CIMMYT discovers sustainable object storage in Storj DCS.

Headquartered in Mexico City, the International Maize and Wheat Improvement Center (CIMMYT) fights hunger and poverty in the developing world through smarter agriculture and is most likely best known for prompting the Green Revolution, which saved millions of lives across Asia and led to CIMMYT's Norman Borlaug receiving the Nobel Peace Prize.

CIMMYT has research, growth, and regional offices across 15 countries - established to further address challenges faced by low-income farmers in developing countries. As a non-profit research institution, CIMMYT shares its research findings with the public. But with some of their reports and datasets being as large as 7 terabytes (TB), finding a reliable and cost-effective way to share research is challenging and has become a two-year quest.

CIMMYT's quest to solve these issues finally succeeded when discovering the reliability and global on-demand availability of Storj Decentralized Cloud Storage (DCS).

Enabling low, long-term operational costs

CIMMYT briefly considered using AWS S3 to make its research publicly available over the cloud, but realized that route was just too cost-prohibitive. As a non-profit, fiscal responsibility is a driving force in all of CIMMYT's decisions out of respect for its donors and to ensure the long-term sustainability of its operations.

"We have a moral obligation of keeping the research assets in our digital repository available essentially forever," explains Jesús Herrera de la Cruz, Digital Innovation Manager for CIMMYT. "Every time we upload a data set or article to our repository, it automatically gets assigned a unique, persistent identifier that scientists and other researchers can cite in their published research. That requires us to keep our operational costs as low as possible to make sure we can honor our commitment to those researchers to keep our assets available indefinitely."

> “Storj DCS saved us around 90% compared to what AWS would have cost.”

Jesús Herrera de la Cruz

Digital Innovation Manager
CIMMYT

Unfortunately, CIMMYT had to spend about two years trying to find a cost-effective cloud storage solution. “We were waiting for an evolution in technology that would change the cloud storage environment, and we finally found it in Storj DCS,” says Herrera de la Cruz. “It was a wow moment in our lives when we realized we could link the large data files in our digital repository to Storj DCS.”

Preserving asset integrity

Since other scientists and researchers depend on source accuracy and authenticity, asset integrity is another major criteria for CIMMYT choosing an object storage provider. They get that data integrity with Storj DCS through the combination of its granular access controls and a storage and auditing system based on erasure coding, which splits each file into at least 80 separate pieces that it stores on geographically diverse storage nodes across the globe.

“We offer access to our information for free to the world, but we need to make sure we never lose our original copies,” Herrera de la Cruz says. “So security in the sense of integrity is vital to us. That’s why having every file split in about 80 pieces is a great feature for us. Hackers can’t hack it. The whole decentralized storage concept gives us the reliability and integrity we need, letting us avoid a single point of failure. No one can compete with Storj DCS on that.”

Improving large-file downloads in remote locations

Most of the people interested in CIMMYT’s research live in developing countries. Quite often, this means they have slow or unstable internet connections. That can be a big problem when downloading files that can range anywhere between 0.5TB and 7TB.

“The way Storj DCS inherently distributes our files globally is crucial,” Herrera de la Cruz says. “Since it retrieves the different pieces of each file from the closest Storage Node and the download of a single large file becomes instead multiple very small files, those slow or unstable connections can deal with it much better. That type of distribution is beneficial to us.”

Achieving multiple strategic business objectives

One of CIMMYT's most important objectives as a non-profit research institution is to share the results of its research with the world. The reliable and distributed nature of Storj DCS, with its extremely low cost, has enabled CIMMYT to meet this objective. According to Herrera de la Cruz, that single outcome is more than enough justification for CIMMYT to use Storj DCS. Even so, the institution continues to discover many other ways that Storj DCS can benefit its organization.

For example, the S3 compatibility of Storj DCS enables it to interact with several different applications, helping the institution to use it to manage its files in various use cases, such as backups.

"Storj DCS can help us more easily move to a modern backup solution," Herrera de la Cruz says. "Using fantastic new decentralized storage technology will inherently enable us to have our backups distributed among several different cities all over the world. That's really impressive and very useful."

"We've only just started with Storj DCS, but we've already identified multiple ways to use it and expect to discover more," adds Herrera de la Cruz. "The more ways we can leverage decentralized cloud storage technology, the better, because of the greater positive impact it can have on our center. That also lets us save some money here and there, further contributing to the whole idea of sustainability."

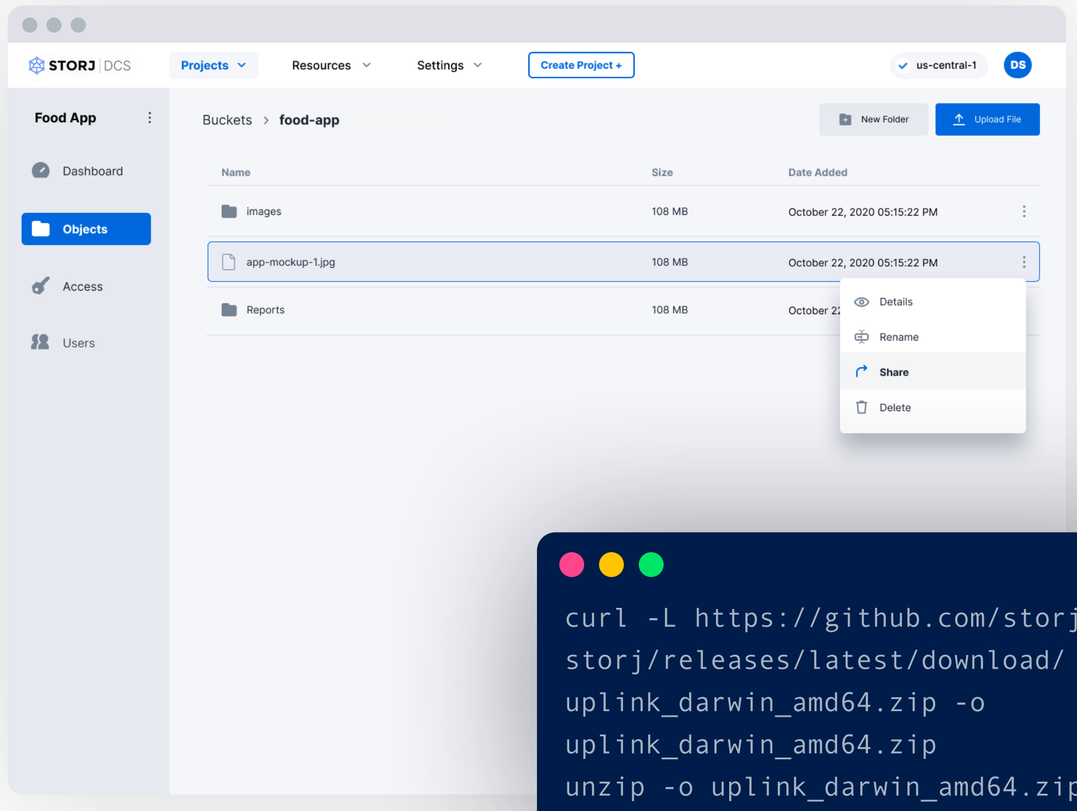
Solving the widespread struggle of large-file storage and distribution

CIMMYT has been so impressed with how Storj DCS has provided them such a reliable and affordable object storage solution that they're excited to let their peers and others know about the benefits. Herrera de la Cruz has encouraged colleagues at other agricultural research centers to investigate Storj DCS, plus he presented CIMMYT's finding on the solution at the open source Dataverse Project's international community meeting held at Harvard in June 2021.

"Our world is based on information stored in digital files," explains Herrera de la Cruz. "And we produce more and more digital files every year. But it's a struggle for organizations to store those files and distribute them over the internet at a reasonable price. That's why I share the benefits of Storj DCS with other colleagues whenever I have the opportunity. It solved one of our biggest problems, and I feel it can help others solve that same problem. I don't think there's anything else like Storj DCS in the market today."

Experience Storj DCS today.

Decentralization is already here, and it's only going to get bigger, better and more mainstream as people discover the benefits of a decentralized model. For more information on how Storj DCS can help your development team and organization secure your data, minimize storage costs, reduce complexity and increase performance of your backups, visit www.storj.io.



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unzip -o uplink_darwin_amd64.zip
chmod 755 uplink
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