STORJ | DCS

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Cloud Native Apps

A case for decentralized storage.

A New Standard in Storage

Building and optimizing cloud native apps to deliver the types of digital experiences your customers demand doesn't have to be expensive or complicated. Some of the most common challenges facing developers and product teams include time efficiency, cost overruns, and meeting tight go-to-market deadlines, along with being able to deliver an app with fast performance and strong protection. Overcome these potential roadblocks by utilizing a next-generation decentralized architecture for your storage layer instead of, or in combination with, a centralized cloud storage platform.

Common challenges for cloud native apps

Difficulty of integration of a cloud storage layer into your current technology stack

Additional costs and administrative resources required for multiple regions and availability zones

Excessive storage, egress, and per operation fees for all files

Lack of global on-demand availability and slow throughput that delivers a great user experience

Insufficient granularity of access controls and single points of failure inherent in centralized approaches—making app data more susceptible to risk

DCS

Solution

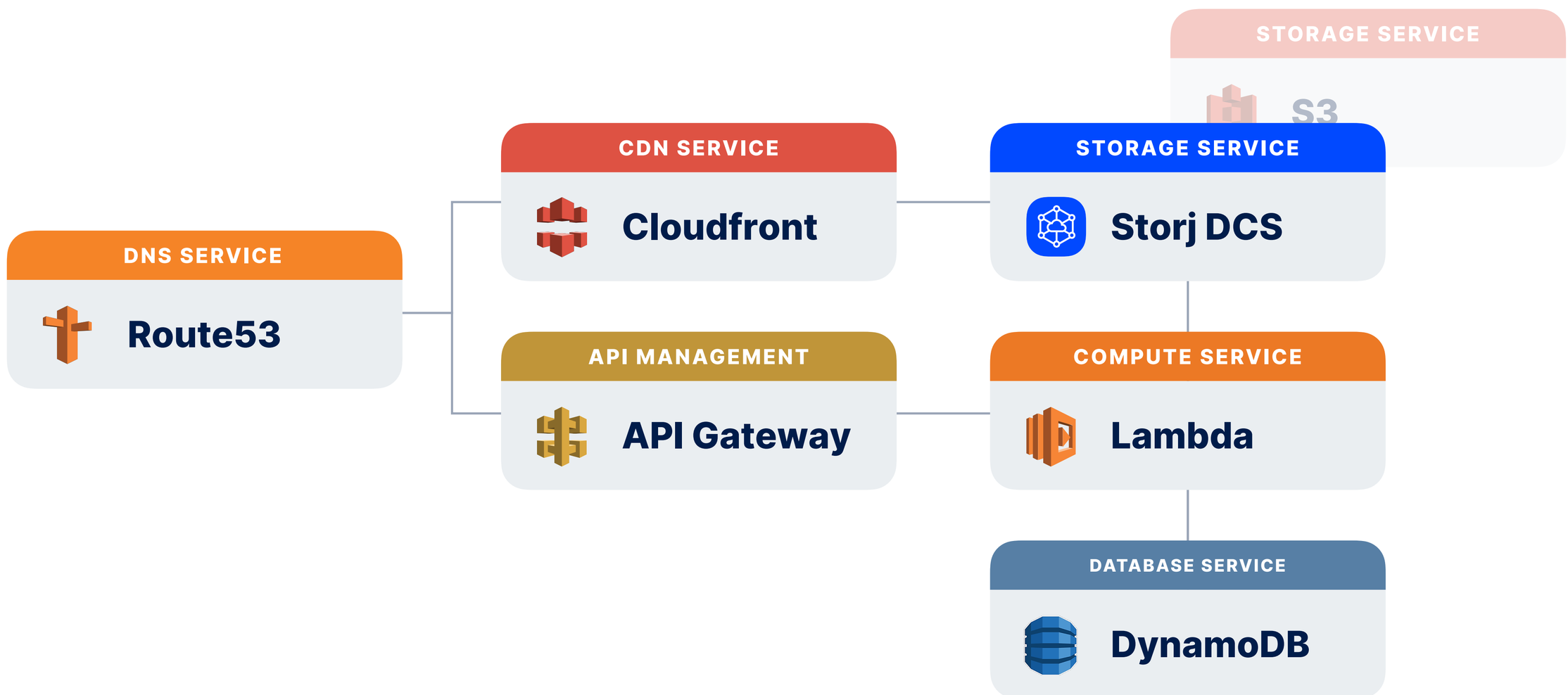
Decentralized Cloud Storage with Storj DCS

Outcomes

- Simplified multi-region management, security, and durability with built-in global redundancy and automation.
- Save up to 80% and significantly reduces the total cost of ownership with flat-fee pricing and no surprises.
- Fast throughput, low latency, and resiliency with unmatched, multilayered parallelism
- Zero-trust object-level access controls with no single point of failure, and Reed-Solomon erasure coding.
- Familiar S3-compatibility with in-depth documentation for seamless stack integration.

Development Time Savings

When getting your cloud native app built, tested and to market, there's no time to waste. That's why Storj Decentralized Cloud Storage (DCS) has been designed with built-in features to help you easily and quickly integrate the inherent benefits of the decentralized cloud into your tech stack. First, Storj DCS is backward-compatible with S3, so you can simply plug in our library, configure it, and the integration is done, allowing you to stay focused on building and growing your app.

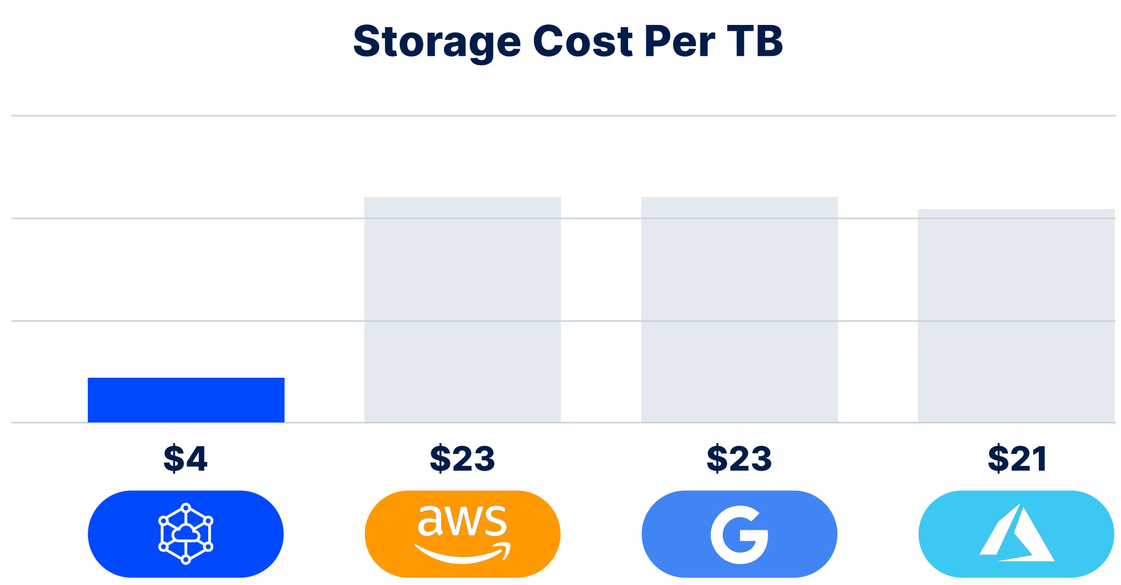


Additionally, Storj DCS saves you time by increasing on-demand availability, through built-in multi-region support, and security, as files are automatically encrypted and distributed across more than 13,500 geographically diverse storage nodes and ISPs in more than 100 countries. That's not the case with centralized cloud storage: for every availability zone or region you have to set up with centralized cloud storage, you add a level of complexity and time spent on added configuration, script creation, and administration. That added complexity consumes valuable development time and resources and can extend your delivery timelines. Storj DCS eliminates that complexity and wasted time for more focus on your app and a speedier time to market.

Storj DCS also provides detailed, intuitive documentation with thorough examples tailored to various code languages, upload methods and key integrations so you can easily and quickly find the information and answers you need. The documentation makes it easy to understand Storj DCS' data flow, different controls, touch points, how to change configurations, properties, behavior, and more.

Lower Storage Costs

Even though the per gigabyte price of hard drive storage has decreased by about fifty percent over the past five years, object storage prices among leading traditional centralized cloud storage providers haven't decreased at the same rate during that same time period.



The Storj approach to object storage, however, provides cloud native app developers and product teams with significant economic advantages over centralized cloud storage solutions. Due to its globally distributed network of independent node operators, Storj doesn't have the cost of building and operating its own centralized data centers. As a result, Storj can pass significant savings onto its customers.

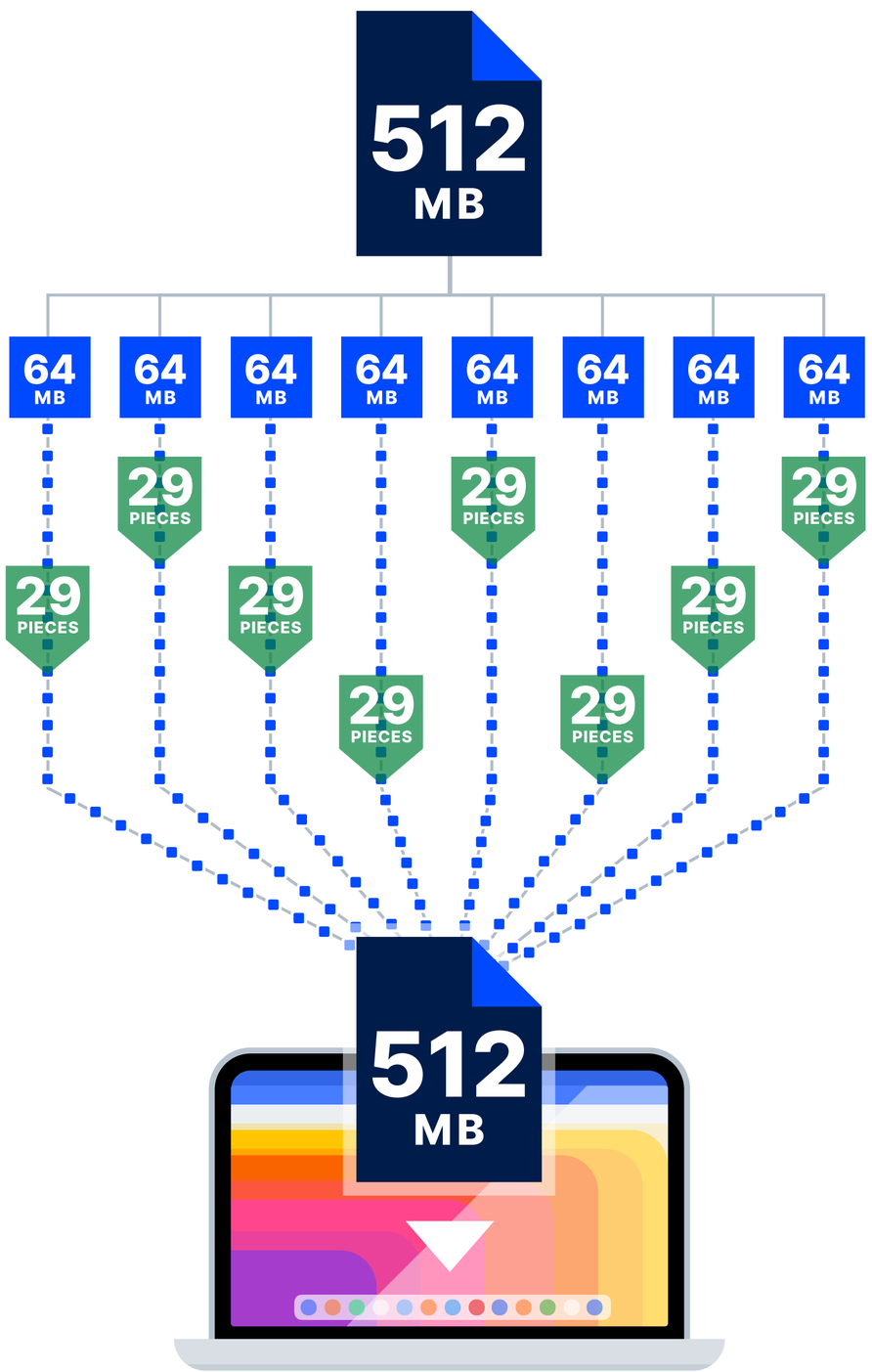
For example, for less than half the price of a single availability zone from a centralized hyperscaler, Storj DCS delivers multi-region distributed cloud storage with ultra-high availability through more than 13,500 geographically diverse points of presence around the world. With the decentralized model, there's no need for file replication and maintenance or need for multiple data centers in different geographies.

Egress costs are also lower. While centralized cloud providers typically charge about $90 or more per terabyte (TB) of egress in North America availability zones, those prices can rise in other regions, and in some cases to a significant degree. Storj DCS charges a flat fee of $7 per TB of egress per month regardless of geographic location. That can easily result in annual savings of thousands to millions of dollars for apps that have large file sizes and/or frequent object file, patch or update downloads. Even large enterprises that qualify for deep tiered pricing discounts from centralized cloud providers still get significant savings with Storj DCS.

High Throughput and Low Latency for Cloud Native Apps

High performance and low latency are key to delivering great customer experiences with your cloud native app. Unfortunately, the point-to-point nature of centralized cloud storage infrastructures can hurt your performance. Data delivery is constrained by the speed and throughput of your pipe, as well as the distance between where your app data is stored and where your users are located.

The decentralized nature of Storj DCS lifts those constraints. As a distributed network of storage peers, you're basically able to command a fleet of nodes that deliver your app data simultaneously through multiple pipes for extremely high performance. With Storj DCS, your app's object files are split into 80 or more erasure-coded pieces, with only 29 of them necessary to reconstitute the file.



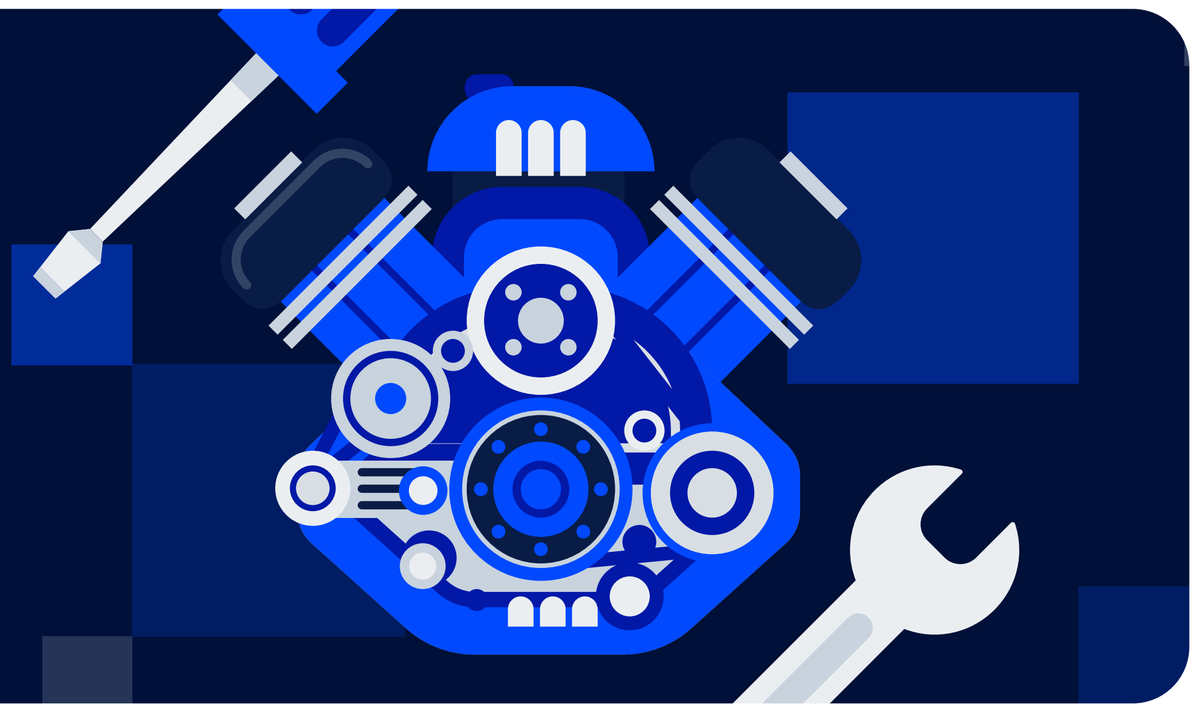
To hot rod your performance even more, you can also choose to take advantage of segment parallelism with Storj DCS, which lets you transfer file segments in parallel. For example, a 512MB file is made up of eight 64MB segments (512/64 = 8). So, when you download that 512MB file, not only will Storj DCS use the fastest 29 pieces in parallel, it will download 232 pieces of the file in parallel (8 segments X 29 pieces = 232 total pieces). This can enable object file downloads to complete eight times faster than downloads where segments transfer serially. Plus, Storj DCS doesn't charge extra for this increased performance option, unlike some centralized cloud providers that make you pay extra to boost download speeds.

Additionally, since Storj DCS distributes your app's object files across its built-in global distribution network that spans more than 100 countries, it can automatically place your files closer to your app users to dramatically reduce latency and improve app response times.

Hot Rodding Decentralized Storage

Learn how Storj DCS performance is optimized with parallel downloads.

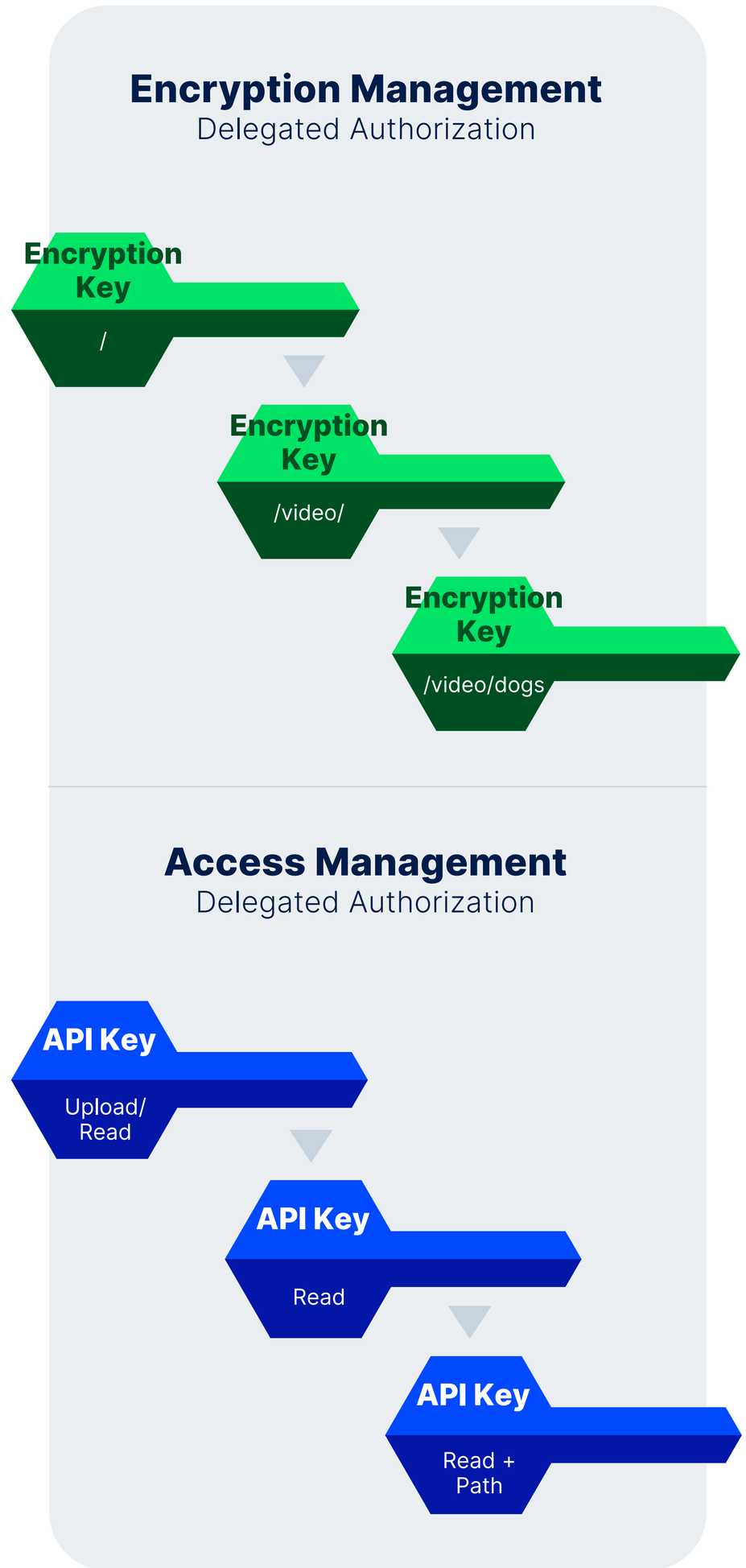
Read the Blog



Zero Trust Security Architecture

Key to ensuring the security of your cloud native apps is having a provider with a zero trust architecture. However, today's hyperscalers are not always zero trust by default. Not only do they rely on single-point-of-failure architectures, but mistakes or problems with permission grants can occur too easily with their identity and access management (IAM) frameworks.

In fact, the standard approach to access management used by centralized cloud providers relies on access control lists (ACLs), which have significant inherent weaknesses. These weaknesses manifest in the way users are granted permissions without knowing their privilege set, as well as inherent single point of failure vulnerabilities that can create openings for hackers to take control of the programs that manage access.



Storj does things differently. By using a capability-based access control methodology, combined with an end-to-end encrypted zero-trust model, Storj provides a better way to protect IT assets than older, trust-based approaches. Storj DCS combines zero trust with a decentralized infrastructure and zero knowledge storage techniques to deliver a defense-in-depth security strategy that is easy to use and ideal for today's distributed workforce. Learn more about how a decentralized architecture takes zero trust to the next level in this IDC Analyst Brief.

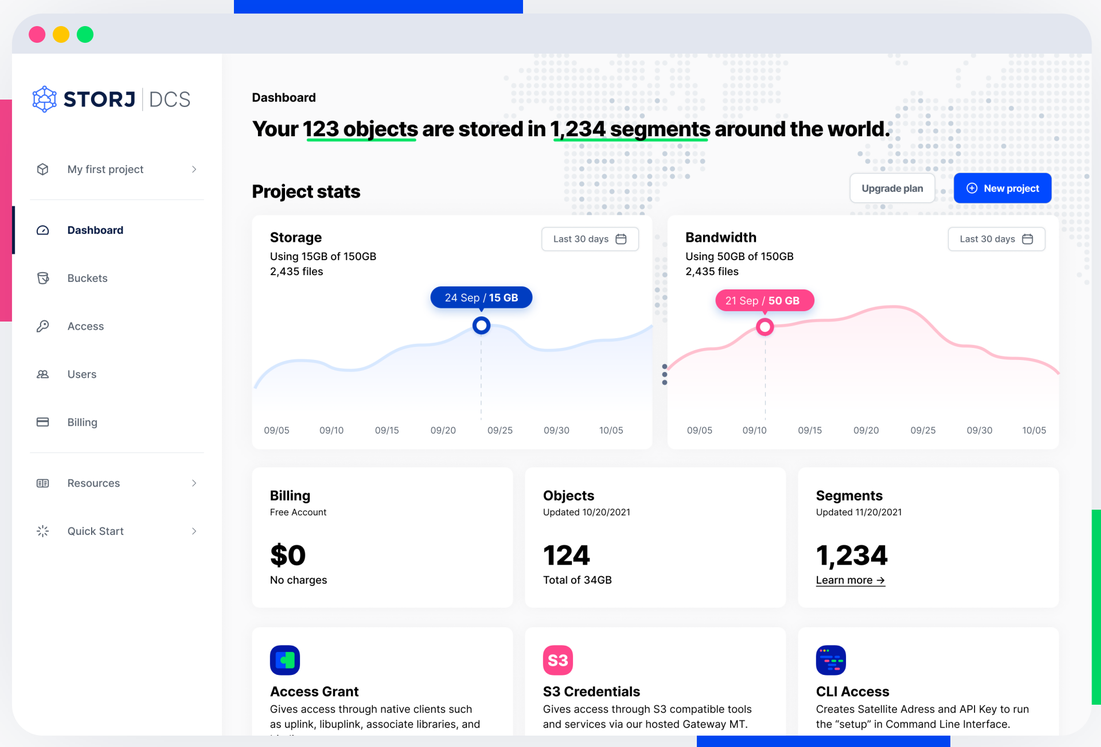
Storj ties access to keys with an approach that uses an unforgeable token of authority that decentralizes security and provides granular access control at the object level that can be programmatically automated. By offering granularly more restrictive grants, you're able to more easily ensure that users only have access to the data they're supposed to have.

Storj DCS' native integration employs end-to-end encryption combined with an edge-based security model to provide flexible and secure capabilities for access management. And since Storj separates the encryption function from the macaroon-based access management capabilities, you can manage both 100% from the client side.

Finally, using Reed-Solomon erasure coding, continuous cryptographic audits of storage nodes and automated file repair, Storj DCS' SLA ensures 99.95% availability and eleven 9s of durability.

Experience Storj DCS Today

For more information on how Storj DCS can help your organization dramatically reduce your development storage and egress costs for cloud native apps, eliminate the engineering complexity of delivering high-performing bandwidth with a global reach, and ensure the security and integrity of your cloud native app files, visit www.storj.io.



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Start building on the decentralized cloud.

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