



Case Study: AIXTRON

Global Semiconductor Equipment Manufacturer Powers Faster Engineering Collaboration with Nasuni & Teamcenter

AIXTRON adopts a more agile, scalable, and cost-effective cloud infrastructure worldwide

Headquartered in Germany, AIXTRON is a leading provider of deposition equipment to the semiconductor industry. AIXTRON's technology solutions are used by customers worldwide to build advanced electronic or optoelectronic components that are used in a broad range of innovative applications, technologies and industries. These include Lasers for face recognition in mobile phones or for ultrafast data communication, LEDs for displays, SiC and GaN power devices for consumer electronics or electromobility as well as OLEDs.

The firm has eight locations around the world, and its partner company, APEVA, has another three sites in Korea and Germany. Like many other manufacturers, AIXTRON's file data had been growing too fast for traditional NAS file servers, and the company was struggling to share files between distributed engineering teams around the world. "Let's say we had a 3D model of one of our tools stored in Germany," says CIO Olaf Rupprecht. "If a system engineer in the US wanted to open a complete 3D model, it would take three, four, or even five hours just to get this open."

This is common among manufacturing companies. AIXTRON relies on the Siemens Teamcenter File Management System (FMS), but Teamcenter and other Product Lifecycle Management tools run into the same problem: They were created to help companies manage large, complex files, but they do not perform well enough to work across multiple global sites.

At AIXTRON, IT leadership was hoping to deploy a follow-the-sun collaboration model in which engineers in Asia could finish their work on a model in the evening, and the German team could pick it right up in the morning. Instead, the German engineers would arrive at work and find that the files still had not been transferred. They'd either have to

The AIXTRON logo, consisting of the word 'AIXTRON' in a stylized, red, blocky font.

Executive Summary

Industry: Manufacturing

Global File System: Nasuni

Object Storage: Amazon Web Services Simple Storage Service

Use Cases: NAS Consolidation; Multi-Site File Collaboration; Cloud First; Cloud Backup; Cloud Disaster Recovery; Digital Transformation; ROBO

Benefits: Accelerated workflows; less engineering downtime; faster time to market; local infrastructure reduction; elimination of backup; simpler IT management.

wait to begin, or they'd attempt to open a model in Siemens Teamcenter and encounter error messages.

These errors and delays hampered the productivity of AIXTRON engineers and threatened the business at large. "In the value chain, we're at the absolute beginning," notes Rupprecht. Time to market is critical: The longer AIXTRON needs to manufacture its tools, the longer its clients have to wait to actually make specialty components. And no one likes waiting for a brand new mobile phone.



A Decade-Long Search for the Best Engineering Collaboration Solution

Rupprecht suspected that he'd need to investigate a new approach to IT infrastructure to accelerate global engineering collaboration, improve workflows, and redesign Teamcenter FMS deployment. He was also looking for several other features:

- **Agility & Flexibility:** "We try to be 100 percent flexible because our business requirements are changing sometimes on a monthly basis," says Rupprecht.
- **Unified Data Protection:** All 8 AIXTRON locations had their own local storage infrastructure, and this storage had to get managed, backed up, and restored if a file or volume was deleted or lost. Remote locations in Asia would back up files to digital disk, then push these backups to Germany over the weekend, where they'd be stored on tapes. AIXTRON needed a simpler system.
- **Centralized Management:** The company didn't have local IT talent in Tokyo, Taiwan, or Korea who could manage these jobs on-site, so everything had to be done remotely from Germany. Ideally, Rupprecht wanted AIXTRON to automate some of these tasks and deploy a centralized system to remotely manage the company's distributed infrastructure.

Although it intensified in recent years, the IT group's search for a new infrastructure solution really dates back to 2009, when AIXTRON's CTO came up with an unusual request. In response to unexpected market forces, the company wanted to refocus its development efforts from one major project to another.

"Our CTO comes to us and says we need this technology up and running faster than originally planned, so we need 50 external engineers to get access to our system tomorrow," Rupprecht recalls. At the time, this wasn't possible. "But since then, I have

been looking for an engineering collaboration solution. I found it in theory in 2016, and really got it up and running in productive mode this past year.”

The Cloud-Native File Services System Backed by AWS

That solution was Nasuni Cloud File Services backed by Amazon Web Services Simple Storage Service (AWS S3.) The Nasuni platform is built around UniFS®, the world’s first cloud-native file services system. At each AIXTRON location, edge appliances cache frequently used files for high-performance access, but UniFS maintains the “gold” or authoritative copy of each file in secure AWS storage. Files and metadata both scale in the cloud, not on local hardware, allowing firms to shrink their local file storage infrastructure needs.

Nasuni’s unique design has extended multiple cloud file services to AIXTRON’s global locations, and our dedicated engineers worked closely with Rupprecht and his team to get the most out of their Siemens Teamcenter FMS deployment, powering fast, efficient engineering collaboration across the world.

Reliable Follow-the-Sun Collaboration with Teamcenter

AIXTRON has replaced its islands of storage and data protection with a single cloud file services platform. Working closely with AIXTRON and the firm’s local technical consultancy company, Nasuni enhanced the platform to extend a Teamcenter site instance to multiple geographic locations by using Teamcenter FMS Server Caches along with Nasuni’s own edge appliances.

In the past, it took AIXTRON engineers roughly two minutes to load a small model at one location. “We now have the performance to two-and-a-half minutes worldwide,” Rupprecht says. “In other words, a given model is available in roughly the same time frame, but it’s available everywhere – not just in one location. “If you compare loading time with Nasuni technology and without Nasuni technology,” he explains, “this is a performance increase of a factor of 5 to 10.”

Faster Time to Market by Reducing User Idle Time

Now that engineers around the world can begin working right away, without frustrating delays or errors as they wait for their files to load, the company as a whole can operate more efficiently. Users no longer have to utilize Teamcenter’s time-consuming remote site check-in and check-out process. And they don’t lose time troubleshooting the check-out problems that invariably pop up with multi-site Teamcenter deployments. As executive leaders pressure engineering teams to be more effective, more productive, and faster, solutions that reduce idle team and allow engineers to focus on what they do best will only become more valuable, according to Rupprecht.

“We’ve improved time to market in the product development areas because the engineers aren’t falling idle,” he adds. “With Nasuni and Teamcenter, the moment an engineer in Asia checks into the data, the data is immediately accessible and visible in Germany, even if the binaries are not completely transferred. The German engineer can access the model in a few seconds time even if the file transfer is not done.”

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Olaf Rupprecht
Chief Information Officer

Smaller Administrative Burdens on IT

“With Nasuni, you have less administrative work on the IT side,” Rupprecht says. “All this complex setup and maintenance of Teamcenter is just eliminated. It’s very easy daily handling.”

This elimination of daily drudgery frees the IT team to work on more strategic projects and deliver more direct value back to the business.

Pressure Alleviated: Agile Infrastructure Deployment

During a carve out project within AIXTRON, Rupprecht and his team are tasked with setting up entirely new manufacturing facilities in short timeframes. “We got an order that says we have exactly three months to set up a new location in a different country, with a factory, a lab, and a complete IT infrastructure, including data storage and applications,” he says. In one instance, the firm’s advisory board made it clear that if everything wasn’t ready on time, the company would lose the contract. “Imagine the pressure as an IT manager!” Rupprecht says.

This was actually the first use case for AIXTRON’s Nasuni deployment. Luckily, Nasuni is built for this kind of on-demand expansion. AIXTRON met the timeline, and Nasuni became the file services infrastructure of choice. “That was the end of 2017,” Rupprecht says, “and they still use it today. The former business unit from AIXTRON doesn’t have any on-premises storage anymore.”

Fast Recoveries Without Babysitting Backups and Tapes

Nasuni Continuous File Versioning® maintains a complete, versioned history of every file in AWS. As files are written or changed, the deltas are securely propagated to the cloud, establishing or maintaining the authoritative “gold” copy of each file. This new approach to data protection, backed by the proven resilience and durability of AWS, completely eliminates the need for additional file backup, tapes, or Disaster Recovery and Business Continuity solutions. It also delivers faster, more reliable recoveries and 15-minute DR.

“The backup and DR management was done by the German team because the offices in China or Tokyo or Taiwan didn’t have the resources who could manage that,” Rupprecht explains. “With the implementation and deployment of Nasuni we got rid of this whole centralized backup solution. We have no classical file backup anymore because of Nasuni’s integrated data protection.”

Ransomware: “I Don’t Have That Problem Anymore”

The Continuous File Versioning model of data protection also offers fast recoveries from ransomware because the complete versioned history of each file is stored in the cloud. Earlier versions of maliciously encrypted files can be restored with ease, allowing companies to continue with business as usual without paying a ransom.

“The fact that Nasuni stores only snapshots and doesn’t change the original file, this is the perfect solution to get rid of the fear of ransomware,” Rupprecht notes. “One of our suppliers was attacked, and they had up to 10 weeks of recovery time. When they told me about this, I said, ‘I have Nasuni, so I don’t have that problem anymore.’”

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Olaf Rupprecht
Chief Information Officer
Aixtron SE

Results: A Successful Global Deployment

The work that AIXTRON and Nasuni did to integrate Teamcenter and the Nasuni platform has transformed Rupprecht into a global advocate for the solution.

“We are seeing more and more internationalization in the manufacturing industry in the last ten years, and it will continue to grow,” he concludes. “Nasuni is the solution to the global collaborative engineering problem.”

About Nasuni

Nasuni® is a file services platform built for the cloud, powered by the world’s only global file system, UniFS®. Nasuni consolidates Network Attached Storage (NAS) and file server silos in cloud storage, delivering infinite scale, built-in backup, global file sharing, and local file server performance, all at half the cost of traditional file infrastructures. The Nasuni software-as-a-service platform is most often used for NAS consolidation; backup and recovery modernization; multi-site file sharing; and rapid, infrastructure-free disaster recovery, while also serving as a foundation for data analytics and multi-cloud IT initiatives.

Leaders in consumer goods, manufacturing, creative services, engineering and construction, technology, pharmaceutical, oil and gas, public sector, and financial services rely on Nasuni to enhance workforce productivity, reduce IT cost and complexity, and maximize the business value of their unstructured data. Nasuni is based in Boston, Mass. USA. For more information, visit www.nasuni.com

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