Customer Success Story:
HP Enterprise, EMEA

Market segment
Data Center

HP Enterprise build Modular Data Centers with Eaton

100% reliable electrotechnical infrastructure for high performance computing under extreme conditions

For more and more large organizations and ambitious start-ups, lightning-fast analysis of large volumes of data determines the success and competitive position of the company. For many companies, this need grows so fast that building their own fixed data centers is no longer a realistic solution.

To meet the growing demand for computing capacity, companies are increasingly using flexible solutions that can offer a lot of computing power in often challenging locations. HPE offers the solution in the form of Modular Data Centers. Thanks to Eaton, these demanding data centers are assured of the energy required for high performance computing and high availability, even under extreme conditions.

Location:
Zaltbommel, Netherlands

Challenge:
An electrotechnical infrastructure, which must be stable and reliable at all times – even under challenging conditions in rural areas

Solution:
Eaton UPS, distribution device and Power Distribution Units

Results:
A system which provides 100% uptime.

"For this type of application, we look for partners who can not only provide maximum reliability with minimum maintenance, but who are also willing to think with us when it comes to the optimal application of their product."

Bertjan de Herder, business development manager HPE EMEA

Powering Business Worldwide

Background

Modular Data Centers (MDCs) are ready-to-use computing centers: stackable and switchable 'building blocks' filled to the brim with computing power. Where it can take years for a traditional data center to be designed, built, furnished and put into operation, MDCs are ready for use and deployment at various locations within a few weeks.

This flexibility makes MDCs particularly attractive for certain projects. Consider, for example, military applications, or the oil and gas industry, where there is sometimes a temporary need for large computing capacity at locations far from civilization.

"Our customers are looking for maximum flexibility and optimum performance under challenging circumstances," says Bertjan de Herder, business development manager for HPE modular data centers in EMEA. In some situations, a diesel generator is the only available power source. This makes it a real challenge to be able to stably supply energy to this highly sensitive equipment.

But also for less rugged applications, there is a growing need for computing power that does not focus on a single central location, but is as close as possible to the source of the data (so-called 'edge computing'). From test centers in the automotive or aerospace industry to medical, business, and scientific applications where fast and accurate results are crucial, a powerful data center as close to the source as possible is increasingly becoming the best solution. Efficiency is the magic word here: the HPC MDCs are not only built to continue to function under challenging conditions, they are also designed to provide maximum computing capacity whilst using as little surface area as possible.

Challenge

For these MDCs, it is crucial that they use energy in a stable but efficient way. The computing power of the

compact servers in the racks at such data centers is usually expressed in kilowatts: the amount of energy available to perform calculations. In recent years, the 'power density' of a rack in a standard data center has already risen from around 2-3 kW to 5-6 kW per rack. To achieve the high performance computing customers expect from HPE in their MDC, the power density has been increased to 27kW or even 32kW per rack. This is a lot even for a normal data center, let alone the high density environment of an MDC.

Moreover, these MDCs can contain up to 44 racks: this means 4,400 servers in a 12-meter container, which together require a whopping 1,400 kilowatts for computing power alone. This consumption roughly doubles due to indispensable cooling, and then there is the energy consumption of other supporting systems such as the emergency power supply (UPS: Uninterruptible Power Supply) and climate control. This places high demands on the electrotechnical infrastructure, which must be stable and reliable at all times – even under challenging conditions in rural areas.

Powerful customization

Hewlett Packard Enterprise (HPE) develops MDCs specifically for the EMEA market, for which it makes use of the services of the Dutch division of international power management specialist Eaton. Eaton's energy experts work closely with HPE's IT specialists and systems integrator Contour from Varsseveld, to turn the HPE MDCs into integrated systems that meet the sometimes very specific requirements of the end customer. From the power distribution to the UPS and the batteries, every component is optimally matched to the IT requirements and the physical limitations of the container, ensuring maximum reliable performance in the smallest possible area.

In addition to customized firmware in the UPSs that guarantee optimum performance specifically for the HPE servers, this has for example led to the option to equip the emergency power supply with Lithium batteries. Not only they last much longer, they are also considerably more compact than the traditional lead-acid batteries, which means that the MDCs can be even more compact and less high maintenance. HPE is one of the first users of this newly developed solution.

Solution

For this demanding application, HPE has appealed to Eaton Nederland for several reasons, Mr. De Herder explains: "For this type of application, we look for partners who can not only provide maximum reliability with minimum maintenance, but who are also willing to think with us when it comes to the optimal application of their product." Eaton's UPSs are also the most compact and energy-efficient emergency power supplies available on the market: decisive features for this specific application in modular data centers.

Eaton is one of the world's largest suppliers of energy products for numerous applications. The company is the market leader in the Benelux for emergency power supplies in data centers. The UPSs Eaton supplies to HPE are modular in structure, which means that HPE can easily use them as a standard solution for MDCs of different sizes. Moreover, they can be quickly and easily replaced in emergencies. In addition, Eaton also supplied the distribution device and PDUs, and helped HPE to integrate them in the MDCs in such a way that the available floor space was used optimally.

Results

The most important difference with competing solutions is that Eaton is one of the few in the market capable of supplying all components of the entire electrical engineering infrastructure itself. When you start combining components from different suppliers, even though all of them are high quality, it is always questionable whether that will result in a reliable system in practice. The result is that all systems have had 100% uptime thus far.

Eaton
EMEA Headquarters
Route de la Longeraie 7
1110 Morges, Switzerland
Eaton.com

Publication No. CS153101EN
September 2020

Powering Business Worldwide

Follow us on social media to get the latest product and support information.