

Introduction

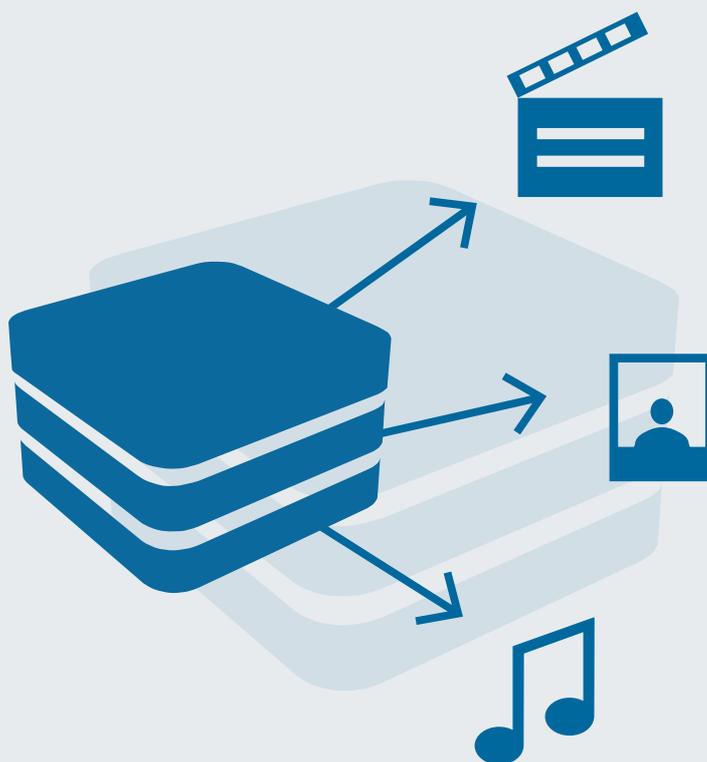
An object store is a distributed storage platform where objects (files) can be stored, managed and queried by using simple API-calls. This is the ideal cloud storage solution for larger pieces of information – like images, other media files, and backups. Because the data is no longer stored on a hard disk of a specific server, redundancy is assured and multiple servers or applications will be able to work with the same piece of data.

Object stores are quickly gaining popularity, especially with larger companies (big data) and developers of web applications or sites with large amounts of relatively static data.

The CloudVPS Object Store is a privacy conscious, affordable, fast, and open alternative to Amazon S3 and other first generation object stores. We guarantee only Dutch government agencies following Dutch law have access to your data. We support the OpenStack API as well as most of the Amazon S3 API. With our FTP-to-Object-Store functionality it is even possible to connect to the object store using FTP.

Examples of use cases:

- The maps in a mapping application.
- Pictures on a site with a lot of imaging data.
- Backups and snapshots.
- Audio files for an audio application.
- Emails or transactional data that have to be saved for regulatory reasons.



About CloudVPS

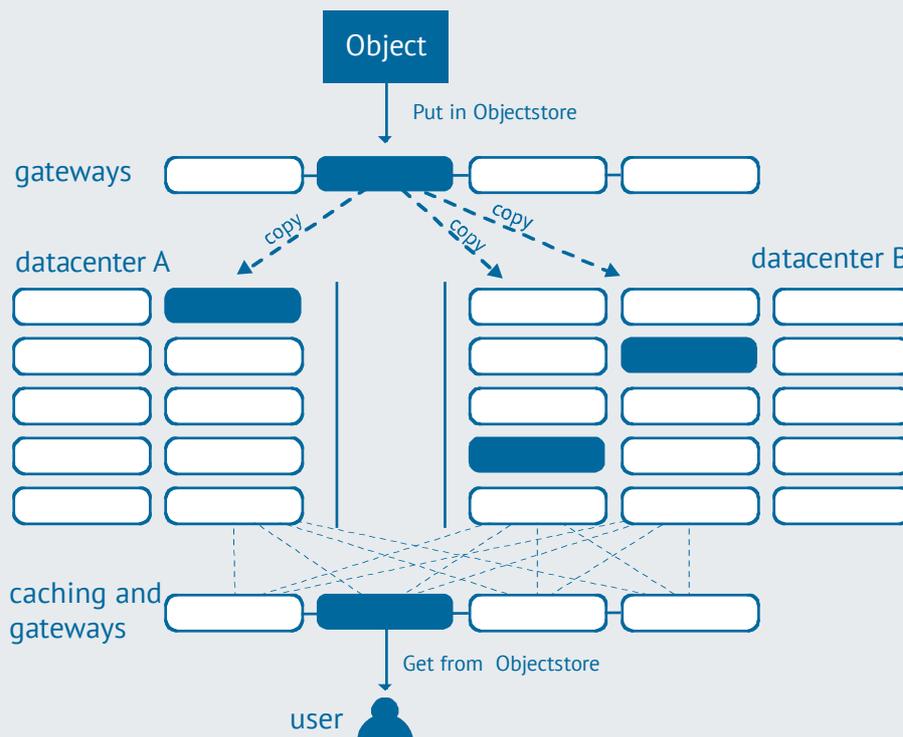
We are the leading cloud provider in the Netherlands with three datacenter locations and thousands of satisfied customers. We deliver high availability at a reasonable price, with a dedicated support team. We have many satisfied customers like Exact software, Logica consulting, the City of The Hague, Erasmus University Rotterdam, utility provider Eneco and the TNS NIPO quality institute. We are ISO27001, NEN7510 and CloudControls certified.

Technical details

We built this solution using the OpenStack Swift object store. OpenStack is a collection of open source cloud infrastructure components. Its goal is to make cloud infrastructure freely and widely available. The OpenStack project is rapidly growing and has a large number of prominent contributors like NASA, Microsoft and VMware. The Swift object store itself is already mature and already features some very large deployments in the US.

Your data will be stored in at least three different racks containing storage machines. We guarantee that at least two different data centers will be used to store any piece of data.

An array of powerful servers ensures your data will always be reachable while caching servers with loads of memory quickly serve data that is required more often. The object store infrastructure is linked to our 10 Gbit network.

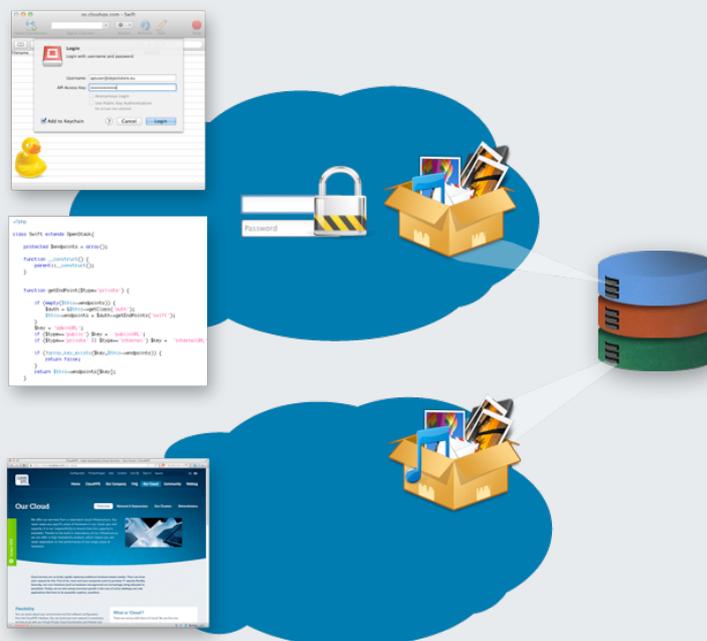


Connecting with the Object Store

Our object store supports two APIs to store, retrieve, or manage objects: the OpenStack API and an emulation of the Amazon S3 API. These APIs are based on HTTP (REST) commands which means they are easy to interact with. The APIs can be approached in four different ways:

- Via specialised graphical clients like Cyberduck.
- Via the command line by using curl.
- Directly from operating code using available libraries.
- Via an URL string in your browser (only for GET request).

In the object store objects (files) are grouped in different containers belonging to a given object store user. Access rights to objects within a container can be configured with a great level of detail. The most important setting is whether a container is private or public.



For a private container, authentication is required. Images on a site will be stored in a public container, while files for an intranet system will be stored in a private container.

Example: GET HTTP request using the canonical URL for an object in a public container

```
http[s]://[projectID].objectstore.eu/[container]/[object]
http://64b59980a28111e29e960800200c9a66.objectstore.eu/public/test.html
```

Using a CNAME DNS referral you can use your own url:
<http://myfilesfrom.com/public/test.html>

More details

CloudVPS Object Store basics:

<https://www.cloudvps.com/community/knowledge-base/cloudvps-object-store/>

CloudVPS Object Store Quickstart:

<http://www.cloudvps.com/community/knowledge-base/cloudvps-object-store-quickstart/>

More information on how to get started with the OpenStack Swift API:

<http://docs.openstack.org/trunk/openstack-compute/starter/content/ch05s01s02.html>

Connect to the objectstore with FTP / SFTP using FTP-to-Object-Store:

<http://www.cloudvps.nl/community/knowledge-base/ftp-to-object-store-verbind-met-uw-object-store-middels-ftp-sftp/>

Free Global Content Delivery Network (CDN)

CloudVPS offers a free Global Content Distribution Network that uses 93 datacenters around the world to speed up content delivery. Object store containers can easily be linked to the object store in the CloudVPS Interface.

Because we see fast content delivery as a basic responsibility of a cloud provider we will not charge anything extra for this service. You will only pay your normal traffic cost for outgoing traffic. Below are some cost comparisons assuming 10 Terra-bytes of CDN traffic.



10T CDN Traffic (€)*	
Amazon S3 + CloudFront	€902,28 to €1.851,28
Rackspace Cloud Files + CDN	€876,00
CloudVPS Object Store + CDN	€357,50

* Objects are 250KB, objects have a 90% Cache Hit Ratio.

CloudVPS Object Store Pricing

The CloudVPS Object Store has a monthly invoice cycle. You only pay for what you use: we will add up your resource usage for the month and bill you retrospectively.

You will be billed for the following resources:

- Storage used by your objects.
- Traffic flowing out of the object store to locations outside of our network.
- API Requests, split up between heavy and light requests.

Storage Pricing

	Per Month	Price per G
First	100T	0,050
Next	400T	0,045
Next	400T	0,040
Over	1000T	Please request price

Traffic Pricing

	Per Month	Price per G
First	100G	0
Next	90G	0,050
Next	400G	0,045
Next	500G	0,040
Next	9T	0,035
Next	90T	0,03
Next	400T	0,025
Over	500T	Please request price

API Requests

Heavy Requests (PUT, COPY, POST, or LIST)	
Heavy requests per € 0.01	4000
Light Requests (GET and all other requests)	
Light requests per € 0.01	40000

CloudVPS Object Store versus Amazon S3 features

Amazon S3 is the best known example of an object store. A lot of early users are now starting to look at diversifying their suppliers and what features the rest of the market could offer.

	Amazon S3 (Ireland)	CloudVPS
OpenStack API	No	Yes
Amazon S3 API	Yes	Yes*
Free Global Content Distribution (CDN)	No	Yes
Redundancy	Data stored at least 3 times	Data stored at least 3 times
Uptime guarantee (monthly)	99,9%	99,9%
Remedy if uptime guarantee not fulfilled	10% of month if below 99.9% 25% of month if below 99.0%	100% of month if below 99.9%
Openness	Technical details unknown.	Complete openness regarding software, storage and network.
Privacy (Governments with access to your data)	US, Ireland, the Netherlands	the Netherlands
Cost	100%	50% to 70% of the Amazon S3 cost for most use cases.

* We have some limitations to the Amazon S3 API, see our knowledge base.

Privacy for European and other International customers

There is a big gap between Europe and the US when it comes to privacy. This gap has increased over the last years as the United States has passed a number of laws, most notably the Patriot Act of 2001 and the FAA of 2008. In the current climate non-US citizens lack any form of privacy protection against investigations by US government agencies. Also, if your cloud provider has any presence in the United States the US government will be able to collect and analyse your data, no matter where in the world it is located.

According to our Terms of Business we are committed to providing information to the Dutch government under Dutch laws only. These Terms of Business also commit us to refrain from having a US presence under the current legal framework. At the moment this is the only way to guarantee the privacy of international (non-US) cloud users.

Besides this our Terms of Business include very stringent clauses regarding our access to your data. This is only allowed in restricted circumstances for technical reasons. We welcome all European and international cloud users with sensitive commercial, medical, or government data that appreciate a commitment to privacy.