

A PageOne White Paper

The business case for Triple Resilience paging



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☎ 0333 200 5033 ✉ enquiries@pageone.co.uk 🌐 www.pageone.co.uk

Executive summary

This White Paper describes the business case for investing in Triple Resilience paging technology and why this technology can help acute hospital trusts make their operational and incident management processes more robust. With patient and public accountability such a massive driver behind any investment in technology, Triple Resilience paging provides hospitals with the means to overcome radio 'blind spots', allow paging use off-site seamlessly, and create an audit trail of messaging delivery and responses for managers in charge of delivering primary care. Triple Resilience paging technology can also provide the capability to capture staff availability and allow the staff themselves to generate alerts to summon help to wards. PageOne has seen significant take-up of Triple Resilience paging in the NHS because the solution delivers a cost-effective critical messaging service, while enhancing auditability and accountability for managers.

In the NHS, paging continues to be one of the primary methods of communication for doctors, nurses and support staff, where alerts and emergency messages save lives. Paging is the fastest, most reliable and cost-effective way of sending real-time alerts and messages to many people at once, and will continue to be for the foreseeable future. With paging, it is easy and simple to send alerts and messages to groups of people simultaneously. No other technology can do this. SMS and instant messages or Smartphone apps have to sequentially generate a message per person in a group. This is one of the reasons why paging, including traditional one-way paging, is still used today in the NHS.

The Critical Messaging Association (CMA) has highlighted several unique qualities for paging services in addition to fast group calls, such as independence from public WiFi and Global Systems for Mobile Communications (GSM) networks that can become overloaded or go down when you least expect. Recent terrorist incidents have shown that public networks get overloaded during and in the aftermath of such incidents.

Triple Resilience paging not only capitalises on the clear benefits of one-way paging's unique qualities as highlighted previously, but now combines two paging networks; one local and one wide-area; as well as the GSM data network. Using all three channels simultaneously ensures that group alerts and messages get delivered, while only alerting the receiver once.

This way of working eliminates radio 'black spots', extends the coverage beyond the hospital and continues to work even if there is a public incident or equipment failures. Two communication channels can fail and the alert or message will still get through.

Triple Resilience Responder pagers also make use of two-way communication capability by providing alert and message delivery receipts, read receipts and reply messages. 'Closing the loop' on the alerting process gives an audit trail for managers to measure, ensuring accountability when dealing with incidents.

Hospitals today use local paging systems to deliver alerts and, because these alerts are vitally important, they invest significant amounts of money in duplicated equipment, systems, and transmitters in case of failure. Unfortunately, when a system does fail no alerts or messages can be sent and there is a period of 'dead time' while the duplicated systems can be brought on line. Depending on how much investment has been made in the infrastructure, the 'dead time' can be minutes, hours, or even days where hospitals are remote and difficult for engineers to reach. Triple Resilience paging overcomes this problem.

Some hospitals are being convinced to move to smartphone apps as a replacement for paging. These apps however rely on the availability of local WiFi and GSM networks, the app provider's servers and the mobile handset provider's push networks to deliver the alert or message. Smartphone apps must also keep pace with operating system updates. Where Bring Your Own Device (BYOD) is in operation, these updates mean there will be a disparity in versions among users. In practice, this makes delivering reliable and resilient communications a real challenge.

Triple Resilience paging leverages this GSM technology but in a controlled way, avoiding push services and operating system upgrades, to deliver a reliable GSM connection in combination with tried-and-tested paging technology.

Triple Resilience pagers also have the capability to 'hop' GSM networks to find the best signal and overcome any network failures or local coverage issues with one particular GSM network.

This is not possible using BYOD or standard smartphones.

The take up of Triple Resilience paging has been accelerated because of the migration of Vodafone one-way paging customers onto the PageOne wide-area paging network. These customers previously only had access to one-way paging from Vodafone.

PageOne's continuous improvement philosophy lead to the further development and launch of two-way paging in 2009, and since then we have been evolving the service with customer needs in mind.

The concept of two-way paging has evolved into Triple Resilience paging, where the cost of service can be justified by the enhancement the service provides when compared with other technologies, including local only paging and smartphone apps.

The take-up of Triple Resilience paging in the UK



PageOne now has thousands of two-way pagers in the market

How does PageOne deliver Triple Resilience paging?

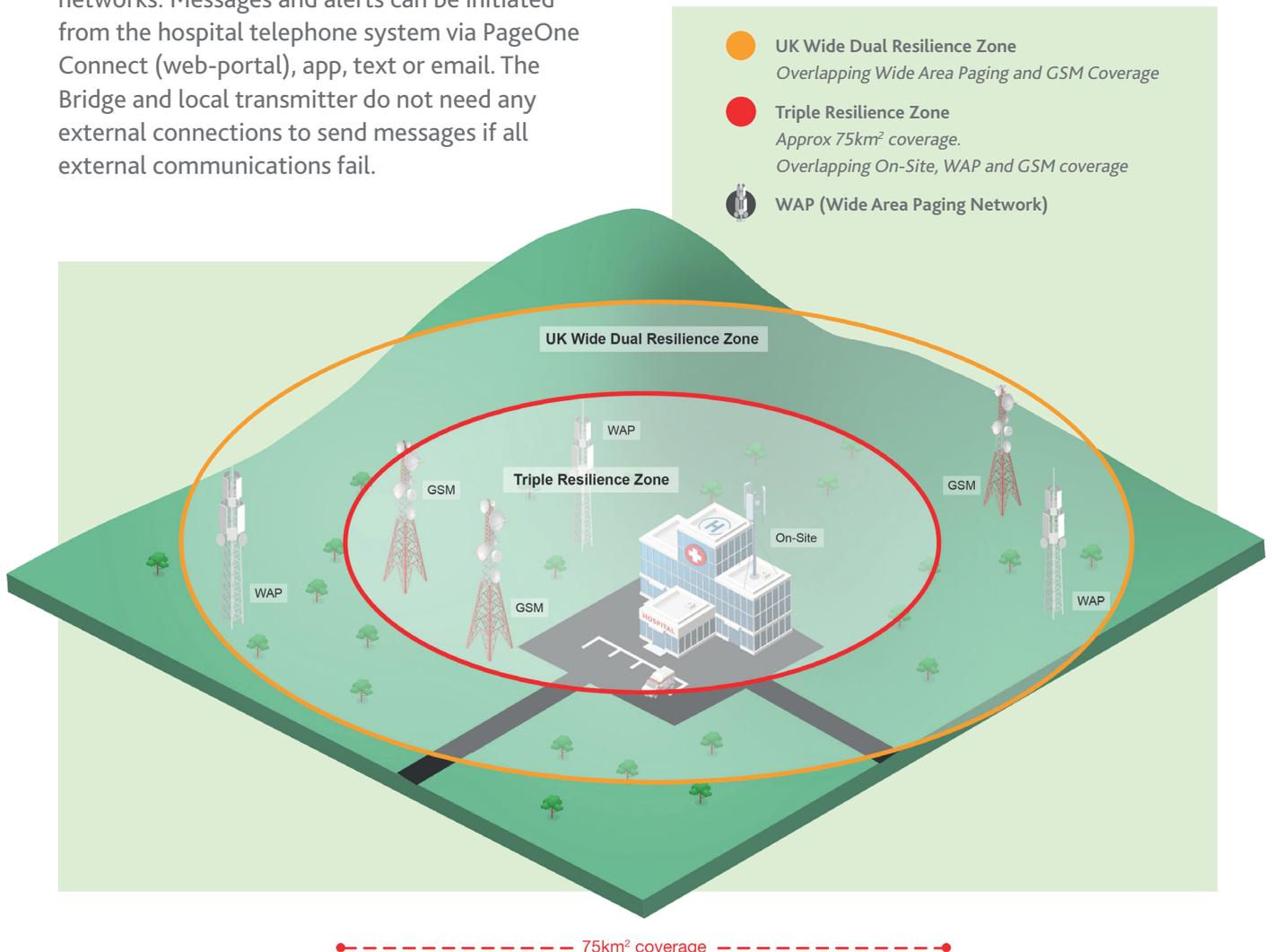
The Triple Resilience paging service from PageOne requires airtime access to its Wide-Area paging Network (WAN), with the option of installing wide-area paging coverage on-site at the hospital. PageOne then provides the 'Bridge' solution to allow the hospital to connect its telephone systems and alarms, and installs a local paging transmitter on a separate radio frequency from the wide-area transmitter, using secure VPNs to connect back to PageOne's data centres. Staff are issued with Triple Resilience Responder pagers and group alerts are set up using its Connect service.

The Bridge server manages the interface to local systems such as the Local Area Network (LAN), telephony, alarm systems and manages the sending of messages to the local transmitter and to PageOne's gateway for transmission via PageOne's national paging network and the GSM networks. Messages and alerts can be initiated from the hospital telephone system via PageOne Connect (web-portal), app, text or email. The Bridge and local transmitter do not need any external connections to send messages if all external communications fail.

The solution components combine together to provide a robust and resilient alerting and messaging solution that hospitals can rely upon in times of emergency and public incidents.

The Triple Resilience Responder pager is a two-way device which can report back message delivery receipts, message read receipts and replies, as well as the ability to report power down and power up information, and low battery alerts. Certain models can also generate emergency alerts using a button press-and-hold. The latest Responder pagers can also summon specific help using a new alert button on the pager.

PageOne's alerting solutions also natively support multi-channel messaging, combining paging with alerting via SMS text message, smart app, voice and email.



Cost vs benefit

How the Triple Resilience business case delivers a better solution at a lower cost.

Triple Resilience pagers are now no more expensive than traditional local bleep pagers and PageOne offers a rental option, allowing hospitals to reduce or eliminate capital expenditure completely.

PageOne's Bridge solution is typically cheaper than other on-site paging systems because it does not need to include any duplicate equipment cost, or any complex system change costs. PageOne's local paging transmitters can also transmit at higher powers, reducing the need for multiple transmitters on site.

When away from the hospital, Triple Resilience pagers still receive messages via PageOne's national paging network and GSM networks. With one device operating seamlessly whether on or off site, there is no longer a need to procure and manage separate on-site and wide-area paging services; staff can carry a single device, and even receive messages while outside the UK.

Fewer install and infrastructure costs, together with purchasing and managing only one estate of pagers, means overall lower costs for a more resilient and functional alerting solution.

The cost of the Triple Resilience paging solution for hospitals is less than the cost of a traditional on-site solution and delivers greater benefits by eliminating 'dead time' and providing an audit trail of information to allow accountability for hospital managers. It also delivers simple resilience by combining three separate radio paths. So if systems fail, networks become overloaded, or infrastructure fails, alerts and message will still reach the intended recipient.

Norfolk and Suffolk NHS

Responsible for providing specialist mental health services for the whole of Norfolk and Suffolk, Norfolk and Suffolk Mental Health NHS Foundation Trust delivers care and attention to around 14,000 people at any one time.

Utilising PageOne's powerful SmartGroup technology, on-call doctors and nursing teams are assigned to groups based on the emergencies to which they are qualified to respond. When an incident occurs, administrative staff can initiate messages directly from within Connect, PageOne's dedicated cloud-based messaging suite. Once a message has been sent to the Responder pager, the administrative staff at Norfolk and Suffolk can see at a glance whether the message has been delivered and, via a number of pre-set responses, receive acknowledgement of how the message recipient has responded.

"It's vital that the trust has the underlying systems and processes in place to enable a fast and effective emergency response," said Richard Green, ICT Security Manager Norfolk and Suffolk NHS Foundation Trust. "PageOne's Responder solution gives us flexibility and means our support staff know the exact status of any ongoing incident via the Connect interface. This makes us even more efficient as our team knows which incidents are being dealt with and those they might need to escalate."

Fully integrated into PageOne's cloud-based messaging applications, or existing command and control systems, the Responder pagers combine the strengths of paging with GSM to deliver powerful Triple Resilience messaging capability. With this level of intelligence, administrators can make rapid, informed decisions on the mobilisation and co-ordination of staff and resources.

Conclusion

Paging technology remains a key enabler for communications within the NHS, providing an unrivalled mechanism to send and receive information when co-ordinating critical alerting and messaging.

The proven successful use of paging in critical environments can now be combined with Triple Resilience communication that will significantly reduce operational costs and make managing resources far more efficient.

As Triple Resilience ensures that critical messages arrive at the intended recipient and that a full audit trail of events is available, operational and incident management processes are more robust.

Not only that, but Triple Resilience paging means that 'blind spots' in connectivity are overcome, allowing a seamless service even if two of three networks fail.

About PageOne

PageOne was founded in the mid-1980s, when communications professionals were getting to grips with the possibilities presented by paging and mobile phones. Communicating with colleagues 'on the move' and co-ordinating a response from a single point of command was seen as an integral part of making the public sector workforce more effective and improving hospital operations.

Over the years, PageOne has played its part in evolving paging technologies and solutions. Its 'firsts' include: the use of satellite technology for paging, email on the move, and the introduction of a pay-as-you-go communications device.

PageOne pioneered the introduction of two-way and Triple Resilience paging into the UK, 'closing the loop' to allow replies and feedback to transform resource management and incident response.

PageOne has proven expertise in critical messaging as well as helping clients drive operational and cost efficiencies, deliver effective results and have a real business edge in a competitive market. PageOne's multi-channel capability ensures an integrated approach to mobile, email, landline, paging and app-based messaging.

PageOne places its customers at the heart of its product development to help thousands of organisations across the public and major corporate sectors with reliable, efficient and cost-effective critical messaging solutions.

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