

# Researchers Deploy Datrium, Gain 10x Performance Boost and 30x RTO Improvement



UNIVERSITY OF MARYLAND CASE STUDY



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## Challenge

Grow VDI performance in a data-intensive research environment without host maintenance compromises.

## Results

- 10x Performance with NVMe-Powered DVX
- Server-based NVMe effective capacity at 8 cents per gigabyte
- Zero storage management time
- 5-7 Hour HCI server rebuilds eliminated
- 30x better RTO, restores in one minute, instead of 30-60 minutes
- Faster snapshotting and the capacity to keep snaps for longer

“Datrium Cloud DVX provided a budget-friendly option for the insurance we’d get with offsite backup. At the same time, we can generate and restore snapshots much faster, and have the capacity to store more data for longer – giving us greater peace of mind that we can meet users’ needs.”

**Jeff Cunningham**

Director of Information Systems

## Company Challenge

### Hyperconvergence Pilot Exposed Compromises

Jeff Cunningham single-handedly manages 130 desktops at the Agricultural and Resource Economics (AREC) department at the University of Maryland – made possible through the efficiency of his VDI environment. His challenge: ensure performance keeps pace as research data grows. Yet in the past, he found it tough to stay ahead of storage demands as well as difficult to manage day to day. In looking at options, Cunningham ran a proof of concept with a leading hyperconverged infrastructure (HCI) solution. However, when he had to take a host down for maintenance, he lost about 20% of his capacity. And performing a full evacuation before taking down a host was taking 5-7 hours to complete – for each host – an unacceptable impact on server maintenance time.

## Results

### NVMe-Powered DVX Boosts Performance 10x

Datrium’s Automatrix platform allowed the department to choose any type of solid-state technology for its existing servers, in this case NVMe flash (Non-Volatile Memory storage accessed over PCIe). Automatrix moves all array controller intelligence to any vSphere host, allocating unused CPU cores and instance flash to power I/O processing.

AREC purchased NVMe so its hosts could handle multiple desktop queues and accelerate simultaneous I/O requests. The department uses two NVMe cards per host, ranging in capacity from 800GB up to 2TB. Averaging less than \$500 per terabyte, the cost came in barely higher than SATA-based SSDs. The freedom to buy the latest hardware technology gives AREC the control to meet demanding user needs both now and in the future while meeting budget constraints.

With the NVMe-based DVX, performance results improved by an order of magnitude. The department's VDI cluster runs in Datrium Insane Mode, and now averages 1/10th the latency compared with the hyperconverged solution – a difference that users have noticed. Insane Mode delivers in-place VM acceleration, doubling performance instantly at the touch of a button.

“We honestly were not expecting to get the kinds of numbers we’re seeing with Datrium. The rate of compression and deduplication combined with the low latency is impressive,” said Jeff Cunningham, Director of Information Systems, AREC.

### **Server-based NVMe at Pennies per Gigabyte**

With Automatrix inline deduplication and compression, the department observed a 6x (6-to-1) data reduction. AREC's spend of \$4,000 on its server-based NVMe capacity subsequently yielded 46TB of effective NVMe flash, an astounding 8 cents per gigabyte.

With Automatrix data reduction technologies, AREC now has the capacity to grow without worry. If faculty members embark on large projects, Cunningham no longer must scramble to meet new requests. “Before, I always had to think about how to address our data needs,” he says. “Now, we have room for growth.”

### **Zero Storage Management Time**

Cunningham appreciates that he no longer needs to manage any storage artifacts such as iSCSI paths or LUNs. And he handles everything from vSphere. “I’m not a storage guy and no longer need to concern myself with LUNs, volumes, paths, etc.,” he says. “Now, I decide on the size needed for a VM and Datrium does the rest – it’s that simple. I can use my time on other things.”

In addition, Cunningham also avoided the server maintenance issues experienced with hyperconvergence. His VMware hosts remain serviceable without lengthy rebuilds, and multiple servers can fail at the same time without creating data integrity risk.

Finally, with a lean operation, Cunningham values that Datrium Support serves as an extension of his team. The support team monitors activity and alerts Cunningham of any irregularities. “Datrium’s proactive support is a real plus,” he says. “With Datrium, I don’t have to spend my time monitoring storage.”

### **Peace of Mind with Cloud DVX Backup**

For added security, AREC sought to move its backup from local storage to offsite. Given its experience with Datrium, the department switched to Datrium Cloud DVX as soon as it became available. They gained a cloud-native instance of DVX with SaaS-based backup and recovery to Amazon Web Services.

In making the move to Datrium Cloud DVX, AREC replaced its onsite backup tool, eliminating a separate system to manage. AREC could have gone with the university's offsite backup option, but Datrium offered a more economical alternative with the ability to buy and pay for only what they need.



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Installing Datrium Cloud DVX was essentially plug-and-play for Cunningham, who completed it in minutes. Where before restores required a multi-step process that could take 30-60 minutes, with Datrium, that dropped to approximately one minute. Because snapshots took longer previously, they didn’t complete them as often. With newfound simplicity, they tripled the frequency of snapshotting.

Datrium also freed plenty of space to keep snapshots much longer. “Deduplication and compression with Automatrix allows us to store more, for longer,” Cunningham said. “We still have 74% free.”

### About University of Maryland Department of Agricultural and Resource Economics (AREC)

The world-class department of Agricultural and Resource Economics (AREC) at the University of Maryland focuses on agricultural economics and policy, environmental and natural resource economics, and economic development. The faculty is renowned for its scholarship and research, policy experience, and professional service. AREC offers an undergraduate agricultural and resource economics major and a new global poverty minor, while the top-ranked Ph.D. program includes a diverse and high quality student body from the U.S. and countries around the world.

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