

Being green AND reliable

Mark Hirst, head of T4 Data Centre Solutions at Cannon Technologies, explains how modern data centres can be made both green and reliable

The early data centres were both complex to operate and maintain, and even required a special environment in which to operate. They required large volumes of cables and complex architectures evolved to support the nest of cables – and which can still be seen in today's legacy data centres.

However, from the early days of the late 1970s things began to evolve and by the 1990s the data centre industry had started using standard racks for mounting of equipment, as well as raised floors and overfloor/underfloor cable trays.

Data centres have certainly come a long way and today, for the modern data centre green and energy efficiency are now key watchwords. Future evolutions will likely include the use of solar power and fuel cells, increased cloud adoption, higher utilisation rate and increased IT systems density.



GOING GREEN

Greenpeace's April 2014 study – entitled 'Clicking Clean' – reports that the technology giants of Apple, Facebook and Google are now 'green internet innovators', owing to their commitment to renewable energy.

Green data centres can be highly cost effective, with a typical ROI of between six and 24 months, representing a win-win situation in both the energy consumption and efficiency stakes.

The challenge facing the IT industry – and not just the rapidly evolving data

centre world – is that green technology often makes use of new and largely untried systems.

There are several ways of cooling a data centre, each of which has their advantages in different deployment and climate conditions. Generally speaking there are two main categories of cooling – active and passive. Active cooling – which splits into three sub-groups, water, air (fan-driven) and solid state (thermoelectric) – is, by its very nature, a hefty consumer of energy. Passive cooling – which also splits neatly into three sub-sets – venting, convection and aisle cooling – has, as the name implies, a zero or minimal energy consumption footprint.

Whilst active IT cooling systems have been popular in the past, Cannon are now seeing a growing number of enlightened clients, ranging from facilities management companies all the way to large corporates adopting passive cooling systems.

So how do these passive systems work? Let's take the example of Cannon's own venting technology – MaxiVent – that uses a ventilation door design that increases the cooling effect of airflow through a cabinet.

The result is an 82% air flow through the door aperture due to ribbed curved mesh and vented frames. Aisle cooling meanwhile, is another effective approach to passive cooling and centres on a cold aisle containment solution that provides segregation of cold aisle air flow from hot aisle exhaust air in the typical data centre.

On the active cooling front, companies tend to be split in favouring water or air cooled data centre technology. Whilst each solution has its advantages, Cannon Technologies favours water cooled systems, on the basis that the systems involved are both simple and robust.

These features of water cooled systems are highly important to customers. Cannon's origins stem from a military technology background and the company has found that – even for today's military clients – the KISS (Keep it simple stupid) principle applies, as any form of technology needs to have as lengthy a MTBF (mean time between failure) as possible, as well as being simple to fix



Above: in the modern data centre green and energy efficiency are now key watchwords

when, and if, it goes wrong in the field.

An effective green data centre needs to adopt a KISS approach to its design and deployment, as well as its operation.

AIR COOLED DATA CENTRES

The majority of today's customers prefer a water cooling system for their data centre, yet a small but growing number – for various reasons – are now adopting air cooled systems.

For these companies Cannon can offer a hot and cold aisle platform, in order to segregate the hot and cold air flows, but this does add to the expense involved.

The key challenge with air only cooling, however, is that filtered air is a 'must-have' in most situations. This adds mechanical movement to the mix, as most users will also need to install an air cooling system as well.

CONCLUSION

Because of the rising cost of on-demand energy sources, it is clear that the greening of data centres will continue to gain ground, against a backdrop of increasingly reliable technologies that help to reduce the demand for power, as well as increase the efficiency of existing IT systems and cooling systems.

Only through better strategy planning can the IT industry move forward. This is a key tenet of adopting the twin strategies of ensuring that today's data centres are not only green, but as reliable as possible as well.



Above: Mark Hirst, head of T4 Data Centre Solutions at Cannon Technologies

Left: data centres have come a long way since their early origins in the late 1970s/early 1980s, when those early deployments of IT were both complex to operate and maintain

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