LucidLink Filespaces

Highlights

- Global file system for streaming data to and from a cloud object storage bucket
- Filespaces Client devices synchronize metadata
- Enterprise services includes snapshots, encryption, file locking, and NAS migration

Overview

LucidLink's Filespaces is a global file system optimized for object storage. The Filespaces service streams data directly to and from a cloud object storage bucket using a software client rather than uploading and downloading copies of files.

Unlike many of its competitors, LucidLink does not use traditional NFS or SMB NAS protocols. The proprietary Filespaces distributed streaming file system serves as a POSIX-type front end for cloud object storage. The service coordinates and distributes metadata from files stored in cloud object storage such as Amazon S3, Microsoft Azure Blob or any S3-compatible object storage.

Usage and Deployment

LucidLink Filespaces Clients can install on Windows, Linux and macOS 32-bit and 64-bit workstations, laptops and servers. The client synchronizes metadata with every other client it collaborates with and mounts on each system as a local volume. Each client caches data and provides access to cloud-based storage as if it were stored locally. A LucidLink folder and data shows up within Windows Explorer, on a Linux Desktop directory or in MacOS Finder.

LucidLink's streaming service is designed for rapid streaming of large files, making Filespaces a good fit for creative content use cases. These include media and entertainment, broadcast, post-production, corporate marketing, digital ad agencies and architectural, engineering and construction design firms.

With LucidLink, data is ingested directly into a Filespace shared global namepsace. Any non-linear editing tool, Revit, AutoCAD or any other software can be used without refactoring or using a connector.

Each LucidLink Filespace is a globally shared namespace that client devices can access locally regardless of where the object store resides or where the user is located. Multiple clients can connect to the same Filespace.

Every Filespaces Client node talks to the LucidLink service holding the metadata and the object storage holding file system data. Every LucidLink Client can stream directly to and from the

object storage. LucidLink splits file data into individual chunks and the metadata provides an index to enable instant access wherever the data is located.

LucidLink Filespaces include a configurable block size, used to determine file block boundaries. The LucidLink Client pre-fetches blocks to meet demand, and only streams the required parts of a file. When editing a dataset, users can work only on the part of the data they need. When a file uploads back to object storage, the metadata is updated to reflect changes to the file. The single source of truth is in the LucidLink cloud service. Writes are acknowledged locally giving a consistent file system experience. Read and write cache ratios and reservations can be configured, allowing this to be optimized to specific applications or workloads.

Each client has a small cache (5 GB by default, but it can be increased up to 10 TB for better performance with larger files). The local caches use only the metadata they need.

The LucidLink metadata service coordinates all metadata synchronization operations, and provides services such as global file locking, snapshot management and garbage collection.

Enterprise Features

Snapshots

Built on a log-structured file system, LucidLink Filespaces' metadata tracks individual client edits and file versions. A new chunk is written for each edit, providing complete version control through point-in-time snapshots of an entire file system. LucidLink also supports snapshots for object storage buckets. Users can snap and clone cloud-native Filespaces, mount and access a different version of a file space for test/dev, or restore from known good versions. LucidLink uses garbage collection on blocks once the snapshot retention schedule expires. The snapshots are immutable to help against ransomware attacks.

Data Encryption

LucidLink Filespaces use AES-256 encryption for all objects stored in-flight and at-rest, including metadata. Because encryption takes place on the client side, it is completely managed by the customer. Not even the object storage vendor can decrypt the data. Instead of downloading files on individual devices, data remains securely in the file spaces. LucidLink Filespaces are encrypted after they are compressed. After encryption, they are placed in the write cache and written to object storage.

Global File Locking

LucidLink uses file locking features of Windows-based applications, enabling team members to concurrently collaborate on shared projects.

NAS Migration

Customers moving from traditional NAS can migrate to LucidLink by ingesting data through the LucidLink Client to take advantage of the data streaming service. The migration for on-premises NAS files can be accomplished with a wide variety of commercial and open-source tools, such as robocopy and rsync, with migration times depending on available bandwidth and Filespaces data size. You can also migrate data from cloud providers into Filespaces, although egress fees may apply. Following the migration, a user with a client installed and proper credentials can connect to a Filespace to access data as if it is local.

Pricing

LucidLink is priced by capacity under management, with three tiers.

Basic (Wasabi cloud storage) -- $20 per TB per month with no egress fees for standard workloads, active archive, and backup.

- Default snapshots (scheduled data restore points going back 1 month)
- Global file locking
- Standard support (24x5)

Custom -- $40 per TB per month, user pays for and chooses storage (may include egress fees)

- Default snapshots
- Custom snapshots (retention policies for unlimited time)
- Global file locking
- SSO integration – single sign-on with Active Directory or Okta
- Premium support (24x7)

Advanced (IBM Cloud storage) -- $80 per TB per month with no egress fees, for high performance workloads. Same features as Custom tier.

LucidLink also offers premium services such as data migration, application integration, customer user configuration, cloud-to-cloud backup, and performance tuning. Up-to-date LucidLink pricing can be found **here.**

Evaluator Group Opinion

LucidLink is among a small group of global file systems that rely on cloud as back-end storage, a technology also been known as Cloud NAS, Cloud Native File System, Distributed Cloud File System and other labels. Other global file systems include **CTERA Enterprise File Services Platform**, **Hammerspace Global Data Environment**, **Nasuni UniFS** and **Panzura CloudFS**.

LucidLink was founded in 2019 by former executives of software-defined storage pioneer DataCore. The startup has raised $40 million in funding – including a $20 million Series B round in May, 2022. LucidLink claims thousands of customers and close to 50,000 Filespaces end users.

LucidLink also has a broad array of storage partners. Besides the major public clouds, IBM Cloud and Wasabi, Filespaces supports Cloudian, Nutanix Objects, Scality, MinIO Server, Telefonica and Zadara storage.

LucidLink's streaming capabilities are a great fit for markets it currently serves, such as media/entertainment, broadcast, post-production and other non-linear editing use cases. It enables rapid retrieval of large files from anywhere to enable remote collaboration. But it still has a way to go for enterprises because it lacks advanced data management.

Confirmed roadmap items include striping, tiering and replication across multiple S3 buckets. We expect them to eventually add deeper ransomware and auditing features, along with analytics and monitoring.

More detailed information is available at http://evaluatorgroup.com