



A University Challenge of the highest order

When the University of St Andrews decided to convert two former squash courts into a new state-of-the-art data centre, it needed a scalable, versatile and high-density cabinet system. With its unique design and space saving features, Siemon's VersaPOD proved to be the perfect solution.

Founded in 1413, St Andrews is the oldest university in Scotland and the third oldest in the English speaking world. One of the world's most prestigious seats of learning, it counts Prince William as an alumnus and The 2010 Times Good University Guide ranked St Andrews among the UK's top four universities.



History lesson

After its formation the University grew in size quite rapidly and by the middle of the sixteenth century it had three colleges - St Salvator's (1450), St Leonard's (1511) and St Mary's (1538).

The sixteenth to eighteenth centuries saw a period of mixed fortunes for St Andrews and during this time St Salvator's and St Leonard's Colleges joined to form the United College, which still survives in a greatly enlarged form.

By the 19th century the University had made considerable progress in developing teaching and research in the arts, divinity and the biological and physical sciences. In 1897 St Andrews was joined with a new academic centre in Dundee and gained notable achievements in medical and applied science. This association ended in 1967 with the foundation of a separate University of Dundee.

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Facilities

Although steeped in history, St Andrews is a modern University in every sense and its facilities are second to none.

Ian McDonald is technical and infrastructure services manager at St Andrews and says, "St Andrews is constantly looking at new ways to enhance its campus-based communications network. The new data centre is just one of a number of projects we have carried out in recent years to ensure that we can deliver the services that a University of this stature needs." The University had previously relied on a decentralised network that was scattered around the campus and it was decided that this was unsatisfactory, that a more resilient and centralised data centre was

required. A new data centre would provide a future-proofed facility which could adapt to the changing technological needs of St Andrews.

Ian adds, "Although we were open to discussion about the type of products that would fulfil our requirements, we had identified the need to have a shielded solution due the fact that there are various areas of the University that required it due to the sensitive nature of their activities."

Tender

With its location close to the centre of St Andrews, space on campus is limited and has to be used to best effect. The data centre was no exception to this rule.

In order to utilise an existing structure The University decided that the data centre should be housed in two former squash courts. This area is now home to a highdensity category 6A shielded cabling based physical infrastructure.

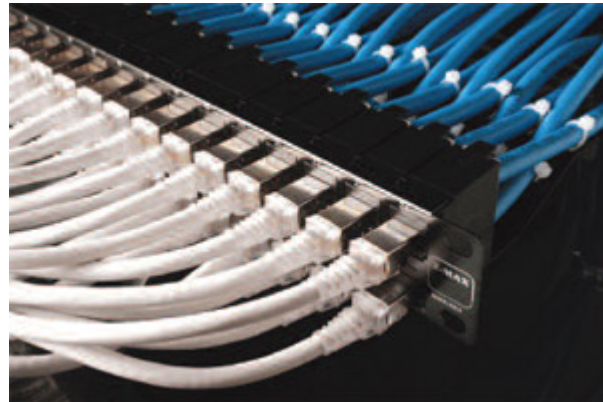
The next step was to put the project out to a competitive tender and Future-Tech was finally selected to carry out the work. Richard Lumb is Future-Tech's technical director and he comments, "We were very pleased to have won the tender for such a prestigious project as the new data centre at St Andrews."

Asked why he believes Future-Tech came out on top, he explains, "All our staff have training and experience in the data centre industry. What is unique about us is the fact that data centre design and construction is our business - it's not just part of a wider offering. We have unrivalled expertise in the end-to-end process from concept, through delivery to ongoing maintenance and any necessary upgrading."

State-of-the-art

The data centre project started in January 2010 with a completion date set for the end of June, to allow the IT department to be fully up and running before the start of the 2010-11 academic year.

Siemon is one of just three cabling vendors approved by the University and after holding discussions with Future-Tech, Ian McDonald and his team decided to specify Siemon's products for use in the data centre. Ian says, "Siemon's cabling solutions have supported St Andrews' campus for a number of years, with widespread use of Siemon's System 6 solution in the University's Administration, Arts and Sciences departments and student residences. More recently, Siemon's category 6A Z-MAX cabling solution was installed in the University's £45m School of Medicine."



Z-MAX Category 6A Solutions

Siemon's global accounts manager, Tony Robinson RCDD, visited the site to discuss how the Siemon portfolio could meet the University's requirements. Once the desire for a high-density scalable infrastructure solution had been explained, he had no hesitation in recommending the installation of Siemon's innovative and unique VersaPOD, rather than a standard 19 inch server cabinet.

POD cast



VersaPOD Data Center cabinet

Siemon's VersaPOD enables a completely new and efficient approach to the physical data centre infrastructure. By leveraging the vertical space between bayed cabinets for patching and cable management, it frees critical horizontal space for active equipment, providing the ultimate density in the minimum floor space.

All of the VersaPOD's unique features are integrated into a modular enclosure that is equally effective as a standalone cabinet or in a multi-unit bayed configuration. This offered the University a simple, scalable expansion path for its data centre.

Siemon claims that in a typical data centre, the number of cabinets required can be reduced by up to 20 per cent with VersaPOD, saving valuable floor space. Tony 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."

Ian McDonald adds, "I have always been impressed by the design qualities inherent in Siemon's products. We had sufficient space to house 24 45U VersaPODs and with no space in the rack lost to patch panels we had maximum active space possible."

The side-by-side bayed cabinet configuration allows any combination of four VersaPOD zero-U sliding VPPs, vertical blanking panels (VBPs) and/or VersaPOD vertical patching channels (VPCs) to be mounted vertically between cabinets - two in front and two at the rear - for a wide variety of applications.

In action

A standard server rack configuration needs to take 2U worth of horizontal space to support the required 48 patching ports per server. With the VersaPOD, these can be mounted in the vertical patching area, thus freeing up more room for further servers in the same space as St Andrews expands its network. The dual hinged wardrobe doors can also be used to lock the access to the server connections and only allow access to the patching zones, for added security.

Ian McDonald recognised that the VersaPOD's unique features offered flexibility to support the University's evolving needs. He comments, "We wanted to ensure that any solution installed was fully scalable. The University now has the option to mount any 19 inch rackmount product kit in the VPP-6U panel and can increase the data centre's fibre count using the combined copper and fibre VPP-TMRIC panel. We are blanking the front sections of the cabinets off for now, but this configuration offers the opportunity for further expansion as required."

Time

Xtreme Business Solutions is one of only three cabling companies approved by the University and was commissioned by Future-Tech to carry out this part of the installation.

Cameron Murray, contracts director at Xtreme, has worked with the University on the development of its School of Medicine and Science, where Siemon's Z-MAX was extensively and successfully installed. He was therefore pleased to find out that the data centre would also be utilising Z-MAX.

Cameron says, "Not only is Z-MAX a high performance, high bandwidth cabling solution, it offers significantly reduced installation times which will aid with fast completion and, in addition, will save us time and money. Z-MAX certainly dispels any longestablished concerns about shielded solutions being difficult to terminate and install."



The Xtreme team installed 24 48-way host looms between each server rack through to a separate communications room. These were then fed back to the zero U sliding panels within the VersaPODs. A total of 1,200 ports were installed in the data centre and during this part of the installation - and with a termination time of just under 60 seconds per outlet, the time saving benefits of Z-MAX were noticeable.

After deciding against a pre-terminated solution, Xtreme installed and terminated all the ports on site. Cameron adds, "It made a great deal of sense to use all the products from Siemon and the ease and speed of use of Z-MAX modules helped greatly."

Thermal efficiency

The ability to control the climate within the racks in the data centre was an area that required close attention.

Thermal efficiency is an area that Siemon has paid particular attention to in the design of the VersaPOD and the segregation of passive and active equipment within it allows targeted cooling. This means that VersaPOD can offer St Andrews 71 per cent airflow efficiency, which targets the active components rather than the passive ones.

VersaPOD's end of row options include thermal management blanking panels. These panels seal the air gap between the cabinet corner posts and side panels, enhancing VersaPOD's hot aisle/cold aisle isolation capabilities. Along with provisions for roof mounted cooling fans to help exhaust heat from the top of the cabinet, brush guards and grommets for cable access points and highly perforated front and rear doors, the VersaPOD has been designed to maximize data centre thermal management efficiency.



Richard Lumb of Future-Tech comments, "The data provision in the VersaPOD is excellent, as is the concept. Also, the ability to keep the airflow area clear at the back means that cooling is much more effective than it is with most other racks. This was particularly important for St Andrews, given the concentration of active equipment within the data centre."

Learning curve

The University of St Andrews data centre represents a wonderful VersaPOD reference site for Siemon in Europe and Tony believes that it has been an ideal project in which to highlight the product's advantages. He comments, "St Andrews has used 24 VersaPODs and accessories in this project, and the benefits of doing so are evident - from the space and time saving to cooling and energy efficiency."

However, the final word goes to Ian McDonald, who comments, "Using VersaPOD has allowed us to condense the footprint of floor space required and so fit the new data centre into the restricted area available. This has effectively given us three racks' worth of extra space. I am impressed with the flexibility and accessibility of the VersaPOD and absolutely delighted with the new data centre, which will serve the University of St Andrews for many years to come."

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