Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matters of	)	
A National Broadband Plan for Our Future	)	GN Docket No. 09-51
International Comparison and Consumer Survey Requirements in the Broadband Data Improvement Act	)	GN Docket No. 09-47
Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, and Possible Steps to Accelerate Such Deployment Pursuant to Section 706 of the Telecommunications Act of 1996, as Amended by the Broadband Data Improvement Act	)	GN Docket No. 09-137

COMMENTS—NBP Public Notice #8
OF
INTRADO INC. AND INTRADO COMMUNICATIONS INC.

Intrado Inc. and Intrado Communications Inc. ("Intrado") welcome the opportunity to respond to the Federal Communication Commission's ("Commission" or "FCC") request for additional comment on public safety, homeland security, and cybersecurity elements of a national broadband plan, NBP Public Notice #8 ("Notice").[1] The basis for the Notice is the assumption that broadband offers potential benefits to emergency responders and public safety agencies. Intrado strongly agrees. Indeed, the promise of next generation 911 ("NG-911") is that *all* Americans are able to request emergency help, irrespective of location or of the networked device employed to initiate such requests. And, as will become clear, the pieces of this policy puzzle are well-known. With respect to NG-911 what has been missing, however, is

[1] *Additional Comment Sought on Public Safety, Homeland Security, and Cybersecurity Elements of Naitonal Broadband Plan, NBP Public Notice #8,* DA 09-2133 (rel. September 28, 2009).

explicit federal guidance under which states, in coordination, revise their current 911 statutes and promulgate rules to implement them.[2]

I. Public Safety Mobile Wireless Broadband Networks

Although Intrado Inc. is a private sector company, it was founded in 1979 by law enforcement professionals who saw the potential to use technology to more effectively protect the public.[3] Today, Intrado employs a significant number of former state 911 executives and call taker personnel. Based on its cumulative experience and expertise, Intrado submits that the mobile wireless broadband network cannot be addressed as though it exists in a vacuum. As will become clear in section II below, NG-911 is the linchpin of the NG-911 system in that it sits between the originating networks and the first responder network(s). Interoperability between and among these three networks is critical to achieving seamless, end-to-end emergency communications. The FCC should be mindful, therefore, that NG-911 provides a continuum whereby PSAPs hand off calls/requests for assistance ("RFAs") to the first responder network seamlessly (via Radio over IP standard). The technology, therefore, needs to provide for interoperability between the NG-911 networks and next generation first responder network(s). In this continuum, multimedia will be delivered from the NG-911 networks to the first responder network(s), thus requiring the development of technical standards to support this functionality.

II. Next Generation 911

As the FCC noted, its Broadband Plan Notice of Inquiry "has [also] been exploring whether the America public could use broadband technologies to better communicate with

[2] Numerous states have expanded funding mechanisms to include wireless and VoIP; others have recognized competitive providers of 911 service; and several (e.g., Colorado and Illinois) are in the process of updating existing rules. But to continue with the "laboratory of the states," portends a minimum of 52 different solutions to a national problem.

[3] *See* "Intrado Inc., Introduction and History," *available at* http://www.Intrado.com.

emergency responders when they make 9-1-1 calls."[4] That such potential exists is beyond serious debate. There is widespread concurrence among academics, industry experts, and politicians of every stripe that "the current communications landscape is a far cry from the one for which the current 9-1-1 system was engineered" and, furthermore, "our emergency communications networks are unable to accommodate what is increasingly viewed as basic functionality inherent in many of today's technologies."[5] Thus, "it is a grave policy failure that, compared to state-of-the- art commercial networks, our emergency communications networks are less efficient, less technologically advanced, and, as a consequence, less able to provide the public with the level of protection it deserves."[6]

Bridging this divide, NG-911 is recognized as the network architecture for emergency communications that enables the transmission of voice, data and video from different types of communications devices to public safety answering points ("PSAPs") public service agencies ("PSAs") and on to first responder network(s).

Clearly, changing consumer usage patterns are thwarting the ability of PSAPs to keep up with technological advances and consumer expectations. Tectonic changes in mobile wireless usage in less than one decade are insightful:

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[4] Notice at 2.

[5] 9-1-1 Industry Alliance, *Health of the US 9-1-1 System*, 6, *available at* http://www.911alliance.org/9IA_Health_of_US_911%20_2_.pdf ("9IA Report"); *See also* Atkinson and Castro, *Digital Quality of Life*, 113-135 (October 2008); The Benton Foundation, *An Action Plan for America: Using Technology and Innovation to Address Our Nation's Critical* Challenges, (2008) at 29-31, *available at* http:www.Benton.org*;* Peha, Jon M., "Protecting Public Safety With Better Communications Systems." *IEEE* Communications, (March 2005).

[6] 9IA Report at 6.

- Wireless rose from 30% of total industry minutes and revenue in 2002 to 41.25% total industry revenue in 2007.[7]
- Text messaging surpassed voice calling in the 4th quarter of 2007,[8] and
- In the first half of 2009, net subscriber additions for pre-paid wireless service surpassed net subscriber additions for traditional post-paid additions for wireless services. [9]

These trends, coupled with the known limitations of the current legacy 911 system, evidence a serious gap between reality and consumer expectations when using 911 to seek emergency assistance.[10] Table 1, below, demonstrates that 911 calling tracks with other national usage trends in that wireless expressed as a percentage of total 911 calls received by PSAPs has surpassed wireline 911 calling.

Table 1. *The Changing Nature of Calls to 911 for Selected States*

State	**AL**	**TX**	**VA**	**WA**	**MA**	**DE**	**MI**
%Wireless	63%	72%	65%	56%	66%	64%	52%
Period	CY 2008	3Q 2009	FY 2009	CY 2008	CY 2008	CY 2008	CY 2008

Source: AL State Wireless Board; TX Commission on State Emergency Communications; VA State 911 Department (FY June 2008-July 2009); WA State 911 Director's Annual Report to Legislature; MA State 911 Department; DE State 911 Director; MI State 911 Administrator's Annual Report to Legislature.

[7] *Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993; Annual Report and Analysis of Competitive Market Conditions With Respect to Commercial Mobile Services*, Eighth Report, 18 FCC Rcd 14783, ¶ 102 (2003); Industry Analysis and Technology Division, Wireline Competition Bureau, *Trends in Telephone Service*, Table 15.1 *(August 2008)*.

[8] Nielsen Mobile, *Mobile Media Measurement, available at* http://blog.nielsen .com/nielsenwire/online_mobile/in-us-text-messaging-tops-mobile-phone-calling/.

[9] Fitch Ratings, "Biannual U.S. / Canada Wireless Comparative Statistics and Commentary: First-Half 2009," 6 (September 24, 2009).

[10] *Consumer Reports* surveys conducted in 2006 found that among the 59% of respondents that had placed calls using cellular phones, 1 in 8 encountered some difficulty. Separately, Consumer Report's National Research Center found that 1 in 25 wireless callers never successfully connected with or communicated with 911. *See* "Phoning 911: Gaps Despite New Technologies," *available at http://www.consumerreport.org.*

Among other things, the data in Table 1 shows that the legacy network that has served America well for many years has been burdened beyond its initial design.[11] The confluence of technological complexity, consumer expectations, outdated regulatory regimes, and funding challenges confounds the process of getting there from here. The promise of NG-911 – seamless emergency requests for assistance, w*hether initiated by a person or a device*—requires synchronization across multiple dimensions including:

- Transitions in the originating/access networks to next generation – wireline, wireless, cable, and VoIP;
- Competitively neutral policies governing interconnection between the PSTN and the NG-911 network;
- Standardization of network interfaces and data protocols throughout the dedicated NG-911 network (including PSAP operations);
- Preservation of the high degree of security and reliability during the migration from legacy to NG-911 networks and operations;
- Integration with the first responder's mobile wireless network, the focus of Section I of this inquiry; and
- Delivery of life-saving data to entities beyond the first responder.

At every point of interconnection, every demark, and every interface between the old world and the new, there are—or will be—requisite standards, and protocols that may, in turn, implicate legislation, rules, regulations, and compliance mechanisms.

a. What are broadband infrastructure requirements necessary to support deployment of NG-911 capacity?

As with first responder network(s), the goal for NG-911 should be a national, interoperable, and service and subscription-centric IP-based network that ensures universal PSAP participation. To ensure the level of security, resiliency, and "ability to enhance mission

[11] *See* Weiser, Philip, Dale Hatfield, and Brad Bernthal, "The Future of 9-1-1: New Technologies and the Need for Reform," *Journal on Telecommunications and High Technology and Law*, Vol. 6, No. 2, 236-243 (2008).

critical voice over time,"[12] this network must be a specialized and dedicated network that is completely independent from the public Internet where packets move on a best effort basis (with associated deficiencies in quality and security). The distinction between the best-efforts public Internet and a NG-911 network that relies on IP-protocol is critical in that the NG-911 network must be as secure and reliable and exhibit the same level of quality as that which has been the hallmark of the legacy wireline voice environment.

The Internet protocol that ensures these attributes is Internet Protocol Version 6 ("IPv6"). IPv6 is the next generation data-oriented protocol for the Internet and is designed to provide several advantages over Internet Protocol Version 4 ("IPv4"). Specifically, IPv6 (a) allows for 2^128 unique IP addresses; (b) brings a set of service requirements (QoS) to deliver performance guarantees while transporting traffic over the network; (c) utilizes mobile IPv6, which ensures transport layer connection survivability; and (d) provides network layer security via IP Sec. IP Sec is a mandatory component for IPv6 and is a framework of open standards (from IETF) that define policies for secure communications in a network and also describe how to enforce these policies.[13]

With respect to NG-911 specifically, IPv6 addresses concerns about network reliability (IP addressing), security (IPSec), and quality of service (QoS). Chief among these are native support and integration of data being transmitted--hence increased security; native support for different levels of QoS (e.g., voice, video) based on the type of data being transmitted; simplification of network operations, and increased reliability associated with IP addressing.

[12] September Commission Meeting, presentation on status of National Broadband Plan ("141 days until Plan is due"), slide 161, (September 29, 2009) *available at* http://hraunfoss.fcc.gov/edocs_public/attachment/DOC-293742A1.pdf.

[13] *See e.g.* Lakshmi Tech, *Next Generation Networking*, *available at* http://www.ipv6.com/articles/general/Next-Generation-Networking.htm; Kaushik Das, *IPv6 – The Next Generation Internet*; *available at* http://www.ipv6.com/articles/general/ipv6-the-next-generation-internet.htm; Kaushik Das, *IPSec & IPv6 – Securing the Next Gen Internet*, *available at* http://www.ipv6.com/articles/security/IPsec.htm.

Additionally, it is Intrado's understanding that government networks are also moving toward IPv6, creating even greater potential of interoperability between and among all levels of emergency communications.

The benefits of IPv6 to PSAPs are the ability to manage data more economically, increased reliability, and the simplification of network operations – all of which lead to cost efficiencies.

b. Are Next Generation Technical standards completely defined?

Not yet. Nonetheless, significant progress has been made and Intrado is at the forefront of the standards development process. Specifically, Intrado has developed several Alliance of Telecommunications Industry Solutions ("ATIS") standards that are either pending or in use today and thus enabling the migration to NG-911 for voice and data communications. Table 2 below summarizes these standards and indicates the various functions in the 911 system to ensure seamless 911 calling as the migration to NG-911 proceeds.

Table 2. *Intrado is Driving Standards Development for NG-911*

Function **(a)**	**Originating Network → SR/ESI-net (b)**	**911 Service → PSAP (c)**	**PSAP →First Responder (d)**
(1) EISI	**X**	**X**	**X**
(2) ESMI		**X**	
(3) Ingress SIP Interface	**X**		
(4) RFAI		**X**	
(5) RFAI/MM		**X**	

Column (a) of Table 2 provides the functional standards designed to ensure end-to-end 9-1-1 calling. Columns (b), (c), and (d) roughly divide the 911 system into its component parts, beginning with an originating network where an end user initiates an emergency call or RFA as

indicated in column (b). Next, the call moves through the NG- 911 emergency service network, (c), and, ultimately, the PSAP sends it on to the first responder network, (d).

Thus, column (a), row (1), EISI (Emergency Information Services Interface), allows for access to a variety of data services and is an interface that functions at each stage as the 911 call progresses from end user through to the PSAP and then to the first responder.

In turn, as indicated by the "X" in column (a), row (2), ESMI ("Emergency Services Messaging Interface"), replaces the legacy ALI interface and is a necessary function in the NG-911 emergency services network. Column (a), row 3, Ingress SIP Interface, provides a standardized interface between IP originating networks and NG-911 emergency services networks.

Finally, the standards indentified in Table 2, column (a), rows (4) and (5) pertain to the NG- 911 emergency services network. Specifically, the RFAI (Request For Assistance Interface) provides the interface between an IP Selective Router ("IPSR") and an IP-based PSAP, thereby replacing the legacy CAMA trunk environment. And, the RFAI/MM (Request For Assistance Interface for Mobile Messaging) provides a standardized interface for the delivery of SMS ("Short Message Service")/MMS ("Multi-Media Service") over a Mobile IP network to an IP-based PSAP.

Taken together, this suite of standards solves for a multiplicity of technological issues where legacy 911 and NG-911 must coexist for the foreseeable future. Such conditions include, but are not limited to (1) multiple platforms that will originate 911 traffic, (2) IP and legacy call transfer processes, (3) SIP ingress into the 911 emergency services networks from originating networks, and (4) the delivery of new and innovative IP services via the RFAI to PSAP CPE equipment.

Notably, with respect to this suite of standards, Intrado has moved well beyond theory and the laboratory setting and into the real world – a topic to which the FCC (and we) now turn.

c. To what extent are NG911 and near-NG-911 technologies and services being deployed today?

The essence of NG-911 and near-NG-911 is that RFA's are "routed" to the appropriate PSAP and on to the first responder. Routing, in the context of NG-911 or near-NG-911, means the delivery of voice, text, data or video to the appropriate responding agency. Intrado has designed and deployed a secure, scalable IP-based network, Intelligent Emergency Network ®, that enables the delivery of Intrado Advanced 9-1-1™. Advanced 9-1-1 includes A-9-1-1 ALI management and A-9-1-1 Routing. In sum, Intrado's emergency call delivery and data management services are provided over an Internet Protocol network that is designed to work with existing legacy equipment and is integrated, operated, and maintained to the public safety class standards demanded of life-critical applications. Moreover, the Intelligent Emergency Network lays a foundation and migration path for the development and implementation of innovative applications and services that will advance the capabilities of public safety communications and eliminate many of the current challenges, such as lack of PSAP interoperability, lack of survivability, lack of redundancy, and the proliferation of manual processes.

The Intelligent Emergency Network connects voice and data complexes with open, standards-based interfaces from the PSAP to authorized agencies, Automatic Location Information ("ALI"), and other authorized public safety data sources. Intrado's network initially supports converged voice and data with the capability to add incremental data sources, such as text, keeping pace with evolving public safety applications. Table 3, below, summarizes the

current state of deployment of Intrado's Intelligent Emergency Network with Advanced 9-1-1 service that, when taken together, are a replacement for the legacy 9-1-1 network.

Table 3. *On the Road to NG-911 via the Intrado Intelligent Emergency Network*

State (a)	Field Trial (b)	PSAP Contracts (c)	Network Deployment (d)	Go Live Planned (e)
Alabama	√		√	
Arizona	√			
Georgia			√	
Florida		√	√	12/09
Iowa	√		√	
Ohio	√	√	√	
North Carolina	√	√	√	
Washington		√	√	02/10
Minnesota		√	√	02/10
Pennsylvania		√		
Texas	√		√	
Virginia	√	√	√	03/10

The data in Table 3 show that Intrado and certain PSAPs have moved forward and are in various stages of the deployment of the Intelligent Emergency Network, coupled with Advanced 9-1-1 service, in twelve states. Of these, the network deployment has occurred in some fashion in ten states (column (d)); field trails have occurred in seven states (column (b)); PSAPs have signed contracts with Intrado or its partner in seven states (column (c)); and a "go-live" date is scheduled in four states within the next four months (column (e)). By any measure, the data in Table 3 demonstrates significant on-the-ground progress with the migration to NG-911.

Additionally, Intrado's Intelligent Emergency Network has capability that far exceeds the routing of IP-enabled voice traffic. Because Intelligent Emergency Network is a next generation network, it also carries and provides PSAPs with Intrado's current and future Advanced 9-1-1 services. A-911 Data and A-911 Media are non-voice centric applications that provide PSAPs

with advanced capabilities. Table 4 below summarizes the current state of deployment of the first of these services.

Table 4. *Deployment of Advanced 9-1-1™ Services*

Status	**A-911 DATA**		**A-911 Media**
	IP-ALI **(a)**	**TXT2-911** **(b)**	**Pictures** **(c)**
Deployed	√	√	
Test	√	√	
Demo	√	√	√

The data in Table 4 demonstrates that Intrado is a leader in deployment of advanced emergency services with IP-ALI, text, and pictures. Column (a), IP-ALI, is a service that involves the transmission of traditional ALI data, but over IP. This is a foundational service in that once the IP connection has been established, it serves as the framework for other advanced services that can be provisioned over the same infrastructure. This service has been deployed since 2008. Column (b) shows that Black Hawk County, an Iowa PSAP is "live" with the Intrado TXT29-1-1 service. Text messaging to the SMS three-digit short code 9-1-1 is supported by a local wireless carrier and as a result, these wireless subscribers in Black Hawk County have the ability to send RFAs to 9-1-1 via text messaging. Column (c) shows that Intrado provided APCO conference attendees in August, 2009, with a demonstration of pictures. In that demonstration, pictures from a cell phone were sent to a PSAP through the Intelligent Emergency Network. And, furthermore, the future portends the integration of additional applications -- maps, building blueprints, and contextual information such as the emergency

scene and type of incident—into the Intelligent Emergency Network whether such applications are designed by Intrado or by others.

Moreover, with respect IP-enabled text-to-911, changing consumer usage patterns increasingly indicate that IP-based text has implications that extend well beyond the speech and hearing impaired community (i.e., IP-Relay). Ubiquitous IP- text/relay awaits a funding solution through government intervention either with respect to devices or networks. To simply rely on markets, however, will likely create a "haves" v. "have-nots" dichotomy that as a matter of sound public policy is simply unacceptable.

Finally, it is not enough to simply point out efforts and movement that is directionally correct. The FCC should also be aware of and guard against the propensity of any segment of the 911 system to digress to the legacy network architecture -- for whatever reason. For example, today PSAPs commonly manage in-bound 9-1-1 traffic by requiring separate trunk groups for each class of service – wireline, wireless, and VoIP. And, in a multicarrier environment, adherence to such logic argues for exponential increases. That is, some would require trunks to be provisioned, separately, by each class of service and further, *for each carrier*. But, such practice would reject the efficiencies and cost advantages inherent in the layered IP-based and data-oriented next generation network and instead look backward toward the traditional TDM transport network. Figures 1 and 2 below compare expansion of the traditional transport architecture with the data-oriented IP-based or NG-911 network architecture.

Figure 1. Traditional 9-1-1 Routing Architecture

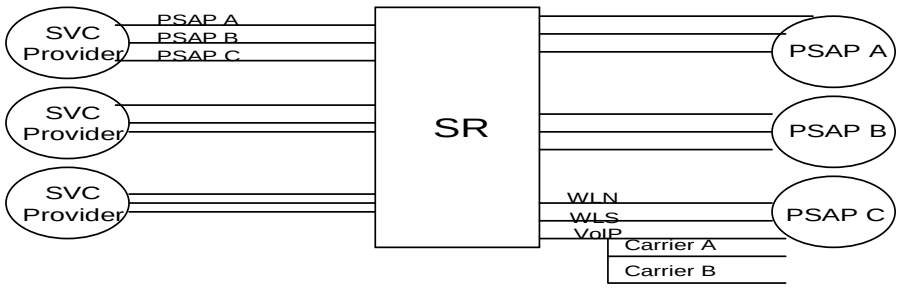
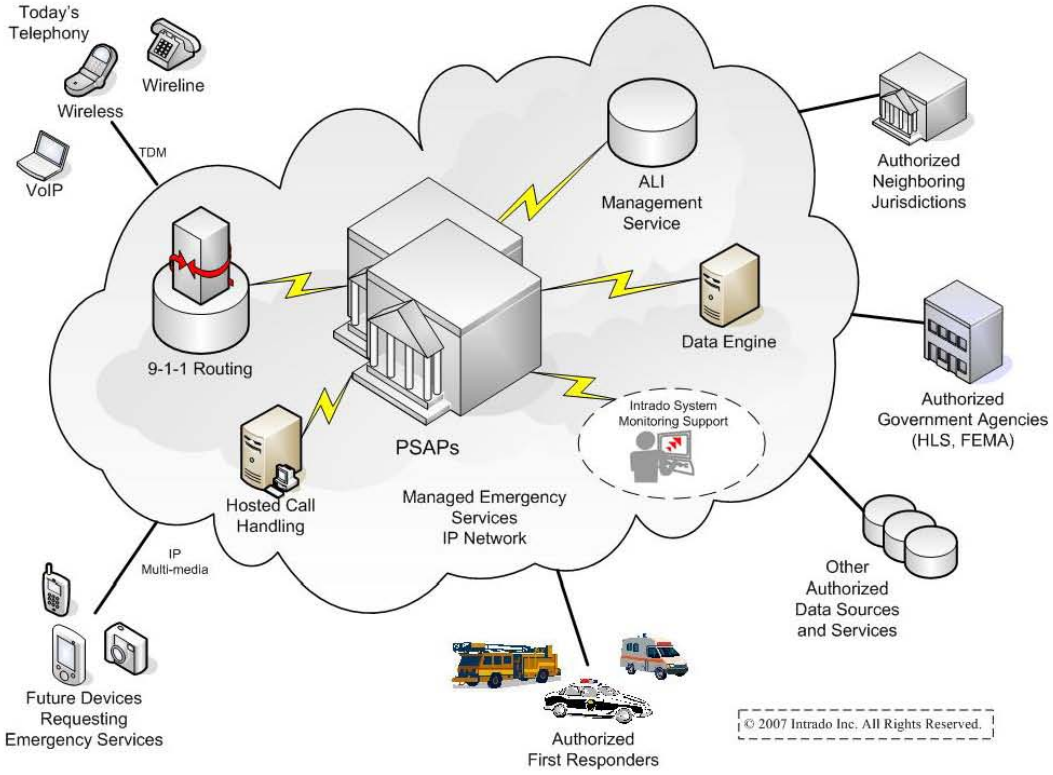


Figure 1 depicts the emergence of a cat's cradle of trunking arrangements on either side of the selective router ("SR" above) in the multicarrier originating network *and* in the multi-class-of-service 9-1-1 network. Unlike an IP-based 9-1-1 system, traffic management is reliant on differentiating traffic by class and, taken to its logical extreme, carriers (e.g., PSAP C in Figure 1). Additionally, increasing reliance on pseudo-automatic numbering information ("p-ANI") to understand call attributes (currently assigned differently depending on whether the call is wireline, wireless, or VoIP) adds to network complexity and is neither efficient nor effective. Thus, on-going attempts to "fix" the legacy approach to understanding call attributes is counterproductive.

Standing in stark contrast to these two flawed approaches to traffic management is the IP-based 9-1-1 system, here Intrado's Intelligent Emergency Network, as depicted in Figure 2 below.

Figure 2. Intrado Intelligent Emergency Network



Consistent with the IPv6 data-oriented protocol, call routing for NG-911 should be based on the attributes of an emergency call or RFA as it comes into the 9-1-1 system whether via today's telephony as depicted in the northwest corner of Figure 2 or for RFAs of the future, as depicted in the southwest corner of Figure 2. Such call attributes cannot be conveyed in the traditional trunking architecture as portrayed in Figure 1.

d. Regulatory roadblocks and Commission action.

The regulatory landscape *must* change to allow nationwide migration to NG-911. Public safety networks should no longer operate as the sole responsibility or domain of wireline local exchange carriers hamstrung by irrelevant legacy limitations like Local Access Transport Areas ("LATAs"). Rather, these emergency networks have the potential to be extended nationwide by devices, access networks, and applications resulting from the same technological advancements

and competitive market dynamics that impact other network operators, service providers, and application providers operating today and into the foreseeable future.

The infirmities of the current emergency call delivery system—including the inability to meet customer expectations—are well understood. Fundamental reforms have been researched, analyzed, and articulated by federal, state, and local agencies, scholars, industry associations, and commercial entities, including Intrado—citing, for example, the need to ensure an environment that allows multiple providers to deliver next generation 911 services;[14] to establish national guidelines or requirements for minimum levels of 911 service,[15] to delineate roles and responsibilities among governing bodies,[16] and to develop governance and funding models that promote adoption of technological change.[17]

Notably, the recently released plan authored by the National 9-1-1- Implementation Coordination Office ("ICO") *describes* the current issues facing deployment of NG-911 and sets forth a myriad of options for this necessary migration. ("ICO Plan").[18] Intrado submits, however, that while providing valuable information and insights, the ICO Plan is not executable thus evidencing the need for clear and articulate policies and regulatory guidelines before an effective migration will occur.

For example, the ICO plan does not address the undeniable relationship between technological development in the access networks and how those changes (likely made

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[14] *See CRS Report for Congress, Emergency Communications: the Future of 911*, Linda K. Moore, 4 (September 28, 2009).

[15] *Id.*

[16] ICO, A National Plan for Migrating to IP-Enabled 9-1-1 Systems, 1-3.

[17] 9IA Report at 44.

[18] The National E9-1-1 Implementation Coordination Office, *A National Plan for Migrating to IP-Enabled 9-1-1 Systems*, (September, 2009), *available at* http://www.e-911ico.gov/NationalNG911MitgrationPlan_sept2009.pdf.

inconsistently among carriers and across the country) will impact the national deployment of NG-911. Access networks, themselves, cannot be forced to adopt next generation technologies, thus NG-911 will need to be able to adapt to each platform's transition in its own timeframe and with its own standards. Significantly, in a next generation environment, 911 call delivery to PSAPs will move from a monopoly service provided primarily by ILECs to a multi-carrier service. With the utility and flexibility of broadband technology, the Commission should cast off the last vestiges of the ILEC-dominated, LATA-defined emergency communications system and, in accordance with its broadband mandate, fully unleash the potential of NG-911 services.

Efficient and effective relationships among multiple 911 service providers and the PSAPs they serve – and among carriers supporting 911 service providers and networks—must be ensured. Providing the interconnection rights and policies necessary for the implementation of NG-911 service providers will result in public safety benefits to consumers and public safety agencies, thereby forwarding the opening of the emergency communications market and advancing the goals of broadband deployment shared by Congress, the White House, and the Commission.[19]

Since 1996, the Commission has recognized that interconnection is the linchpin to competition and the deployment of new and innovative services to consumers.[20] The advent of NG-911 is no different. Next generation 911 service providers will need to interconnect with the

[19] *See, e.g.*, Telecommunications Reports, (announcing White House Office of Science and Technology Policy nominee Aneesh Chopra's intent to "mak[e] "broadband more abundant.'"); American Recovery and Reinvestment Act of 2009, Pub. L. No. 111-5, 419-420, 123 Stat. 115, 512-513 (instructing the Assistant Secretary of Commerce for Communications and Information and FCC to develop a national broadband access improvement and demand stimulation plan).

[20] *Implementation of the Local Competition Provisions of the Telecommunications Act of 1996*, 11 FCC Rcd 19392, ¶ 10 (*"Local Competition Order")* ("absent interconnection between the [ILEC] and the entrant, the customer of the entrant would be unable to complete calls to subscribers served by the [ILEC]'s network"); *see also id.* ¶ 13 (stating that facilities-based competitors "will need an agreement with the [ILEC] to enable the entrant's customers to place calls to and receive calls from the [ILEC]'s subscribers").

ILECs (the current providers of the legacy wireline 911/E911 network) as well as with all other carriers offering their end users 911 calling capabilities.[21] Establishing mutually beneficial interconnection and interoperability arrangements with the ILECs is essential to ensuring that all American consumers, including public safety agencies, can benefit from the innovative capabilities and functionality offered by next generation 911 systems.

Obtaining the necessary interconnection arrangements from the ILECs is, in most cases, a significant roadblock to the rollout of next generation 911 services. The Commission has recognized on numerous occasions the disastrous effects resulting from delays in the interconnection process.[22] The process established by Sections 251/252 of the Communications Act and the Commission's implementing rules was intended to eliminate barriers to entry to ensure consumers could quickly receive the benefits of new service offerings.[23] To ensure the promise of next generation 911 comes to fruition, new entrants must be able to obtain, promptly, the interconnection and interoperability arrangements needed to rollout their services. This means promoting the use of interconnection arrangements that recognize the difference between providing plain old telephone services ("POTS") and providing 911/E911 services, and ensuring the reliability and redundancy used in today's legacy network (such as the use of direct interconnection to the selective router) are replicated to the extent necessary in the competitive environment. The full benefits of next generation 911 will be realized only when 911 service

[21] Congress and the Commission recognized the importance of interconnection in the 911 context when it required owners or controllers of capabilities that are used for 911 or E911 service to make those capabilities available to a requesting interconnected VoIP service provider to ensure VoIP service providers' 911 callers can reach the appropriate PSAP. *See, e.g.*, 47 C.F.R. § 9.7; *see also Implementation of the NET 911 Improvement Act of 2008,* 23 FCC Rcd 15884, ¶¶ 21-29 (2008).

[22] *Implementation of the Telecommunications Act of 1996, Amendment of Rules Governing Procedures to Be Followed when Formal Complaints Are Filed against Common Carriers,* 13 FCC Rcd 17018, ¶ 3 (1998) (recognizing that "even minor delays or restrictions in the interconnection process can represent a serious and damaging business impediment to competitive market entrants").

[23] *Local Competition Order* ¶ 18.

providers can readily obtain these types of interconnection and interoperability arrangements from the ILECs who control the legacy 911/E911 network.

When next generation 911 service providers are interconnected with the legacy wireline 911/E911 network, an alternative pathway for emergency calls appears. Nonfunctional or technically deficient PSAPs (such as those only partially compliant with the Commission's Phase II E911 standards) will be able to be bypassed; overburdened PSAPs will be able to temporarily enlist the assistance of other call centers to coordinate a joint response to an influx of aid requests. Interconnected next generation 911 service providers will permit "virtual PSAPs" to be deployed in which calling centers are established (and calls routed on a real-time basis) at any broadband-equipped location where qualified public safety authorities have congregated. Next generation technologies encourage emergency communication coordination and forwarding on a platform-independent basis, thereby increasing consumers' chances of reaching a PSAP even if mobile and wireline voice communications are impossible.[24] Instead of a one-to-one serial connection – a landline telephone call over a single wireline system to an isolated PSAP – next generation 911/E911 services offer the possibility of parallel connections, where a variety of telecommunications devices transmit calls over a redundant network to the appropriate PSAPs or temporary call centers, which may pool resources and distribute call load as circumstances warrant.

The use of data in NG-911 emergency call delivery is unlimited. ALI and ANI information, videos, data, maps and even medical records could be included with the call and

[24] *Recommendations of the Independent Panel Reviewing the Impact of Hurricane Katrina on Communications Networks*, 22 FCC Rcd 10541, ¶¶ 11, 13 (2007) (*"Katrina Order")* (describing "the Katrina Panel's recommendation that we act to enhance the public safety community's awareness of non-traditional emergency alternative technologies that might be of value as back-up communications systems in a crisis" and "agree[ing] that improving the public safety community's knowledge of, and training in, alternative technologies would improve preparedness for future crises . . . . including two-way paging, satellite, IP-based systems, WiFi and WiMAX").

transferred among carriers and between PSAPs. The issue of how this data will consistently be treated in a secure network environment (delivered, transmitted, used and stored) has not been addressed. In fact, the application of standards among different technologies delivering the calls and data must be resolved in a manner that allows carriers to develop technological solutions and invest in their networks.

In its previously submitted comments in this docket, Intrado encouraged the FCC to recommend that a federal agency take leadership in defining a national framework for NG-911, including the development of governance and funding strategies recommended for states. Building upon the specific call in the ICO Plan for state and federal policymakers to ensure the proper regulatory construct for the migration to NG-911, Intrado is of the belief that the FCC should now conclude that it is in the best position to provide the unifying framework necessary to accomplish this goal. Therefore, Intrado recommends that the FCC indicate in its national broadband plan that it will take the federal responsibility for moving this nation forward to NG-911.

The FCC already has jurisdiction to assume a decisive leadership role in creating a national framework, including promulgation of concrete specific rules and standards. As the Commission has noted, it has historically maintained a statutorily defined role in 911/E911 issues.[25] Section 3 (b) of the Wireless Communications and Public Safety Act of 1999 ("911 Act") and the legislation's House Report specify the FCC's role in "fostering the implementation of advanced emergency response systems."[26] The FCC recognized that "Congress assigned the

[25] *E-911 Requirements for IP-Enabled Service Providers*, First Report and Order, 20 FCC Rcd 10245 ¶ 29, n. 95 (2005) (*"VoIP E911Order")*.

[26] *Implementation of the 911 Act, The Use of N11 Codes and Other Abbreviated Dialing Arrangements; 16* FCC Rcd 22264, ¶ 48 (2001).

FCC a leading role in performing such tasks as 'identifying and seeking solutions to overcome barriers for the implementation of end-to-end emergency communications systems.'"[27]

The Commission has taken initiative to establish provider obligations related to 911 under sections 1 and 2(a) of the Communications Act by virtue of its statutory responsibility to make available a national wire and radio communication service for the purpose of promoting safety of life and property.[28] The Commission remarked that, "[i]n light of this statutory mandate, promoting an effective nationwide 911/E911 emergency access system has become one of the Commission's primary public safety responsibilities under the Act" and reiterated that "'[i]t is difficult to identify a nationwide wire or radio communication service more immediately associated with promoting safety of life and property than 911.'"[29]

The New and Emerging Technologies 911 Improvement Act of 2008 ("NET 911 Act") further solidified Congressional intent that the FCC exercise jurisdiction over a national framework for next generation 911. The purpose of the Act was to "promote and enhance public safety by facilitating the rapid deployment of IP-enabled 911 and E-911 services, encourage the Nation's transition to a national IP-enabled emergency network, and improve 911 and E-911 access to those with disabilities."[30] The Commission was given authority to issue regulations implementing the Act, which included authority to "modify the regulations from time to time, as necessitated by changes in the market or technology…"[31] Opening 911/E911 service to

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[27] *Id.*

[28] *Implementation of the 911Act, The Use of N11 Codes and Other Abbreviated Dialing Arrangements*, 14 FCC Rcd 17338 (1999); *VoIP E911 Order* ¶ 28.

[29] *VoIP E911 Order*, ¶ 29, (citing E911 NPRM, 9 FCC Rcd at 6171).

[30] New and Emerging Technologies 911 Improvement Act of 2008, Pub. L. No. PL 110-283 (July 23, 2008) ("NET 911 Act").

[31] NET 911 Act § 6(c)3.

innovative broadband meets these objectives, permitting the immediate deployment of a highly advanced, IP-enabled emergency communications network that can meet the needs of all 911 service providers.

The Commission should continue down this path and use its mandate to fully endorse and frame the innovation of 911/E911 networks and services. For example, the Commission has determined that both the technological basis and broad mandate of Section 151[32] support the "adopt[ion] [of] an immediate E911 solution that applies to all interconnected VoIP services" that "most appropriately discharges the Commission's statutory obligation to promote an effective nationwide 911/E911 emergency access system,"[33] a finding that has been upheld against charges of high implementation cost or impracticability.[34] The Commission has clearly held that the need for a resilient, reliable, and uniform emergency calling system, per the demands of public safety, places equal demands on all carriers, despite differences in incumbency status or telecommunications service technology.[35] Just as the Commission has used these sources of authority to implement various intermediary technical standards on telecommunications carriers to meet its goals (*e.g.*, the Phase II E911 requirements on wireline and mobile carriers), so too will the Commission be able to effectuate all technical arrangements in support of meaningful 911/E911 innovation, such as the promulgation of necessary interconnection arrangements between ILECs and next generation 911/E911 service providers.

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[32] *VoIP E911 Order* ¶ 28.

[33] *VoIP E911 Order* ¶ 36.

[34] See *Nuvio Corp. v. F.C.C.*, 473 F.3d 302, 307-08 (C.A.D.C. 2006) (citing Commission's judgment of "the threat to public safety" as a countervailing response to economic concerns).

[35] *See Katrina Order* ¶ 96.

Two additional sources of authority, predicated on the competitive and broadband deployment goals already discussed, are directly applicable to the development of IP-based next generation 911/E911 services. Section 230 of the Act provides "[i]t is the policy of the United States to preserve the vibrant and competitive free market that presently exists for the Internet and other interactive computer services, unfettered by Federal or State regulation."[36] Section 706(a) directs the Commission to encourage the deployment of advanced telecommunications capability to all Americans by using measures that "promote competition in the local telecommunications market" and remove "barriers to infrastructure investment" in developing "new technologies and services" for public use. [37] Fully endorsing and enabling IP-based next generation 911/E911 services fulfills both of these statutory duties.

The Commission is also uniquely qualified to address a federal framework for public safety because it has access to important industry expertise. Recently, the Commission re-established the Technological Advisory Council ("TAC") and the Communications Security, Reliability, and Interoperability Council ("CSRIC"). These groups were chartered to provide the Commission with advice and guidance and will include members from the industry with the technical and policy expertise essential to promulgating a sustainable framework for next generation 911 networks and services.

Intrado strongly recommends that the national broadband plan submitted to Congress on or about February, 2010, explicitly designate the FCC as the lead federal agency to:

> a. Adopt a specific and concrete NG-911 migration plan through a separate rulemaking process dedicated to public safety, whereby the goals and responsibilities for state, federal and local jurisdictions are established.

[36] 47 U.S.C. § 230(b)(2).

[37] *A National Broadband Plan For Our Future* ¶ 110; *Appropriate Regulatory Treatment For Broadband Access To The Internet Over Wireless Networks*, 22 FCC Rcd 5901, ¶ 27 (2007).

b. Resolve issues raised in open FCC dockets (including those enumerated in the heading of the Notice) in a timely and coordinated fashion;

c. Accumulate relevant factual information and determine whether funding exists in order to support an identified next generation 911 system and consider possible funding models; and

d. Ensure that the competitive provisioning of 911 service is implemented in the best interest of 911 callers and public safety.

The Commission should then convene a "master" docket in which it would place the myriad of public safety issues—those from existing proceedings, those raised in the Notice, and additional issues as necessary, including consideration of interagency and multi-jurisdictional collaboration and cooperation—to produce a definitive framework for achieving nationwide next generation 911 communications.

e. What technologies are available or under deployment in the NG-911 environment to facilitate automatic location identification?

Arguably, the single most important issue facing 911 requests for emergency assistance is location accuracy. Regardless of whether the national broadband plan ultimately designates the FCC as the lead agency, this long-standing inquiry is under the direct control of the FCC and must be resolved.

The problem cannot be stated too often: The absence of definitive requirements for providing accurate caller location information for new and converged technologies will continue to contribute to real, albeit perhaps inadvertent, degradation in E911 services. The *sine qua non* of the nation's 911 system has been the ability of public safety officials to know "which door to kick in" to render assistance where they believe there is an emergency. The traditional wireline 911 system has set the bar high for basic emergency communications, and Americans have come to expect this level of service. For example, a traditional wireline 911 call allows PSAPs and

first responders to know a street address associated with the caller's phone service. By contrast, the location information transmitted to a PSAP from a wireless caller is typically a latitude/longitude coordinate—usually plotted on a map and in some instances translated to a street address equivalent. First responders can often be sent to the wrong house or respond to a location on the next block. As the demonstrated above, text communications surpassed voice calling in the fourth quarter, 2007, thus illuminating a rapidly increasing gap between perception, expectation, and reality in emergency call location accuracy. Sound policy requires that 911 services continue to provide the level of accuracy needed to locate a caller in distress sufficient to allow a first responder to swiftly find the caller and render emergency assistance.

The ICO Plan communicates the urgency of "establishing responsibilities for generating and delivering accurate, real-time location information."[38] While the Plan complies with Congress's mandate to identify location technologies, it also recognizes that, today, "no single technology or simple hybrid system…will provide location information from mobile devices on converged networks that is adequately accurate for first responders to locate callers."[39] Notwithstanding the current technological dilemmas, Intrado has urged the FCC to take action to adopt a single location accuracy standard—a specific location capability applicable to all providers—that is agnostic to technology, whether the technology takes the form of a protocol, an access network or the end user's device. In promulgating such a standard, the Commission should take into consideration the carrier burdens in moving toward implementation of that standard. Nonetheless, the FCC should immediately issue rules that identify a location capability requirement and appropriate phased implementation. Intrado supports the use of a "dispatchable" address, whenever possible, because it is the most suitable location information to

[38] ICO Plan at 1-11.

[39] *Id.* at 1-12.

enable rapid and efficient emergency response: when an address can correspond to a location, address information is preferred over geographic coordinates.

By defining the ultimate end-state, the Commission will ensure that investment will be made toward important public safety infrastructure. In order for the United States to move effectively into the next generation of location services, and to avoid unintended, broader economic impacts, all interested parties must know with clarity what is expected of them both in terms of the development of appropriate technologies and solutions and in terms of the date(s) by which requirements for deploying them will be mandated. Without such definitive requirements, the nation risks having a shortage of willing infrastructure participants and the likelihood of ill-placed and/or ill-timed investment in the 911 infrastructure. Suitable investment today is essential to ensure that our nation's citizens will continue to receive the level of emergency services that that they have come to expect.

III. Examining the survivability of broadband networks and cybersecurity.

Intrado agrees that cybersecurity is a critically important issue facing private industry and recognizes the benefits of public/private cooperation. However, given the many ongoing agency and Congressional activities related to this issue, Intrado believes that it is premature to make substantive recommendations in the FCC's broadband plan. As Intrado recommended in its previously filed comments, a collaborative approach in a consolidated federal forum should bring together the industry standards and practice-setting organizations as well as responsible government agencies to consider the best methods of sharing information and to consider reliability and security standards for next generation 911 networks and services. Intrado notes that the Network Reliability and Interoperability Council ("NRIC") has developed what is

currently considered best practices of the industry. The FCC should engage the newly constituted CSRIC to continue this work.

CONCLUSION

As Intrado's comments demonstrate, NG-911 networks must be capable of providing the transmission of voice, data, text, and video from different types of communications devices to PSAPs and PSAs and on to emergency responder networks. A NG-911 network infrastructure must be a specialized and dedicated network that is completely independent from the public Internet where packets move on a best effort basis. Intrado has established a NG-911 network and is well on the way to implementing critical NG-911 applications and services. However, federal guidance is necessary to fully achieve NG- 911 and the FCC should take the lead in this critically important effort.

Respectfully submitted,

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