

Der Spiegel optimizes their storage environment with Huawei' Dorado SSD storage solution

DER SPIEGEL

Huawei's Dorado2100 delivers major performance enhancements to Der Spiegel's virtualized storage environment.

Background

Der Spiegel is a media brand known around the world, a brand synonymous with high-quality investigative journalism, in-depth coverage of important issues, and a photo-archive containing many of the signature news photographs of the past 60 years. Founded in 1947, Der Spiegel (part of SPIEGEL GROUP) is Germany's leading weekly print magazine, with a circulation of over 1 million and distribution to 172 countries. Der Spiegel also publishes number of other special magazines, which cover topics which ranging from culture, art, history, science, student-life and a monthly issue for children.

Based in a new 'eco-friendly' building (Der Spiegel Haus) in Hamburg's HafenCity, Der Spiegel's 1,300 employees include 270 journalists who report on the news throughout Germany and worldwide through a series of 22 foreign bureaus. Der Spiegel is not only a print-oriented brand: since 1988 SPIEGEL TV has been a growing part of the business with two if its own TV channels and regular broadcasts on RTL and Sat.1.

SPIEGEL ONLINE (www.spiegel.de) represents the digital side of the brand. Founded in 1994, the site reaches approximately 9.9 million domestic monthly users, plus over 40,000 paid monthly iPad subscriptions. Since 2004, SPIEGEL ONLINE has also distributed content in English which adds 1.5-2 million global monthly users. At least 57% of SPIEGEL ONLINE's readers have a high level of education, and with 138 million visits and over 768 million page impressions per month (as of 2011), so the online presence is a very attractive audience for advertisers. SPIEGEL TV is also part of SPIEGEL ONLINE, and an average of 1.8 million visitors per month watch online each month.

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Robert Kiehne, Group Manager IT, Der Spiegel

Customer

DER SPIEGEL

Industry

Media/Publishing

Solution

2x Huawei Dorado2100

Business Needs

- An SSD storage system to accelerate and optimize Der Spiegel's existing storage infrastructure
- A reliable and scalable storage infrastructure to support the increasing requirements of a global multi-media brand
- Reduce or eliminate I/O bottlenecks for critical database applications

Results

- Significant performance gains, as the Dorado2100 reaches 100,000 IOPS and latency of 600 us
- Lower power usage and data center space requirements due to Huawei green technology
- Enough capacity for current usage and future expansion

Case Study



Key challenges

ICT is critical to the business of Der Spiegel. The organization has a digital archive of over 34 million photos, articles and documents and its publication process is completely automated. A system failure would be disastrous, resulting in a delay in publication or content delivery which could cost the organization million of Euros per day. Therefore, the ICT infrastructure must be robust, scalable and most importantly, highly reliable.

The ICT infrastructure consists of over 100+ servers (Windows, Linux, and OS X) in two physically separate data centers. The majority of the servers have been virtualized, although some specific key tasks still run on dedicated servers.

For a media-company like Der Spiegel, storage is one the fastest growing segments of its ICT infrastructure, and one that has a critical impact on the business. Storage requirements are varied, but include providing instant access to the complete photo, video and print article archive for reporters on a deadline, storage of ultra-large files for magazine printing, plus traditional uses such as email, FTP-Server and database storage. The system stores approximately 200 TB of data and is growing.

"Der Spiegel is doing more and more with multimedia. Here, the trend is to increase the digital distribution of our content. Not just for the weekly magazine, but the storage of our vast archives and our growing video broadcasting. For these reasons, our storage demands are increasing at a very rapid pace."

Robert Kiehne, Group Manager IT, Der Spiegel

The original storage infrastructure consisted of a SAN network comprising Hitachi Data System (SATA) equipment and is managed/virtualized using FalconStor's Network Storage Server (NSS) solution. The NSS provides increased flexibility in SAN management and a centralized storage administration. As the magazine storage requirements grew, the SAN network grew in size. The growing SAN was not able to keep up with increasing performance demands that new and more complex applications were placing on the system. The traditional (SATA) disk arrays became the bottleneck, making access to hotspot and key application data too slow.

Solution

Simply adding more SATA disks was not the solution, as this would be quite costly and would only erode system performance, so Der Spiegel turned to its trusted advisor itiso for a solution. itiso (a Huawei partner) is a consulting and IT solutions provider based in Hamburg, Germany that focuses on data management, storage, backup, archiving, virtualization and cloud computing. itiso had already implemented the existing SAN network and FalconStor management at Der Spiegel, so it was already very familiar with their business and technical needs. Following an extensive analysis of the existing storage network, the business requirements and the new performance goals, Der Spiegel and itiso outlined the following requirements for the upgrade:

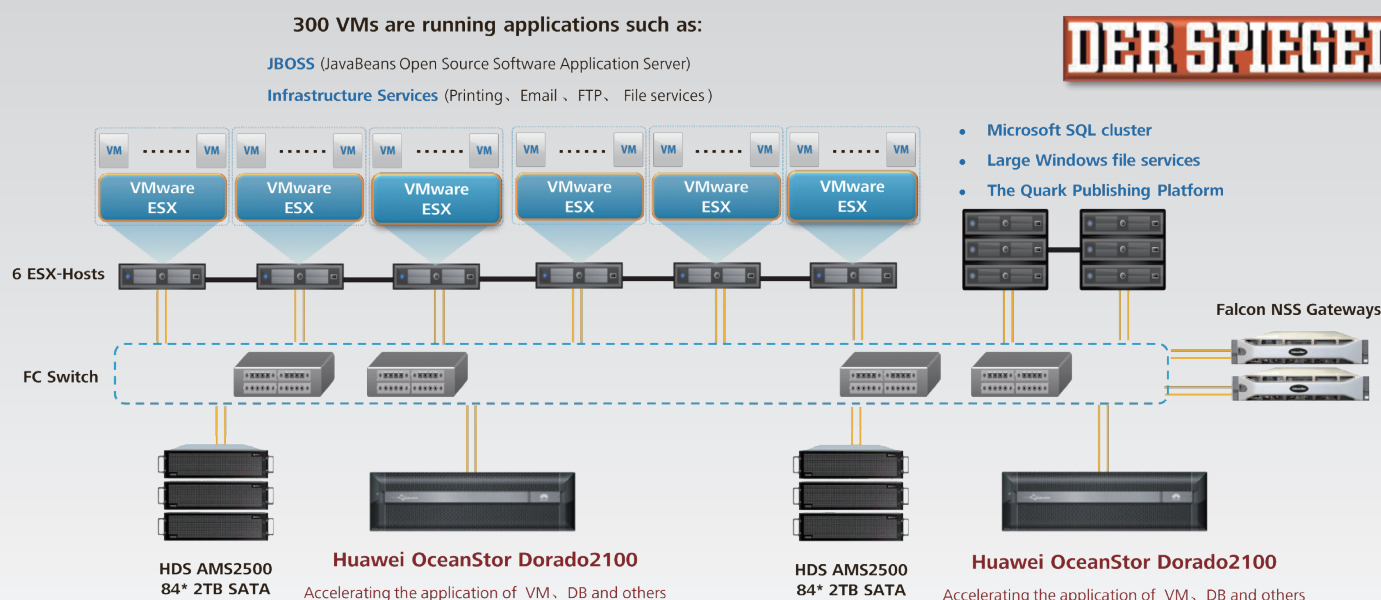
- Increase overall system performance: Der Spiegel needed an increase in its storage network performance, specifically an increase in IOPS (input/output operations per second) and reduction in latency.
- Reduce/eliminate database performance bottlenecks: Der Spiegel was experiencing significant bottlenecks in various database applications (including Microsoft SQL cluster and Lotus Notes).
- Reliability: The storage network must deliver the highest levels of uptime as the organization continuously runs on short publication deadlines.
- Scalability: As the storage requirements of Der Spiegel grow, the storage network must be able to grow in a modular and cost effective way.
- Excellent TCO: Total cost of ownership is vital to Der Spiegel. This includes the purchase cost, long-term maintenance costs, data center space, and power consumption. Additionally, Der Spiegel needed to maintain its existing investment in SATA storage, so any upgrade would have to be integratable with the existing SAN infrastructure.

Based on this analysis, it was clear that adding SSD storage to the existing SAN architecture was the right option:

"SSD storage was clearly the right choice for Der Spiegel. Their storage needs are growing, and at the same time they need faster access to databases and other services. Only an SSD solution like the Huawei Dorado2100 is able to deliver this performance increase while still keeping the SATA-based disk arrays in place."

Mukesh Undacath, Managing Director, itiso

Case Study



Huawei worked closely with Der Spiegel to design and implement a SSD storage system that fulfills these requirements. The result was the implementation of 2 Huawei Dorado2100 SSD Storage systems, each containing 24 SSD disks with a capacity of 100GB per disk. The total storage capacity for each Dorado2100 is 2.4TB, resulting in an overall capacity of 4.8TB.

The solution runs behind the FalconStor management platform and is used by the 6 ESX-Hosts (VMWare) and the 300 VMs (virtual machines) running on them. These VMs are running applications such as:

- JBOSS (JavaBeans Open Source Software Application Server) for development and quality assurance of in-house developed applications.
- Infrastructure services such as printing, EMail forwarding (Lotus Notes and sendmail), FTP-Server, and File services.

End-User Benefits

The performance benefits of the Dorado system were felt immediately by Der Spiegel:

"Performance has demonstrably improved within the entire storage network. What took us minutes to write to the SATA drives now takes seconds with Huawei's Dorado solution."

Robert Kiehne, Group Manager IT, Der Spiegel

Compared with the traditional disk array architecture, the full-SSD architecture delivers sharply improved performance. Based on Storage Performance Council (SPC-1) benchmarks, the Dorado2100 reaches 100,000 IOPS and latency of 600 us. This performance increase is based on several factors including:

- Improved cache look-up algorithm
- Advanced I/O scheduling algorithm
- Improved hotspot data hit ratio
- System driver level optimization dramatically shortens the access latency
- Rapid formatting technology which formats a LUN within several seconds

SPC-1 results for the Dorado2100 can be found here:

http://www.storageperformance.org/benchmark_results_files/SPC-1/Huawei/A00112_Huawei_OceanStor-Dorado2100/a00112_Huawei_OceanStor_Dorado2100_SPC-1_executive-summary.pdf

Case Study



The reliability of the Dorado system at Der Spiegel has been excellent. Full redundancy for power supplies, fans, and BBUs guarantees data reliability. With its roots in the telecom carrier sector, Huawei builds carrier-grade reliability into all its products.

"The Dorado system from Huawei works very well, with virtually no downtime. We have future-proofed our storage network and we will not need to upgrade for at least 2-3 years," said Mr. Kiehne.

Power consumption and data center space has also been significantly reduced through the Dorado2100. Der Spiegel realized up to a 90% power savings compared to a traditional disk array through the low-power consumption of only 320W per single enclosure. At only 2U in size, the Dorado takes up significantly less space (to reach 100,000 IOPS would require 48U of traditional disk array).

Scalability is there for Der Spiegel as its storage requirements grow. The Dorado Supports a flexible number (up to 16) and layout of 8 Gb/s FC host ports, which means the stacking of 8 additional units is possible.

Finally, the TCO of the Dorado system is far superior to any competitive offers that were considered by Der Spiegel. In addition to the power and data center space savings realized through the Dorado2100, the TCO is significantly lower (up to 70% less) compared to a system using traditional disk arrays to achieve the same performance.

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Robert Kiehne, Group Manager IT, Der Spiegel

About Huawei Enterprise Business Group

Huawei Enterprise Business Group ("Huawei Enterprise") is one of the three business groups of Huawei, a leading global information and communications technology (ICT) solutions provider. Leveraging Huawei's strong R&D capabilities and comprehensive technical expertise, Huawei Enterprise provides a wide range of highly efficient customer-centric ICT solutions and services to global vertical industry and enterprise customers across government and public sector, finance, transportation, electric power, energy, commercial businesses, and ISPs. Huawei Enterprise's innovative and leading solutions cover network infrastructure, unified communications and collaboration (UC&C), cloud computing & data center, enterprise information security, and industry application solutions.

For more information, please visit: <http://enterprise.huawei.com/en/>

About itiso

itiso stands for "IT Infrastructure Solutions." The company was founded in 2005 and was focused from the beginning on IT infrastructure and its integration into business processes. itiso focuses primarily on independent consulting and individual solutions. itiso has 2 pillars: the sale and implementation of individual solutions as well as independent consulting. Project requirements and goals are determined jointly between the customer and itiso. The result is advice or a customized solution that meet customer needs.

Many system integrators are focused only on the current IT infrastructure. Few can offer real added value and integrated solutions. itiso's success lies in the special "itiso IT Creativity", by which extraordinary solutions are created. For the customer, this means that for questions about virtualization, storage, backup and recovery and archiving of enterprise data, they require only a single interface: itiso.

<http://www.itiso.de/>

