

Customer Story

# Consolidate Digital Backup to Object Services at Scale and Boost Cybersecurity



## ✓ Challenge

Deliver a standardized, fast, and reliable backup service for 29 universities and higher education institutions.

## ✓ Solution

Deploy a geo-redundant, high-availability Hitachi Content Platform cluster across six locations with over 72 storage nodes.

## ✓ Outcome

Enable rapid and easy self-service backup and recovery while protecting important university data against cyberthreats.

## Challenge

The German State of North Rhine-Westphalia (NRW) is a leading industrial region in Germany and home to 18.1 million people. Higher education is key for a prospering economy, providing a well-trained and skilled workforce. To improve and streamline services across the higher education sector, NRW focuses on strengthening the digital capabilities of its 42 public universities and higher education institutions. As part of this innovation program, NRW wants to consolidate digital infrastructure services including backup and recovery to increase efficiency across public higher education facilities.

RWTH Aachen University has been leading the effort to create a standardized backup and recovery service. As one of ten German Universities of Excellence, RWTH teaches more than 47,000 students, with a strong focus on engineering and technology.



## RWTH Aachen University

### INDUSTRY

Education, Public Sector

### SOLUTIONS

[Data Protection & Cyber Resiliency](#)  
[Modernize the Digital Core](#)

### HARDWARE

[Hitachi Content Platform \(HCP\)](#)

### SOFTWARE

[Hitachi Data Protection Suite](#),  
powered by Commvault

### SERVICES

[Executive Briefing Center, Santa Clara](#)  
Premium Support

### PARTNER

H&G Hansen & Gieraths EDV  
Vertriebsgesellschaft mbH

*“This service is a cornerstone of the state’s cyber resiliency strategy. By delivering reliable, immutable backups, our Hitachi Vantara solution plays a key role in strengthening cybersecurity and minimizing the impact of security threats.”*

DR. THOMAS EIFERT, CTO IT Center, RWTH Aachen University



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Dr. Thomas Eifert, CTO at the IT Center of RWTH Aachen University, says: "In the past, every university, department, and institute designed and operated their own backup and recovery processes and solutions. Some are more reliable than others. To boost productivity across universities, increase cost-efficiency and strengthen protection against cyberthreats such as ransomware, the state decided to fund a project to establish a consolidated offering for all universities: Datensicherung.NRW. At RWTH, we decided to put ourselves forward as one of the service providers that would deliver data protection as a service to up to 29 higher education institutions."

A strategic consolidation project on such a scale required large amounts of powerful storage infrastructure. Furthermore, the initiative needed a flexible, user-friendly software to handle the wide-ranging backup requirements of all the higher education institutions and universities.

"Our goal was to deliver fast and reliable self-service data restores," confirms Thomas Eifert. "Be it a small departmental server or a large university-wide system, we wanted to provide the same service levels and performance to all users."

### Solution

Leading the state-wide consolidation project, RWTH evaluated a range of vendors and solutions. Ensuring flexible compatibility between the storage infrastructure and backup software was a key priority. After two separate public tender processes for the backup software and backup infrastructure solutions, RWTH selected Hitachi Vantara as its primary partner. "It was difficult to find solutions that could handle this scale and provide all the features we needed," explains Thomas Eifert. "We also looked at hyperscaler deployment options but they were multiple times more expensive than the Hitachi Vantara offering."

Working closely with Hitachi Vantara, RWTH deployed the distributed object storage solution Hitachi Content Platform

(HCP) across six data centers of RWTH Aachen to serve as a backup target. The IT team installed a geo-redundant configuration with six clusters, each with 12 nodes and a total capacity of 56 PB. "Our focus was to build a scalable and future-oriented architecture from the ground up," says Thomas Eifert. "The Hitachi Vantara team supported us with technical guidance, providing all the building blocks for the new environment. HCP is well suited for a distributed high-availability implementation. The solution prioritizes resiliency with built-in data integrity monitoring and automated failover capabilities."

For maximum data protection, RWTH enabled the Geo Erasure Coding feature in HCP across all six locations. As a result, the solution distributes redundant data over six clusters to ensure that if one location fails due to catastrophes such as power outages or fire, there will be no impact for users or mission-critical data. Thanks to the ability to parallelize reads and writes across storage nodes, HCP offers outstanding performance and scalability. The solution can be expanded easily by adding more nodes, with automated discovery and integration into the existing cluster. With the Hitachi API for Amazon S3, the object storage solution supports the de-facto industry standard protocol, offering built-in compatibility with a broad range of software solutions.

Building on HCP, RWTH also deployed Commvault Backup & Recovery software. "HCP and the Commvault software work very well together," adds Thomas Eifert. "The experience and collaboration between the two companies made things much easier during the highly complex implementation process."

For users at universities across NRW, there is just a single, intuitive self-service endpoint to manage backup and restore processes. And behind the scenes, RWTH builds on the Commvault CommCell architecture for large-scale enterprise environments to run about 20 servers to optimally distribute the load and offer consistently fast performance for backup and recovery tasks.

**7000**

### Active Backups

Delivers reliable and fast backup services at scale.

**56 PB**

### Total Storage Capacity

Provides geo-redundant backup capacity across 6 clusters with 72 nodes.

**Rapid**

### Onboarding and Recovery

Shortens recovery times with fast and consistent performance.

## Consolidate Digital Backup to Object Services at Scale and Boost Cybersecurity

### Outcome

In its drive to increase cost-efficiency and digitization in the education sector, NRW has become an innovation leader and established a unique model for delivering IT services at scale. And RWTH and Hitachi Vantara are playing a central role in the successful rollout of the ambitious program.

"Working with our colleagues at other universities, we have successfully launched Datensicherung.NRW, a state-wide service by NRW universities for NRW universities," says Thomas Eifert. "This service is a cornerstone of the state's cyber resiliency strategy. By delivering reliable, immutable backups as a service, our Hitachi solution plays a key role in strengthening cybersecurity and minimizing the impact of security threats and ransomware attacks."

In collaboration with Hitachi Vantara, RWTH has implemented one of the largest and most complex deployments of HCP and Commvault Backup & Recovery. "Today, we're backing up 7,000 systems," confirms Thomas Eifert. "That's about 4,500 at RWTH and another 2,500 from other universities. For us, this is just the beginning. Many of the 29 universities and higher education institutions are interested and we're expecting rapid growth over the coming months."

A key benefit for backup users is the substantially improved integration with other systems. In the past, RWTH only offered basic file backups and relied on manual working or custom scripts to back up important applications. Now, the RWTH service offers fully integrated, smarter application-aware backups for software such as Microsoft Exchange, Oracle Database or SAP ERP, which improve backup speed and ensure data consistency.

Universities in NRW can now boost reliability and minimize the risk of data loss much easier and more cost-efficiently, when they relied on their own solutions. At RWTH there are about 250 IT teams that can now focus on optimizing operations instead of managing backups.

"We can offer better services to protect against accidental deletion, software errors and the impact of cyberattacks," adds Thomas Eifert. "The new Hitachi solution has already proven itself since we have launched the service. We onboarded one partner university on short notice within only a couple of days, after they experienced an incident. Another user successfully restored a 10 TB departmental server after a cyberattack

– everything went smoothly and they were back online well before lunch the same day! This shows how Datensicherung.NRW enables rapid recovery of important data."

In the future, RWTH plans to expand the backup service beyond just university servers to cover staff desktops as well. Following the great collaboration, RWTH is happy to see that Hitachi is now participating in another public tender for a new research data archive.

Prof. Dr. Matthias Müller, Director IT Center at RWTH Aachen University, concludes: "I was truly impressed by the commitment of Hitachi Vantara, which inspired a lot of trust. When we visited the Executive Briefing Center at their corporate headquarters in Santa Clara, we were assured by Hitachi Vantara's top management that they would go the extra mile to make this challenging project a success – and they did. I doubt that other vendors would have been as supportive throughout the implementation. With the extreme scale of our environment, we pushed the boundaries of what's possible and I'm sure Hitachi also learned some valuable lessons to make their solutions even better in the future."

### About H&G

H&G Hansen & Gieraths EDV Vertriebsgesellschaft mbH is a Hitachi Vantara Elite Partner headquartered in Bonn, Germany. The family-owned and run business employs 200 people and is a specialist for premium-quality IT infrastructure. H&G offers personalized service and easy access to knowledgeable experts, helping its customers to making IT successful at scale.

### About RWTH Aachen University

RWTH Aachen University is a leading university in Germany and one of only ten "Universities of Excellence" out of a total of 108 universities of the highest level across the country. As a top university in Germany, RWTH has a strong focus on science and technology. More than 47,000 students study 144 programs in fields including industrial, electrical, and mechanical engineering, natural and physical sciences, computer science and clinical and health studies. Over 500 professors and 9,700 staff work at nine faculties and 260 institutes. RWTH hosts three "Clusters of Excellence" supported by German Federal and State Governments and manages a budget of over €1.1 billion.



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