



LYVE™
Cloud



Case Study

Seagate Creates Lyve Cloud for Own TCO and Security Advantages

It's a common business practice to test products or services internally before releasing them to customers. Some companies go beyond their quality assurance/control departments and test new ideas across their entire organization in a process that's garnered the colorful phrase "eating one's own dog food." The concept has become just as familiar within technology companies as for traditional manufacturers. In many cases, the practice comes about from a need that, often, companies find they can meet themselves.

Seagate is a world leader in mass-data storage infrastructure solutions. Seagate Technology crafts the datasphere, the total sum of bytes stored globally, helping to maximize humanity's potential by innovating world-class, precision-engineered mass-data storage and management solutions with a focus on sustainable partnerships. A global technology leader for more than 40 years, the company has shipped over 3,000 exabytes of data capacity.

As a global technology manufacturer within its fifth decade of operation, Seagate faced multiple business challenges, which, not surprisingly, were tackled head on by its IT department. Among these considerations were long-term data recovery options, multiple backup storage vendors with varying pricing models, and increasingly large data sets, to name a few.

Long Term Recovery

Until 2020, Seagate used a common backup methodology that addressed both its short-term and long-term needs. Long-term data was sent offsite for separation, requiring manual intervention (as the backups were physical) by external companies that used large tapes that were transported, sometimes via additional third-party vendors, to offices when necessary. However, tape transportation proved to cause issues, including time spent locating specific tapes in vendor facilities, restoring data from the tapes, the possible malfunction



and quality degradation of the tapes, and searching for the most up-to-date software to extract data when the tapes arrived. In order to apply and better control its own data retention rules (including both retaining and purging), members of Seagate's IT team realized they could devise a better solution themselves.

Multiple Storage Vendors/Varying Pricing Models

Seagate is a global IT solutions provider. As such, different vendors and tools for data backups were being used within the company's many locations across the world. It was quickly decided that such a de-centralized and non-standardized approach wasn't the best choice. Seagate began standardizing on a new internal backup tool. Seagate's IT team quickly learned that, not only could the new solution handle short-term backups with data stored on-site in multiple data center locations, but it also enabled backup storage in the cloud. Thus, a single standardized tool and its resulting simplified process could now handle both short-term and long-term backups, with on-premises or cloud-based repositories, respectively.

Large Data Sets/Internal Department Requests

At the same time, business groups within Seagate would come to the IT department, requesting extra file storage for their large data sets, noting that services like Microsoft 365 weren't able to store their required capacity of data. Setting up additional on-premises servers was an immediate temporary fix, but also proved to be expensive with each subsequent request.

Seagate engineers create a large amount of data and, not surprisingly, need locations to store that content. Much of the data needs to be retained, but it doesn't require active interaction. The aim was to find a location that can retain the large amount of internally generated data without selective purging, all with a low total cost of ownership (TCO). Adding servers with storage would add the overhead cost of infrastructure for data that would not be actively used.

Seagate's IT department took the time to understand the many aspects of these multiple challenges, then set to work to devise a solution themselves. Ravi Naik, Seagate's CIO and Executive Vice President of Storage Services, refers to this time as a transformative journey for the company.



“When I started at Seagate about four years ago, one thing that very quickly came to my attention was that we were generating over 30 terabytes of data in our global factories on a daily basis—and we store all of this data locally within each site. There is no way to really bring that data together and to correlate it. That’s where the valuable intelligence of the data is lost. So, we were faced with a problem where we wanted to bring all of the data together, but the existing technologies and bandwidth challenges prevented us from doing that.”

RAVI NAIK, CIO AND EXECUTIVE VICE PRESIDENT OF STORAGE SERVICES, SEAGATE





“As we embarked upon our transformation journey in Seagate, we were working on consolidating and harmonizing our data and storage footprint. The goal was to really pull out all the data from the various silos and bring it into a common global repository and throw it into the public cloud, which we did, for a large number of our workloads. What we found out was, today’s public cloud is purpose-built for certain workloads. There are some workloads, like big data analytics, that do not really do well, from an economics perspective, in today’s public cloud ecosystem.”

Introducing Lyve Cloud

After reviewing multiple criteria from multiple points of influence, the result from the company’s IT department was the creation of Seagate® Lyve™ Cloud storage as a service.

“CIOs like me are facing an acute data problem,” Naik said. “Today, there is more data being created than ever before and more use cases to unlock value from that data. Data is being thrown away simply because keeping it is too expensive. CIOs are tired of saying no to new initiatives from their business stakeholders. They want to be in the business of saying yes. To do that, they need an easy way to store more data and harness its power without worrying about total cost of ownership, security, and data mobility. Lyve Cloud is that answer: a simple, trusted, and efficient fully S3-compatible storage as a service that takes the guesswork out of what data to store and for how long.”

Once operational, the new solution began providing immediate benefits for Seagate.

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Backup Storage Cost Savings

Using Naik's stated 30 terabytes of data that are generated daily by Seagate's global factories, one can calculate the realized savings of utilizing Lyve Cloud for backup storage compared to using a public cloud provider. Verified by Seagate's [Lyve Cloud Data Repository TCO Calculator](#) (using two-month data retention), it was determined that the company saves approximately \$200,000 a month in backup storage costs using Lyve Cloud, activating the data that is collected from production lines and analyzed every day, instead of a public cloud option. Seagate figured its backup storage costs would double if they moved to a public cloud, verified by Seagate's [Private Cloud TCO Calculator](#). Also, these calculations do not factor in the data growth that Seagate is experiencing, which is very dynamic, making storage consumption and utilization, as well as various public cloud vendor related costs, hard to predict.



Data Migration Time Savings

A different calculation shows the possible time invested in migrating traditional tape backups to cloud storage. Imagine that 1,000 Linear Tape-Open (LTO) tapes (specifically LTO-6), containing approximately 2.5 petabytes (on tape) of backed up Seagate data (not including daily production), need to be transferred to cloud-based storage. It would result in a full backup size of 300 terabytes (not including daily production) and take about one full year to migrate that tape data to a cloud provider. The duration of the backup would be primarily limited by available network bandwidth and the human resources allocated to tape migration using two tape drives in parallel. A [managed migration service](#), such as the one provided by Seagate, helps to save time, as tape media migrations can be done in parallel and only unique data gets transferred to cloud storage, supporting data retention management, compliance, and data protection requirements.



Additional Achieved Benefits Included:

Cost Effectiveness

Seagate sought an alternative to available public cloud solutions due to unpredictable costs, including fees related to API calls and data egress/adds/changes/movement. In addition, moving small pieces of data (versus large) incurred a lot of overhead cost.

In response, Seagate built its own S3 storage cloud based on cost-efficient object storage. Lyve Cloud offers secure storage of data backups for as long as needed. In the case of natural disasters, on-premises data lost from one location is still stored properly in the cloud. In addition, there are no unexpected costs such as API or egress charges. Seagate appreciated that they could pay a flat and predictable price.

Comfort of Software

Recovering data from tapes that are stored elsewhere can be difficult because of the possible need for different software to extract that data. At the time of data backup from source, one particular software version may be used. After the data is shipped off to a second-party vendor and years pass, the same version of that tool might be harder to find or access later on when that data needs to be retrieved. Lyve Cloud allows for smooth data transition, in any chosen format, to be backed up, stored, and retrieved, working with users' selected networks and software tools. Simultaneous to building

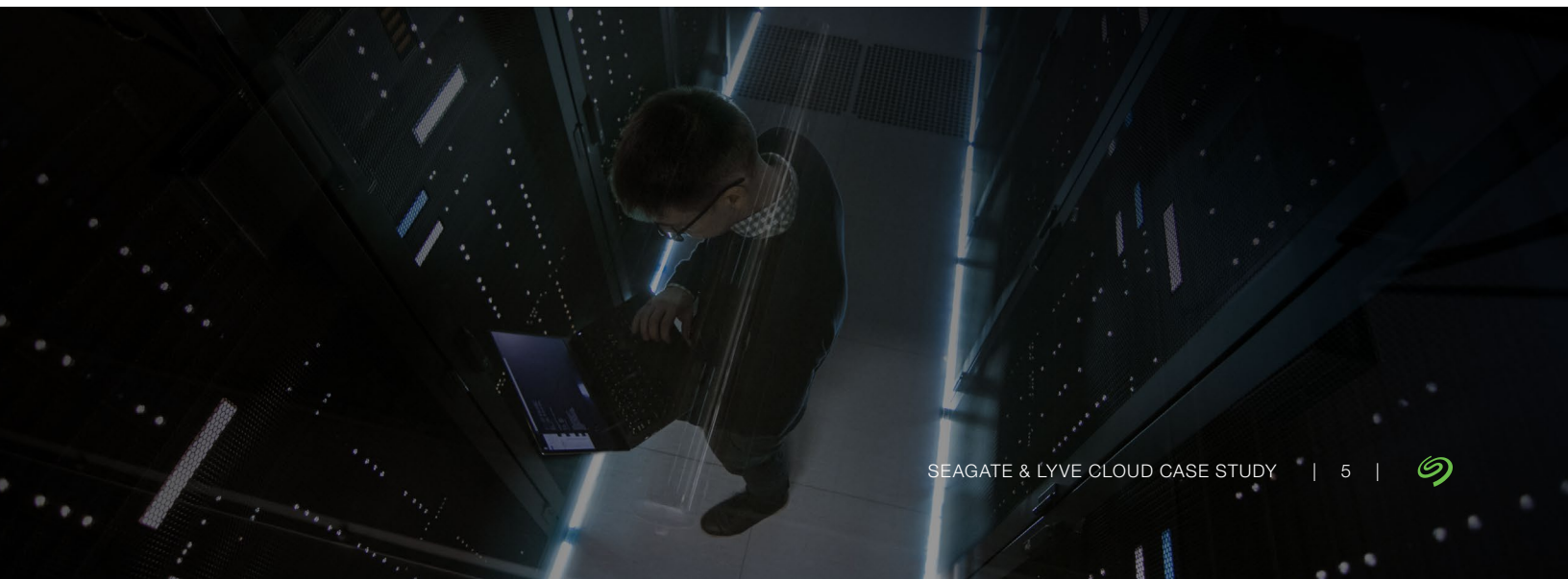
Lyve Cloud, Seagate also put its own Lyve Managed Migration Services and Data Recovery Services to the test, migrating tape records into Lyve Cloud. This allowed Seagate to stop paying for external vaulting services, as all data records on tape have been transitioned into the company's own repository for increased data security/access, governance, and compliance.

In addition, Lyve Cloud is also seen favorably by global backup software developers.

“In less than 100 days of launch,” Naik said, “we are seeing a tremendous welcome and support from backup software vendors. We’re already certified with four major backup vendors and are executing on joint marketing and go-to-market activities to serve the cloud needs of our shared customers.”

Faster Recovery Time/Ease of Access

Instead of waiting for tapes to be recovered, packaged, and shipped, and then for the contained data to be extracted, Lyve Cloud provides the data, almost immediately (dependent on network latency), when needed.



Security Guarantee

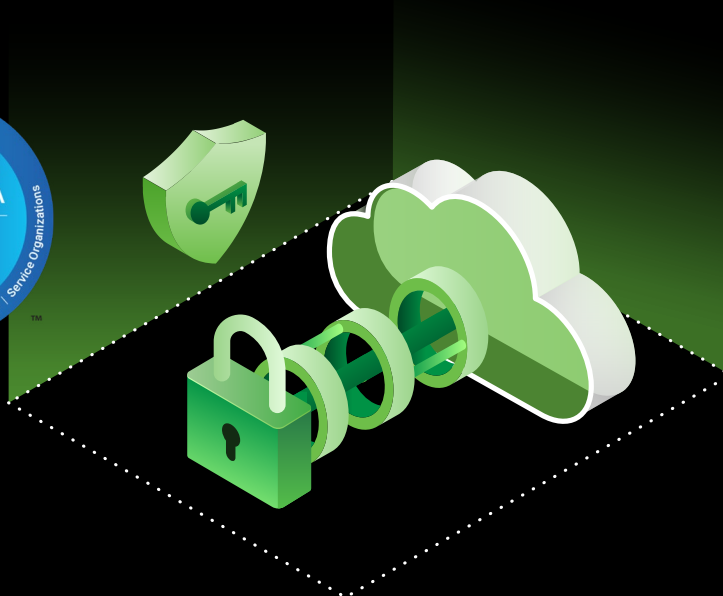
Private data should remain private. Seagate abides by this principle and, through Lyve Cloud, assures a company's data will not be accessible by anyone else. Seagate's security team did a thorough check for any possible security issues before integrating it for the company's own use. As Seagate began using Lyve Cloud itself, the company mandated that external customer data would be treated exactly the same way as its own, with the highest level of security and privacy. Nobody else, including Seagate, can access or use customer data.

Ample Room for Internal Requests

Business groups within the company can use buckets within Lyve Cloud to store their large data sets that cannot be stored anywhere on premises without any possible risks or inefficiencies. In addition, using Lyve Cloud results in no need to preallocate storage blocks, as the buckets dynamically grow based on usage.



“Lyve Cloud is built on trust,” Naik said. “Trust is a data imperative and Seagate understands that. With Lyve Cloud, data is always encrypted and protected against malicious attacks, and Lyve Cloud’s ISO27001 and SOC2 certifications meet the data security needs of enterprise customers. We also know that data access is crucial for customers to not only run their business but unlock its value with analytics.”



Lyve Cloud allows Seagate to now standardize its backup solutions globally. The IT team saw the opportunity to move from decentralized to centralized storage and leverage one tool and one means of storage companywide. Every Seagate employee can now utilize the same level of capability. In addition to a standardized solution, Lyve Cloud users benefit from cost-effectiveness and easy data access.

Seagate serving as Lyve Cloud's initial customer provided insight into the challenges that were seen with other clouds, as well as enthusiasm throughout the IT team over how Lyve Cloud addressed the complexity, cost, and lock-in issues seen in the past. Lyve Cloud wasn't deployed as a "like-for-like" solution but, rather, addressed the IT department's (and, subsequently, the entire company's) current issues. As issues arose, Lyve Cloud could be evaluated as to how it could provide a solution

As Lyve Cloud was tested internally, meeting many of the IT department's—as well as the entire company's—immediate needs, it wasn't too far-fetched to start considering future plans for the new solution. Naik and his team have envisioned moving a step further, from backup as a service (BaaS) to disaster recovery as a service (DRaaS); an early goal during initial plans for Lyve Cloud. That step, according to the team, will require multiple backup recovery methods (for both small data and larger amounts), with no duplicate hardware or data centers, and sustained low costs.

When Seagate had initially approached a major cloud service provider with plans to develop a DRaaS solution, the technology involved was considered feasible, but the related costs were not. Still, it paved the way for the company to work with similar partners with their own strengths in digital infrastructure. As a result of its Lyve Cloud initiatives, Seagate has partnered with Equinix®, the "world's digital infrastructure company, enabling digital leaders to harness a trusted platform to bring together and interconnect the foundational infrastructure that powers their success." In this working relationship, Seagate provides the cloud solution and Equinix provides the data centers.

"In the end, partnership is at the core of Seagate," Naik said. "The success of Lyve Cloud is going to be powered by our existing partnerships and building and nurturing new ones with independent software vendors, ecosystem partners, and managed service providers. We're in various stages of engagement with partners to complete our arsenal."

Seagate developed Lyve Cloud to be S3 compatible, positioning the solution for multiple data-intensive use cases, including backend for backup and archive, big data analytics, and several others across industry verticals. The relationship with Equinix provides users with powerful interconnections and choice of compute for S3 workloads.

"We're offering a cost-effective solution for customers to store more data," Naik said, "data that can help them enable new use cases while also meeting TCO objectives. And Lyve Cloud is fully S3 compatible, making it suitable for multiple data-intensive use cases, from backend for backup to content repositories to big data analytics."

"In the Lyve Cloud environment, we have data that is now accessible by all of the cloud service providers. I look at that as us being very complementary to today's public cloud service providers. You could have your applications and your compute be running in AWS and access data sitting on Lyve Cloud. You could be running a number of your backup applications on Azure and actually store the targeted data in Lyve Cloud. This is a true complement to the multicloud environment. We have the ability to work with all the hyperscalers to move data back and forth between the hyperscalers and Lyve Cloud. Thus, we could become the stepping stone—the staging ground—for data to be collected from the edge and move it into today's hyperscalers."



Lyve Cloud proved to be such a success internally for Seagate that Naik and the IT team were eager to share it with the rest of the world.

“Lyve Cloud is about choice,” Naik said. “We’re offering customers a simple, trusted, and efficient storage-as-a-service solution to store more of their data; to store it longer and put it to work. As a fully managed S3-compatible object storage as a service, Lyve Cloud customers just need to change the URL, point it at Lyve Cloud, and their applications are ready to go.”

“So it’s really about building a solution, a platform, which has easy access, no lock-ins, no egress costs, no ingress costs, and no API charges. That was really our goal. We built this for ourselves, and having talked about this with a number of CIOs in the industry, we realized that this is an area where there are many CIOs who actually would like to leverage this. That was really when we made the

pivot from this being an internal product for Seagate’s IT organization to opening it up to external customers and companies. What we offer with Lyve Cloud is a simple, trusted, and efficient way of moving data into a cloud and out of the cloud.”



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