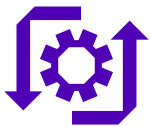


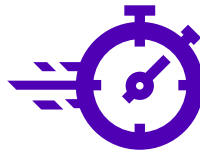
# Built to Learn: Rose Hulman’s Storage-First Transformation

How an All-SSD Solidigm Storage Foundation Transformed IT Operations and Unlocked Virtual Desktop Innovation for Engineering Students



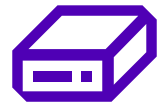
**50%+**

Maintenance Window Reduction



**90%**

Faster Server Deployment Time



All-High Capacity SSD  
Storage Approach

## The Challenge: Aging Infrastructure Holding Back a World-Class Engineering School

Rose-Hulman Institute of Technology is consistently ranked among the top undergraduate engineering schools in the United States. With rigorous programs in engineering, science, and mathematics, its students depend on access to demanding software tools, including CAD applications like SolidWorks, for daily coursework. Behind the scenes, a small but dedicated IT team supports everything from student information systems and enterprise resource planning to Microsoft 365 administration.

Before its recent infrastructure overhaul, Rose-Hulman’s IT environment was built on older, disparate systems pieced together over time, including traditional HDD and hybrid (HDD and SSD) storage arrays. These aging systems created significant operational friction. Routine maintenance windows stretched from six to eight hours. Deploying a new server could take up to two hours. Bringing systems back up after downtime, rolling out new software, and creating VM templates all involved excessive wait times that consumed the IT team’s limited bandwidth.

For engineering students, these infrastructure constraints had a downstream effect: accessing resource-intensive applications often meant being tethered to specific lab machines with the right hardware. Students who didn’t own a high-performance device, or who couldn’t get to a lab, faced real barriers to completing coursework on their own schedule.

## The Solution: An All-SSD Solidigm Storage Foundation on DataON solution for Azure Local

Rose-Hulman partnered with DataON, a leading provider of Azure Local (previously Azure Stack HCI) solutions, to modernize its infrastructure. As a primarily Microsoft Windows Server environment, Rose-Hulman valued DataON’s deep collaboration with Microsoft and its hardware expertise. The new architecture is centered on a DataON solution for Azure Local, paired with NVIDIA L4 GPUs to support GPU-accelerated virtual desktops.

At the storage layer, Rose-Hulman made a decisive move: replacing its legacy hybrid arrays with an all-flash configuration powered by Solidigm high-capacity SSDs in 30.72TB and 61.44TB capacities. The shift from hybrid to all-SSD Solidigm storage was driven by a clear focus on improving total cost of ownership (TCO) and operational efficiency.

<b>Customer</b>	Rose-Hulman Institute of Technology
<b>Industry</b>	Higher Education (STEM-focused engineering institution)
<b>Location</b>	Terre Haute, Indiana
<b>Challenge</b>	Aging hybrid storage slowed maintenance, deployments, and software delivery to students
<b>Solution</b>	DataON solution for Azure Local (previously Azure Stack HCI) with Solidigm™ D5-P5316 High-Capacity SSDs, Azure Virtual Desktop, NVIDIA L4 GPUs
<b>Solidigm Products</b>	Solidigm™ D5-P5316 30.72TB and 61.44TB capacities

“Upgrading made the most sense in terms of being able to get that speed and that ease of use...and making fewer points of failure,” said Justin Baker, systems administrator lead for Rose-Hulman Institute of Technology

## Why Solidigm High-Capacity SSDs Were the Right Fit

Solidigm SSDs are purpose-built for read-intensive and mixed workloads at massive scale, exactly the profile Rose-Hulman needed. The institution’s workloads center on two primary scenarios: enhancing the responsiveness of Azure Virtual Desktop (AVD) sessions running resource-heavy engineering software, and accelerating the continuous cycle of provisioning, updating, and decommissioning software environments and VM templates.

With industry-leading capacities up to 122TB in a standard U.2 form factor, Solidigm high-capacity SSDs allowed Rose-Hulman to consolidate storage into fewer drives, reducing points of failure and simplifying management. The all-SSD approach delivered the high-capacity, cost-effective storage the institution needed without compromising on the performance required for responsive virtual desktops and fast infrastructure operations.

## High-Level Architecture

Rose-Hulman’s refreshed environment runs primarily on Microsoft Windows Server, with a smaller cluster leveraging a DataON solution for Azure Local. Software and virtual desktop workloads sit on Azure Local, accelerated by NVIDIA L4 GPUs for GPU-enabled AVD sessions. The Solidigm high-capacity SSDs serve as the all-flash storage foundation across the environment, delivering the throughput and capacity needed for both administrative systems and student-facing virtual desktops.

## The Results: Measurable Gains Across the Board

The impact of moving to an all-Solidigm SSD storage foundation was felt immediately across Rose-Hulman’s IT operations. “We’re able to run more with less. So, we can focus on the types of things that allow us to add reliability or backup or something like that to our environment versus having to front-load most of the infrastructure for it just to run everything,” Baker said.

<b>Maintenance Windows</b>	Reduced from 6–8 hours to under 3 hours (50%+ reduction)
<b>Server Deployment</b>	Compressed from up to 2 hours to 10–15 minutes (~90% faster)
<b>VM Template Creation</b>	Dramatically less wait time with SSD-backed storage
<b>After-Hours Dependency</b>	IT team no longer needs to wait for off-hours windows for routine maintenance
<b>Operational Capacity</b>	Freed team bandwidth to invest in reliability, backup, and innovation
<b>Total Cost of Ownership</b>	Improved TCO through consolidation and the move from hybrid to all-SSD flash

## Powering the Future: GPU-Enabled Virtual Desktops for Engineering Students

Beyond core infrastructure improvements, Rose-Hulman is piloting an innovative approach to software delivery for students. Using Azure Local paired with Azure Virtual Desktop and NVIDIA L4 GPUs, the institution is running demanding engineering applications, including CAD tools like SolidWorks, through virtual desktop infrastructure.

This model eliminates a longstanding challenge in engineering education: ensuring every student can access resource-intensive applications regardless of the device they own. By centralizing compute and storage resources, Rose-Hulman can deliver consistent, high-performance experiences to any student device. Solidigm high-capacity SSDs play a critical role in this architecture, providing the fast, high-capacity storage needed to support responsive AVD sessions without the latency that plagued the institution’s previous hybrid arrays.

For students, this means completing engineering coursework from a laptop in a dorm room with the same performance they’d experience in a dedicated campus lab, a meaningful step toward more flexible, equitable access to the tools that define a modern engineering education.

## Advice for Other Institutions: The Upgrade Path Matters

Based on Rose-Hulman’s experience, Justin Baker offered clear guidance for other universities considering Azure Local with AVD and GPU-enabled applications: focus on the storage upgrade path. For institutions running older systems assembled with HDD or hybrid arrays, the switch to all-SSD storage represents one of the most impactful and straightforward upgrades available.

Consolidating onto high-capacity Solidigm SSDs reduces points of failure, simplifies management, and delivers the performance gains needed to support modern virtual desktop workloads. Rose-Hulman's experience demonstrates that the storage foundation is not an afterthought; it's a critical enabler of the entire solution stack.

## Conclusion

Rose-Hulman Institute of Technology's infrastructure transformation demonstrates how strategic storage decisions can cascade into meaningful improvements across IT operations, student experience, and institutional agility. By building on an all-SSD Solidigm storage foundation within a DataON solution for Azure Local environment, the institution achieved dramatic reductions in maintenance windows and deployment times, freed its IT team to focus on innovation rather than firefighting, and is pioneering a virtual desktop model that promises to reshape how engineering students access the tools they need.

For Solidigm, Rose-Hulman's story illustrates a core principle: the right storage foundation doesn't just improve infrastructure metrics; it unlocks the outcomes that matter most to the organization. In higher education, that means empowering students and faculty to focus on what they do best: teaching, learning, and building the future.

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