



## I D C C U S T O M E R S P O T L I G H T

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# Object-Based Solution Promises Enhanced Data Storage and Backup While Cutting Costs

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### Introduction

MIT's Plasma Science and Fusion Center (PSFC) is a top university research lab whose primary focus is the development of fusion power as a potential energy source. Fusion is the process that lights up the stars— including our sun — when two hydrogen atoms combine to form a single atom of helium, thereby releasing tremendous amounts of energy. Fusion promises a nearly endless supply of safe, dependable power for the planet.

Founded in 1976, PSFC is dedicated to exploring the "scientific and engineering aspects of magnetic confinement fusion and related plasma science and technology." Much of its fusion research takes place on the Alcator C-Mod reactor. Think of the lab's work as one large experiment designed to harness the nuclear process that powers the sun.

Supported by government funding, the lab's research activities involve some 2,000 connected devices and employ the talents of more than 250 personnel, including faculty and senior academic staff, research scientists and engineers, visiting scientists and research affiliates, technical support personnel and graduate students, and administrative and support workers.

This is Big Science. For PSFC's IT organization, it means the equally big challenge of managing the storage and backup of the reams of unstructured data continuously produced by PSFC's researchers and staff. Cost-effective solutions to this challenge are vitally important to the lab, given its reliance on federal funding and the current cost-cutting climate in Congress.

PSFC's existing storage system relied on storage arrays that employed standard RAID 5 and RAID 6 data resiliency schemes. This meant that rebuild times (caused by one or more disk failures) spanned multiple hours, and even days in many cases. And while a storage array operated in a degraded mode, it impacted operational service quality. IT managers also worried about the potential risk of additional component failures during lengthy rebuilds. Faced with the relentless growth of unstructured data that needs to be archived indefinitely, PSFC's IT team knew it required an efficient

### Solution Snapshot

**Organization:** MIT's Plasma Science and Fusion Center (PSFC) is a top university research lab whose primary focus is the development of fusion power as a potential energy source.

**Operational Challenge:** Faced with the relentless growth of unstructured data that must be archived, PSFC required an efficient and affordable way to expand storage and improve data backup and recovery.

**Solution:** PSFC chose OneBlox, a scalable object-based storage technology from Exablox.

**Project Duration:** PSFC implemented the Exablox solution less than a year ago.

**Benefits:** The benefits are hard to quantify so soon after implementation. However, PSFC expects the new system to yield increased cost savings and decreased administration time.

and affordable way to rapidly expand storage and improve data resiliency, backup, and recovery. So IT and Network Manager Lee Berkowitz and IT and Network Administrator Brandon Savage began searching for a different type of storage solution, one that could also provide more efficiency around duplication and redundancy. Enter Exablox with its OneBlox technology, a scalable object-based storage appliance.

## Implementation

Like many organizations, PSFC faces a rising tide of user-generated data and the complex task of managing and securing it. To tame this relentless flood of information, the IT team needed to look beyond the lab's legacy RAID arrays for an innovative way to manage storage and to address use cases for unstructured data and backup/recovery environments.

Berkowitz and Savage formulated a checklist of solution requirements. These included:

- Expandability to keep up with the lab's rapid data growth
- Faster rebuild time, which essentially meant a non-RAID platform
- Ease of implementation and use to decrease time spent on storage and backup
- Competitive pricing and cost benefits

However, as PSFC talked with storage vendors, it found many of the storage solutions offered still used RAID-based data resiliency schemes. With growing data storage and capacity needs, IT was concerned about additional risks to the infrastructure during lengthy drive rebuilds with RAID — for example, the possibility that a second drive could go bad when the first one was being rebuilt from a spare. "We've been lucky enough not to lose a whole array, but it does definitely impact us negatively," says Berkowitz.

Going with a RAID-based solution was therefore a nonstarter for the team. And other solutions were more suitable for front-end implementations or were simply too expensive for the lab's budget. To address both business and budget requirements, PSFC turned to Exablox.

An object-based platform was not one of the lab's explicit requirements. But the Exablox storage solution called the OneBlox, which features OneSystem, a cloud-based management service, is scalable and affordable, easy to expand, and easy to use. Toss in "non-RAID" distributed (scale-out) object storage, and the company's OneBlox solution addressed PSFC's main challenges. OneBlox's sweet spot also neatly aligned with the lab's own around unstructured data and backup/recovery.

PSFC completed the initial implementation of OneBlox this past summer. The software runs on a purpose-built appliance that is housed on-premises. And OneSystem allows for cloud-based management from anywhere.

Currently, PSFC uses the OneBlox platform primarily for backing up data and various servers, including imaging servers and Veeam backups of the lab's virtual machines. Although PSFC migrated some data, the existing RAID arrays remain in place. However, Berkowitz and Savage say the implementation was quick and required almost zero configuration. And maintenance is a snap due to the "plug and play" nature of the technology, which allows an organization to pop in disks as needed.

"If a drive goes, you just pop it out and a new one in — that's essentially it," says Savage. "And you can look at how much storage you have, stuff like that. But there's nothing that you have to do other than connect it to your domain. We've also replaced a few drives with larger sizes as we needed for more storage, and it's totally benign. You put in your larger drive, and the storage expands, and it does its own thing behind the curtain."

## Challenges

Once Berkowitz and Savage settled on Exablox's solution, it was time to run it by the lab's procurement office. They knew that justifying the acquisition of a new technology from an upstart vendor presented an obstacle. "We hadn't really delved into such a new company before," says Savage. "This is the first time we did business with a company this young. But it's definitely one of those leaps you've got to make sometimes when you're in technology."

As with any implementation, there was the matter of the initial up-front investment. For example, PSFC needed to buy a couple of appliances.

"Getting funding was a bit of a hurdle," says Berkowitz. "The solution was very different from what we're used to funding. We had to explain what our goals were and what we were trying to do." However, the two had spoken with other vendors as well as other Exablox customers during their due diligence, and they were well prepared to make the case that the young company's solution best met PSFC's need for scalable, cost-effective storage and backup. OneBlox also promised to be easy to implement and maintain, an appealing feature in a small shop where everyone wears many hats.

"We constantly had to work on the arrays when there were problems. And then we would get complaints," notes Savage. "So this was part of our reason for pushing to look at getting something different or new."

## Benefits

With the Exablox solution in place less than a year, it is still too early to fully quantify its benefits — which to date are significant. PSFC expects it to yield both an increase in cost savings and a decrease in the man-hours spent on data storage and backup. Anecdotally, Berkowitz and Savage acknowledge they spend less time managing the new system. Other benefits include greater uptime and robustness — the system has been up close to 100% of the time since implementation — and the ability to look at the storage from any Web browser anywhere.

Another key benefit for the team is the "set it and forget it" nature of the platform. "It doesn't need a lot of babysitting after the fact to make sure everything is working," says Berkowitz. And while there were some issues at the beginning, Exablox provided sterling customer support. "A couple of times they contacted us about something they noticed. It was very nice," says Berkowitz.

## Methodology

The project and company information contained in this document was obtained from multiple sources, including information supplied by Exablox, questions posed by IDC directly to employees of MIT's Plasma Science and Fusion Center, IDC research, published reports, and Exablox corporate documents.

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