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Ewan Johnson
Quantum Storage UK

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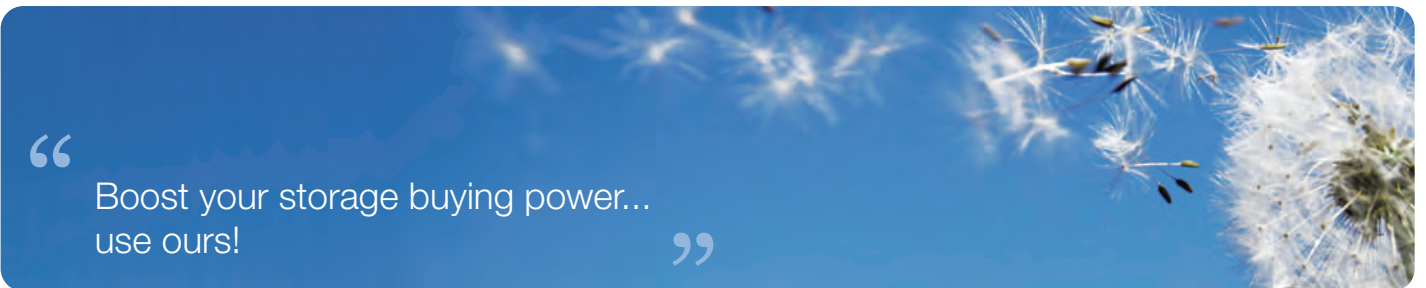
24 The Bridge Business Centre
Beresford Way
Chesterfield
S41 9FG

Get in touch

Call us on: 01246 454222
Email us: web@coolspirit.co.uk
Find us: [View location map](#)
Web: www.coolspirit.co.uk

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Taming the Data Storm

Finnish Meteorological Institute uses solution featuring HP servers and Quantum StorNext software to handle massive data management challenge

“We are able to keep our first-tier storage capacity relatively small, using tape or less expensive disk—at a savings of roughly 50 percent—for data that is not used as often. The potential savings are quite large; in fact, we are starting to see them already.”

– Matti Keranen, director of IT systems, FMI



FINNISH METEOROLOGICAL INSTITUTE

Objective

Manage exploding data volume in a cost-effective manner by moving to a two-tier storage system with support for multiple operating systems

Approach

Implement a joint solution from HP and Quantum that enables significant cost savings in first-tier storage, greatly increases performance over the previous system, and provides continuous protection of critical research data

Business technology improvements

- Proliferation of file systems was reduced significantly
- Solution scales to petabytes, supporting hundreds of millions of files
- Storage is now used more efficiently
- Linux-based system fits customer environment
- Solution supports high availability metadata controllers

Business outcomes

- Significant cost savings stem from reduced need for first-tier storage
- Higher performance enhances user satisfaction
- Flexibility of solution eliminates “vendor lock”
- Joint HP servers/StorNext software solution is very cost-effective
- Critical research data is protected

HP customer case study:

Faced with an overwhelming increase in the volume of data from weather and climate models, plus growing radar and satellite data, the Finnish Meteorological Institute (FMI) implemented a joint solution from HP and Quantum that features flexibility, hierarchical storage management, and scalability to petabytes.

Industry: public sector



Never mind that the Finnish Meteorological Institute (FMI) manages data on huge space tornadoes that, when they hit the ionosphere, give rise to auroras on the Earth. Even in the mundane world of weather forecasting, FMI’s data volume is staggering. Consider the narrow sphere of marine weather, for example, which generates a constant flow of data on sea level, wave height, and ice conditions, not to mention forecasts for shipping, wave action, sea temperature, and surface salinity.





And the volume is growing fast. “When I joined FMI in 2002, we had maybe one or two terabytes of data,” recalls Matti Keranen, director of IT systems. “Now we have between 200 and 300 terabytes.” The bulk of the data comes from weather and climate models. Added to that, the radar and satellite images that FMI collects, stores, and archives make for an enormous data challenge. Other factors—including more granular weather forecasting, evolving climate change models, and impending changes in regional data policy—will continue to increase the data volume exponentially. As if that weren’t enough, FMI is also replacing its weather radar network, with a projected increase from 40 to 600 gigabytes per month over the next few years.

All spread out

Until recently, FMI used Linux NFS servers with ext3 file systems to handle all the data—millions of files spread across many different file systems. According to Keranen, this approach resulted in inefficient usage of disk space and increasingly difficult management of data sets and file systems. Furthermore, NFS performance was not adequate for certain users. “We were constantly buying new disk capacity and trying to expand the existing file systems,” he says. “We realized that something had to change, and so we purchased the Quantum StorNext solution. Now, with an HP EVA8100 system-based disk cache and HP ESL712e tape library, we can migrate all the different data sets into one or two file systems.”

Continues Keranen: “Expanding the file systems has become close to trivial, and StorNext enables us to use the storage more efficiently. We also expect the performance to be much better than the old system.” The configuration includes two HP ProLiant DL360 network servers and seven storage area network (SAN) clients (five Linux-based and two Windows®-based HP ProLiant BL460c server blades).

Based on a thorough product comparison, Keranen and his team were convinced that StorNext was the right data management solution for FMI. “For one thing, StorNext is based on Linux, and FMI is quite strong with Linux,” he says. Relationship played a big part as well. “We have worked with HP Finland for quite a long time,” he continues. “Even though HP didn’t have any StorNext installations in Finland, we were confident that HP and Quantum would make the solution work for us.”

FMI also had good reason to select the HP platform. Says Keranen: “Our previous experience with HP EVA [Enterprise Virtual Array] storage was very good, based on price, performance, and ease of management. HP provides an excellent platform for the StorNext solution that we are using at FMI.”

Customer at a glance:

Name: Finnish Meteorological Institute (FMI)

Headquarters: Helsinki, Finland

Founded: 1838

Telephone: +358 9 19291

Number of employees: approximately 640

Yearly budget: 48.5+ million EUR

URL: www.fmi.fi/en/

Critical benefits

Technical factors were key to FMI's purchase decision. "StorNext was quite flexible, because there are also StorNext clients for Windows," says Keranen. "StorNext offered greater disk expansion possibilities—the solution scales to petabytes, and supports hundreds of millions of files. With StorNext, we can use tape, virtual tape, or disk as the second-tier storage. We can build high-availability metadata controllers. There was no 'vendor lock'—StorNext supports multiple platforms. And we shouldn't forget the pricing: StorNext was the most cost-effective solution for us." The fact that StorNext also integrates well with FMI's high-performance Cray computer is also helpful to FMI.

According to Keranen, the StorNext solution delivers many important benefits to FMI. "We are able to provide users with more storage space," he says. "I also believe that, in the long run, we will benefit economically from having this two-tier architecture with hierarchical storage management." In addition, FMI values StorNext's ability to continuously create backup copies of files, a feature that provides critical protection for the Institute's massive store of research data.

NOAA likes it, too

When evaluating a new solution, it's always nice to know that other organizations are using it successfully. StorNext has no shortage of references across many industries, including media and broadcast, telecommunications, science and engineering, education, and outsourcing and managed services. Joint customers of HP and Quantum StorNext include Swiss Institute Informatique, Oxford University's Biochemistry Department, and ARD SternPunkt. But for FMI, the most compelling reference came from a sister organization: the U.S. National Oceanic and Atmospheric Administration, or NOAA.

"I talked to a person at NOAA on the phone, and that was really convincing," recalls Keranen. "He told me about their positive experience, not only with the performance and high availability of the system, but also with the Quantum support. After that, it was easy to make the decision to choose StorNext." Conversations with the Spanish Meteorological Agency yielded a second highly relevant reference for the well-established StorNext solution.



Promising roadmap

FMI uses StorNext mainly for archiving purposes, but Keranen thinks the solution might also be used for home directories in the future. "Quantum recently presented its product roadmap for the next one to two years, and it looked very promising," he says. "We certainly plan to test the new StorNext features around replication and deduplication."

In fact, FMI expects to establish a new satellite ground station in northern Finland within the next few years, and the related data archiving facility will be up and running soon. FMI plans to replicate some data from Helsinki to the new facility for disaster recovery purposes.

Flexibility, efficiency, cost savings, data security—the HP servers/StorNext software solution delivers critical benefits that help ensure FMI's ongoing success. Concludes Keranen: "Whenever I attend a storage conference, the talk is always about the incredible growth in data volume. I think it's quite unique in Finland to have several hundred terabytes of data, so the StorNext hierarchical storage architecture is a particular benefit to FMI. Overall, we are very happy with both the solution itself and our excellent relationship with HP and Quantum."

Customer solution at a glance

FMI uses a joint HP and StorNext solution for efficient, cost-effective storage of high-volume weather, climate, radar, and satellite data

Primary applications

- Quantum StorNext data management software

HP Services

- Installation

Primary hardware

- HP ProLiant DL360 Servers
- HP ProLiant BL460c server blades
- HP StorageWorks 8100 Enterprise Virtual Arrays
- HP StorageWorks ESL712e Tape Library

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