University of Leicester Adopts Cloudian Object Storage for Backup

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Entrusted with protecting the data of nearly 30,000 users, the University of Leicester requires a robust backup infrastructure. However, with the backup system it had in place, the loss of a single media server would have resulted in a total lack of access to backup data or restores, potentially for weeks while the IT team acquired and installed new hardware. Recognizing that the University needed a better solution, the team decided to deploy Cloudian's HyperStore object storage system as the foundation of a revamped backup platform. By doing so, the University not only eliminated the single point of failure but also cut its storage space requirements by 50% and simplified its backup process. Ultimately, after fully implementing the Cloudian-based solution across its three data centers, the IT team expects to save approximately 25% in data storage costs.

Aging Media Server Poses Downtime Risks

The University of Leicester is a leading university in the UK committed to international excellence, world-changing research and high quality, inspirational teaching. Founded in 1921, today it has more than 20,000 students and 4,000 faculty and staff members. The University has three data centers which are managed by Systems Specialist Mark Penny and his team. Their responsibilities include providing backup for all home directories, corporate systems and research data (including HPC data) in a mixed environment encompassing Windows, VMware and Lustre.

Prior to making the switch to Cloudian, the University employed SAN-based hardware as backup targets for ten media servers (each with 13 x 16 TB LUNs) with backup software provided by Commvault. Because the backup and index data was maintained by the individual media servers, if a media server were to go down, it would disrupt the backup/restore process for that device, impacting all backup and restore operations.

"We wouldn't be able to continue backing up data, access backups or conduct restores until we replaced the hardware and spun up the system again, a process which could have taken weeks," explains Penny. "Fortunately, we never faced this situation, but we knew we had to make a change."

Cloudian Outshines Other Storage Options

A key objective was finding a solution that would allow the index data to be moved from the media servers to a robust, fault tolerant, shared storage environment. That same environment would also serve as the backup target. With this in mind, Penny and his team evaluated Cloudian, another commercial object storage solution, and an open source offering.

"Open source was massively more complex, with more hardware, and we had significant concerns about the management difficulties this would create," says Penny. "The other commercial solution was also very complex, double the cost of Cloudian, and required professional services to install."

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SOLUTION BENEFITS
- Availability (protection from media server loss)
- Simpler backup process
- Ease-of-management
- 50% space savings
- 25% cost savings when fully implemented
- Software-defined-storage solution, compatible with HPE Apollo servers

"With our old SAN system, we needed 48U of rack space for 2.5 petabytes of usable storage. Now we have the same capacity in just 24U— a 50% savings."

MARK PENNY
SYSTEMS SPECIALIST
UNIVERSITY OF LEICESTER

"With Cloudian, I liked that I could try it in a VM and install it myself on my laptop in 15 minutes," continues Penny. "It gave us confidence that we could easily manage the Cloudian system."

After conducting a full proof of concept using three Apollo 2U nodes loaned by HPE evaluation, Penny selected Cloudian. He and his team deployed Cloudian HyperStore object storage software on 12 HPE Apollo 2U servers with 3.4 PB raw storage. For data protection, erasure coding was enabled in a 9+3 configuration, resulting in 2.5 PB of usable capacity. In this configuration, up to three servers could fail simultaneously without impacting data availability.

While Penny initially planned to deploy the system across the three data centers, due to an unexpected surge in research data and the lack of additional funding to meet the unanticipated growth, he ultimately had to install the full system in just one site.

Saving Space, Management Time and Costs

With the Cloudian solution's built-in redundancy, the University no longer has to worry about a single point of failure in its backup infrastructure. This means Penny and his team can refresh media servers when needed—including taking advantage of technology advances—with no disruption.

Another benefit of the HyperStore object storage system is the space efficiency. "With our old SAN system, we needed 48U of rack space for 2.5 petabytes of usable storage," says Penny. "Now we have the same capacity in just 24U—a 50% savings."

He also likes the fact that HyperStore doesn't require much in the way of administration. "The whole system is self-contained, so it's simple," Penny explains. "It's easy to manage and easy to learn, even if you're not familiar with this type of solution."

Looking toward the future, Penny estimates that his overall storage costs will be 25% lower once he deploys Cloudian in the University's other two data centers, as still planned.

He also sleeps better knowing HyperStore will be able to scale to meet increasing demands.

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