In the Matter of
Vonage Holdings Corp.
Petition for Limited Waiver
Of Section 52.15(g)(2)(i) of the Commission’s
Rules Regarding Access to Numbering
Resources

CC Docket 99-200

COMMENTS OF BANDWIDTH.COM, INC., HYPERCUBE, LLC,
LEVEL 3 COMMUNICATIONS, LLC,
PAC-WEST TELECOMM, INC., AND COMPTEL

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Bandwidth.com, Inc. (“Bandwidth.com”), Hypercube Telecom, LLC (“Hypercube”), Level 3 Communications, LLC (“Level 3”), Pac-West Telecomm, Inc. (“Pac-West”), and COMPTEL (collectively, “Joint Commenters”) submit these comments in response to the Wireline Competition Bureau’s Public Notice (“Public Notice”)\(^1\) seeking comment on the petitions (“Petitions”) of Vonage and other non-carriers (collectively, “Petitioners”) for limited waiver of section 52.15(g)(2)(i) of the Commission’s rules to allow the requesting Voice over Internet Protocol (“VoIP”) providers direct access to numbering resources from the North American Numbering Plan Administrator and the Pooling Administrator.\(^2\)


\(^2\)Vonage Holdings Corporation Petition for Limited Waiver of Section 52.15(g)(2)(i) of the Commission’s Rules Regarding Access to Numbering Resources, filed March 4, 2005. For a complete listing of the other Petitions, see Public Notice at 1, n.1.
I. SUMMARY

The Joint Commenters welcome the Commission’s invitation to refresh the record in this proceeding in order to highlight critical implementation, interoperability, and other concerns implicated by a non-carrier VoIP provider’s request for direct access to numbering resources. The Joint Commenters are opposed to granting such direct access to numbering resources to non-carriers and urge the Commission to deny the Petitioners’ waiver requests.

The Petitioners have not met the legal standard for granting such a Petition: as discussed below, there are neither “special circumstances” to warrant a waiver, nor meaningful “public interest” benefits. Any benefits that may exist would accrue uniquely to the Petitioners. Furthermore, a Commission decision to grant VoIP providers access to numbering resources on a waiver basis threatens to disrupt the interoperability of the Public Switched Telephone Network (“PSTN”) and may harm the public interest.

Granting individual ad hoc Petitions would be discriminatory to carriers like the Joint Commenters, in addition to other VoIP providers who have not requested similar waivers. For instance, if the Commission were to grant only the Petitions at issue in this proceeding, it would provide the Petitioners with a unique and unfair advantage over carriers and other VoIP providers alike. Furthermore, if the Commission were to grant all the Petitions at once, it would open the door to providing numbering resources to a litany of other VoIP providers, which could significantly diminish number inventories in areas near exhaust. Number exhaust issues are directly impacting consumers and carriers in many areas throughout the country. Of course, these issues are also closely monitored by the state commissions, which manage exhaust relief...
through overlays and splits among other actions, and many of which have registered their opposition to the Petitions in the past.3

Permitting non-carriers to obtain phone numbers without any clear standard as to how interconnections will be performed, how routing will occur, or when a VoIP provider is qualified to obtain direct access to numbering resources will cause serious routing and other network disruptions. The Joint Commenters provide a detailed description of just some of these potential implementation issues, but are concerned that there may be additional, unforeseen problems that will only become apparent if live traffic suddenly began flowing.

The Commission should therefore deny the limited waivers requested by Petitioners.4 If the Commission has continued interest in the idea of permitting non-carriers to more directly utilize numbering resources, the Commission should take a more conservative approach, for the sake of preserving the integrity of the PSTN, and issue a notice of proposed rulemaking (“NPRM”) to consider whether and how to proceed.5

II. THE JOINT COMMENTERS

Joint Commenters share the Commission’s goals of moving to an all-IP network, encouraging IP-to-IP interconnection, and introducing innovative, competitive IP-centric services. In fact, the Joint Commenters are some of the nation’s leading IP-centric carriers.

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4 If the Commission were to grant any of the Petitions, which the Joint Commenters do not recommend, Joint Commenters urge the Commission to adopt an implementation plan requirement, discussed in further detail below.
5 Many of relevant issues are already teed up in other Commission proceedings, particularly the IP-Enabled Services proceeding, and the Commission could pursue these issues therein. See In the Matter of IP-Enabled Services, WC Docket No. 04-36 (2004).
However, this waiver will introduce serious implementation and interoperability issues and will be a step backward in the effort to realize an orderly transition to an all-IP network.

The following provides some brief background on the Joint Commenters:

**Bandwidth.com**: Bandwidth.com is the nation's largest and fastest growing integrated voice and emergency service network provider. Bandwidth.com’s wholesale division is inetwork, which offers a complete set of high-quality services that address the needs of both emerging VoIP players and established voice carriers. Its comprehensive, integrated wholesale portfolio includes static and nomadic E911 solutions, nationwide voice origination and termination, Toll Free, and SMS services. Founded in 1999, Bandwidth.com is a profitable and rapidly growing company headquartered in Research Triangle Park, NC and with offices in Denver, Colorado.

**Level 3**: Level 3 Communications, Inc. (NYSE: LVLT) is a premier global provider of IP-based communications services to enterprise, content, government and wholesale customers. Over its reliable, scalable and secure network, Level 3 delivers integrated IP solutions, including converged, data, voice, and video and managed solutions to help enable customers' growth and efficiency. Level 3 operates a unique global services platform anchored by owned fiber networks on three continents in more than 45 countries, connected by extensive undersea facilities. Level 3 is one of the largest network and facilities based provider of voice and emergency services and is a registered CLEC in 50 states. Level 3 is headquartered in Broomfield, Colorado.

**Hypercube**: At the forefront of a new generation of communications enablement companies, HyperCube bridges the networks of emerging and traditional service providers alike. HyperCube processes billions of calls every month through its flexible, state-of-the art platforms that traverse the continental United States and nearby areas. HyperCube provides competitive
switching and seamless interconnections on behalf of the largest wireless, traditional and virtually all other types of service providers regardless of the technology they employ. HyperCube operates a nationwide network, which enables continued success in the growing areas of mobility, mobile applications, smart devices and cloud-based services. HyperCube, a privately held company headquartered near Dallas, Texas, recently announced a definitive agreement to be acquired by West Corporation, a leading provider of technology-driven, voice and data solutions headquartered in Omaha, Nebraska.

**Pac-West:** Pac-West is a California-based provider of advanced telecommunications and data services, enabling traditional and next-generation carriers to efficiently design, deploy, and deliver integrated communications solutions. Pac-West is at the forefront of cloud-based telecommunications technology, offering advanced cloud-hosted local and long-distance products under the Telastic brand. In addition, Pac-West supports a full suite of origination, termination, managed modem, co-location, database, and transport services seamlessly linking wireless, TDM and IP networks.

**COMPTEL:** Based in Washington, D.C., COMPTEL is the leading industry association representing competitive communications service providers and their supplier partners. COMPTEL members are entrepreneurial companies driving technological innovation and creating economic growth through competitive voice, video, and data offerings, as well as the development and deployment of next-generation IP-based networks and advanced services utilizing fiber, copper and wireless facilities. COMPTEL works to ensure that competitive communications providers can continue to offer value pricing, better service, and greater innovation to consumers. COMPTEL’s members create economic growth and improve the
quality of life of all Americans through technological innovation, new services and affordable prices so customers have a choice.

III. PETITIONERS HAVE NOT MET THE LEGAL STANDARD TO OBTAIN A WAIVER

There is no dispute as to the legal standard to obtain a waiver of the Commission’s rules:

The Commission may waive its rules when good cause is demonstrated. The Commission may exercise its discretion to waive a rule where the particular facts make strict compliance inconsistent with the public interest. In doing so, the Commission may take into account considerations of hardship, equity, or more effective implementation of overall policy on an individual basis. Commission rules are presumed valid, however, and an applicant for waiver bears a heavy burden. Waiver of the Commission’s rules is therefore appropriate only if special circumstances warrant a deviation from the general rule, and such a deviation will serve the public interest.

In the Matter of Administration of the North American Numbering Plan, CC Docket 99-200, Order, CC Docket 99-200, at ¶ 3 (rel. Feb. 1, 2005) (“SBCIS Waiver Order”) (citations omitted, emphasis added). The Petitioners have not met the “heavy burden” that must be met to waive the Commission’s rules. None of the Petitioners have demonstrated that “special circumstances” warrant a deviation from the general rule, nor that such a deviation would serve the public interest.

A. The Petitioners Have Not Demonstrated “Special Circumstances”

There are no “special circumstances” that warrant a deviation from today’s rule that only carriers can obtain numbering resources. The Petitions have been pending for almost seven years, and nothing has changed recently that would warrant special treatment for any of the Petitioners, or any other VoIP provider, at this time. If anything, there is less reason today to grant the Petitions. In 2007, the Commission, in establishing VoIP local number portability (“LNP”) requirements, reiterated that VoIP providers “may not obtain numbering resources
directly from the NANPA because they will not have obtained a license or a certificate of public convenience and necessity from the relevant states. In the meantime, carriers such as Joint Commenters—and even some of the Petitioners themselves—have developed sophisticated wholesale products enabling VoIP providers to obtain wholesale telecommunications services to support their VoIP products.

B. The Petitioners Have Not Shown That Deviation from the Rules Will Serve the Public Interest

The “public interest” benefits of granting the Petitions touted by the Petitioners are tenuous, and the potential for harming the public interest, particularly if the Commission acts on a waiver basis, is great given the potential for disruption to call routing, additional number exhaust, and confusion related to compensation and interconnection obligations. These adverse “side effects” are discussed in greater detail below. To the extent that the Petitioners hold out any legitimate “public interest” benefits, these could all be achieved if Petitioners were to take the steps to create a separate telecommunications carrier affiliate, as have other VoIP providers and cable companies.

Furthermore, there remain a large number of unresolved regulatory issues as the industry shifts to all-IP networks, and granting the Petitions before such issues are resolved would cause additional and unnecessary uncertainty. As the Commission has recently recognized, market

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7 See, e.g., Ex Parte Letter from Brita D. Strandberg, Counsel to Vonage Holdings Corp., to Marlene H. Dortch, Secretary, FCC, CC Docket No. 99-200, at 2 (Dec. 6, 2011).

uncertainty discourages investment. Granting any of the Petitions is fundamentally unfair and discriminatory as to existing carriers and other VoIP providers who have not sought similar waivers, and will have a chilling effect on the industry by introducing new regulatory uncertainty.

IV. GRANTING THE PETITIONS WILL CAUSE SERIOUS ROUTING ERRORS, NUMBER EXHAUST, AND OTHER ISSUES

Joint Commenters believe that there are several implementation issues related to the inherent connection between numbering resources and critical call routing, efficient number management, compensation, and interconnection issues that must be addressed before the Commission should consider granting non-carrier VoIP providers access to numbering resources. Even if VoIP providers agree that they would comply with all of the Commission’s numbering requirements, there remain serious issues as to the technical feasibility of call routing once non-carriers are provided direct access to numbers.

A. Call Routing Issues

At this point, it is unclear how call routing will work at the most basic level for non-carriers that attempt to utilize their own numbering resources. Because VoIP providers are not carriers, their switches do not appear in the Local Exchange Routing Guide (“LERG”). Carriers are able to send traffic to, and receive traffic from, a given telephone number because it is associated with a switch that appears in the LERG. If there are phone numbers that are not associated with any switch, carriers will not know where to route those calls. In such situations, the results will be indeterminate and will likely cause end user confusion and potentially interfere

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9 See, e.g., Connect America Fund Order, at ¶¶ 9, 39.
10 See Ex Parte Letter from Brita D. Strandberg, Counsel to Vonage Holdings Corp. to Marlene H. Dortch, Secretary, FCC, CC Docket No. 99-200, at 6 (Nov. 11, 2011) (“Vonage Nov. 11 Ex Parte”).
with emergency services and response. Today, phone numbers utilized by VoIP providers are accessed indirectly through a LERG-listed carrier connected with those phone numbers. Today’s system should be retained because it works, and carriers are able to ensure that calls are appropriately routed. However, if the Commission intends to effectuate a fundamental change to the system, it should not be done on an ad hoc basis but rather through an NPRM. There are significant industry-wide issues that are more appropriately addressed in a separate, comprehensive NPRM considering whether and how to implement a system where non-carriers can obtain direct access to phone numbers, and still maintain the same level of call completion and routing standards the industry exhibits today.

While there are new transit services in the market, there is still no established rule-set as to how call routing look-ups for non-carriers that are not listed in the LERG will be accomplished. Again, the Petitioners have failed to meet their “heavy burden” to demonstrate that their deviation from the rules is workable. In the case of SBCIS, it was closely affiliated with SBC, a large ILEC with significant resources. When these numbers were allocated to SBCIS, traditional LERG-based carrier routing was established so that calls completed correctly. This was possible because of the fact that SBCIS was affiliated with a carrier, namely, SBC. In the case of the Petitioners, there has been no demonstration that any such carrier relationship exists. To accomplish their apparent goals, Petitioners should be encouraged to become state-certificated carriers. Such an approach would allow them to participate in the LERG routing system instead of forcing an unnecessary industry change by introducing a host of non-LERG-accessible phone numbers.

Basic call routing is just the tip of the iceberg, however. There are multiple routing sub-issues where the questions become more difficult to resolve. For instance, in rate centers where
thousands-block number pooling has been implemented, service providers have many
responsibilities, which vary depending on whether the service provider is acting as a Code
Holder of a non-pooled NXX, a Code Holder of a pooled NXX, a Block Applicant, or a Block
Holder.\textsuperscript{11} Among other things, the Code Holder of a pooled NXX is responsible for the default
call routing functions associated with the pooled NXX Code, regardless of how many blocks are
actually associated with that Code Holder.\textsuperscript{12}

If a non-carrier VoIP provider were allowed to become a Code Holder of a pooled NXX,
it would become responsible for default routing of calls to that pooled NXX. Even if a VoIP
provider claimed it possessed ubiquitous IP interconnection, which no provider can claim today,
if any given call required default routing to a carrier that does not have IP-interconnection
capabilities within a LATA, the non-carrier VoIP provider would be unable to perform its Code
Holder responsibilities. The calls that must be terminated to that carrier will fail because a non-
carrier that presumably only has IP-interconnection capabilities will not be able to ensure “N-1
default routing” works.

Further, the Joint Commenters submit that there are significant risks related to number
exhaust that must be addressed before the Commission contemplates granting VoIP providers
waivers such as those requested by Petitioners. Inefficient number resource management is not
an issue that will be ironed out over time by adding VoIP providers to the market, but one that
will become exacerbated by additional entry. For instance, a location routing number (“LRN”) is
required for carriers to have the ability to perform call routing, number pooling, and number
porting functions.\textsuperscript{13} LRN functionality is the linchpin to number pooling, the principal number

\textsuperscript{11}See ATIS “Thousands-Block Number (NXX-X) Pooling Administration Guidelines,” at 11-12 (Nov. 28,
2011).
\textsuperscript{12}See id. at 13.
\textsuperscript{13}See ATIS “Location Routing Number (LRN) Assignment Practices,” at 1-2 (Sept. 30, 2011).
conservation tool.\textsuperscript{14} However, in order to obtain an LRN, a service provider must become a Code Holder in each LATA within which it wishes to operate in order to perform number pooling and number porting functions.\textsuperscript{15} As the Commission is aware, there are legitimate concerns about exhaust of the historic North American Numbering Plan ("NANP") resources.\textsuperscript{16} The assignment of only the large number of new full NXX codes necessary to support LRNs for non-carrier VoIP providers would exacerbate the need for NPA overlays and/or splits, let alone the additional non-LRN resource requests that are likely to be made across the country. It is difficult to estimate the potential magnitude of these issues should a host of new service providers be granted access to numbering resources that would require them to establish LRNs in the LATAs in which they choose to compete across the country. Moreover, the number exhaust fallout from poor implementation of this transition would have detrimental effects across the PSTN.

Although Joint Commenters support necessary changes to existing rules and processes that encourage the development of competitive VoIP services, the Commission has never supported using real world calls as a laboratory to develop those new processes. Similarly, when the Commission granted the SBCIS Petition, it also requested the North American Numbering Council (NANC) to review "whether and how [its] numbering rules should be modified to allow IP-enabled service providers access to numbering resources in a manner consistent with [its]

\textsuperscript{14}\textit{See id.} at 1-2.
\textsuperscript{15}In order to become a Code Holder, a carrier must provide proof of authority and PSTN interconnection to demonstrate its ability to activate numbers within six months of assignment in the given rate center/LATA. ATIS “Central Office Code (NXX) Assignment Guidelines (COCAG)” (Nov. 11, 2011), at § 4.2. It is entirely unclear what the impact of a waiver would be on these types of ATIS requirements.
\textsuperscript{16}\textit{See, e.g.,} NANPA Report to the NANC (Dec. 15, 2011) (detailing the assignment of new codes in 2011, describing NPA relief activities planned for 2012, and showing NPAs that are projected to exhaust within the next 36 months).
numbering optimization policies.”\textsuperscript{17} Moreover, the Commission only granted the SBCIS waiver on an interim basis, “until the Commission adopts final numbering rules for IP-enabled services.”\textsuperscript{18} Given that the Commission has not adopted such final numbering rules, Joint Commenters urge the Commission to focus its resources first on developing such rules before permitting non-carriers to have direct access to numbering resources.

Until this groundwork has been laid, the Commission should not grant these Petitions. As detailed above, this may extend beyond the NANC to the Ordering and Billing Forum (“OBF”), ATIS, the Network Reliability and Interoperability Council, and other industry bodies to ensure that there is broad input as to whether it would be advisable for VoIP providers to obtain direct access to number resources in the first instance and, if so, what changes would be required to make such a transition as seamless as possible.

\textbf{B. Granting the Petitions Without Resolving the Compensation and Interconnection Issues Would Further Complicate the Regulatory Landscape}

The waiver petitions also present complications with respect to interconnection rights and obligations that require a closer look. Sections 251 and 252 of the Communications Act, as amended, establish carrier rights and obligations with respect to interconnection.\textsuperscript{19} If the Commission introduces non-carriers into the 251/252 mix by virtue of granting Petitioners access to numbering resources, the industry will suddenly be confronted with issues of how the interconnection and other provisions of Sections 251 and 252 would apply. For instance, do the

\textsuperscript{17}\textit{SBCIS Petition Order}, at ¶11. In July 2005, the NANC issued its VoIP Numbering Report that included in Appendix A a list of additional requirements that the Commission should apply in the event VoIP providers are granted direct access to numbers. “VoIP Service Providers’ Access Requirements for NANP Resource Assignments,” NANC Report and Recommendation by the Future of Numbering Working Group (July 19, 2005).
\textsuperscript{18}\textit{SBCIS Petition Order}, at ¶1.
\textsuperscript{19}47 U.S.C. §§ 251, 252.
interconnection obligations of carriers somehow transfer to VoIP providers once a VoIP provider receives a waiver? These types of issues should be resolved, if at all, in the context of an NPRM.

There also exist similar and important issues with respect to the collection of switched access and reciprocal compensation from VoIP providers and their carrier partners, if any. Carriers currently have the legal right to collect compensation and the Commission should not undermine these rights through this proceeding.\[^20\] As RNK has mentioned in its recent ex parte letter, carriers are already distracted by the task of implementing the *Connect America Fund Order*.\[^21\] To introduce this new set of issues on top of that implementation process would cause additional market disruption, particularly for small to mid-sized carriers.

As in the case of traffic routing, there are also other discreet billing issues to be addressed. For example, what call detail and signaling would Petitioners or other interconnected or non-interconnected VoIP providers send in their call detail records? This issue is currently being addressed within the context of AT&T’s recent waiver petition concerning the Commission’s new call signaling rules.\[^22\] The AT&T waiver petition, which was recently put out for comment, is just one of many examples of ongoing proceedings that address necessary predicates to a Commission decision to grant VoIP providers access to numbers, and demonstrates why the Commission should avoid proceeding in a disjointed manner here. In light of these and other billing and call routing concerns, the Commission should deny the Petitions at this time and, if it is intent on providing phone numbers to non-carriers, it should initiate an NPRM to address these issues.

\[^20\]See, e.g., 47 C.F.R. § 61 et seq. and 47 C.F.R. § 51.701 et seq.

\[^21\]Ex Parte Letter from Michael Tenore, Interim General Counsel, RNK Communications, to Ms. Marlene H. Dortch, Secretary, FCC, at 2 (Dec. 22, 2011).

V. CONCLUSION

Joint Commenters urge the Commission to deny the Petitions at this time because the Petitioners have not met their “heavy burden” to justify waiver of the Commission’s rules. There are no “special circumstances” that warrant a waiver of the Commission’s rules, and the ostensible “public interest” benefits are not apparent based on the facts in the record. More importantly, granting the waiver would be discriminatory, and would raise a host of basic routing, compensation, and interconnection issues that would disrupt the flow of traffic, potentially lead to additional intercarrier disputes, and would likely be contrary to the “public interest.” The Joint Commenters strongly urge the Commission to deny the Petitions and inject additional clarity into an area where carriers are already heavily burdened by regulatory uncertainty. As indicated in these comments, there remain fundamental issues to be addressed and additional work to be accomplished by industry standards groups such as the NANC, as well as the Commission itself. An NPRM is the established method to measure the advisability of granting numbers to non-carriers and to ensure that critical issues are not overlooked.

However, if the Commission intends to grant any of the Petitions without initiating an NPRM, it should do so via a process whereby existing carriers have an opportunity to address core operational and billing issues, including those raised herein. This would also give the industry adequate time to plan and adjust for the transition. As such, if a Petition were granted, the Commission should require the approved Petitioner to submit detailed implementation plans to the Commission, as suggested by Vonage,\(^2\) describing how they will manage the routing, interconnection, and compensation of all calls originating from and terminating to their phone

\(^2\)Vonage Nov. 11 Ex Parte, at 6.
numbers, in advance of obtaining numbers. The Commission should then seek public comment on, and appropriate revisions to, such plans including any additional conditions to be imposed, before granting the approved Petitioner access to numbering resources.

Again, however, this is not the preferred approach of the Joint Commenters, which ultimately believe that the industry and the public would be better served if the Commission were to deny the Petitions, or at least initiate an NPRM to address the broader implications of granting them.

Respectfully Submitted,

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