



Ensuring the health of NHS IT

Chris Wellfair of data centre solutions specialist Secure IT Environments says that hospital IT infrastructure, in many cases, requires significant improvement to ensure energy efficiency and resilience. In a cash-strapped NHS, could modular data centres provide an answer?

During a period of financial constraint and increasing digitisation, hospitals face significant challenges when investing in IT infrastructure. Modular data centres offer a cost-effective option for healthcare organisations and can be easily expanded in the future, providing a 'pay as you grow' solution, to accommodate future infrastructure for digital healthcare services.

The demands being placed on current digital infrastructure has led to a need for greater storage and processing power. Given the rapid growth of picture archiving and communication systems and medical imaging,

most healthcare organisations need more data centre capacity. The data centre is at the heart of the operation, from CCTV to phone equipment, to life-saving equipment and vital patient data.

Yet Secure IT Environments is seeing a trend where communications and server hardware cabinets are being located in what can only be described as the 'broom cupboard' as the existing data centre does not have the capacity. In some cases, the incorrect infrastructure – power, cooling and no fire suppression – has been installed, resulting in inefficiencies.

However, this is just the tip

of the iceberg. In the main data centre, it is not uncommon for the mechanical and electrical infrastructures to have been poorly designed so they are also inefficient, while the structured cabling, in many cases, is a mess. Often, the data centre is located in areas that restrict access for equipment and have a flood risk.

Infrastructure must be updated to meet the resilience requirements of hospitals, while still being cost-effective and energy efficient.

Creating new buildings or adapting the old can be a very costly and lengthy process, often leading to project overruns or compromises that limit the way the data centre can be

expanded in the future.

Going modular means you do not have to compromise. A well designed and built modular data centre will add capital value to an organisation, as well as peace of mind that the IT infrastructure is onsite and within sight – the build is flexible and trusts have complete control over the intricacies of how it is put together.

Spaces that would ordinarily be wasted can be turned into highly secure and fire-protected IT environments. Furthermore, modular data centres have the ability to be built inside existing rooms, on roof tops or on other hospital land where the planning



Case study: Ysbyty Glan Clwyd Hospital

Secure IT Environments recently completed a new 41m² secondary data centre at the Ysbyty Glan Clwyd Hospital, part of the Betsi Cadwaladr University Health Board, the largest health organisation in Wales, providing a full range of primary, community, mental health and acute hospital services for approximately 676,000 people. The hospital is currently undergoing a major redevelopment programme to generally modernise its existing buildings. This work included the need to establish a new energy efficient secondary data centre within the hospital building. Working in close conjunction with the onsite redevelopment principal contractor Laing O'Rourke, Secure IT Environments designed, supplied and installed the new facility.

Sion Jones, head of information and communication technology for the health board, comments: "With an ever-increasing reliance on ICT underpinning the health board's wide-ranging clinical and business activity, it is strategically essential that we maintain fit-for-purpose data centre facilities to host the many and varied systems that exist in a modern NHS ICT infrastructure."

The new data centre has been designed to meet the Class 2 requirements defined in BSEN 50600, parts one and two. The room comprises 16 x 19" cabinets, raised access flooring, overhead busbar power supply system, Novec fire suppression and very early smoke detection apparatus, data centre infrastructure management software for environmental monitoring of the room and infrastructure, access control and CCTV. Cooling and environmental controls are achieved through a chilled water system with a capacity of 160Kw. Secondary piping supports additional chillers to achieve a Class 4 rated system. N+1 in-row air conditioning was installed in a hot aisle containment configuration.

UPS systems and batteries were installed in a separate nearby room, derived from separate A&B power supply streams, to ensure the resilience and redundancy necessary in hospital environments, where systems must be always available to ensure patient safety.

not have to be large but, again, designing for expansion through modular technology can offer a quick and easy route to achieve a seamless expansion programme, making for a swift and clean process when the time arrives.

Data centre maintenance
Running the IT infrastructure in a healthcare setting is a complicated process. It is not

removes the capital outlay on specialist equipment needed to perform these tasks.

Companies such as Secure IT Environments offer data centre maintenance services to the NHS. Typically, as a minimum, these services include regular cleaning, air conditioning and fire suppression maintenance, along with uninterruptible power supply testing and environmental monitoring

companies can also offer auditing on the performance of equipment for certain regulatory requirements and many data centre equipment manufacturers require sites to be able to prove maintenance regimes are in place in order to qualify for the guarantees on their equipment.

Ultimately, modular data centres can offer trusts, high levels of physical protection

requirements or costs of new buildings are prohibitive.

Speed of construction is another key feature that makes modular data centres an attractive option for hospital sites. They can be built extremely quickly as they are designed around standard equipment. In addition, they have a very small footprint and can even be stacked on top of one another. Expanding a data centre can be a struggle if you are limited to using internal office space. Healthcare providers must consider their future needs, even if the implementation is small from day one.

External data centres do

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just about keeping the servers up and running. Hospital imaging, front-of-house, patient services and surgery all rely on the reliability of the IT systems. Outsourcing maintenance of the infrastructure not only removes the headache of making sure essential tasks happen but also contributes to the performance and resilience of the data centre. It also

system maintenance.

In addition, service level agreements can be put in place to ensure that, when required, emergency call outs are available 24 hours a day, seven days per week, 365 days a year, within a four-hour response time. For certain critical sites this response time has been reduced to two hours. In addition, maintenance



and energy efficiency. While the finances of the NHS are facing unprecedented pressure, patient safety is paramount and, with increasing digitisation, reliable solutions are required to ensure maximum uptime. Modular data centres offer a way for hospitals to expand their use of IT infrastructure in a cost-effective way. ●