

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
Framework for Next Generation) PS Docket No. 10-255
911 Deployment)

COMMENTS OF QWEST COMMUNICATIONS INTERNATIONAL INC.

Qwest has a long history of promoting and supporting public safety objectives as they are formed and framed by industry participants, regulators, legislators and service providers. To accomplish the quality provision of 911/E911 service, Qwest works with states and local communities, as well as with other service providers, and actively participates in standards and industry bodies which oversee both current 911 and future deployments, including Next Generation 911 (NextGen 911). Clearly Qwest's interests in 911 matters are broad, given that it not only acts as a service provider expected to provide 911 connectivity to its customers, but also to provide the network architecture that allows for VoIP, and to some extent, wireless 911/E911.

An outgrowth of our 911/E911 activities is our belief that government-industry collaborations (*i.e.*, public-private partnerships) are far superior to formal regulations on matters involving supportive 911 technologies and architectures. This is particularly true when neither the technologies for delivery, the economics of provisioning, or the respective roles of interstate and intrastate regulators are well known or understood.

Migrating from the existing 911/E911 environment to a NextGen 911 landscape will be challenging, expensive, and populated with all variety of providers, technologies, and applications. Qwest commented on some of these challenges in an earlier filing focusing on

VoIP and the ability to track nomadic customers' locations.¹ The current *NOI* goes even further in terms of gathering information and assessing strategies and tactics to move NextGen 911 from a planning stage to a deployment one.²

In response to the current *NextGen 911 Framework NOI*, Qwest attaches its January 19, 2011 filed comments in the *Voice over Internet Protocol (VoIP) Location Accuracy NOI* proceeding (see Attachment A). Those comments address some issues that are also raised in this *NextGen 911 Framework NOI*. Accordingly, we ask that these comments be incorporated by reference into this filing and this proceeding.

Specifically, the attached comments address the current state of the VoIP industry's ability to track nomadic customers in the absence of active participation of those customers. The issue of address location accuracy (or Automatic Location Information/ALI) is raised in this *NextGen 911 Framework NOI* as well.³ So too is the issue of who the panoply of participants might be in a wholly automatic address location environment – entities that extend far beyond what is traditionally thought of as a communications service provider.⁴

Additionally, Qwest is keenly concerned that, before prescribing mandates in the area of 911/E911 architecture or service delivery, the Commission be reasonably certain that achieving

¹ *In the Matter of Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers*, Further Notice of Proposed Rulemaking and Notice of Inquiry, PS Docket No. 07-114, WC Docket No. 05-196, FCC 10-177, rel. Sept. 23, 2010 ¶¶ 1-2.

² *In the Matter of Framework for Next Generation 911 Deployment*, Notice of Inquiry, 25 FCC Rcd 17869 (2010) (*NextGen 911 Framework NOI*), seeking comment on a broad set of issues associated with NextGen 911, ranging from its capabilities and applications, to its architecture, to transition plans for migrating to NextGen 911, as well as jurisdictional and regulatory roles. Within that *Framework NOI*, there is a specific section addressing issues around “Location Capabilities” (Section IV.D.5., *id.* at 17894 ¶ 76), which briefly addresses some of the serious technical and operational challenges associated with automatic location updating in an IP environment.

³ *Id.* at 17876-77 ¶¶ 16-17, 17877-78 ¶ 19, 17880 ¶ 27.

⁴ *Id.* at 17886-88 ¶¶ 50-53 (discussing “NG911 Participants”).

the framed public safety objectives are technically and economically feasible. Assessing such feasibility is a matter requiring clear federal leadership. While regions, states and municipalities have a role, certainly, in fashioning the delivery of 911/E911 services in their jurisdictions, and have a responsibility to support providers in their need for cost recovery, over-arching principles of architecture and economic sustainability for NextGen 911 should be made at a national, not a state or PSAP level.⁵

Respectfully submitted,

QWEST COMMUNICATIONS
INTERNATIONAL INC.

By: /s/ Kathryn Marie Krause
Craig J. Brown
Kathryn Marie Krause
Suite 950
607 14th Street, N.W.
Washington, DC 20005
303-383-6651
Kathryn.krause@qwest.com

Its Attorneys

February 28, 2011

⁵ Compare *id.* at 17895-96 ¶ 83 (noting that “[c]ertain communications technologies [might] necessitate[] the adoption of a uniform national approach”). Whether this federal leadership requires legislation is not addressed here, but Qwest supports the general notion that the Commission should perform some oversight with respect to the “development and transition to NG 911 networks”. *Id.* at 17896 ¶ 85.

ATTACHMENT A

Qwest Comments from the *VoIP Location NOI*

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)
)
Wireless E911 Location Accuracy) PS Docket No. 07-114
Requirements)
)
E911 Requirements for IP-Enabled Service) WC Docket No. 05-196
Providers)

COMMENTS OF QWEST COMMUNICATIONS INTERNATIONAL INC.

I. INTRODUCTION: NOMADIC VOIP IS NOT COMPARABLE TO CMRS WITH RESPECT TO AUTOMATIC LOCATION INFORMATION.

Qwest supports the Commission's public safety objectives to craft a plan to provide callers' accurate address location information (or ALI) and to oversee the development of mobile communications technologies that will achieve those objectives.¹ As the Commission looks toward the advent of NextGen 911,² now is a good time to assess the state of affairs with regard

¹ *In the Matter of Wireless E911 Location Accuracy Requirements, E911 Requirements for IP-Enabled Service Providers*, Further Notice of Proposed Rulemaking and Notice of Inquiry, PS Docket No. 07-114, WC Docket No. 05-196, FCC 10-177, rel. Sept. 23, 2010 ¶¶ 1-2 (*Location Accuracy Wireless NPRM/Voice over Internet Protocol (VoIP) Location Accuracy NOI*). In addition to the current *NOI*, the Commission has issued a separate *Notice of Inquiry, In the Matter of Framework for Next Generation 911 Deployment*, Notice of Inquiry, PS Docket No. 10-255, FCC 10-200, rel. Dec. 21, 2010 (*NextGen 911 Framework NOI*), seeking comment on a broad set of issues associated with NextGen 911, ranging from its capabilities and applications, to its architecture, to transition plans for migrating to NextGen 911, as well as jurisdictional and regulatory roles. Within that *Framework NOI*, there is a specific section addressing issues around "Location Capabilities" (Section IV.D.5. ¶ 76), which briefly addresses some of the serious technical and operational challenges associated with automatic location updating in an IP environment.

² The Commission states that "NG911 will integrate the core functions and capabilities of E911 while adding new 911 capabilities in multiple formats, such as texting, photos, video and e-mail. This will vastly improve the quality and speed of response, and provide a more interoperable and integrated emergency response capability for PSAPs, first responders, hospitals and other emergency response professionals." *VoIP Location Accuracy NOI* ¶ 2 (quoting from the Commission's National Broadband Plan, Recommendation 16.15, at 326 (rel. Mar. 16, 2010)).

to such objectives and the path to achieving them, as well as whether formal government regulation is necessary as part of the initiative.³

The reliable delivery of 911 services is a serious matter, as all parties to its successful operation understand.⁴ To accomplish the quality provision of such service, Qwest works with states and local communities, as well as with other service providers, and actively participates in standards and industry bodies which oversee both current 911 and future deployments, including NextGen 911. Clearly Qwest's interests in 911 matters is broad, implicating a variety of service providers and technologies.

An outgrowth of our 911 activities is our belief that government-industry collaborations (*i.e.*, public-private partnerships) are far superior to formal regulations on matters involving supportive 911 technologies and architectures. This is particularly true when neither the technologies for delivery, the economics of provisioning, or the respective roles of interstate and intrastate regulators is well known or understood.

Qwest's comments here focus on the Commission's *VoIP Location Accuracy NOI*, specifically that aspect suggesting that VoIP service providers might be required to provide automatic address location information in the context of their portable (nomadic) offerings.⁵ At

³ *Id.* and ¶¶ 1-2 (suggesting that it might be).

⁴ *See NextGen 911 Framework NOI* ¶ 3 (noting the "dedicated efforts of state, local, and Tribal authorities and telecommunications carriers").

⁵ Qwest's focus is driven by the fact that it has no independent wireless operations. *See VoIP Location Accuracy NOI* ¶ 26 and n. 68, noting the Commission's use of the terms "fixed VoIP" and "nomadic" and "portable VoIP." "In the NOI, we request comment on whether we should require interconnected VoIP service providers to automatically identify the geographic location of a customer without the customer's active cooperation." *Id.* ¶ 4.

With respect to the question posed in the *NOI* regarding whether the Commission's 911 requirements should be extended to service providers other than those that meet the Commission's current definition of "interconnected VoIP providers" (*id.* ¶ 31), Qwest commented on this matter previously in response to the Commission's *VoIP 911 NPRM*, 20 FCC

first glance, this notion might seem reasonable enough – after all, CMRS is mobile, nomadic VoIP is mobile; CMRS (despite great technological, economic and policy challenges) provides automatic location information; VoIP should too. But the comparison is not a sound one.

With respect to wireless 911, there are established network elements, generally confined to a single provider. Less well defined are the elements of VoIP broadband traffic, with a potential for multitude providers with different delivery architectures; and the existence of many, many points of access to VoIP services and the Internet.⁶ As a result, it remains as true today as it was in 2005 and 2007,⁷ that there are no “advanced technologies [that would] permit portable

Rcd 10245 (2005). There we advocated that the Commission should be guided by a comparability principle (*i.e.*, that comparable providers have comparable 911-dialing obligations). We urged the Commission to be guided by the same criteria it used in deciding to apply 911 rules to interconnected VoIP providers in the first instance to assess whether other comparable services should be similarly obligated. Focusing on customer expectations, we stated that there could be situations where customers would expect 911-dialing on either an outbound-only calling service or one that allowed a customer to couple an outbound and inbound functionality; and that such situations should be studied on a case-by-case basis before any 911-dialing obligations were imposed. Qwest August 15, 2005 Comments, WC Docket Nos. 04-36 and 05-196, Section II, pp. 3-5 (Qwest August 2005 Comments). *And see VoIP Location Accuracy NOI* ¶¶ 37, 39 (mentioning the importance of customer expectations).

⁶ For example, Telecommunications Industry Association (TIA) earlier argued that ““if the FCC decides to impose similar location accuracy standards on interconnected VoIP providers that are applicable to CMRS services, the Commission would be forced to regulate the entity providing the broadband Internet connection (*i.e.* restaurants, coffee shops, hotels, municipalities, etc.).”” *VoIP Location Accuracy NOI* ¶ 28 and n. 74. *And see id.* ¶ 38 (asking if it should matter where a Wi-Fi connection is located – “in home, as opposed to a public hotspot, such as at a coffee shop, airport, bookstore, municipal park, etc?”). *And compare NextGen 911 Framework NOI* ¶¶ 50-53 (discussing “NG911 Participants”).

⁷ In August 2005, in response to the *VoIP 911 NPRM*, Qwest argued that the Commission should *not* impose automatic location information updating obligations on VoIP providers in the absence of proven technical and economic feasibility. Qwest August 2005 Comments at Section III, pages 5-8.

Again in 2007, in the context of the Commission’s *Location Accuracy NPRM*, 22 FCC Rcd 10609 (2007), Qwest filed comments regarding a Commission tentative conclusion that VoIP providers should employ automatic location technology meeting the same accuracy standards as were being proposed for CMRS providers. Qwest argued that such imposition was unwarranted

interconnected VoIP service providers to provide ALI [.]”⁸ Given the absence of such technologies, it is no surprise that no on-point industry standards exist to support VoIP’s automatic *delivery* of location information (or updates), standards that would be necessary predicates to any successful deployment of such functionality.⁹

Wireless providers have for years and years provided latitude/longitude location information regarding their services, since mobility is integral to their offerings and customer expectations. On the other hand, VoIP providers have never provided *automatic* location information in the context of 911. The challenge of creating such a functionality is formidable, particularly since interconnected VoIP and its 911 obligations are – by current regulations defining the architecture – tied to a non-mobile wireline network, an architecture defined in large part *not by* mobility but the lack of it. How an automatic address update functionality will become defined and implemented in such context is unclear.

and technically premature. Qwest August 2007 Comments, PS Docket No. 07-114, CC Docket No. 94-102 and WC Docket No. 05-196, filed Aug. 20, 2007.

⁸ *VoIP Location Accuracy NOI* ¶ 29.

⁹ It is conceivable that VoIP provided over CMRS technology might use the same location-tracking information as CMRS providers. See that suggestion in the *VoIP Location Accuracy NOI* ¶ 29. But that circumstance would not apply to any other VoIP application or platform. And, as the Commission has observed, the propriety of “CMRS-like” treatment of nomadic VoIP is open to dispute. In earlier proceedings, the Commission noted that some filing parties supported the Commission’s notion that VoIP providers should be held to the same location-accuracy requirements as CMRS providers, at least when they were interconnecting through wireless technologies. *Id.* ¶ 28. But others, such as Nokia, argued that interconnected VoIP services “should not be subject to the Commission’s CMRS E911 location requirements without ensuring that time is taken to study location technologies that can be used when a wireless 911 call is made using VoIP, standards are developed for delivering location technology over the Internet when a wireless VoIP 911 call is made, and technologies to be utilized for location are tested and finally deployed.” *Id.*

II. INDUSTRY HAS NOT FIGURED A WAY TO PROVIDE AUTOMATIC LOCATION UPDATES FOR VOIP PROVIDERS, ALTHOUGH SOME RELATED WORK IS ONGOING.

Wireline networks, *e.g.*, the architecture defining VoIP 911, have no ability to read each other's end-user locations.¹⁰ And, to the best of Qwest's knowledge, no existing technology, let alone applicable industry-agreed standards, support the automatic delivery of user address information from a VoIP piece of equipment to a database capable of manipulating it and getting it delivered to a PSAP. What does currently exist is a basic understanding of how a more robust VoIP/911/PSAP delivery architecture might look *in the event* that real-time address information was/is provided.

The recently-approved "NENA Interim VoIP Architecture for Enhanced 9-1-1- Services (i2)" document,¹¹ outlines an interim architecture that could operate as a bridge between the current ones associated with VoIP 911-dialing and those anticipated with the implementation of NextGen 911. The document focuses on the development of Location Information Servers (LIS), that would communicate with a database or databases to secure (*i.e.*, receive) real-time location information from a VoIP caller/piece of equipment. The servers would then transmit that information back to the VoIP equipment (in the form of a location object or location key) for inclusion in delivery of the 911 "event" (data and voice) to the PSAP *via* SIP protocol.

¹⁰ Today, users must register their location with their home service provider, including when they move. In the event of an emergency, and a dialed 911 call, if the customer has changed locations, the home provider will give the serving provider the necessary information to respond to the call.

¹¹ The document was approved by NENA in August 2010. NENA's membership contains many emergency subject matter experts, and it appropriately acts as an information exchange and a forum where parties can debate roles and responsibilities. While a leader in the area of 911 matters, NENA does not have any independent authority to enforce consensus decisions; nor are they recognized as an arbitrator when parties cannot agree. Furthermore, NENA currently has no Patent Policy regarding standards development, which creates uncertainty and some risks for industry members if NENA's proposals are unduly favored over those of other industry bodies.

What the NENA document does not do is describe or define how the real-time location information will get from the VoIP caller/equipment to the database in the first place. So far, there is no consensus on how that might actually happen in a technically or economically appropriate way.¹²

As the *VoIP Location Accuracy NOI* acknowledges, NENA is not the only organization looking into 911 and location accuracy. “One of the Working Groups within CSRIC [the Communications Security, Reliability, and Interoperability Council],” “a Federal Advisory Committee that provides guidance and expertise on the nation’s communications infrastructure and public safety communications[,]” “[is] Group 4C – Technical Options for E911 Location Accuracy.”¹³ This organization has not yet proposed a technology that would support VoIP automatic address update location functionality; nor have other industry organizations such as the Alliance for Telecommunications Industry Solutions (ATIS), the Emergency Service Interconnection Forum (ESIF) or TIA.

The Commission should not underestimate the legitimate and important role of industry and public safety forums, advisory committees and standards bodies as it develops the record on both technology and policy considerations regarding VoIP automatic address location updating. We support, and are aligned with, prior advocacy “recommend[ing] that the Commission form an advisory committee comprised of Commission staff, representatives of the VoIP industry, equipment vendors, state and local public safety officials, and consumer groups to study the

¹² Compare the Commission’s observation in 2005 that a “number of possible methods have been proposed to automatically identify the location of a VoIP user, including gathering location information through the use of: an access jack inventory; a wireless access point inventory; access point mapping and triangulation; HDTV signal triangulation; and various GPS-based solutions.” *VoIP 911 NPRM*, 20 FCC Rcd at 10276-77 ¶ 57.

¹³ *VoIP Location Accuracy NOI* ¶ 12. While Qwest is not a direct participant in Group 4C, it has actively participated in eight of the ten CSRIC Working Groups, and reviewed all of the Working Group reports submitted to date.

technical, operational and economic issues related to the provision of ALI for interconnected VoIP services.”¹⁴ There is broad-based agreement that this is a logical step, given the current state of technology and knowledge. And the engaged participation of the Commission would be valuable to such effort.

If, and when, someone finally figures out how to provide address-location information automatically (or some different ways of doing it),¹⁵ a rulemaking that contains the specific proposed requirements and that offers the public an opportunity to comment on the focused proposal would be an appropriate step.

III. TECHNICAL AND ECONOMIC FEASIBILITY OF VOIP AUTOMATIC LOCATION INFORMATION UPDATING SHOULD BE PROVEN BEFORE ANY REGULATORY MANDATES.

Before prescribing 911 location-accuracy standards for VoIP, the Commission must be reasonably certain that VoIP providers have the technical ability to achieve such accuracy and that achieving that objective would not involve more costs than benefits.¹⁶ As part of that consideration, it needs to take into account the different architectures and service designs of VoIP service providers which could drive different economic feasibility analyses. These different architectures, and their interaction with the others’ networks, could also create problems of address contention (for example a landline modem and a WiFi connection possibility) that could add to the overall economic burden of automatic address location updating.

¹⁴ *VoIP Location Accuracy NOI* ¶ 28 and n. 77.

¹⁵ Qwest anticipates that the ability to engage in automatic location updating will come initially from the intelligence of those subject matter experts trying to maximize the benefits of the Internet generally *vis-à-vis* users’ locations, responding to anticipated market forces and demands associated with broadband products and services, not 911 dialing specifically.

¹⁶ *Compare VoIP Location Accuracy NOI* ¶ 30 (“Do industry standards and commercial trends indicate that ALI technologies exist for interconnected VoIP services that would be technically feasible and commercially viable?”).

And the technical and economic assessments will need to go far beyond VoIP providers. Such providers serve customers who are free to use VoIP services through many different devices manufactured by many different companies (*e.g.*, computers with handsets, computers without handsets, pads, wireless devices). Those totally mobile devices can connect to the Internet in hundreds upon hundreds of ways and in different environments, ranging from homes to hotels to hospitals to moving cars to parks. The point of connection, and the host service provider, often will not be the ISP the customer originally signed up with for service.

Technical manipulations – and associated costs – would be associated with essentially *all access points* into the Internet (because a 911 call *might* be made through any one of them).¹⁷ This suggests an economic analysis of some magnitude. This landscape is a far cry from the controlled architectures of wireless 911 networks where (except in a roaming context) the handset is associated with a particular provider (as is the GPS chip inside the device) and the cell towers (providing the initial coordinates) are controlled by a single provider.

Given the current lack of clarity regarding how ALI updating might occur in a VoIP environment, the Commission should not act prematurely or preemptively with respect to such requirements for nomadic VoIP. Education and caution should be the abiding principles for the time being; and the Commission should avoid dictating a technical result precipitously, far in advance of the industry's ability to achieve the technical goal.¹⁸

¹⁷ See note 6, above.

¹⁸ The Commission's wireless E911 proceedings were rife with contention, particularly as carriers were required to seek waivers, sometimes multiple times, from the technical requirements imposed by the Commission's Phase I and Phase II mandates, and yet were subsequently met with enforcement actions. Service providers can be rightfully concerned should the Commission establish technical requirements that are impossible for them to achieve, either because of technical or economic infeasibility.

IV. FEDERAL LEADERSHIP IN ASSESSING TECHNOLOGICAL AND ECONOMIC FEASIBILITY ARE NECESSARY BEFORE VOIP SERVICES SHOULD BE EXPECTED TO PROVIDE AUTOMATICALLY-DERIVED ALI.

The Commission has been charged with considerable responsibility regarding public safety in the context of 911 services. It should take a leadership role with respect to these technical and economic assessments *vis-à-vis* other regulatory authorities.

Should it become technically feasible for VoIP providers to deploy ALI processes, there would be issues around architectures and cost recovery, as noted above. While recommendations regarding these matters would ideally come from a type of Federal Advisory Committee (which would include state participation), the ultimate determination of appropriate architectural models and addressing conventions (as examples) should be made by industry and *federal government* interests. Such decisions should not be made at state or PSAP levels,¹⁹ even though such entities have significant interests in the delivery of 911 services to consumers.²⁰

Moreover, as noted above, deployment of a VoIP automatic location functionality could be enormously expensive. It is unclear whether cost recovery would come from the federal

¹⁹ Compare *NextGen 911 Framework NOI* ¶ 83 (noting that “[c]ertain communications technologies [might] necessitate[] the adoption of a uniform national approach”). Whether this federal leadership requires legislation is not addressed here, but Qwest supports the general notion that the Commission should perform some oversight with respect to the “development and transition to NG 911 networks”. *Id.* ¶ 85.

²⁰ Compare *id.* ¶¶ 3, 83-84. And see where the Commission stated that “911 calls are typically intrastate” in nature. *NII First Report and Order*, 12 FCC Rcd 5572, 5598 ¶ 42 (1997) (311 calls, like 911 calls, are typically intrastate, states would regulate cost recovery); and see 12 FCC Rcd 22665, 22731-32 ¶¶ 136-37 and 15 FCC Rcd 16753, 16769-70 ¶ 28 (to the same effect). The Commission has acknowledged that LECs often tariff 911/E911 services and charges to PSAPs (*1998 BellSouth Forbearance Order*), 13 FCC Rcd 2627, 2650 ¶ 44, noting that “[t]he prices, terms and conditions of E911 services are subject to state regulation.” And see *911/E911 VoIP Order*, 20 FCC Rcd 10245, 10251 ¶ 14 (“The Wireline E911 Network generally has been implemented, operated, and maintained by a subset of incumbent LECs, and generally is paid for by PSAPs through tariffs.”), 10252 n. 35 (The service between the incumbent LEC and PSAP is contractual in nature and paid for by the PSAP typically through a special tariff filed with the state public utility commission.).

government, or whether VoIP providers would need to look to the states (and their funding mechanisms, such as 911 surcharges and state funds) for recovery of their significant costs. And it is even less clear where non-regulated entities would go for their cost recovery.

What is clear, though, is that this matter must be fairly resolved before any government obligation to deploy automatic location tracking and updating issues. If the matter of cost recovery is not timely resolved, service providers of all types will find themselves with significant regulatory-mandated costs but little or no market mechanisms to recover them. In such case, innovation would be depressed, rather than promoted; competition would be stymied rather than advanced – consequences at odds with the Commission’s balanced regulatory objectives.

Respectfully submitted,

QWEST COMMUNICATIONS
INTERNATIONAL INC.

By: /s/ Kathryn Marie Krause
Craig J. Brown
Kathryn Marie Krause
Suite 950
607 14th Street, N.W.
Washington, DC 20005
303-383-6651
Kathryn.krause@qwest.com
Its Attorneys

January 19, 2011

CERTIFICATE OF SERVICE

I, Richard Grozier, do hereby certify that I have caused the foregoing **COMMENTS OF QWEST COMMUNICATIONS INTERNATIONAL INC.** to be: 1) filed with the FCC via its Electronic Comment Filing System in PS Docket No. 07-114 and WC Docket No. 05-196; and 2) served via e-mail on the FCC's duplicating contractor, Best Copy and Printing, Inc. at fcc@bcpiweb.com.

/s/Richard Grozier

January 19, 2011

CERTIFICATE OF SERVICE

I, Richard Grozier, do hereby certify that I have caused the foregoing **COMMENTS OF QWEST COMMUNICATIONS INTERNATIONAL INC.** to be: 1) filed via ECFS with the Office of the Secretary of the FCC in PS Docket No. 10-255; and 2) served via e-mail on the FCC's duplicating contractor Best Copy and Printing, Inc. at fcc@bcpiweb.com.

/s/Richard Grozier

February 28, 2011