

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Technology Transitions)	GN Docket No. 13-5
)	
AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition)	GN Docket No. 12-353
)	
Numbering Policies for Modern Communications)	WC Docket No. 13-97
)	

COMMENTS OF CENTURYLINK

CenturyLink Supports the National Numbering Testbed Concept

The Commission has decided to develop “a telephony numbering testbed for collaborative, multi-stakeholder research and exploration of technical options and opportunities for telephone numbering in an all-IP network.”¹ As the Commission notes, getting numbering systems and their management “right is essential” to sound competition and consumer protection.² And developing ideas in a testbed both avoids disrupting current systems and the provision of service to customers and allows for experimentation unencumbered by “legacy

¹ *Technology Transitions; AT&T Petition to Launch a Proceeding Concerning the TDM-to-IP Transition; Connect America Fund; Structure and Practices of the Video Relay Service Program; Telecommunications Relay Services And Speech-to-Speech Services for Individuals with Hearing and Speech Disabilities; Numbering Policies for Modern Communications*; GN Docket Nos. 13-5 and 12-353, WC Docket No. 10-90, CG Docket Nos. 10-51 and 03-123, WC Docket No. 13-97, Order, Report and Order and Further Notice of Proposed Rulemaking, Report and Order, Order and Further Notice of Proposed Rulemaking, Proposal for Ongoing Data Initiative, FCC 14-5, ¶ 152 (rel. Jan. 31, 2014) (*Technology Transitions Order*); 79 Fed. Reg. 11366 (Feb. 28, 2014).

² *Id.* at ¶ 151.

notions and systems.”³ As the testbed activities occur and are assessed, parties can be considering the broad range of future network, numbering and policy issues that will percolate from the testbed results.⁴ As the Commission noted, “[h]aving a robust and factually-informed public discussion will help guide the Commission as [it makes] legal and policy choices that advance and accelerate the technology transitions” associated with migrating to an IP telecommunications network.⁵

CenturyLink supports the concept of a testbed for investigating the mechanics and management of numbering in an all-IP environment, rather than experimenting with those ideas in the live public switched telephone network. As part of our support, we participated in the recent workshop held regarding such a testbed on March 25th. That workshop was fashioned as an engineering-working session, focusing on the basic design and launch of the testbed as a non-production, prototype system for managing numbering resources and obtaining information about these resources in a post-transitions world. Progress was made at the workshop with respect to identifying possibilities along with certain challenges associated with a testbed and beginning the process of identifying next steps. Subsequent engineering workshops may be necessary, however to refine the parameters of the testbed and to further explore the many technical questions raised by an all-IP, post transitions numbering-management system.

All Participating Providers Must Commit Resources (Systems, Personnel and Dollars) in Support of the Testbed

A national numbering testbed open to all communications service providers is most

³ *Id.* at ¶ 152.

⁴ “Informed by the research, the Commission would be in a better position to consider what steps may be necessary to facilitate the technology transitions and make informed decisions toward the creation of a next generation, efficient, secure and flexible number management system, while maintaining backward compatibility to the extent possible.” *Id.*

⁵ *Id.* at ¶ 8.

appropriate, given the impacts (some anticipated and some likely unknown) that providers across the country will experience with the migration to IP. As the Commission has noted “providers of all types are migrating to next generation technologies,” including ILECs, CLECs, “cable operators, fixed and mobile wireless services providers, providers of carrier Ethernet exchange services, electrical co-ops, municipalities, and 911 service providers.”⁶ A “come one/come all” approach accommodates competitive neutrality and inclusiveness within the testing environment.

But it is just that inclusiveness that makes the notion of funding the testbed from monies currently collected from service providers in connection with number management in the PSTN-environment not appropriate. Monies assessed for PSTN-number management and maintenance (1) are calculated to address and cover the activities of the NANPA and PA as they relate to the PSTN; and (2) are currently budgeted by carriers (not all service providers expected to participate in testbed activities) for those purposes. Those funds do not carry non-forecasted contributions. Moreover, not all service providers may decide to participate in the testbed efforts. Those that currently contribute to the PSTN-number management activities should be free to forego participating without seeing their contribution going to the benefit of free-riding service providers who may have never made a contribution at all. Thus the Commission should not entertain the notion of using existing number management contributions to fund experimental testbed numbering explorations because to do so would not only be not competitively neutral but it would be fundamentally unfair.

Beyond the matter of dollar funding for the testbed activities is the question of what kind of resource dedication participants in the national numbering testbed should be expected to make. CenturyLink believes that service providers participating in testbed activities should do so

⁶ *Id.* at ¶ 30 (footnote omitted).

through their own dedicated human, network and extra-network (*e.g.*, cloud)⁷ resources that would, in turn, connect and interconnect to larger geographic boundaries (such as regional or national servers or cloud resources).⁸ This would allow the greatest opportunity for service providers to test internally the impacts on their systems and back-office operations as they interconnect and interface with national testing resources (such as bulk data downloads from the national testing numbering resource system) as well as other service providers.

The decision to participate in the testbed process and activities is entirely voluntary, and those who volunteer should bear the costs of their participation. Although the Commission believes that testbed costs will be minimal (approximately \$100 per month for server resources,⁹ which might be high or low if a cloud-based resource is introduced), the actual scope, size and financial requirements for the acquisition, set-up, operation, management and maintenance for the national level server (or, as CenturyLink suggests, an open cloud-based resource) cannot be accurately determined. Still CenturyLink believes the Commission's estimate is far too conservative and could easily be doubled or tripled or even multiplied by more.

Service providers participating in the national numbering testbed experiments should be expected to dedicate human and operational resources in support of those experiments and

⁷ The Commission refers a number of times to a “non-production server system” that might be a component of a testbed operation. *See id.* at ¶¶ 161-62. CenturyLink believes there should not be a pre-judgment that a “server” architecture is the most appropriate with respect to numbering initiatives and management in the future. A cloud-based model might well be more appropriate and CenturyLink is investigating this type of potential architecture.

⁸ Participants in the testbed activity should decide on those entity/entities that will provide the national level server(s) or open-cloud based resource(s) support for the testbed. CenturyLink stresses that the locations and provider of the server or open-cloud based resource should be neutral entities unassociated with system or equipment providers operating in the current PSTN environment and unencumbered by pre-existing vested interests. The provider of these resources must be able to facilitate the testing and code development in both a neutral and transparent manner.

⁹ *Technology Transitions Order* at ¶ 201.

activities throughout the duration of the testbed activity, which is anticipated to be 12 months.¹⁰

The expenses associated with participating in the national numbering testbed activities need to be anticipated, well understood, and factored in to any service provider's decision to become a part of the project.

Anticipated expenses would include project/program management of the connectivity to the testbed server or open-cloud-based resource, provisioning and establishing links to connect to the testbed, testing of the new links, and working with the testbed personnel¹¹ to insure the links are functionally adequate for the type of testing to be done. In addition, if end-to-end testing with other trial participants is desired, service providers may need to provide links into each other's lab IP environments. Also service providers will need to provide the staff resources to assist the Commission (or a designated party) in developing the test scripts, testing such scripts, analyzing the test results, and providing written test-result summaries and conclusions.

As noted, the national numbering testbed is expected to be functional for at least 12 months. The Commission should require that service providers participating in the testbed be required to commit at least a monetary contribution that covers that time period. But CenturyLink also believes a more general "commitment for 12 months" should be required from service providers regarding the dedication of their personnel staff to engage in the full panoply of numbering experiments that occur throughout that year, including modifications or changes of direction.¹² As is the case with most experimental efforts, it is entirely predictable that as tests

¹⁰ *Id.* at ¶ 169.

¹¹ At this time, it is not clear where the testbed personnel will come from but possibilities include service provider volunteers, other parties that might be impacted by the activities or decisions made about the structure or operation of the testbed, academics (both professors and students), as well as federal or state regulatory personnel.

¹² *Technology Transitions Order* at ¶ 169.

and re-tests occur, modifications and additional testing may be needed. Clearly, making operational the concepts conceived and vetted in industry meetings and workshops regarding the national testbed will involve the dedication of resources and operational impacts far beyond those suggested by the terms “hackathon” or “running code.”¹³

Once reliable information regarding the costs of a national numbering testbed is established, a strategy for sharing the funding obligation can be developed. In order to be impartial, the funding source should be crafted to draw from participants in the testbed initiative and should not allow extraordinary contributions from participants (such as equipment providers or vendors) who would stand to financially gain from any ultimate industry decision.

CenturyLink looks forward to participating in the national numbering testbed activities.

Respectfully submitted,

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¹³ Public Notice, FCC Chief Technologist to Host Numbering Testbed Workshop, WC Docket No. 13-97, DA 14-290 (Feb. 28, 2014) at 1; *Technology Transitions Order* at ¶ 161.