



TOTAL SOLUTION DATA CENTRE DESIGN & BUILD

LUTON AND DUNSTABLE HOSPITAL DATA CENTRE BUILD

CASE STUDY

A new energy efficient data centre for Luton and Dunstable University Hospital with a power usage efficiency of 1.2



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Luton & Dunstable University Hospital is a very busy hospital with 682 beds, 1,800 staff onsite at any one time, and over 75,000 patients passing through its doors per year. Opened in 1939, the hospital boasts the 2nd best performing A&E department in the UK and is designated a major incident hospital. The hospital has a reputation for serving its community well, and as part of a five year £150m investment in the site, is building the facilities needed to serve that community for decades into the future.



Part of that project involves improving the efficiency of the hospital by accelerating its use of digital technology, with new unified communications systems, fully digitised patient records, digital imaging and the use of apps on mobile devices, such as tablets. All this meant the need for a new Data Centre to handle the additional infrastructure, storage and processing power requirements.

“With so many more digital applications, we had to build a new DC. Making this decision also meant we could make our IT systems more resilient, energy efficient and ensure we had capacity to support the growth in digital demand for decades to come,” said Leslie Barras, Mechanical & Electrical Capital Projects Manager, Luton & Dunstable University Hospital.

Selected for its track record in delivering NHS data centres, Secure I.T. Environments (SITE) worked with the hospital to develop an energy efficient solution that would replace and expand the Data Centre on the existing site, which consisted of a pair of simple rooms on the ground floor of an ageing office block with six server racks around the perimeter.

Moving the existing server infrastructure in to one of the rooms allowed SITE to begin construction of a 35m² room-in-a-room modular Data Centre. A modular approach, simplifies construction whilst allowing the hospital to use raised flooring and have a secure climate controlled clean room to house the new expanded infrastructure. Configured as two rows of server racks in a “hot aisle/cold aisle” layout to maximum energy efficiency, the room benefits from Inergen/ Tyco fire suppression, programmatic in-row air conditioning and environmental monitoring with 120kW of UPS back-up power in an N+1 configuration.

Barras adds, “we considered dry lining the existing rooms as a solution, but a modular system gives us much improved strength, control, quality, ease of use, accessibility and a quickly built clean-room environment.”

Completed in 12 weeks, including all external building, works, cabling and commissioning the new server and storage infrastructure, the Data Centre is already delivering improved performance and supporting functions such as digital imaging, mobile apps, and a complete archive of historical patient records. In terms of energy efficiency, the room delivers a PUE of 1.2.

Barras concludes, “As with any project of this nature, it’s all in the planning. Working closely with SITE and all the partners involved in the building works, we minimised the risks to the hospital and were able to identify problems early, overcoming them efficiently and quickly. We now have an infrastructure that will serve the hospital long into the future.”



DATA CENTRE SPECIFICATION

- 35m² Internal ModuSec modular room (a future extension room measuring 39m² will also be built)
- 90 minute fire rating meeting BS 476 / EN1047 standards
- Power supply provision
- Intelligent cabinet power distribution units (2 per cabinet)
- Raised access flooring
- Internal and emergency lighting systems
- 12 x 19” server cabinets
- Stulz Cyber Row DX close control in-row air conditioning system with low noise condensers and full monitoring
- OM3 / OS2 fibre optic cabling throughout
- Inergen / Tyco early particle fire detection system
- Novec Fire suppression system
- Cold aisle containment system
- Full environmental monitoring
- Complete deep clean of the new facility
- External civil works
- External landscaping