

Green Data Center: Saving electricity made easy

Efficient data centres through sustainable IT

Frankfurt, April 2022. According to the latest studies, the energy demand of data centres is increasing with the advancing digitalisation. The study "Data Centres in Germany" shows that data centre capacities in Germany have increased by 84 percent in terms of IT performance from 2010 to 2020, and are expected to increase by another 30 percent by 2025. Blockchain, cloud computing and streaming are just a few examples of IT trends that require high processing power. Simultaneously, the total amount of electricity consumed by data centres is also gradually increasing over time due to the rising IT volume. "Through more efficient server hardware and the use of modern air conditioning technologies, companies are helping to optimise power consumption in data centres in terms of energy efficiency," explains Jerome Evans, founder and CEO of firstcolo and diva-e Cloud GmbH.

Energy-hungry digital factories?

However, before any suitable method can be taken to save energy, it is necessary to conduct an analysis that identifies which devices consume the most energy. After all, if you want to set up your IT in a contemporary and resource-saving way, you need valid and reliable measured values. "Only those who understand the current situation can draw the right conclusions and recognise where there is potential for improvement. For example, those responsible must permanently record and archive the important consumption data for an objective presentation of energy and resource consumption," Evans explains. On the basis of data sets obtained this way, you can then deduce how the consumption is and where savings potentials are hidden. But is it enough to record the energy consumption of IT? "Unfortunately not, because there is also a large energy demand in addition to the IT equipment, especially for air conditioning, an indispensable component for the highly available operation of IT infrastructures," says Evans. In addition, there generally exist redundancies, to the extent of completely overloading the supply, distribution as well as cooling systems. These overcapacities - especially in the UPS systems - run far away from their optimal operating point in the nominal load range during normal operation.

Air-conditioning technology as a central energy consumer

Usually, the biggest adjustment for better efficiency lies in the optimised air conditioning of the server rooms. There are several starting points here: One simple measure is the strict separation of cold and warm air and therefore improved air routing in the data centre. This minimises the speed of the recirculating air cooling units, which saves electricity. It draws in warm air, cools it and blows it into the cold aisle at the appropriate temperature. "Raising the room temperature or blow-in temperature in the cold aisle of the data centre turns out to be another step. This approach shortens the time for forced cooling and extends the time for free cooling using ambient air," Evans illustrates. This is why many cloud providers now build their data centres in northern, rather cool regions such as the Scandinavian countries, as they do not need forced cooling there. But even in Germany, the climate temporarily allows operation without compressor power in the climate cabinets during the cold seasons.

Cloud and sustainability - a contradiction?

The cloud can also help to operate in a way that is both sustainable and economically viable. "With flexible and scalable cloud services, companies can react quickly to changing requirements. The Corona pandemic has shown: Businesses switched to cloud-based collaboration tools in no time so that employees could also access company applications from their home offices," the expert explains. Of course, cloud data centres also consume energy, but leading cloud providers rely on up-to-date, energy-saving systems and IT components as well as optimised cooling, while independently operated data centres of many German companies work with hardware that is sometimes very outdated and consequently have a high PUE value. This in turn indicates how effectively the energy supplied is consumed in a data centre. In addition, the virtualisation technology behind cloud computing resources enables a much more flexible use of physical IT resources. Instead of keeping one dedicated server per customer, which is not utilised most of the time, the IT resources in the cloud data centre can be distributed among different customers and the utilisation of each individual hardware component can be optimised. Anything that is currently not needed can therefore be switched off automatically. " This is a crucial aspect, because reducing energy consumption and CO2 emissions is one of the most important sustainable environmental goals for many companies," Evans concludes.

Further information about diva-e Datacenters GmbH can be found under first-colo.net.

firstcolo

As an operator of data centres in Germany, firstcolo, based in Frankfurt am Main, provides its customers with the highest level of service quality. In addition to classic colocation and the rental of server systems, firstcolo's range of services also includes storage-on-demand solutions, backup solutions and cloud services. firstcolo is part of the diva-e Group, which, as the leading transactional experience partner in Germany, has over 20 years of industry expertise in the digital world. Around 800 diva-e Group employees in 13 offices in 8 different locations take care of the needs of the wide-ranging customer base, which includes a large pool of industries from technology, retail and healthcare. In addition to large and well-known companies such as FC Bayern Munich, Siemens, Mister Spex, Audi or Sky, many other renowned customers are among them.