

# Presentation to the California Chapter of the National Emergency Number Association

## Voice Over Internet Protocol – Tomorrow's 9-1-1 Today

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Ladies and gentlemen, tomorrow's telephone service is being implemented today. Unless you have been hiding from the vast universe of advanced communications services, or you don't have access to the Internet to surf the web or otherwise have limited experience with Email, you have probably heard somebody say something about Voice Over the Internet Protocol.

Therein lies some of the problem – there are an awful lot of somebody's saying an awful lot of something about VOIP. We could spend several days going over the details of VOIP in its various forms, from a simple method of operating an in-house phone system to a true Internet-based "telephone system". But I think the most valuable thing to spend a few minutes talking about is to discuss how VOIP affects the PSAP.

Let there be no mistake about it, VOIP is big in two ways. First VOIP affects the call handling process today, and second VOIP will, at least in the mid-term, potentially affect the revenues collected by local, state and federal agencies from the customer telephone bill.

Before I go any further, let me say that there is some good news in this story. NENA has been working aggressively with the VOIP community to find short term, and perhaps more importantly, longer term solutions to some of the technical, operational and financial challenges VOIP presents to our membership.

Through a unique partnership with the VOIP industry, NENA and the Voice over the Network coalition have forged an agreement that covers six key points:

1. Immediate routing of 9-1-1 callers to the PSAP via the public switched telephone system within three to six months from the date of the agreement. This is an interim measure to resolve the immediate problem of meeting the federal requirement that telephone callers be able to dial 9-1-1 for emergency services.
2. The VOIP provider will coordinate with the local or regional PSAP providers when they deploy their service. This is important because the 9-1-1 Call Takers will often be the first to notice something odd is happening when 9-1-1 calls start coming in through the public switched telephone network and not the 9-1-1 network. The Call Takers will need to be briefed on why this is happening.
3. The VON Coalition will actively support the NENA and industry work towards an interim solution that includes delivery of VOIP 9-1-1's call through the existing 9-1-1 network, providing callback number, and in some cases, initial location information. This is not dissimilar to the Wireless 9-1-1 Phase 0, Phase I and Phase II environments. We hope that the agreement will shorten the time gap between the current Phase 0 condition and the ultimate goal of providing accurate VOIP caller location.
4. The VON Coalition will actively support the NENA and industry work towards long-term solutions that include delivery of 9-1-1 calls to the proper PSAP, providing callback number to the PSAP, providing location of caller; and ensuring that PSAP's have direct IP connectivity.
5. Not to be lost in these discussions is the need to collect the revenue needed to pay for the 9-1-1 system. The VON Coalition is working with NENA to develop an administrative approach to maintaining funding of 9-1-1 resources at a level equivalent to those generated by current or funding processes.

6. And lastly, but perhaps most importantly, NENA and the VON Coalition are working to develop consumer education projects involving various industry participants and NENA public education committee members to create suggested materials so that consumers are fully aware of 9-1-1 capabilities and issues.

This agreement is controversial. There are some in the public safety community who feel that NENA has compromised the needs of the PSAP and the 9-1-1 Call Takers by allowing 9-1-1 calls to be routed through the public switched telephone network.

Some people feel that the VOIP industry should have been denied the right to carry telephone service via the Internet until such time as they could meet the current "look and feel" of 9-1-1. The argument demands that ANI and ALI be delivered to the appropriate PSAP as the call is initially set up.

You know something? Those folks are right. VOIP 9-1-1 calls should act the same as any other 9-1-1 call. It is about the safety of the public. The Call Takers do need the call back telephone number and the caller's location.

The Wireless 9-1-1 situation ought to have given us the lesson of what happens when technology surpasses capability. We have spent the better part of 10-15 years trying to play catch-up with Wireless 9-1-1 routing issues.

The FCC requirements contained in document 94-102 were explicit and carried the force of federal regulation to prod the industry and the PSAP community to deploy the necessary technologies and procedures to route and handle Wireless 9-1-1 calls.

Does anybody know what the "94" part of the ruling means? It means it was crafted in 1994. It set out a series of requirements, milestones and deadlines that are just now being addressed. It took several years of consensus development to even produce that document. In reality, we are over ten years into the 94-102 requirements and most of the country is still wrestling with deployment.

NENA firmly believes that caller location and the ability to call back the telephone set are critical tools needed by the 9-1-1 Call Takers in our nation. But we also understand that VOIP "communications" services are here today, will be growing considerably tomorrow, and won't be regulated in the short term.

The federal government, through the Congress and the FCC, has made it clear that the Internet, in general, will not be regulated or taxed. Since VOIP has been determined to be an unregulated "Information Service", not a regulated telephone service, we have a conundrum. Do we fight the ocean tide of VOIP or do we try to influence the development so that the industry voluntarily meets our technical and financial needs?

We saw that 12-15 years of regulatory development for Wireless 9-1-1 created a 12-15 year window for rolling out the tools the 9-1-1 Call Taker needs to do their job. And most of that success has been in the last two years...

Within the NENA leadership and technical development team, the decision was made to try to work with the VOIP community to influence their design principals to make Enhanced 9-1-1 a minimum requirement of their service offering.

This is not going to be easy nor will it be quick. It may, in the long run, require radical changes to the 9-1-1 network and significant enhancements to the PSAP CPE, just as, I might add, Wireless 9-1-1 has done.

But there is a significant value added benefit that may well couple with this VOIP/9-1-1 effort. As the very notion of communications and information sharing changes, so does the expectation of the public that they be able to contact emergency services through whatever device they are utilizing.

How far are we from the Dick Tracy wrist watch/communication device? Not very. But, in the environment the 9-1-1 network operates in today, we are severely limited to very simple traditional dial tone telephone service.

We know the hassles and headaches of interfacing the Wireless 9-1-1 network to the E9-1-1 network. HCAS, NCAS, PANI, WALI and the rest of the alphabet soup are keeping lots of engineers busy trying to build a bridge between some very sophisticated digital wireless telephone systems and the very old CAMA trunk copper-wired analog 9-1-1 world.

Are we ready for a change? We sure better be, because the rest of the world is demanding it. Who are the beneficiaries of the advanced capabilities and functionality of VOIP communications services? The public! They are the ones demanding more and more functionality from the computers, telephones, pagers, their cars and more.

They are also the ones demanding that the PSAP be able to deal with these changes. And, by the way, for the most part, they are paying a fee with the understanding that we will do what it takes to handle their calls.

There is simply no way that we are going to achieve these goals through the traditional method of regulation or through the existing out-dated 9-1-1 network.

As innovative and new ways to call 9-1-1 have emerged, so too have calls for us to explore and examine efficient uses of 9-1-1 services. NENA recognizes that technologies such as IP and VOIP are dynamic, competitive, innovative, and most of all, an opportunity to improve our nation's 9-1-1 system.

In its Notice of Proposed Rulemaking on "IP-Enabled Services," FCC 04-28, released on March 10, 2004, the FCC states that the emergence of IP *"has significant implications for meeting the nation's critical infrastructure and 9-1-1 communications needs."* The Notice refers specifically to NENA's agreement with the VON Coalition and asks, and I quote, *"to what extent can voluntary consensus, rather than regulation, spur the deployment of IP-enabled E9-1-1 services?"*

NENA supports the need for establishing a national public policy, technical and operational blueprint and framework for the advancement of Internet based service offerings for 9-1-1.

Remember, today over 50 million Americans are using some form of broadband Internet access. While Internet-based services continue to grow in number and diversity, Internet-applications for the transmission of voice communications demonstrates a "digital migration" and a challenge for the 9-1-1 community.

As the public reaches for faster, more affordable information transfer and communication, our nation's 9-1-1 system and local emergency response networks need 21<sup>st</sup> Century communications capabilities. From the inception of new technology, to the detail and complexity of public policy, the safety and security of the public must be of paramount importance.

NENA supports a vision, and position of collaboration, to explore what must be done to ensure our nation's 9-1-1 system is not only part of the "digital revolution", but a priority in providing any Internet-based voice service and application. During the recent SWAT initiative, the battle cry was, "any device, from anywhere, at anytime..."

Remember something folks. We are not just talking convenience. For some, this radical improvement in communications capabilities is life-altering. Some of the most important benefits of Instant Messaging and other advanced technology communications and information services are the citizens who are challenged by speech or hearing difficulties.

NENA further recognizes that this is a monumental challenge that requires milestones and hard deadlines, but also thorough and thoughtful review of progress and changes in the evolution of technology. To this end, NENA is adopting principles to support an aggressive, open consultative process to improve planning, leadership and innovativeness in the delivery of a fully functional E9-1-1 system for VOIP and other Internet-based voice communications.

In the Six Point Agreement, NENA calls on the creation of a national E9-1-1 VOIP policy plan and strategy for PSAP's, providers and policymakers.

It used to be said that 9-1-1 was a local issue, but the truth is, it has become a national imperative. Knowing a caller's location is critical to emergency response. And in the current reality of heightened emergency risks and alertness, a national plan is needed to ensure the most effective and efficient methods and procedures are being used.

NENA and members of the VOIP industry have forged an early agreement on key elements for providing emergency 911 service to VOIP users. This agreement is an important first step in developing a national E9-1-1 VOIP Policy Plan.

The future of 9-1-1 requires vendor and technology neutral solutions and innovation. The emergence of Internet-based communications services as a means to transmit data and voice will have long reaching implications for our nation's 9-1-1 system. Consistent with the policy goals enacted in the Wireless Public Safety Act of 1999, enhanced 9-1-1 is an essential part of modernizing emergency communications to support state-of-the-art, interoperable, integrated and efficient emergency communications and information infrastructure for all emergency responders.

Throughout the demand for change, it is necessary that we retain customer service quality expectations. The 9-1-1 Call Takers are the gateway to police, fire and paramedic first responders. The call taker is the first link in the emergency response chain, often with direct contact with the victim or others directly involved in the emergency situation.

As the global consumer changes communications capabilities, the 9-1-1 system should be dynamic in design and operational assumptions, flexible to adjust to new technologies and old expectations.

To implement the agreement, when a VOIP communications provider begins selling in a particular area, it should discuss with the local PSAP's or their 9-1-1 coordinators the approach that company will be taking to providing 9-1-1 access for their customers. In the short term, the Six Point Agreement does not require this to apply to a VOIP "roaming" customers. With broadband access, the caller could be anywhere on the planet or even orbiting above us in the space station...

It is not a forgone conclusion that IP or VOIP are the next generation of 9-1-1 networking. NENA objectives are to verify the assumption that IP protocol and technology is the appropriate basis for NENA's Future Path Plan toward a forward-looking E9-1-1 service. Collaborating with IP experts, NENA will continue to explore concepts for a programmatic definition, which can then serve as the target for open architecture system designs.

NENA supports future E9-1-1 design that will take all known E9-1-1 feature needs into account, as well as new issues that will inevitably emerge in the coming years, allowing for design and operational assumptions to be checked and verified as part of any implementation.

Throughout this process, NENA will seek policies and regulations that are compatible with commercial offerings for IP, designed to enhance the convenience and service options available to consumers, private industry and others in calling 9-1-1. We are not afraid of the regulatory process in either the state or federal arena – we are just concerned about the timeliness and the unintended consequences today's regulation may impose on tomorrow's innovation.

Our foundational principal concerns the safety of millions of Americans who may use a VOIP service in emergency situations. It is important to understand what is possible in providing IP based services, and determine how these callers will need to be connected to a PSAP before pursuing broad based policy measures that may prove to be limiting as technology changes over the course of time.

In this process, we will develop a number of consumer education projects involving various industry participants and NENA's public education committee to create suggested materials so that consumers are fully aware of 9-1-1 capabilities and issues.

Not to be overlooked in this issue is the negative effect the migration to VOIP "information services" will have on the revenue currently generated for local, state and federal coffers through the local telephone bill. In its presentation to the hearing convened by California State Senator Bowen on VOIP, the PUC projected that by the year 2008, there will be a 40% reduction in the revenue generated by telephone customers, due to migration from traditional telephone service to the Internet-based "information services." Across the board, in California that is a 40% cut from the \$1.5 billion dollars collected for a variety of purposes, including 9-1-1.

We face the question of timeliness. Is it a more prudent course to go down the regulatory path to stabilize the revenue generated for 9-1-1, or do we seek a voluntary means to obtain the money needed to maintain the 9-1-1 infrastructure?

It is not a simple question. Funding our nation's 9-1-1 system is a top priority for providing reliable service as well as the safety and security of our nation. This is a major issue for all levels of government as consumers, especially the corporate community, migrate from traditional telephony to VOIP using the internet to transmit "information" services.

NENA believes that deployment, implementation, recurring costs and resources should be evaluated and addressed in a National E9-1-1 VOIP Policy Plan.

So far, eleven VOIP companies have signed onto the agreement, along with NENA and as of last December, NASNA, the National Association of State Nine-one-one Administrators. There is an ongoing effort to sign on others to the agreement in order to quicken the pace of meeting the terms of the agreement.

The FCC has been informed of the agreement and there is a great deal of enthusiasm for the partnership between the service providers and the 9-1-1 "industry" in resolving the technical and operational issues facing the VOIP world. While the work in progress was initially geared towards USA and Canadian standards, the scope must be worldwide because of nature of Internet technologies.

Our mantra is, "*Location, location, location...*" We view the ability to immediately display telephone number and the location of a caller within the first few seconds of receipt of a 9-1-1 call to be a baseline requirement. There are countless examples where the first few moments of a 9-1-1 call are precious, and critical response decisions are based on accurate call back and location information.

NENA believes that the 9-1-1 system will need to change in the coming years to meet the demands of a rapidly changing telecommunications world. Integration of new generation PSAP's operating in an IP environment is not only necessary, it will likely substantially increase the capabilities of the PSAP and, inherent in the nature of VOIP, potentially save costs over legacy network designs.

Indications are that IP-communications networks also provide the opportunity to moving 9-1-1 calls around larger geographic areas, thus getting the caller to the right PSAP with the location information – that is not possible in today's network. This is important because the very definition of 9-1-1 caller has grown from a wired phone in a home to a car that reports a collision in Sacramento to a call center in Texas. Soon, even personal medical devices will need to communicate to a PSAP...

The question is not if the VOIP incorporates 9-1-1 into their service offering, but how? Is it accomplished by regulation and rule of law or through industry cooperation? The organizations and companies that have entered into the six-point agreement think it may well be possible that a faster and better solution can be found through a cooperative effort.

Well done, the 9-1-1 call handling will be transparent between VOIP and traditional telecommunications systems. Anything less will not be acceptable to the consumer or the policy leaders.

The NENA VOIP/Packet Technical Committee currently has over 80 members, the largest in the NENA "family" of technical or operations committees. Also, the NENA VOIP Operational Committee, which is examining the issues that directly impact a PSAP has more than 65 members; its work complements that being done in technical development. There are numerous working groups addressing baseline E9-1-1 requirements, migratory and long-term definitions, and more. It is well understood that IP technology represents the primary pathway to the future of telecommunications, not just telephone service in the traditional manner we are used to operating.

VOIP communications may well be the pathway to the first line of our nation's homeland security. Time and again since September 11, 2001, it has been recognized that the citizens are the watchdogs who will likely sound the first alert of terrorist activity. 9-1-1 is their direct connection to the law enforcement, fire protection and emergency medical services that are ready to respond to any emergency.

NENA continues to be actively involved in this and other issues at many levels. Through our chapters, we are affecting state and local policy, and at the national and international level, we are working with industry, legislators and regulators to assure that a common message is presented to all parties.

As the State of Virginia Wireless 9-1-1 Coordinator told the opening session of the FCC's Network Reliability and Interoperability Council last month, it is all about the quality of the information delivered to our nation's 9-1-1 Call Takers. They need the calling party's call back number and they need their location. Period.

That is what we are working to accomplish at the fastest pace possible. If we end up needing regulation to compel industry, so be it. But, if in the meantime, we can actually forge an agreement that pushes a solution in the next 18 months, then, as I see it, we are just about ten years ahead of the game...