



Maintaining standards

Our regular Data Centre Alliance update from Executive Director, Simon Campbell-Whyte.



THE DCA is moving forward projects on all the core objectives upon which the DCA was founded, these are standards and industry self-regulation, research and development, publicity and defining an 'industry' and new skills development.

These objectives will take more than one project and will need an ongoing programme, but for now we continue to support ISO and EN standards development, build our own

Certifications programme, work with our academic partners and members on EU and national research projects, expand our online presence and content and develop new projects for young people wishing to work within the industry.

More than ever we are using both our main website and our member's portal to disseminate the information and gain participants, so please keep abreast of all these projects at www.datacentrealliance.org and www.data-central.org

Looking to greener strategies

Andrea Perez, Environmental Management Researcher at University of Hertfordshire reviews the content at the Green Data Centre Conference in London and the links with ISO 50001.

DATA CENTER managers historically have had two main goals when designing and operating the data center: resiliency, availability and security. However, in a world of ever increasing environmental concerns such as carbon footprint, political and regulatory pressure to reduce power consumption and with the rising cost of energy in UK, a third priority has emerged: the energy efficiency in data centres. Consequently, this new priority is creating a demand for IT professionals and data centre managers to consider new ways of how to control the vast amount of energy required to power data centres, looking to green strategies and new technologies to improve the efficiency in data centres nowadays. According to Uptime Institute survey over 1,100 data centers around the world in 2012, data centre companies are looking for different energy efficiency strategies related with new cooling solutions that meet the demands of the hardware and the room while optimizing energy efficiency, with the purpose of increasing the energy efficiency.

As a notable example about the current awareness from different companies and professionals in the matter regarding to data centre efficiency and innovation. The last September 2012, was performed "The Green Data Centre Conference & Exhibition – London,UK" developed by GSMI (global strategic Management Institute) and sponsored by different companies and others interested in the field. The Data Centre Alliance and GDCON provided me with the opportunity of participating in the second session as an attendee. I was provided with a detailed analysis of the green data centre movement focused on innovative design trends and equipment, management techniques for maximizing the facility efficiency, discussions about building best practices and the actual situation of different measurement standards such as PUE (power usage effectiveness).

Among the many presentations and themes which were exposed across the conference, I was able to acquire a significant amount of new knowledge increasing my data centre and energy efficiency background information, which is very useful for the development of my research entitled "Energy Efficiency benefits of implementing ISO 50001 in data centres in UK" updating me with the current energy efficiency news and trends in future data centre, also, reinforcing concepts and theory related with data centres and standardization

of measurements. What is more, this conference allowed me to meet special contacts and professionals in this area who decided to join in my project research.

Although the conference was not focused on ISO 50001 (framework for an energy management system), I realized that most of the presentations performed were indirectly mentioning themes related with this new standard and its requirements. For instance, most of the presentations pointed out forces for change such as taxation regarding to green house gases, carbon footprint and the daily new data increasing trends and cost of energy supply. This showed an understanding about problems and difficulties in data centres; understanding which could help to set up accurate objectives in an energy management system (EnMS). Themes dealing with how to control energy use in data centres, which technologies need be used and the importance of the training provided by top management were also mentioned.

Therefore, these themes of contributing to the implementation and operational requirement of an EnMS by implementing new technology, best practices and green strategies are strongly linked to the ISO5001 objectives. Other matter discussed was the energy, IT performance, and energy consumption behavior. Speakers brought up the actual situation with metric tools such as PUE, ITEU, WUE,CUE and their significant value, which helps to describe a "resource efficient facility" and where all the resources are considered, including energy, water and carbon. Additionally, it showed the shared need to establish one baseline for the key performance indicators. They indicated the importance of the standardization of measurements and the importance of predicting trends and behaviors, which is related with the planning and checking performance requirements in an EnMS. Finally, most of the topics exposed in the conference were related in a one way or another with ISO 50001.

In conclusion, it has been seen that the green data centre movement and the awareness about energy efficiency in data centre industry is becoming a stronger concern. This concern will very likely be linked with ISO 50001 (Energy Management System) in order to facilitate the energy management drive and the implementation of its requirements.

Getting the balance right

This month Michael Walker, Programme Director of Liverpool based Cloud Services provider, Aimes Grid Services, writes in the DCA column. Michael asks the question if it is time to look at ourselves, the users of digital services and unveils the cost of 'free' internet searches and social media.



THE idea for this article arose from a conversation with Simon Campbell- Whyte of the DCA, during which we wondered quite how much the average, or even exceptional, man or woman in the street really understands about what happens in networks, machines and power cables when they use their PC, tablet or smart-phone to use search engines, social media and networking sites etc to do what is, at that very moment in time very important to them.

Lets start with the not so humble Google Search, which all of us carry out every day, without giving a thought to the electrons busily employed scurrying around processors, wires and storage media to seek out and deliver the answer to that vitally important question. If we stop and think about it for a moment it is sort of obvious that it takes energy to do 'stuff' and that stuff is certainly done when we search using Google or other search engines.

The use of the energy to power the access device is pretty obvious but the carbon costs of transmission, processor activity, storage retrieval and re-transmission not to mention the cooling and parasitic loads are almost always overlooked 'unless you are a data centre or connectivity industry insider.

Even people who should know better and I include a very well respected and pragmatic US academic who specialises in environmental science and activity impact recognition, admit to being surprised when informed that each of their many searches uses significant amount of energy. Quite how much is used is open to debate.

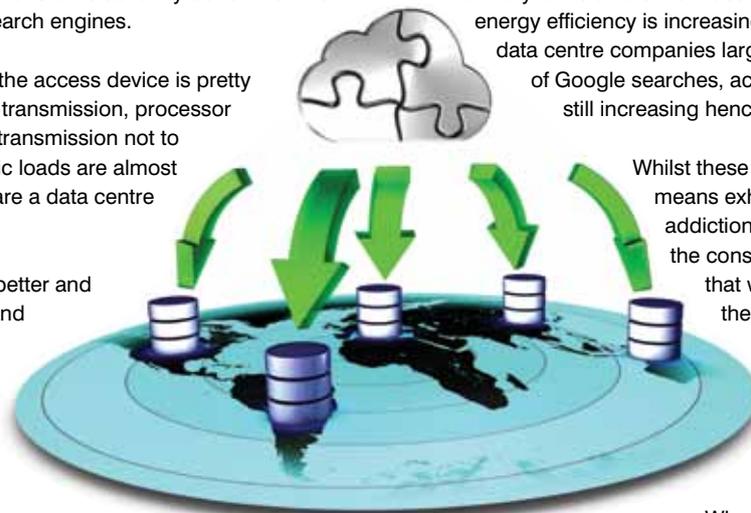
In 2009 Harvard physicist Alex Wissner-Gross claimed that a typical Google search on a desktop computer produces about 7g CO₂ or to put it another way, two Google searches result in the production of around 14g of CO₂ which is about enough to boil enough water for cup of coffee. Google immediately disputed Dr Wissner-Gross' figures claiming that a typical search produced only 0.2g of CO₂ or about the amount of energy burned by an average human body every 10 seconds. Whichever is correct; at a little over 2.6 billion searches per day in 2009 that is a lot of cups of coffee!

Of course in the intervening period Google along with the rest of Data Centre industry and associated sectors have made huge strides in reducing the energy requirements of their activities. However with the number of searches almost doubling to over 4.7 billion by 2011 it is clear that efficiency gains alone may not be sufficient to offset the increasing use of digital services in our daily professional and personal lives.

The expansion of social media in various forms and its usage in both personal and, increasingly, business environments also adds to

the unrecognised carbon burden. Dr Ian Bitterlin uses the increase in Facebook users in the United Kingdom to present a somewhat dystopian view of the energy cost of Facebook generation's addiction to free social media services. He argues that if Facebook usage in were to continue to grow at its current rate then by 2020 servicing its energy requirements would consume the entire output of the UK's power generation capacity. I haven't personally checked his figures but watching my children and friends upload photographs and commentary after an evening out or a holiday certainly militates in his favour and of course, just like searches, the energy cost is not obvious.

Naturally Ian is aware that Facebook's growth is slowing whilst energy efficiency is increasing, not least through the efforts of data centre companies large and small but, as in the case of Google searches, activity on social media is, overall, still increasing hence his point remains valid.



Whilst these two examples are clearly by no means exhaustive, they neatly illustrate our addiction to the digital world and some of the consequences. Perhaps a question that we need to ask is whether the way in which we price and sell connectivity is a factor in the upward spiralling of demand for digital services. Most of us purchase our connectivity in speed related blocks with a relatively large download cap.

When coupled with an advertising based model for the service, the costs related to usage are therefore somewhat disconnected from our activities. If we assume that we cannot endlessly increase electricity generation capacity then some form of coping strategy may well be required and one that has been advanced involves limiting access by price, possibly on a pay by use basis utilising fractional fee, micro billing and aggregation techniques to ensure that the price paid reflects the areas and levels of digital activity.

The theory is that faced with a clear link between activity and cost, a more responsible approach to usage will evolve. It really is an attractive 'nudge' concept but, like the flat earth theory, it may have a fundamental flaw. We have all grown used to 'free' information on demand as well as being able to 'post' photographs or messages and it might take some really punitive tariffs to change that behaviour!

That said, it is certain that balancing the need for access to knowledge and the continuing growth in digital industries with our energy capacities is something we need to achieve very much sooner than later.