Academic Research | United States

Building a better cloud for research and innovation

Mass Open Cloud Alliance

Lenovo TruScale GPU as a Service allows the Mass Open Cloud Alliance to establish a powerful GPU cluster for groundbreaking research through the simplicity of an easily scalable pay-as-you go model.

1 Customer background

Who is the Mass Open Cloud Alliance?

The Mass Open Cloud (MOC) Alliance was launched in 2013 with the vision of creating a cloud computing infrastructure that supports a broad industry and research community. Backed by seed funding and support from the Massachusetts Technology Collaborative, the MOC Alliance is a nonprofit initiative of universities, government, and enterprises.

The MOC has been used by thousands of researchers and open-source developers. It has also become a laboratory for cloud research and innovation, supporting valuable contributions to academic research and open-source software.

MOC ALLIANCE

2 The challenge

For years, the cloud infrastructure market has been dominated by a small number of giant corporations. The MOC Alliance is hoping to change that by creating an open computing marketplace, where users from both academia and industry can access cost-effective, cutting-edge cloud resources.

Demands are growing exponentially—especially for graphics-intensive workloads, which require blazing-fast GPU technology. The MOC Alliance needed a way to ramp up its GPU resources quickly, while still keeping tight control over infrastructure costs.

“While we had a well-established set of compute resources, we lacked GPU nodes. We got around this by running workloads that would traditionally be done on GPUs on CPUs—but, obviously, this wasn’t ideal. As GPU computing started taking off across more and more domains, we needed to respond to the demand with dedicated GPU resources.”

Nancy Clinton

Managing Director, Mass Open Cloud Alliance

3 The solution

Proven technology and flexible financing

Joining forces with Lenovo, the MOC Alliance is building a GPU cloud to support growing demand for graphics-intensive workloads. For the first phase of this project, the organization has deployed a cluster of 16 Lenovo ThinkSystem SD650-N V2 servers, with a total of 64 NVIDIA A100 Tensor Core GPUs.

Crucially, the MOC Alliance was able to procure this state-of-the-art hardware without the need for significant upfront investment thanks to Lenovo TruScale GPU as a Service (GPUaaS). TruScale GPUaaS provides access to powerful, industry-leading NVIDIA GPUs with ultra-reliable Lenovo data center technology through a scalable, pay-as-you go model.

Services

Lenovo TruScale GPU as a Service
Lenovo Power and Cooling Services

Hardware

Lenovo ThinkSystem SD665-N V3 Neptune DWC servers
Lenovo ThinkSystem SD650-N V2 servers
Lenovo Neptune™ direct water cooling
NVIDIA A100 Tensor Core GPUs

3 The solution

More power and efficiency in a compact design

The Lenovo ThinkSystem SD650-N V2 servers feature Lenovo's Neptune™ direct water-cooling platform. By using liquid to remove heat (which is much more efficient than traditional air cooling), Lenovo Neptune technology helps to ensure top performance for power-hungry workloads while boosting energy efficiency. This allows the MOC Alliance to keep power consumption low, drive greater performance from its GPU investment, and pack more GPUs into a denser server footprint.

Thanks to Lenovo Power and Cooling Services, the MOC Alliance benefits from seamless implementation, deployment, and maintenance of this cutting-edge liquid cooling technology.

In phase two of the project, the MOC Alliance plans to deploy a separate cluster of Lenovo ThinkSystem SD665-N V3 servers, with a total of 192 NVIDIA H100 Tensor Core GPUs.

“We're very impressed with Lenovo’s Neptune water-cooling technology. The density that it permits is astounding. Lenovo Power and Cooling Services will help us to maintain the data center technology, ensuring optimal performance and allowing us to focus on more strategic initiatives.”

Jon Stumpf

Strategic Engagement Coordinator, Mass Open Cloud Alliance

4 The results

Opting for Lenovo TruScale GPUaaS has allowed the MOC Alliance to establish a considerably larger GPU cluster than would have been feasible with a traditional procurement model. This allows more researchers to access the GPU resources they need to support their work and break new ground.

- Cost-effective access to cutting-edge GPUs
- Simpler, more affordable way for researchers to access cloud infrastructure services
- Easily scalable pay-as-you-go model

4 The results

Supporting world-class research

With its GPU cloud, powered by Lenovo technology, the MOC Alliance is responding to a growing need for detailed analysis and data-intensive applications.

“The MOC GPU cloud is going to exponentially increase the value we bring to our researchers and developers,” says Jon Stumpf, Strategic Engagement Coordinator at the MOC Alliance. “The ability to combine these new GPU resources with our existing CPU base is going to be a huge attraction, because our users increasingly need both general processing and graphics-intensive processing. Thanks to our partnership with Lenovo, we can bring people the best of both worlds, at a fraction of the price of other clouds.”

“What we’re building with the MOC is the starting point for a simpler, more affordable way of accessing cloud infrastructure services. Partnerships with providers like Lenovo are key to advancing our work, helping bring cutting-edge computing within closer reach of those who need it.”

Nancy Clinton

Managing Director, Mass Open Cloud Alliance

Why Lenovo?

As a nonprofit, the MOC Alliance is funded primarily through grants and donations. TruScale GPUaaS empowers the organization to get the technology it needs, while keeping costs low. What's more, Lenovo was able to provide a flexible financing model that worked within the MOC Alliance's specific budget requirements and guidelines.

For the MOC Alliance, Lenovo has proven to be a trusted technology partner. "The fact that Lenovo can provide services, software, and hardware all from a single source is incredibly valuable."

How do you give researchers more for less?

The MOC Alliance delivers cost-effective, GPU-rich cloud computing with Lenovo and NVIDIA technology.

Explore Lenovo TruScale

Lenovo TruScale