

The Wireless Messaging News

Wireless News Aggregation

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Is Paging Going Away?

In the spirit of the 2016 Presidential campaign it is time for someone to speak up about the status of paging use without regard for being politically correct. As a veteran of the paging industry for nearly 50 years I feel qualified to present the facts.

For many years I have heard people say that Paging is going away and being replaced by smartphones but that simply is not true. Paging systems continue to be sold and new pagers put into service every month. Paging is still being used along with cellphones for many reasons. It is true many people try using cellphones for messaging and for non-crucial messaging and it might satisfy them — until they miss an important message. Many that have experienced a serious cellphone service outage due to terrorist acts, natural disasters or other emergencies are using Paging again as it has been proven over and over again that Paging works.

For professionals, especially those involved in providing critical services, a missed message can mean life or death. The very reasons why Paging was created still exist today, *i.e.* fast, dependable, notification with short messages on a device that is not cluttered with games and has an unmistakable sound that signifies importance.

In a recent a study sponsored by (paid for?) TigerText and utilizing research conducted by HIMSS Analytics and other industry research an attempt was made to discredit paging use by claiming it is too expensive. The study surveyed 200 hospitals and discovered that 90% of these organizations still use pagers. Now considering there are 5,627 registered hospitals in the US, if this percentage holds true then 5064.3 of them use paging. Does that sound like paging is going away?

The article states their research surveyed 200 users with results clearly intended to minimize the value of paging and makes me wonder why HIMSS chose to support one vendor (TigerText) over the entire paging community which ALSO attends, markets and exhibits at HIMSS conferences! Doesn't it make you wonder if favorable research results are for sale?

There is no argument that smartphones are very useful and convenient for general messaging and searching for information. That use is far different from the role pagers play in critical messaging. And if you are going to use a mobile app on your smartphone wouldn't it make sense to use one that the professional messaging (Paging) companies designed? Several paging service providers offer mobile phone apps for text messaging. Many of their apps have all the considerations for what makes messaging reliable and worthy of consideration.

Many people today, including those in the medical community, have never used a pager and have no incentive to do so until they have an unfortunate experience caused by service outages or system failures which is almost inevitable during severe weather or cell-site outages.

In spite of the evidence, the debates will continue so here are some the points that must be considered.

Who uses pagers? Doctors, nurses, E911 first responders, firefighters, police, energy producer's emergency response teams, energy distribution systems, industrial alarm monitoring systems, to name a few.

- Many critical communications systems for Public Safety, Fire Brigades and First Responders around the world use pagers because they know they work and can be depended on.
- Recent articles claim that about 85 percent of hospitals still rely on pagers. (Doesn't that make a statement about how valuable they are?)
- In a recent article a doctor stated he has used a pager for urgent messages every day for nearly 20 years and it is still the most dependable messaging device today.
- In spite of their claims, reporters and mobile app vendors have no idea of how many pagers are used today. The limited surveys that are cited in published articles are anti-Paging and almost always written as advertisement for a mobile app vendor. (That is not professional journalism.)

- Some articles claim pager users receive so many pages they cannot do their work effectively. That is not the fault of the pager. If you used a phone you still could not answer all the calls.
- Many mobile text messaging application vendors are self-promoting their products with no concern for immediate patient care.
- Many mobile text messaging application vendors try to convince hospital administrators and CIOs¹ to replace pagers by citing cost and efficiency of phones over pagers. This is very debatable but even if that were true is "user convenience" more important than fast, dependable patient care? (If your answer is yes, I'm not coming to your hospital!)
- Pagers still fill a need that cellphone and smartphone technologies fail to address adequately.
- Transmission of critical or emergency messages must be reliable, yet cellular and Wi-Fi networks are often disabled due to catastrophes, natural disasters or even technical problems.
- Data breaches put patient information at risk. For example, over 90% of US hospitals experienced a data breach in 2012 and 75% of hospitals are not sufficiently securing devices with patient data. Dealing with these HIPAA² violations can be very expensive. Paging systems can provide complete security for message data transport and encryption on the pagers.

How many pagers are in use?

In the beginning, Paging was used primarily in private systems³ for hospitals and public safety organizations. The quantity of pagers in service on private systems was not public information. Only vendors that were directly involved supplying pagers and systems had an idea of how many were used.

Many years after commercial Paging was introduced paging became very popular with the public and with businesses so units in service grew rapidly. The FCC required commercial Paging system operators to report their quantity of units in service so estimates of commercial market size was possible.

Eventually sales reached a point where volume discounts and competition drove the price down to a point where private system operators found they could save on labor and system operating expense by using commercial services and shut down their private systems. This caused a major shift of users from private systems to commercial systems and allowed a better

estimate of units in service. Paging vendors also advertised their market share and sales growth — giving an even better view of the market size.

When cellphones finally became affordable, and signal coverage was greatly improved, many pager users switched to a cellphone to see if it was better for their specific needs. After many years of cellphone system expansion pager use started to decline but it was still popular with many users due to low prices.

Eventually many commercial Paging system users who were previously on private systems became disappointed with lack of support and poor-quality service from the low-cost Paging services so their organizations rebuilt private systems which were far more dependable. and provided more immediate alerting and message delivery.

When Paging usage reports showed a decline in subscribers, Paging did not go completely away as many believed it would. A lot of it went to private systems again. And, since only public companies report units in service, pagers on private systems were once again not included in the estimates of total units in service.

Today, there is only one publicly-traded Paging company that reports their units in service. Even though they report a decline in units each year some of these users have switched to other service providers, or have gone over to private systems, and are no longer visible. This creates the *illusion* that Paging is being discontinued.

With the advent of the Internet anyone can consider themselves to be a “Journalist” and “report” a story. When searching for news and information it is necessary to consider the source. Many sources lack credibility and their stories are simply poorly disguised ads paid for by companies promoting their own products.

For credible information, you can contact the *Critical Messaging Association*⁴ (CMA) in America or in Europe; they represent the majority of Paging service providers, including commercial, government and private systems. These trade associations hold conferences in both the US and Europe where they share their experiences and ideas for new and improved uses of Paging technology. CMA members are the foremost experts on Paging technology and system management. CMA has a Paging Technical Committee that continuously reviews new requirements and improvements to better serve the customer community. The PTC welcomes customer input to make sure they are focused on actual needs as well as explore new innovations. The introduction of Paging message encryption is one example of how the PTC

responded to the end customers' needs to address HIPAA and other security issues.

Just so you don't think these only my opinions, here are some of the comments I have heard or read regarding the use of smartphones and pagers:

Smartphones:

- Some smartphone text messaging applications can work very well for routine messaging but have never been tested during a disaster. But who is liable if they fail?
- Mobile app vendors cannot control the reliability of their messaging since they do not own the network they send messages on.
- Many mobile app services use e-mail for text, which is well known to suffer delays, to receive and deliver messages.
- It is a known fact that cellphones lose coverage inside of many buildings and even outside where signals are blocked by large structures.
- It is also well known that cellphone network performance is seriously degraded during emergencies.
- When a cellphone breaks you lose all communications. You cannot easily substitute another phone and it would need all the apps to be re-installed on it.
- Cellphones must be recharged every day and with heavy usage perhaps more than once a day.
- Cellphone tower sites have short-term backup power and often run out of fuel before the sites are accessible and fuel is available again.
- Cellphone systems require many low power transmitter sites in a concentrated area and when storms move through many sites are impacted.
- If you use your own phone (BYOD⁵) you can be held liable for missed messages.
- Using your own phone can introduce viruses and other harmful applications that monitor your data and copy information, including healthcare data, to online data collection services.
- Even though your phone might be secure on a hospital's private network, it is not secure when you stop at Starbucks or McDonald's.

- With some smartphones, you cannot receive or read a message while you are talking on it and you only know you have a new message after you end the phone call.
- Most smartphones require the mobile apps to run in the background so they cannot interrupt voice calls or interfere with other apps the smartphone carrier or manufacturer decides are more important than your messages.
- Music players & car sound systems with Bluetooth can block alert tones.
- Users can turn down the volume so low that the alerts can't be heard.
- Users can turn off Notifications for an app.
- Device operating system upgrades can render apps useless.
- Apple and Google both state in their developer's agreement to NOT use their service for emergency communications.
- App vendors must rely on huge corporations like Apple, Google, AT&T, Verizon, etc. in order to have problems rectified.
- Replacement of a lost or stolen iOS or Android device might take days to be replaced.
- In 2010, 82% of survey respondents report they missed text messages sent to their mobile phones. This does not include the messages that do not know they missed.
- Messages are being sent to the wrong cellular carrier because subscribers have ported their number.
- The worst rate of SMS⁶ delivery between operators' different networks resulted in one out of 500 text messages getting lost.
- One in 100 messages takes longer than a minute to arrive for almost all the Tier 1 carriers in the United States.
- SMS aggregators' capacity issues can cause delays.
- A heavily congested network often affects voice and data channels equally. If you have a problem making a phone call or are experiencing a lot of dropped calls, then chances are that an SMS connection will not be any more reliable than any other Internet-related data connection.
- During congestion carriers place lower priority on returning message delivery acknowledgements and often throw them away to relieve congestion.

- Because of the general architecture of CDMA⁷, TDMA⁸ and GSM⁹ cellular networks, such systems will not be able to deliver a high volume of emergency messages in a short period of time.
- Cellular networks are not designed to deliver emergency-scale traffic loads.
- Cellular networks do not operate over the Internet.
- Targeting users in a specific location is extremely difficult.
- There is no way to authenticate the source of messages, making fraudulent alerts easy to send.
- SMS is not a real-time service.
- Message delivery order is not always predictable.
- The extra text messaging traffic generated by third party EAS¹⁰ will cause congestion in the network and may potentially block the delivery of critical information, such as calls between emergency responders or the public to 9-1-1 services.
- Cell signals, especially within hospital structures, can be weak and inconsistent.
- Phones lose power much more rapidly than a pager.
- A busy night on call can both increase power drain and decrease charging opportunities.
- Cellphone networks are more vulnerable in the event of a natural disaster.
- Autocorrect on smartphones may result in transmitting an erroneous message with grave clinical implications. One violation can result in a fine of \$50,000 and repeat violations can lead to \$1.5 million in fines in a single year.
- Important clinical messages get mixed up alongside personal messages and content in the inbox.
- Texting apps may not integrate with the hospital's central database for contact information.
- A user may not receive texts if the phone is in active use during a voice call.

Pagers:

- Paging has its own dedicated network and has worked during all well-known disasters.
- Paging offers message encryption for both data transport and over the air transmission.
- Pagers are low-maintenance and easily exchanged if lost or broken.
- Paging systems can run longer on backup power so they work even during a disaster or power outage when it might be hard to find a working outlet to charge a cellphone.
- Paging networks have more broadcast power than those used for cellphones so the transmitter sites are located farther apart and storm damage is less likely.
- Pager messages are broadcast from multiple towers in a given area at the same time. If one transmitter tower stopped working an adjacent tower's signal would fill in most areas, which would increase reliability.
- Paging signals are much better at penetrating buildings and use simulcast¹¹ technology to combine signals for better reception.
- In addition to individual messages, Paging systems can use "one-to-many" coding technology that makes it easy to send group messages that are received by all intended pagers instantaneously.¹²
- For all its purported inconveniences, a pager still offers benefits that have yet to be replicated by other forms of communication.
- Pagers provide an alert that can't be ignored and a reliability that is crucial in the health care and other critical communications systems.
- The Paging carrier or private system operator owns their network and can provide much better response time if issues occur.
- Broken or lost pagers are typically replaced within 24 hours and many providers can do this 24/7.
- Pager batteries can last for several weeks, even with heavy use.
- Paging carriers have provided critical messaging services for decades.
- Pagers offer greater security and less risk to privacy than do personal phones.
- Pagers do not use predictive texting or spell checkers, which often change words in the message sent to smartphones.

- Calls to pagers are faster and do not require listening to “press 1 to leave a message, press 2 for our fax number, press 3 for directions to the practice, etc.”
- Paging offers message encryption, which can be controlled by the hospital.
- Paging networks are designed solely for transmitting critical messages.
- Paging Users do not have to sort out the critical messages from the barrage of texts, e-mails, and video content received on a smartphone.
- Pagers are inexpensive compared to smartphones.

Will any of this change someone’s mind? For some, it will not. But it just reminds me of a colleague's favorite saying “Yes, you can disagree with me . . . I can’t force you be right!”

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FOOTNOTES:

¹ Chief information officer (**CIO**), chief digital information officer (CDIO) or information technology (IT) director, is a job title commonly given to the most senior executive in an enterprise responsible for the information technology and computer systems that support enterprise goals.

² **HIPAA** The Health Insurance Portability and Accountability act. The HIPAA Privacy Rule establishes national standards to protect individuals' medical records and other personal health information and applies to health plans, health care clearinghouses, and those health care providers that conduct certain health care transactions electronically. The Rule requires appropriate safeguards to protect the privacy of personal health information, and sets limits and conditions on the uses and disclosures that may be made of such information without patient authorization

³ Paging Markets have historically been divided into two distinct but very broad segments *i.e.* subscriber, commercial, or carrier Paging, and private, or on-site Paging.

⁴ <https://www.criticalmessagingassociation.org>

⁵ **BYOD** Bring Your Own Device

⁶ Short Message Service (**SMS**) is a text messaging service component of phone, Web, or mobile communication systems. It uses standardized communications protocols to allow fixed line or mobile phone devices to exchange short text messages.

⁷ Code division multiple access (**CDMA**) is a channel access method used by various radio communication technologies.

⁸ Time division multiple access (**TDMA**) is a channel access method for shared medium networks. It allows several users to share the same frequency channel by dividing the signal into different time slots. The users transmit in rapid succession, one after the other, each using its own time slot.

⁹ **GSM** (Global System for Mobile Communications, originally *Groupe Spécial Mobile*) is a standard developed by the European Telecommunications Standards Institute (ETSI) to describe the protocols for second-generation (2G) digital cellular networks used by mobile phones, first deployed in Finland in July 1991. As of 2014 it has become the de facto global standard

for mobile communications — with over 90% market share, operating in over 219 countries and territories.

¹⁰ The Emergency Alert System (**EAS**) is a national public warning system that requires broadcasters, cable television systems, wireless cable systems, satellite digital audio radio service (SDARS) providers, and direct broadcast satellite (DBS) providers to provide the communications capability to the President to address the American public during a national emergency. The system also may be used by state and local authorities to deliver important emergency information, such as AMBER alerts and weather information targeted to specific areas. (Amber Alerts are an emergency response system that disseminates information about a missing person (usually a child), by media broadcasting or electronic roadway signs.)

¹¹ "The Art And Science Of Simulcasting Redux" By Dennis Cameron

¹² "Why is paging the BEST technology to use when it is necessary to alert many people in a short time?" by Brad Dye

Additional pertinent information and sources:

- <https://www.quora.com/Whats-more-reliable-during-heavy-network-congestion-SMS-or-iMessage>
- <http://jasonfrasca.com/deconstructing-everyday-blog/send-sms-texts-during-wireless-cellular-network-failures-caused-by-disasters>
- <http://www.wirelessweek.com/article/2010/04/sms-reliability-problem>
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- <http://motherboard.vice.com/read/why-are-pagers-still-a-thing>
- <http://www.kevinmd.com/blog/2014/10/doctors-still-use-pagers.html>
- <https://rockhealth.com/why-doctors-still-use-pagers/>

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- Is Paging Going Away? ← English
- Paging — Aktuell wie eh und je ← German
- Le Paging — actuellement que jamais ← French

A new issue of *The Wireless Messaging News* is posted on the Internet each week. A notification goes out by e-mail to subscribers on most Fridays around noon Central US time. The notification message has a link to the actual newsletter on the Internet, that way it doesn't fill up your incoming e-mail account.

There is no charge for subscription and there are no membership restrictions. Readers are a very select group of wireless industry professionals, and include the senior managers of many of the world's major Paging and Wireless Messaging companies. There is an even mix of operations managers, marketing people, and engineers. It's all about staying up-to-date with business trends and technology.

We regularly get readers' comments, so this newsletter has become a community forum for the Paging, and Wireless Messaging communities. You are welcome to contribute your ideas and opinions. Unless otherwise requested, all correspondence addressed to me is subject to publication in the newsletter and on my web site. We are very careful to protect the anonymity of those who request it.

Brad Dye, editor

<http://www.braddye.com>