STORJ | DCS

SOFTWARE DISTRIBUTION

A Case for Decentralized Cloud Storage & Delivery

Whether it’s product releases, feature updates, firmware refreshes, security patches, media delivery, app downloads or containers, distributing software and other large files has become a critical part of organizations that provide products or services in today’s digital world. When distributing software or any other large data set, the services you leverage for object storage and distribution during your delivery phase can have a significant impact on your customer satisfaction, costs, and DevOps complexity.

Leveraging next-generation decentralization technology for object storage and distribution can help you dramatically reduce costs and complexity compared to centralized storage solutions, while enabling you to deliver the performance you need. As you evaluate your options, consider the differences between how a decentralized model can better address your global distribution challenges compared to centralized technologies, including:

- Total cost of ownership and vendor neutrality
- Engineering complexity, consistency, and performance
- System security and asset integrity

Total Cost of Ownership & Vendor Neutrality

Challenges of Distributing Software and Other Large Data Sets

- Excessive egress costs, complex cost structures associated with large file sizes, multi-region, and global distribution, and growing bandwidth consumption as downloads increase.
- Multi-region or global software distribution drives downstream complexity, especially with DevOps time, effort, and costs.
- Traditional centralized cloud storage access management complexity leads many users to be less locked down to security threats than they should be.

Solution

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Outcomes

- Lowers storage and egress costs by up to 80%, while eliminating cost complexity with transparent and predictable flat-fee pricing and no added-fees for multi-region distribution.
- Reduces multi-region and global distribution engineering complexity and costs through built-in global distribution, redundancy, high performance, automated data orchestration, edge services, and encryption.
- Fortifies overall security with a trustless infrastructure, granular access controls at the object level, no single point of failure, no central repository to hack, and an edge-based security and distribution model.

A New Approach to Storage Costs

The types of object files disseminated as part of an organization's software distribution efforts vary by organization. But what most businesses have in common is that their object storage and delivery bandwidth costs can scale up dramatically as their customer reach and customer types broaden. A developer might have dozens to several hundred different software builds for a piece of firmware that targets multiple device models. Different versions will also exist for applications that support multiple operating systems. Video assets will also have multiple versions to address transcoding needs.

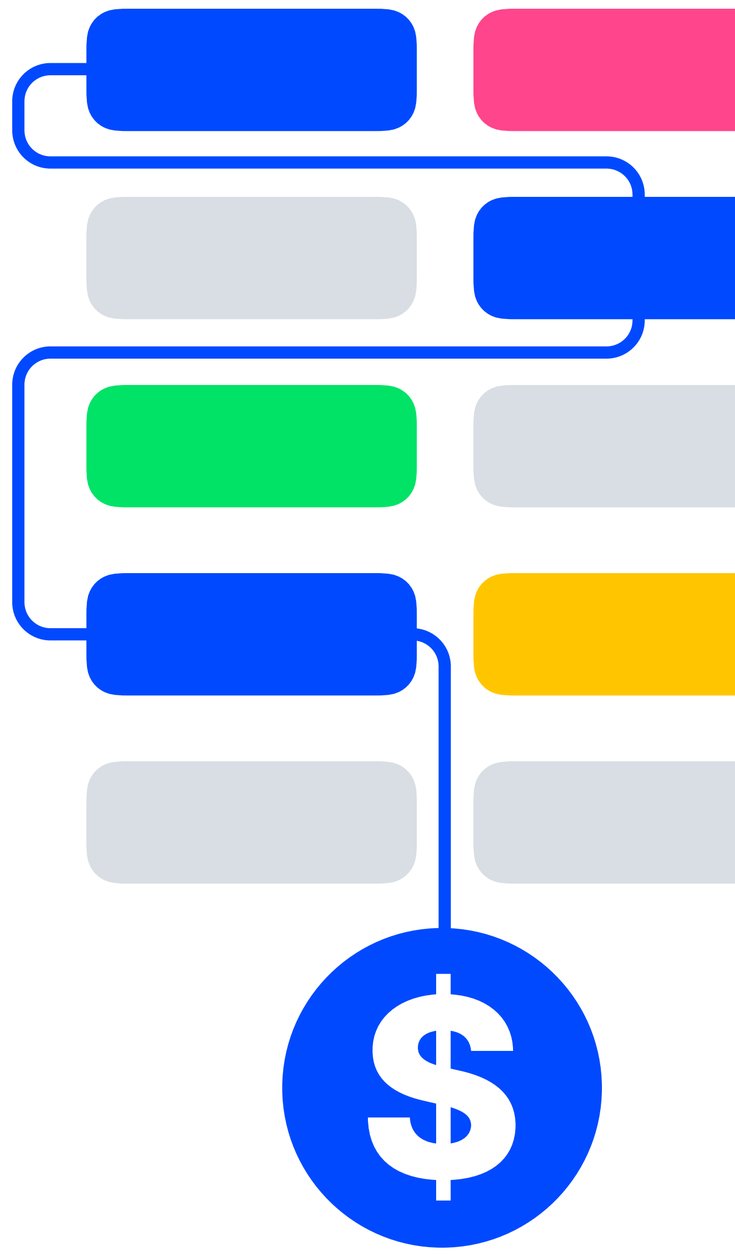
Unfortunately, while the price cloud providers pay for storage and bandwidth has lowered significantly in recent years, that hasn't necessarily equated to lower costs for customers. Storj Decentralized Cloud Storage (DCS) takes an innovatively different approach to object storage and delivery that provides dramatic savings.

With data stored on more than 13,000 geographically diverse storage nodes, Storj DCS doesn't have the cost of operating centralized data centers and can pass along those significant savings to customers. For example, for less than half the price of a single availability zone from a centralized cloud storage vendor, Storj DCS offers default multi-region decentralized cloud storage with ultra-high availability included in a transparent flat fee.

Slashing Egress Fees

While centralized cloud providers typically charge about $90 or more per terabyte (TB) of egress in its North America distribution areas, those prices go up higher in other regions, and in some cases to a significant degree. Storj DCS charges a flat fee of $7 per TB of egress regardless of geographic location. That can easily result in thousands to millions of dollars in savings for organizations with multiple builds, high download numbers, or large file sizes. Even large enterprises that qualify for deep tiered pricing discounts from centralized cloud providers still get significant savings with Storj DCS.

Eliminating Price Complexity



Pricing models used by some centralized cloud providers can be so complex that a new industry has been born with businesses focused on providing services to help organizations understand their cloud storage bills. With complicated tiers, and several pages of pricing tables and line items, that pricing complexity can easily lead to organizations paying for servers or services they don’t need or don’t know they’re being billed for. The complexity can also lead them to inadvertently choose a plan that’s not the best fit for their operations.

For example, they might choose a centralized storage plan with low storage costs without realizing the plan actually has significantly higher egress fees than another plan with moderately higher storage costs. With Storj DCS, you get predictable, easy-to-understand pricing with flat fees for storage capacity and egress. Furthermore, the distributed nature of Storj DCS makes it ideal for large file sizes, infrequently changed data, write-once-read-many files, and high volume egress, which is characteristic of most object files in software distribution scenarios.

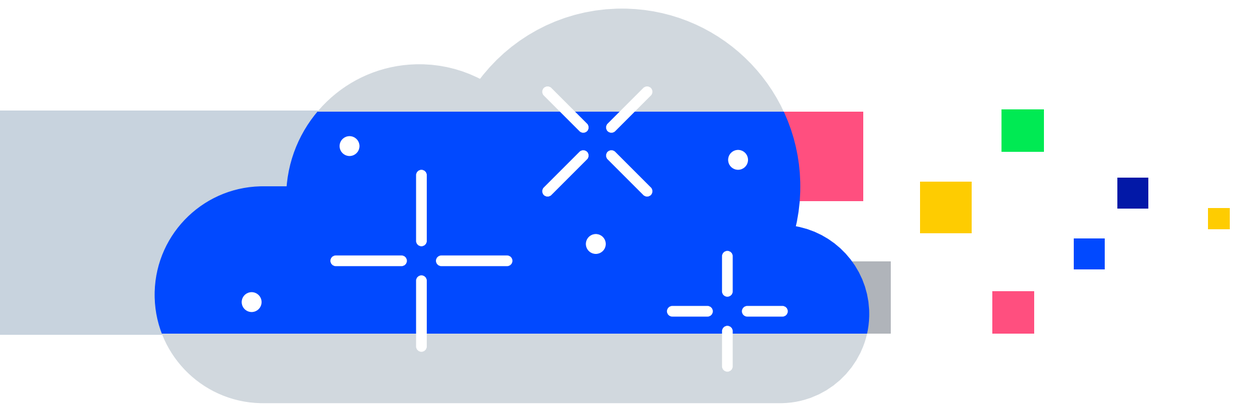
Engineering Complexity, Consistency, and Performance

When relying on centralized cloud providers, the more broadly you distribute your software, the more complexity you have from an engineering or DevOps perspective to make sure your target audience can access your software. With the centralized providers, it takes a lot more than simply uploading your object files to a server and hoping for the best. To have a global presence with the centralized providers, you are required to push your files out to servers in North America, South America, EMEA and APAC. And as your files become more popular, you need to upload them to more regional servers within each major location, such as north, south, central, east coast, and west coast regions.

Even with the process automation you’ve likely developed to handle those multiple uploads, it takes time and effort to maintain and manage those processes, not to mention the need for ongoing performance optimization, cost tuning, and making sure the right version of every file is consistently replicated across every server. Plus, if you’re at a point where you need to take advantage of the performance increases that content distribution networks (CDNs) can provide, that complexity increases even further.

Rohan Hasabe
Core Team Member
PixelExperience

“Storj DCS makes our job easy. We just upload a build to the Storj DCS uplink, and then the DCS software automatically distributes it across its network. We don’t even have to think about it.”



Storj DCS eliminates the complexity of object file storage and delivery with built-in global distribution, redundancy, and S3 compatibility. Our multi-threaded and highly parallel architecture automatically aggregates our massive distributed storage capacity and bandwidth to deliver extremely high performance across the globe. We provide automated data orchestration through our global satellites to ensure global accessibility to your object files all the time from almost anywhere.

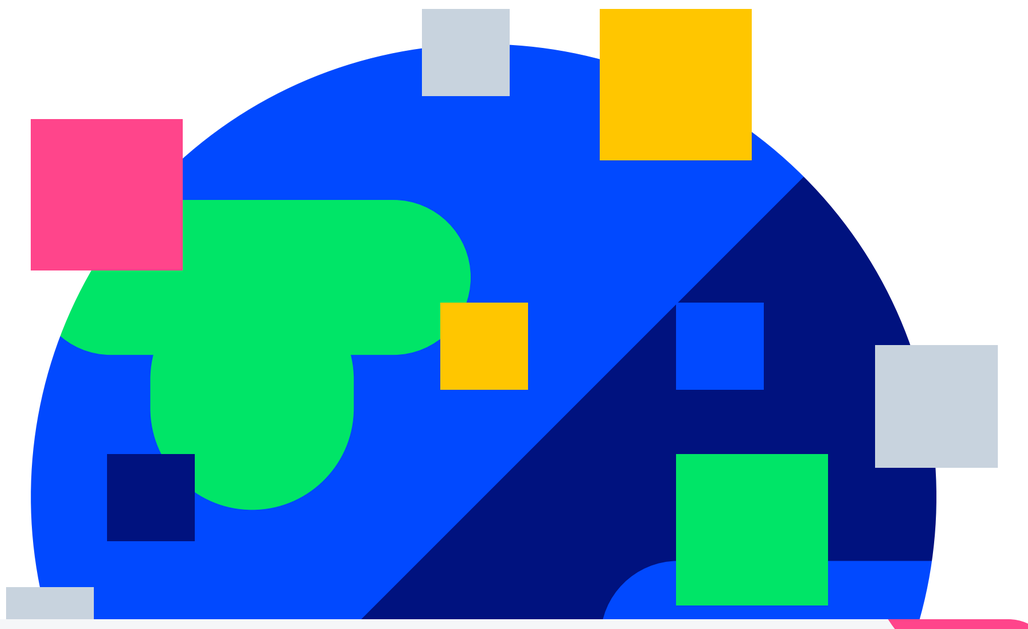
For example, centralized cloud providers might have a handful of data centers or regions on each continent, but Storj DCS provides more than 13,500 nodes spread across 90 countries, as well as across different power grids and networks. That lets us dramatically extend your reach while providing significantly more aggregate throughput than a single data center.

And if you want to scale up the download performance of your software distribution efforts, even more, Storj DCS integrates with the Fastly edge cloud platform as an origin server. That said, compared to what might be required in a centralized cloud provider scenario, the point at which an organization typically needs the added performance of a CDN is usually later on in the organization's growth path with DCS. That's due to the combination of the highly distributed network infrastructure and built-in edge services of Storj DCS. Also, Storj DCS reduces the need for multiple points of origin when refreshing a CDN from a source.

Additionally, the edge services in Storj DCS make it easy to connect the files you store on our decentralized network with anyone in the world you would like to access them through HTTPS. Storj edge services let you quickly create a generic or private label URL where you can host a web page, post software files for download, or share video files. In terms of software downloads, the URL you generate ties to individual object files with granular access grants that you control.

Furthermore, due to the inherent distributed nature of the Storj DCS infrastructure, it provides extremely high levels of file consistency regarding file updates. Whenever you upload a new version of a file, it's automatically updated across the entire DCS global network almost instantaneously upon commit. That's a drastic difference compared to the 15 to 40-minute update windows that you can get as files replicate with eventual consistency from server to server across multiple regions of centralized cloud providers' networks. Furthermore, DCS employs Reed Solomon erasure coding to keep all data intact with enterprise-grade 99.95% availability and eleven 9s of durability.

In short, the Storj DCS built-in distribution network simplifies your ability to get the global reach, file consistency, and performance your software distribution efforts demand.



fastly

Discover how Storj DCS works with Fastly

Learn More

System Security and Asset Integrity

When you share access to a file as part of your software distribution efforts, you need to ensure the integrity of your files to protect your users from any number of various threats. Typically, those protections come in the form of read-only access controls that cloud storage providers allow you to assign at a bucket or folder level. But if you accidentally misconfigure those folders or you somehow end up with a leaky bucket, all the files inside can become subject to supply chain attacks, such as person-in-the-middle or privilege escalation attacks. With a successful attack, a bad actor could potentially inject malicious code into your binaries before they get distributed, putting your users at risk.

To eliminate the risk of such attacks and provide greater file immutability, Storj DCS implements various security measures. First, it employs trustless end-to-end encryption that it combines with an edge-based security model that provides flexible and secure capabilities for access management. It also gives you granular access control at the object file level. And to further fortify your access controls, Storj DCS references an encrypted macaroon inside each object file's URL as part of its native link sharing mechanism.

As a result, data access resides only with its owner and who they designate while giving you granularly more restrictive grants. And since Storj DCS separates the encryption function from its macaroon-based access management capabilities, you can manage both 100% from the client-side.

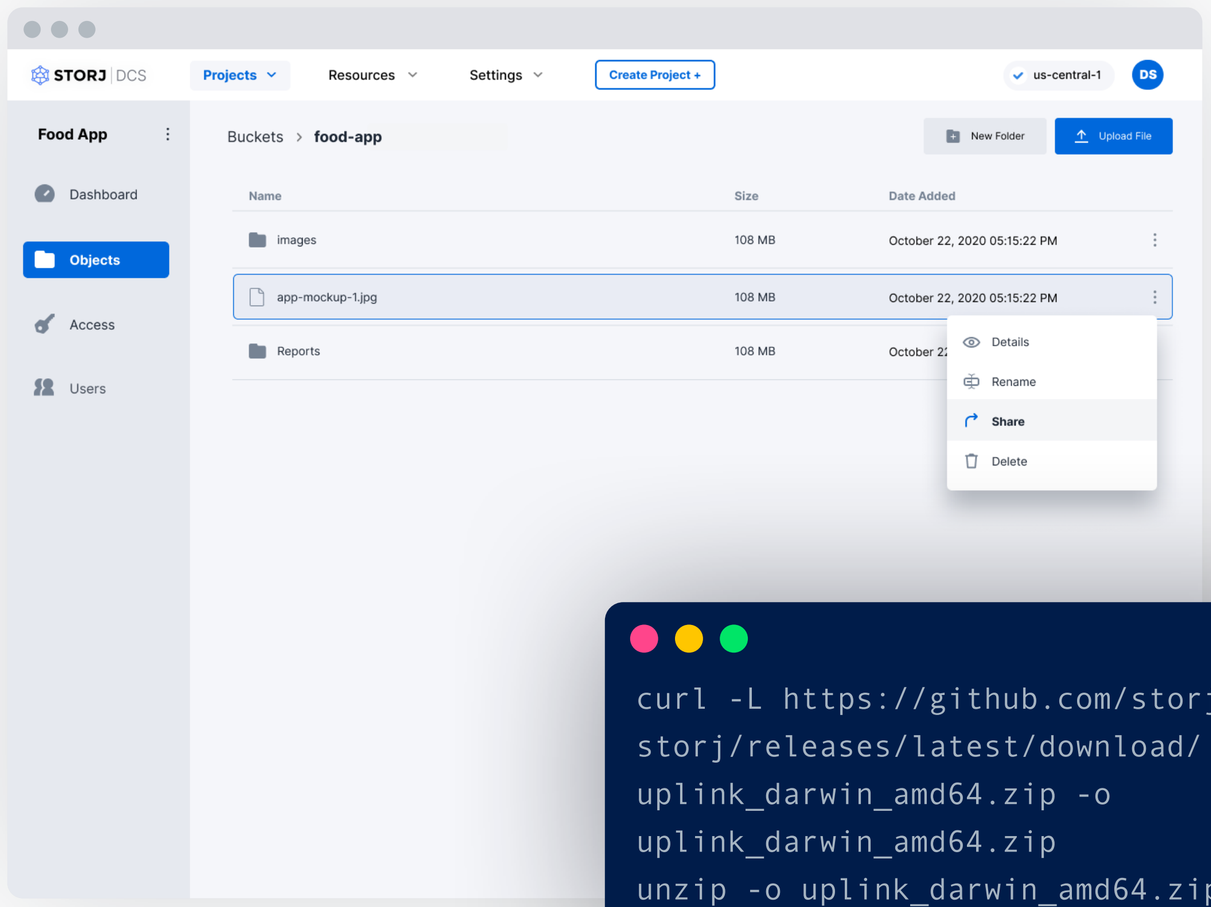
Link hijacking can also be a concern for your software distribution efforts. This occurs when someone grabs the link to your software, posts it on their own page, and promotes it to generate ad revenue for themselves. For some, this might simply be a minor nuance. But if your business model relies on ad revenue generated from your own software distribution pages, this can result in stolen revenue, as well as hijacked bandwidth. Storj DCS gives you the ability to expire your links and easily replace them with new links on a regular basis to prevent such hijacking.

Overall, the capability-based approach that Storj DCS takes to protect files and the interest of software distributors provides indisputably stronger security than the standard public cloud approach that simply employs Access Control Lists (ACLs). And to further ensure file immutability and long-term durability, Storj DCS continuously performs cryptographic audits of the data associated with your object files.

> "With Storj DCS, you don't have to worry about the distribution part. You get more scalable bandwidth, more reliable storage, faster speeds, and more secure storage. Plus, you're getting an organization with great data distribution experience."
>
> **Rohan Hasabe**
> Core Team Member
> PixelExperience

Experience Storj DCS today.

For more information on how Storj DCS can help your organization dramatically reduce your software distribution storage and bandwidth cost, eliminate the engineering complexity of delivering high-performing bandwidth with a global reach, and ensure the integrity and immutability of your software distribution files, visit www.storj.io.

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unzip -o uplink_darwin_amd64.zip
chmod 755 uplink
```

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