Backblaze B2

Backblaze Announces Low-Cost Cloud Storage Service To Compete With Amazon S3

Posted Sep 22, 2015 by *Frederic Lardinois* (*@fredericl*)

Backblaze is best known for its consumer and enterprise backup service — and how many hard drives it buys to power that service. Today, however, the company is taking a step in a slightly different direction by announcing the private beta of Backblaze B2, a competitively priced cloud storage service that competes with the likes of Amazon S3 and the cloud storage services that are part of Microsoft Azure and Google's Cloud Platform.

The company, which launched in 2007 and is now profitable, currently stores about 150 petabytes worth of backup data and over 10 billion files on its servers. As the company's co-founder and CEO Gleb Budman told me, Backblaze decided to build its own storage pods and software early on, simply because buying existing servers was too expensive for the bootstrapped company.

"Over the course of the last years, we spent 90 percent of our time and energy on building out the cloud storage and only 10 percent on the front end," he told me. Because the company now has a very stable backend system, many of its users asked about getting direct access to not just use it for backup but also to store data through an S3-like API.

Budman tells me Backblaze's engineers spent about a year working on the software. Early on in the company's history, it would've been impossible for Backblaze to launch a completely new business line because the company only had a few people at the time and was struggling to keep up with growth. Now, however, the team decided that it could launch a B2B product that can compete with the incumbents on both price and availability.
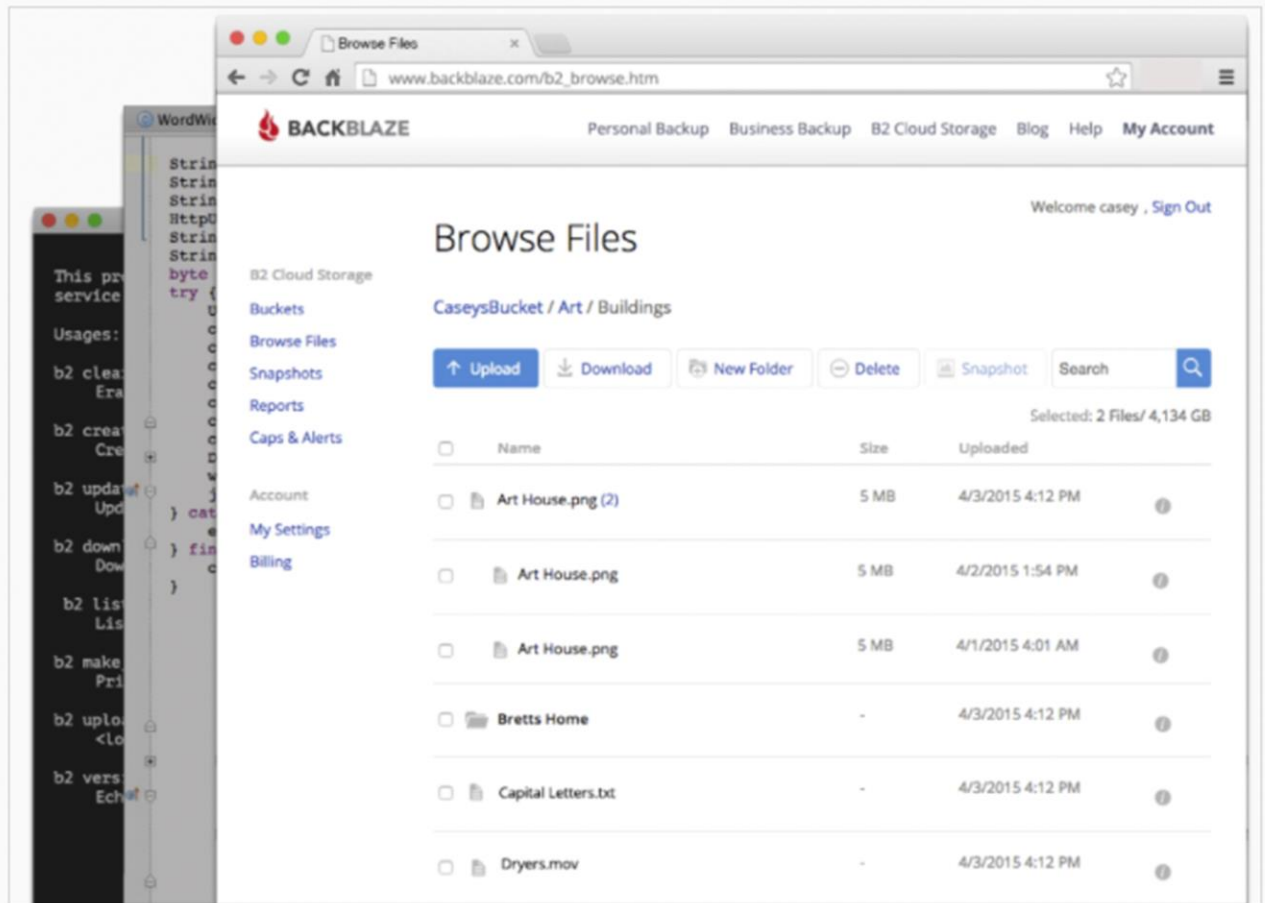
The price of Backblaze's service is half the price of Amazon Glacier, AWS's very slow cold storage service, and only costs about a fourth of Amazon's regular S3 service. Budman acknowledges that the main reason to switch to Backblaze for a developer is price. "There are some use cases that simply don't exist right now because storage is still expensive," he noted. Maybe you want to store your data in a number of different locations and services, but if you did that on AWS, you would spend twice as much as you do today. Given Backblaze's low prices, you could now store an extra copy of your data for about 15 percent of the price you'd pay on Amazon's cloud storage service.

The company expects that users will use Backblaze B2 to store images, videos and other documents, but Budman also believes some users will use it to store large research data sets, for example.

Backblaze B2 will offer a free tier (up to 10GB storage, 1GB/day of outbound traffic and unlimited inbound bandwidth). Developers will be able to access it through an API and command-line interface, but the service will also offer a web interface for less technical users.

The service is now in private beta that you can sign up for here. The company expects to open the service up to the public by the end of the year.

Backblaze takes on Amazon S3 with dirt-cheap data storage for developers

by **OWEN WILLIAMS** — Sep 22, 2015 in **APPS**

Amazon's S3 storage service is popular among developers because it's cheap, fast and highly available, but Backblaze 🔵 might be about to shake that up for good.

The company, which is well known for unlimited file backup, has launched Backblaze B2 today to take on Amazon's S3 service — at incredibly low prices.

Built on top of the custom storage pod infrastructure Backblaze designed itself, B2 costs just $0.005 per GB, compared with Amazon's $0.022.

B2 launches into private beta this October for developers to start using before it becomes available widely later this year.

5
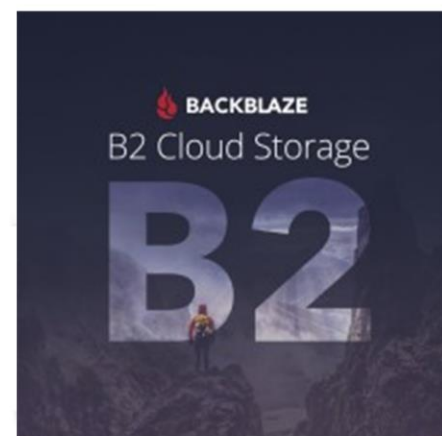
Not only is B2's storage price cheaper than Amazon's long-term backup service, Glacier, and Google's Nearline, it beats everyone from Microsoft 🔵 to Google on price — even at the cheapest tier. It will also beat them all on per gigabyte bandwidth out price, at $0.05.

That's a compelling sell for companies with massive volumes of storage, with prices more than four times cheaper than any competitor.

For startups like Everpix, which collapsed as it struggled to pay for huge storage costs, B2 could mean businesses that require large amounts of storage become viable.

I talked with Backblaze CEO, Gleb Budman, who told me that it decided to build B2 after customers repeatedly asked if the company would make available a cloud storage platform.

Budman said that Backblaze's backup service already stores more than 150 *petabytes* of data (that's 150,000 terabytes, by the way) and adds 5 petabytes of storage every month for its existing service.

	Storage ($/GB/month)	Upload ($/GB)	Download ($/GB)
BACKBLAZE	$0.005	Free	$0.05
amazon web services S3	$0.022+ +440%	Free	$0.05+
Microsoft Azure	$0.022+ +440%	Free	$0.05+
Google Cloud	$0.020+ +400%	Free	$0.08+
verizon	$0.040 +800%	Free	$0.08
rackspace	$0.075+ +1500%	Free	$0.06+
CenturyLink	$0.150 +3000%	$0.05	$0.05

Lowest cost shown for real-time cloud storage

At launch, B2 will offer a RESTful API, command-line interface and Web utility for uploading files and will only charge for what you use.

All customers will receive versioned files, snapshots, reporting, caps and alerts as well as mobile access, regardless of how much they spend.

I was surprised by how much lower Backblaze's pricing was and asked Budman if he expects to start a pricing war with Amazon 🄸 , Microsoft and the other heavyweights. He said that he doesn't expect them to respond at first, until developers start moving away from their service — but with such low prices, that could happen incredibly quickly.

Backblaze's B2 service can be used for any application — you could build the next Dropbox 🄸 or iCloud on top of the platform, or even use it for personal backups if apps add support.

B2 will launch into private beta in October before becoming available publicly with a service level agreement later this year.

➤Backblaze B2

7

Courtesy of Backblaze

With a new service called B2, Backblaze wants to take on Amazon in cloud storage

Derrick Harris
Sep 22, 2015

It was 2009 when cloud computing startup Backblaze first made a splash by open sourcing the designs behind its custom-built, high-density storage arrays. Six years later, the company is making another audacious move by directly challenging companies such as Amazon Web Services (AMZN, -0.07%)and Google (GOOG, +0.08%) in the business of storing companies' valuable data in the cloud.

Backblaze has always prided itself on providing possibly the world's least-expensive service for backing up data---$50 a year for unlimited storage— but its new product, called B2, targets data that developers and companies still want to access. So rather than storing compressed, encrypted, fully indexed versions of entire hard drives, they can store individual objects and files that load much faster and are easily accessible by software programs.

8

And B2, which will be available to private beta users in October, is still cheap. In terms of straight-up storage, B2 will cost a flat rate of $.005 (or half a cent) per gigabyte per month. The least expensive price tiers for popular cloud storage options from larger providers such as Amazon, Google and Microsoft (MSFT, -0.40%)—which are only available to users storing huge volumes—cost at least 4 times that much.

Amazon's newish Glacier service, which offers cheaper storage and slower access for data that companies need to reach less frequently, costs $.007 per gigabyte in most cases.

Backblaze founder and CEO Gleb Budman acknowledges that B2 probably won't win over the majority of storage workloads now running on other platforms, especially if users need very high performance or computing located near their data. "B ut if what you need is somewhere to put a lot of data," he said, "this is a very competitive offering."
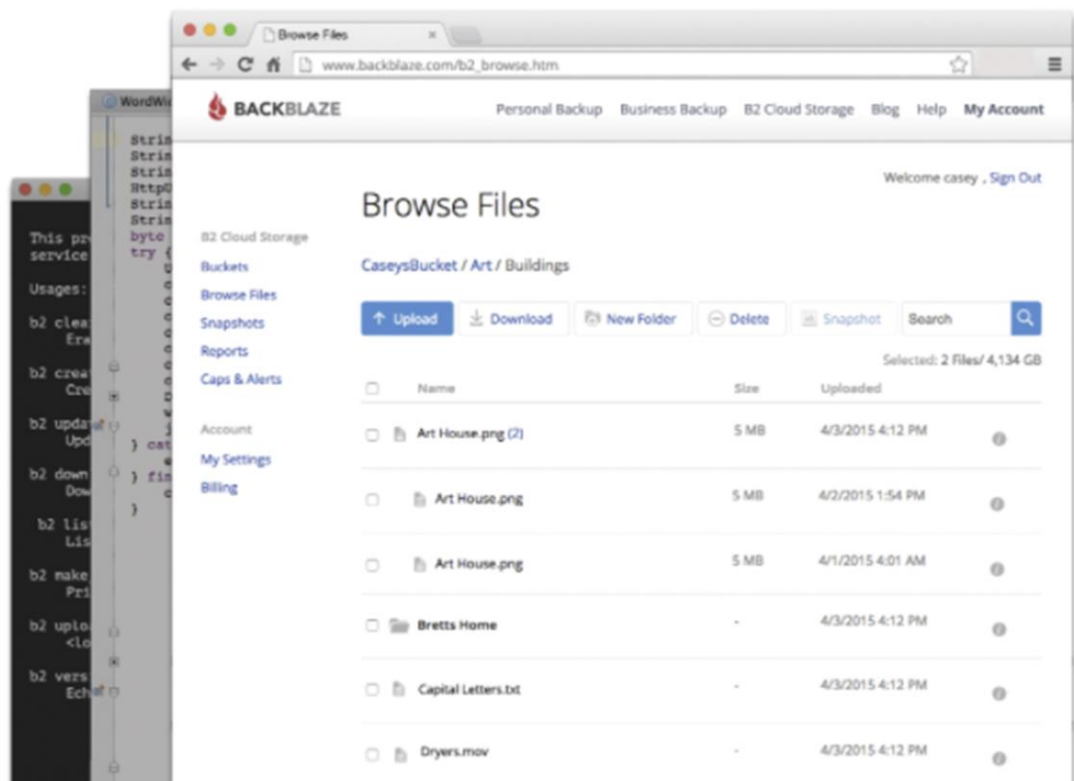
An example of the B2 user interface. Image courtesy of Backblaze

Budman says he's spoken with a potential customer who was going to build a new data center to store petabytes of storage, but is considering Backblaze B2 instead because of the low cost. Or, he suggested, B2 could actually open up a whole new market for backing up companies' data that's primarily stored in Amazon's popular S3 storage service. Replicating that data in Amazon or another cloud provider would essentially double the cost of storage, but storing it in B2 would increase the bill by less than 20%.

Backblaze didn't necessarily plan to expand its business beyond cloud backup, but signs from customers and fans made it clear the company could pull off something like B2. Users loved the cheap price of backup and the economics of its open-source storage designs (other companies have actually started businesses selling the components and building the systems, which cost little to build but store lots of data), and have been hacking for years trying to turn them into cheaper storage for a greater range of applications, Budman said.

"If we were trying to do this as a brand new company 7 years, there would be no way," he admits. "It just would have been impossible."

But now Backblaze is now storing more than 150 petabytes of user data and is a profitable company, despite raising just $5 million in venture capital. That's nowhere near Facebook- or Amazon-scale on any front, but it's more than respectable for a small company. In fact, Budman says he expects B2 to outgrow Backblaze's flagship backup service within a few years---a feat that *would* put it nearer the same class as those giant companies in terms of sheer data volume.

But until B2 is open to the public and storing real live data, all of that is just speculating. "I'm sure," Budman said, "it will be very eye-opening as we open this up."

CLOUD

Backblaze launches B2 object storage service at 1/4 of the cost of Amazon S3

JORDAN NOVET   @JORDANNOVET   SEPTEMBER 22, 2015 9:00 AM

Above: Backblaze's storage pods in its data center in Rancho Cordova, Calif.
Image Credit: Backblaze

Backblaze, a company that has long offered to back up data sitting on personal computers for $5 per month, is announcing today a major expansion: It's launching a new service to store files for developers' web applications.

The new Backblaze B2 service will cost one-fourth the price of the widely used S3 storage service from public cloud market leader Amazon Web Services. The price — half a cent per GB per month — will also undercut object storage services from CenturyLink, Google, Microsoft, Rackspace, and Verizon.

Backblaze has opened up a private beta waiting list for the new service, which will become fully available by the end of the year.

Of course, there is the matter of entering a highly competitive market. And Backblaze provides the service out of its one and only data center in the Sacramento, California, area. And there is no enterprise-friendly service-level agreement (SLA) for the new service at this point. And there is no developer ecosystem around Backblaze.

But the numbers speak for themselves.

"Whether it's for hosting websites or building applications, all these different things, the key thing is our pricing is dramatically, dramatically lower," Backblaze cofounder and chief executive Gleb Budman told VentureBeat in an interview.
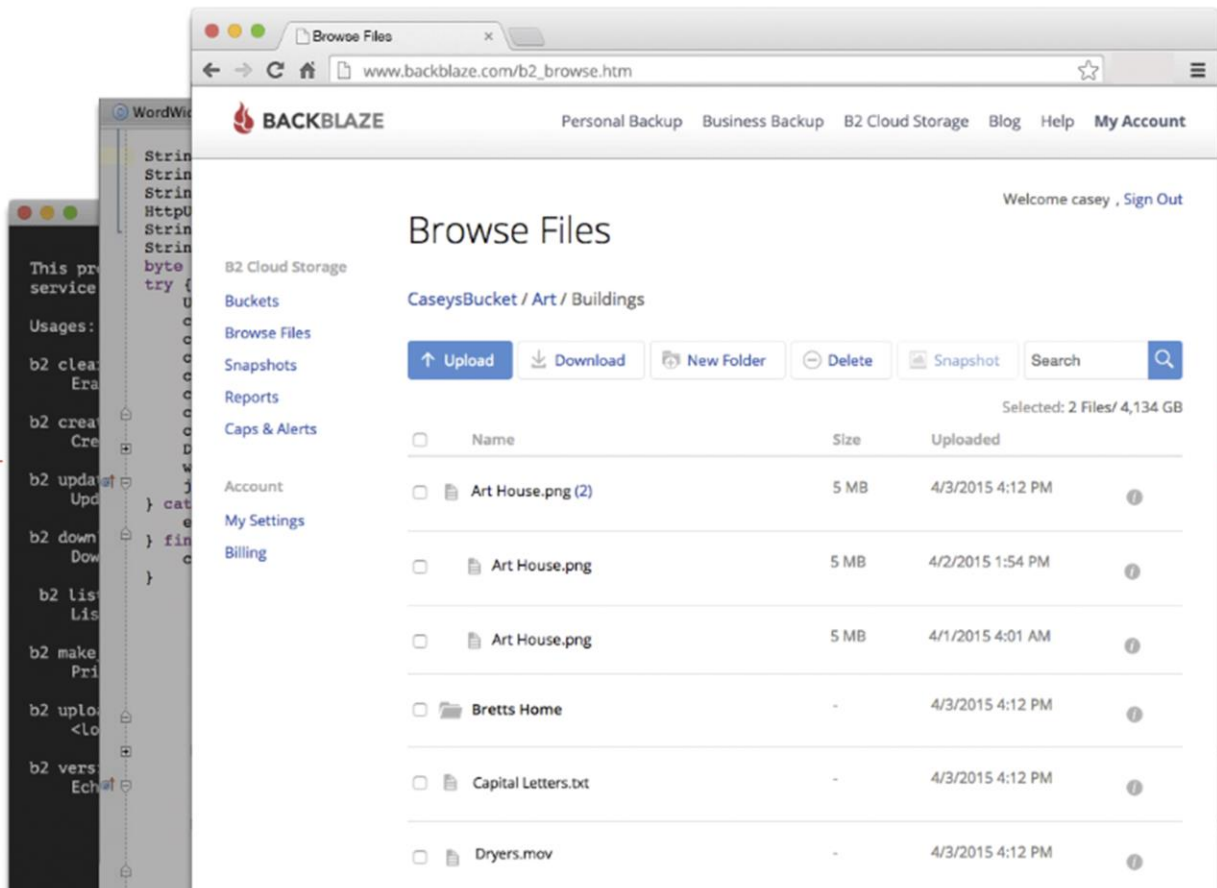
Above: Backblaze B2 users can access the service through a graphical user interface, a command line interface, or an application programming interface. Image Credit: Backblaze

The service could well work as an alternative to S3, even if other parts of applications are running on Amazon Web Services, Budman said. But it could also work as a viable data backup service. (AWS outages, anyone?)

Backblaze started in 2007 and is based in San Mateo, California. The company took on a $5 million funding round in 2012.

How this startup went from 'pretty entertainingly terrible' to challenging Amazon head-on

Matt Weinberger ✉ 🐦
🕐 Sep. 22, 2015, 12:09 PM   🔥 6,250

Amazon Web Services is an unstoppable juggernaut in the cloud services world, contributing a projected $7 billion to the retail giant's revenues this year alone.

Backblaze CEO and co-founder Gleb Budman
Backblaze/YouTube
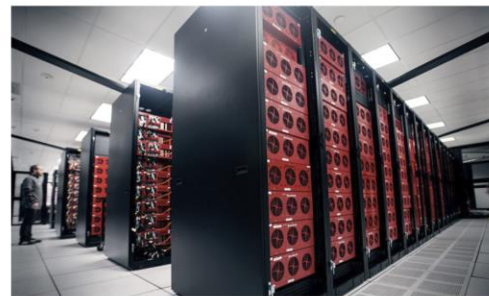
A big part of that dominance is thanks to Amazon S3, a super-popular cloud storage option that's most easily described as like Dropbox for programmers to store all the data they need for web and mobile apps.

All of the images on Tumblr, for instance, are hosted with Amazon S3.

Above: Backblaze's storage pods in its data center in Rancho Cordova, Calif.
Image Credit: Backblaze

The killer feature of Amazon S3 is price. Because Amazon Web Services operates at such massive scales and tremendous levels of efficiency, it's able to offer storage at an ever-shrinking cost to customers. Right now, Amazon S3 pricing starts at three cents per gigabyte stored.

http://www.businessinsider.com/backblaze-challenges-amazon-web-services-with-b2-cloud-storage-2015-9

The killer feature of Amazon S3 is price. Because Amazon Web Services operates at such massive scales and tremendous levels of efficiency, it's able to offer storage at an ever-shrinking cost to customers. Right now, Amazon S3 pricing starts at three cents per gigabyte stored.

But there's a new player in the market: Backblaze, a profitable, popular startup that lets users back up as much data as they want to the cloud for $5 a month or $50 a year.

Now, Backblaze is taking its eight years of experience with helping users back their computers up to the cloud and using it for "B2 Cloud Storage," a new service that charges a measley $0.005 per gigabyte stored — as much as six times cheaper than Amazon S3.

For price-conscious developers, that potential savings could make all the difference in the world.

And the really ironic part? If Amazon S3 had been cheaper eight years ago, Backblaze would never have developed the expertise it needed to compete in the first place.

No money, no choices

Backblaze

Backblaze's founders met at an email security startup called MailFrontier, which was then snapped up by SonicWall in 2006, says CEO and co-founder Gleb Budman.

In 2007, one of the future Backblaze founders, still at SonicWall, was doing tech support for a relative who had accidentally and permanently deleted an important file. That engineer was shocked to find that the relative had absolutely no backups in place.

This led to a moment of inspiration, and Budman and other one-time MailFrontier executives were gathered to build a simple, straightforward way for people to back their stuff up to an online service for a predictbale, $5/month price. In 2007, Backblaze was officially formed.

In order to stay disciplined on building the product, Budman says, Backblaze's founders decided not to raise venture capital, instead relying on the team's pooled savings to get the business off the ground. The thought was that taking venture cash would force Backblaze to focus on pleasing investors rather than building a sustainable business.

The current model of the Backblaze storage pod. Backblaze

"At the most basic level, it makes people believe that money comes from VCs," and not from actually making sales, says Budman.

In fact, they made the mutual arrangement to go without a salary for the first year of Backblaze's existence — an arrangement that would actually extend to five years total.

Which was great, but it meant that Backblaze was starting from a disadvantage.

The original plan was to use Amazon S3 on the backend to build Backblaze as a simple storage system that would let them host their customer's data.

There was just one problem: The pricetag. Amazon S3 was, and is, very cost-efficient for developers hosting a relatively modest amout of data.

For Backblaze, though, which planned on storing its customers' entire hard drives in the cloud, Amazon S3's price was too high. Backblaze would either have to charge its customers an unrealistically high pricetag, or else take a loss on their $5/month pricing goal. Either way, Amazon S3 just wouldn't work for them.

"Because we didn't have any money, we didn't have many choices," Budman says.

"Really entertainingly terrible"

So Amazon S3's pricing model was too expensive, and Backblaze didn't really have the cash to buy commercial hardware from the likes of Dell or HP.

This meant that Backblaze had to get creative. In this case, creativity manifested itself as an ambitious plan to build its own high-capacity, low-cost storage servers, called "StoragePods."

Backblaze hit upon a method for taking sixteen hard drives, stripped out of consumer-grade external hard drives by hand, and attaching them to a motherboard to make a simple server.

Those servers, with hard drives in tow, would then get placed into a custom server housing that they actually made out of wood. Those handcrafted, artisinal wood-carved servers would then get driven out to a data center where they rented some space and installed.

A wooden server isn't exactly industry standard, but it was enough to get Backblaze its first few customers. And, most importantly for the young company, these StoragePods were extremely cheap to manufacture.

Eventually, the StoragePod design evolved: It got a steeel casing, and they were able to cram in 25 drives with around 5 petabytes of storage each. And thanks to developing relationships with the suppliers of the casings and hard drives, costs stayed low compared to the revenue that the storage business was starting to bring in.

One of Backblaze's first wooden servers. Budman

In the early days, of the company, Backblaze would actually have monthly StoragePod assembly parties, Budman says. They would go to their VP of Engineering's one-bedroom apartment in San Francisco and just slap hard drives into cases all night long.

That was bad enough, but they'd also have to go through the tedious process of "burning in" those hard drives, Budman says, which involves running them constantly for a week straight to ensure they're more reliable when they're in the data center.

This meant that at any given time, there was always a server or two sitting on the TV stand, humming away day and night and heating the place up. Eventually, Backblaze shelled out for a shed in the backyard for burning-in purposes.

Those early days were "pretty entertainingly terrible," Budman says.

But that work in cost reduction didn't go unnoticed: When Backblaze released the blueprints for the StoragePod as a free download in 2009, over a million people took a look, which blew Budman away.

"This isn't kittens or porn, it's a storage server," Budman says.

Even Netflix has taken the StoragePod concept and applied it to delivering HD movies.

Competition with Amazon

The StoragePod has let BackBlaze ride to success.

The company is profitable, and was able to hold off on taking its $5 million Series A round of funding until 2012, which was its fifth year of operation. Even then, Budman says, the funding was to fund growth, not a move of desperation.

Backblaze's Silicon Valley HQ. Backblaze

Today, Backblaze operates its own data centers, and stores over 150 petabytes of customer data. It's that focus on saving cash at all costs that gives Backblaze its competitive edge now, Budman says.

"Because we did that from the get-go, we have this storage that's incredibly cost-efficient," says Budman.

In other words, Amazon may have an obscenely huge reach, with gigantic data centers that means it can offer cloud storage at razor-thin margins, locking itself into the so-called "race to zero" with competitors like Google and Amazon.

But Backblaze does nothing but think about how to get the most bang for their buck, and squeeze as much storage capacity as it can out of its continually-evolving StoragePod design, Budman says. The newest Storage Pod, version 4.5, boasts 180 terabytes of capacity, and Backblaze still needs to put in 20 to 30 new ones per month (but no longer in anybody's apartment, thankfully).

Which means that B2 Cloud Storage can offer even lower prices, and still make the company a healthy amount of money on volume.

And if Amazon S3 had just taken this stance when it started, Budman says, it would never be facing the threat of B2 Cloud Storage.

"The reality of it is, if this had existed at the time, we wouldn't have had to build our own," Budman says.

Disclosure: Jeff Bezos is an investor in Business Insider through his personal investment company Bezos Expeditions.

Backblaze B2 Offers Cloud Storage 4X Cheaper Than Amazon S3

By Hubert Nguyen on 09/22/2015 11:18 PDT

Backblaze, a company known for its backup solutions, is entering a new business area by offering cloud storage that competes with Amazon, Microsoft, Google and other cloud actors. The new service is supported by an API (Application Programming Interface) and a command-line interface (CLI). The principal competing factor is the price: at $0.005/GB.

The current model of the Backblaze storage pod. *Backblaze*

At this price, it is significantly cheaper than Amazon S3, and pretty much every other large player. S3 storage starts at $0.03/GB (up to 1TB) and can go as low as $0.0275/GB if you use over 5000TB (sic). The outgoing bandwidth cost of Backblaze is comparable to the best competitors at $0.05/GB and the incoming bandwidth is free.

This is so affordable that it opens a lot of possibilities for developers and users: for one, this could be used as a redundant storage to an existing S3 setup. Since it is 4X cheaper, Backblaze's storage can even compete with Amazon Glacier, and be much faster to access at the same time. Developers can also access API libraries in popular languages like Java, Python, C#, Swift etc… along with web requests.

For regular users, the web interface and the extremely low price has made it an interesting alternative for cloud storage at prices unknown until now.

I haven't looked at all the API details, so I can't yet tell you about the pro and cons, but this announcement adds a lot of spice in an otherwise fairly stagnant cloud storage market that has well established players.

Backblaze says that it can price its storage aggressively because it has spent years building its storage infrastructure from the ground up, including building the Backblaze Vault, which is a proprietary file system that can scale to zettabytes-level (1 ZB = 1 trillion GB). The hardware that hosts the content is called Backblaze Pod, a specialized storage box designed to optimize costs. Finally, the company has ways to evaluate hard drives that offers the best reliability/price ratio.

I STILL USE ZIP DISKS —

Backblaze to sell cloud storage for a quarter the price of Azure, Amazon S3

Using consumer-grade hard drives in its data center keeps prices low.

PETER BRIGHT - 9/22/2015, 9:16 AM

Online backup provider Backblaze is branching out today with a new business: an infrastructure-as-a-service-style cloud storage API that's going head to head with Amazon's S3, Microsoft's Azure, and Google Cloud Storage. But where those services charge 2¢ or more per gigabyte per month, Backblaze is pricing its service at just half a cent per gigabyte per month.

Backblaze's business is cheap storage. We've written about the company's hard disk reliability data a few times over the years; the company has found that regular consumer hard drives are more than up to the demands of providing cloud storage, though there is substantial variation between the different manufacturers and models. Backblaze has designed (and documented) its storage hardware for the lowest possible cost, using software to provide the necessary protection against failures. It currently has more than 150 petabytes of storage.

This low-cost storage means that the company can offer its $5/month unlimited size backup plan profitably. Now the company plans to sell that same cheap storage to developers. Its new B2 product is very much in the same vein as Amazon's S3: cloud storage with an API that can be used to build a range of other applications. And the price difference is significant. Amazon S3's cheapest online storage—reduced redundancy, for customers storing more than 5 petabytes—costs 2.2¢ per gigabyte per month. Backblaze's B2 storage costs 0.5¢ per gigabyte per month, with the first 10GB free. This is cheaper even than Amazon's Glacier and Google's Nearline storage, at 0.7 and 1¢ per gigabyte per month, respectively, neither of which supports immediate access to data. Bandwidth costs are the same; inbound bandwidth is free, outbound is charged at 5¢ per gigabyte.

Backblaze believes that this low price could be transformational. For large-scale storage applications, B2 may well be affordable in a way that S3 and Azure, at more than four times the price, simply aren't. The company envisages it being used as, for example, a low-cost replica to act as an independent backup for data hosted in S3 or Azure, or even the underlying storage for an online backup service or something along the lines of Dropbox.

There are some limits to the B2 offering; Backblaze doesn't have the multiple datacenter regions that Amazon and others offer, having only a single datacenter in California. Its level of robustness is roughly comparable to Amazon's reduced-redundancy S3. Even with that restriction, the price difference is striking. Amazon and Azure have a far broader range of service offerings, but Backblaze's specialization gives it a clear edge for this particular role.

The company is taking signups for its beta today, which it will start fulfilling in October, with public availability planned by the end of the year.

22

NEWS

Backblaze takes on Google, Amazon with storage at half a penny a gigabyte

The first 10GB are free

By Lucas Mearian
Senior Reporter, Computerworld | SEP 22, 2015 1:51 PM PT

Credit: Backblaze

Online backup service provider Backblaze today announced a new service offering: as much storage as you want for half a cent per gigabyte per month.

Backblaze's new B2 Cloud Storage, is a raw cloud storage service, meaning data is not encrypted or manipulated in any way. Users can encrypt their own files prior to storing them on the service for added security.

Comparison chart of cloud storage services.

"Once you start storing more data, you pay a flat half penny for anyone. If you store 11 GB, that 1GB on top of the 10GB is a half a penny," said Gleb Budman, CEO of Backblaze. "If you store 50 petabytes with us, it's still half a penny per gigabyte."

Backblaze's price surpasses that of any of the major cloud storage providers today, including Amazon S3, Google Drive, Microsoft Azure and Dropbox.

Dropbox, for example, offers the first 2GB for free and charges $9.99 a month for 1,000 gigabytes or one penny a gigabyte.

Google Drive, which offers users 15GB for free, charges $1.99 for 100GB and $9.99 for 1TB (1,000GB), and all the way up to $299.99 for 30TB.

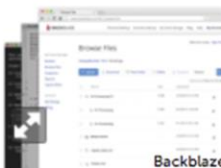*Backblaze's B2 Cloud Storage Service's pricing model.*

The new B2 Cloud Storage service pricing even surpasses in price online archive storage, which is the least expensive but comes with the caveat that retrieving your data may take hours.

For example, Amazon's Glacier service charges $.007 per gigabyte, but stipulates there may be up to a four-hour delay in accessing archived data.

Backblaze

Backblaze's B2 Cloud Storage servcie offers a reports screen to show usage.

"We'll offer access via a web GUI. Anyone can access it via our web interface. Then we offer a command line interface for IT people and if you're a developer, there's an API for the service," Budman said. "But it'll be the lowest cost cloud storage on the planet."

Backblaze, which was founded in 2007, has run a backup service since that time.

The company's backup services come in two flavors: The personal backup plan for individuals, for $5 per month per computer; and a business backup package for $50 per computer per year.

The company has also periodically released its own studies on the reliability of hard drives it purchases to fill its data center. The studies were candid about which drives failed the most.

Backblaze

Backblaze's .B2 Cloud Storage service reports screen.

To express your thoughts on Computerworld content, visit Computerworld's Facebook page, LinkedIn page and Twitter stream.

Related: Cloud Storage

Senior Reporter Lucas Mearian covers consumer data storage, electronic health IT, renewable energy, 3D printing, and telematics/car tech for Computerworld.

Follow

Backblaze B2 ignites another cloud storage price war

By Jamie Hinks September 23, 2015   Cloud services

A quarter of the price of Amazon S3

Backblaze is ready to take on the big boys in the cloud storage space by launching a service that significantly undercuts everyone else on price.

First reported by TechCrunch, Backblaze B2 has just opened up its private beta to give companies a comparable alternative to the likes of Amazon S3, Microsoft Azure and Google's Cloud Platform that costs a lot less.

The storage service is priced at $0.05 per GB per month, which is half that of Amazon Glacier, AWS's sluggish cold storage offering, and a fourth of the price of the regular speed Amazon S3 service. It also compares similarly to cloud storage offerings from Microsoft Azure and Google. CEO Gleb Budman is quite clear that price is where the company can and will compete.

Who is Backblaze?

Backblaze has been around since 2007 and is more used to providing a consumer and enterprise back-up service that is made up of 150 petabytes of data, 10 billion files on its servers and well known for the amount of hard drives bought to power it.

The company thinks that users will flock to Backblaze B2 to store images, videos and other documents although some will choose to store large research data sets using it.

In the first instance it will consist of a free tier (up to 10GB storage, 1GB/day of outbound traffic and unlimited inbound bandwidth) with pricing ranging upwards from there. Developers can access it through an API and command line, but those less technical will be able to get acquainted using a web interface.

A private beta is open right now and it will be ready for public consumption before the end of 2015.

Backblaze beats Bezos: Backup biz boasts bettering AWS bit bucket

Lower online cloud storage bills than Glacier

22 Sep 2015 at 23:29, Chris Mellor

Backblaze, the disk reliability statistics-publishing cloud data-centre operator, says it has the world's lowest-cost cloud storage, beating Amazon and others, with its B2 Cloud Storage offering.

The company is known for its personal and business software that enables Windows and Mac users to back up their files to a Backblaze datacentre – a public cloud, in other words. Personal backup costs $5/month per computer and business backup $50/year per computer.

Backblaze says its B2 Cloud Storage offering is lower than Amazon's, even after Amazon's latest $0.007/GB/month price for its Glacier archival storage.

The biz notes that the B2 Cloud Storage free tier offers 10GB of storage, with unlimited inbound bandwidth and 1GB/day outbound bandwidth. It points out:

- Amazon, Microsoft, and Google have tiered pricing. Lowest-cost tier shown below. Backblaze is a single cost for all.
- S3 reduced redundancy and Google reduced availability options priced. Standard storage is more expensive.
- Amazon Glacier and Google Nearline are both $0.010/GB/month*, but have access delays and other restrictions.

Pricing: *Backblaze B2 Cloud Storage is the lowest cost cloud storage on the planet.*

	Backblaze B2	Amazon	Microsoft	Google	Verizon	Rackspace	CenturyLink
Storage (GB/month)	$0.005	$0.022+	$0.022+	$0.020+	$0.040	$0.075+	$0.150
Bandwidth In (GB)	Free	Free	Free	Free	Free	Free	$0.05
Bandwidth Out (GB)	$0.05	$0.05+	$0.05+	$0.08+	$0.08	$0.06+	$0.05

B2 Cloud Storage has a web interface plus a command-line interface, and an API for IT users and developers.

Backblaze says example uses are for storing data natively for web and mobile apps, archiving data for long-term cold storage, backing up data, and uploading large files to share with others.

A private beta starts in October 2015, and public availability should occur by the end of the year. Find out more here. ®

Backblaze's dirt-cheap developer storage is now available for all

by **OWEN WILLIAMS** — Dec 15, 2015 in **DESIGN & DEV**

After running in private beta, Backblaze's dirt-cheap bulk data storage service is available for anyone to use.

Backblaze B2 is a competitor to Amazon's S3 storage service and is targeted at developers who need to put large files somewhere.

The idea is that applications like Netflix 🔵 , Dropbox 🔵 or Box could be built on top of B2 — but with the difference that it'd be far cheaper to store data on Backblaze 🔵 than any competitor.

B2, which is built on top of Backblaze's custom storage pod infrastructure, includes 10 GB of free storage and costs just $0.005 per GB, compared with Amazon's $0.022.

	Storage ($/GB/month)	Upload ($/GB)	Download ($/GB)
BACKBLAZE	**$0.005**	Free	$0.05
amazon webservices S3	$0.022+ +440%	Free	$0.05+
Microsoft Azure	$0.022+ +440%	Free	$0.05+
Google Cloud	$0.020+ +400%	Free	$0.08+
verizon	$0.040 +800%	Free	$0.08
rackspace	$0.075+ +1500%	Free	$0.06+
CenturyLink	$0.150 +3000%	$0.05	$0.05

Lowest cost shown for real-time cloud storage.

That's a *huge* discount if you're storing a ton of data and would have made a difference to companies like Everpix, which died as storage prices became too expensive.

If you're interested, B2 is available from today without an invitation after more than 15,000 developers tested the platform in private beta.

➤ Backblaze B2

CLOUD

Backblaze launches public beta for B2 cloud storage service after getting 15K requests

JORDAN NOVET   @JORDANNOVET   DECEMBER 15, 2015 8:00 AM

Above: Backblaze's storage pods.
Image Credit: Backblaze

Cloud data backup company Backblaze today announced the beginning of a public beta for its B2 cloud storage service that developers can use inside of their applications. The service has been in a private invitation-only beta since it was announced in September.

Backblaze received 15,000 requests to use the service during the private beta. Now the service is available at prices that are meant to undercut the largest cloud infrastructure providers — Amazon Web Services, Microsoft Azure, and Google Cloud Platform.

During the private beta, some customers had to wait quite a long time before Backblaze brought them on board. Now anyone can get instant access, Backblaze cofounder and chief executive Gleb Budman told VentureBeat in an email.

During the private beta, some customers had to wait quite a long time before Backblaze brought them on board. Now anyone can get instant access, Backblaze cofounder and chief executive Gleb Budman told VentureBeat in an email.

Most of the private beta users wouldn't allow Backblaze to use their names as references in the press. But there is one notable exception: email client EverDesk. And price was surely one of the qualities EverDesk liked about B2. Speaking of price:

Pricing: *Backblaze B2 Cloud Storage is the lowest cost cloud storage on the planet.*

	Backblaze B2	Amazon	Microsoft	Google	Verizon	Rackspace	CenturyLink
Storage (GB/month)	$0.005	$0.022+	$0.022+	$0.020+	$0.040	$0.075+	$0.150
Bandwidth In (GB)	Free	Free	Free	Free	Free	Free	$0.05
Bandwidth Out (GB)	$0.05	$0.05+	$0.05+	$0.08+	$0.08	$0.06+	$0.05

Above: Backblaze B2 pricing Image Credit: Screenshot

Backblaze started in 2007 and is based in San Mateo, California. In 2012, the company took on a $5 million funding round.

The amount of data currently in the B2 service — which depends exclusively on Backblaze's single data center in the Sacramento, California, area — is only in the terabytes. But now that B2 is immediately available to everyone, the pile of data it stores could grow considerably, primarily due to its low price point.

Backblaze Undercuts All Cloud Storage Competitors

Tim Conneally, CONTRIBUTOR

I cover the tech scene between the Baltimore and Capital Beltways. **FULL BIO** ∨

Opinions expressed by Forbes Contributors are their own.

In an ongoing quest for cost leadership in the data storage market, San Mateo startup Backblaze launched the public beta of its B2 Cloud Storage on Tuesday. By using its own custom designed storage hardware, Backblaze is undercutting the biggest names in cloud storage (Amazon, Microsoft, Google, Verizon, Rackspace, and CenturyLink) with a flat one half cent per gigabyte per month price.

This launch is a new phase for Backblaze, which first made a name for itself in the consumer space with its unlimited cloud backup service. The popularity of the consumer product has already helped spur interest in this new offering, which opens its cloud storage directly to users through a web interface, command line interface, or API. The private beta launched in late September and attracted over 15,000 sign-ups, including video production companies, mobile app companies, backup companies, financial firms, drone companies, and educational institutions.

"During the private beta, we asked testers how much data they stored on other services, how much they were paying, and so forth," said Backblaze CEO Gleb Budman, "The last time I looked, these users stored a cumulative 250 Petabytes of data to the tune of $60 million a year... if they stored that with us, they'd pay us about $12 million, saving $48 million a year."

The secret to this massive cost savings is in its custom architecture.

"Our business could only exist today because we could build our own hardware," said Backblaze CEO Gleb Budman. "We built the lowest cost storage server, with incredibly optimized software, and [an internal] culture and ops where everyone wants to make it as affordable as possible."

Budman and the staff at Backblaze have taken an Edisonian approach to conquering an incredibly crowded part of the market. While most people think of Edison as a great inventor, his most important contributions to industry already existed, and he improved them. His quadruplex telegraph machine, for example, was an incremental improvement over existent telegraph machines that allowed more electrical information over the telegraph wires.

When Backblaze started in 2007, it originally was going to be an automated backup service using Amazon S3, but the unit economics didn't work out. It would be cheaper to have their own hardware. They considered buying it from NetApp or EMC Corp, but decided they could build the whole thing from the ground up instead; to "take a hard drive and connect it to the Internet as cheaply as possible."

This meant there was some trial and error, but two years later, they arrived at a system that utilized 45 HDDs and its own cloud storage file system that could run at one tenth of the price of its competitors.

It was at this point where Backblaze seriously departed from the Edisonian ethic. They open-sourced their hardware design. Millions of people downloaded the design, and hundreds of organizations have adopted their storage pod design. Netflix tipped its data-hungry hat to Backblaze for the design of its content distribution network.

As people began to store more, Backblaze raced to keep its prices down. Amazon has always slashed at the prices of its storage, so Backblaze has kept pretty much in lockstep. The only thing is, Backblaze started at a lower cost to begin with, so it is racing downward as storage costs continue to fall.

For companies where storage is a major part of the infrastructure costs, a cheap alternative to something like Amazon S3 is appealing. With a storage price of just half a penny per gigabyte per month, and five cents per gigabyte of outbound bandwidth with no access restrictions, Backblaze manages to even outdo Amazon's Glacier and Google's Nearline in affordability.

How Cloud Storage Has Become the Battleground That Can Define Businesses Forever

As people worry about Dropbox and Box.com's future, companies large and small are getting into the pure storage game; a business backbone in the cloud

By **Drew Hendricks** *Contributor, Inc.com* 🐦 **@DrewAHendricks**

CREDIT: Getty Images

When people say cloud storage, they think of unicorns like Box and Dropbox, companies that have created an entire sync-not-save industry where you set and forget your files. The idea of storage has been muddled, where people are mixing up pure backup companies (ones that simply store your files for a hard drive failure) like Carbonite and Backblaze with those that simply sync a certain set of files. However, the real war is brewing in the cloud storage that you're not thinking about but using every day. Amazon Web Services is called everything from a cloud computing to a cloud storage business, but simply provides a powerful, easily-accessible way to store hundreds of millions of gigabytes for easy, quick, reliable access. It's very profitable for Amazon, despite their history as an unprofitable business (which is changing). It's become the backbone of the web, meaning companies' entire businesses have crashed when there's an outage.

As the silicon valley dreamers begin to wake up, people are less excited about Box, though they are doing well by normal company standards. The reasoning is that providing these services is costly, and nobody is more scrutinized in this area than their competitor Dropbox, who provides a more consumer-focused service, with a higher valuation many are questioning. In the end, people who store their data that are consumers are arguably less reliable than businesses that need their files accessible as fast as possible. The pricing on these is vastly different to Dropbox and Box too; instead of subscription models, cloud service providers charge based on the amount of data you store, the amount of data you distribute (bandwidth) and even how often you want to access it.

It's a multi-billion dollar industry populated by companies like Google's Cloud Services, Microsoft's Azure and until recently HP's Helion Cloud. Even Walmart has moved into the cloud storage game. The reason is that it's a big business; you can't argue that every website, including even Inc, needs to have, even if it's a relatively small amount of data, rock-solid availability and reliability, and if they have terabytes of data on top of that, that's even more risk to work with. The problem? It's costly to have petabytes worth of data imminently available to any amount of traffic.

That's why Backblaze's natural move was to create their own cloud storage wing called B2, based on their Storage Pod design. The company, founded in 2007, has provided for many years consumer backups (uploading your hard drive to the cloud), but had the technology built (their own self-built software and hardware to profitably create backup) that could handle large amounts of data, but also make sure the company still made money. By creating a margin-focused and reliability-focused business, Backblaze was able to profitably add the ability to do what Amazon, Microsoft, Google and others have at a much lower price of $0.005 a gigabyte stored or accessed a month (in comparison to Amazon or Microsoft's $0.022). The service, which became publicly available in beta today, (as reported by Business Insider) started because they needed to built a consumer backup company and could not afford to use Amazon S3 in 2007, or buy commercial hardware. They simply built their own, creating storage pods that would eventually stack up against the pricing and power of Amazon and Microsoft's billion-dollar businesses.

Budman's move is the antithesis of the world of startup hubris, where you begin with trying to get users and burning through venture money. However, the company took five years of building before they raised capital deliberately to avoid that fate. This worrying trend in the valley has been bordering on anti-margin, as described at length by Y Combinator head Sam Altman, for many reasons including the rush to gain more and more venture funding and sky-rocketing valuations. However, in the storage wars, even the mighty Microsoft couldn't play the low-margin game, having to make serious cutbacks (and eventually try and fix the situation) when they reduced the "Free" tier of their consumer storage service OneDrive. The reason? Physical inventory is expensive, and when you're the backbone of people's lives, be they professional or otherwise, you have to not only be rock solid but have enough physical hard drive space to keep them alive. If that's not carefully and profitably planned, it's even more dangerous than hiring too fast.

Backblaze's Low-Cost Cloud Storage Service Comes Out Of Private Beta

Posted Dec 15, 2015 by *Frederic Lardinois* (*@fredericl*)

After a short private beta, Backblaze today opened up its new low-cost cloud storage service for all developers.

Backblaze made a name for itself as a backup service for individuals and small businesses. But as the company's CEO Gleb Budman told me when the company first announced this new product, the technology it developed to run those services (and all the hard drives it buys) is also a natural fit for powering an Amazon S3-like cloud storage service.

Just like with its backup service, Backblaze is making pricing one of its main selling points for its B2 cloud storage service. Storing data on the service costs $0.005 per gigabyte and month. That's significantly lower than Amazon's prices, which start at $0.03 for standard storage (with discounts for users who store large amounts of data or are willing to wait a little bit longer before they can access their files).

The company recently introduced the latest version of its
storage pods, which is now significantly faster and more
powerful than its older hardware. The company says it's this new hardware that allows it to offer
its B2 service at this competitive price.

Budman tells me he was surprised by the demand for the service. "We learned there is a huge
demand for keeping data that until now has been unaffordable," he said. "For example, a genomic
researcher's instruments generate 100TBs of data during an experiment. Until now – storing this
data was more expensive than rerunning the experiment."

He also noted that the fact that Backblaze's storage is priced lower (or at least similar) levels of
some archival storage services means that its users don't have to to think about tiered pricing.

Going forward, Backblaze obviously has to show that it can compete on availability and service as
well. While pricing is surely a major factor for many of its users, a low price will matter very little if
Backblaze ends up suffering from service outages as it brings on new users.

NEWS ANALYSIS

Backblaze B2 -- Crazy cloud pricing undercuts Amazon S3

Gleb "grateful" for your support, but should you trust his Pods with your data?

IT BLOGWATCH

By Richi Jennings, Computerworld | DEC 16, 2015 4:09 AM PT

Credit: Backblaze, Inc.

Backblaze is no longer just a backup company. It now also offers *Backblaze B2*—a full object storage cloud service, using the same DIY, Pod-based architecture.

The price undercuts Amazon S3 by almost an order of magnitude. But there's no regional redundancy—your data is in California, whether you like it or not.

As is normal in this market, you pay for storage used, but also for data transfers out. So presumably, B2 doesn't include the famously ultra-slow downloads of Backblaze's classic service.

In *IT Blogwatch*, bloggers stay safe.

Your humble blogwatcher curated these bloggy bits for your entertainment.

So here's B2, now in public beta. Frederic Lardinois' headline rather misunderstands the news event—*Backblaze's Low-Cost Cloud Storage Service Comes Out Of Beta*:

// Significantly lower than Amazon"

Backblaze made a name for itself as a backup service for individuals and small businesses. But as the company's CEO Gleb Budman told me...the technology it developed to run those services...is also a natural fit for powering an Amazon S3-like...service.

...

The service costs $0.005 per gigabyte and month...significantly lower than Amazon's prices, which start at $0.03.

...

Budman...also noted that the fact that Backblaze's storage is priced lower [than] archival storage services means that its users don't have to to think about tiered pricing.

...

[But] while pricing is surely a major factor for many of its users, a low price will matter very little if Backblaze ends up suffering from service outages.

As usual with this company, the marketing story is well executed. Here's Backblaze's Andy Klein —*B2 Cloud Storage Opens Public Beta*:

// Object storage"

We announced the B2 Private Beta a couple of months ago. ... Now it's time to take the next step and move to Public Beta.

...

B2 Cloud Storage...enables developers, IT people, and everyone else to store data in the cloud. Often referred to as...IaaS or object storage.

...

B2 offers cloud storage similar to Amazon S3, Microsoft Azure storage and Google Cloud Storage.

...

The feedback has been amazing and we continue to get constructive and creative ideas. ... Another awesome thing was how fast the developer community joined in to build wrappers, tools, and even integrations. [There's a] page on our website to list and describe some.

❚❚ An Edisonian approach"

By using its own custom designed storage hardware, Backblaze is undercutting the biggest names in cloud storage.

...

Budman and the staff at Backblaze have taken an Edisonian approach to conquering an incredibly crowded part of the market. [After] some trial and error...they arrived at a system that utilized 45 HDDs and its own cloud storage file system that could run at one tenth of the price of its competitors.

...

With a storage price of just half a penny...and five cents per gigabyte of outbound bandwidth...Backblaze manages to even outdo Amazon's Glacier and Google's Nearline.

But is it safe? Ian Barker offers some food for thought—*Backblaze launches low cost cloud storage for IT departments*:

❚❚ 10GB of free storage and 1GB per day free outbound bandwidth"

All connections are secured using HTTPS...account access offers two-factor authentication, and APIs are secured with authentication tokens.

...

You can try out the service with 10GB of free data storage and 1GB per day free outbound bandwidth.

Well, OK, but how reliable are these so-called Pods? Josiah Motley is no fool—*Backblaze announces open beta for affordable cloud storage*:

❚❚ Not only faster, but more reliable"

The company, founded in 2007 [is] known for their reliable backup solutions for enterprise level companies all the way down to personal use.

...

Granted, Amazon is more established and with that comes some sort of peace of mind. [But] Backblaze recently announced an upgrade to the storage pods used that are not only faster, but more reliable and easier to maintain.

...

[It has] only one data storage center located in Sacramento, California.

Behold, Backblaze's public B2 beta blast off

Come in public cloud storage service testers, you know you want to

The public beta begins to heat up

16 Dec 2015 at 12:32, Chris Mellor

Everybody's darling cloud backup service startup, Backblaze, has opened up a public beta test for its coming B2 Cloud Storage.

With this B2 beta anyone can sign up and use the service. The private beta started in September, flagged as offering lower-than-Amazon costs, with a headline $0.005/GB/month cost compared with Amazon's then $0.022/GB/month and Google's $0.020/GB/month.

A Backblaze blog blathers (*too many 'Bs', Ed*) on about the B2 beta, saying more than 15,000 people joined in to test the service. You can sign up here and get the first 10GB capacity free.

The company was founded in 2007, took on $5.3m funding in an A-round in 2012, and its CEO is Gleb Budman.

It has a single data centre and stores more than 200PB of customer data using 54,675 disk drives fitted to 1,215 servers (storage pods), with 169.88TB/pod on average.
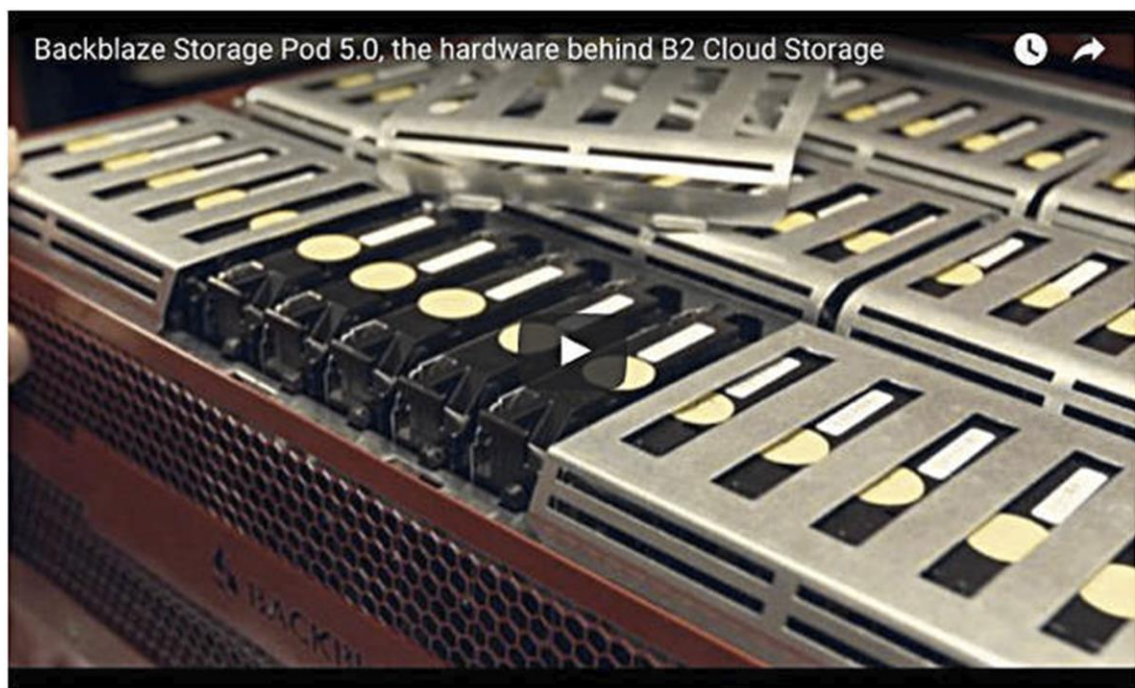
Backblaze said:

> For both Storage Pods and Vault Pods, we use the EXT4 file system and the only access we then allow to these totally self-contained systems is through HTTPS running custom Backblaze application layer logic in Apache Tomcat.
>
> One of the most important concepts here is that to store or retrieve data with a Backblaze Storage Pod or a Backblaze Vault Pod, it is always through HTTPS.
>
> There is no iSCSI, no NFS, no SQL, no Fibre Channel. None of those technologies scales as cheaply, reliably, goes as big, nor can be managed as easily as pods with their own IP address waiting for requests on HTTPS.
>
> We built our own software layer to monitor pod and vaults, decide where to store data and how to encrypt it, deduplicate it, and index it.

Backblaze pod video. Click image to switch to the video.

A notable aspect of Backblaze is its publishing of disk drive model reliability reports. It's an open company, as you'll see when you read its blogs. ®

Backblaze B2 Offers Dirt-Cheap Cloud Storage for Half a Penny Per GB a Month

Melanie Pinola
12/16/15 11:30am · Filed to: ONLINE STORAGE ⌄

15.2K   13

🔥 BACKBLAZE   Personal Backup   Business Backup   B2 Cloud Storage   Blog   Help   My

Welcome melanie,

Browse Files

B2 Cloud Storage

Buckets

Browse Files   ↺ Buckets / MyPhotos

Snapshots

Reports   ↑ Upload   ⤓ Download   ⊕ New Folder   ⊖ Delete   🖼 Snapshot

Caps & Alerts

Selected: 0 Files: 0.

Account   ☐   Name   Size Uploaded

My Settings   ☐ 📄 storage.png   72.3 KB 12/16/2015 11:35

Billing   ☐ 📄 touch-mode-switch.png   11.3 KB 12/16/2015 11:35

There isn't much you can buy for less than one cent these days, but you can store a whole lot of files in the "cloud" for $0.005 a month with Backblaze's new B2 storage service. It'll even give you 10GB for free.

Backblaze B2 is similar to Amazon S3 (which starts at $0.022 a month) or Amazon Glacier (which costs a penny per GB). It's pay-for-what-you-use online storage—petabytes of space, even—that you can use as a backup solution (like you can with Glacier) or to host files on the web. B2 seems to be built with developers in mind, in fact, since there's an API for it and you can upload or download data using the command line (CLI).

43

Like Amazon S3, Microsoft Azure, and Google Cloud, you pay for both storage and retrieval (downloads). Downloads cost $0.05 per GB, so this isn't really a Dropbox replacement or for frequently accessing files. But you could store 100GB of photos or videos there for safekeeping for just $0.50 a month, which is pretty cool.

The service comes with a web interface to upload or download files into your buckets, as well as alerts for when you're reaching a storage limit you said. If you need to download a big bunch of files at once, you can get a flash drive with your files sent to you (128 GB) for $99 or a USB hard drive (3 TB) for $189.

In any case, if you sign up you'll get 10GB of storage to try B2 out for free.

B2 Cloud Storage | Backblaze

HOW-TO

How to easily keep your cloud files private with Rclone

Make cloud storage both convenient and safe.

By Alex Campbell, Tech Hacker, PCWorld | FEB 24, 2017 3:30 AM PT

Credit: Thinkstock

When cloud storage services first came on the scene, personal data security wasn't a common feature. Even now, as concern over data privacy has grown, many cloud storage services don't encrypt the user's data by default. It's largely up to the user to take the initiative and enable settings that ensure files are encrypted and private, which can be tedious. Believe it or not, a little command-line program called Rclone simplifies things. It's available for Linux and other open-source OSes, as well as Windows and OS X.

There are several ways to encrypt your data before you send it to the cloud, but if you simply want to back up or sync your data while keeping it private, Rclone has you covered. Rclone is a bit like the command-line tool rsync, a staple for developers and other advanced users. However, Rclone is designed to work with established cloud services, no need to set up rsync services on remote machines. Rclone can work with Google Drive, Amazon S3, Dropbox, Google Cloud Storage, Amazon Drive, Microsoft One Drive, Hubic, and Backblaze B2, just to name a few.
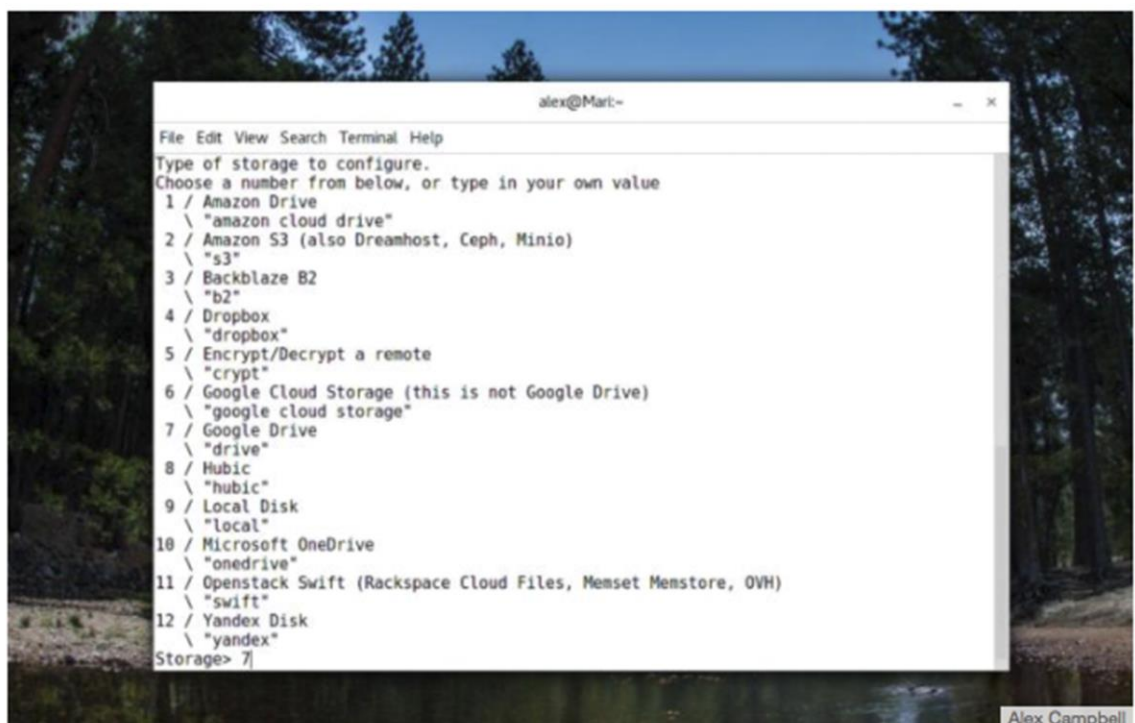

Even though Rclone is a command-line tool, setup is easy with the guided menus.

Setup

To start using Rclone, you have to set up remotes, meaning profiles for cloud destinations. Once you have Rclone installed using your Linux distribution's package manager, you can start setting up Rclone. Type the command **rclone config** to access a simple guided setup process that's quite easy to follow.
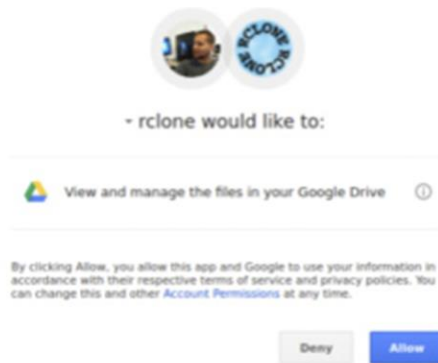
Alex Campbell

Upon setting up my Google Drive account, Rclone popped open a browser window to ask for access. No need to copy and paste API keys.

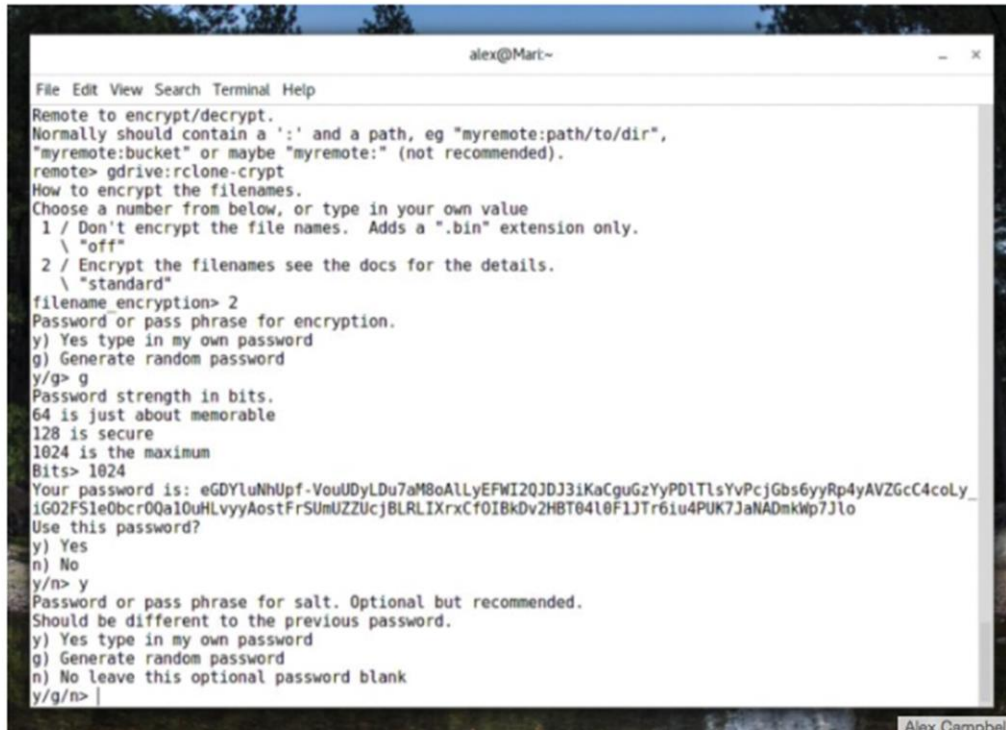The first step is setting up an unencrypted remote. As you can see in my example above, I connected Rclone to my Google Drive account, then named the remote "gdrive." The configuration automatically opened a browser window in order for me to grant access to my Google account. From there, the configuration application will prompt the user for the path that the user wants to sync. If you're using a bucket service (like Amazon S3 or Backblaze B2), be sure to enter the name of the bucket you want to use.

Once the initial setup is done, it's time to set up the encrypted remote, again with **rclone config**. Encrypted remotes piggyback on remotes that have already been set up. When choosing the type of remote to set up in the configuration program, choose the encrypted remote option (5) Encrypt/Decrypt a remote "crypt." You'll be prompted for the name of the remote to piggyback on (in my case gdrive), as well as a name you want to give the encrypted remote.

```
                                    alex@Mari~                           _  ×
File Edit View Search Terminal Help
Remote to encrypt/decrypt.
Normally should contain a ':' and a path, eg "myremote:path/to/dir",
"myremote:bucket" or maybe "myremote:" (not recommended).
remote> gdrive:rclone-crypt
How to encrypt the filenames.
Choose a number from below, or type in your own value
 1 / Don't encrypt the file names.  Adds a ".bin" extension only.
   \ "off"
 2 / Encrypt the filenames see the docs for the details.
   \ "standard"
filename_encryption> 2
Password or pass phrase for encryption.
y) Yes type in my own password
g) Generate random password
y/g> g
Password strength in bits.
64 is just about memorable
128 is secure
1024 is the maximum
Bits> 1024
Your password is: eGDYluNhUpf-VouUDyLDu7aM8oAlLyEFWI2QJDJ3iKaCguGzYyPDlTlsYvPcjGbs6yyRp4yAVZGcC4coLy_
iGO2FS1eObcrOQa1OuHLvyyAostFrSUmUZZUcjBLRLIXrxCfOIBkDv2HBT04l0F1JTr6iu4PUK7JaNADmkWp7Jlo
Use this password?
y) Yes
n) No
y/n> y
Password or pass phrase for salt. Optional but recommended.
Should be different to the previous password.
y) Yes type in my own password
g) Generate random password
n) No leave this optional password blank
y/g/n> |
```
Alex Campbell

Setting up an encrypted remote with Rclone.

You'll also be prompted for passwords and a salt to use to encrypt your files. If you don't want to bother with creating a super-secret-secure passphrase, you can allow the program to generate a random passphrase and salt for you. You an even ask Rclone to encrypt the names of files and folders so you don't leak metadata from you filenames.

Once you have the two remotes set up, you're off to the races.

Sync those files

There are a few ways you can use Rclone to push and pull data to and from the cloud. Unlike its cousin rsync, Rclone won't do a bidirectional sync (yet). That means choosing a sync method that works best for you.

The first (and probably easiest) way to use Rclone is with the sync command. The sync command synchronizes files from the source to the destination. To sync files from the cloud to a folder (pull), simply use:

You'll also be prompted for passwords and a salt to use to encrypt your files. If you don't want to bother with creating a super-secret-secure passphrase, you can allow the program to generate a random passphrase and salt for you. You an even ask Rclone to encrypt the names of files and folders so you don't leak metadata from you filenames.

Once you have the two remotes set up, you're off to the races.

Sync those files

There are a few ways you can use Rclone to push and pull data to and from the cloud. Unlike its cousin rsync, Rclone won't do a bidirectional sync (yet). That means choosing a sync method that works best for you.

The first (and probably easiest) way to use Rclone is with the sync command. The sync command synchronizes files from the source to the destination. To sync files from the cloud to a folder (pull), simply use:

```
rclone sync remote:path /path/to/folder
```

To sync the other way (push), use:

```
rclone sync /path/to/folder remote:path
```

These commands are great if you want to be able to sync manually. There are ways to automatically sync files with Rclone, but they require writing a script or two and a cron job.

The second main method for using Rclone is experimental, but in my opinion, offers a more seamless experience. Rclone can mount a remote using FUSE, which makes the remote appear in file managers as if you connected to a Samba (Windows) share or attached a USB drive. To do this, use the following command:

```
rclone mount remote:path /path/to/mount &
```

Just like mounting another filesystem, the folder you mount your remote to must exist on the filesystem (and should be empty). Additionally, the path of the remote is a bit finicky, and the mount process will fail if it doesn't conform exactly to a valid path.
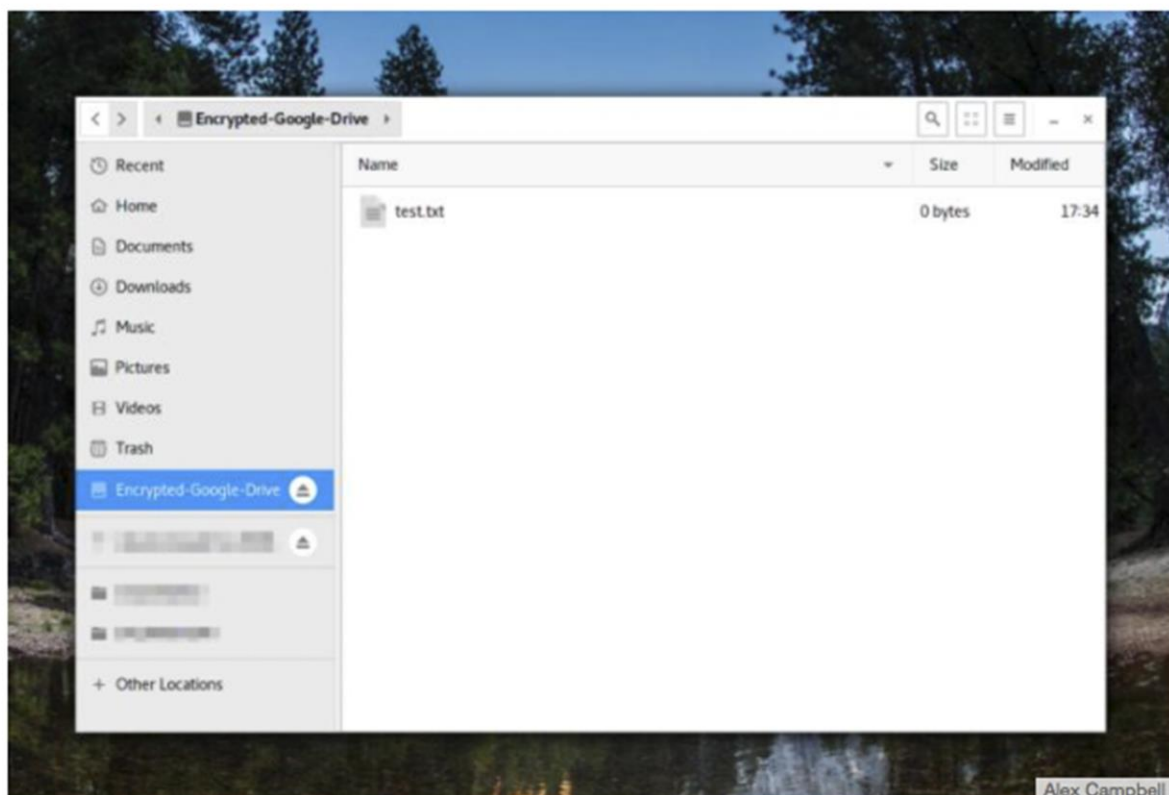
The mounted Rclone remote shows up like any other attached storage.

For an encrypted remote or a non-bucket remote where you want to mount the root folder, leave the path after **remote:** blank. However, if you're connecting to an unencrypted bucket remote, the bucket name is required.

There's another thing about Rclone's mount command: It doesn't play nice with normal mount and unmount commands. When trying to click the eject button in my file manager, I received error popups telling me that FUSE couldn't unmount the remote. As far as I can tell, Rclone mounts must be manually unmounted with the following command:

```
fusermount -u /path/to/mount
```

Conclusion

Cloud storage for personal files is wildly popular, especially with the advent of ultrabooks that often feature mid-sized SSDs instead of 500GB or larger HDDs that are common in full-sized laptops. Reduced storage space and the need to keep files backed up offsite means that cloud services have a big market to tap. However, privacy is rarely a feature that's front-and-center.

Rclone is just one of many tools you can use to leverage the redundancy and stability of cloud storage without sacrificing data privacy.

How An Open-Source Cloud Storage Company Is Taking On Amazon and Google

The little guy, with big capacity

By **Dave Gershgorn**   April 6, 2016
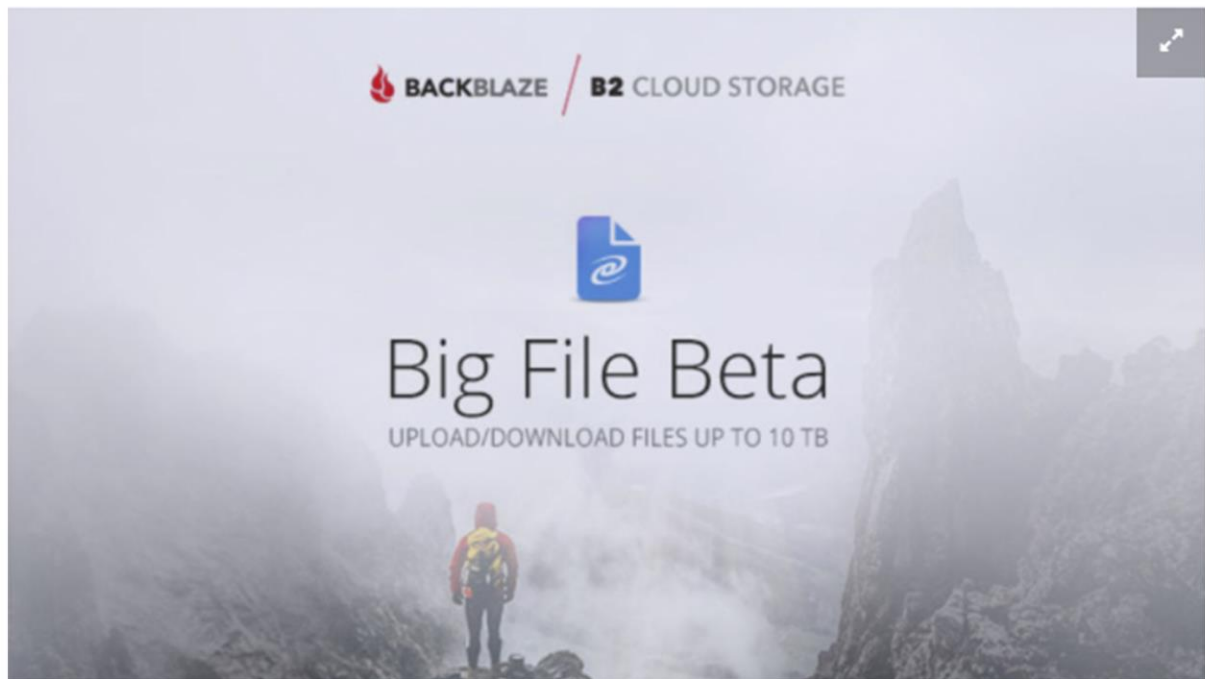
Backblaze

Backblaze B2 will now support files up to 10 TB.

Backblaze's first server was built in a plywood box in 2007. Now the company, which is dedicated to offering personal cloud backups, stores 200 petabytes in total. (That's 200 million gigabytes.)

But this cloud storage company doesn't look like the big names in the business — competitors like Amazon, Microsoft, and Google. Backblaze relies on its own server designs, called Storage Pods, which it personally builds at one-tenth the cost of buying servers. The designs are public, and instructions on how to build them are freely available on Backblaze's site.

In the last two years, Microsoft, Facebook, and most recently Google have joined the Open Compute Project, which is dedicated to open-sourcing these same kinds of designs. But Backblaze has been doing this since 2009, and it's created a community of businesses and tinkerers who rely on their specific builds. Their server designs have been used by everyone from small makers to Netflix.

"You never can put a 10 TB file on one hard drive."

Today, Backblaze is fully stepping into the ring with its largest competitors. Until now, the company has specialized in backing up personal computers, offering cloud storage for large businesses with some restrictive file size caps. The announcement today is that Backblaze will now support individual files up to 10 terabytes in size, as well as a host of APIs and plugins for enterprise customers. Previously, the largest files serviced were 5 GB in size. They call it the Big File Beta.

The bigger companies, Amazon with its S3 service and Microsoft with Azure, have traditionally dominated larger enterprise storage, where companies need terabytes to back up their massive server files. But Backblaze is betting that by being cheaper and more robust in certain areas, it can snag business from these titans. While it costs anywhere from $0.20 to $0.75 per gigabyte to store a file on Google, Amazon, Verizon, or Rackspace, it costs $0.005 on Backblaze.

Right now, 10 terabytes is twice the maximum file size that Amazon and Google offer to store, and ten times larger than Microsoft does. This means that when a company wants to back up their entire database as a single file, it can do it. Or it can keep humongous files on Backblaze's servers, reducing the load on its own.

Backblaze's CEO, Gleb Budman, explains how his company built the servers specifically to handle large files.

"You never can put a 10 TB file on one hard drive," Budman says. "But because we own the entire cloud file system, what we do on the back end is chop up the files into pieces and put them in a different drive in a different storage pod in a different rack."

This method of distributing one file in many pieces across hard drives is called erasure coding, and the method isn't unique to Backblaze. But the size is.

The method isn't unique to Backblaze. But the size is.

Budman says that the servers other companies purchase are different in architecture because they need to be able to operate individually, no matter if the customer buys one server or ten. Since Backblaze knows the servers it builds will just be added to its system, it can optimize for this distributed computing.

When Backblaze receives any file, whether it's 10 kilobytes or 10 terabytes, the company cuts it into 20 pieces. Seventeen of those piece are required to put the file back together. The remaining three contain redundant data, that can be used in case some of the original 17 files are lost. Budman says this system ensures that even if a drive, pod, or even whole server rack is lost, every bit of data can be recovered.

But despite the ferocity of enterprise business, Backblaze is still going to publish all of its designs.

Budman sees the small open-source community as a large part of the reason why Backblaze is successful. Besides the goodwill generated in giving designs to the community, it gets advice in return.

"Whenever we publish a new version of the Storage Pod design, we get lots and lots of comments from people talking about 'Hey, have you tried this?' or 'Have you looked at this component?'" Budman said. "Open sourcing the Storage pods was a risk and a gamble, but it's actually been fantastic."

Recently, the community actually pointed out that one of the components that Backblaze was using, a power button, was more expensive than it should be. After hearing this, the company set out to find a new switch and ended up saving more than $10,000. This is chronicled in a Reddit thread.

For another part, Backblaze also exclusively relied on one company to build another part, called a backplane. A backplane is like a computer's motherboard, a hub to connect components of the PC. However, since it open-sourced their design for the backplane, another company has started to make it, giving Backblaze another potential vendor for the part.

While competitors are also hopping on the open-source bandwagon with the Open Compute Project, Budman says that the approaches are still different. For instance, the Backblaze servers are still cheaper to make, so the company can keep its costs down, but it can't swap out drives while the Storage Pod is in use.

In Fairbanks, Alaska, the Geographic Information Network of Alaska (GINA) has built three Storage Pods. It needs to keep years of satellite images and large datasets available at all times for cartographers, scientists, professors and students, and as a small organization money can be tight, says Dayne Broderson, GINA's technical services manager.

"If I need a couple of petabytes of spinning storage, [a Storage Pod] would probably be the most cost-effective way to go," Broderson said.

However, he says that the Storage Pod solution might not be the best for everyone. Since the it isn't an out-of-the-box solution, the setup and maintenance of the server can be taxing. Luckily, for the first build GINA could rely on student labor, although it took a long time. Broderman said that having one student and a faculty member building the server (albeit not every day) took 4-5 months, complete with accidentally frying components. He chalks it up to a learning experience.

"You fry something and learn from it, and that's great, but it also takes a week to order that little $8 part before you move on," Broderman said.