



talking point

Seen to be green

Roger Keenan of City Lifeline makes the case for a greener data centre.



Data centres are widely known for consuming a lot of energy. According to some estimates, almost two per cent of the nation's electricity is used to power computers and telecoms equipment, most of it in specialised data centres. One data centre facility can use up to 50 times as much power as the equivalent in office space. However, operators have started driving up their efficiencies and driving down their costs and showing that they're making their buildings more efficient and green.

If we're honest there are two main reasons why our industry in recent years has decided to green-up – firstly, it saves us money and secondly, we don't want to be stung with a reported £50,000 fine for failing to register and comply with the forthcoming Carbon Reduction Commitment (CRC). But how is the industry as a whole getting on with reducing energy consumption? Are we really making a difference to our environment and are there many things we should be doing that most of us haven't even started on yet?

Most data centre operators are clearly making huge strides in the quest to become eco-friendly, but it is the legacy data centres that need to put in the most effort. Many of these facilities were built during a time when energy was cheaper and being green was not high on the agenda, therefore the buildings simply weren't constructed with energy saving measures in mind.

Many are also now faced with the ethical dilemma as to what is the most eco-friendly solution; shut their facility and build a newer more efficient centre in a remote location, built possibly on green belt land, or remain consuming high-in-demand energy in a built up city? The most logical conclusion is to remain and try to make their facilities as efficient as possible.

The data centre industry has undoubtedly become more energy conscious in recent years. We are all working very hard to increase efficiency, to reduce costs, improve our carbon footprint and cool down the environment. The largest investment in this cause has to be in improving the efficiency of the chillers, other cooling systems and UPS, which has made a huge difference. UPS now waste less power in converting electricity for servers which have themselves become more efficient.

Furthermore, diesel generators used for standby power generation have become much smaller for a given power output and much less polluting. For example, the TA-Luft regulations in Germany are exceedingly tough in terms of the soot particles and nitrous oxides that can be put into the atmosphere and are slowly spreading across Europe because no engine designer wants to design one engine for Germany and another for the rest of Europe. These will spread into all new data centres and refurbishments of legacy data centres.

Many operators have also now started to fit movement detection light switches throughout the building, so that lights are only on when there is someone in the area and switch off automatically when the person leaves.

A huge energy cost for data centres is cooling and air conditioning. More recently there have been major energy savings and efficiency gains from replacing old air conditioning equipment with modern equipment. In particular, chiller and air-con motors can now be driven by variable speed inverter drives (in place of the old bang-on bang-off controls), which means that the motor only turns the absolute amount it needs to and uses only the minimum amount of energy it needs.

Despite these efforts, there are still areas that operators should be addressing but are failing to. As always, the biggest issue in any initiative is the actual take up. For instance, most data centre operators understand the need for blanking plates to stop chilled air going round the servers and mixing with the hot air instead of going through them, but many data centres pay lip service to it and don't do it.

Similarly, we talk about modern chillers being much more efficient than old ones but most of those installed are old ones, and it costs a lot of money to replace them so operators choose not to. Having an energy saving bright idea is one thing, getting to the point where more than 50 per cent of the industry is actually doing it is quite another. So, we are generally aware of the issues, but adoption isn't as fast as it could be, plus a busy CIO or IT manager needs a reason why this is high on his list, otherwise he just won't do it.

Legacy data centres suffer from all the issues above. A new data centre will be designed for energy efficiencies at the outset (because no one would design any other way these days). An existing data centre can be just as efficient as a typical new data centre using conventional technologies, but it requires a substantial ongoing investment programme to remove old technology and replace it with new technology. That's both true of the infrastructure of the data centre and of the servers and other equipment in it.

Legacy data centres do have to keep on investing. Data centres are a capital intensive industry. A legacy data centre that fails to invest in efficient technologies and green methodologies will be OK for a while, but will slowly start to see its costs rise relative to its competitors, and will not be able to hold its prices alongside its competitors and will slowly become uncompetitive.

Finally, anyone designing a data centre today will design with energy efficiency in mind, because there is no economic sense in wasting energy and it would be seen as socially irresponsible not to do so. Anyone with an existing data centre is (or should be) replacing old equipment with new and gradually improving their efficiency and greenness. So all that's left are existing corporate data centres where no one cares, and with poor efficiencies which no one is doing anything about – maybe these will become known as 'brown data centres?' Nobody is going to own up to that, so you can presumably assume that all data centres will now claim to be green, even those that aren't. ■

Do you agree or disagree with Roger's views? If you have a comment to make on this or any other aspect of the network infrastructure industry contact Michael Crane on 01353 616117 or email michael@terringtonltd.co.uk.