



Case Study: Arc Compute Powers GPU Cloud Offering with Liquid

Cloud Vendor Uses Liquid CDI to Offer Flexible and
Affordable Performance to Immersive Video Company



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About

As a cloud service provider focused on clients with GPU-intensive workloads, Arc Compute's goal is to simplify the hosting of high-performance computing, artificial intelligence, machine learning, and data science workloads so clients can concentrate on creating software that changes the world. Arc Compute complements their cloud service offering with leading-edge GPU virtualization software that offers customers market-best GPU compute pricing and performance.

The Challenge

Arc Compute's cloud clients often come to the GPU acceleration vendor during their search to upgrade performance for their demanding workloads while maintaining cost efficiency. One such client is a leader in the immersive video market that specializes in unique, immersive experiences for viewers of sporting events hosted by a wide range of high-profile sports leagues in the US and Canada. During live events, the company places four to eight high-resolution cameras in each sporting arena to capture the video that forms the basis of the immersive experience. With the original video processing infrastructure, video streams from the live events were fed back to the company's on-prem datacenter, where the video was processed with NVIDIA A6000s to meet the performance demand.

The immersive video company was looking to move to the cloud to support growth and to open up video processing options that were difficult with their existing configuration, such as the use of specialized GPUs for various video processing tasks. Initial investigation into the well-known cloud hosting options made it clear that they didn't offer the flexibility the immersive video company needed, plus presented infrastructure constraints and design challenges. Arc Compute, the only cloud service provider to offer Liqid's revolutionary composable disaggregated infrastructure (CDI) as a service, proposed a GPU cloud option that offered the immersive video company a far more flexible and cost-effective solution.

Solution

With Liqid as the infrastructure behind Arc Compute's unique cloud offering, the immersive video company was able to design a flexible, scalable architecture of pooled, disaggregated GPUs to power the video processing for their signature immersive sports experiences. According to Justin Ritchie, CEO of Arc Compute, "Liqid allows for dynamic configuration of servers. Imagine rather than being stuck in the traditional confines of a physical server, you're no longer bound to their physical limitations. Just configure and deploy servers with precise amounts of CPU and



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GPU performance in seconds from resource pools, with software. This offers all our clients much more flexibility in terms of how they operate and typically requires less hardware.”

Results

“Our immersive video client, as well as many others, have had issues transitioning to the cloud,” said Ritchie. “The rigid instance types often don’t work for the workloads of our clients. If customers are entertaining transitioning to the cloud, our GPU cloud based on LiquiD offers the flexibility required for high-performance workloads at a price point that’s on average 30-50 percent cheaper than the leading cloud vendors.”

“LiquiD allows for dynamic configuration of servers. Imagine rather than being stuck in the traditional confines of a physical server, you’re no longer bound to their physical limitations. Just configure and deploy servers with precise amounts of CPU and GPU performance in seconds from resource pools, with software. This offers all our clients much more flexibility in terms of how they operate and typically requires less hardware.”

JUSTIN RITCHIE, CO-FOUNDER/CHIEF EXECUTIVE OFFICER OF ARC COMPUTE

That flexibility has played out in a number of interesting ways for the client. One of the sports leagues offering viewers immersive video experiences maintains dozens of arenas in multiple time zones. The pay as you grow architecture available with LiquiD CDI allowed the video company to start with three arenas, with plans to scale to all venues by the end of 2022. “Our client can scale as they require the resources, rather than pay upfront,” said Ritchie. “We created the model, and now we can copy/paste as new stadiums are added to the mix.”

Another flexibility benefit that’s proven very useful with the Arc Compute/LiquiD cloud infrastructure is the ability to assign GPU resources to the stadiums while events are underway. For example, the bulk of the available GPU processing can be assigned to events happening on the east coast of the US or Canada, then transitioned to arenas in the middle of the continent and eventually the west coast as the earlier events conclude.

In addition, the immersive video applications are able to use the right GPU for the job. “The workloads for the immersive video application demand different GPUs,”



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said Ritchie. “By using the Liquid infrastructure, we were able to give our client the ability to have NVIDIA A40s handle the video processing and NVIDIA A16s handle video encoding and decoding. At the same time, they were able to achieve higher picture quality.”

The ability to independently scale resources has also had significant benefits for the immersive video client. “We can add the resources we truly need to their cloud instance,” said Ritchie. “Often, they don’t need a new host, but they do need to add GPUs. With Liquid, we have that flexibility.”

The numerous flexibility benefits of building the GPU cloud on Liquid have added up for Arc Compute. “The flexibility of the Liquid infrastructure has given Arc Compute the ability to win more customers,” said Ritchie. “We’ll continue to grow and expand our partnership with Liquid over the coming years.”

About Liquid

Liquid’s [composable infrastructure](#) software platform, Liquid Matrix™, unlocks cloud-like speed and flexibility plus higher efficiency from infrastructure at the core and edge. Now IT can configure, deploy, and scale bare-metal servers in seconds via software, and reallocate accelerator and storage resources real-time as needs evolve. Dynamically provision previously impossible systems or scale existing investments, and then redeploy resources where needed in real-time. Unlock cloud-like datacenter agility at any scale and experience new levels of resource and operational efficiency with Liquid.

About Arc Compute

With [revolutionary hypervisor technology](#) that also offers GPU virtualization functionality, Arc Compute simplifies high performance computing so businesses can spend less time thinking about their costs and infrastructure, and spend more time creating software that changes the world. Clients that specialize in AI, ML, Data Science, and various other forms of High Performance Compute utilize an Arc exclusive, “Simultaneous Multi-Virtual GPU”, which allows for superior performance and much higher utilization by dynamically allocating resources at run-time, shifting execution capabilities and GPU cores from under-utilized or idle resources. Arc also offers superior GPU multi-tenancy with the ability to split GPUs up to 64 times, with support coming for 256+.



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Learn more about Arc Compute’s exclusive GPU configurations that utilize their proprietary hypervisor [Hyperborea](#).