Quobyte

Case Study

SysEleven

SysEleven's public cloud infrastructure requires a high-performance and scale-out storage to support demanding business-critical workloads and a high level of management automation to guarantee a minimum of administration overhead. Quobyte delivers excellent performance and integrates seamlessly with OpenStack, thus enabling lights-out operations.

SysEleven
Hosting. Skaliert.

Pioneering a New Kind of Managed Hosting

No garden-variety hosting provider, SysEleven always sought new ways to bring their customers the best and most economical services that current technology could provide. This aspiration actually marks SysEleven's creation in 2007 when it emanated from Macnews.de, a pre-eminent Apple-centric news portal that hit performance limits every time they broadcast a Steve Jobs keynote. In the absence of a solution from the hosting providers back in those days, Macnews founder Marc Korthaus decided it was time to make virtue out of necessity and tackle the problem himself – which eventually resulted in SysEleven's foundation. Fast-forward to today, the company still does not shy away from going to the heart of a problem – provided that it brings their customers an advantage. Their newly developed SysEleven Stack pioneers a public cloud architecture that's based on cloud computing's darling software, OpenStack. It allows customers to have a more fine-grained infrastructure access so that they can create their own tailor-made solutions. Today, SysEleven's portfolio offers cutting-edge IT infrastructure services for corporate environments. Those services include managed hosting solutions for customers' websites, private cloud storage, server management, database management, and other related services.

Advantages

- **Seamless integration** with the whole OpenStack ecosystem and a unified storage solution covering block, shared file, and object storage
- High-performance storage that allows for **massive scale-out**
- Highly **automated operations** result in cost savings for maintenance and administration
- Simple **S3 integration** for self-service capabilities

Increasing IOPS performance by a factor of 5 and up

Bringing their own blend into the public cloud mix, SysEleven decided to go through all of OpenStack's nooks and crannies to make sure they could provide their customers with a first-rate hosting experience. They found out quickly that the new setup required a storage performance that lay beyond the reach of traditional storage hardware which was just too slow, especially for its price tag. But also most of the software storage solutions SysEleven put to the test could not deliver satisfying numbers. Eventually, Quobyte's software storage system prevailed as SysEleven's preferred solution, delivering a performance that outpaced the other candidates. "Deploying Quobyte for testing, we initially measured an IOPS performance that was five times higher than that of the other candidates. Later on and now in production, the results are even more impressive," says Jan Peschke, Platform Integration Specialist at SysEleven.

Scaling out linearly

Quobyte was designed with scalability in mind and consequently also scored high when taken to the test. Adding additional drives drove performance numbers up linearly. A related feat of Quobyte's horizontal storage infrastructure was that it didn't matter whether those drives were HDDs or SSDs, proving that Quobyte masters resource heterogeneity. SysEleven could thus rely on commodity hardware and drive down costs by a factor.

Quobyte does what Ceph can't do: saturate the network and deliver write latency that matches what the network provides. All of that wrapped in API, CLI and GUI that can be automated. Scalable distributed storage that delivers filer performance.

Kristian Köhntopp
Cloud Architect at SysEleven

Eliminating storage overhead through automation

Developing services that need to be operated differs fundamentally from shipping software to customers: SysEleven not only has to ensure that it meets the performance and scalability expectations of its customers, but that it can also guarantee reliability. Key in this endeavor is management automation so that error-prone manual operations are avoided as far as possible. More importantly, automation equips the admin team with the ability to scale a system up to its tenfold size and larger without the need to correspondingly add manpower. Quobyte ships with the necessary tools to easily accomplish this feat and, for example, enabled SysEleven to update their machines hands-free and without any downtime. An automated rollout of new software releases on their servers would go about as follows: migrate the VMs transparently, take the servers in question offline, update them, reboot, and go back online. The VM scheduler together with the storage recovery went about without manual intervention and no individual server maintenance was required.

SysEleven could control the functionality of storage operations via Quobyte's web UI or management API and save their admin team a lot of time and headaches. More importantly, Quobyte enabled a seamless workflow in SysEleven's general management automation.

Quobyte's automation capabilities greatly ease our workflow.

Jan Peschke
SysEleven's Platform Integration Specialist

Unlocking SysEleven Stack's full potential

Power and performance are just one side of the coin. The other crucial element is compatibility and tight integrations with the OpenStack ecosystem. Since deploying OpenStack isn't a matter of plug-and-play, keeping the admin's hands-free from storage interaction goes a long way.

Quobyte passed SysEleven's rigorous OpenStack integration test with flying colors: it is a fully-featured storage system that consolidates block, object, and shared file storage. It ships corresponding drivers with all recent OpenStack releases. (Cinder/Nova, Manila, and an S3 interface)

The OpenStack-certified block storage system, for example, was required in order to run MySQL shop backends in virtual machines. High block IO performance coupled with its fault tolerance that holds up under network failures, Quobyte helped prevent SysEleven's customers from data loss.

To complete its storage solution, Quobyte offers an S3 object storage interface – an indispensable feature for SysEleven and its customers – and has shared file storage capabilities for Manila baked in. Both come at no additional cost: there is no further administration overhead since Quobyte is a unified storage infrastructure. They can also both resort to shared resources and don't require additional hardware. The capstone to the all-encompassing storage solution is the keystone-based authentication that allows Quobyte to implement complete self-service management.

Playing well with OpenStack in production

SysEleven deployed Quobyte as a full-fledged and production-ready software-defined storage solution for their OpenStack-based cloud services. Quobyte's drivers and overall fit with the OpenStack ecosystem made the integration with the SysEleven Stack seamless and straightforward. The performance bottlenecks SysEleven had experienced with traditional storage could be eliminated – with Quobyte excelling in terms of speed – delivering a fivefold increase and up – and enabling new levels of scalability. Together with Quobyte's automation capabilities, SysEleven now benefits from reduced costs thanks to lights-out operations.

SysEleven started with a hyper-converged system of around 500 TB in size (consisting of mostly SSDs) with the clear intention to grow considerably in the future. "We distinctly support the hyper-converged solution that software-defined storage enables. The benefits we have achieved this way in just a short time are remarkable," states Marc Korthaus, SysEleven's CEO, and adds "We don't just want to be a Quobyte customer but also a partner and continue bringing out solutions where we can work together and then bundle the results for our customers' benefits."

"And as far as operations are concerned, Quobyte is a tremendous help. Their automated management capabilities make it possible to drain and update servers without any downtime and without the need for our admins to manually intervene. That greatly eases our workflow," adds Peschke.

About Quobyte

Quobyte is storage Architected for AI™. It was started by two ex-Googlers who took the radically different hyperscaler approach to storage, freeing AI workloads from the complexity and limitations of traditional enterprise and HPC storage. Quobyte's software delivers bulletproof resiliency, the fastest AI-ready performance, and smartphone simplicity on commodity servers, scaling easily across data centers, on-prem or in the cloud. Targeted at enterprises in finance, life science, research, and AI, Quobyte enables small teams to efficiently run exabyte-scale infrastructure, maximizing GPU utilization and ROI.