



Case study

Cloud&Heat and Vertiv equip research data center with energy-efficient liquid cooling



Background

Cloud&Heat Technologies is a cloud service and cloud technology provider based in Dresden, Germany. The company specializes in digital sovereign cloud infrastructures based on open-source. The company also advises data center planners and operators while also running high-efficiency data centers with waste-heat recovery. As part of its portfolio, Cloud&Heat delivers customized on-premise deployments for clients that want to build a digital sovereign cloud infrastructure and require advanced thermal strategies such as liquid-cooled servers and heat recovery to meet regulatory requirements and reduce operating costs.

For this project, Cloud&Heat provided engineering expertise and integration services to support the implementation of Vertiv™ liquid cooling solutions in a joint local deployment with a data center operator.

Challenge

Cloud&Heat's client needed to introduce liquid-cooled servers in a facility originally designed for air-cooled equipment, without structural modifications and within a tight budget. The project required coolant distribution units (CDUs) that met precise performance, dimensional, and reliability criteria while integrating seamlessly and safely with Cloud&Heat's manifold technology.

Reliable operation was critical, as the client's business model depends on consistently high availability and requires components sourced from proven partners. The deployment also needed to maintain strong energy-efficiency standards and low carbon footprint despite rising compute density and heat loads.



Company profile:

Cloud&Heat is a Germany-based cloud service and technology provider that delivers and operates sovereign, energy-efficient, and open-source-based cloud infrastructures supported by advanced thermal innovation.

Industry: Cloud Services, Cloud Technology

Region: Dresden, Germany

"Integrating liquid cooling into a traditionally air-cooled environment required precision, speed, and trust in our partners. Vertiv's technical expertise and flexibility were instrumental in enabling a reliable, efficient solution tailored to our customer's needs."

Conrad Wächter
Chief Technology Officer
Business Unit Heat



Solution

Cloud&Heat and Vertiv collaborated to engineer a solution that connected liquid-cooled racks directly into the client's existing chilled water network used for facility cooling, avoiding costly modifications to the building infrastructure. Cloud&Heat selected the Vertiv™ CoolChip in-rack CDU for its dimensions, performance characteristics, integrated redundancy, and compatibility with Cloud & Heat's manifold design. Compatibility between the components was a key requirement and is enabled in particular by Cloud&Heat's manifold design, which allows flexible integration through open interfaces.

The integration implemented as part of the joint local deployment combined Cloud & Heat's existing liquid cooling distribution components with Vertiv's liquid cooling systems into a unified cooling architecture designed to best meet the customer's requirements.

Vertiv's lifecycle management, service model, and rapid technical responsiveness supported long-term system stability. Vertiv field service engineers deployed a fully integrated liquid-cooling solution within a compressed timeline.

Outcome

The collaboration enabled Cloud&Heat to deliver a hybrid data center architecture to its client, operating high-performance liquid-cooled servers alongside existing air-cooled IT equipment without extensive modifications to the facility infrastructure. Thanks to the implementation, the customer benefits from increased energy efficiency, reduced operating costs, and a high-density infrastructure that creates optimal conditions for the realization of innovative research projects.

Close coordination between Vertiv and Cloud&Heat on the proposed solution, combined with the complementary expertise of both partners, and the on-site expertise of Vertiv's field service engineers, kept the project on schedule, and enabled the hybrid cooling system to operate seamlessly. The successful project implementation confirms and further strengthens Cloud&Heat's ability to offer innovative cooling solutions to data center customers and to address the industry's growing demands for high-performance computing efficiently.