

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In the Matter of	)	
	)	
Numbering Policies for Modern Communications	)	WC Docket No. 13-97
	)	
IP-Enabled Services	)	WC Docket No. 04-36
	)	
Telephone Number Requirements for IP-Enabled Services Providers	)	WC Docket No. 07-243
	)	
Telephone Number Portability	)	CC Docket No. 95-116
	)	
Developing a Unified Inter-carrier Compensation Regime	)	CC Docket No. 01-92
	)	
Connect America Fund	)	WC Docket No. 10-90
	)	
Numbering Resource Optimization	)	CC Docket No. 99-200
	)	
Petition of Vonage Holdings Corp. for Limited Waiver of Section 52.15(g)(2)(i) of the Commission's Rules Regarding Access to Numbering Resources	)	
	)	
Petition of TeleCommunication Systems, Inc. and HBF Group, Inc. for Waiver of Part 52 of the Commission's Rules	)	
	)	

**COMMENTS OF COMCAST CORPORATION**

COMCAST CORPORATION  
300 New Jersey Avenue NW, Suite 700  
Washington, DC 20001  
(202) 379-7134  
(202) 379-7141

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**COMMENTS OF COMCAST CORPORATION**

Comcast Corporation and its affiliates (“Comcast”) hereby submit these comments in response to the Notice of Proposed Rulemaking, Order, and Notice of Inquiry released by the Federal Communications Commission (“FCC” or “Commission”) in the above-captioned proceeding.<sup>1</sup>

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<sup>1</sup> *Numbering Policies for Modern Communications; IP-Enabled Services; Telephone Number Requirements for IP-Enabled Services Providers; Telephone Number Portability; Developing a Unified Intercarrier Compensation Regime; Connect America Fund; Numbering*

## I. INTRODUCTION AND SUMMARY

The Commission's stated goal in this proceeding is to implement policies that both appropriately manage access to and use of North American Numbering Plan ("NANP") numbers and modernize the FCC's rules to "promot[e] innovation, investment, and competition for the ultimate benefit of consumers and businesses."<sup>2</sup> Comcast supports this Commission initiative because it is likely to facilitate a smoother and faster transition to an all-IP world for voice services.

Consistent with its proposed approach, the Commission's initial focus with respect to granting interconnected voice over Internet Protocol ("VoIP") providers direct access to numbers should be on gathering practical, real-world experiential information from its ongoing trials. Comcast anticipates that these trials will demonstrate the need for only minor modifications to the current rules and industry practices, including:

- Allowing VoIP providers to submit alternative documentation to obtain numbers;
- Requiring VoIP providers to comply with the current number utilization rules and industry guidelines;
- Making clear that telecommunications carriers have the same legal obligations under the FCC's rules in responding to porting requests from interconnected VoIP providers as such providers have in responding to porting requests from carriers; and
- Ensuring that VoIP providers comply with the standard industry traffic routing requirements that currently apply to their numbering partners, including participation in various databases.

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*Resource Optimization; Petition of Vonage Holdings Corp. for Limited Waiver of Section 52.15(g)(2)(i) of the Commission's Rules Regarding Access to Numbering Resources; Petition of TeleCommunication Systems, Inc. and HBF Group, Inc. for Waiver of Part 52 of the Commission's Rules, Notice of Proposed Rulemaking, Order, and Notice of Inquiry, 28 FCC Rcd 5842 (2013) ("Notice" or "NPRM & NOI").*

<sup>2</sup> *Id.* ¶ 1.

The Commission also should allow VoIP Positioning Centers to receive direct access to pseudo Automatic Number Identification codes. Granting VoIP Positioning Centers direct access to the codes would improve the operation of the emergency calling network.

Finally, Comcast agrees that, as a general matter, telephone numbers eventually will no longer need to be associated with geographic areas. Before that change is implemented, however, the Next Generation 9-1-1 (“NG911”) transition should be completed and state restrictions on virtual NXX (“VNXX”) numbers should be lifted.

## **II. GRANTING INTERCONNECTED VOIP PROVIDERS DIRECT ACCESS TO TELEPHONE NUMBERS LIKELY WOULD REQUIRE ONLY LIMITED MODIFICATIONS TO EXISTING RULES AND INDUSTRY PRACTICES.**

Comcast has consistently supported Commission efforts to accelerate the ongoing “technology transitions in the delivery of voice services,” including, most notably, the transition from time division multiplexing-based (“TDM-based”) networks to IP-based networks.<sup>3</sup> Comcast agrees with the Commission that addressing the issues raised by granting interconnected VoIP providers direct access to NANP telephone numbers is a key component of that transition.

The Commission currently is conducting a limited set of trials designed to gather additional information regarding “whether, and if so how, the Commission should amend the rules to allow interconnected VoIP providers to obtain telephone numbers directly.”<sup>4</sup> These trials likely will furnish useful, real-world experience about those issues and may identify beneficial technical modifications. At this point, however, it appears that allowing

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<sup>3</sup> *Id.*

<sup>4</sup> *Id.* ¶ 88.

interconnected VoIP providers direct access to telephone numbers will necessitate only limited modifications to the FCC’s existing regulations and the industry’s standard practices.<sup>5</sup>

**A. Documentation Required to Obtain Numbers**

The Commission’s rules currently require each applicant for telephone numbers to provide evidence that it is “authorized to provide service in the area for which the numbering resources are being requested.”<sup>6</sup> Competitive local exchange carriers (“LECs”) frequently satisfy the requirement by submitting a certificate of public convenience and necessity (“CPCN”) issued by a state regulatory commission.<sup>7</sup> As the Commission points out in the Notice,<sup>8</sup> however, many states do not offer such certificates to interconnected VoIP providers because they have deregulated IP voice services.<sup>9</sup> In other states, VoIP providers that have chosen to

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<sup>5</sup> There certainly is no need for the Commission to resolve separate questions about IP interconnection prior to granting VoIP providers access to numbers. While “[s]ome commenters argue that the Commission should address interconnection-related issues before granting interconnected VoIP providers direct access to numbers[,]” the Commission need not and should not delay moving forward with its proposed VoIP numbering initiative. *Id.* ¶ 52. VoIP providers are already entering into voice interconnection agreements without regulatory intervention. As the record in other pending FCC proceedings demonstrates, Comcast and other VoIP service providers currently are using market-based approaches to explore novel ways to interconnect their voice services on an IP-to-IP basis through negotiated commercial agreements. *See, e.g.*, Comments of Comcast Corporation, GN Docket No. 13-5, at 4-7 (July 8, 2013). In fact, as the Commission itself notes, “granting VoIP providers direct access to numbers would facilitate several types of VoIP interconnection,” which means that granting interconnected VOIP providers direct access to numbers is likely to accelerate market-based IP interconnection. NPRM & NOI ¶ 54.

<sup>6</sup> 47 C.F.R. § 52.15(g)(2)(i).

<sup>7</sup> *Numbering Resource Optimization*, Report and Order and Further Notice of Proposed Rulemaking, 15 FCC Rcd 7574, ¶ 97 (2000).

<sup>8</sup> NPRM & NOI ¶ 20.

<sup>9</sup> *See, e.g.*, Mass. Ann. Laws ch. 25C § 6A (LexisNexis 2013); N.J. Rev. Stat. § 48:17-35 (“Except as otherwise provided in this act, . . . neither the State, nor any department, agency, board or commission thereof, nor any political subdivision of the State shall enact, adopt or enforce any law, ordinance, resolution, rule, regulation, order, standard or other provision, either directly or indirectly, having the force and effect of law that regulates, or has the effect of

offer their voice service as an information service and partner with competitive LECs similarly would not be able to obtain a CPCN.<sup>10</sup>

Accordingly, VoIP providers should be permitted to offer different documentary evidence to establish that “they do or plan to offer service in a particular geographic area.”<sup>11</sup> For example, VoIP applicants could provide a copy of a recently-filed FCC Form 499-A. The form, which all interconnected VoIP providers must file upon commencing service and annually thereafter,<sup>12</sup> requires the submitting party to indicate the “jurisdictions in which the filer provides service” as well as “jurisdictions in which service is likely to be provided in the next 12 months.”<sup>13</sup> The FCC form, thus, would provide to those assigning telephone numbers the necessary information regarding the geographic areas that an applicant for numbers serves or plans to serve, much like the CPCN does on a state level.

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regulating, the rates, terms and conditions of VoIP service or IP-enabled service offered to customers.”).

<sup>10</sup> The FCC has recognized that in the absence of a definitive decision by the Commission on the classification of VoIP, voice providers elect to offer service either as a telecommunications carrier or as an information service provider that partners with an affiliated or unaffiliated telecommunications carrier. *See, e.g., Telephone Number Requirements for IP-Enabled Services Providers; Local Number Portability Porting Interval and Validation Requirements; IP-Enabled Services; Telephone Number Portability; CTIA Petitions for Declaratory Ruling on Wireline-Wireless Porting Issues; Final Regulatory Flexibility Analysis; Numbering Resource Optimization, Report and Order, Declaratory Ruling, Order on Remand, and Notice of Proposed Rulemaking*, 22 FCC Rcd 19531, n.62 (2007).

<sup>11</sup> NPRM & NOI ¶ 21.

<sup>12</sup> *See, e.g., 2013 Instructions to the Telecommunications Reporting Worksheet, FCC Form 499-A*, at 2 (Feb. 2013), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-319222A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-319222A1.pdf) (“the Commission requires telecommunications carriers and certain other providers of telecommunications (including . . . VoIP service providers) to report each year on the Telecommunications Reporting Worksheet”); *id.* at 6 (“New telecommunications carriers and other providers of telecommunications or filers with changed registration information must complete pages 1, 2, 3, and 8 of FCC Form 499-A and submit them within one week of such change[.]”).

<sup>13</sup> 2013 FCC Form 499-A Telecommunications Reporting Worksheet, FCC Form 499-A, at 3 (Feb. 2013), [http://hraunfoss.fcc.gov/edocs\\_public/attachmatch/DOC-319223A1.pdf](http://hraunfoss.fcc.gov/edocs_public/attachmatch/DOC-319223A1.pdf).

## **B. Number Utilization**

One concern raised by the Notice is whether granting interconnected VoIP providers direct access to numbers would “accelerate telephone number exhaust and promote waste of this valuable resource.”<sup>14</sup> The Commission can mitigate this concern by requiring VoIP providers that receive numbers to comply with the existing number utilization and optimization requirements and industry guidelines, which apply to telecommunications carriers today.<sup>15</sup>

In particular, VoIP providers should be required to file their Numbering Resource Utilization/Forecast (“NRUF”) reports directly with the North American Numbering Plan Administrator, just as traditional telecommunications carriers do.<sup>16</sup> This will help improve the Commission’s tracking of number utilization, and rather than accelerate telephone number exhaust and promote waste, it likely will help reduce it. Today, NANP numbers that VoIP providers receive through their competitive LEC partners are often reported as “assigned” irrespective of “whether or not the VoIP provider has an end-user customer for the numbers.”<sup>17</sup> As a result, the Commission does not currently have an accurate estimate of the actual quantity of numbers that are in use. Requiring VoIP providers to file NRUF reports directly will give the Commission more precise information about how many numbers actually are assigned to end users and thus will provide the Commission “a significantly more accurate assessment of number utilization.”<sup>18</sup>

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<sup>14</sup> NPRM & NOI ¶ 24.

<sup>15</sup> *Id.* ¶ 22.

<sup>16</sup> 47 C.F.R. § 52.15(f).

<sup>17</sup> NPRM & NOI ¶ 22.

<sup>18</sup> *Id.*

The Commission should reject other, more draconian measures. In particular, state commissions should not be permitted to bar VoIP providers from obtaining access to numbers in non-pooling rate centers.<sup>19</sup> That approach clearly would be anti-competitive because the restriction would apply only to VoIP providers and not their rivals. Moreover, that suggestion is flatly inconsistent with an overriding goal of this and other FCC proceedings: accelerating the transition to IP voice services – a goal that clearly is not advanced by handicapping VoIP providers.

The existing number utilization safeguards have been effective in curbing prior wasteful practices. Requiring VoIP providers to comply with the same utilization requirements and guidelines should ensure that the Commission has a reasonable opportunity to analyze the results of its proposed VoIP numbering trial and determine whether additional utilization safeguards are needed that would apply equally to *all* voice providers.

### **C. Number Porting**

The Commission’s existing rules already impose on interconnected VoIP providers an “affirmative legal obligation to take all steps necessary to initiate or allow a port-in or port-out itself or through the telecommunications carriers, if any, that it relies on to obtain numbering resources[.]”<sup>20</sup> This obligation extends to all VoIP providers, whether they obtain numbers directly or through a competitive LEC partner.<sup>21</sup> There similarly should be no doubt that telecommunications carriers are required to comply with the same obligations in responding to porting requests by interconnected VoIP providers. As the Commission notes, consumers that subscribe to “interconnected VoIP services should enjoy the benefits of local number portability

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<sup>19</sup> *Id.* ¶ 26.

<sup>20</sup> 47 C.F.R. § 52.34(a).

<sup>21</sup> NPRM & NOI ¶ 59.

without regard to whether the VoIP provider obtains numbers directly or through a carrier partner.”<sup>22</sup> Accordingly, to eliminate any alleged ambiguity, the Commission should modify its rules in the manner it proposes in the Notice in order to make clear that the applicable FCC requirements extend to porting requests by all interconnected VoIP providers.<sup>23</sup>

The Commission also should extend to interconnected VoIP providers that receive direct access to numbers the same geographic limitations on porting that currently apply to wireline carriers for port-outs to wireline and wireless carriers – but only for so long as state commissions continue to establish local calling areas on the basis of incumbent LEC wire centers.<sup>24</sup> Specifically, VoIP providers should only be required to port numbers to a wireline carrier with facilities or telephone numbers in the same rate center,<sup>25</sup> or to a wireless carrier whose coverage area overlaps with the geographic location of the customer’s rate center (so long as the wireless carrier maintains the number’s original rate center designation following the port).<sup>26</sup> The FCC should continue to rely on industry working groups to establish the “best practices” and appropriate geographic limitations, if any, for other types of ports, including new porting scenarios that arise in the future.

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<sup>22</sup> *Id.* ¶ 61.

<sup>23</sup> *Id.*

<sup>24</sup> If the Commission ultimately implements a numbering regime that no longer ties NANP numbers to particular geographic areas, these geographic limitations on porting should no longer apply.

<sup>25</sup> NPRM & NOI ¶ 63 (citation omitted).

<sup>26</sup> *Id.* (citing *Telephone Number Portability; CTIA Petitions for Declaratory Ruling on Wireline-Wireless Porting Issues*, Memorandum Opinion and Order and Further Notice of Proposed Rulemaking, 18 FCC Rcd 23697, ¶ 22 (2003)).

#### **D. Databases and Call Routing**

The specific details of arrangements for routing IP voice traffic between different providers today generally are contained in agreements that have been voluntarily negotiated by the parties involved. Making NANP numbers directly accessible by VoIP providers should not necessitate any new routing requirements. Rather, VoIP providers granted direct access to numbers should simply take over the duties and responsibilities currently assumed by their competitive LEC partners, such as complying with the existing, standard industry routing requirements, including participation in the various databases, in order to ensure reliable call completion. Beyond these basic industry requirements, agreements between providers will continue to be the most efficient way to address the technical nuances of routing calls between different network configurations.

The accurate population of key databases, such as the local exchange routing guide (“LERG”) database, is essential today to ensure that voice traffic is reliably transmitted to the called locations. Pursuant to current industry guidelines, telecommunications carriers that have direct access to NANP numbers are responsible for updating the LERG information. Consequently, until a suitable alternative to the NANP system has been deployed, such as a public or national E.164 Number to URI Mapping (“ENUM”) database, VoIP providers that obtain direct access to NANP numbers similarly should populate the LERG database by listing each VoIP provider’s identifying operating company number with the active NANP numbers assigned to the provider. Voice service providers that have interconnection agreements with VoIP providers then will be able to use the LERG to route calls to the appropriate providers. If a voice provider does not have an interconnection agreement with a particular terminating VoIP provider, the originating service provider can use the Common Language Location Identifier

code in the LERG database to identify the switch serving the VoIP provider's phone numbers and route the call accordingly.<sup>27</sup>

VoIP providers that receive direct access to numbers and use an unaffiliated service provider to carry their long distance traffic also should be encouraged to populate another routing and number database. Specifically, such providers should list their own identifying code,<sup>28</sup> as well as the name and identifying code and name of their long distance supplier,<sup>29</sup> in the proper fields in the NPAC database. The availability of this identifying information in a database that also lists associated telephone numbers or number pool blocks will assist in the prompt resolution of any routing issues that may arise. In the event of a call completion issue, this information in the NPAC database would enhance the ability of a terminating service provider to address and resolve the problem with the parties involved.

The Commission also seeks comment on “how numbering schemes and databases integral to the operations of PSTN call routing will need to evolve to operate well in IP-based networks.”<sup>30</sup> Comcast anticipates that the transition to an all-IP world for voice service will have two major impacts on call routing. First, the industry will need to replace the existing arrangements for call routing, which were designed for the legacy TDM-based network. Specifically, the industry must create standards for the routing of IP-based voice traffic using databases such as ENUM. In addition, it will need to establish procedures to govern call routing during the transitional period in which both legacy and IP-based routing databases

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<sup>27</sup> Letter from Brita D. Strandberg, Vonage Holdings Corp., to Marlene H. Dortch, FCC Secretary, CC Docket No. 99-200, at 4 (July 31, 2012).

<sup>28</sup> This would require completion of the Service Provider Identification field in the Number Portability Administration Center (“NPAC”) database.

<sup>29</sup> This would require completion of the Alternative Service Provider Identification and Alternative Service Provider Identification Company Name fields in the NPAC database.

<sup>30</sup> NPRM & NOI ¶ 46.

simultaneously are used to handle VoIP traffic. Although the Commission should, as it proposes, encourage the development of the necessary new call routing standards and procedures, the industry should take the lead in establishing the relevant parameters that will work for all voice service providers in a broad range of potential routing scenarios.<sup>31</sup>

Second, Comcast anticipates that the transition to an all-IP world for voice traffic generally will simplify the routing process. For example, calling name (“CNAM”) databases may no longer be necessary, as caller identification information can easily be added to the other header information that is transmitted as part of a Session Initiation Protocol (“SIP”) call. As a first step toward ending reliance on CNAM databases, the Commission should encourage all VoIP providers to include the authorized names and telephone numbers of calling parties with the call header information (*i.e.*, as part of the P-Asserted-Identity SIP call header). Formal rules or requirements, however, should not be adopted at this time. In the interim transitional period, it will be most efficient to allow parties using SIP signaling to exchange IP voice traffic to negotiate the information to be included in the header. For example, the negotiating parties may need to agree on an efficient arrangement for translating the information contained in the SIP header for calls that are exchanged in IP, but ultimately terminated in TDM format.

### **III. VOIP POSITIONING CENTERS SHOULD RECEIVE DIRECT ACCESS TO P-ANI CODES.**

VoIP Positioning Centers (“VPCs”) furnish call routing instructions to VoIP service providers and Automatic Location Information to public safety answering points (“PSAPs”). VPCs, thus, perform a vital role in ensuring that VoIP 911 calls are transmitted to the proper PSAP and that the PSAP receives accurate information regarding the caller’s location. These

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<sup>31</sup> *Id.*

important functions are dependent on the ability of VPCs to acquire and manage pseudo Automatic Number Identification (“p-ANI”) codes.

Because p-ANI codes are considered numbering resources, the Commission’s rules, as noted above, currently require applicants for such codes to provide evidence of their authority to provide service in the areas where they are requesting the numbers.<sup>32</sup> In 2008, the Commission allowed interconnected VoIP providers direct access to p-ANI codes.<sup>33</sup> VPCs, however, remain unable to gain direct access to the codes in states that will not issue the necessary certification to them. In those instances, the VPCs must rely on VoIP providers to obtain the codes and provide them to the VPCs. The Commission’s Notice seeks comment on whether it should amend its rules to eliminate the evidence of service authorization requirement for VPCs seeking access to p-ANI codes.<sup>34</sup>

Clearly, allowing all VPCs to obtain direct access to p-ANI codes would streamline the code assignment process by eliminating the unnecessary involvement of VoIP providers. Moreover, granting direct access would enable more efficient use of the p-ANI codes. When a VPC obtains a set of p-ANI codes indirectly through a VoIP provider, the VPC must dedicate those codes for use solely with 911 calls from the individual VoIP provider that obtained the codes. In contrast, a VPC that obtains a set of p-ANI codes directly can use the assigned codes to route 911 calls from different VoIP providers and, thus, make more efficient use of the codes. In light of these anticipated benefits, the Commission should modify its rules to allow all VPCs

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<sup>32</sup> 47 C.F.R. § 52.15(g)(2)(i).

<sup>33</sup> *Implementation of the NET 911 Improvement Act of 2008*, Report and Order, 23 FCC Rcd 15884, ¶¶ 21-29 (2008).

<sup>34</sup> NPRM & NOI ¶ 81.

direct access to p-ANI codes for the purposes of provisioning and facilitating 911 and E911 service.

#### **IV. TELEPHONE NUMBERS EVENTUALLY SHOULD NOT BE TIED TO PARTICULAR GEOGRAPHIC AREAS.**

The Commission correctly notes that the “development of mobile services and IP technology” has changed the ways in which consumers use telephone numbers and has raised questions regarding the need to continue associating numbers with specific geographic locations.<sup>35</sup> Indeed, the FCC observes that the “end-user telephone number has been decoupled from routing” and that an increasing number of customers (*e.g.*, wireless customers, Skype users) are able to keep their telephone numbers when they change locations.<sup>36</sup> In light of these ongoing changes, Comcast agrees that eventually there generally will be no need to associate NANP numbers with particular geographic areas. Moreover, because the implementation of a numbering system that does not tie an NPA/NXX code to a particular geographic area should permit wireline users to take their numbers with them when they move, regardless of the distance from their current location, the overall demand for new numbers should be reduced.

Before telephone numbers are freed of their geographic restrictions, however, two important matters must be addressed. First, in order for the routing of 911 calls from numbers that are not associated with particular geographic areas to be handled seamlessly, the NG911 system must be fully deployed. For example, the devices (selective routers) that determine the appropriate PSAP for 911 call delivery must be upgraded from a legacy TDM switch to a SIP routing function during the NG911 transition so that they are capable of properly routing 911 calls from any geographical location regardless of NPA/NXX. Because selective routers

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<sup>35</sup> *Id.* ¶ 117.

<sup>36</sup> *Id.* ¶ 120.

currently do not have this capability, prematurely divorcing telephone numbers from their current geographic associations would unnecessarily disrupt the industry's ongoing NG911 efforts by requiring the development and deployment of interim selective router updates. When NG911 is fully deployed, emergency call routing will be based on X and Y coordinates. At that point, NPA/NXX and rate center boundaries will no longer be needed to route 911 calls to the appropriate PSAPs and telephone numbers could be freed from geographic limitations without impacting the efficient and reliable provision of access to emergency services. Second, to the extent that any state prohibits carriers from, or otherwise restricts carriers in, assigning so-called VNXX numbers (*i.e.*, telephone numbers assigned to customers who are not physically located in the geographic areas associated with the assigned numbers), such limitations, as a practical matter, cannot coexist with a non-geographic numbering regime.

The Commission also should design a numbering system that generally assigns telephone numbers without regard to geographic location to be capable of accommodating limited requests for new telephone numbers that are associated with specific geographic areas. For example, for the foreseeable future, state and local governments, hospitals, and other essential institutions may want to be able to continue to obtain telephone numbers that are associated with the geographic locations of their offices and facilities. Commercial customers also may want the same option in order to convey that they have a presence in a particular local community. Finally, some residential consumers moving to a new community may wish to exchange their existing number for one with an area code associated with that location.

## V. CONCLUSION

Comcast supports Commission initiatives that are designed to facilitate a faster and smoother transition to an all-IP world for voice services. The proposal to grant interconnected VoIP providers direct access to NANP telephone numbers is a useful step toward that goal. To implement that proposal while minimizing concerns about adverse effects, the Commission need only take limited actions necessary to ensure that the existing number utilization, portability, and routing requirements are appropriately applied to such providers. The Commission also should grant VPCs direct access to p-ANI codes. Finally, the Commission should ensure that NG911 has been fully deployed and state VNXX restrictions have been removed before permitting the assignment of telephone numbers that are not associated with specific geographic areas.

Respectfully submitted,

*/s/ Kathryn A. Zachem*

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Kathryn A. Zachem  
Mary McManus  
*Regulatory Affairs*

Lynn R. Charytan  
Brian A. Rankin  
Andrew D. Fisher  
*Legal Regulatory Affairs*

A. Richard Metzger, Jr.  
Emily J.H. Daniels  
LAWLER, METZGER, KEENEY & LOGAN, LLC  
2001 K Street NW, Suite 802  
Washington, DC 20006  
*Attorneys for Comcast Corporation*

COMCAST CORPORATION  
300 New Jersey Avenue, NW,  
Suite 700  
Washington, DC 20001  
(202) 379-7134  
(202) 379-7141

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