wetteronline

CASE STUDY

WetterOnline offers a better business forecast with the help of Dell and SanDisk®

Solution Focus

- Server virtualization
- Information on Demand

Summary of Benefits

- Nearly 10X Server Consolidation
- Increased performance of radar service by 25%
- 60 percent improvement in processing of customized meteorological services
- 20X Reduction in time to introduce new services

System Configuration

- Four Dell PowerEdge R820
- Two Dell PowerEdge R720
- Dell Acceleration Appliance for Databases with High Availability (based on SanDisk Fusion ioMemory and SanDisk ION Accelerator)
- VMware vSphere version 5.5
- Dell Networking S4810P 40 Gigabit Ethernet switch

Summary

WetterOnline—one of the largest weather, travel, and climate web sites in Germany—was experiencing poor performance, high cost, and an expanding footprint from their scale-out storage infrastructure. However, the implementation of a combination of Dell servers with Dell Acceleration Appliance for Databases—which contains SanDisk ION Accelerator™ software-defined storage and Fusion ioMemory™ PCIe cards—has improved response times, reduced storage latencies, and eliminated input/output bottlenecks.

Background

The Bonn-based company WetterOnline—one of the largest weather, travel, and climate web sites in Germany—provides online weather updates for users' locations and the weather worldwide. The site is one of the top 20 most visited sites in Germany. Users can interact with cutting-edge radar tracking clouds, precipitation, lightning, and temperatures in real time to obtain accurate worldwide forecasts and climate readings.

wetteronline.de also offers a vast array of current and historical weather data from all over the world. Whether visitors are seeking average temperature charts, sunshine hours, wind, or precipitation, all weather and climate data can be accessed in the form of clear weather maps, which are retrieved from weather stations. Users can also access information relating to climate, storms and extreme weather, as well as photo galleries and weather videos. The site boasts an average of more than 500 million page impressions, nearly 150 million visits, and more than 6 million visitors per month. In addition, the site has received more than 10 million app downloads.

The company provides B2B solutions to a number of enterprise customers in industries, such as construction, energy, retail, healthcare, and farming. The companies utilize these services to obtain better climate and forecast data to manage the areas of their businesses that are affected by weather. For example, retailers use forecast data to ensure that they have the most appropriate products in stock—barbeque tongs for sunny days and umbrellas when rain is expected.

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The Challenge

WetterOnline has invested significantly in its IT infrastructure in recent years. The technologies are required for processing the vast amounts of data that feed the company's meteorological services. However, managing the huge infrastructure that had been built up over the years had proven to be extremely costly. Furthermore, the lead times for adding new services was restricting the company's agility.

The previous infrastructure consisted of a home-grown application and database. The company was managing an environment that consisted of nearly 170 physical servers with an EMC Isilon scale-out storage infrastructure. The IT team was facing several challenges, primarily due to the massive size, high cost, and poor performance of the architecture. The company decided that a new solution should be sought—one that could consolidate the environment and virtualize the large number of servers to help reduce costs. Specific requirements included the ability to handle at least 100,000 IOPS.

The Solution

To meet their stated requirements, WetterOnline drew up a list of potential vendors who then put the efficiency of their systems to the test in a proof of concept evaluation. Some of the solutions that were evaluated included a hybrid storage appliance, a hard disk drive (HDD) solution, a competitor solid state drive (SSD) solution, and modifications to the current EMC Isilon architecture.

As a trusted advisor, Dell assisted with some of the evaluations, comparing a flash configuration to a spinning disk architecture. For the same investment, the flash performance exceeded that of the HDDs by a considerable margin. This test convinced Dell that a flash solution would better provide the performance and consolidation that WetterOnline needed.

"The Dell solution is intuitive and easy to handle," said Bernd Kuhlen, Head of Systems Administration at WetterOnline. "The price was compelling, and the commitment of the Dell team during the proof of concept phase was immense." Dell approached SanDisk to assist with developing a flash-based solution.

WetterOnline now relies on a virtualized end-to-end solution from Dell for its wide range of meteorological services for corporate and private customers. The company has replaced the nearly 170 physical servers with just 18 virtualized Dell servers, using VMware vSphere5.5 virtualization software. The end-to-end solution is arranged in three server racks, each containing four Dell PowerEdge R820 and two Dell PowerEdge R720 machines. WetterOnline also benefits from the "Dell Acceleration Appliance for Databases" (DAAD). The combination of Dell servers with the Fusion ioMemory ioDrive2 cards speeds up applications, improves response times, boosts efficiency, reduces storage latencies, and eliminates input/output bottlenecks. In addition, the Dell Acceleration Appliance for Databases (DAAD), which contains SanDisk ION Accelerator, provides different hosts with access to shared flash memory.

"The accuracy of our forecasts and the quality of our real-time website and mobile services makes wetteronline.de the trusted source for weather information across Germany," Kuhlen told us. "After three months of testing, it was clear that the DAAD offered the best performance out of the three appliances we tested. The DAAD allowed us to run more complex analyses to continue to improve our forecasting services, with an affordable all-flash solution that helps us extract more value from our IT systems."

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Bernd Kuhlen, Head of Systems Administration, WetterOnline

"Dell works closely with its customers and partners to develop comprehensive and future-proof solutions to ensure that they are well-prepared for the future. The DAAD is a good example, since it comprises Dell PowerEdge server and services, SanDisk ION Accelerator software, and Fusion ioMemory PCIe cards from SanDisk—with IP of both companies to optimize the entire solution."

Peter Dümig, Field Product Manager Enterprise Solutions, Dell

The Result

The team at WetterOnline told us that the data for weather reports are now being crunched at a substantially faster rate. For the company's radar service, WetterOnline was pushing out updates to customers every five minutes. While the previous architecture took four minutes to process the data, the new system now processes the same data in less than three minutes—a 25 percent improvement. In addition, the processing speeds of some customized services have improved by as much as 60 percent.

Enhanced flexibility was one of the company's goals for the project. WetterOnline operates in a competitive environment where the development of new weather services for corporate, industrial, media and consumer markets is crucial to success. New services can now be introduced in just a few hours, whereas in the past, this process took up to 20 days. "The new virtualized Dell solution has been instrumental in elevating WetterOnline to a more competitive position. It provides the technological basis for future business growth. In addition, with the Dell Acceleration Appliance for Databases (DAAD) and VMware ESX, we have improved transaction processing speeds while also freeing up existing resources to support new services," said Kuhlen.

During the concept and implementation phases, Dell and SanDisk worked in concert to develop a solution to meet WetterOnline's unique requirements. The companies held joint meetings with the customer, where they presented options and solutions. "Due to the perfect cooperation with our colleagues from SanDisk, WetterOnline recognized us as one team and trusted advisor," said Nico Terrey, Senior Solutions Engineer at Dell.

Each vendor provided manpower, hardware, and software to enable evaluation and testing. "Collaboration with Dell and SanDisk has been exemplary throughout the whole project, from consulting and design through to implementation and ongoing service and support," said Kuhlen. "We have boosted productivity and are delivering services faster."

"Many service providers, as in the case of WetterOnline, are faced with the challenge of having to adopt a more agile technology infrastructure to be able to exist in highly competitive markets," Peter Dümig, Field Product Manager Enterprise Solutions at Dell, explains. "Due to our extensive experience with projects of all sizes from virtually every industry, Dell is able to offer its customers an optimum level of support in servers, storage and networking. Dell works closely with its customers and partners to develop comprehensive and future-proof solutions to ensure that they are well-prepared for the future. The DAAD is a good example, since it comprises Dell PowerEdge server and services, SanDisk ION Accelerator software, and Fusion ioMemory PCIe cards from SanDisk—with IP of both companies to optimize the entire solution."

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The performance results and cost savings discussed herein are based on internal testing and use of Fusion ioMemory products. Results and performance may vary according to configurations and systems, including drive capacity, system architecture and applications.