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Innovation At Every Level

SUSTAINABILITY

New data centre at Manchester Metropolitan University reduces carbon footprint, cuts energy costs by 30%

With less human error and downtime, the 150-year-old university reduced energy costs by 30% with EcoStruxure solution.

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Life Is On | Schneider Electric

Manchester Metropolitan University (MMU) has introduced a new high-density data centre as part of a dual strategy to improve the reliability of IT services and reduce their environmental impact.

Situated close to the city centre, Manchester Metropolitan University has a history dating back 150 years. It was awarded university status in 1992 and today is the largest campus-based undergraduate university in the UK, with a total student population of more than 37,000.

Sustainability is an important aspect of the University's operations. In 2007–08 MMU's carbon footprint from gas, electricity, and business travel was 24,797 tonnes, which cost £4.6 million. By implementing a series of dramatic changes, the University is on target to reduce its carbon footprint to 15,600 tonnes, saving £3.8 million annually.

The University has recently completed the second phase of its new All Saints primary data center. As a large consumer of energy, a strategy was developed to reduce the operating cost of providing IT services. This strategy ranged from implementing power management software for staff PCs to consolidating communications rooms, server rooms, and data center facilities.

"As the greenest university in UK league tables, it's important that everybody contributes to the sustainability agenda at MMU, and the data center is an obvious opportunity" says James Woodward, IT Client Services Manager at Manchester Metropolitan University. "Our consolidation strategy was aimed to improve the efficiency and availability of the data center, as well as increase capacity utilization over the lifecycle of the new facility."

Jeff Hall, IT Service Operations Officer at MMU, said, "All IT services pass through the primary data centre. At the end of a two-year program, our ultimate goal is to use two high-density data centers to provide a fully managed, active solution which can facilitate growth as well as allow the introduction of new services, as they are required."

Other challenges and issues

The customers of the data center are the numerous departments and faculties, from HR and Finance to Science and Engineering. Services are required on a 24/7 basis, so any breaks in continuity may negatively impact the student experience and as a consequence, the University's reputation. "All voice and data services pass through the primary data center, so everything is lost in the event of an outage," said Jeff Hall.

Prior to commencing the consolidation strategy, IT services were provisioned through myriad server rooms and small data centers spread around the campus. "Ensuring adequate power and cooling for the IT equipment had proven to be a challenge," continued Hall, "especially as there were issues with 'dirty' mains."

Goal

By implementing a series of dramatic changes, the University sought to reduce its carbon footprint to 15,600 tons, saving £3.8 million annually.

Story

Manchester Metropolitan University introduced a new high-density data center as part of a dual strategy to improve the reliability of IT services and reduce their environmental impact.

Solution

- Schneider Electric's StruxureWare for Data Centers and modular architecture including Resource Advisor, Power Management Expert, Data Center Expert and Cooling Monitoring Expert
- Symmetra PX UPS

Results

- Reduced carbon footprint and cut energy costs by 30%
- Reduced overall emissions by 4% and took a big step toward the target of 25% reduction

Building a business case

Investment for the new data center was provided by Salix Finance Ltd, a not-for-profit company funded by the Department of Energy and Climate Change and the Welsh and Scottish Governments which provides 100% interest-free capital to the public sector to improve their energy efficiency and reduce their carbon emissions.

In order to access the development funding, James Woodward and his team first had to audit the energy consumption of the ad-hoc server rooms, including lighting, cooling, and powering the equipment. Actual energy use was compared with that forecast after consolidation to make a strong case for the project, achieving a return on investment well within the five-year period specified in Salix's terms.

In addition, it was also decided to locate the new data center within an existing space on the campus. This not only saved the cost of a new building, but also reduced the emissions associated with demolition and removal of old buildings. The room chosen had previously served to house the campus PABX and was of sufficient size to accommodate the new infrastructure once the old equipment was decommissioned and the BT frames removed.

Selecting Schneider Electric and APT

"We'd had experience of Schneider Electric and Elite Partners, APT when we replaced a UPS in our old data center. Before making a decision regarding the new primary data center, we did our own research, downloaded white papers, and read case studies. We visited other installations and discussed the experience of other users. We also invited other solutions and ran a full tender before finalizing on APC InfraStruxure with Hot Aisle Containment System (HACS), together with StruxureWare for Data Centers Software," said James Woodward.

"Recommendations played a part in our selection process," said Jeff Hall. "But we also liked Schneider Electric's modular architecture. It meant that we could deploy the new data center using a phased approach; conserving capital and allowing us to keep the infrastructure proportional to the IT requirement. Modularity also gave us options to maximize the space we had selected for the new facility, so that we could deploy a high-density environment within our old PABX housing. We effectively built a room within a room."

That room, built by APT, provides one-hour minimum fire and water resistance and includes a raised floor for services. The new 120kW N+1 primary data center was installed in two phases of nine racks followed by a further sixteen. The HACS enclosure not only increases the efficiency and effectiveness of the cooling solution, but also enables higher density IT to be accommodated than using a traditional perimeter room cooling approach.

The new room's Symmetra PX UPS has been sized to allow a minimum 15 minutes autonomy for the full designed load in the event of an outage. This provides more than adequate ride-through capability to overcome non-blackout power transients, as well as sufficient runtime to allow on-site secondary power generation to come up to speed. The room is also protected by CCTV monitoring and swipe card access that can be extended to individual racks.

"In operations, the use of StruxureWare for Data Centers Software enables us to plan the way racks are utilised, and ensure that we have capacity for new service deployments," said James Woodward. "We can also monitor energy consumption which is helping to ensure the ongoing efficiency and resilience of the data center."

"We're seeing annual savings in energy costs exceeding 30% at the same time as gaining better control over our data center capacity utilization."

— James Woodward, IT Client Services Manager, Manchester Metropolitan University

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In conclusion

James Woodward said, “Our new primary data center has had a significant impact on MMU’s carbon footprint, reducing our overall emissions by 4% and taking a big stride towards our target of a 25% reduction. We’re also seeing annual savings in energy costs exceeding 30% at the same time as gaining better control over our data center capacity utilization.”

Jeff Hall added, “We set out to consolidate our data centers and increase the efficiency of our operations. We’re well on target to achieve the reduction in energy use and emissions that were forecast as we set out on this strategy. We’re seeing fewer outages as we ensure safe, secure, and reliable IT services. The Schneider Electric data center which APT designed and installed at the University has been crucial to this success.”

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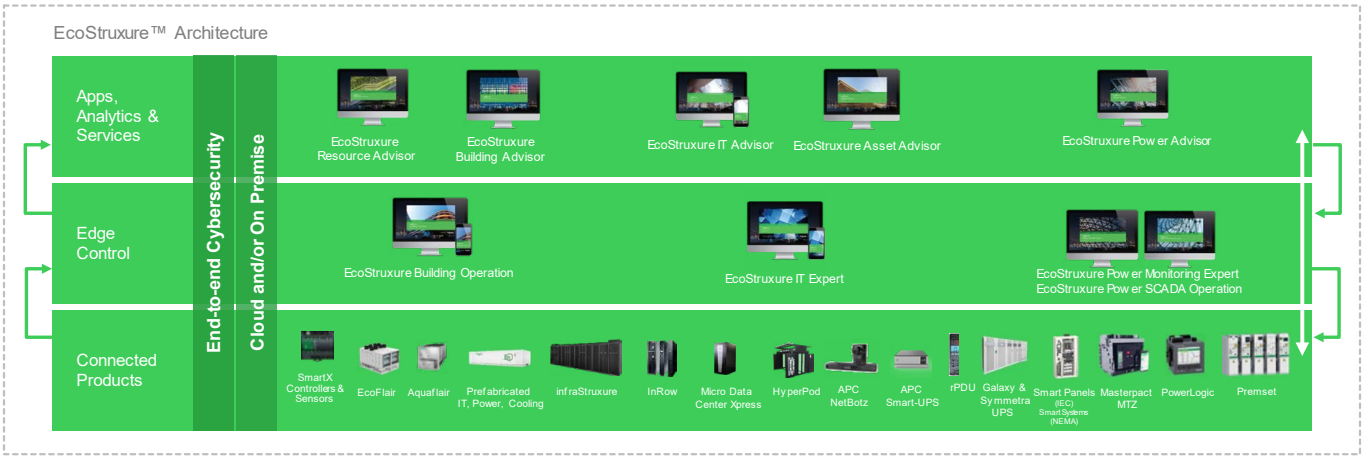
— James Woodward, IT Client Services Manager, Manchester Metropolitan University

EcoStruxure™ for Data Center
Innovation At Every Level



EcoStruxure™
Innovation At Every Level

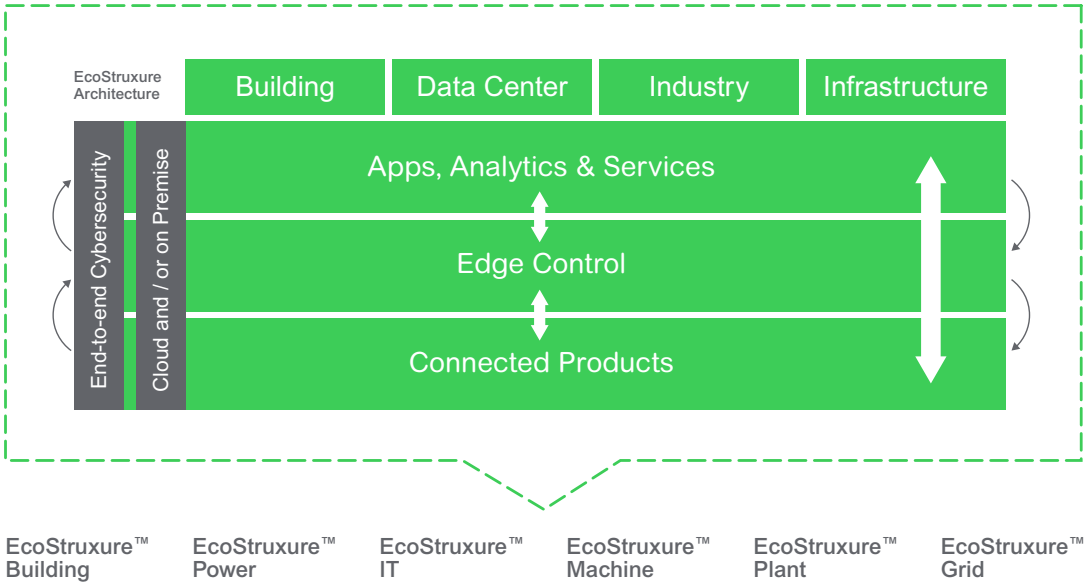
IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is Schneider Electric's open, interoperable, IoT-enabled system architecture and platform.

EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level including Connected Products, Edge Control, and Apps, Analytics & Services. EcoStruxure™ has been deployed in 480,000+ sites, with the support of 20,000+ system integrators and developers, connecting over 1.6 million assets under management through 40+ digital services.

One EcoStruxure architecture, serving 4 End Markets with 6 Domains of Expertise



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Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

Edge Control

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Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, & Services for seamless enterprise integration.

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December 2018

998-20435500_GMA-US

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