



Nottinghamshire Healthcare   
NHS Foundation Trust

*positive*  
about integrated healthcare

**2bm build a reliable  
and scalable data centre  
in the heart of a high  
secure location**



*The data centre has been designed and built to the highest standard and this allows [the Trust] to showcase the facility as an exemplar in the provision of data centre services and innovation.*

*In addition Nottinghamshire Healthcare NHS Foundation Trust's facility is built for the future and if we wish to expand the load of the data centre at any time, its modular nature allows for it - without any disruption to the existing services.*



# SAFELY STORE WHAT YOU HAVE, DO WHAT YOU PREVIOUSLY COULDN'T, GET READY FOR WHAT'S AHEAD

## The testimonial

*"Thanks to 2bm and their highly efficient, low carbon and sustainable design; the Trust will remain at the forefront of data centre technology, with space for future growth and expansion."*

In addition our environmental team are putting together a submission for the NHS Sustainability Awards in recognition of our investment in our upgrade from standard DX-Only to Adiabatic chiller in our Data Centre facility <http://nhssustainabilityawards.co.uk/>

Russ James,  
Systems Engineer Nottingham  
Healthcare NHS Foundation Trust



enabled, efficient, ready.



## The requirement

The Hospital's mission is to work with commissioners, patients, carers and staff to lead the development and provision of high quality, cost effective, secure forensic health care.

In order to lead, Nottingham Healthcare NHS Foundation Trust required the necessary infrastructure to be in place and thus required the build of a new data centre on site.

With an existing comms room elsewhere on site, the Trust had made four ground floor office spaces available for refurbishment; three to be transformed for the data centre and an adjacent room to house the switchgear.

The data centre needed to be a highly efficient, scalable solution build within the current confines of the existing listed building, with a low cost OPEX in terms of energy consumption and maintenance.

The facility, once completed, was required to last for a minimum of 15-20 years.

## The challenge

From conception to completion, the project was not without its challenges. Firstly the site was restrictive as the building is an old Victorian listed building. Aside from being long and thin in shape, the room had limited ceiling heights and no space for a raised floor to be implemented. This meant traditional down flow cooling was unsuitable.

Secondly as the facility is situated in the middle of such a high security area, entry and exit to and from the site was an issue. Every item entering and leaving the site was closely audited; tools were checked, were used and all deliveries and waste were monitored. Similarly with the restrictive nature of free-movement; phones, laptops and other technological equipment mandatory for working was prohibited.

## The solution

The 2bm design was constructed to allow for modularity, low cost OPEX and future expansion with virtually zero disruption.

The finished room provides maximum visibility to both the IT department and the Estates department of the operational components, energy use and fault altering.

The highlights of the 2bm design are as follows:

- › Rear door cooling, utilising the latest technology to provide an efficient cooling solution within the restricted space;
- › All new modular, highly efficient and highly redundant cooling plant solution which also allows the connection of the new IT enclosures to a central system which maintains an overall low PUE;
- › All new electrical systems and switch gear significantly reduces future risks and provides a high level of redundancy using one room supply for IT equipment and the second for cooling equipment;
- › The existing site-wide generator is reused as part of the scheme;
- › UPS protection via a modular UPS with N+1 power modules to provide reliance;
- › High density IT racks with 100% Expansion for double the capacity;
- › VESDA & fire suppression system;
- › Environmental monitoring solution;
- › Installation of anti-static data centre flooring;
- › Full simulated load bank testing and failover IST testing;
- › Specialist data centre clinical clean;
- › M&E expansion plant is planned for within the design and can be connected in the future without disruption to operational IT services.

Eldon Business Park, Eldon Road, Chilwell, Nottingham NG9 6DZ

t: 0115 925 6000 e: info@2bm.co.uk