DELLTechnologies

Beat the Heat in Your Data Center with Dell Smart Power and Cooling

Smart Power and Cooling from Dell Technologies

As artificial intelligence (AI), high-performance computing (HPC) and other high-intensity workloads become mainstream, more businesses are reaping the benefits of intelligent insight. But higher-density CPUs and GPUs generate more heat. This creates concerns — and questions — about how to cool your systems moving forward.

Data center–cooling concerns

Smart Cooling technologies
Both air and liquid cooling technologies are viable options for curbing heat in the data center. But what's the right approach for your environment?

Energy efficiency
It takes a lot of energy to power today's AI, HPC and other business-critical workloads — and to cool them. How do you rein in excessive power usage and energy costs?
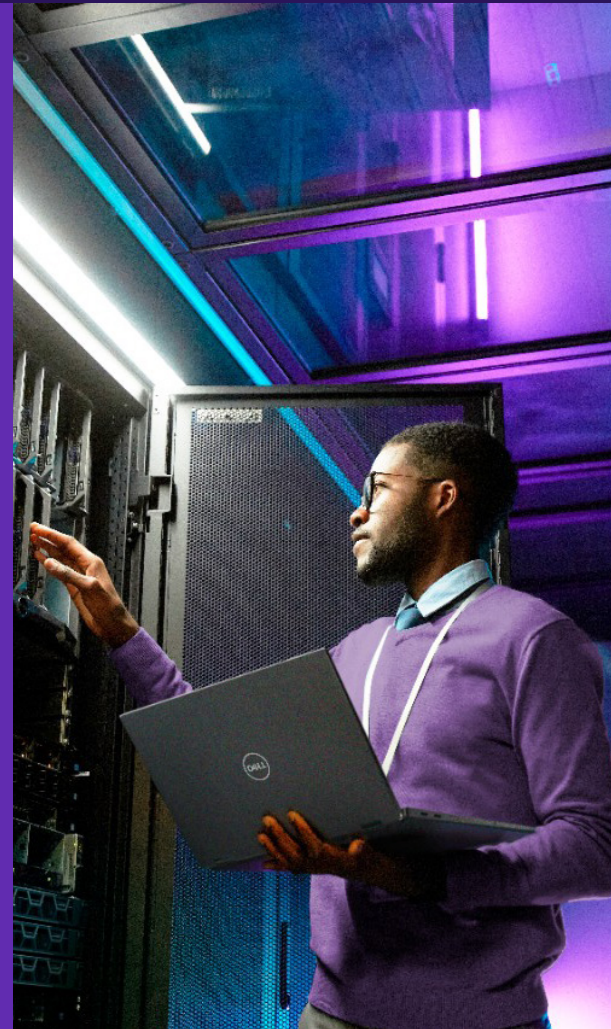
Workload performance
Thermal stress can impact the performance and lifespan of your equipment. What can you do to ensure you're getting the most out of your IT investments?

Sustainability
Rising heat and excessive energy use in your data center can significantly impact your carbon footprint. How do you balance performance and sustainability initiatives?

At Dell Technologies, we're asking these questions, too — and finding solutions. Dell PowerEdge servers drive high-performance results for today's CPU and GPU intensive workloads. We also deliver innovations in smart power and cooling technologies that manage rising power demands and temperatures — helping you reduce energy consumption, lower costs and drive greater sustainability.

Control power usage.
Reduce costs.
Improve server performance.

Power and cooling operate in tandem, which is why it's important to address both. We've made improvements in the hardware design of next-generation Dell PowerEdge servers to optimize power utilization and performance. At the same time, our software advancements help you manage and balance power resources more effectively.

With iDRAC embedded in every PowerEdge server, you can monitor, track and cap power usage. Or you can deploy **Dell OpenManage Enterprise (OME) along with the Power Manager Plugin** to manage power consumption across your PowerEdge estate. Power Manager lets you intelligently monitor and adjust settings in real time. Automate policies that place power caps on racks, rows or rooms of servers to keep utilization in check. And gain a better understanding of who or what is consuming the most power.

Innovations in server design and management capabilities make it easier for you to:

- Maximize performance of PowerEdge servers.

- Drive energy costs down with efficient utilization.

- Reduce your carbon footprint by actively adjusting power consumption as needed.

Deploy the right cooling strategy for your environment

There's no single right way to cool your data center. Some businesses rely on air alone. Others want to take advantage of the more efficient heat capture of liquid for their data-intensive workloads. And some want to deploy solutions that combine air-cooled servers with rear door heat exchangers (RDHx) to derive the benefits of liquid without putting liquid in the server.

We continually innovate our broad range of air and liquid cooling technologies to align with your needs, whichever path you're taking.

Air technologies

The advantage of air is that it's cheap, available — and effective. You can cool workloads solely with air using select PowerEdge servers. We continue to refine the passage of air through our systems with T-shaped motherboards and multivector cooling — which comprises airflow control algorithms, thermal and power sensors, and more. Air cooling relies on custom fan designs and advanced heat sinks to improve thermal and airflow management. You can also add capabilities to our servers to apply specific cold aisle or hot aisle strategies.

Liquid technologies

We also offer a wide range of liquid cooling technologies at the server, rack, row and data center level to more efficiently cool data center resources. From direct liquid cooling (DLC) in PowerEdge servers to integrated rack solutions, or modular data centers (MDCs), specialized rack enclosures, and immersion cooling capabilities, you have options for cooling your data center — your way.

Dell data center cooling solutions

Air	Liquid

Multivector cooling

Use of fans and heatsinks

DLC
PowerEdge servers equipped with DLC

Rack solutions
1. PowerEdge servers with DLC and specialized racks
2. RDHx

MDC
Flexible data center deployment in space-constrained or edge locations

Rack enclosures
Cooling enclosures for deployment of data center resources in non-traditional spaces

Immersion cooling
Designed for niche applications; only available through Dell OEM Solutions

Get the most from your investments with Dell Technologies Services

You are never alone with Dell Technologies Services. Count on best-in-class deployment and follow-on support to drive better system performance — and value.

Consulting leverages prescriptive approaches and proven methodologies to plan and execute your data center cooling strategy.

Deployment experts have experience, methodologies and best practices to enhance success through planning, design and implementation.

Support experts provide comprehensive hardware and collaborative software support 24x7 to drive optimal system performance with less downtime.

Drive success with Dell Technologies

Manage the ever-changing workloads and requirements that are put on your data center. Power and cooling are just part of the strategy, and Dell Technologies has both the equipment and services to help you wherever you are on the air-liquid continuum and however you might need to transition moving forward. Rely on a trusted provider to cool your data center, create power efficiencies and deliver greater choice.

Learn More at <u>Dell Data Center Power and Cooling Solutions</u>