How the Data Centre Industry Can Be More Environmentally Friendly

Data Centre Knowledge guest contributor Michael McNerney posed an interesting question in a piece published in April 2019: is our data destroying the environment? McNerney went on to answer his own question with a resounding 'yes'. Between traditional data centres, booming mobility and the IoT, we are having to rely more and more on those older, environmentally unfriendly technologies and methods we are trying so hard to get rid of.

There are no easy solutions that we can deploy overnight. However, it is possible to stem the tide of environmental damage until we finally have the capabilities to reverse and completely overcome it. Simply put, there are things data centres can do right now to be more environmentally friendly. They are things our industry should be seriously looking at and, where possible, implementing.

Transition to Liquid Cooling

Keeping data centre servers cool consumes a whole lot of energy. Unfortunately, most data centres still rely on legacy cooling techniques based in air cooling. We use a variety of pumps and fans to circulate fresh air through a facility and exhaust heat to the outdoors. This creates problems with humidity, so we run electric humidifiers to solve them.

Legacy cooling is too inefficient and power-hungry to continue relying on. What is the option? Liquid cooling. Yes, it costs money to convert from air to liquid cooling. Yes, it can be expensive. But making the switch will save in the long run. What gets invested today will be more than covered through reduced power consumption tomorrow.

Invest in New Equipment

Older equipment is not likely to be as energy efficient as newer replacements. Moreover, equipment generally consumes more power as it ages. This dictates that the data centre industry could be more environmentally friendly by investing in new equipment more often. Rather than hanging on to old equipment until it eventually dies, it would be better to implement an upgrade programme that replaces equipment every few years.

Of special interest right now are newer, high-density server racks. Though high-density racks consume more power, they do a lot more work with that power. The data centre ultimately ends up saving energy through greater efficiency and better power distribution. So yes, it is worth investing in high-density racks.

Turn to Renewable Energy

It would be nearly impossible to talk about more environmentally friendly data centres without addressing the renewable energy question. As things currently stand, the vast majority of the world's data centres are powered by fossil fuels. That is just the reality. It should be obvious that data centres have to start moving toward renewable energy.

The place to start is with wind and solar. Despite the limits of both, the technologies are proven. They have been around long enough that we know what we are getting with them. As such, at least supplementing with wind and solar is better than continuing to run 100% off the grid.

In the meantime, our industry should be investing heavily in developing hydroelectric and geothermal. Biomass is another option to look at. The point is this: our industry will never be truly environmentally friendly as long as we continue to consume so much power generated by fossil fuels.

Recycle Waste Heat

Much of the need for environmentally friendly solutions in our industry boils down to the amount of power consumed to keep servers cool. So we talk about things like new hardware and renewable energy. But what about addressing waste? More specifically, how about doing something with waste heat?

One of the easiest things data centres can do to improve environmental friendliness is recycle waste heat. It is already being done in some parts of the world. Waste heat from data centres is being harnessed and used for municipal heating. Such recycling is environmentally friendly in that it reduces the need for municipal heating systems to consume yet more power to keep houses warm. The heat is already being produced by data centres.

The ideas described in this post only scratch the surface. There are other ways the data centre industry can be more environmentally friendly now and moving toward the future. Moreover, the amount of power our industry consumes suggests that becoming more environmentally friendly is an obligation.