



## CASE STUDY

# Global Automotive Supplier Accelerates Autonomous Vehicle Development with Quantum's Multi-Tier Storage Solution

An award-winning developer of next-generation electronics for active safety systems and autonomous vehicle technology needed to solve a workflow bottleneck caused by explosive data growth. Only Quantum's multi-tiered storage solution could get the development team up to full speed and within budget—enabling a simpler workflow by providing greater performance than alternative solutions, and at 10% of the cost.

FEATURED PRODUCTS

## StorNext®

The StorNext approach provides the IT team with a wide range of options to meet its future needs. Those include allowing the team to scale performance and capacity separately—and allowing the archive to grow huge while keeping the active performance storage as small as possible to control costs.



Photo courtesy of AutonomouStuff

The engineers working on the project have been impressed with the amount of data they can access directly and also the speed at which files are written back to disk from the archive.

**SOLUTION OVERVIEW**

- Xcellis™ Workflow Director, powered by StorNext®
- StorNext QXS™-5600 performance storage
- StorNext AEL6000 archive storage

**KEY BENEFITS**

- Simplifies workflow with high-performance, shared storage support for HPC analytics and testing requirements
- Allows teams to retain petabytes of data while minimizing active disk costs—at 10% the cost of alternative solutions
- Provides automated data protection of key assets
- Enables more efficient international collaboration and DR protection
- Scales performance and capacity independently for future needs and budget control

A global leader of electronics for next-generation vehicles, with annual revenues in the tens of billions of dollars, saw its research undergo rapid evolution as active safety systems were proving to reduce accidents and make cars safer. The company recently saw its progress in this important program threatened when data volumes dramatically increased, colliding with the need for faster testing and more sophisticated analysis.

**EXPANDED DATA SETS FOR AUTOMOTIVE RESEARCH DRIVE HIGHER DATA VOLUMES**

Developing automated driving systems depends on running sophisticated test and analytic programs on data sets collected from sensors and video cameras mounted on vehicles. As the number of cameras and sensors increased, and resolution rates became higher, the result was rapidly expanding data sets that needed to be stored and managed. The company went from storing a few hundred terabytes of data for its projects to more than a petabyte.

**SOPHISTICATED ANALYTICS AND LONGER DATA RETENTION CHANGE WORKFLOW**

As the amount of data exploded, the deployment of high-performance computing (HPC) systems further strained the IT infrastructure, forcing changes in the workflow. Larger data sets meant that the teams also needed faster storage performance to run their analytics, and the current environment could not keep up. The network-attached storage (NAS) systems weren't fast enough for the new HPC systems, so data sets were copied to local disk for engineering testing. Compounding the problem was the need to save all the old data sets to reuse in the future as the team developed new, more advanced analysis software.

The IT team decided to transform its data management and storage systems to support the new business demands. It needed to create a system that could store more data, keep it for longer, protect it more effectively, and improve accessibility to all the teams working on these projects—and do it within budget.

**SOLUTION COMBINES HIGH-PERFORMANCE AND ARCHIVE STORAGE UNDER SINGLE POINT OF MANAGEMENT**

The IT team looked at all the available options and talked to a wide range of vendors. It considered expanding its NAS capacity, but rejected that approach due to a combination of high costs, data protection complexity, and inadequate performance. Instead, the company selected a tiered storage solution from Quantum, powered by StorNext high-performance file system with integrated data management software.

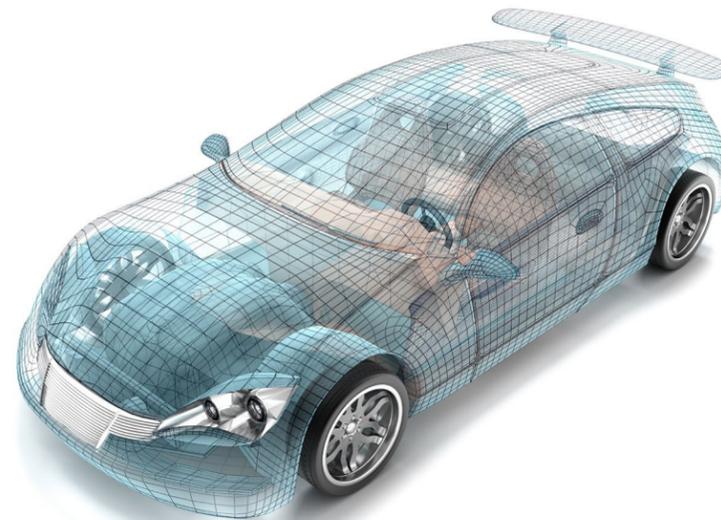
The company saw three major advantages offered by the Quantum StorNext solution. First, StorNext was designed to work with very large files and with large numbers of files—factors that were becoming more and more important to the company's work. Second, StorNext was also designed to enable collaborative workflows—teams can share data sets and even allow engineers to simultaneously work on the same files. And finally, the solution provided a tiered approach with an integrated tape archive to support massive storage capabilities, automated protection, and lower total costs. The team concluded that the overall costs of the Quantum solution were 10% of the cost of the other approaches they considered.

**NEW WORKFLOW COMBINES HIGH PERFORMANCE, ACCESS, PROTECTION, AND ARCHIVE**

In the new workflow, research data is ingested into high-performance storage managed by StorNext. The engineering teams' HPC systems can access the data directly using high-speed Fibre Channel storage area network (SAN) connections. With StorNext, now all the users can see the same data sets, and even run analytics on the same files at the same time. Overall, it has made the workflow much faster and much more efficient.

Data protection has become more efficient as well. As soon as data lands on performance disk, StorNext automatically makes two copies in a StorNext AEL tape archive. The copies serve as a backup initially, and later become part of an active archive as well. When the data on disk is no longer actively being worked on, the disk space is reclaimed, but the tape copies remain in the archive where they can be accessed. StorNext presents copies in the archive through the same file system as the copies on disk—in the same directory location—so they are directly accessible to the research teams.

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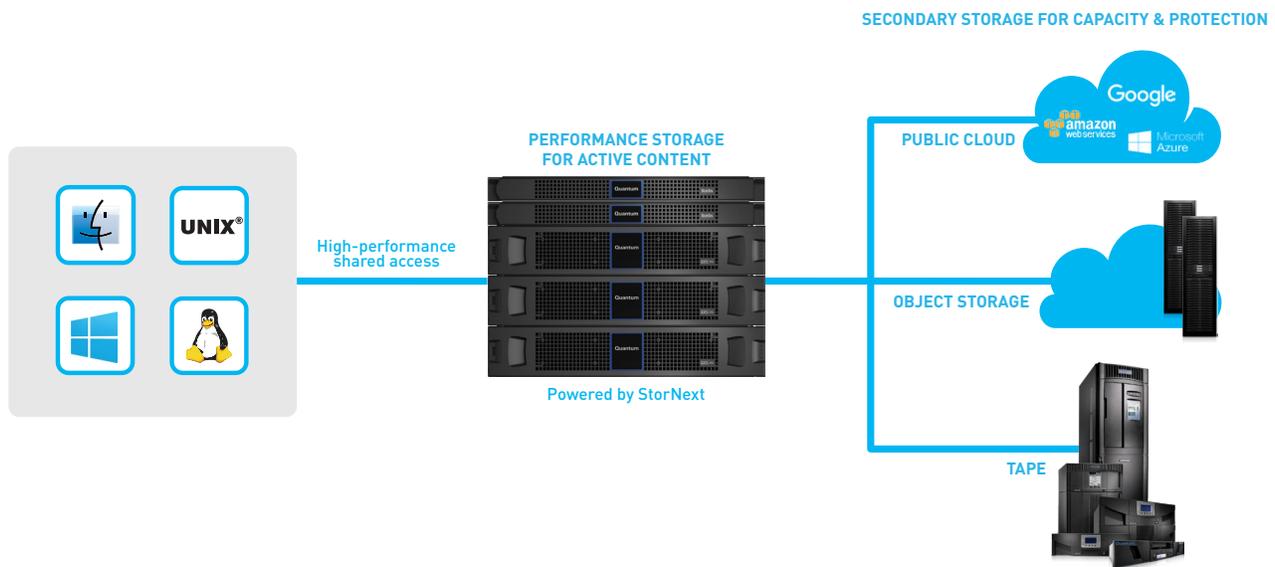
## SUPPORTING COLLABORATION BETWEEN SITES

The second copy of data on tape has become an effective way for teams in different parts of the world to work on the same data. The IT team discovered that the easiest way to share the petabytes of data between North American and European sites is to ship the archive tapes between locations. Data at the second site allows

worldwide development teams to share the same data sets, and it also provides a DR copy of these crucial files.

The future needs in this rapidly expanding field of engineering and design are far from clear, but it's likely to include more data, longer retention, higher performance, and more collaboration. The StorNext approach provides the IT team with a wide

range of options to meet its future needs. Those include allowing the team to scale performance and capacity separately—and allowing the archive to grow huge while keeping the active performance storage as small as possible to control costs.



## ABOUT QUANTUM

Quantum is a leading expert in scale-out tiered storage, archive, and data protection, providing solutions for capturing, sharing, and preserving digital assets over the entire data lifecycle. From small businesses to major enterprises, more than 100,000 customers have trusted Quantum to address their most demanding data workflow challenges. Quantum's end-to-end, tiered storage foundation enables customers to maximize the value of their data by making it accessible whenever and wherever needed, retaining it indefinitely and reducing total cost and complexity. See how at [www.quantum.com/customerstories](http://www.quantum.com/customerstories).

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