case study

customer:

University of Sussex

location:

University of Sussex
Falmer Campus
Brighton
East Sussex
BN1 9RH
United Kingdom

the brief:

New data centre was installedin the University's Shawcross Building.

market:

Education

products:

Z-MAX™

VersaPOD™

"Transfer and storage of data is critical here and the implications of downtime on research, study and general campus life – including security – are immense. We realised that the best way to avoid this happening would be to reconfigure the data centre using state-of-the-art products and systems."

Mike Luscombe
Head of Network and Access Control
University of Sussex

Siemon comes top of class at the University of Sussex

As one of the UK's leading higher education establishments, The University of Sussex depends upon having an effective IT network infrastructure. So when it decided to redevelop its data centre it used Siemon's VersaPOD to provide a scalable, energy efficient and high-density solution that could meet all the University's requirements both now and in the future.

The 2011-2012 academic year marked the 50th anniversary of The University of Sussex. Although still a relative newcomer compared to some other universities in the country, it has forged an enviable reputation for the quality of learning it offers and it is also recognised as one of the world's leading research institutions. In the 2010 Times Higher Education magazine's World University Rankings, Sussex was ranked 8th in the UK, 16th in Europe and 79th in the world.

Swinging sixties

Sussex was one of the 'plate glass' universities that were founded in the early 1960s as a result of the Robbins Report on higher education. However, the idea of building a university to serve Brighton and the surrounding area goes back much further. It was first mooted back in 1911, when a public meeting was held in order to work out how it could be funded, but the First World War put pay to any progress on the issue and the idea was only revived in the 1950s.

Eventually it was decided to locate the University near the picturesque village of Falmer – also the home of the new Brighton & Hove FC AMEX Community Stadium – that is surrounded by the South Downs National Park. Designed by Sir Basil Spence, the campus is entirely self-contained and a number of its buildings have won awards, with those forming the original heart of the campus gaining listed status in 1993.

Currently home to more than 11,000 students and over 2,100 staff, the University has always taken pride in breaking new ground. It has had three Nobel Prize winners, 13 Fellows of the Royal Society, six Fellows of the British Academy and a winner of the prestigious Crafoord Prize on its faculty.

The modern age

As a pioneering research centre, the University of Sussex recognises the need to maintain a high quality IT infrastructure to serve the changing demands of those on campus.

A project team was formed to assess refreshing the existing Machine Room facilities to meet the University's future needs. Mike Luscombe, the University's head of network and access control explains, 'Transfer and storage of data is critical here and the implications of downtime on research, study and general campus life – including security – are immense. We realised that the best way to avoid this happening would be to reconfigure the data centre using state-of-the-art products and systems.'

Rather than using the existing area, which was earmarked for alternative use, the new data centre was installed in the University's Shawcross Building. Luscombe adds, 'The new space was available, but introduced some additional challenges. On the plus side, we were able to start from scratch and design a more energy efficient and green facility, with greater reliability and security. This approach also allowed us to wind-down services in our old machine room as the new data centre came on-line, thus minimising service disruption for our users.'

Research study

Space in the new data centre area was at a premium and therefore needed to be used wisely by specifying best-in-class products that could offer maximum density. After calling in the services of leading design and construction specialist, Future-Tech, work began on configuring a solution that would meet these criteria. Future-Tech prides itself on engineering solutions for unique and challenging locations, so the chance to work

on this particular project was welcomed. The company's sales and marketing manager, James Wilman, says, 'We felt that we were able to work in true partnership with all the parties involved in this project in order to deliver the best possible solution.'

A key part of achieving that objective was to appoint a network infrastructure solutions provider. After holding discussions with Future-Tech and researching the market, Mike Luscombe and the team decided to invite Siemon in to discuss how the company could meet the very demanding and specific requirements for space utilisation in the data centre.

Lee Funnell, Siemon's technical manager for EMEA, visited the site and after discussing the objectives for the installation, he had no hesitation in recommending the use of Siemon's innovative and unique VersaPOD, rather than a standard 19 inch server cabinet.

Space invader

Designed to meet the high-density requirements of the modern data centre, Siemon's VersaPOD leverages the

vertical space between bayed cabinets for patching and cable management, freeing critical horizontal space for active equipment and providing the ultimate density in the minimum floor space.

A standard server rack configuration can consume 4U or more of horizontal mounting space to support the required 48 patching ports per server. With VersaPOD these can be mounted in the vertical patching area, while the doors can also be used to lock the access to the server connections and only allow access to the patching zones, for added security.

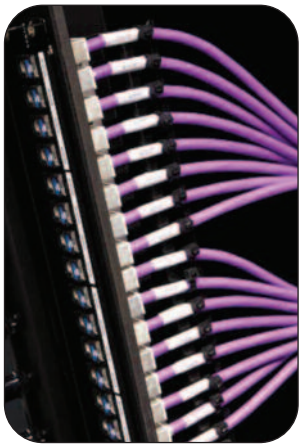
Siemon claims that in a typical data centre, the number of cabinets required can be reduced by 20 per cent if the Zero-U patching zones are fully utilised. Lee Funnell explains, 'Integrated Zero-U vertical patch panels (VPPs) support both copper and fibre patching, supplying up to 288 copper ports or 864 fibre ports in the front and/or rear vertical gap between two bayed cabinets, without taking up horizontal mounting space. By freeing up horizontal space, greater active equipment density is possible.'

modern data centre ease of maintenance is important in order to rectify any issues that may arise. The University's data centre design means that, for example, individual ports rather than the entire panel can be changed if and when required and access to the racks is made as simple as possible.'

This is something that Siemon considered within the VersaPOD's design. Its dual hinged front and quad hinged rear doors open from either the left or right and allow easy access to equipment inside the cabinet, while the rear split doors can be hinged open in both directions and provide direct access to the vertical patching panels.

A question of time

Time was of the essence with this installation as there was only a three-month window for completion. Once Siemon Certified Installer, Coastal Data Systems, had been appointed to carry out the installation, there was no time to lose.



Looking ahead

In total 25 VersaPODs were installed along with room for five more to meet any future expansion needs. With scalability so important, James Wilman at Future-Tech, comments, 'The University now has the option to vertically mount any standard 19 inch rack-mount product kit up to 3U in the VPP-6U panel and can increase the data centre's fibre count using the combined copper and fibre VPP-TMRIC panel.'

Although high-density often equates to less room to work in and therefore the potential for mistakes, the configuration of cabling infrastructure in the VersaPOD ensures that any future alterations can be carried out quickly, easily and accurately. Wilman adds, 'In any

Steve McManus, managing director of Coastal Data Systems, says, 'Having previously worked at the University, we knew Mike and the team well. We also knew that having a 20-year system warranty was an essential part of his requirement and is something that only Siemon Certified Installers can offer.'

The location of the data centre and the deployment of the new infrastructure threw up a series of technical obstacles that required a thorough understanding of thermal dynamics and how best to address them.

McManus explains, 'The main challenges relating to the building were created by a number of concrete pillars in the main data centre space, which also has a very

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low ceiling. This meant that cable containment was a potential issue, especially with the under floor space being taken up with water pipes to feed the cooling units. Therefore all cabling was contained in cable trays connected directly on top of the VersaPODs.'

The ability to control the climate within the racks in the data centre was something that required close attention due to the confined space. Also, the data centre is housed underneath busy offices, which meant that the use of noisy air conditioning units just below the office windows would not be acceptable. The design of the VersaPOD allows the segregation of passive and active equipment within it to allow targeted cooling, and this means that it can provide the University with 72 per cent airflow efficiency.

Look to the future

As well as a high-density infrastructure, the University also required a category 6A solution that exceeded current standards and would enable the network to be future proof. Siemon's Z-MAX 6A F/UTP solution was considered the most suitable option by combining superb performance and unparalleled usability with security and robust noise immunity.

It also helped ensure that the tight deadlines were met. Lee Funnell of Siemon, states, 'Due to its innovative design, Z-MAX 6A offers significantly reduced installation times when used in conjunction with the Z-TOOL. This combination means outlets can be terminated in as little as 60 seconds resulting in a much quicker installation time which helps reduce labour time and costs.'

A total of 1,200 ports of category 6A F/UTP were installed together with a singlemode fibre optic backbone. The use of MTP based plug and play fibre optic cable assembly products also helped speed up installation, while avoiding contamination and ensuring that the consistent performance levels of factory terminated fibre assemblies are maintained when installed.

Job done

This was a particularly tricky installation that necessitated close collaboration between the technical teams from the University, Siemon, Future-Tech and Coastal Data Systems. This level of co-operation ensured an outcome that exceeded all expectations and the University's Estates and Facilities department is so impressed by the data centre they have given colleagues from other Universities tours of the facility to demonstrate its state-of-the-art features and benefits.

Looking back on the project, Mike Luscombe concludes, 'Given that the space restrictions presented by the layout of the data centre area almost scuppered our plans completely, what has been achieved is truly remarkable. It just goes to highlight what a combination of best of breed products, expert technical advice and a top quality installation can accomplish.'

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