Opinion

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Headline:

The new power at scale priorities for Cloud data centres demand fresh thinking about the UPS

Standfirst

Cloud hyperscalers are using Power Purchase Agreements and Renewable Energy Credits to effectively reduce data centre carbon emission.

They are also obsessed with efficiency. Having sought and secured sustainable energy sources they are now thinking differently about power ride through and energy storage inside the data centre.

Alternative Electrically Coupled UPS technologies are changing the way cloud providers should think about Power at Scale.

Opinion

The UPS system sitting between the grid and the IT is the health insurance of the data centre. While historically the UPS was generally discussed in the context of its capacity and back up capability in an unplanned power outage - the U in Uninterruptable – today its ability to provide conditioned, efficient power in normal operations has grown in importance. As cloud data centers scale to 100MW and above economic and electrical efficiency become ever more important.

The sustainability, environmental and economic efficiency of the data centre is based on the available energy mix, the UPS efficiency and the back-up energy source.

The UPS should provide the flexibility of configuration and operation to work efficiently with alternative grid power energy sources and different back up energy stores.

In July 2020 the IEA (International Energy Authority) reported that "hyperscale data centre operators in particular are leaders in corporate renewables procurement, particularly through power purchase agreements (PPAS)."

The top four corporate off-takers of renewables in 2019 were all ICT companies, led by Google.

16 in 2018, Google (10 TWH) and Apple (1.3 TWH) purchased or generated enough renewable electricity to match 100% of their data centre energy consumption. Equinix consumed 5.2 TWH in 2018 (92% renewables) while Facebook data centres consumed 3.2 twh (75% renewables). Amazon and Microsoft sourced about half of the data centre electricity from renewables.

These efforts are to be commended. Yet Cloud providers are not just being good citizens. The broader context for operating as efficient a data centre as possible is economic, reputational and in the near future as likely as not to be

Opinion

driven by regulatory compliance through the global efforts to de-carbonise the economy and stiffer regulatory environments such as the EU Green deal.

Fundamentally a cloud data centre is the physical embodiment of an always on service where costs must be kept as low as possible. Power must be available 24/7 365. The quality of the service is a direct product of the cost, quality and reliability of the power provision. The SLA of the cloud platform availability is directly tied to the power back up reliability.

Cloud providers think long term about data centre technology, operations and capital assets. Their success is built on cost efficiency in capital deployment and data centre operations.

Inside the data centre cloud providers are increasingly seeking the greenest possible infrastructure options such as those which work well with renewable power sources, provide efficient feeding of power back to the grid and that can use clean energy storage such as Kinetic sources for back up.

Data centres are estimated to use around 200TWH of electricity annually, approximately 1% of global power generated.

The big cloud providers are increasingly turning to alternative energy sources and different back up technologies to power their critical infrastructure.

Sustainability and environmental protection mean using systems that take care of environment, have a small carbon footprint and at the same time address long term operational and investment cost concerns.

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