CASE STUDY

THE HIGH-AVAILABILITY MEDIA CLOUD

Quobyte's powerful software storage enables MX1 to cost-efficiently run their media cloud and operate with ease. Their storage infrastructure now scales performance linearly and allows MX1 to offer media services interruptions-free.

Quobyte

Summary

Needs/Challenges: MX1needed a scalable, flexible, and highly available infrastructure to keep up with the demand their aedia and entertainment workloads require. The traditional approach of bying dedicated hardware for each of compute was too inflexible and costly. Operational expenses and administration efforts had to be kept in check. OpenStack seemed like a solution but requires a high-throughput storage system which could also fulfill the high availability requirement.

Solution: Quobyte's Data Center File System

Platform: All SSD setup, hyperconverged

Use Case: Media and Entertainment, Video Production Content Delivery, Broadcasting

Key Benefits

- Seamless integrtion with OpenStack
- Scalability to thousands of nodes
- Full fault tolerance and high availability
- Low latency and high throughput
- The option to choose replication and/or Erasure Coding and making RAID superfluous
- No single point of failure, automated failover, and zero downtime for updates
- The ease of the installation and operation of a compre-Hensive storage infrastructure

MX1

> "Quobyte is the rock-solid foundation on which we build our media applications. It allows us to focus on delivering content to our customers knowing with absolute confidence that the data is safe. Also, the real-time analytics provide us with a granular visibility that allows for an incredibly sophisticated storage management."
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> **Markus Prahl**
> *Vice President Global IT* at MX1

MX1 – Global Media Services Rooted in a Future-Proof Infrastructure

MX1 is the result of a merger between digital media service provider RR Media and broadcasting services company SES Platform Services which quickly developed into a global media services enterprise. MX1 covers the spectrum of media workloads, ranging from content and metadata management, archive and localization solutions to the playout and broadcasting of online video and video-on-demand. Headquartered near Munich, MX1 supports leading media companies – among them CNN, ESPN, Google, and Facebook – delivering audiovisual content to screens all over the world. The company takes great care in ensuring a unique and interruption-free video experience for its users.

Every day MX1 broadcasts more than 2,750 TV channels, manages the playout of more than 500 channels, delivers content to 120 of the leading VOD platforms, and streams 8,000 hours of online video and more than 500 hours of sports and live events. In order to guarantee reliable and future-proof services for their global network, MX1 keeps up with state-of-the-art infrastructure technologies, testing which one's are right for their workloads and warranting future scalability and total reliability. The MX1 team put their eggs in the software basket, slowly switching over to the software-defined data center.

Operating and maintaining an IT infrastructure of that magnitude, MX1 is faced with the challenge of keeping the costs in check and preventing overburdening their operations and admin teams. Thus, one of the team's major concerns is to keep operational expenses and efforts at a minimum – or better yet, reduce them. Not long after they started researching for the optimal solution and running tests with a few of them, it became clear that Quobyte provided what they needed. For one, Quobyte integrated seamlessly with OpenStack (having drivers for Nova/Cinder, Manila, Keystone, and a full-featured S3 interface). For another, Quobyte's low latency and high throughput matched what the Midokura-based network delivered.

With such a powerful and reliable storage system at the base of their media cloud, MX1 now operates their media services more flexibly, manages them more efficiently, and offers them with the highest degree of reliability.

Traditional Storage is Too Costly and Doesn't Scale Well

Up until now, the MX1 storage infrastructure was comprised of NAS and SAN solutions which hit performance and flexibility limits on critical workloads. For that reason, the company decided to make use of a cloud infrastructure. Traditional storage felt too rigid; dynamically adding to such a storage system would require considerable manual intervention and a significant amount of manpower – let alone the capacity planning that precedes every new hardware purchase. Of course software storage does not render the hardware question superfluous, it just liberates admins to choose the hardware they think best for the purpose at hand; they can even mix and match different vendors. The best thing for MX1 though is the ease of scaling out. They can just add new resources and Quobyte takes care of adding them automatically, scaling performance linearly as they go.

„The low latency results, the resilience, redundancy concept, and the ease-of use were just stunningly good!"

— **Uwe Wiedow**, *Special IT Projects Senior Manager*

Software Storage Key to a High-Performance Media Cloud

The infrastructure transition away from the classical NAS/SAN mix and towards the software-defined data center is in full swing at MX1. Testing the waters with GPFS did not lead to the expected results, which is why the team had to look for other solutions and eventually landed upon the infrastructure triad consisting of OpenStack, Midokura, and Quobyte which now form MX1's aptly named Media Cloud.

Instead of putting the system through the hoops themselves, MX1 relied upon and trusted the experiences of managed hosting provider SysEleven. For more than three years now, the latter has been running that same system with Quobyte as its storage base – with great success.

SysEleven's results speak volumes; Quobyte's IOPS performance was more than fivefold of what comparable solutions could provide. And the system scaled performance linearly with added resources.

Less Overhead, Easier to Use, Better Safety

Right from the start, Quobyte took great care to design a storage system that's easy to use and install. A minimal test system with four servers was set up in about half an hour. That ease continued into the actual setup and operations. Compared to their SAN infrastructure, Quobyte doesn't require tedious and complicated management of LUNs. Also, setting up a hardware RAID is a thing of the past; Quobyte handles fault tolerance through smart algorithms. By automating away menial storage tasks, the MX1 team now avoids most of the error-prone manual interventions. What's more, the storage admins can now scale the entire system to a size ten times that of the initial system without the need for additional staff. They can manage and maintain the machines hands-free and without any interruptions, even when running updates. The process for an automated update looks like this: transparently migrate the VMs from the server, take it offline, update, reboot, and go back online. The VM scheduler together with the storage recovery requires no manual intervention and there's no need for individual server maintenance. This whole process goes about without any system downtime. Take into account Quobyte's automatic failover and you end up with a very robust and highly available storage system.

The Future Media Cloud is Software-Defined

MX1's media and video workloads require high throughput and low latency, but an essential requirement was the system's availability. Quobyte delivered on all points. It scored as the best performing storage system and integrated seamlessly with the OpenStack-based Media Cloud. The global media service provider's modernized infrastructure now enables an unparalleled flexibility and cost-efficient operations at the same time. Storage for transcoding, encoding, playout, and more can now be handled within a single storage system.

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