Part of a series on Carbon Management

Carbon counting

Measure and manage the carbon footprint of your IT

What's the carbon management issue?
With the current legislative, economic and social backdrop, most organisations are reviewing their energy use and looking at ways to cut power consumption in their data centres.

However, given that the combined emissions from PCs, servers, cooling, local area networks, telephones and mobiles adds up to around 2% of global carbon emissions – the same as flying – it's clear that organisations need to look far beyond the data centre for the true picture of how much power they use.

Whilst there is plenty of advice on how to cut electricity consumption within the actual data centre, to date little work has been done to evaluate the carbon impact of the distributed IT infrastructure, which encompasses everything from laptops to home printers, mobile phones and chargers.

The real carbon footprint of an organisation's IT needs to take into account things we see in the office every day – banks of photocopiers switched on, when only one is needed; PCs running elaborate screensavers consuming far more power than they need; and PCs left on, but unused, overnight.

To fill this information gap, IBM therefore set itself the tough challenge of finding a way to measure an organisation's IT carbon footprint, taking into account the patterns of mobile working prevalent today.

A project team comprised of senior professionals from the IBM's research, hardware and software businesses, as well as the consulting and technology services divisions, worked together to develop a model that could be used by any organisation, regardless of the sector it operates in.

What's the solution?
Measuring the energy footprint of a typical organisation today, where employees are just as likely to work at home or at a customer's site as in their own offices, raises complex and inter-connected issues.

First there is the sheer quantity of electrical equipment – from mobile phone chargers to the air conditioning units in head quarters – and the fact that the actual power consumption of a device may not match its power rating, or plate value. Then there is the way people work, which could mean using a WiFi network in an airport lounge, or a web-enabled mobile phone while on the train.

We therefore built a green component model to run an entire IT operation, taking into account an organisation's strategy and tactics. This helps identify 'hot spots', confirming where companies need to make changes in order to reduce overall electrical consumption.

IBM then developed a two-tier sampling model, to measure devices and patterns of working. This statistical approach is more cost-effective and practical than physically measuring every PC and phone within an organisation, and enables an accurate carbon model to be built.

The team also worked on a carbon charge-back technique, which provides a mechanism to measure the carbon impact of an individual, team or department. This would give a company financial leverage to change people's behaviour, and allow company departments to 'trade' footprints in much the same way as they balance marketing budgets around an organisation today.

The IBM team has set a benchmark for the measurement and management of power use across a distributed workforce with a proven methodology to help organisations work towards a greener future.

By following IBM's recommendations, organisations will be able to decrease their power consumption, cut their operational expenses and reduce their carbon footprint.

How to get started?

The results of IBM's intensive study will enable organisations to measure and manage a distributed IT environment for the first time, and to consider implementing a carbon charge-back model to drive behavioural change among employees and departments.

We'd like to think that IBM's thinking will become global best practice. If, as a result of our recommendations, we could save 20% of the electricity consumed by distributed IT infrastructures globally, that would add up to around 0.4% of the current global annual greenhouse gas emissions.

In the UK, any organisation facing the Government's proposed emissions cap will be keen to cut energy use and will realise numerous benefits from analysing and reducing power consumption and associated carbon footprint.

First, you will have a much better picture of your overall power consumption, and second, you will be able to make sustainable change that will not only benefit your profitability, but also lessen the impact your employees make on the world they live and work in.

The number of large client organisations using recommendations from IBM's work in this area is growing rapidly. Clients within the financial services, communications and industrial, public sector, retail, travel and transport sectors, have already expressed an interest in working with us, as well as companies in the mid-range sector.

With increasing pressure from public opinion and from investors and consumers alike driving a business to become greener, and with tough government regulations on the way, the time to act is now.

IBM is committed to environmental leadership in all of its business activities. For further information see **ibm.com**/ibm/environment

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FBUK12031-0