Quantum®

Courtesy of: Carsten Costard

Distilling Climate Data to Fuel Scientific Research with StorNext at Max Planck Institutes

The Max Planck Society harnesses cutting-edge technology to support a wide range of scientific research. With system integrator microstaxx, the Max Planck Institute for Chemistry deployed StorNext to better manage research data—keeping researchers focused on science instead of the underlying technology.

MAX PLANCK INSTITUTE FOR CHEMISTRY

FEATURED PRODUCTS

StorNext® 5

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Thomas Disper
Chief Information Security Officer & Head of IT,
Max Planck Institute for Chemistry, Max Planck Society

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MAX PLANCK INSTITUTE FOR CHEMISTRY

SOLUTION OVERVIEW

- Quantum StorNext® Scale-out Storage
- Quantum Scalar® i6000 Tape Library

KEY BENEFITS

- **Scales to support growing research data,** removing limitations on research projects
- **Provides simultaneous access to data** for numerous researchers working in parallel
- **Eliminates the need for disparate systems** and allows researchers to focus on science
- **Protects and archives vital research data** to provide continuous data access

Researchers within the 83 research institutes of the Max Planck Society explore a diverse array of scientific questions, ranging from how proteins function and how the brain supports speech to how the ozone affects the climate. Attracting the world's leading researchers, the Max Planck Institutes focus on fields that can spur the most innovative research.

Many of the research projects conducted through the Max Planck Institutes require large-scale data management. "Scientific projects can generate tremendous amounts of data," says Thomas Disper, chief information security officer and head of IT for the Max Planck Institute for Chemistry. "In addition to collecting raw data, we process data and keep the results—without impacting the science."

FACING DEMANDS OF FAST DATA GROWTH

Research projects can quickly push the capacity limits of current storage environments. For example, the Amazonian Tall Tower Observatory project (ATTO) brings together the Institutes for Chemistry and Biogeochemistry with

Brazilian organizations to study climate change in the Brazilian rainforest. Researchers collect atmospheric data using a 325-meter measurement tower that soars high above forest treetops. By analyzing measurements of greenhouse gases, aerosol particles, cloud properties, and more, researchers hope to fine-tune climate models, improve weather prediction, and provide important insights.

"Some individual measurement devices on the tower collect up to 80GB of data per day," says Disper. "Data is then transported to the data center in Germany, where it is processed and made available to researchers around the world."

REQUIRING SIMULTANEOUS ACCESS TO DATA

For the Brazilian rainforest research and other projects, numerous researchers need simultaneous access to data. "Multiple research groups often work in parallel," says Disper. "We need to provide simultaneous access to the data so they can stay productive."

The IT group must accommodate a full range of operating environments. "Researchers might work in Linux, Windows, or Mac OS environments," says Disper. "We need to support their scientific needs without requiring them to alter their workflows."

PROTECTING DATA WITHOUT THE BOTTLENECK OF BACKUP

The Max Planck Institute for Chemistry also needed a way to protect and archive data that could ensure continuous, uninterrupted data access. The IT group was previously backing up data from a small file server to an external service through overnight backups. However, the old file server couldn't meet the required performance, and the Oracle environment wasn't intuitive. Traffic was bottlenecked when it came time to perform a backup.

PARTNERING WITH MICROSTAXX AND CHOOSING QUANTUM STORNEXT

The IT group researched the market and learned about the Quantum StorNext platform from microstaxx, the German IT service provider and contractual partner of the Max Planck Society. After an intensive evaluation phase, the StorNext platform proved to be the right choice for the Max Planck Institute for Chemistry. "Our new solution based on StorNext gives us the performance to support multiple parallel streams of data—which keeps research far away from bottlenecks," says Disper.

Specializing in working with research institutions, microstaxx provides solution evaluation and design, consulting, and complete project management and implementation.

"As a leading system integrator for higher education and research, microstaxx provides customized StorNext solutions for sophisticated applications and challenging data volumes," says Henning Dorsch, solution sales manager at microstaxx.

OVERCOMING SKYROCKETING DATA GROWTH

The StorNext platform, in concert with Fujitsu primary storage, enables the IT group to rapidly scale storage. "We needed a platform with

significant growth potential—data volumes can quickly skyrocket when we need to support new projects or collaborate with other institutes," says Disper. "StorNext allows us to provide a lot more capacity quickly and easily. We don't need to give research teams data limits, and storage for new projects can be ready in an afternoon."

ENABLING FLEXIBLE ACCESS TO DATA

The StorNext platform provides a shared file system that enables numerous research teams to access data. "With the StorNext platform, we can keep data readily and transparently accessible to multiple groups throughout the entire data lifecycle," explains Disper.

The StorNext file system also provides the flexibility to support a full range of client systems, including clients running Linux, UNIX, Windows, and Mac operating systems. As a result, the team can offer access to researchers around the globe without requiring them to alter existing IT environments or workflows.

ELIMINATING STORAGE SILOS

By providing robust performance and sizable capacity, the StorNext platform has helped reduce the need for research groups to acquire and maintain their own storage environments.

"Scientists shouldn't have to spend time worrying about IT," says Disper. "Now we can provide the resources they need and handle all the management for them."

SIMPLIFYING DATA ADMINISTRATION FOR A SMALL STAFF

The StorNext solution also helps streamline management tasks for the centralized IT group without having to add staff members. "We have a small staff and a lot to do," says Disper. "The StorNext environment is very easy for us to manage and maintain. We don't have to spend all day on tasks."

PROTECTING RESEARCH FOR THE LONG TERM

With the multi-tier StorNext data management platform and the Quantum Scalar i6000 tape library, the IT group can protect research data

ABOUT MAX PLANCK INSTITUTE FOR CHEMISTRY

The Max Planck Institute for Chemistry was founded in 1912 as the Kaiser Wilhelm Institute for Chemistry in Berlin and is located in Mainz since 1949. About 300 people are currently employed at the MPIC divided into five divisions and additional groups. It carries the epithet Otto Hahn Institute in honor of its former director and president of the Max Planck Society. The MPI for Chemistry investigates the Earth system and chemical processes in the atmosphere as well as the interactions between air, water, earth, and mankind. Scientists conduct experiments in laboratories, and also collect samples and data during field campaigns utilizing aircraft, ships, and vehicles. The practical work is complemented with mathematical models that simulate chemical, physical, and biological processes from molecular to global scales. The goal is to find out, for example, if and how air pollution affects the atmosphere, climate, and health. Particularly well-known scientists of the Institute are the Nobel laureates Richard Willstätter, Otto Hahn and Paul Crutzen.

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automatically and continuously in the background. "We have policies in place that copy data after a certain amount of time," says Disper. "This way we can avoid the need for backup windows."

MINIMIZING COSTS AND CONTROLLING ACCESS WITH QUANTUM ACTIVE VAULT

The institutes use the Quantum Active Vault capability to archive tapes inside the library instead of on a shelf. With Active Vault, organizations can minimize costs and cartridge handling while improving security and access to vaulted content. "If a partition is full, data on tape is migrated from that active partition to a partition within the Active Vault library," says Disper. "We can make sure the data is protected against unauthorized access."

ENSURING DATA INTEGRITY

Quantum's policy-driven Extended Data Life Management (EDLM) capabilities help prevent data loss on tape. "When tapes are stored on a shelf, they can

potentially deteriorate and become impossible to read," says Disper. "The EDLM software periodically checks the data and copies data to new tapes if something is wrong. We can make sure researchers can continue to access data for years to come."

REMOVING BARRIERS TO RESEARCH

With the StorNext platform in place, the Max Planck Institute for Chemistry is better prepared for whatever lies ahead. "We now have the agility to handle sudden changes in research requirements," says Disper. "We can increase capacity or data throughput when needed."

Researchers can move forward with less concern about the underlying technology.

"With the StorNext platform, we have removed barriers to research," says Disper. "Paired with solution design, project management and implementation services from microstaxx, the Quantum solution is the perfect match for us."

ABOUT MICROSTAXX

Founded in 1990, microstaxx is a leading German system integrator with headquarters in Munich. microstaxx specializes in data center solutions for the research and development sector, government organizations, and midsized companies from all industries. microstaxx offers professional services, including design, implementation, and maintenance of sophisticated IT environments.

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