



# The E911 Dilemma

Why you can't always get help on your cell phone when you need it most



by David Geer

*E911 is Enhanced 911, the service that would ensure that 911 calls made from a cell phone are tagged, routed, and handled in such a way that help arrives at the appropriate destination. If my cell account is from Ohio and I'm in Maine, witnessing an accident, I need to know that calling 911 will send an ambulance crew to my current location. We're close to E911 implementation and I believe everyone involved is working hard, but there are many reasons why it's just not that easy to put it into play.*

October 1, the FCC's E911 deadline, has come and gone, and E911 service is not in place. Why not? Some people would say the carriers have no excuse. The reasons are mostly about money. People concerned more with whether it was technically possible to have E911 by now than whether it was financially feasible cry foul.

Dr. Jeffrey Krauss, president of Telecommunications & Technology Policy (a consulting firm in Rockville, MD), makes such an outcry: "At least some people, including me, believe that these cell phone companies could have implemented this technology sooner, but they're dragging their feet because they don't see a way to get revenue. They see that it will cost them money but they don't see a way to get revenue to cover it.

"There are two kinds of technologies proposed for use here. One is network-based and the other is handset-based. And the handset-based technology has been a little bit slower to develop than the

network-based. So the cell phone companies are arguing that they ought to be allowed to wait until these two kinds of technologies are equally developed. They shouldn't be forced to implement the network-based technology because it was available sooner. It's a question of cost. The network-based technology means the cell phone companies have to make changes to their networks, so they incur the costs. The handset-based technolo-

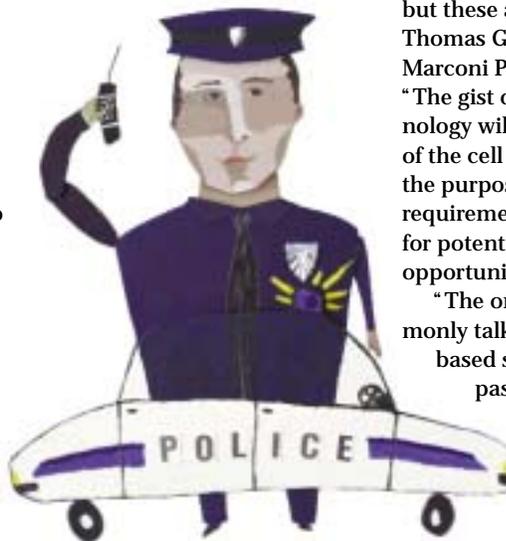
gies put some of the costs on the users [in that] you have to buy new handsets. So [there's] not as much cost put on the cell phone operators."

## E911 Has Empty Pockets

Not all agree that the money is available. The financial argument is strong and reasonable on many counts. First, the carriers have overextended themselves to purchase 3G spectrum licenses. These costs are in the billions. Second, they look forward to laying out an additional, mountainous pile of cash to build out the 3G networks, and this before they recoup any of the costs of either expenditure. Third, if they do find money for E911 in the middle of this same cash crunch, there is no business model that turns a profit or recoups any costs from E911, said costs themselves being equally elevated.

There are predictions as to what might be viable business models for location technology but these are not tested. As Thomas Gage, chairman of Marconi Pacific Inc., puts it, "The gist of it is that E911 technology will allow the location of the cell phone not only for the purpose of public-safety requirements or needs, but also for potential commercial sales opportunities.

"The one that's most commonly talked about is location-based sales. You're driving past a mall and with your permission (having preregistered), the Nordstroms in the mall [for example]



David Geer, a journalist and computer technician, graduated from Lake Erie College in 1993 with a BA in psychology. He has worked in the computer industry and in the media since 1998.



Davidg@suite224.net

knows you're driving by and sends you a quick e-mail saying that if you come in in the next hour you can have a 20% discount on [purchases] over \$100. The implementation of E911 would allow that type of selling. But there's not a general view yet on the part of the carriers or the applications providers that that type of activity will in fact be attractive to people [consumers]."

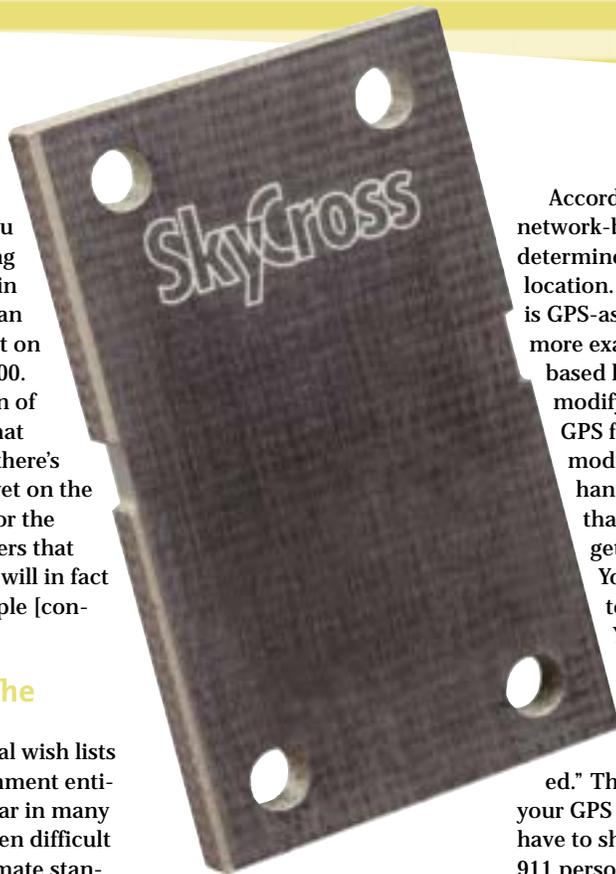
### The 'Wait' of the Matter

There are political wish lists from various government entities. With a tug of war in many directions, it has been difficult to tell what the ultimate standard will be. Just one example of said tug of war is the one between civil rights and law enforcement. According to Al Haase, CEO of SkyCross, there are particular law enforcement agencies that would like to be able to wiretap cell phones to tell where calls are being made from.

The FBI and the CIA for instance would love to have the ability to wiretap. Cell phones get used for abusive and illegal purposes that these agencies would like to put a stop to. Since the technology needs to meet this burden from the get-go, it affects how the two standards ultimately develop. This waiting game halts the appearance of necessary hardware and software that must in turn be designed to suit the technology standard. Until civil libertarians or these law enforcement agencies win this debate, you have another cog in the wheel.

### Technical Dualities

There are two fundamental technical models for E911. There is the network-based



type whereby the location is formulated using multiple formulae. With a combination of the estimated time of arrival of the call from the base station to the handset and other factors, an approximate location can be triangulated. The other technology is Assisted GPS or AGPS and is much more exact. Many carriers will adopt this method because it defrays the costs to the users (who must purchase new handsets that have this capability if they want the added protection).



Al Haase, CEO of SkyCross

According to Haase, "[The network-based technology] determines an approximate location. The other technology is GPS-assisted and is much more exact. With network-based locating you have to modify all the cell sites. The GPS function also requires modifications. If your handset isn't designed for that, you are unlikely to get it modified for GPS. You will probably have to get a new phone. You will also have to tell 911 when you call that you are at a certain longitude and latitude to be located." The phones will tell you your GPS location but you will have to share this verbally with 911 personnel.

In Gage's words, "[The technologies] are either a variation of GPS capability, which would allow the phone to be tracked by a satellite, or [are] related to triangulation amongst and between the terrestrial towers that exist in a cellular network. Generally that's [the GPS method] thought likely to be a better solution with more accuracy. The problem with that [GPS method] solution, as you can appreciate, is that it will take time for the inventory of phones in the country to turn over to the technology.

As for accuracy, you can establish that either way. It's clear that the GPS solution is likely to be a better solution with more accuracy. But even the GPS solution has different degrees of accuracy. And in the case of the triangulation, the accuracy there is typically going to be less."

### You Want More and You Want It Now

My example of barriers on a more local level comes by way of Michael Paul, president of MGP & Associates, NY: "Part of

## ON THE MOVE

### TRUEPOSITION AND CINGULAR WIRELESS COMPLETE FIRST PHASE OF E911 TECHNOLOGY DEPLOYMENT

In the first phase of pre-deployment testing of their E911 technology conducted by Cingular Wireless and TruePosition, Inc., TruePosition's network-based Wireless Location System met the current FCC E911 mandate, with location accuracy measurements falling well within mandate requirements.

Of the 2300 calls made within the deployment area during a three-day period (November 5-7) in Wilmington, Delaware, across a variety of calling scenarios, 67% were located with an accuracy of 81.2 meters or better, while 95% of the calls were located with an accuracy of 189.9 meters or better. This was conducted with TDMA and AMPS phones. The FCC mandate requires that 67% of the calls must have a location accuracy of 100m, and that 95% of the calls must have a location accuracy of 300m.

TruePosition currently has a multiyear deployment agreement with Cingular to deploy its technology on Cingular's TDMA/AMPS cell sites.

SOURCE: TRUEPOSITION, INC.



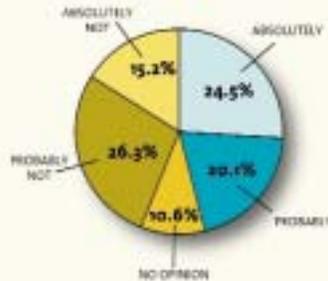
**NEW SURVEY SHOWS WIRELESS APPLICATIONS AT THE FOREFRONT OF CORPORATE DEVELOPMENT IN 2002**

**LIKELIHOOD OF COMPANIES DEVELOPING APPS FOR WIRELESS IN COMING YEAR**

A recent survey by industry research firm Evans Data Corporation reveals that the corporate enterprise is uniformly embracing wireless technology, with 46.1% of development managers at large corporations polled, planning to develop applications for wireless devices in the coming year. These plans beat out other projects such as security enhancements and business-to-business e-commerce. Enterprise developers are leading this phenomenon.

More than 42% of development managers also said that

wireless technology is an important mainstream technology in their companies. And despite the effort involved to extend current enterprise applications to incorporate wireless technology, almost 40% feel it's important enough to implement the changes.



		FREQUENCY	PERCENT	VALID %	CUMULATIVE %
VALID	ABSOLUTELY	106	24.5	25.3	25.3
	PROBABLY	87	20.1	20.1	46.1
	NO OPINION	46	10.6	11.0	57.0
	PROBABLY NOT	114	26.3	27.2	84.2
	ABSOLUTELY NOT	66	15.2	15.8	100.0
	TOTAL	419	96.8	100.0	
MISSING	SYSTEM	14	3.2		
TOTAL		433	100.0		

ENTERPRISE DEVELOPMENT MANAGEMENT ISSUES, WINTER 2001, COPYRIGHT EVANS DATA CORPORATION

**APPLICATIONS FOR WIRELESS DEVICES**

	COUNT	% OF RESPONSE	% OF CASES
Consumer e-commerce apps	71	7.8	30.1
E-mail	112	12.3	47.5
Mobile positioning	48	5.3	0.3
Instant messaging	97	10.6	41.1
Authentication	61	6.7	25.8
Financial information	48	5.3	20.3
Financial services	41	4.5	17.4
Wireless portal	67	7.3	28.4
Customer relationship management	60	6.6	25.4
Sales force automation	61	6.7	25.8
Voice processing	36	3.9	15.3
Distribution	28	3.1	11.9
Dispatch	32	3.5	13.6
Field service	58	6.4	24.6
Special vertical industry application	58	6.4	24.6
Other	35	3.8	14.8
<b>Total responses</b>	<b>913</b>	<b>100.0</b>	<b>386.9</b>

it is the technology itself. As in all technologies it goes through generations and by the time we have something that we think is the best way to go, we find someone who has something that's even better. For example when the NYC system was being built, that was one of the questions that was on the plate from the very beginning. They knew that there was going to be generational change and even as most 911 centers try and upgrade to the biggest and the best that they could possibly get for the budget that they have, there are always a ton of change orders. They realize there's a new technology that they want and that they've seen, and they want to add that to the picture."

**The E911 Attack Rescue Intersection**

The tragedy in New York and at the Pentagon has heightened people's awareness of safety resources. But how did the lack of E911 affect the events of September 11 and how has it affected other rescue efforts?

The consensus is that there are emergency situations in which E911 would help a great deal, particularly those it is designed for. Unfortunately, the events of 9/11 may not be an example of one of those situations. According to Haase, "In the case of the New York disaster, most people knew where the problems were and that the people were within a city block radius. If you were implementing an E911 solution that didn't have a real exact [positioning capability] associated with it, getting an E911 call from somewhere in the rubble would have done only one thing, I think. It would have [told] you somebody was there and that they were alive; in some cases that was accomplished with phone calls.

If you had a more exact E911 system, you could have said okay, a signal came through (even if the phone call came through for a very short period of time), we got the GPS 911 longitude and latitude. We can pin it down to this area. It's possible that that could have helped some of the emergency rescue efforts."

Here is the perspective of Mark Flolid, EVP of corporate development and founder of SignalSoft, "I think there are two ways to look at that. One of the things we saw a lot of on that day [was] a lot of people who wanted to know where their loved ones were. So just from my own experience, I had flown into Los Angeles and I got maybe 15 calls: Where are you and how are you? So as far as people being able to locate friends and family, that was pretty important, not only from a standpoint of those at the WTC but worldwide, just the need to know. How did it hinder rescue efforts at the WTC?

"That's hard to say. We don't yet have experience with the technology in terms of doing that. It's important to understand why the phase II 911 is in place. It's essentially to locate somebody so that they can be routed to the correct public-safety answering point (PSAP). The right public-safety agency can support that need. That's really why it's in place. The huge problem is these calls are all being routed to one center; in California, they all went to one location. And then people are saying where are you and there's a lot of delay. So the real issue was initially to get the 911 call to the right public-safety answering point and then to have accurate information to go to the location where that individual called from. That was the reason for it. It isn't a tracking type of service."

Gage is more direct with his explanation, "I don't think it would have been very effective at all for two reasons. One is that cell phones were absolutely unable to use the networks at that time because they were clogged with calls. There has since been a priority established by the government for calls. There is a deal with Verizon and the government whereby Verizon can give priority to certain government agencies so that they can use their cell phones and be given priority over commercial users. In terms of trying to find people, I don't think that would have been very effective because of all the metal and all the other things that were going on at that time. Obviously a lot of people from the buildings used their cell phones to tell their loved ones they were safe, and others to tell them they were trapped, but in terms of being able to find people? No I don't think that would have been very effective."

### It's Just Enhanced, Not Metamorphasized

In the types of rescue efforts E911 is intended to help in, there is a much different story. As Dr. Krauss reports, "I have scanners and can listen to emergency incidents and to police and fire departments responding to emergencies. Time and time again they get to the location that the caller stated and they don't find anything. Then later, after doing some searching, they find that the incident was somewhere else. That happens routinely. People don't know where they are when they call. Particularly people who are involved in an accident who are shaken up, distracted. You can't expect them to know precisely where they are."

But if you have precise location technologies, you can

deliver help to the right place consistently. Currently, callers to 911 from cell phones have to know where they are on their own and report their location to emergency 911 call center workers accurately.

### How Will It Make Us Safer?

Once implemented, just how will E911 function? "Basically when you place an E911 call," says Haase, "the call is routed to a public emergency center. And an E911 operator in the local area in which you are placing the call will answer it. That means, for example, that if my phone is registered in Dallas, which is my home, but I'm traveling in Washington and I'm placing an E911 call, the local emergency operator I receive is not in Dallas, but in the local network down in Washington. The person who answers the call will be in my general area in the city and every city has a certain number of these public emergency centers.

### It's Business As Usual

As a businessperson I have to say that while researching this story I found no resting place for blame over delayed availability of E911. It really comes down to whether it is okay for businesses (in this case the carriers) to exist primarily for the purpose of making money. The answer for any businessperson is probably yes. If you get a check because your company makes money then the answer for you is probably yes as well. It is therefore reasonable for carriers to want to implement enhanced 911 only under circumstances where there can be some kind of profit motive. It is their nature and it certainly should be, unless of course you would all rather be working for free? 

# SAVE 30% Off\*

the annual cover rate

ANNUAL SUBSCRIPTION RATE	
<del>\$71.88</del>	
YOU PAY	<b>\$49.99</b>
YOU SAVE	<b>30%</b> Off the Cover Price

Receive 12 issues of **Wireless Business & Technology** for only **\$49.99!** That's a savings of 30% off the cover price. Visit our site at [www.wbt2.com](http://www.wbt2.com) or call 1-800-513-7111 and subscribe today!

## Here's what you'll find in every issue of **WBT:**

- Exclusive feature articles
- WAP update
- Latest wireless product reviews
- Industry profiles
- Wireless Java
- M-commerce

OFFER EXPIRES: JANUARY 31, 2002

