The University of Pisa's Net-Zero Journey with ZutaCore's Waterless Direct Liquid Cooling

Case Study

Background

Renowned for its rich history and academic excellence, the University of Pisa, established in 1343, has consistently embraced innovation and advancement, particularly in data center technology. The University's Green Data Center, inaugurated in 2016 in San Piero a Grado, represents a beacon of cutting-edge technology, housing many state-of-the-art servers from Dell Technologies, high-performance processors from Intel, Nvidia, AMD, next-generation networks, and robust security measures.

The Challenge

Despite a formidable set-up, the University's traditional hot-air-containment aisle with water chillers needed a new energy-efficient cooling solution to help the University realize its net-zero goals. Recognizing the industry's pivot towards liquid cooling for next-generation processors, the University sought a solution that would address the immediate need for more effective cooling, enhanced performance, and contribute to a more energy-efficient future.

The Solution

The answer came from **ZutaCore® HyperCool®**, a game-changing waterless liquid cooling solution. This direct-to-chip two-phase dielectric liquid cooling solution operates at low pressure and efficiently displaces heat from the hottest processors (up to 1500W and beyond) and away from the servers. It has proven to be a scalable solution that can be implemented in new or retrofitted data centers, delivering outstanding performance while reducing power usage across various workloads.

Implementation

Mactronics, a ZutaCore Certified Partner based in Milan, Italy, retrofitted 10 Dell R740XD and C6525 servers at the University of Pisa in just one day. They seamlessly integrated the HyperCool air-based solution, which can effectively liquid cool up to 20kW of rack power. This swift installation process caused minimal disruption to ongoing operations. **Maurizio Davini, CTO of the University of Pisa,** praised the efficient transition, recognizing the potential of this system in enhancing power within the rack and enabling an energy-efficient leap towards next-generation servers.

Results

ZutaCore's solution has enabled the University to leverage its servers under full load, previously unattainable with traditional air cooling. This breakthrough has paved the way for the University to expand its scientific computing and research endeavors. Furthermore, ZutaCore's HyperCool has significantly improved operational efficiency, with enhanced rack space utilization and flexibility. Encouraged by the positive outcome, the University plans to expand its investment in ZutaCore's technology, with prospective deployment across the data center.

Conclusion

The University of Pisa's journey with ZutaCore HyperCool has yielded significant benefits, including improved operational efficiency and enhanced server performance , and a forward-thinking approach to data center technology. The University's plans for continued investment signify their trust in ZutaCore's reliability, flexibility, and simple installation and management procedures. As the University continues to invest in technological advancements, ZutaCore remains a key partner in their future-forward journey.

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