Case study
Shrewsbury and Telford NHS Trust Data Centre

About

Location:	Shrewsbury, UK
Sector:	Public, NHS
Power:	60kW

The Shrewbsury and Telford Hospital NHS Trust (SaTH) is the main provider of district general hosital services for nearly half a million people in Shropshire, Telford, Wrekin and mid Wales.

The Trust's main service locations are the Princess Royal Hospital in Telford and the Royal Shrewsbury Hospital in Shrewsbury, which together provide 99% of its activity. Both hospitals provide a wide range of acute hospital services including accident and emergency, outpatients, diagnostics, inpatient medical care and critical care.

The Brief

SaTH required a complete renewal of its current data centre room with minimal disruption to its services. A key element in the renewal of the facility was to reduce the current running costs and lower the carbon footprint where possible. The specifications will also be replicated in the future construction of a duplicate disaster recovery site.

As the project was of paramount importance to the Trust, an experienced and specialist critical infrastructure provider was required to work through possible solutions and focus on the key aspects of a robust, discrete and seamless delivery.

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The Project

Data Centre refurbishment

Sudlows refurbished the existing data centre building which included the installation of a new suspended ceiling and LED lighting system as well as replacing the raised flooring with a heavy duty raised access floor system.
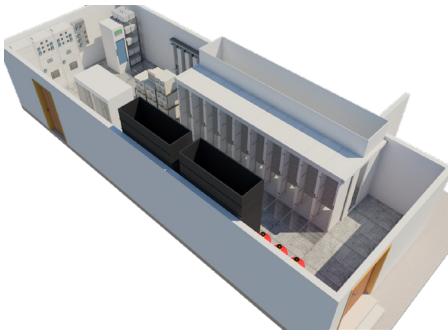
The refurbishment work was carefully programmed and managed to ensure that critical services provided from the data centre remained live at all times while room integrity testing ensured that the refurbished space is adequate for the operation of the specified gas and fire supperession systems.

The facility's electrical infrastructure was also replaced with a data centre specific resilient installation comprising of diverse feeds from separate substations, a dedicated data centre LV panel and an energy efficient N+1 UPS system.

The cooling to the refurbished data hall is provided by two (N+1) Combi-Cool Computer Room Air Conditioning (CRAC) cooling units which contain a hybrid of a hydronic system and a DX cooling system.

When low ambient temperatures prevail the unit switches into "free-cooling" mode which operates only the hydronic pumped glycol through its own dry cooler. A DX high COP inverter system is used at all other times.

Modern energy saving components such as microprocessor controls, electronic expansion valves and EC fans contained within the CRAC units and accompanying condensors will provide further cost benefits and environmental efficiencies for the Trust.

Monitoring and Connectivity

Sudlows installed new network connectivity to 10 cabinets in the data centre, each consisting of 24 BrandRex Cat6 data cables and 24 core 50/125 INT/EXT grade OM3 optical fibre cables.

Each cabinet contains two Enlogic Intelligent PDU's to provide both power and environmental monitoring. Four combined temperature and humidity sensors are also positioned within the room which are connected to the sensor ports on the PDU's.

This platform is linked to the new components in the cooling system to provide a true holistic view of the critical environment, its primary components and its health and efficiency.

All elements in the refurbished data centre will now be duplicated and constructed in the refurbishment of a second data centre facility located in the Princess Royal Hospital. Both facilities will act as a reciprocal backup ensuring SaTH has the highest level of contingency and protection in its vital critical infrastructure.

Sudlows also commissioned a high-resolution CCTV system which records and monitors all activity within the completed data centre. The cameras cover the inside of each entrance and the areas in front and behind the cabinets.

Conclusion

Sudlows have delivered a sustainable, resilient and modern data centre facility for SaTH that has provided a more efficient and cost-effective service to the organisation.

Every element of the project including the building refurbishment, electrical works, cooling, security and cabling were delivered on time and to budget without the Trust incurring any downtime to hospital services.

The provision of a reciprocal disaster recovery site will minimise the risk to SaTH and provide a critical infrastructure that will serve them well into the future; a vital requirement for an organisation of this nature and size.

Andy Hirst, Technical Director at Sudlows, said:

"Our experience working with public sector clients and NHS Trusts put us in the perfect position to advise, design and deliver a critical facility that has modernised and secured SaTH's infrastructure."

"It was vital that we were able to source a specialist critical infrastructure provider who could provide a wealth of experience and expertise to deliver this project.

"Sudlows have proved themselves in all aspects of the design and delivery of our robust new data centre."

Giles Madin, IT Service Manager at SaTH

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