

Gulf Data Hub Features Energy-Efficient Solutions to Enable Effective Data Center Builds



A Vertiv Case Study



Background

Gulf Data Hub (GDH) is a top-tier provider of colocation services and purpose-built data centers adhering to international standards, specializing in disaster recovery, cloud solutions, software as a service (SaaS), and infrastructure as a service (IaaS). GDH ensures uninterrupted business operations by making IT servers available 24x7. Since its establishment in 2012, GDH has positioned itself as a pioneer in the Middle East, setting a benchmark with its state-of-the-art data centers.

Vertiv's journey with GDH started with the inauguration of the company's data center in Dubai Silicon Oasis (DSO), featuring a capacity of 4 megawatts (MW). Presently, GDH operates six data centers within DSO, with three of them boasting a capacity of 16 MW each.

The partnership between GDH and Vertiv spans eight years and encompasses numerous successfully executed projects. In 2023 alone, three data center projects were initiated, including the implementation and deployment of GDH-Building-3 and the initiation for Building-4 and Building-5.

GDH has significantly expanded its operational footprint, with five facilities in Abu Dhabi, six in Saudi Arabia (spanning Riyadh, Jeddah, and Dammam), and two in Egypt. Currently, it encompasses five fully operational facilities with a capacity of 46 MW each and is planning to deploy 15 facilities with a cumulative capacity of 240 MW.



Company Profile:

Colocation company with first-of-its-kind, purposefully built data centers in the Middle East, offering customers hosting, disaster and workplace recovery, cloud platforms, and connectivity.

Industry:

Data center hosting, colocation

Region:

Dubai Silicon Oasis, Abu Dhabi - UAE
Jeddah, Dammam - KSA

Challenge

GDH's latest endeavor involved conceptualizing of an energy-efficient and modern research facility dedicated to biotechnology and renewable energy generation. Its primary focus was to integrate architectural and technological elements while prioritizing environmental sustainability and minimizing ecological footprints associated with the facility.

During the briefing phase with MidEast Data Systems UAE (MDS UAE), GDH encountered several challenges, such as balancing the ambitious architectural vision with strict budgetary constraints and achieving low-carbon energy generation while maintaining an optimal research environment.

Other challenges included the seamless incorporation of alternative energy resources, efficient waste management systems, and water recycling mechanisms, all requiring comprehensive coordination efforts.

Additionally, intricacies related to the site's location significantly influenced design strategies and the selection of Vertiv products for deployment. Given the site's vulnerability to severe weather, it was imperative to develop a facility capable of withstanding adverse climatic conditions while upholding energy efficiency standards.

Lastly, the site's proximity to environmentally delicate areas imposed strict compliance with environmental regulations and ethical guidelines, further emphasizing the need for meticulous planning and adherence to sustainability principles.



Vertiv™ Liebert® CWA

Solution

Within the scope of this multi-region data center project, Vertiv provided the highly efficient uninterruptible power supply (UPS) systems and cooling systems, thus increasing the total efficiency of the GDH data center, maintaining reliability, and providing ease of maintenance.

Through collaboration with Vertiv and MDS, GDH successfully navigated significant challenges posed by geographical and operational complexities, resulting in the establishment of an exemplary facility. Vertiv's contributions to this project, as well as previous endeavors, included the provision of Vertiv™ Liebert® EXL S1 UPS systems and Vertiv™ Liebert® CWA thermal wall for IT room cooling.

Given that each phase of the data center encompasses a 16 MW capacity, Vertiv consistently delivers reliable products with ample capacity tailored to meet GDH's requirements. The Liebert® EXL S1 UPS and Liebert® CWA thermal wall units are recurrently supplied by Vertiv across various GDH projects.

The Liebert EXL S1 UPS is renowned among global hyperscale and colocation customers for its reliability, ease of maintenance, and efficiency. This product provides uninterrupted power to the data center for superior reliability. With up to 97% efficiency in double conversion mode and dynamic online efficiency reaching up to 99%, the Liebert EXL S1 UPS enables energy savings and aligns with the principles of efficient data center design.

Recently, thanks to its high capacity and effective air distribution, Liebert® CWA is the Thermal Wall designed to raise the technology threshold of Chilled Water Air Handling Units for slab floor applications installed in the gallery side. These units work in harmony with each other, thanks to algorithms developed specially for non-raised floor applications, ensuring precise and constant control of airflow and temperature under all working conditions further improving efficiency, offering high capacities in a small footprint and providing ease of service, which has made a significant contribution to the energy efficiency level of the data center.

Results

The GDH data center will now be able to operate with high efficiency even in scenarios with low loads thanks to the Liebert EXL S1 UPS. With its Dynamic Online Mode and its efficiency up to 99%, it can fully support efficient data center principles while promoting lower power usage effectiveness (PUE).

The CA60 model of the Liebert CWA thermal wall solution provided by Vertiv, will supply 400 kilowatts cooling capacity in a single unit with just 4.5 square meter footprint, providing both space saving and easy installation. It also allows effective air distribution in the white space with an airflow rate of approximately 100,000 cubic meters per hour from just a single thermal wall unit. As a result, the required cooling capacity and airflow have been delivered to GDH within a reduced footprint.

Using efficient, reliable UPS and cooling products, Vertiv produced a suitable solution for both GDH and end users who receive colocation services in the data center.

Thanks to GDH, Vertiv had the opportunity to position products in recurring expansion projects and is ready to provide all the necessary support moving forward.

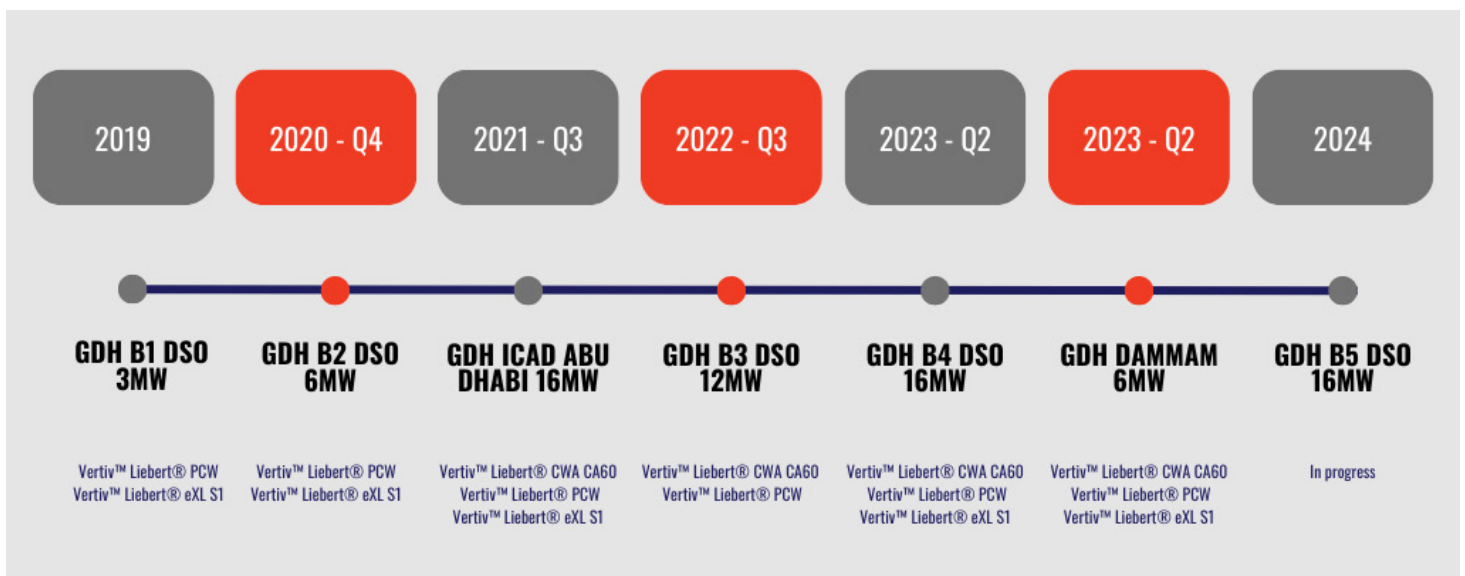
Currently, GDH is in the process of integrating CDUs for liquid cooling to meet the growing demands of AI. It is continuously exploring new technologies and products, collaborating closely with its R&D team to understand the added value of innovations like Vertiv™ Trinergy Cube, which enhances performance and reduces electrical components. With this ongoing project, there are more phases and exciting milestones for Vertiv and GDH to achieve together.



"Vertiv's commitment to innovation and reliability has been a driving force in shaping the data center landscape. As we navigate the dynamic challenges of the digital era, Vertiv continues to stand out as a strategic partner, providing cutting-edge solutions that ensure operational efficiency and resilience. I am confident that Vertiv's forward-thinking approach will play a pivotal role in addressing the evolving needs of businesses in the ever-changing technological landscape."

- Himmath Mohammed,
GDH Chief Information Officer

Project Milestones



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