Sheffield Hallam University

Capturing energy efficient advancements via IT

CARBON TRUST
Making business sense of climate change

Carbon Management

> “Taking part in the Carbon Trust Carbon Management service has helped us to understand our priority areas and the potential opportunities available to us. It has been a useful vehicle to consolidate lots of individual activities and explain our strategy for carbon reduction to the wider university population”

Marie May
Community, Sustainability and Residential Development Manager

Business focus

Sheffield Hallam University is a teaching, research and knowledge transfer higher education institution with 30,000 students, 4,000 staff and a large estate stretching over two main campuses. It also has an ambitious growth strategy for the next decade.

The University is constantly working towards best practice in environmental management and investigating ways in which its performance can be enhanced.

Approach

To help facilitate this process the University participated in the Carbon Trust's Higher Education Carbon Management service 2007/2008. The development and implementation of a University-wide strategic Carbon Management Plan has consolidated and confirmed past and current carbon reduction activities and has set the direction for a low carbon future. A key area of activity approached as part of the wider plan was with regard to the University's IT services.

Introducing the virtual server

The ever growing demand for computing services at the University is a major concern, increasing the demand for air conditioning and escalating carbon emissions.

As a more immediately pressing issue, the increased power requirements were approaching the limits of the electricity supply cables, and the University was also running out of space in its server room.

Following a feasibility study, the University decided to invest in virtualisation software which allows one host server to run multiple operating systems, replacing the need for multiple servers. In addition, servers typically operate at less than 5% capacity; virtualisation moves this towards 50%, making it far more efficient.

Sheffield Hallam University has managed to virtualise about 80% of its servers, leaving out those that undertake high intensity processing. The virtualisation substantially reduced the number of servers operating and so relieved the physical issue of lack of space. The resulting reduction in electricity consumption is also significant – up to 80% – and has contributed to relieving the capacity issue.

Results

The electricity required to run the virtualised servers is estimated to be 60,500kWh per year, while the energy required to run original conventional servers was 686,000kWh.

This has saved the University £43,000 and led to 270 tonnes of CO_2 per year being captured.

The University expects further savings, through reductions in air conditioning, but these have not yet been quantified.

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