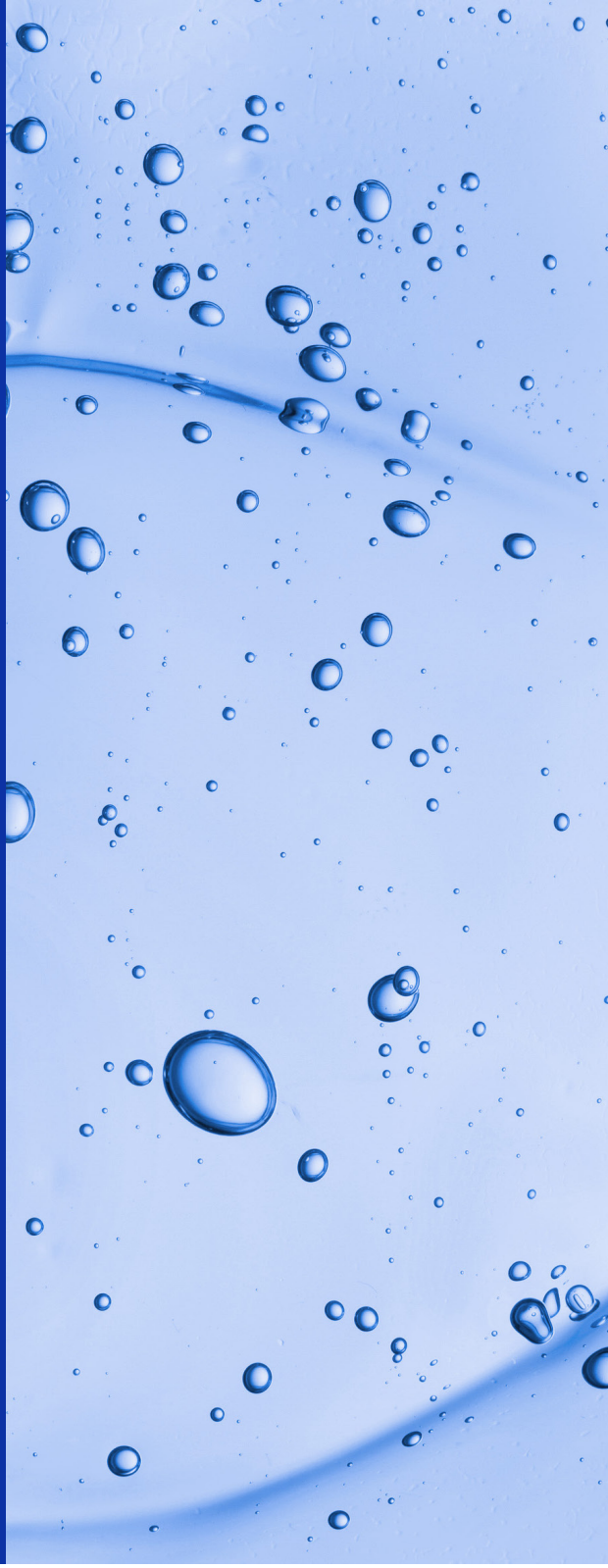
DELL Technologies

Keep Your Cool As Heat and Power Demands Increase



Smart Power and Cooling solutions from Dell Technologies drive efficiencies and keep your data center cool.

Advancements in AI and other compute-intensive workloads create incredible opportunities for businesses today, but they also put a strain on your data center infrastructure. High-density processors generate a lot more heat — pushing the demand for liquid cooling technologies.

Several factors are at play:

Intense heat density: As processors and GPUs become more powerful, it becomes more difficult to cool these systems with air alone.

Rising energy costs: Energy-intensive hardware and traditional cooling systems require more energy — and added costs.

Space issues: Space-constrained and non-traditional environments present additional challenges that, in some cases, only liquid cooling can address.

Smart Power and Cooling from Dell Technologies

Dell Technologies can help you address these issues through power efficiencies, power management capabilities and advanced liquid cooling solutions that work at the server and rack level to cool your data center, reduce energy consumption and costs and optimize workload performance.

Cool with confidence

At Dell Technologies, we offer a range of liquid cooling solutions from Dell PowerEdge servers with direct liquid cooling (DLC) to rack level cooling, modular data centers (MDCs), rack enclosures and more.

Server solutions:
We provide DLC as an option in a majority of PowerEdge servers. Cold plates are mounted directly on the CPUs and GPUs, absorbing heat where it's generated most. Heat is transferred safely away from your critical components via a specially engineered liquid coolant.

Modular data centers:
Flexible, scalable and pre-engineered MDCs are ideal for deploying liquid-cooled data center resources at the edge or in space-constrained environments.

Rack enclosures:
Turn non-traditional spaces or buildings, like warehouses, into data centers. Dell DLC 100% heat-capture rack houses servers, storage, networking and other data center hardware while keeping heat within the rack container.

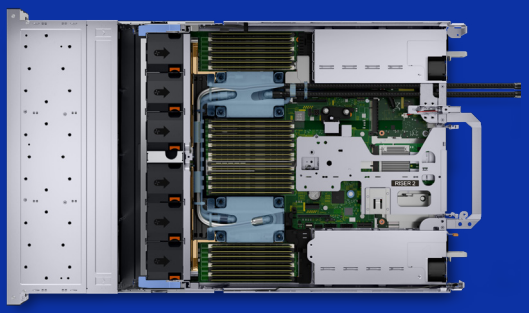
Rack solutions:
For customers or equipment not yet ready for direct-to-chip DLC, we offer rear door heat exchangers (RDHx). These provide enhanced cooling while keeping liquid contained at the rear of the rack, simplifying integration.

RDHx can also be used alongside DLC solutions to meet even greater cooling demands.

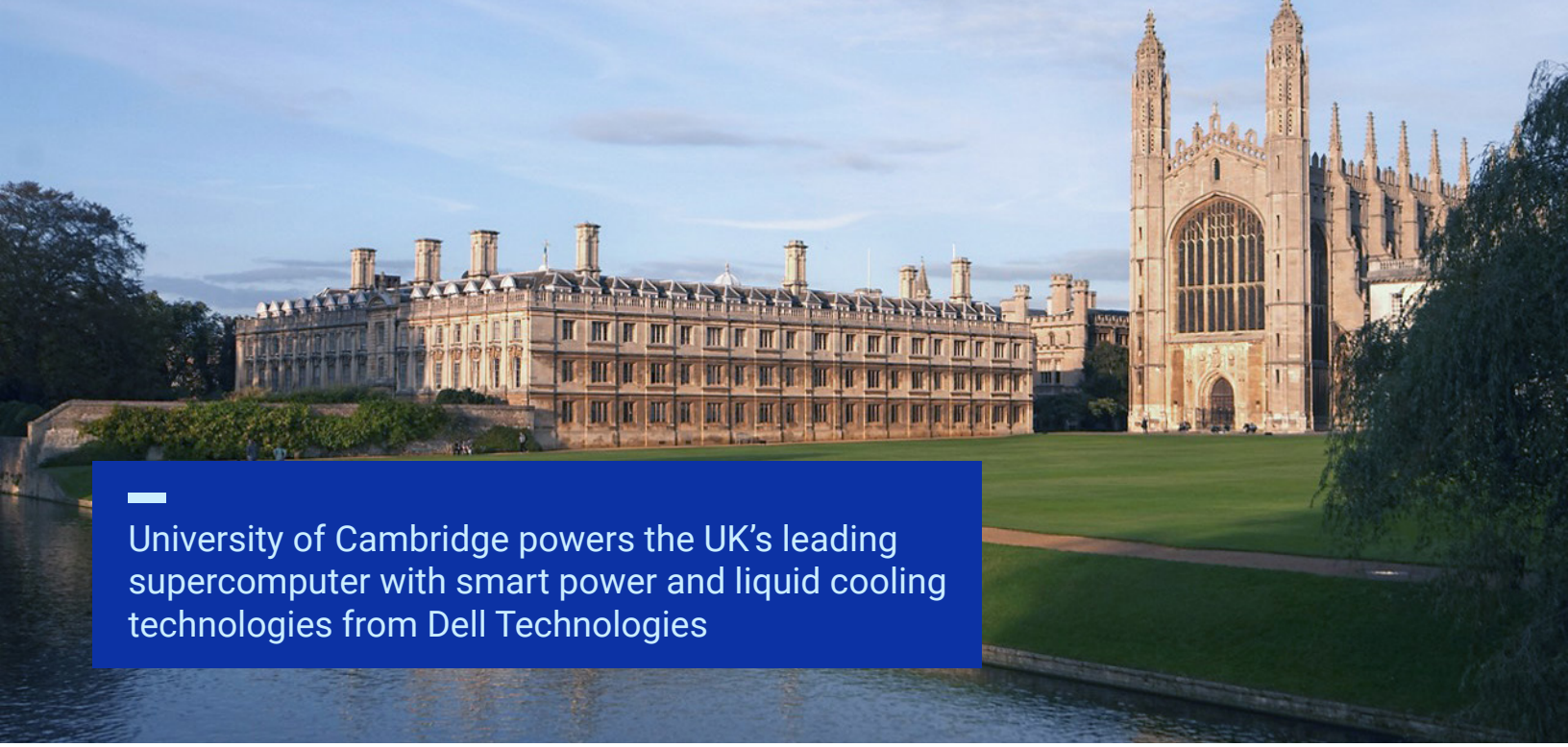
Immersion cooling: For niche applications where conditioned air is scarce or not available (only available through Dell OEM Solutions).

Minimize risk with Leak Sense technology

Standard on all Dell DLC solutions, Leak Sense technology detects and reports any fluid leak at the cold plate via iDRAC. You are alerted to potential issues before they escalate. And, in the rare event a coolant leak occurs, iDRAC will automatically power down your server.



Direct-to-chip DLC



University of Cambridge powers the UK's leading supercomputer with smart power and liquid cooling technologies from Dell Technologies

Mission:

As AI continues to drive advancements, the University of Cambridge wanted to expand global access to supercomputing resources. The goal: accelerate AI adoption to spark economic growth and generate positive impact.

Solution:

Dell Technologies and the University of Cambridge worked jointly to drive powerful research capabilities with Dawn, the UK's most powerful supercomputer. Built on Dell PowerEdge XE9640 Servers and advanced Intel® processers, Dawn delivers unparalleled speed for AI and HPC workloads.

Impact:

Dell Technologies worked closely with the University of Cambridge to provide energy efficiency and sustainable computing by integrating liquid cooling technologies and GPU efficiencies into the system.

Dell liquid cooling technology helped Dawn achieve a power usage effectiveness (PUE) of 1.14 — reducing overall energy consumption while boosting computational performance.

Choose liquid innovations from Dell Technologies to combat excessive power usage and heat

At Dell Technologies we work hard to help our customers get the most from AI investments.
We provide proven, high-performance servers to power AI and HPC workloads and also build design efficiencies and provide liquid cooling innovations to drive effective utilization and optimal performance.

- **Proven technologies:** Dell liquid cooling innovations — from DLC at the server to fully integrated MDC solutions — deliver unparalleled efficiency and performance.
- **Effective power utilization and management:** Liquid cooling targets heat directly, which eliminates the need for overcooling and excessive energy use. Management capabilities, via iDRAC in the server and Dell OME Power Manager Plugin across your fleet, leverage power caps to reduce energy waste and manage power utilization.
- **Partnership:** With Dell Technologies as your technology partner, you can rely on state-of-the-art deployment services and support offerings that ensure you get the most value from your solution.
- **Long-term vision:** We continually refine and improve our smart power and cooling technologies to address the demands of next-generation processors and applications.
- **A focus on sustainable practices:** Our liquid cooling solutions drive efficiencies that minimize the environmental impact of your data center. Achieve high-performance outcomes — and continue to address your sustainability goals.
- **Services that drive efficiency:** Dell Services for Sustainable Data Centers optimizes the data center so it performs more efficiently, utilizing less water and emitting less carbon emissions, enabling you to meet your sustainability goals while driving a more efficient IT environment.

Learn More at Dell Data Center Power and Cooling Solutions