World-Class IaaS Provider
CloudSigma Runs on Micron SSDs

About CloudSigma
Based in Zurich, Switzerland, CloudSigma is an innovative infrastructure-as-a-service (IaaS) provider that was founded to meet the growing need for a very high-performance, pure IaaS provider that would place little or no restrictions on how users deployed their computing resources. CloudSigma’s unique approach and unparalleled performance in the pure IaaS space garnered them 2013 Cool Vendor recognition by Gartner, as well as a top 25 cloud company ranking in both 2010 and 2012. CloudSigma came to be because its founders were frustrated with the available market offerings, which required users to jump through hoops to migrate their server setups to the cloud. The team of experts at CloudSigma addressed the market shortcomings by building their own cloud stack and delivering real utility computing in the cloud for the first time.

The Challenges
Performance in the Cloud
Conventional thinking says that when applications are moved to the cloud, performance can suffer and compromises must be made, but the team at CloudSigma strongly disagrees. With their primary focus on overall IaaS (server and storage) performance, CloudSigma developed their own software stack from the ground up and ran that innovative software on SSDs, from day one. It’s a no-compromise approach that sets them apart from other IaaS providers.

Alexander Panov, head of IT operations at CloudSigma, said, “We knew from the beginning that we had to use an all-flash storage solution to meet our customers’ demands because of the highly sophisticated nature of their requirements. CloudSigma provides infrastructure services to national space agencies, national research laboratories, and international physics research facilities. These customers have very demanding needs, and CloudSigma delivers.”

By focusing on performance and working in partnership with other companies who provide large-scale bulk data storage, Panov said that CloudSigma was free to do what it does best—build, manage, and support the highest-performance IaaS platform out there. “Our customer base is increasing rapidly—very rapidly,” Panov added. “And the amazing growth of our customer base reinforces our choice of a hybrid approach whereby CloudSigma pays for bulk space managed by our partners, and we use our resources only for the fast processing of our customers’ active working data sets. Because performance is key for our customers, CloudSigma operates only SSD-based storage systems.”

Scale Out On-the-Fly
CloudSigma’s customers are very diverse, with needs that scale in real time. To support this dynamic environment, CloudSigma knew that they had to build an infrastructure that supported the easy addition of compute resources, storage resources, or both—on demand and on-the-fly—and prove that they could deliver. “We have a trial program

“We looked at other SSDs. Some were a little faster here or there, but when we looked at the overall value of performance, price, and availability for infrastructure as a service, the Micron M500 was a great fit for our all-SSD IaaS platform. It handles our customers’ vast amounts of data very smoothly, and our customers keep coming back for more!”

ALEXANDER PANOV
Head of IT Operations, CloudSigma
A Micron Case study on our web site,” Panov said, “where customers can experiment with our service with no restrictions. As they load more data, we scale the resources they need, quickly and easily. They can then see for themselves how well we perform. Our conversion rate of these trial accounts is very high.”

The Solution

Micron M500 SSDs Enable Scale Out, Scale Up
According to Panov, the M500 is an exceptional value. “We looked at other SSDs. Some were a little faster here or there, but when we looked at the overall value of performance, price, and availability for infrastructure as a service, the Micron M500 was a great fit for us. With the M500, our IaaS platform runs very smoothly and our customers keep coming back for more!”

“All of the Micron M500 SSDs are connected via HBAs into four stripes of six drives each, running ZFS2. This setup gives us a reliable 40,000 IOPS/stripe, or about 160,000 IOPS per system, and each is connected to compute resources by four links of 10 gigabit Ethernet. By keeping compute physically separated from storage, CloudSigma can quickly and easily scale in any direction.”

When asked what the key factor was in choosing the M500, Panov said, “The Micron M500 gave us a great value; it has the performance our clients require, the short lead time that helps us build out quickly, and widespread availability. Each of these factors is essential for us.”

The Results

A Modular Resource Approach
When designing their deployments, CloudSigma uses a highly modular approach. Compute resources are physically separated from storage resources. Storage resources consist of 2U systems, each housing up to 24 Micron SSDs and 256GB of DRAM. Panov offered additional details, noting that, “All of the Micron M500 SSDs are connected via HBAs into four stripes of six drives each, running ZFS2. This setup gives us a reliable 40,000 IOPS/stripe, or about 160,000 IOPS per system, and each is connected to compute resources by four links of 10 gigabit Ethernet. By keeping compute physically separated from storage, CloudSigma can quickly and easily scale in any direction.”
### Fast Facts

- **Customer:** CloudSigma (www.cloudsigma.com)
- **Industry:** Ultra high-performance infrastructure as a service (IaaS)
- **Primary Contacts:** Alexander Panov, Head of IT Operations
- **Challenges:** Building an ultra high-performance, infrastructure-as-a-service platform for the most demanding customers with scale up and scale out on-the-fly
- **Solution:** Developed and managed their own proprietary cloud stack, running on Micron M500 SSDs
- **What Made the Difference:** Performance, short lead time, availability: “The Micron M500 helps us scale out our resources to exceed our customers’ demands—quickly, easily, and economically.”
- **Result:** Market-leading, per-platform performance supporting national space agencies, national research laboratories, and international physics research facilities