

## DELL TECHNOLOGIES

# How AI is revolutionizing the modern data center

Advances in storage, energy-efficiency and processing power are driving a new generation of data centers



**Brittany Morgan**  
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Data centers have evolved considerably over the years, and modern technologies promise to revolutionize the way government agencies create and manage them. Agencies have reduced costs and the need for physical resources by embracing data center virtualization. In addition, the rise of cloud computing has enabled many agencies to move some workloads to the cloud for greater efficiency and flexibility. Meanwhile, the demand for high performance computing (HPC) has led to the development of even more powerful data centers.

With data collection growing at an exponential rate, data storage solutions like high-capacity drives are becoming more efficient and robust. And concerns about sustainability and the environment are driving the development of more energy-efficient technologies for the modern data center.

efficiency and effectiveness of modern data centers.

AI can be used to identify potential equipment failures so agencies can replace components before they break or wear out. AI can also automatically and dynamically allocate computing resources to balance workload distribution for power and computing. For example, AI can facilitate the switch-over from uninterruptible power supplies or from one power distribution unit to another within the data center.

In addition, because of all the power that's being used and the heat that's being generated, AI systems need advanced cooling. Being able to monitor heating trends and optimize cooling before equipment overheats is an important capability in a modern data center and one that can be streamlined with AI.



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### Reducing the need for infrastructure and decreasing power usage

Dell can help agencies take full advantage of all these new technologies to modernize their data

### Ensuring the efficiency and effectiveness of data centers

Artificial intelligence (AI) is a huge topic of conversation among Dell Technologies' government customers, which is not surprising given AI's ability to address so many challenges. In fact, the technology plays a pivotal role in ensuring the

centers. Our wide range of offerings includes the Dell PowerEdge XE family of servers that are purpose-built and optimized for complex, emerging AI and HPC workloads. These powerful servers are insights-driven with the superior acceleration that is necessary for high-intensity computing.

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In addition, Dell's APEX HPC is a fully managed service deployed in an agency's data center or at a colocation site as a dedicated, single-tenant solution. Dell provides and manages all aspects of the infrastructure, freeing agencies to concentrate on using HPC to help them achieve their mission goals.

Dell's software-driven PowerStore helps agencies protect and handle massive amounts of unstructured data. This flexible, scalable storage solution is designed to support distributed workloads, and it simplifies operations with AI-driven management and automation.

Agencies can also modernize their data centers by taking a modular approach. Dell's modular designs prioritize IT performance and reduce the need for infrastructure while also decreasing power usage and waste. These fully configured, integrated racks can be deployed at the edge or wherever agencies generate data. Optimized monitoring and integrated security ensure that data is protected.

Our cooling solutions ensure resilient performance regardless of workload. In addition, we incorporate redundancy into the data center infrastructure to ensure high availability and reliability for our customers.

We also offer a wide range of experts who specialize in all aspects of data center modernization — including power and cooling, networking, AI, HPC, and cloud — so we can help our government customers develop and then achieve their vision of a modern, resilient data center. ■

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