CASE STUDY

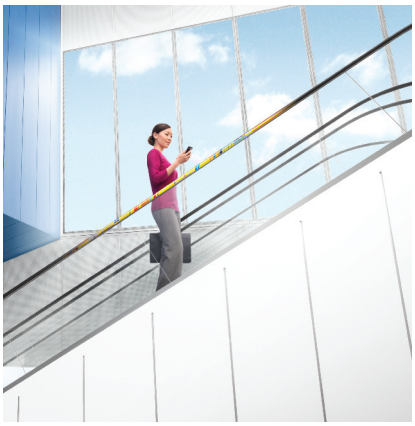
Intel® Solid-State Drive 710
Intel® Ethernet 10 Gigabit Server Adapters

Cloud Computing

Developing a Virtualized Cloud Storage Platform

Strato future-proofs HiDrive* online storage service with virtualized platform based on Intel® technologies

One of Europe's biggest hosting companies, Strato provides a range of online services including HiDrive, a subscription-based cloud storage platform for business users and consumers. To prepare the platform for future user growth and ensure the continued high performance of the service, Strato has enhanced its data center infrastructure with a new virtualized storage environment based on hardware that includes Intel® Xeon® processors E3 family, Intel® Solid-State Drives (Intel® SSDs) 710 and Intel® Ethernet 10 Gigabit Server Adapters. The new hardware platform offers a more cost-effective and flexible alternative to proprietary storage systems and provides the high performance, reliability and scalability Strato needs as it looks to grow the user base for HiDrive.



STRATO

"The performance we achieved with Intel's technology in our benchmarking tests convinced us that it was the right choice for our new virtualized storage platform. Our Intel-based deployment offers an ideal mix of speed, reliability and compatibility, and is more cost-effective than the proprietary storage arrays we considered."

René Wienholtz,
CTO,
Strato

CHALLENGES

- **Virtualizing storage:** Strato wanted to improve its online storage offering with virtualization to increase performance, flexibility and robustness
- **More reliable:** With business customers demanding strict service level agreements (SLAs), it needed a technology platform that it knew would continue to perform
- **Cost effective:** Developing its own platform using off-the-shelf components offered a cheaper alternative to proprietary storage arrays, with greater compatibility

SOLUTIONS

- **Data access:** Intel SSDs 710 deliver high I/O performance, speeding up data upload and access times for service users
- **Better connectivity:** Intel Ethernet 10 Gigabit Server Adapters maximize data transfer speeds
- **Processing support:** Intel Xeon processors E3 family provide solid support for storage virtualization environment

TECHNOLOGY RESULTS

- **Improved performance:** New storage platform delivers faster performance than existing hardware
- **Trusted delivery:** Virtualized storage environment delivers greater reliability and scalability
- **Future capacity:** Intel-based infrastructure provides the flexibility to accommodate future growth in demand for HiDrive service

BUSINESS VALUE

- **Customer experience:** Enhanced infrastructure performance has improved the end-user experience for HiDrive customers
- **Enterprise offering:** Resilience and scalability of virtualized environment allows Strato to target business customers with strong SLAs
- **Future proof:** Storage platform ready to accommodate future growth in HiDrive userbase

A leading hosting provider

Strato is one of Europe's biggest hosting companies, with more than 1.4 million customers across six countries. Its offerings to consumers and businesses include HiDrive, a cloud storage service provided on a subscription basis. Users can choose from a range of options depending on the volume of data they need to store and how they need to access it, starting from a free five-gigabyte package aimed at consumers, rising to a five-terabyte offering for business users.

Until now, Strato's storage platform has been based on traditional hard disk drive (HDD) technology. This provides high storage capacity for a low cost, but is limited in terms of I/O performance, which can ultimately impact the quality of the end user experience.

Strato ensures future performance of cloud storage platform with Intel processors, SSDs and Ethernet technology

Preparing for the future

Strato wanted to ensure that its data center infrastructure could handle future growth in user traffic while sustaining high performance.

Strato decided to enhance its storage platform with virtualization technology to provide more flexibility and greater performance. To improve the user experience, it wanted to augment its existing HDD-based storage capacity with a cache layer of SSDs, which would handle incoming data transfers and serve download requests for frequently-accessed files. By combining the fluidity of a virtualized storage environment with the high I/O performance of SSD technology, Strato planned to enable customers to upload and download files more quickly.

Once a user had uploaded data onto the HiDrive service, after a period of inactivity this would be transferred to the back-end HDD resources to conserve space on the SSDs and help keep the overall hardware costs down.

Proprietary vs. custom

Initially, Strato investigated buying a proprietary all-in-one storage array to handle the hardware requirements of its new virtualized environment. However, it found that commercially available offerings did not offer sufficient value for money and often presented compatibility issues with its existing HDD storage hardware. Instead, Strato looked at building its own platform using Intel hardware that was available off-the-shelf.

Strato planned to extend its storage platform with 100 new servers powered by Intel Xeon processors E3 family to run the new virtualized storage environment. Each of these would be linked to two Intel SSDs 710, with fast data transfer enabled by Intel Ethernet 10 Gigabit Server Adapters, helping boost overall performance.

Measuring the advantage

In benchmarking tests, Strato's technicians determined that each of the new Intel-powered servers was capable of data throughput of up to 18GB per second through its networking ports. Combined with the high performance and reliability of the Intel SSDs and processing support from the Intel Xeon processors E3 family, each server can quickly process multiple incoming and outgoing data streams, ensuring that performance can be maintained even during busy periods. The high compatibility of the Intel components ensures the new server layer works well with Strato's existing HDD infrastructure, meaning the entire platform performs as a whole.

The Intel-based storage platform outperformed the competition in the benchmarking tests, and Strato decided to deploy the technology.

Ongoing support

By using Intel hardware, Strato has ensured the continued performance of its HiDrive service in the face of growing user numbers. By upgrading its storage platform to one that uses both SSD and HDD layers in a virtualized environment, Strato can process more incoming and outgoing data feeds simultaneously, resulting in a faster and more consistent experience for end-users.

Unlike proprietary HDD-based storage systems, which rely on costly high-velocity drives to sustain performance, Strato's joint SSD and HDD approach enables high input and output levels to be achieved with less expensive HDD models. By using the SSDs as a high-speed cache, upload and download times are reduced, while the cost of the HDD layer is lowered.

The reliability of the Intel SSD technology and virtualized storage environment means that HiDrive will continue to perform well, allowing Strato to maintain the quality of the service and make the most of the growth potential it offers. Indeed, Strato hopes to grow the number of business users of HiDrive, who typically require strict SLAs from cloud services. Thanks to the robustness of its technology platform, Strato is confident in its ability to deliver these.

The flexibility the new virtualized platform offers will also enable Strato to adapt HiDrive to respond to new usage patterns and user requirements in the future, such as the need for faster download times or larger file transfers.

By basing its virtualized cloud storage platform on Intel technology, Strato has ensured its HiDrive service will continue to perform, both technically and commercially. With future expansion in mind, Strato is now considering expanding its storage platform further using Intel technology.

Lessons learned

Strato's experience of refreshing its cloud storage platform has shown that a custom approach using Intel technology off-the-shelf can deliver a more cost-effective and higher-performance solution than proprietary product offerings. By virtualizing its storage environment and enhancing its infrastructure with a dual SSD and HDD approach supported by Intel® processors and 10 gigabit Ethernet technology, Strato has benefitted from a system that is faster and more reliable and which can support changing user requirements in the future.

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