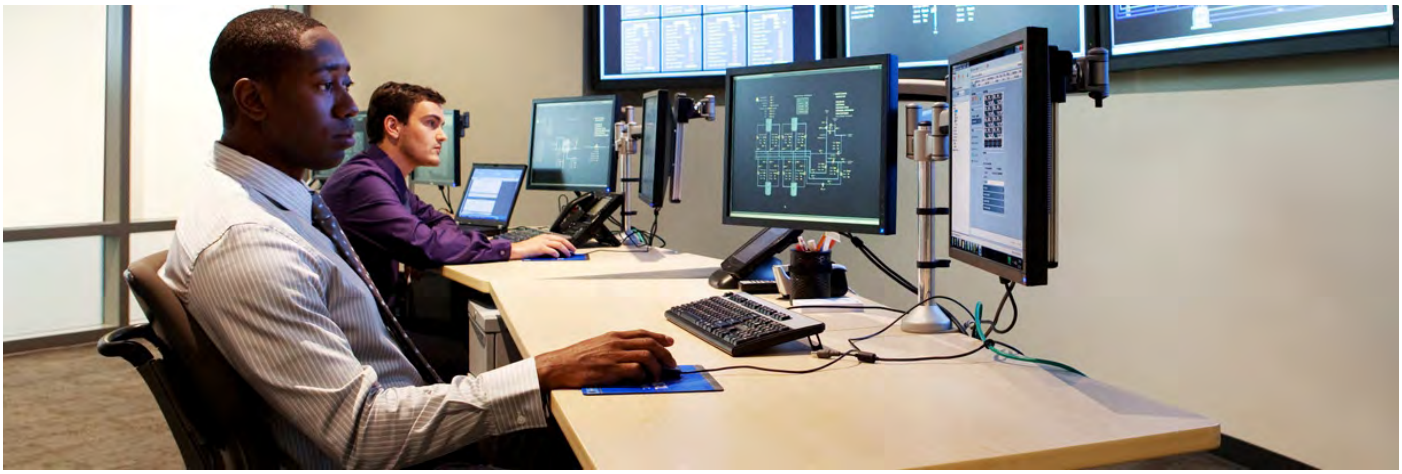
Cultivating Business Sustainability Culture

Customer Case Study



Brunel University extends ICT carbon management strategy right to desktop

EXECUTIVE SUMMARY

Customer Name: Brunel University

Industry: Education

Location: United Kingdom

Number of Employees: 2500

Challenge

- Deliver 20 percent reduction in carbon by 2013 without affecting campus growth
- Achieve recognized international standard for environmental management scheme
- Measure, monitor, and manage all campus power usage through networked approach

Solution

- Cisco EnergyWise, initially installed to power down IP phones and wireless access points, has been extended to 4250 PCs for greater savings

Results

- Improved 57 places in UK national university green league in one year
- Phase One Acorn accreditation conferred by leading environmental institute
- Estimated saving with PC power management exceeds initial forecast by 60 percent

Challenge

Since opening its doors 46 years ago, Brunel University has continued to climb academic league tables. Named after the brilliant 19th century British engineer and recent star of the London 2012 Olympics opening ceremony, it offers a broad curriculum of science, technology, arts, business, and social studies to 15,500 students. Along with a strong focus on technological innovation, the university has responded to growing regulatory pressure for improved sustainability among U.K. public institutions with a clear vision. Since 2007, it has had an environmental strategy group to plan and monitor its environmental performance across the board, from teaching and research methods to campus services and operations.

Brunel proclaims sustainability as a core value, and the university's Strategic Plan 2008–2012 stipulated provision of an enabling environment to accelerate progress. It also said that campus infrastructure, facilities, and activities would be managed, developed, and monitored in an environmentally responsible and sustainable manner. These commitments translate into measurable targets, supported by published statistics, as Brunel strives to earn a recognised accreditation standard for its environmental management system.

These targets include a 20 percent carbon reduction by 2013 against a 2005 baseline, rising to 48 percent by 2020; five percent cuts in the use of electricity and gas; and three percent less water consumption. Recycling initiatives are multiplying due to in-house innovation, while travel policy promotes the benefits of walking, cycling, public transport, or car-sharing.

With such a comprehensive sustainability program in place, Brunel was quick to grasp the energy and cost saving potential of Cisco EnergyWise™, a proven energy-management approach and key feature of the Cisco® Borderless Network Architecture.

Simon Furber, IT network manager at Brunel University, says: "In 2010, we became an early adopter of Cisco EnergyWise and the first U.K. university to install the solution, which can be easily installed on most Cisco Catalyst® Switches." The next stage of the Brunel energy management strategy was to extend Cisco EnergyWise across a large estate of desktop PCs, with the longer-term objective of building a complete energy management solution to encompass automated power systems in 40 buildings across the 200-acre campus.

"You can't save something that you can't see. Cisco EnergyWise eliminates this problem, and we're now targeting a potential saving of £150,000 a year."

Simon Furber
IT Network Manager
Brunel University

In addition, the university needed to move quickly to replace its Wi-Fi network with a larger, more energy-efficient solution: first, to guarantee high-quality access for teams and officials staying on the campus during the London 2012 Olympic and Paralympic Games; and second, to meet growing demand from students for a Bring Your Own Device (BYOD) environment.

Solution

Developed as a basis for the new discipline of sustainable energy management, Cisco EnergyWise not only offers a powerful management tool for networked devices, but it can also embrace power-hungry building systems such as heating, ventilation and air-conditioning, lighting, elevators, access control, and surveillance.

The Cisco EnergyWise architecture is designed to reduce power utilization on any device connected to a Cisco network, from Power over Ethernet endpoints, such as IP phones and wireless access points to IP-enabled building and lighting controllers. The solution comes with a real-time management dashboard to provide instant visibility and control of energy use in any connected device. Using an intelligent, network-based approach, it enables IT and building facilities managers to understand, optimize, and control power use across an entire corporate infrastructure.

The power drain of idle devices can significantly add to an organization's utility bills, but building systems generally account for a much larger share of energy used. Using the network as a platform, Brunel saw that being able to measure, monitor, and manage the largest component of power consumption could not only substantially reduce operational expense, but also significantly improve the university's environmental profile. "Extending Cisco EnergyWise to monitor and control PCs was easy," says Furber. "We had to purchase 4250 licenses to build a monitoring and management platform. Apart from a few minor glitches, the implementation was simple."

The IT team has also been busy with the opening of an award-winning new facility and £32 million investment in the Brunel Business School. As a flagship for environmental policy, it was intended that the Eastern Gateway building would showcase green ICT technologies. Cisco EnergyWise helped meet that imperative, along with Cisco Catalyst 3750X Series Switches and Cisco Unified IP Phones 8900 Series.

Replacement of the Brunel legacy wireless network with a new Cisco Unified Wireless platform posed a different challenge. The project had to be finished in just 14 weeks, replacing 400 legacy devices with 1200 Cisco Aironet® 3600 Series Access Points, while also introducing the benefits of CleanAir technology to cut interference. Although the number of wireless access points has tripled, Cisco EnergyWise will play a key role in mitigating the extra power requirement. The end goal is to allow the university to increase wireless coverage without adding to its electricity bill.

Results

The urgency of the task was put in perspective over a Christmas break, when, despite hardly any students residing on campus, the university was found to be burning 4.5 megawatts of power. Thankfully large electricity bills from unoccupied buildings will be a thing of the past as Brunel continues to advance its long-term sustainability vision.

Industry estimates suggest ICT accounts for a quarter of energy use within a typical organization, half of which is consumed by IP devices. EnergyWise was first used at Brunel to monitor IP endpoints, including IP phones and wireless access points, and to help enable network policies to power these devices down when not in use.

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In 2011, an independent study by Leeds Metropolitan University of the Brunel Cisco EnergyWise deployment identified potential savings of £90,000 a year for a typical U.K. university or organization with a sizeable IT estate (the study assumed 3000 IP phones, 300 wireless access points, 5700 PCs, 1100 printers, and 1630 servers). The equivalent saving at a college of further education would be £23,500.

In June 2011, Brunel received a strong endorsement of its efforts when it improved 57 places in the performance table of the People and Planet Green League, an independent assessment based on the environmental and ethical performance of U.K. universities. 2011 also brought the first step towards full accreditation by the Institute of Environmental Management and Assessment, a leading professional standards body with over 15,000 members.

Despite this success, a cautious approach is being adopted to the measurement of return on investment. By mid-2012, financial savings from Cisco EnergyWise totalled £8,000 a quarter. However, the solution was only monitoring 25 percent of the university's PC estate. Based on estimates provided by technology partner Verdiem, possible future savings of £150,000 a year are forecast, although results will depend on the stringency of network policies agreed with other departments. The revised forecast is two-thirds higher than the £90,000 predicted in the previous Leeds Metropolitan study.

"Now that Cisco EnergyWise is fully implemented, we're having interesting discussions with departments about deciding the appropriate network policies," Furber says. "You can't save something that you can't see. Cisco EnergyWise eliminates this problem, and we're now targeting a potential saving of £150,000 a year." An agreement with the university's library, for example, has formulated a network policy to power down any PC automatically if it remains unused for 20 minutes, thereby limiting power consumption and making the device more rapidly accessible to other users.

To expand future savings potential, Cisco is working with leading suppliers, such as Honeywell, to enable proprietary building management systems to share their data over the network and bring such systems within the scope of Cisco EnergyWise. Forward-looking IT managers, such as Furber, are playing a key role in sharing their real-life experiences and shaping the solution's future evolution.

It may take time to convince companies that have traditionally preferred to keep their systems isolated and off the main ICT network. Cisco is working to broaden its partner ecosystem, reaching out to previously-conservative equipment vendors. Cisco also supports the efforts of ICT professionals by setting up meetings with existing partners. For example, a meeting was held between Brunel and Schneider Electric, brokered by Cisco, to discuss smart metering as a possible alternative to metering on the network.

"Too much of our energy usage information is still invisible or locked away in proprietary systems," says Furber. "Using a more sophisticated system reduces the need to double-handle data, so the process no longer needs to be so cumbersome and time consuming. Once we get all the data monitoring online, including power consumption in our buildings, we'll have the ability to see everything (energy costs and carbon emissions) in a single pane of glass."

For More Information

To learn more about Cisco EnergyWise, please click on this link:

www.cisco.com/go/energywise

Product List

Routing and Switching

- Cisco Catalyst 4500, 3750, and 3560 Series Switches

Wireless

- Cisco Aironet 3600 Series Access Points

Energy Management

- Cisco Energywise

Unified Communications

- Cisco Unified IP Phones 8900 Series

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