



SOLUTION BRIEF

High-performance Computing Made Easy with Vultr

The rapidly evolving digital landscape has presented both immense opportunities and significant challenges for businesses across various industries. One challenge is the increasing demand for high-performance computing (HPC) resources, particularly for data scientists working remotely.

[VULTR.COM](https://vultr.com)

As organizations increasingly rely on data-driven insights to stay competitive, the need for powerful computational capabilities becomes even more critical. Accessing reliable, affordable, and efficient HPC solutions from home has become crucial for remote data scientists, who are tasked with processing and analyzing vast amounts of data to drive decision making and innovation.

HPC plays an essential role in the work of data scientists, enabling them to tackle complex problems and work with large datasets. HPC facilitates faster processing and analysis of data, making it the backbone of scientific research, machine learning, and artificial intelligence applications. By empowering data scientists with HPC, they are pushing the boundaries of knowledge and delivering meaningful results.

Vultr's HPC solution addresses the unique needs of remote data scientists seeking robust, scalable, and cost-effective HPC resources. When combined with a reliable virtual desktop and a secure VPN, Vultr's HPC solution becomes a complete home workstation with all the power data scientists need to generate new ideas and models as they discover new insights in data.

Vultr's HPC offerings

Vultr's HPC offerings include [Vultr Cloud GPU virtual machines \(VMs\)](#), [Vultr Cloud Compute VMs](#), [Vultr Bare Metal servers](#), and [managed Kubernetes clusters](#). The company's global cloud infrastructure supports over 50 million running VMs and bare metal servers, providing a massive, proven platform for large-scale computational projects.

Vultr's Cloud Compute solutions let you and your team spin up a VM in under a minute using numerous [applications](#) and operating systems (OSs) – including all leading Linux distributions. You can even use your custom OS image. Vultr powers your VMs with your choice of NVIDIA GPUs including the [H100](#), NVIDIA Tensor Core A100, A40, and A16 GPUs. If virtualization doesn't accommodate your needs, you can opt for Bare Metal server hardware that your team can access directly.

With Vultr Cloud GPUs, you can enjoy the flexibility and cost-effectiveness of cloud computing while harnessing the raw power and performance of dedicated GPUs. These abilities help your team quickly access popular HPC stacks from NVIDIA or your organization's proprietary applications – without the hassle of configuring software from scratch. Plus, high-CPU compute instances and dedicated compute options guarantee you and your team get the processing power it needs.

NVIDIA's latest generation of GPUs unlocks new potential for supercomputing at scale across nearly every industry worldwide. And, as the [first cloud provider](#) to offer fractional access to the NVIDIA A100 Tensor Core GPU, Vultr offers unparalleled processing power for deep learning and data analytics.

Vultr also offers the powerful graphics capabilities of the NVIDIA A40 GPU for visual computing and the NVIDIA HGX H100 for AI projects. The H100 offers 900 gigabytes per second of bandwidth and lets you and your team train models up to nine times faster than the NVIDIA A100 Tensor Core GPU.



Finally, your team can simplify its container orchestration via managed Kubernetes clusters and tools like the [Kubernetes Cloud Controller Manager \(CCM\)](#) for Vultr. Certified by the Cloud Native Computing Foundation (CNCF), the Vultr Kubernetes Engine (VKE) has no management fee and follows portability standards. Your organization benefits from Vultr's robust services regardless of your capacity requirements or power demands.

- **Harness global infrastructure** – Vultr's cloud infrastructure is available on six continents. So, no matter your OS, architecture, or deployment needs, you (and your customers) will find Vultr where you live and work.
- **Pay only for what you use** – Vultr's fractional GPU offering allows you to add GPUs in smaller increments. This approach offers greater flexibility and cost savings, particularly for smaller workloads. With pay-as-you-go pricing, you'll only pay for the resources you and your team use, saving money compared to traditional on-premises solutions.
- **Maximize speed and performance** – Vultr's high network throughput enables quick and efficient data transfers between computing nodes. This efficiency ensures your team can easily handle data-intensive workloads without experiencing slow performance or bottlenecks. Vultr's network minimizes latency and maximizes throughput for a reliable high-speed connection. You can expect fast data transfers, reduced processing times, and improved performance.

The advantages of using Vultr's HPC

Let's dive into what sets Vultr apart from traditional on-premises solutions.

- **Increased scalability** – Scaling up an on-premises HPC cluster to meet increased demand can be time consuming and expensive. In contrast, Vultr's HPC solutions offer instant scalability, letting you easily add more computing power as necessary.
- **Quick spin-up time** – You and your team can rapidly connect with Vultr's computing resources in just a few clicks. This approach saves time upfront and allows you to respond swiftly to changing demands or unexpected workload spikes.
- **Reduced maintenance requirements** – Maintaining and managing an on-premises HPC cluster requires a large commitment of resources. You can offload the burden of managing the infrastructure and software to Vultr's HPC, freeing up your team to work on revenue-generating activities.

The Vultr approach

Vultr's flexible and agnostic approach to cloud computing enables you to choose solutions best suited to your organization without any restrictions. Vultr's role is to support and facilitate your success by offering what you need for less – with no lock-in. More importantly, Vultr's approach to composable architecture allows you to combine features to create a powerful customized toolkit perfectly tailored to each employee.

Vultr + Domino Data Lab

Learn how to accelerate time to value for AI/ML investments with [Domino's Enterprise MLOps platform on Vultr Cloud](#), powered by the latest in AI tooling from NVIDIA.

Data scientists work with huge swaths of data that must be processed and analyzed – often repeatedly. This kind of work requires powerful GPUs and significant compute resources. Vultr's HPC solution gives your team everything it needs for these tasks – even for those working remotely.

To create a secure and reliable remote experience, Vultr provides [virtual desktop infrastructure](#) that pairs easily with our [VPN solution](#). This enables your data scientists to work safely and securely from anywhere in the world.

Many machine learning tasks don't require the processing power provided by HPC but are still resource intensive. Vultr has designed [machine learning and artificial intelligence infrastructure](#) to assist with any data science task. Data scientists can even access fractional GPUs for experimentation and testing. In that way they acquire the power they need without ballooning costs.

Vultr can also help data scientists harness the [blockchain](#) to create decentralized models that can be trained and updated with distributed data. With Vultr, you can easily spin up a blockchain network that can add security and tamper-proofing to sensitive data. Furthermore, equipping your data scientists with [edge computing abilities](#), reduces latency and bandwidth usage by processing data close to the data source.

Discover HPC's potential

Vultr's HPC solutions empower you and your team to solve complex problems more quickly and efficiently than traditional computing methods. You benefit from flexible, cost-effective cloud computing supported by the power and performance of dedicated GPUs.

With Vultr, you can quickly spin up HPC stacks from almost anywhere in the world, supplying your remote data scientists with all the resources they need. Vultr's global network minimizes latency and maximizes throughput, providing faster data transfers, reduced processing times, and improved overall performance.

Discover how Vultr Cloud GPU and other solutions can [drive high performance computing](#) to help you fly past your competition.