Deutscher Wetterdienst
Wetter und Klima aus einer Hand

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Alexander Harth
Head of User Support
Deutscher Wetterdienst

Pictures: Deutscher Wetterdienst (DWD)

DWD uses approximately 500 FUJITSU Server PRIMERGY systems and 15 petabytes of NetApp storage to provide latency-free weather visualizations for the airline industry.

At a glance
Country: Germany
Industry: Public services
Founded: 1952
Employees: approx. 2,500
Website: www.dwd.de

Challenge
DWD's data center has to process enormous volumes of data from more than 2,000 measuring stations, 17 weather radars, numerous high-resolution weather satellites and a number of international data sources. This must be done with as little delay as possible to provide customers in the airline, shipping and emergency services industries with the high-quality graphical information they need to keep people safe.

Solution
For applications where latency is critical, such as providing weather forecasts to airlines or the emergency services, DWD relies on a combination of Fujitsu PRIMERGY servers and All-Flash storage from NetApp. This enables the company to provide visualizations of its modelling results with no time delay.

Benefit
■ As the servers are certified for NetApp storage, the reliability and service quality of the entire system is guaranteed

■ Visualizations can be provided with very little delay

■ The company can offer new services that rely on low-latency virtualizations

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Customer

The German Meteorological Service, Deutscher Wetterdienst (DWD), is a higher federal authority that falls under the country's Federal Ministry of Transport and Digital Infrastructure. It is responsible for supplying meteorological information to all areas of the German economy and society. This includes providing services that help to keep air and sea transport safe, as well as issuing official warnings about weather events.

Products and services

■ Approx. 500 x FUJITSU Server PRIMERGY RX300

Challenge

DWD's role is to provide weather and climate related data and to warn people and authorities as early as possible in emergency situations, such as heavy rain or storms, so that measures can be taken to ensure public safety. However, even when natural disasters are not looming, the information the Offenbach-based authority provides is used everywhere. For example, no aircraft will take off without requesting a weather forecast from DWD.

DWD's data center analyzes information from a wide variety of sources, including a total of more than 2,000 measuring stations, 17 weather radars and various weather satellites. Alexander Harth, Head of User Support at DWD, is responsible for getting this data visualized. "The Fujitsu server environment has proven to be incredibly reliable, it runs without any significant problems. The overall package of service and performance really works for us," says Harth. He has more than 500 FUJITSU Server PRIMERGY devices in use with a total storage capacity of 15 petabytes.

The Fujitsu PRIMERGY servers run a variety of meteorological applications, mainly for visualizing current weather conditions and predicting how they will change in the coming hours and days. These visualizations are then used to advise customers in the airline and shipping industries and the emergency services on the weather they will be facing.

Solution

The most important requirement in visualizing weather conditions for airlines is low latency. "For applications where latency is critical, we rely on a combination of Fujitsu hardware and All-Flash storage from NetApp. The fact that this combination has been certified is very important to us," says Harth. Applications where this fast storage is particularly beneficial include forecasting, where you are looking for anomalies in a dataset. These could be flashes of lightning or signs of hail on a radar image. These results are available within a second.

Being able to provide precise information with very low latency is also important when it comes to providing weather data to rescue helicopters. The accuracy of such forecasts for the coming minutes will decide in some circumstances whether a helicopter can take off and attempt a rescue, or if the risk for the pilots and passengers is too great. As any errors in such predictions could put people's lives in danger, it is extremely critical for the DWD to be able to predict weather quickly and precisely, such as how much fog is coming in and how strong the wind will be.

Benefit

The main reason the company chose to go with Fujitsu was the fact that the solution was certified for NetApp, which provides solutions for managing and storing data. At the time, Fujitsu offered the only corporate server that was fully certified to work in combination with NetApp storage. "The fact that the Fujitsu server was certified for use with NetApp devices was a decisive factor for us. We can be sure that if there are any problems, we won't just end up with each manufacturer pointing the finger at the other," explains Harth. The level of support on offer also played a key role in the decision, as did the comprehensive, direct manufacturer support ensured by the company's close physical proximity to the factory in Augsburg.

DWD is currently preparing for the next big leap in demand at its server farm. The reason: each new generation of satellites sends up to 50 times more data back to Earth than its predecessor. A new generation is launched every five to ten years, and DWD is getting ready for the next version to arrive. Harth: "We have to react and make sure our storage systems will be able to continue visualizing these great floods of data. Whenever sensors improve, we have to go back and make changes to ensure we can keep on visualizing the information." An additional challenge is the new supercomputers that DWD is using. Capable of much more detailed predictions, these computers are presenting challenges regarding how such detailed images are stored and visualized.

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