

ADVANCING TECHNOLOGY

Sheffield Hallam boosts IT efficiency with new Schneider Electric data centre and DCIM software

Sheffield Hallam University is upgrading its main data centre using state-of-the art infrastructure equipment and management software from Schneider Electric to maximise the availability, reliability and efficiency of its IT services.

Working with Advanced Power Technology (APT), an Elite Partner to Schneider Electric and specialist in data centre design, build and maintenance, Sheffield Hallam University has undertaken work to deploy a state-of-the art highly virtualised data centre as part of a £30m building development at Charles Street in central Sheffield.

APT's installation is based on Schneider Electric InfraStruxure integrated data centre physical infrastructure solution for power, cooling and racking. The new facility is managed using Strux-

ureWare for Data Centres™ DCIM (Data Centre Infrastructure Management) software to maximise the efficiency of data centre operations.

With a pedigree dating back to the early 19th Century, Sheffield Hallam University is now the sixth largest university in the United Kingdom with more than 31,000 students, around 20% of whom are post graduates, and over 4,500 staff. One of the UK's largest providers of tuition for health and social care career paths, and teacher training, it offers around 700 courses across a wide range of disciplines including Business and administrative studies, Biological sciences, and Engineering & Technology.

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The University has a range of research centres and institutes as well as specialised research groups; research grants and contracts provide an important source of income to support work at Sheffield Hallam University.

IT SERVICES AT SHEFFIELD HALLAM

Sheffield Hallam University is situated on two campuses comprising 12 major buildings in the centre of the city of Sheffield. Its IT department operates two data centres, running as an active-active pair in which each location provides primary IT services as well as offering failover support to the other.

"Services provided by the IT department are typical of those required by any university," says Robin Jeeps, Project Manager for Sheffield Hallam University. "We host the email and intranets and common applications such as Exchange, Outlook and Office, in addition to the student management systems, virtual learning environments, library systems and CRM systems."

In terms of hardware, the university has adopted a virtualisation policy, running around 1,000 Virtual Machines on around 70 blade servers distributed across both data centres. It also has a small high-performance Beowulf compute cluster to support research projects. For the most part the main concerns

for the IT department are high availability, reliability and cost management.

A NEW DATA CENTRE TO SUPPORT IT AT SHEFFIELD HALLAM

As one of the existing data centres was located in a building whose lease was due to expire, the IT department took the opportunity presented to move the IT facility into the Charles Street development and upgrade its capabilities to improve efficiency and availability.

Following a contract tender, APT was select-

ed to provide and install the cooling and power infrastructure equipment and the DCIM software necessary to manage it efficiently. Thanks to virtualisation, the number of physical servers the University needed to maintain services had dropped from over 40 devices in the older data centres to 15 in the new Charles Street facility in addition to the central storage, backup, chassis and blade provision.

"We can now run on a single chassis what we would have run in two racks before," says Robin Jeeps. "That makes a big difference."

Located at the new Charles Street data centre, the IT equipment racks are installed within two APC by Schneider Electric InfraStruxure with Hot Aisle Containment Systems (HACS) to ensure an efficient and effective cooling supply. Two 300kW free-cooling units supply chilled water to the HACS and within the equipment racks, APC InRow cooling units maintain optimum operating temperatures.

The HACS segregates the cool air supply from the hot exhaust air, preventing both streams from mixing and enabling more precise control of the cooling according to the IT load's requirement. At the same time, locating the In-Row cooling units next to the servers and storage equipment also reduces the cooling energy requirement by eliminating the need to move large volumes of air in a suspended floor space.

DCIM IMPROVES THE EFFICIENCY OF DATA CENTRE OPERATIONS

Crucial to maintaining efficient operation is the adoption of Schneider Electric's StruxureWare software. This marks the first time that Sheffield Hallam has had an integrated management system for monitoring all aspects of its data centres' infrastructure, according to Robin Jeeps.

"We had a variety of software packages in place before," he says. "But Struxure-



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Ware for Data Centres provides us with a much more integrated solution. As long as something has an IP address, we can see it in StruxureWare and monitor how it is working. Previously we had to go through physical switches and hard-wired cables to monitor a particular piece of equipment.”

Jeeps says that the homogenous integrated management environment proposed by APT was crucial to its winning the contract to supply the data centre infrastructure. “We kept the IT side of the contract separate from the overall development of the building,” he says. “When we evaluated APT’s tender we liked the clear design they presented and the consistent management of our infrastructure that it made possible.”

The new management capabilities presented by StruxureWare will allow Sheffield Hallam the flexibility to monitor its infrastructure for maximum efficiency and to manage how it makes its services available to students and researchers.

Another potential benefit offered by StruxureWare is the benchmarking of the overall system efficiency, especially with regard to how well the cooling infrastructure operates as a percentage of the overall power budget of the data centre. PUE (Power

Usage Effectiveness) ratings are increasingly being used to compare one data centre’s efficiency with its peers.

“It’s a bit of a ‘chicken and egg’ situation,” says Jeeps. “Until we saw the capabilities of the software we didn’t know some of the monitoring, reporting and capacity planning that was now possible. Previously, we could only have done some rough calculations using Excel but the capabilities we have now will spur us on to think about all sorts of things we can do.”

PRAISE FOR APT AND SCHNEIDER ELECTRIC

“Working with Advanced Power Technology and Schneider Electric has been an efficient and productive partnership from start to finish,” said Robin Jeeps. “The services they provided have been professional, thorough and at times very patient in terms of solving some of the challenges we’ve had to correct throughout the deployment stages. They remained focused on delivering an intricate solution that would meet our expectations and point of view as a customer, at all times.”

John Thompson from APT explains; “when we build a data centre for one of our clients we look on the relationship as a partnership.



It is very important for us to understand the long-term requirements so that we can design for future possibilities in order to remain available and flexible in our response, throughout the life of the facility. This is one of the reasons we chose to deploy a complete Schneider Electric ‘engineered as a system’ data centre solution for the Charles Street room. To begin we built a virtual data centre within the StruxureWare for Data Centres™ software suite, so that the stakeholders could have a ‘3D walk round’ and provide feedback on the solution they were getting prior to delivery. Whilst this resulted in quite a few design revisions it helped to ensure that APT delivered exactly what was expected.” ■

Green data centres save energy, cut costs and reduce CO₂ emissions



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- Lower the energy costs of your data centre.
- Increase the efficiency of your data centre.
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