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 #25
OF
INTRADO INC. AND INTRADO COMMUNICATIONS INC.

With its Notice of Comment Sought on Transition from Circuit Switched Network to all IP Network,[1] the Federal Communications Commission (FCC or Commission) seeks to understand what public policies are necessary to ensure that ***consumers are protected from the loss of essential service*** during the transition from the circuit switched public telephone network (PSTN) to an all Internet Protocol (IP)-based network—given profound technological advances and the widespread market liberalization of this industry sector. But, as one industry expert has stated, "the nation cannot have a robust, survivable, interoperable communications system that protects the public if the public is

[1] *Comment Sought on Transition from Circuit Switched Network to all IP Network*, NBP #25, GN Docket Nos. 09-51, 09-47, 09-137, DA 09-2517 (rel. December 1, 2009) (Public Notice #25).

treated merely as a mass of consumers and not as an integral part of national defense and emergency response."[2]

Moving forward in a coherent fashion, therefore, requires policies that transcend global economic aspirations, because we also have serious vulnerabilities at home. Accordingly, Intrado Inc. and Intrado Communications Inc. (collectively "Intrado") respond to this inquiry as it pertains to the public's safety—more specifically—the transition from legacy TDM-based E-911 services to the Next Generation IP-based NG-911 services.[3]

I. CONGRESS'S PAST POLICY OBJECTIVES SHOULD GUIDE THE TRANSITION FROM CIRCUIT-SWITCHED TO IP-BASED EMERGENCY CALLING.

In June 2009, the Congressional Research Service (CRS) identified four policy objectives and strategies "*supported in the past* by Congress … as the base upon which future policy might be built."[4] These policy objectives and strategies include:

1. Equality of service and access to 911
2. Mechanisms to improve funding for PSAPs and monitor collections and disbursements
3. Federal leadership in developing better 911 capabilities
4. Transition to IP-enabled 911 systems

Quite clearly, the CRS Report recognizes the shortcomings of the current E-911 system as well as the promise of an IP-based 911 system, and there exists a broad

[2] Mark Lloyd, *Ubiquity Requires Redundancy: The Case for Federal Investment in Broadband*, 5 (January, 18, 2008), *available at* www.scienceprogress.org.

[3] Intrado provided extensive comments regarding the transition to NG 911 in response to the FCC's *Additional Comment Sought on Public Safety, Homeland Security, and Cybersecurity Elements of National Broadband Plan*, NBP #8, DA 09-2133 (rel. September 28, 2009) (Public Notice #8), filed in GN Docket Nos. 09-51, 09-47, 09-137 on November 12, 2009.

[4] Linda K. Moore, *Emergency Communications: The Future of 911*, CRS Report to Congress, 9 (June 2009) (CRS Report) (emphasis added).

consensus today in support of these four objectives.[5] Arguably, however, consumer protection dictates that the first of these, "equality of service and access to 911," is the organizing construct. The other three principles—funding, governance, and transition to NG-911—are the means to get there (i.e., end-to-end NG-911 all IP-based network infrastructure) from here (i.e., legacy E-911, PSTN-based network infrastructure).[6]

II. EQUALITY OF SERVICE AND ACCESS TO 911 POINTS DIRECTLY TO THE FIRST ORDER POLICY QUESTION.

Historically, equality of service and access to 911 were achieved, however imperfectly, through policies flowing from the federal Communications Act, the American with Disabilities Act and the rules that implement them.[7] Policy makers wishing to institute needed changes recognized the importance of not letting the perfect be the enemy of the good. And, although wireless (CMRS) access was mandated in 1996, it remains in an unacceptable state of imprecision owing primarily to the lack of a universal location accuracy standard (independent of mobile devices and network technologies) used for emergency call routing and caller location.[8] VoIP access,

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[5] CRS Report, 1-4; 9-1-1 Industry Alliance, *Health of the US 9-1-1 System, available at* http://www.911alliance.org/9IA_Health_of_US_911%20_2_.pdf ("9IA Report"); The National E9-1-1 Implementation Coordination Office. *A Plan for Migrating to IP-Enabled 9-1-1 Systems*, (September, 2009), *available at* http://www.e-911ico.gov/NationalNG911MigrationPlan_sept2009.pdf.

[6] International comparison invited by the inclusion of GN Docket 09-47 indicates that "[t]he ability to initiate an emergency communication to request help when needed is *a right of all citizens*, and the ability should be independent of the network and access technologies deployed or the physical abilities of the citizens" (emphases added). Electronic Communications Committee within the European Conference of Postal and Telecommunications Administration (CEPT), *Draft ECC Report on Practical Improvements in Handling 122 Emergency Calls: Caller Location Information*, Draft ECC Report 143, 4 (November, 2009), *available at http*.www.ero.dk/6B4E0162-4360-4520-B316-BOA2EC35BD9E?frames=no&

[7] *See, e.g.*, Telecommunications Act of 1996, Pub L.104-104, 110 Stat. 56, 47 U.S.C. §254 whereby universal service principles and definitions ensure access to 911 and E-911 at affordable rates; Americans with Disabilities Act, Title IV, U.S.C. § 225 and CFR § 64.601 provides for "functionally equivalent" services (mandated and Commission-approved non-mandated TRS) for the speech and hearing impaired.

[8] *Revision of the Commission's Rules to Ensure Compatibility with Enhanced 911 Emergency Calling Systems*, 11 FCC Rcd, 18676 (1996).

mandated in 2008, is, likewise, a work in process.[9] Furthermore, inequality of access/service in what is termed "originating" networks is confounded by technological evolution *and* shifting consumer usage patterns.[10] Logically, all of the above also affects the 911 service networks and the PSAP networks – that are separately undergoing their own technological transformation—all on different timelines.

Thus, "to assist the Commission in considering how best to monitor and plan for this transition,"[11] the overarching policy question as it pertains to the 911 system is: to what extent should 911/Request for Assistance (RFA) requirements be extended to devices and networks such that consumers—regardless of device, network or combination(s) thereof—are assured the ability to initiate and complete 911 calls and/or RFAs?

III. THE PROMISE OF END-TO-END NG-911 REQUIRES SYNCHRONIZATION OF MULTIPLE SETS OF TRANSITIONS TO IP-ENABLED NETWORKS.

In order to respond to the first order policy question, the Commission must understand that end-to-end 911 call delivery requires four separate but inextricably linked networks—originating networks (where the 911 call originates), 911 service networks (where the 911 call is routed), PSAP networks (where the 911 call is delivered) and first responder (radio interoperability) networks. The transition to NG-911 will occur in all four networks, albeit unevenly among and between them. To begin to understand this dynamic, Table 1 below summarizes the evolution of originating networks to IP and what difference it will make for 911 call functionality. The summary of Table 1 is that the

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[9] New and Emerging Technologies 911 Improvement Act, P.L. 110-283, 122 Stat. 2620 (2008).

[10] According to Nielsen Mobile, text messaging surpassed voice calling for the average mobile users in the 4th quarter of 2007. *Mobile Media Measurement, available at* http//blog.nielsen.com/neilsenwire/online_mobile/in-us-text-messaging-tops-mobile-phone-calling/.

[11] Public Notice #25 at 2.

evolution of originating networks to IP-based networks will not only be uneven across and between platforms, but each of the critical functions for 911 service delivery will no longer neatly fit into the legacy 911 construct.

Table 1. *Evolution of Originating Networks 911 Call Functions*

PLATFORM **(a)**	**EVOLUTION of TECHNOLOGY (b)**	**911 LOCATION VALIDATION (c)**	**911 LOCATION ACQUISITION (d)**	**911 CALL ROUTING (e)**
(1) Wireline	TDM → IMS / FTTH	Service order entry, data stored in ALI db. No change anticipated.	N/A	Legacy E911 methods
(2) Wireless	CMRS → converged applications WiMAX, WiFi, Femtocell→ LTE / IMS	Service order entry, shell records in ALI. Future choice of (a) location determination technology or (b) access point.	3GPP / IMS OMA/SUPL	Cell ID, X/Y, 3rd Party
(3) Cable	Packet Cable 2.0 (DOCSIS) based on 3GPP IMS for core w/ extensions for access networks.	Same capabilities as wireline -- passing data to ILEC for processing.	DHCP, HELD	Legacy
(4) VSP	IP / Softswitch	3rd Party; Direct	Statically provisioned	VPC / ESGW
(5) Enterprise	IP-based PBX	MSAG; PS ALI; LIS; 3rd Party	If IP, LIS.	TDM Trunks Peering + SIP Trunking; 3rd Party.

Table 1 sets forth the critical elements of an emergency call, i.e., location validation (column (c)); location acquisition (column d)); and call routing (column e)).

Additionally, each row in the table represents an originating network platform—wireline, wireless, cable, VoIP service provider, and Enterprise (e.g., an IP-based PBX). Thereafter, each cell that is located at the intersection of a specific originating network (rows) and a specific call function (columns) describes—roughly —the anticipated evolution of that function as the originating network platform (excluding traditional wireline) moves to an IP-enabled or Next Generation Network (NGN) architecture. The complexity of how these networks evolve requires focused vigilance by the FCC within the larger TDM to IP transition to ensure that the transition to NG-911 keeps moving in the "right" direction *and* that no customer segment is left without access to an essential service, specifically, 911 calling or RFAs.

The same vigilance is required in the next stages of call delivery. As a 911 call / RFA is routed from originating networks to the dedicated 911 service network(s) to the PSAP(s) and thereafter to the emergency responder network, requisite technology-specific standards and interfaces are necessary to ensure end-to-end seamless emergency call delivery. Table 2, below, provides a snapshot of these standards and interfaces that are in varying stages of development.

Table 2 *Requisite Standards for End-to-End NG-911*

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

Column (a) in Table 2 provides specific standards that are currently being developed within ATIS (Alliance for Telecommunications Industry Solutions) in the area of NG-911. [12] This suite of voice, data and messaging standards comprises the necessary interfaces to ensure that all networks involved in the routing and delivery of a 911 call/ RFA—whether legacy TDM or IP-enabled, E-911 or NG-911—coexist and route emergency calls/RFAs to the appropriate PSAP(s) and on to the first responder network(s). Columns (b), (c), and (d) represent points of interface for these networks that require a standard—without which, equality access to and quality of end-to-end 911 calling will not occur. The seven cells at the intersection of a column and a row that contains an "X" illustrates the overall scope of this standards development effort.

Similarly with Table 1, this critical developmental effort calls for continued vigilance by the FCC in ensuring that within the larger TDM to IP transition, the transition to NG-911 keeps moving in the "right" direction *and* that no customer segment is left without access to this essential service.

III. CONSUMER PROTECTION REQUIRES ROBUST AND IRREVERSIBLE COMPETITION.

Competition, rather than strict public utility regulation, has been the cornerstone of United States telecom policy for the past thirty years.[13] Thus, although there remain

[12] EISI (Emergency Information Services Interface) allows access to a variety of data services and functions at each stage as a 911 call progresses from an end user through the PSAP and on to the first responder ; ESMI (Emergency Services Messaging Interface) replaces legacy automatic location information (ALI) interface ; Emergency NNI (Emergency Network-to-Network Interface); RFAI (Request for Assistance Interface) provides the interface between an IP-based selective router and an IP-based PSAP ; and RFAI/MM (Request for Assistance Interface for Mobile Messaging) provides a standardized interface for the delivery of SMS and MM over a mobile IP network to an IP-based PSAP.

[13] Most recently, Telecommunications Act of 1996, Pub L.104-104, 110 Stat. 56, 47 U.S.C. § 151, *et seq.*, wherein the purpose of the Act is "[t]o promote competition and reduce regulation in order to secure lower prices and higher quality services for American telecommunications consumers and encourage the rapid deployment of new telecommunications technologies."

legitimate reasons for oversight of emergency communications by state and federal regulators, there is no principled reason today that consumers and, by implication, public safety answering points, should be denied the benefits of competition from emergent networks provisioning 911 service. Moreover, "robust" in this context means multiple service providers and services. "Irreversible" means that the existence of multiple providers is sustainable and will not be decimated by the commercial self-interest (buttressed by empty rhetoric) of the nation's dominant carriers.[14]

And, lest market entry be rendered insurmountable, the principles of technological neutrality and non-discrimination must prevail. In particular, the linchpin of the legacy 911 system, the analog selective router network interface, has morphed into the constricting "gatekeeper" in highly contested state-level proceedings aimed at accelerating the transition from TDM-based E-911 to competitively provisioned IP-based NG-911 services. Only the FCC can break this Gordian knot with an interconnection regime that establishes the rights for competitive providers that will, at once, deliver the benefits of competition to consumers and ensure that essential services are not denied during the industry-wide transition from TDM to IP networks.

IV. CONCLUSION AND RECOMMENDATIONS

Events of the past decade show that over-extended reliance on the legacy 911 system to protect consumers from the loss of this essential service actually threatens the public's safety. From September 11, 2001, when the nation endured a major terrorist attack, to

[14] Chief among the arguments trotted out at every turn are the notions that regulation will prevent network investment and/or physically harm the network. The bankruptcy of these laments, however, is revealed by Commissioner Copps stating in pertinent part that "[f]or as long as this Commission has been in existence, network operators have argued that their networks would be damaged by various regulations." FCC *Workshop on Speech, Democratic Engagement and the Open Internet*, (December 15, 2009), *available at* www/fcc.gov/live/2009_12_15_workshop.html.

the fall of 2005 when the nation watched a major United States city drown, to the 4th quarter of 2008 when average mobile users began relying more heavily on text messaging than on voice calling, devices and mission critical networks have proved to be unreliable.[15] Regardless of whether an incident is massive or occurs on an individual basis, effective public safety networks cannot and should not be considered a luxury or privilege. Rather, they are a "right" in that all citizens, regardless of device relied upon to initiate a request for assistance, must be assured the same level of access and quality of service.

For all of the reasons stated previously, Intrado recommends that equality of access and service for NG-911 are included in this proceeding.

Respectfully submitted,

INTRADO INC.
INTRADO COMMUNICATIONS INC.

/s/
Craig W. Donaldson
Senior Vice President,
Regulatory & Government Affairs

Carey Spence-Lenss
Vice President, Regulatory & Government Affairs

1601 Dry Creek Drive
Longmont, CO 80503
720-494-5800 (telephone)
720-494-6600 (facsimile)

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[15] With the emergence of the notion that one can be "situationally impaired" in situations where the use of voice calling is itself physically dangerous, text-to-911 transcends the debate that it need only be required for those with physical impairments.