

Description	Effective Date
By Louisiana Public Service Commission Special Order No. 10-2007, issued March 21, 2007, the LPSC approved an AT&T (formerly BellSouth) petition to realign the boundaries of the New Orleans exchange/Rate Center and consolidate the Buras, Delacroix, Lake Catherine, Pointe-a-la-Hache, Port Sulphur, St. Bernard and Yscloskey exchanges/Rate Centers with the New Orleans exchange.	07/29/07
Per Utah Public Service Commission Letter dated 1/31/07 - the consolidation of the Hurricane and Springdale Rate Centers into the St. George Rate Center	04/26/07
Nebraska Public Service Commission Application No. C-3447/PI-101 entered August 30, 2005, approving the consolidation of ELKHORN and GRETNA rate centers into OMAHA rate center.	07/20/06
State of Florida. Rate Center consolidation. Per Commission order PSC-05-1123-PAA-TL. STAUGUSTIN and JULINGTON into ST JOHNS	06/04/06
State of Washington Rate Center consolidation Docket UT-050814, Order No. 7 dated October 20, 2005: ARLINGTON, GRANITEFLS, and DARRINGTON rate centers were consolidated under MARYSVILLE. The ANACORTES and SEDROWOLLY rate centers were consolidated under MT VERNON.	03/01/06
State of Washington. Rate Center consolidation. Docket UT-031803, UT-991627 dated December 10, 2003: ZILLAH into TOPPENISH; BICKLETON into MABTON; BRINNON and QUILCENE into HOODCANAL; GARDINER into PORT ANGELES; and WISHRAM into DALLESPORT.	03/01/05