VELOSTRATA

SanDisk®

How SanDisk Consolidated Their Distributed Datacenters into the Public Cloud with Velostrata

About SanDisk

The world of digital content grows exponentially every day. From mobile devices to data centers, SanDisk delivers the peace of mind that data is readily available and reliable, even in the most challenging environments. Since 1988, companies and consumers around the world have counted on our storage solutions. In fact, our pioneering technology is used by top electronics companies and can be found in enterprise data centers worldwide, so consumers can be confident their important data is at their fingertips. It's all part of delivering on our mission to enrich people's lives through digital storage anytime, anywhere.

Background

As a global $10B leader in flash memory storage solutions, SanDisk operates multiple distributed R&D teams and facilities across several continents. Over the last few years, as their business has expanded and modern R&D processes have been implemented internally, so has the need to constantly expand the IT infrastructure.

SanDisk's head of IT infrastructure, Tomer Mekhty, indicated their operations team was challenged to maintain dozens of remote data center locations, especially in locations where they didn't have dedicated IT personnel. A second challenge was what they referred to as "Shadow IT," a known phenomenon in which R&D teams bypass the centralized management of the infrastructure team and go directly to the cloud to speed development.

Essentially, to better support R&D, the IT organization had to accelerate the infrastructure deployment and delivery processes. To address their requirements efficiently, the IT team looked to leverage Amazon Web Services (AWS) by using Velostrata to better migrate their enterprise workloads within a fast, agile and compliant hybrid IT architecture.

Challenge: Infrastructure Expansion at Remote Locations

In particular, SanDisk's R&D group had expanded into South Korea, and the local team there ramped quickly. As part of this expansion, the engineering team had to deploy their distributed software development framework (CruiseControl), which would require more compute and storage hardware to be deployed, as well as someone from IT to support this infrastructure on an ongoing basis. The global IT team found that it was difficult to procure and deploy additional infrastructure in Korea due to long order times and budgetary constraints, so the team was tasked with finding alternative solutions to meet business and cost requirements by leveraging the public cloud.

The Solution: Quick, Risk-free workload mobility to the rescue

In order to avoid purchasing additional physical compute and storage resources, SanDisk's leaders decided to strategically move workloads to the Amazon public cloud by leveraging Velostrata's unique cloud workload mobility software. Velostrata software is designed to decouple compute from storage in virtualized workloads,

Organization's Challenges:

- Distribute compute power across global offices without budget for on-prem hardware or additional staff

- Need global access to dev/test resources without high latency performance disruption

- Reduce hardware and budget footprints by leveraging dynamic hybrid cloud architecture

Velostrata's Solution:

- Decoupled compute from storage, forming hybrid cloud architecture

- Migrated workloads from on-prem to public cloud within minutes

- Provided resources in local regions to meet dynamic usage requirements

making it easy to move compute to the cloud in a matter of minutes, while controlling and automating where storage resides - on premises, in the cloud or a combination of both. For this, Velostrata was used to move the compute environment, including the build servers, to a secured AWS VPC network in Amazon's Japan cloud region.

Velostrata's streaming-based migration method includes multi-tier read/write caching and data pre-fetching capabilities. This helped overcome the latency challenge between on-premises storage and the cloud, ensuring high-standard performance and reliability of the hybrid environment. In fact, the latency in data streaming to SanDisk's remote South Korea site was measured at less than 30ms, maintaining the data flows required to run the integration and test processes, and ultimately providing better user experience. Leveraging Velostrata's innovative smart bidirectional migration, the environment has been up and running without disruption ever since.

Challenge: Distributed Dev/Test for Microsoft Dynamics CRM

In another corner of the world, this global enterprise's QA team was tasked with testing the organization's MS Dynamics CRM custom modules, which are specified and developed by SanDisk's engineers in California. The QA operation, however, was relocated to India.

This created new challenges, including the need to replicate the complete CRM software stacks and its MSSQL database, which holds several terabytes of storage, to serve the new QA teams which were remote. The initial approach was to give the test engineers remote access to the latest release environment candidates using virtual desktops (VDI). Unfortunately, the 150-180ms latency created major delays in response time, which negatively impacted the team's productivity.

The Solution: Quick, risk-free workload mobility to the rescue (again!)

With Velostrata, the IT team was able to deploy an "as-is" replica of the application to a secured VPC network in AWS Singapore in less than an hour, with no interruption in development or service operations. In addition, the team leveraged Velostrata's multi-tier read/write caching capability to support the strict uptime and performance requirements of the CRM MSSQL database.

Velostrata's platform "cache mode" option combined multiple storage types (including in-memory, SSD volumes, and S3 object stores) for read-write cache operations in the Amazon cloud. This means that Amazon EC2 instances cache data which is frequently in use by the application, thus allowing the fast creation of an application replica running in the cloud with production, stateful data sets. In addition, the new architecture ensures there is no data loss or consistency issues due to single point of failures.

Velostrata and AWS: The Ideal Hybrid Cloud

What SanDisk accomplished with Velostrata was the ideal hybrid cloud infrastructure for their unique business cases. With Amazon's cloud and Velostrata's innovative workload mobility platform, they created the perfect solution for their enterprise challenges, enabling seamless migration of applications and data to the cloud with improved performance of those workloads for end users.

Additionally, the Velostrata solution eliminated the need for costly, time consuming operations, like data replication and/or synchronization between sites and created the agility the IT team sought when supporting the dev/test operations, enhanced the team's productivity, and generated cost efficiencies by using on-demand cloud resources. In fact, during a recent discussion with key decision makers at SanDisk, we learned Tomer Mekhty, Head of Global IT Infrastructure and Operations, stated that, "Velostrata provides a real foundation to a hybrid IT environment for a globally distributed enterprise".

Benefits:

- Faster, more affordable deployments of local resources for global teams
- Scalable on-demand resources for dev/test, capacity bursting
- Data remains safe, secure on-premises but seamlessly available as needed

> "Velostrata provides a real foundation to a hybrid IT environment for a globally distributed enterprise."

Tomer Mekhty
Head of Global IT Infrastructure and Operations