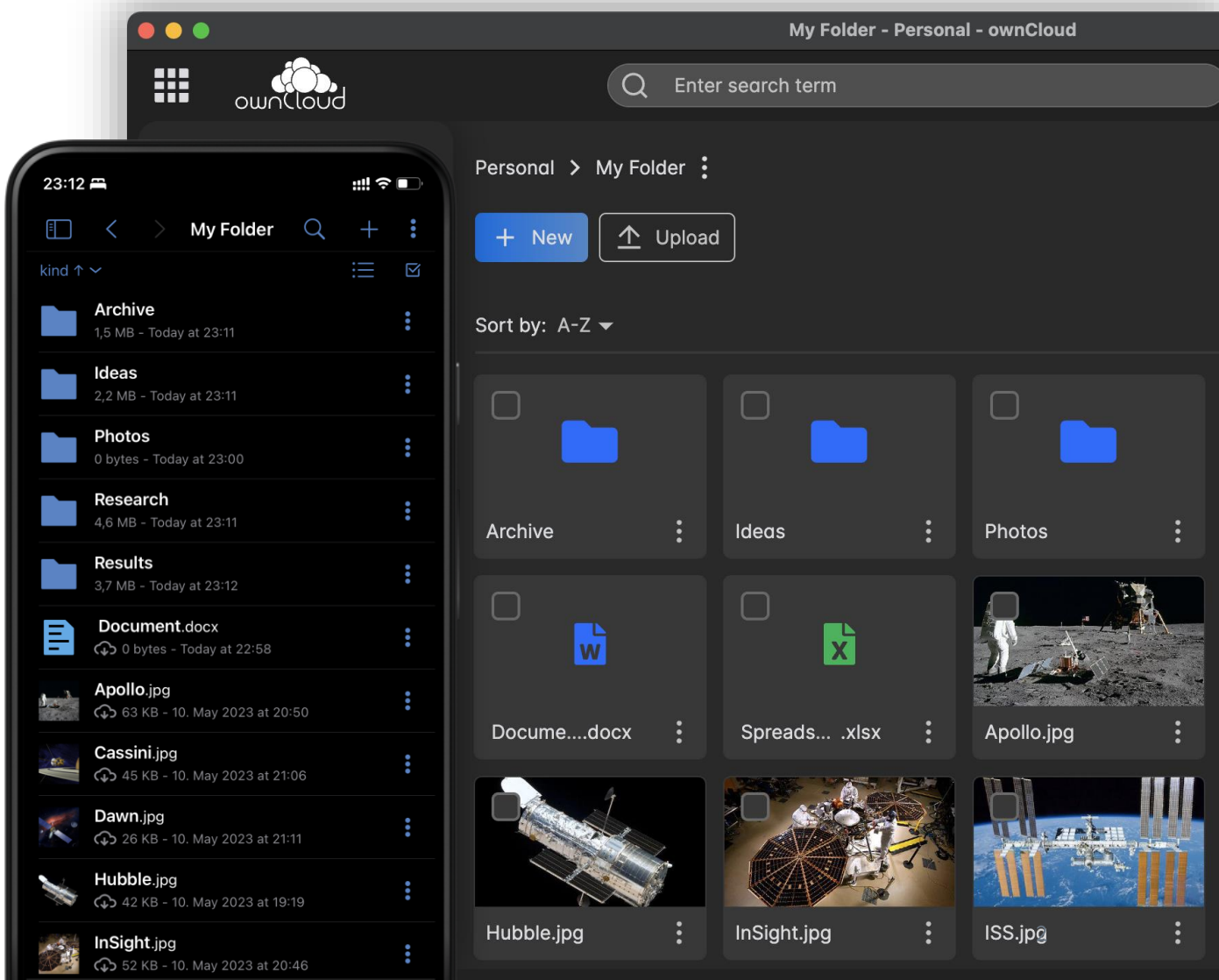
Secure Content Collaboration.
Simplified

with ownCloud Infinite Scale

What you can do with ownCloud Infinite Scale

Simplify how you work with your files:

- **Access**
- **Share**
- **Collaborate**
- **Anywhere**



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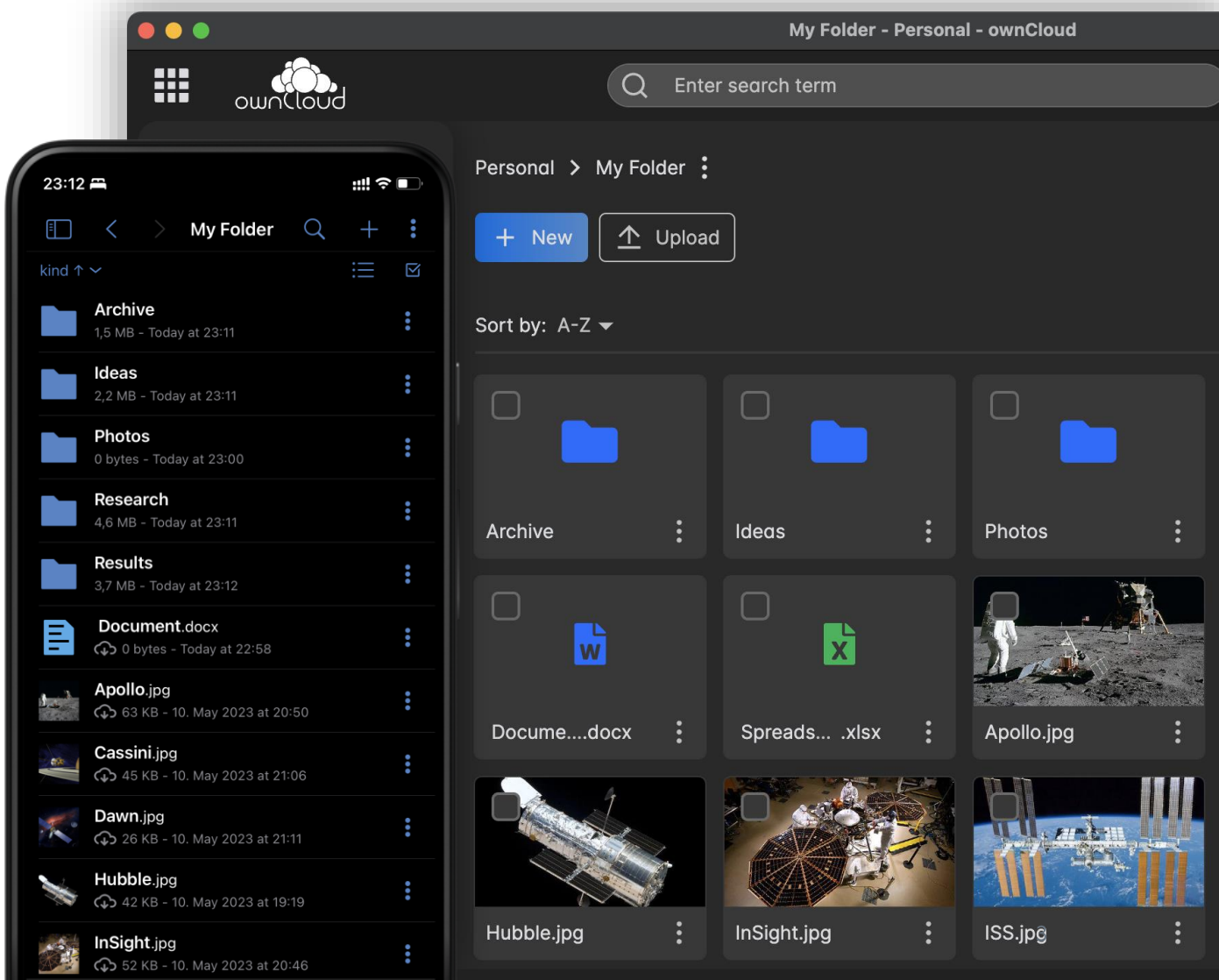
☒ Simplified via

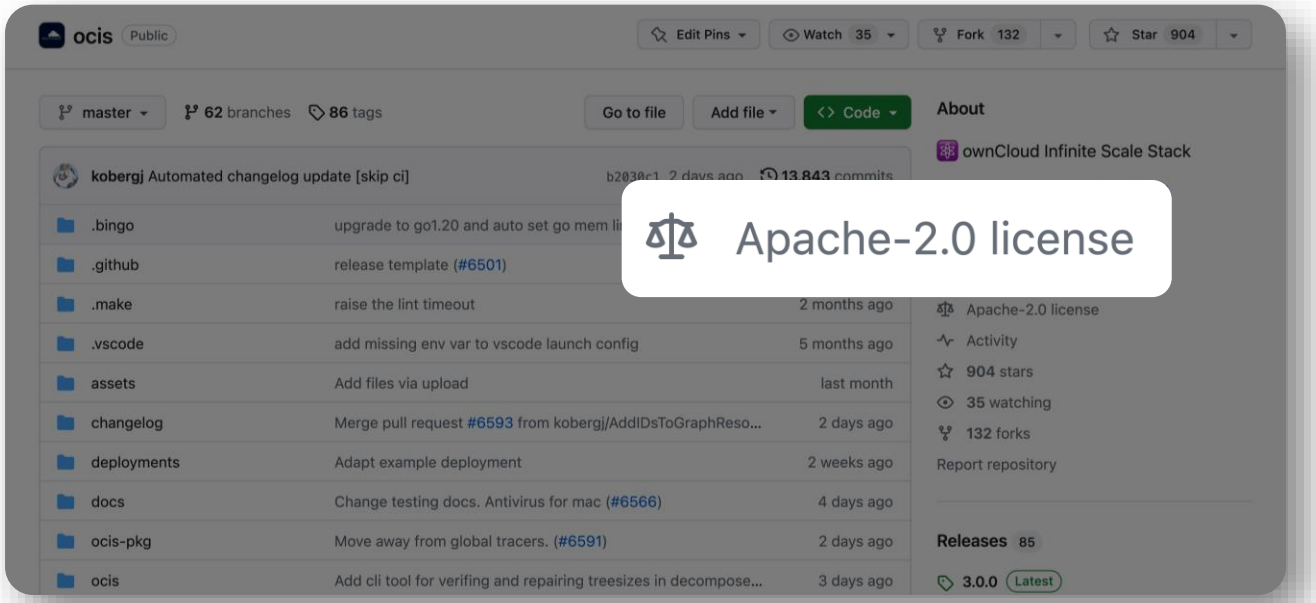


What makes Infinite Scale different from other solutions?

What makes Infinite Scale different from other solutions?

1. Open Source

- Vendor Independence
- Longevity and Sustainability
- Flexibility and Freedom
- Transparency



What makes Infinite Scale different from other solutions?

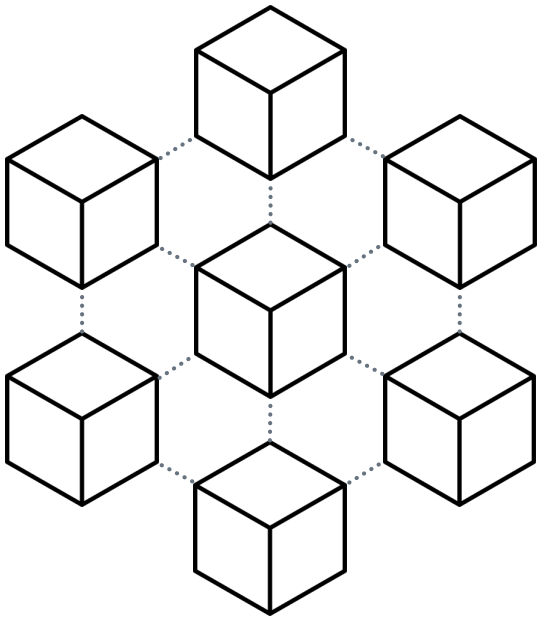
1. **Open Source**
2. **Data Sovereignty**

- Your data under your control
- Runs on your infrastructure, on-premises, as a managed service or in the cloud of your choice

Photo: Tophost (CC BY-SA 2.0)

What makes Infinite Scale different from other solutions?

1. **Open Source**
2. **Data Sovereignty**
3. **Cloud Native**
   - Microservices



Why we moved to Microservices

Problem

of a monolythic arichtecture ex. in
ownCloud 10 / Nextcloud

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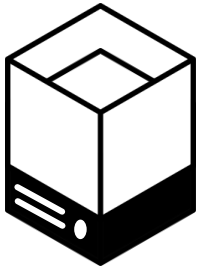

Linux

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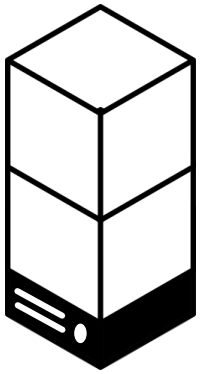

Apache Web Server

Linux

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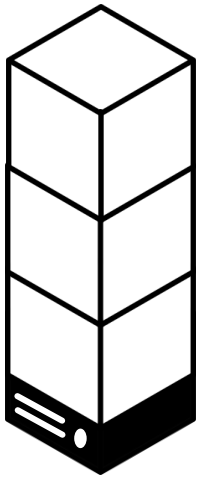

MySQL Database

Apache Web Server

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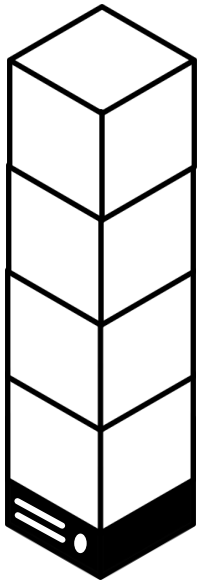

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Apache Web Server

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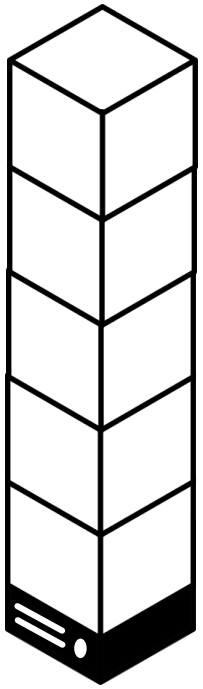

Web Interface

PHP

MySQL Database

Apache Web Server

Linux

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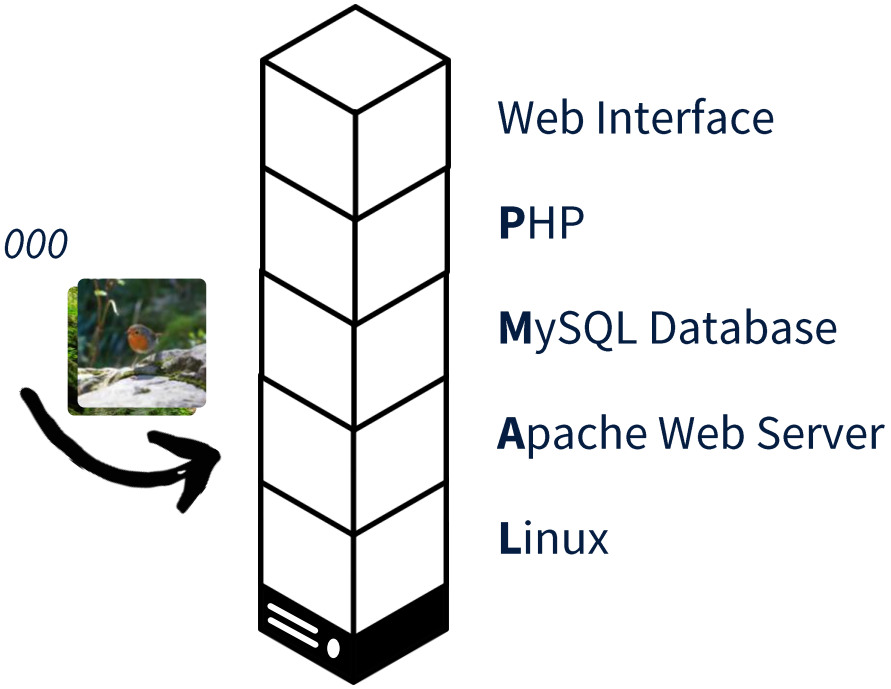
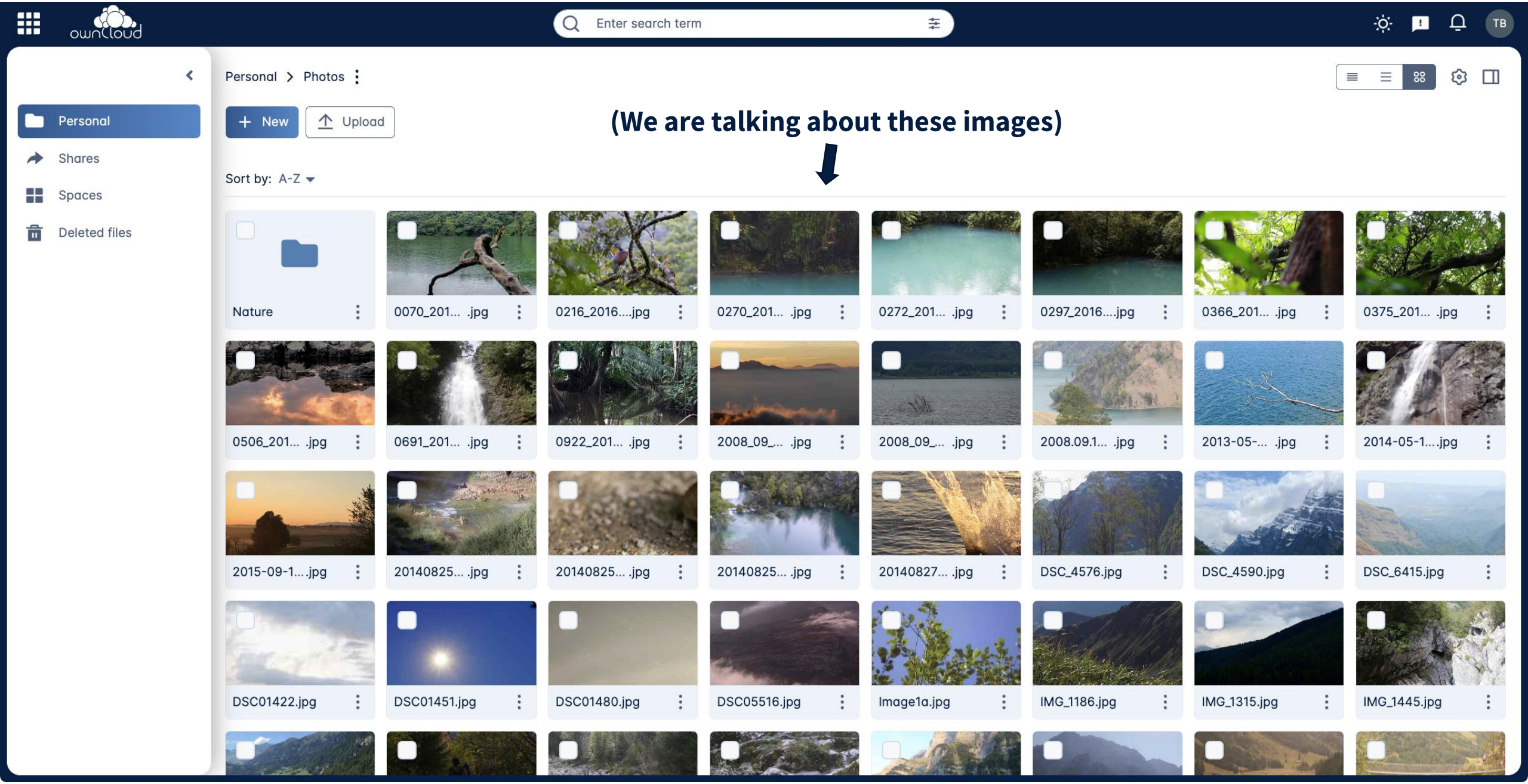
“Please generate small previews for all of my 1.000 High-Res Photos!”





(We are talking about these images)

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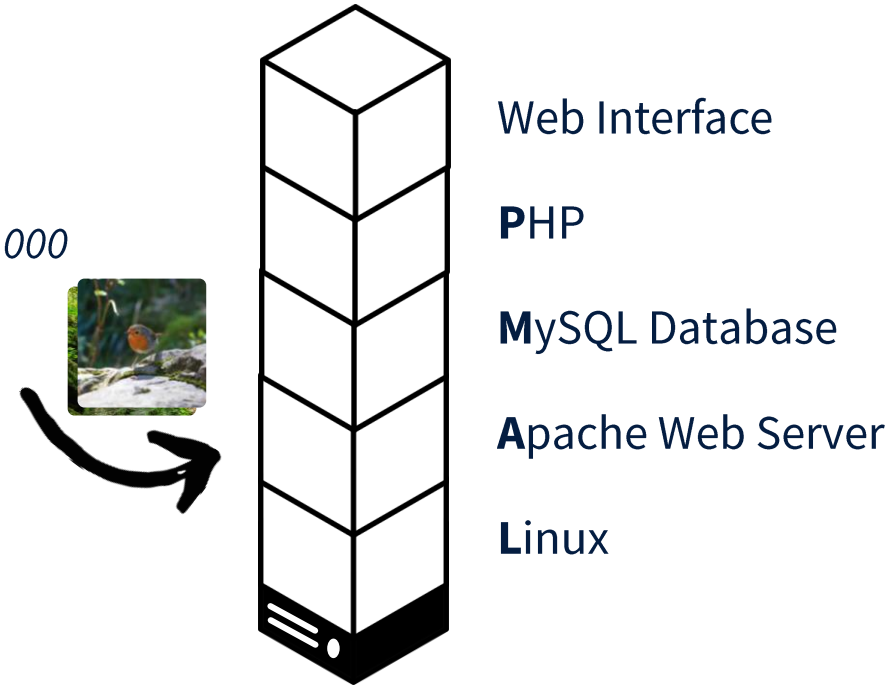

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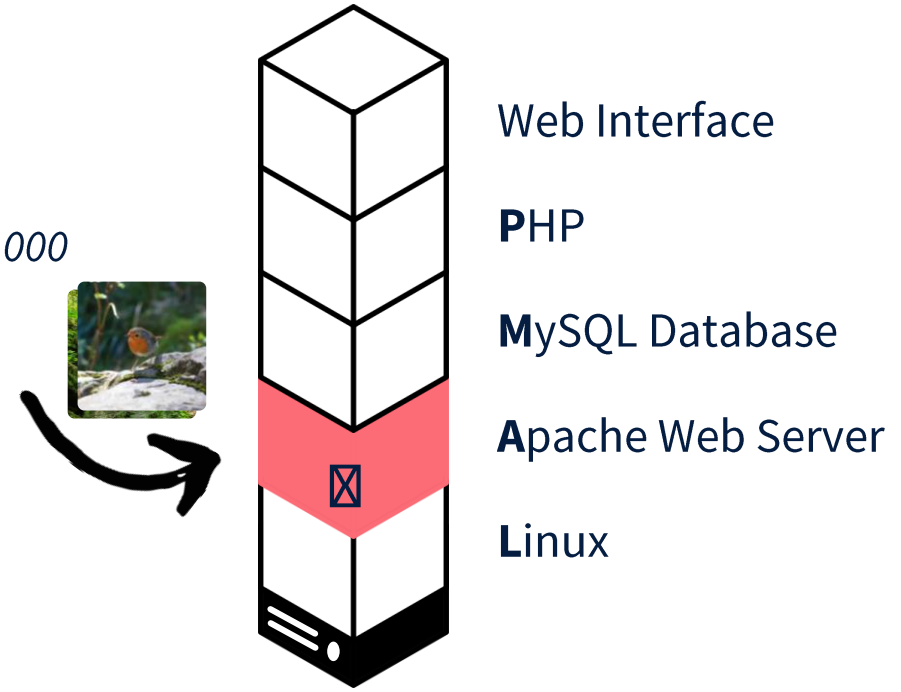

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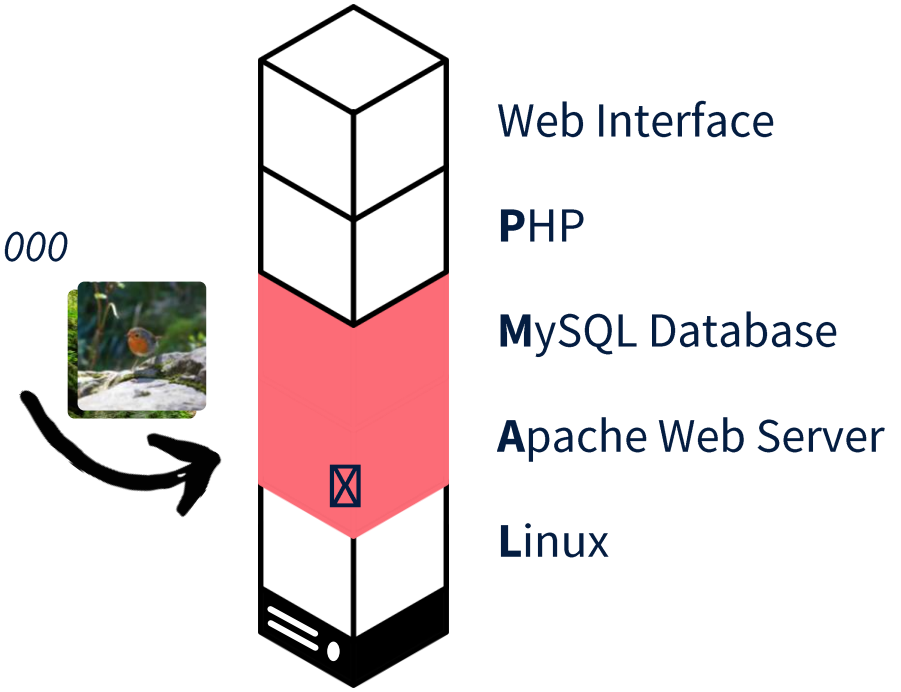

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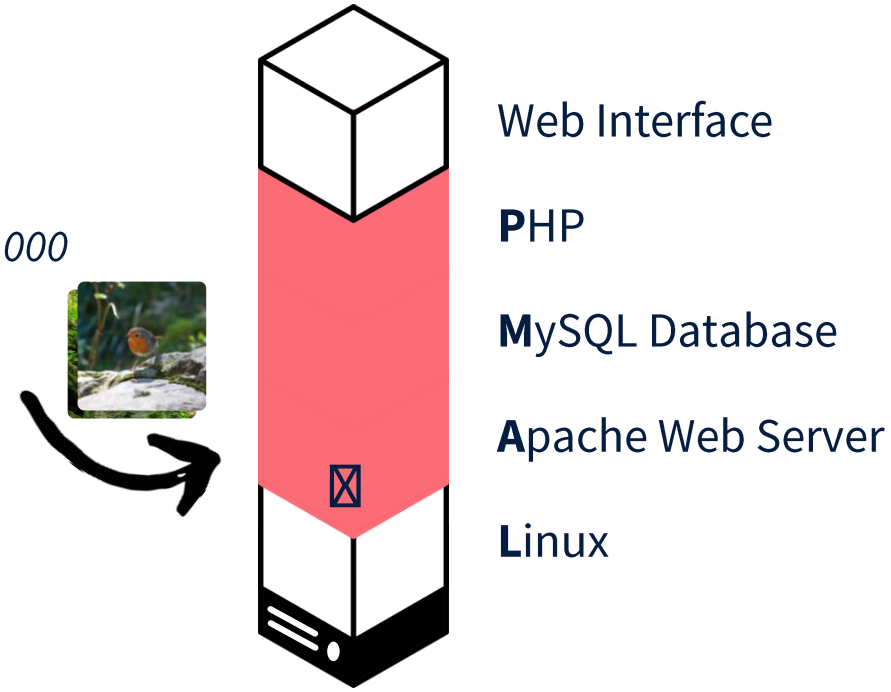

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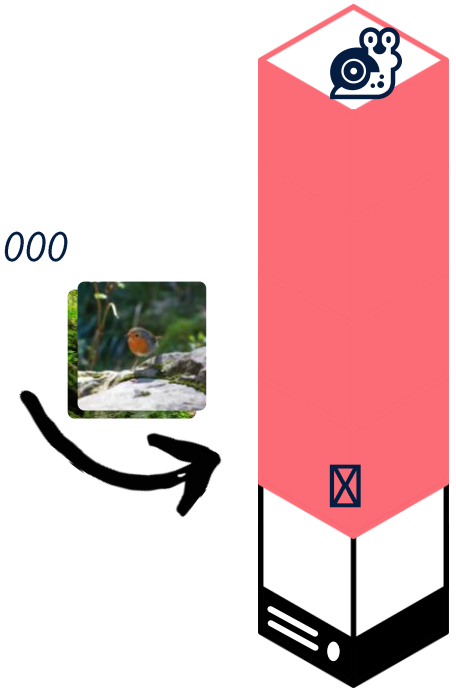

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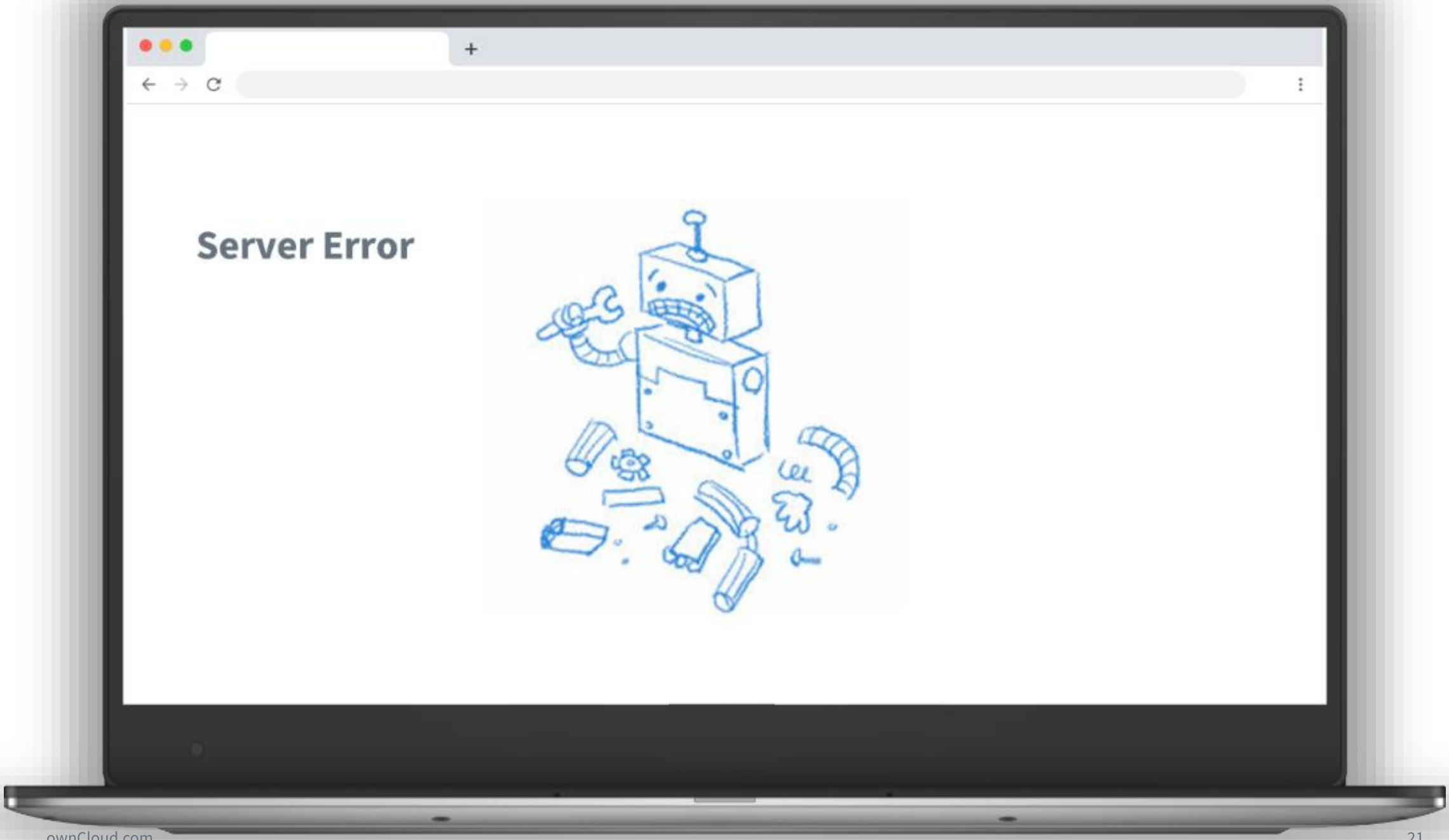
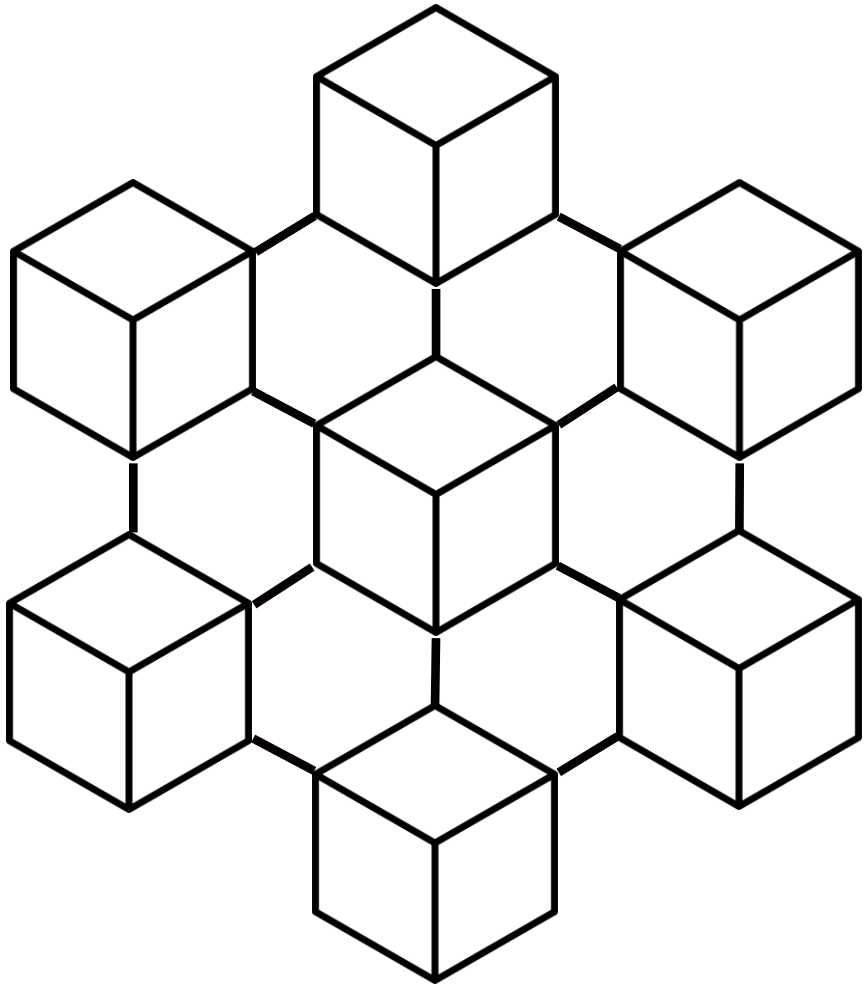

Server Error

Advantages of Microservices

Advantages of Microservices

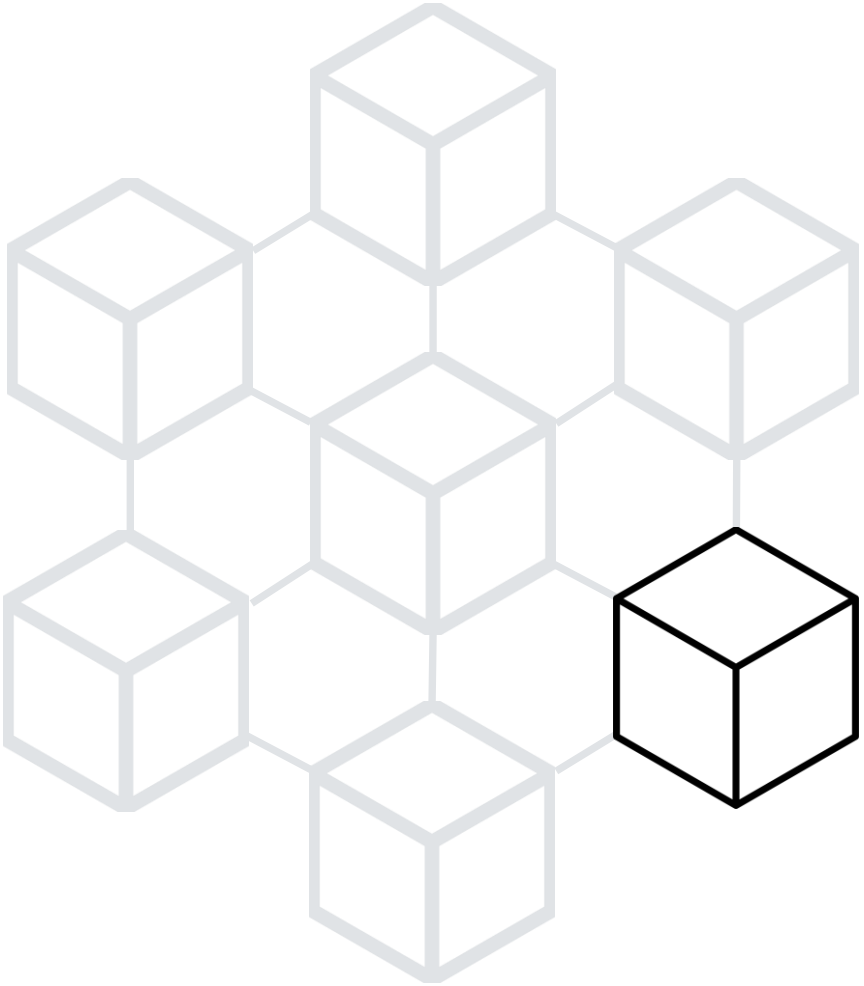
Examples of some
Microservices in Infinite Scale

- Antivirus
- Audit
- Eventhistory
- Frontend
- IDM
- NATS
- Notifications
- Policies
- Search
- Thumbnails
- …



Microservice

Advantages of Microservices

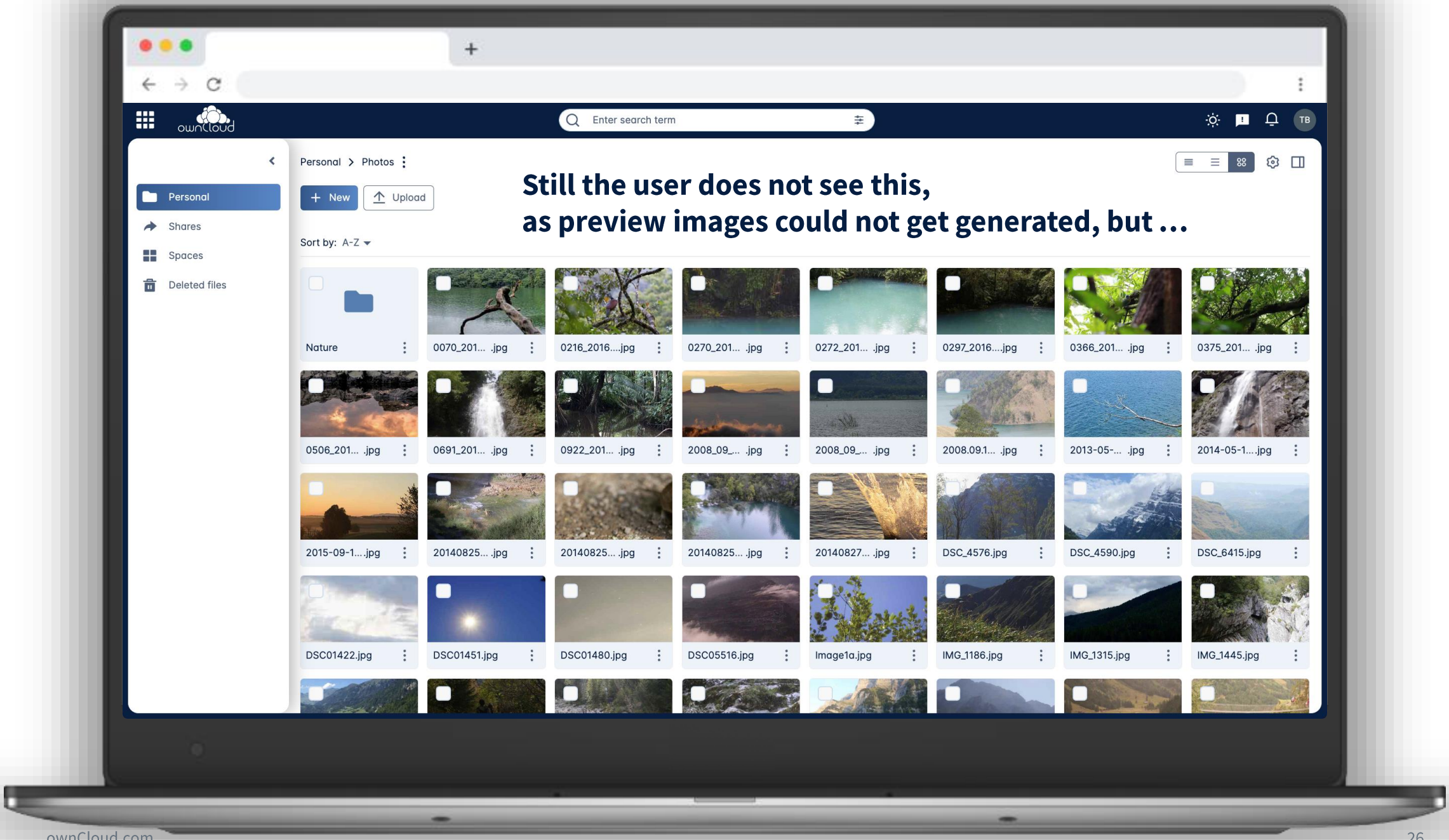


Microservice
to generate preview images

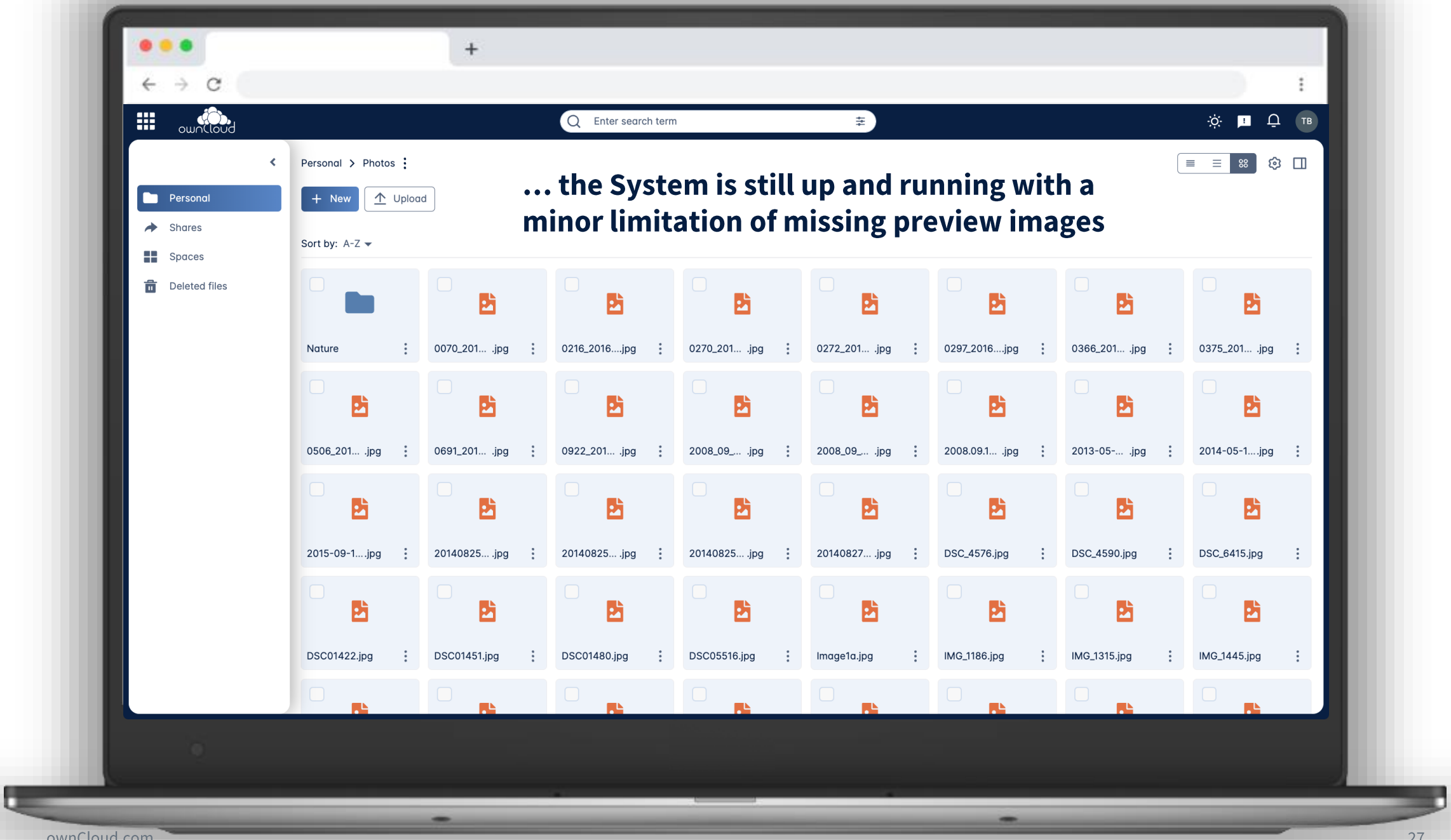
Advantages of Microservices

✕ **Microservice**
to generate preview images

☑ **Fault isolation**,
does not directly affect the other services



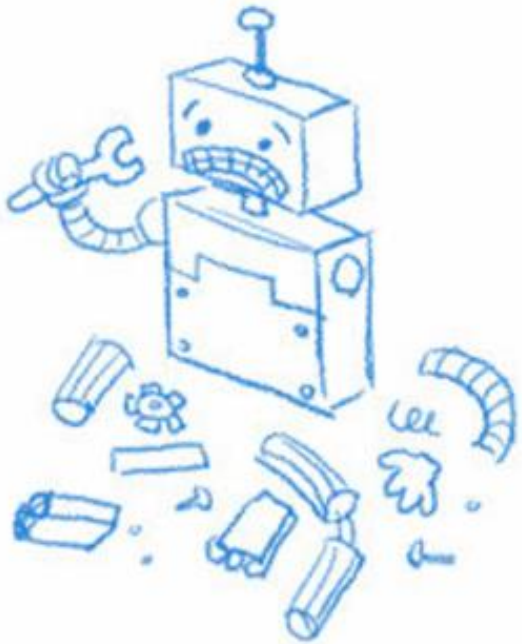
Still the user does not see this,
as preview images could not get generated, but …



… the System is still up and running with a minor limitation of missing preview images

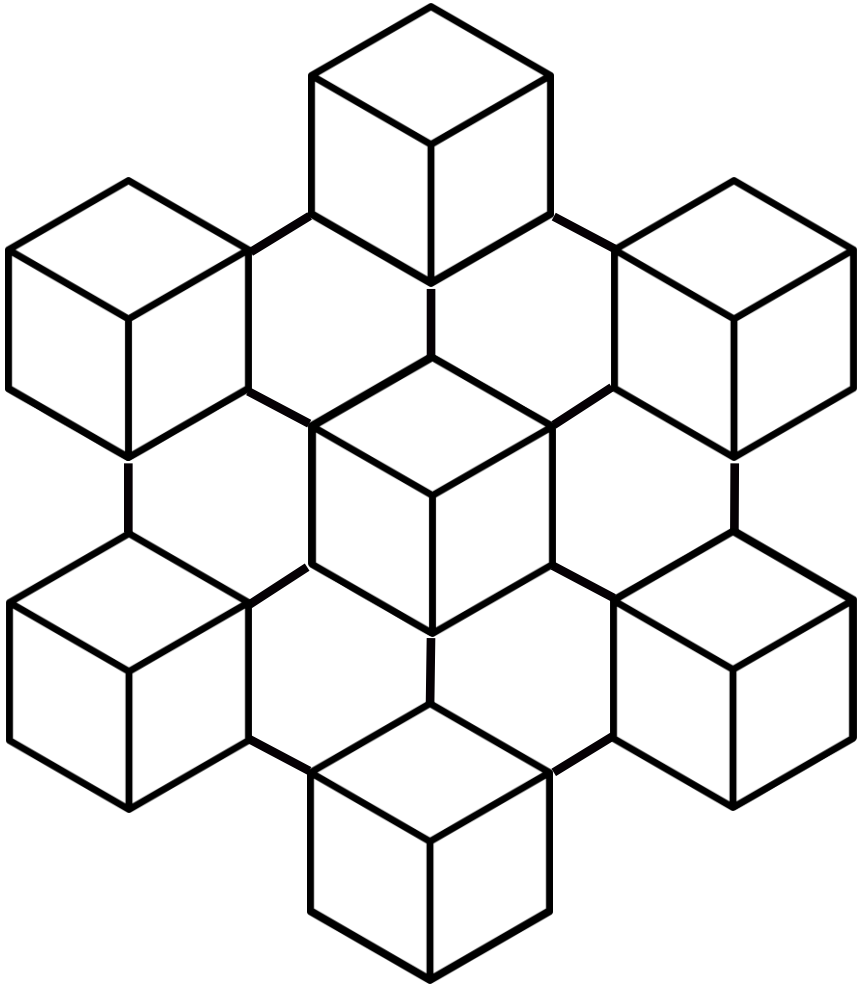
which is way better than this:

Server Error



Advantages of Microservices

- **Fault isolation**
- **Scalability**
- **Resource Optimization**



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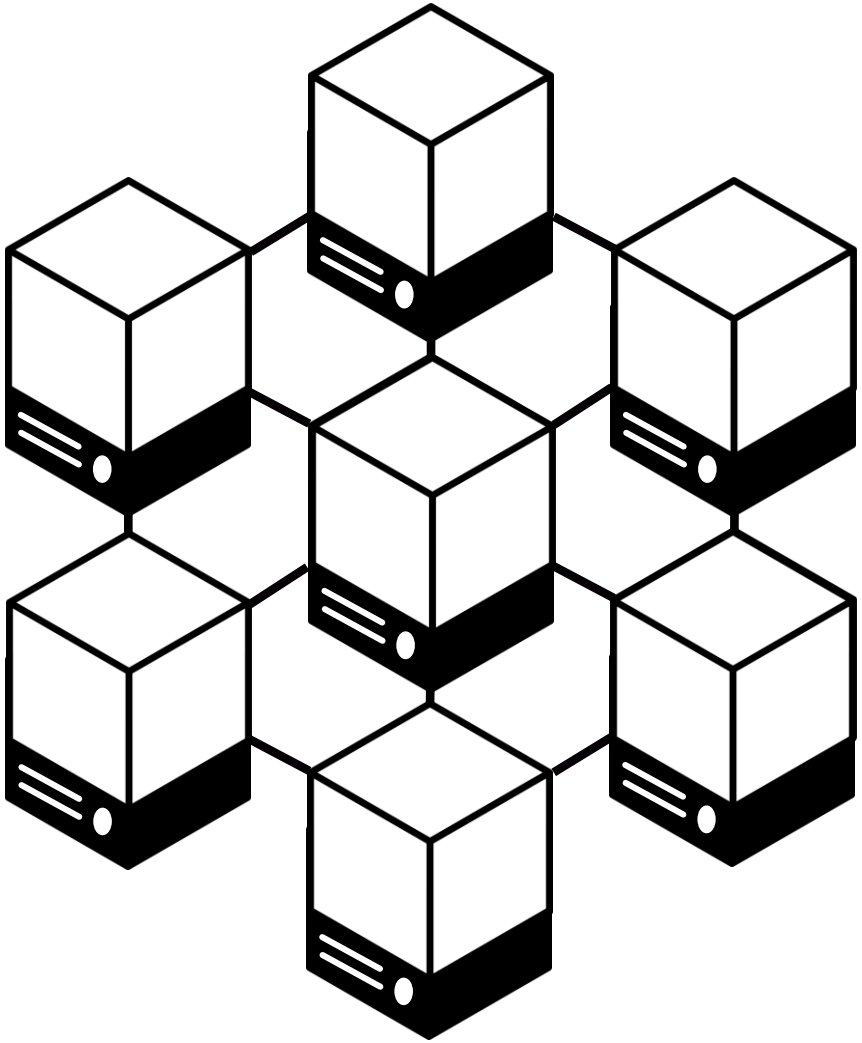
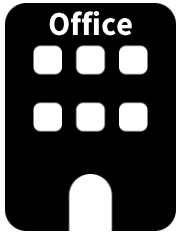


What makes Infinite Scale different from other solutions?

1. Open Source
2. Data Sovereignty
3. Cloud Native
4. Databaseless

The Problem

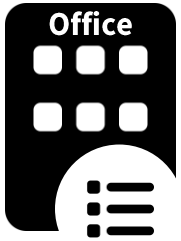
When you upload a file, 2 things happen



1.
File gets **listed** in the database “office”

2.
File gets **stored** on the storage “warehouse”

The Problem



Paperwork
Metadata like the filename, shares etc.

File
Actual file with its binary data.

The Problem

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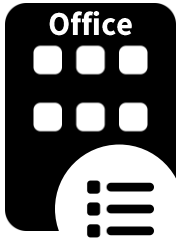
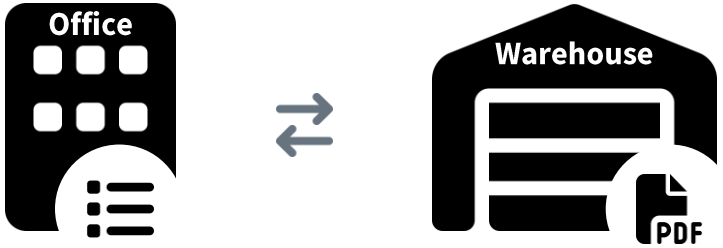


Paperwork
Metadata like the filename, shares etc.

File
Actual file with its binary data.

The Problem

Let me download manual.pdf



Office: “Ok, we found your file in our papers. Wait a second, we’ll bring it out from the Warehouse.”

The Problem

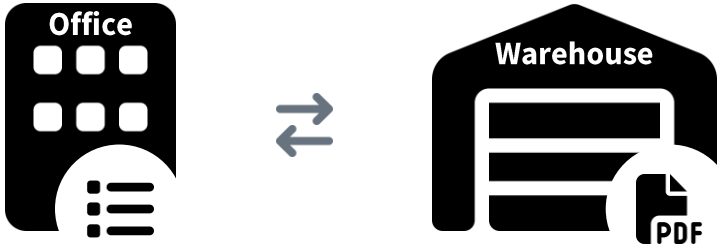
The Problem

Single Point of failure Single Point of failure

⚠
If only one of both fails,
the entire system will fail!

The Problem

More problems: If you store more data, you also need more databases



The Problem

More problems: If you store more data, you also need more databases

The Problem

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The Problem

More problems: If you store more data, you also need more databases

⚠
At some scale the system gets **complex**, **error**-prone and thus **cost**-intensive.

The Solution

Store Metadata on the storage

The Solution

Store Metadata on the storage

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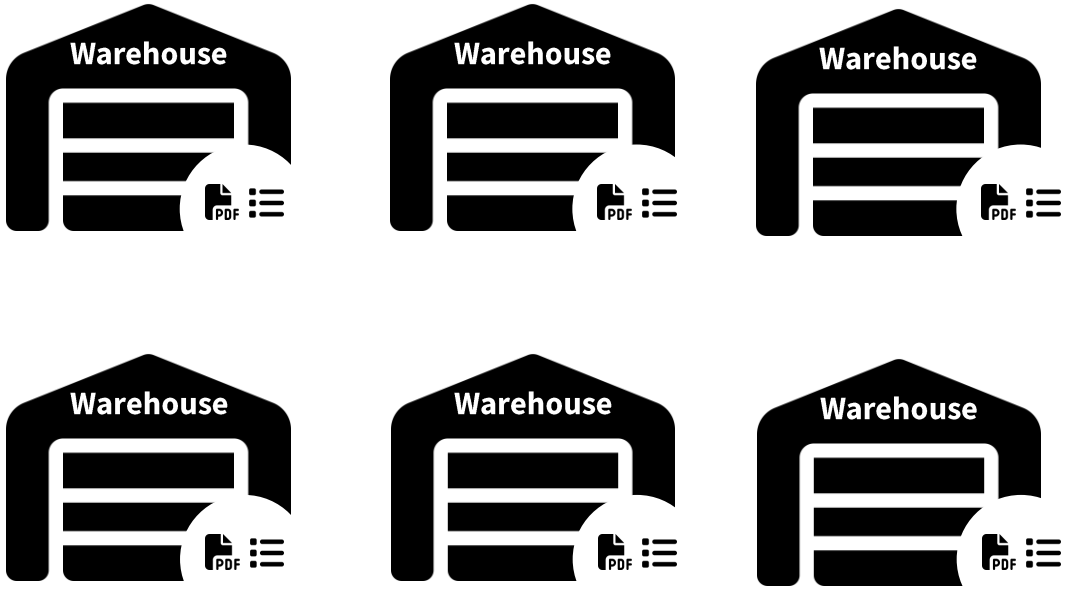
Store Metadata on the storage



The Solution

Store Metadata on the storage

The new Infinite Scale Server ensures

secure content collaboration, providing:

Resilience

The new Infinite Scale Server ensures

secure content collaboration, providing:

Resilience

Scalability

The new Infinite Scale Server ensures

secure content collaboration, providing:

Resilience

Scalability

Cost-Effectiveness

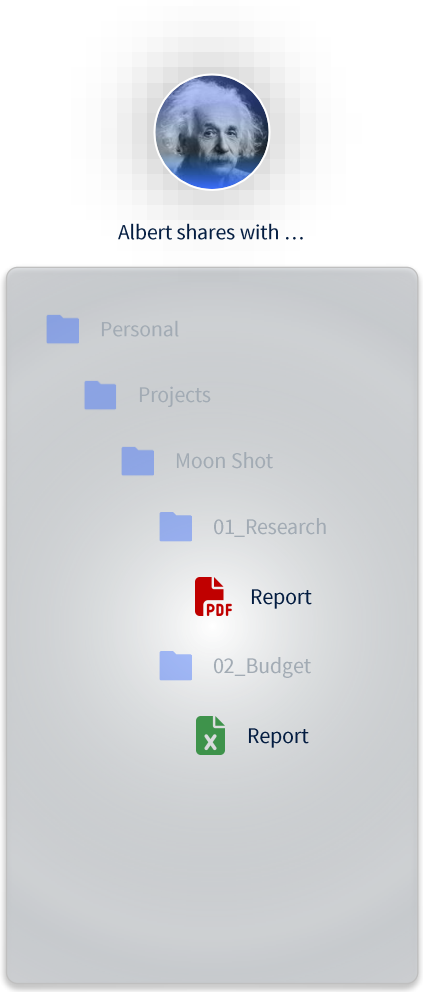
Infinite Scale from the **user perspective**

Features

Sharing

and why you need Spaces

Organizing shared files



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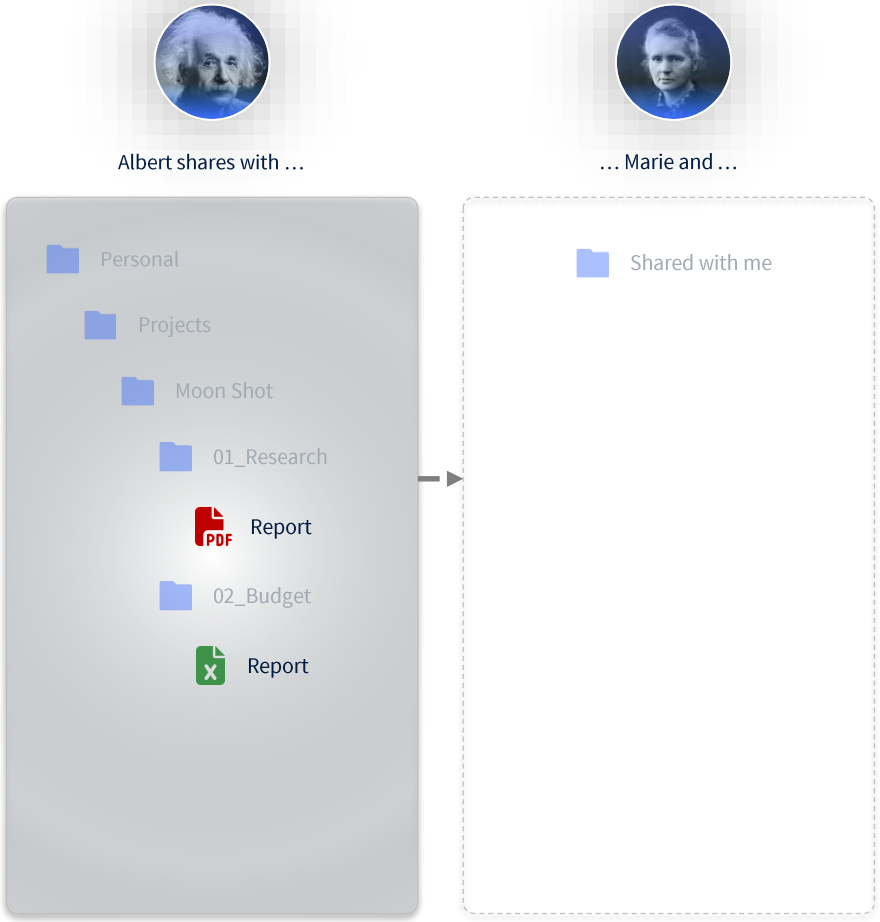

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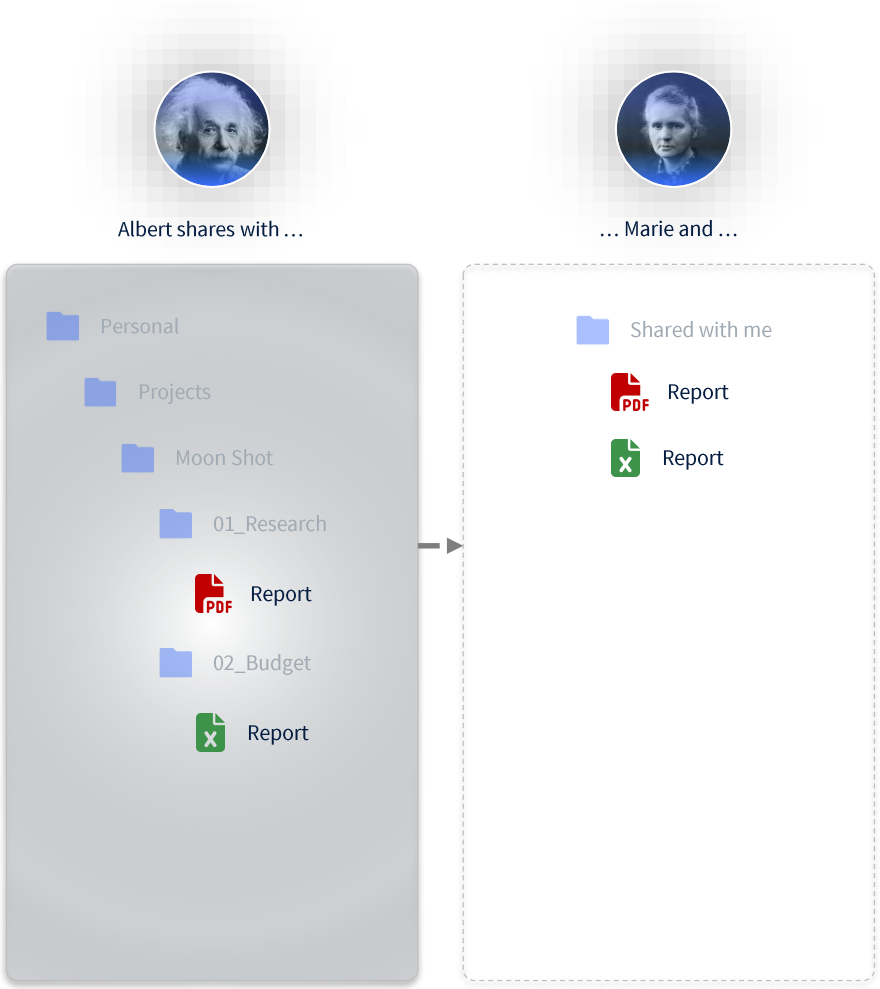

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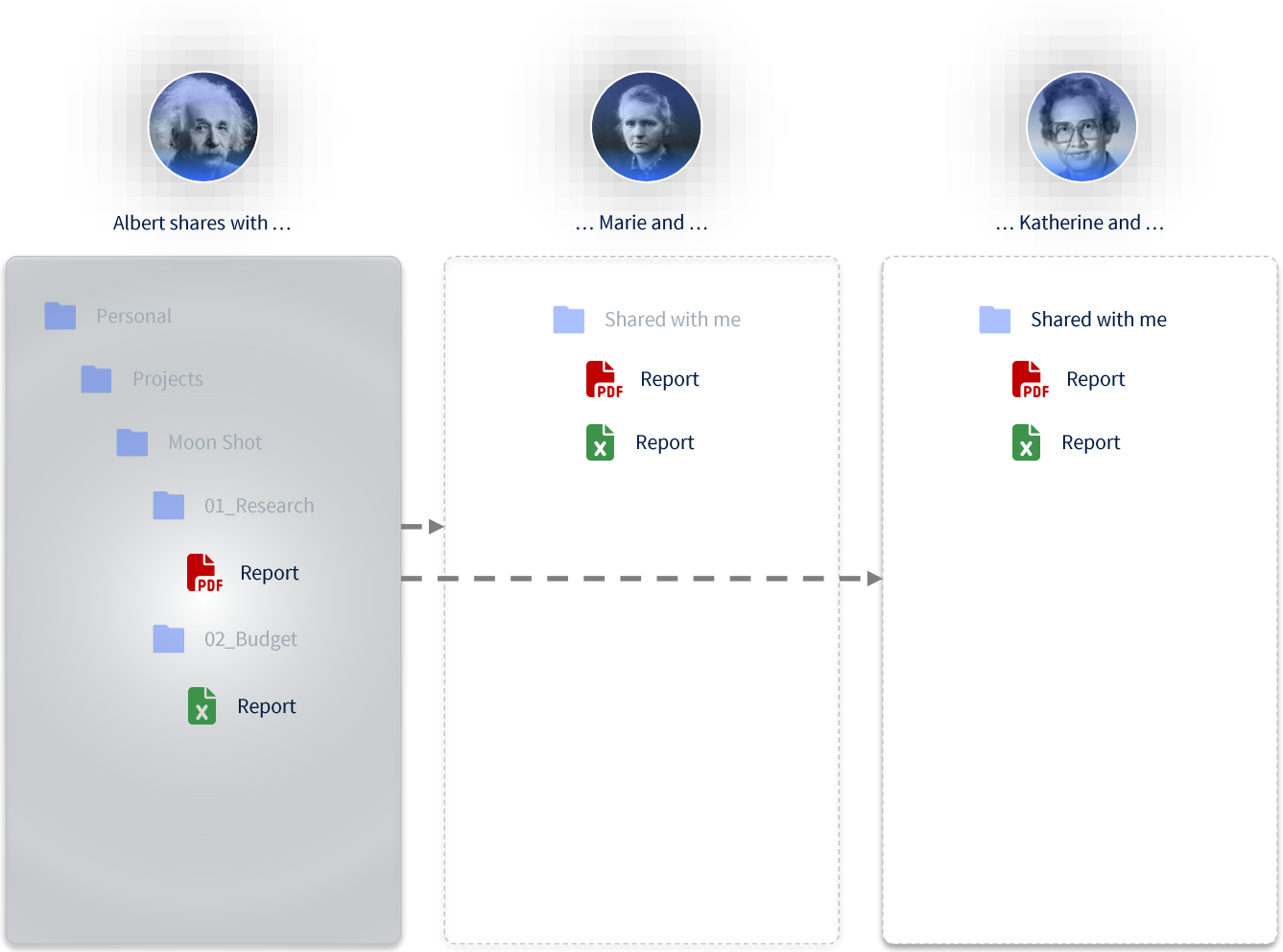

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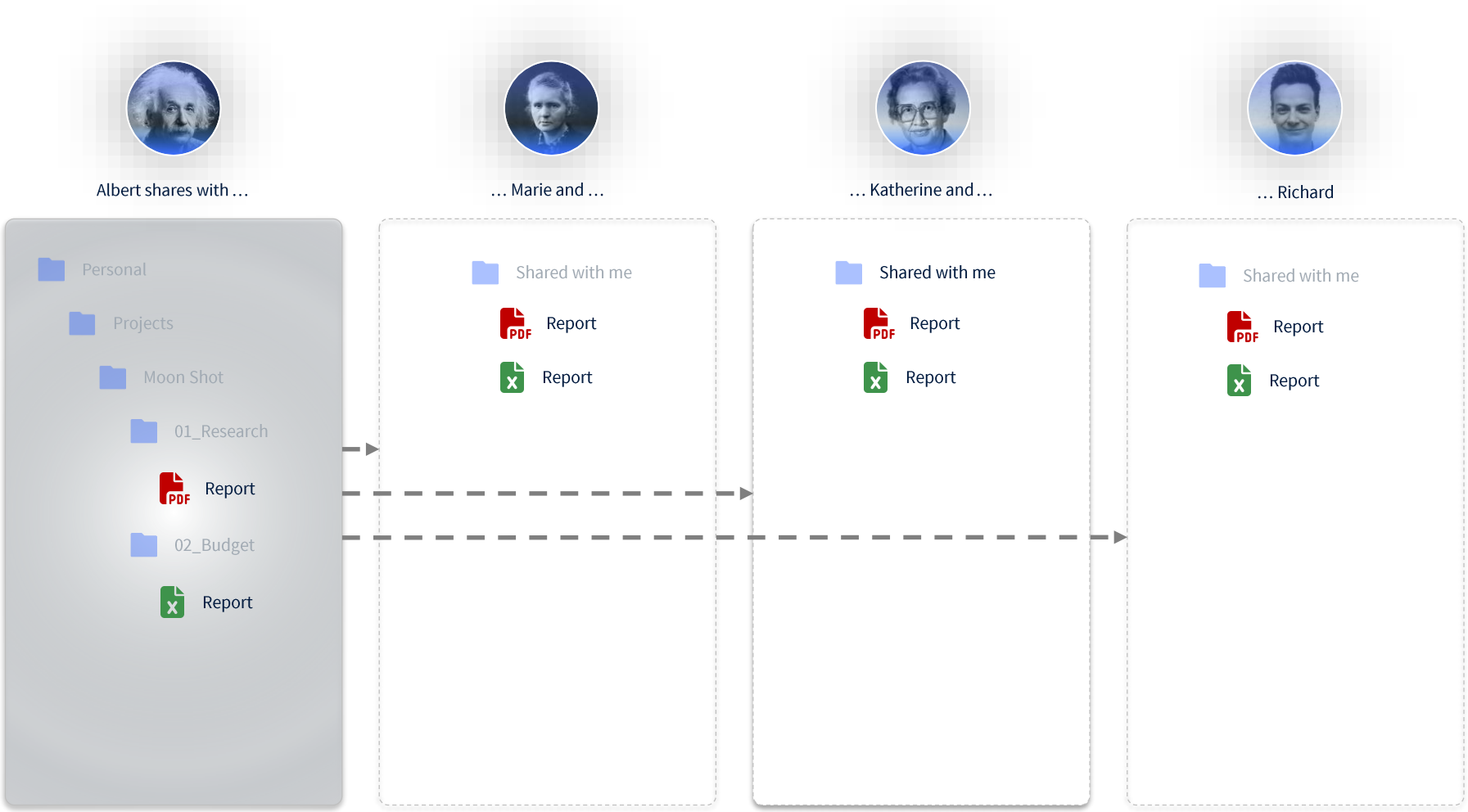
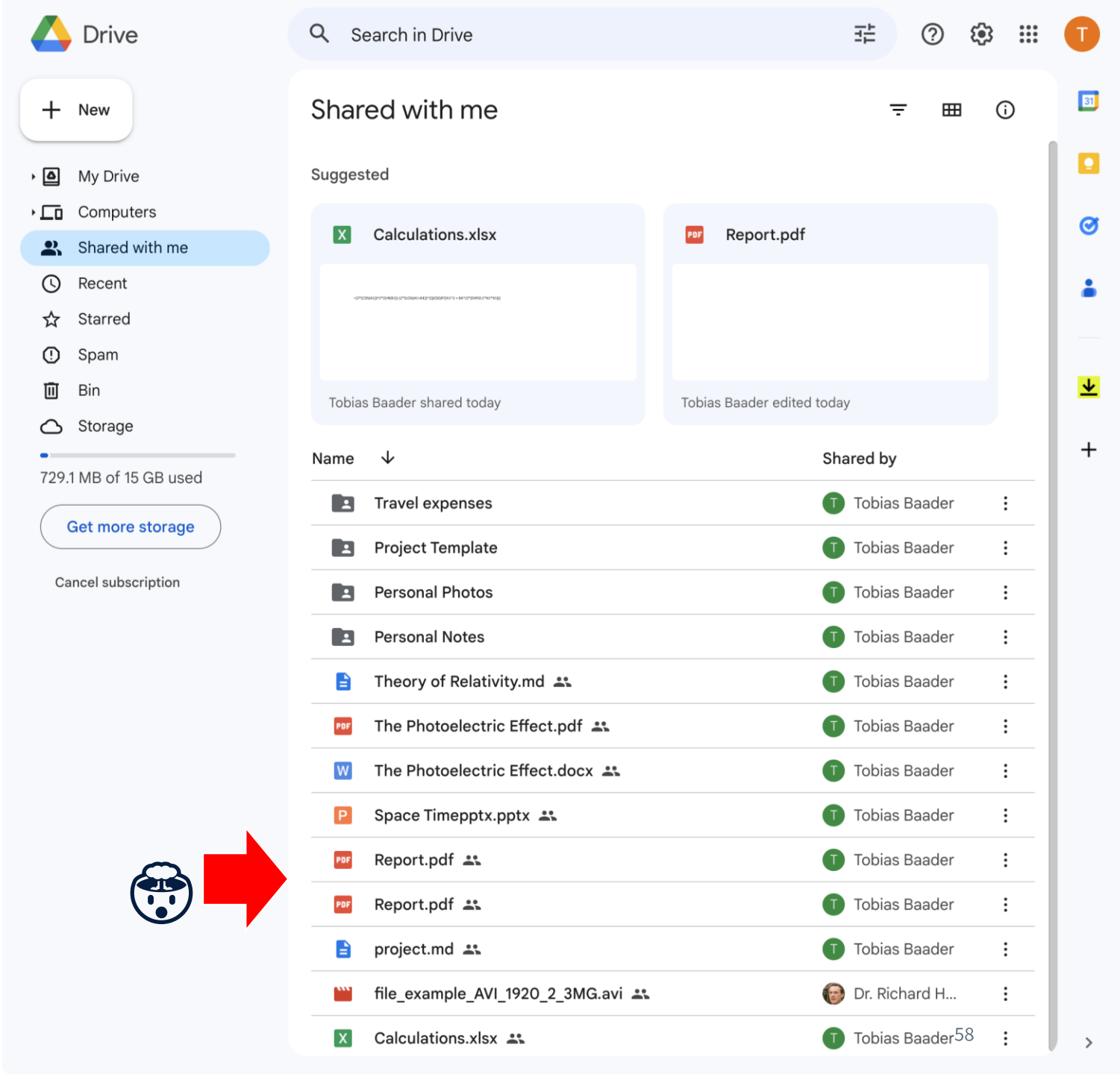


Problem

- ❌ Chaos in *Shared with me*
- ❌ Missing context

"Does this file belong to Project A or B?"



Problem

✕ People leave with projects

As project files live within their personal folders

Albert moves to Princeton and forgot to handover his files

Solution

Spaces

Spaces - ownCloud

ownCloud

Enter search term

AE

Personal

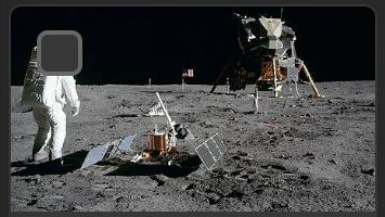
Shares

Spaces

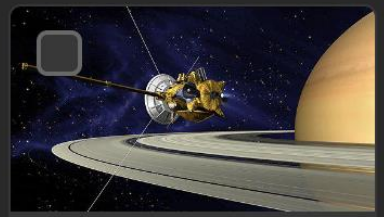
Deleted files

Spaces

+ New Space

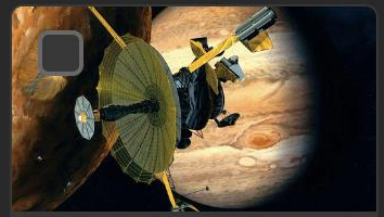


Apollo 11



Cassini–Huyg...

Dawn

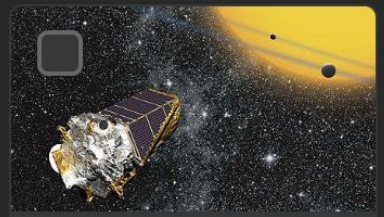


Galileo

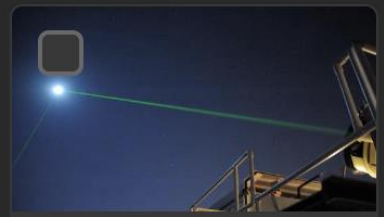
Hubble

InSight

ISS



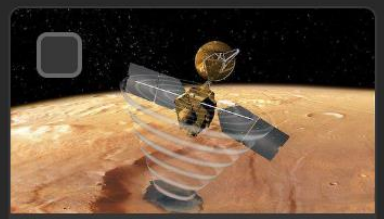
Kepler



Lunar Orbiter

Mariner 6

Mars Global S...



Mars Orbiter

Mars Science ...

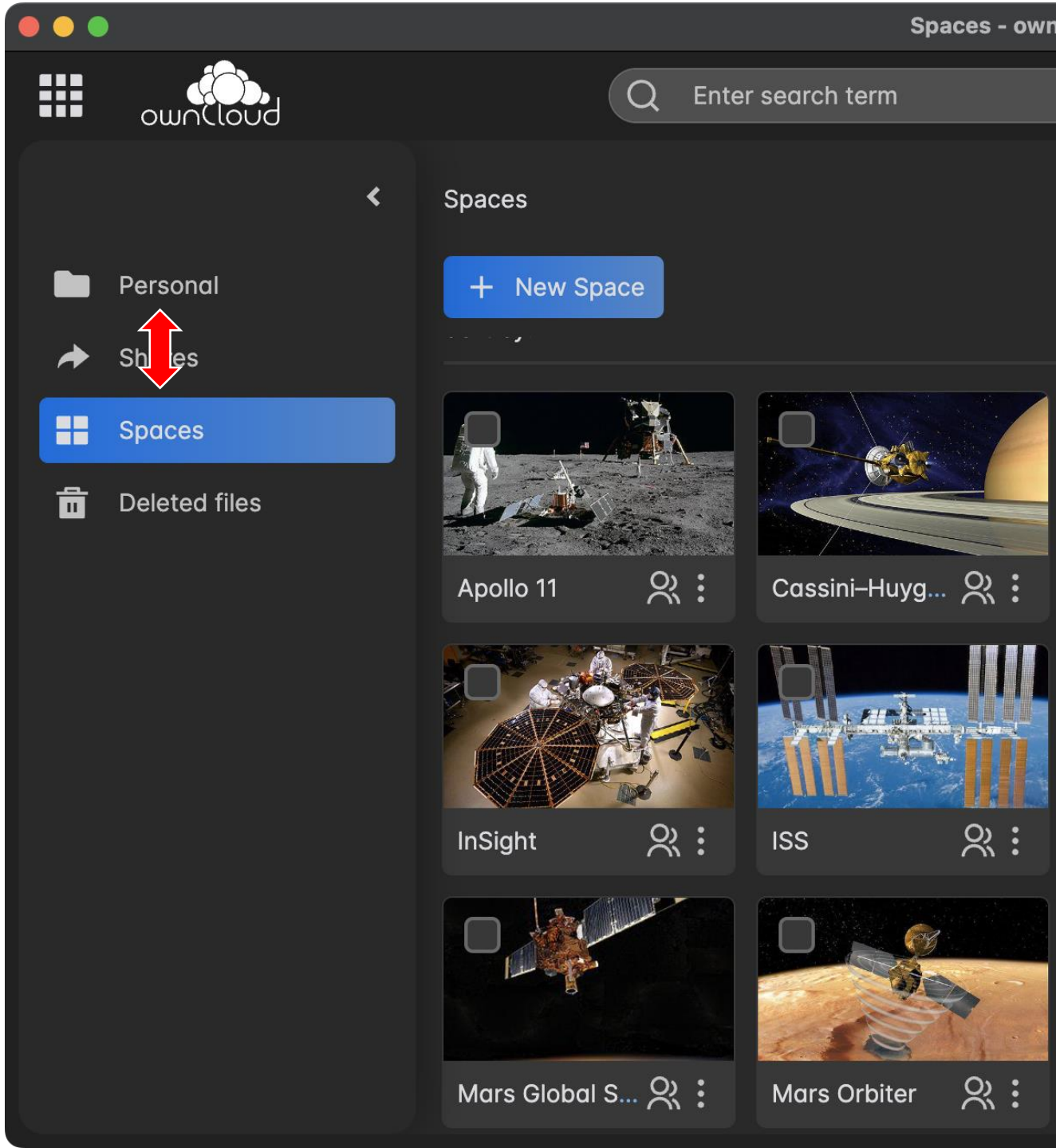
MAVEN

Messenger

Spaces

Spaces simplify collaboration on files

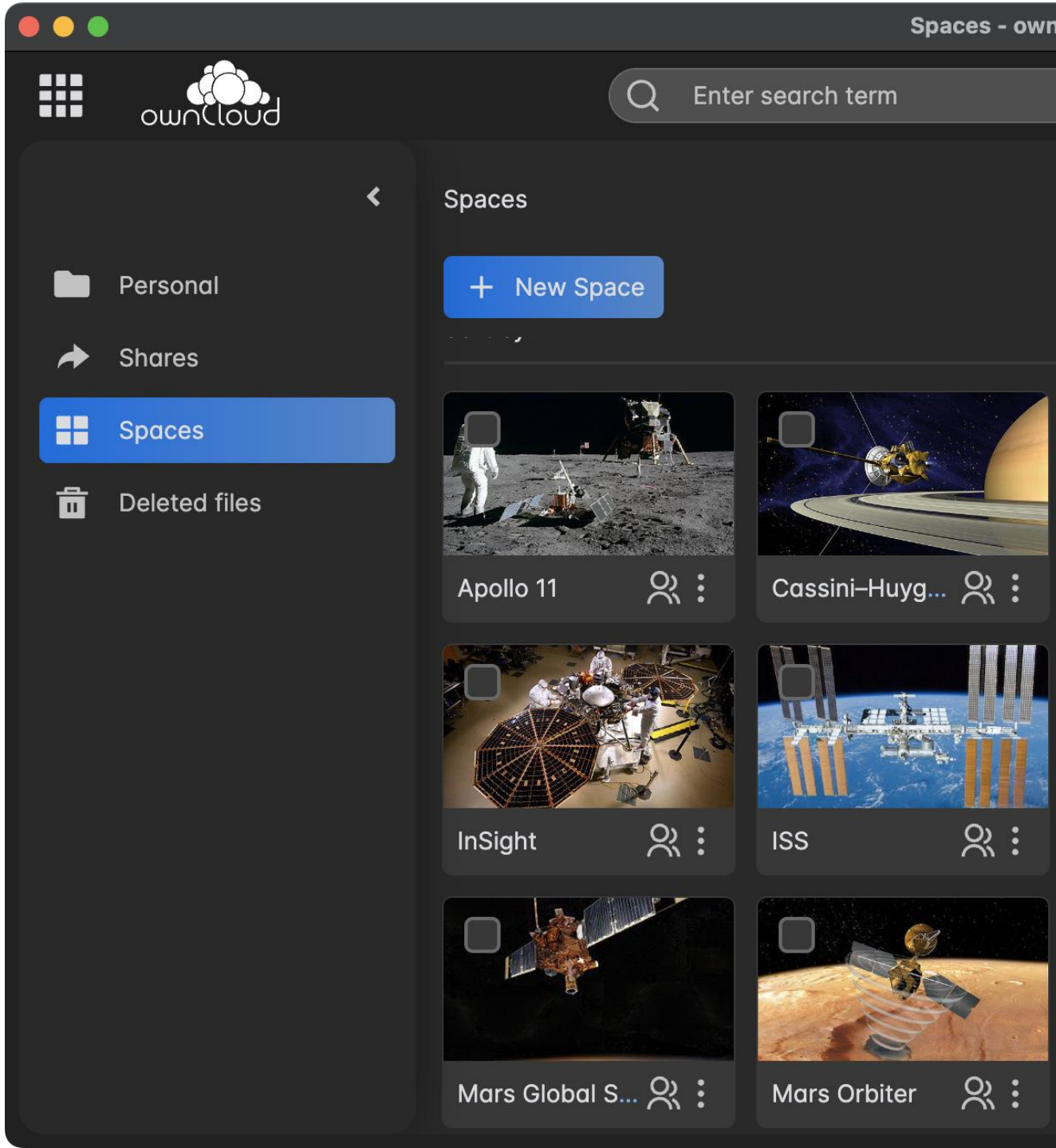
- **Separate** location from the *Personal* files



Spaces

Spaces simplify collaboration on files

- **Separate** location from the *Personal* files
- **Collaborate:** Ideal for shared files e.g. for projects, departments or school classes



Spaces

Spaces simplify collaboration on files

- **Separate** location from the *Personal* files
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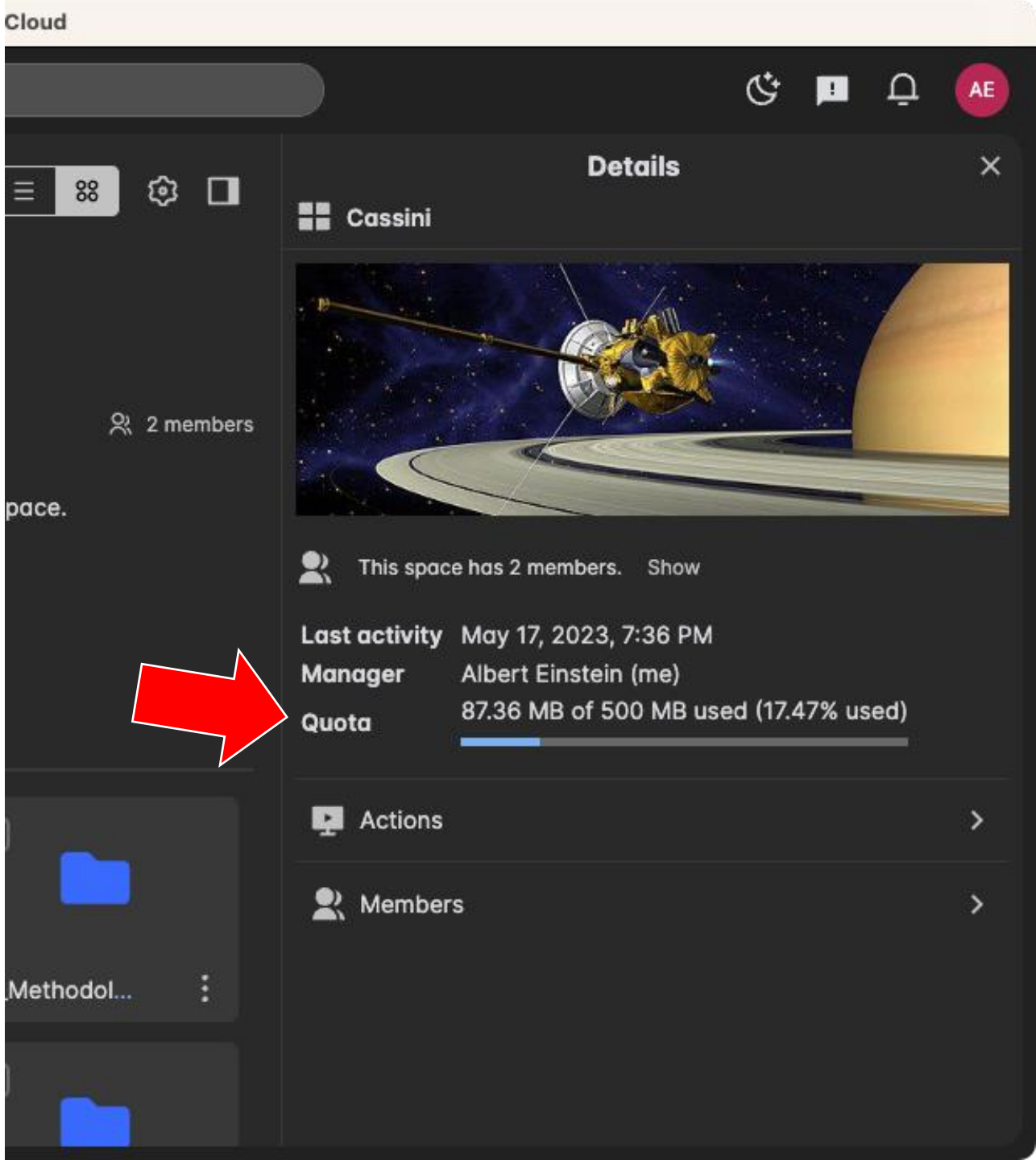
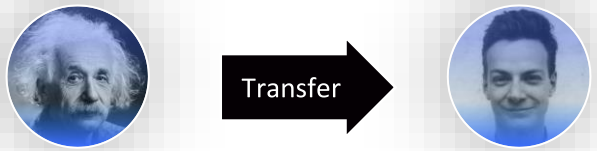
- **Quota:** Spaces can have a quota

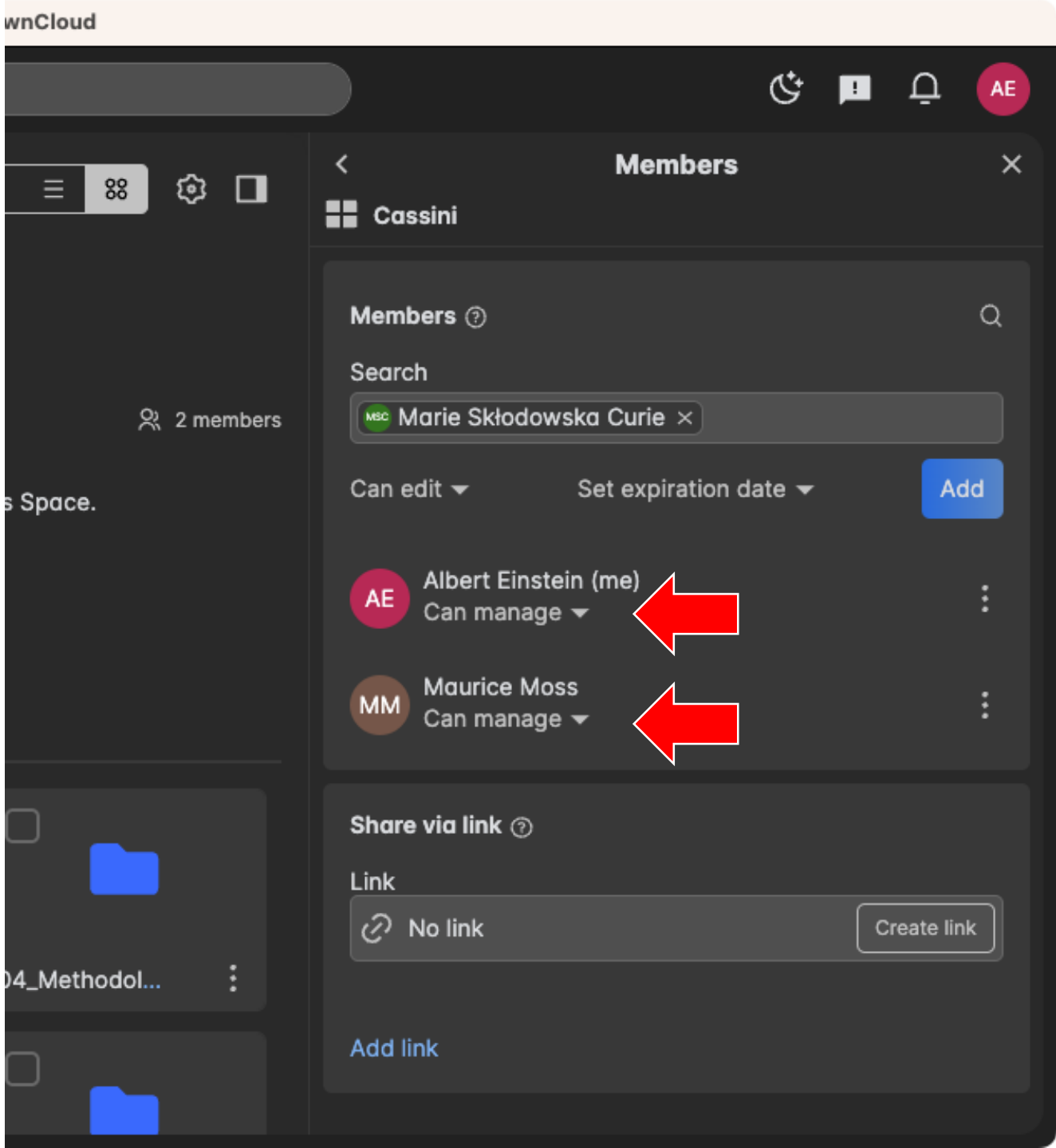


Spaces

Spaces simplify collaboration on files

- **Separate** location from the *Personal* files
- **Collaborate:** Ideal for shared files e.g. for projects, departments or school classes
- **Quota:** Spaces can have a quota
- **Manager:** Spaces always have a *Manager* who is responsible for quota and access
- **Transfer:** Spaces can have multiple Managers e.g. to transfer a Project

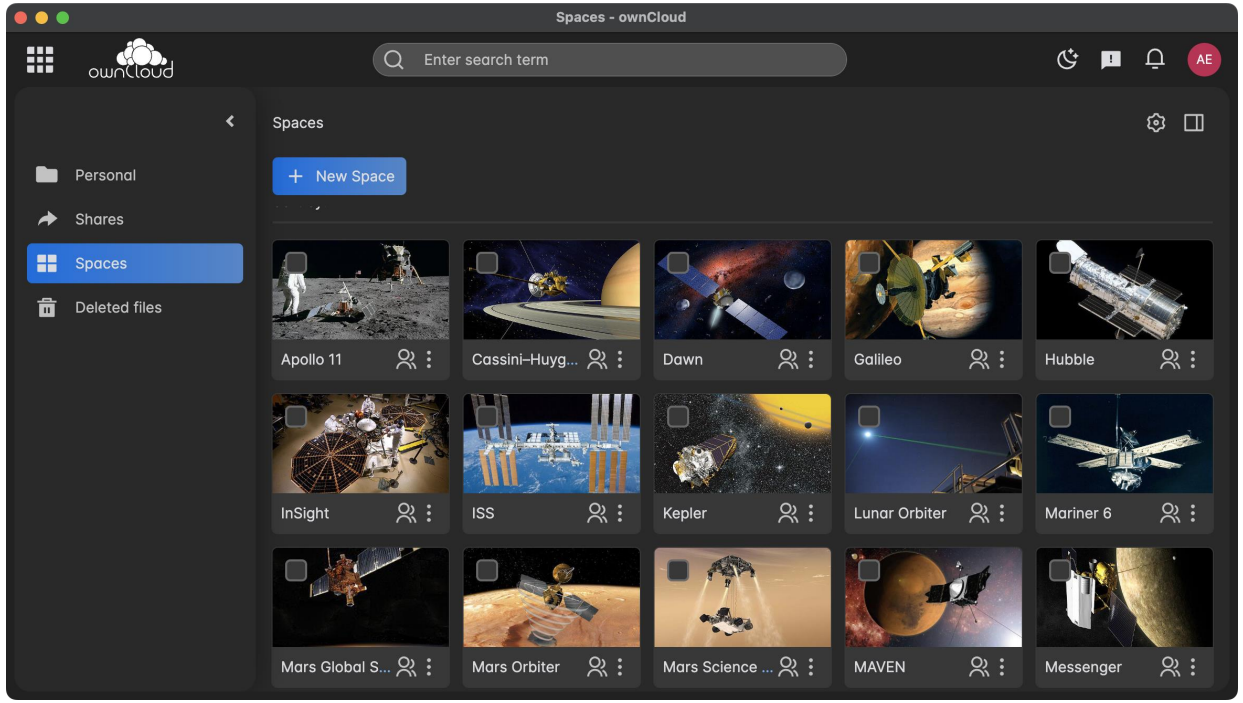




Advantages for the organization

Advantages from an organizational view

- Spaces avoid personal (employee) **data-silos** “by design”
- Spaces increase **security** as they strictly separate personal from project related files
- **Self-service**: Spaces lower support efforts for admins as they focus on self-service for users



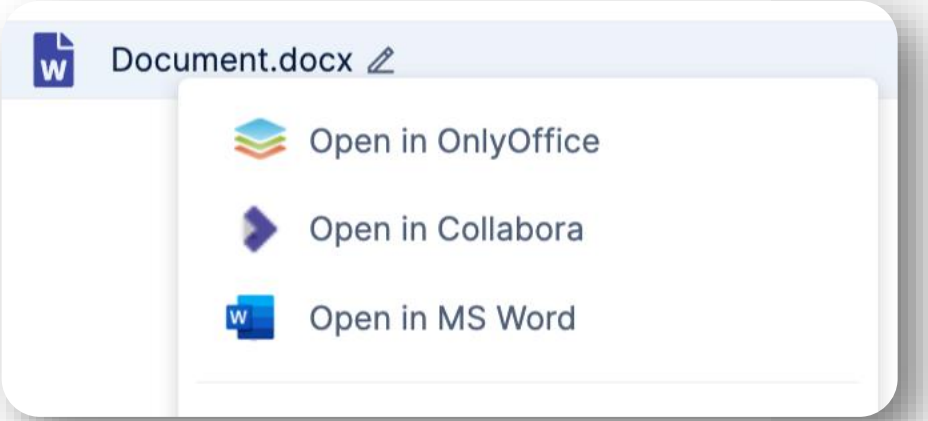
More Highlights

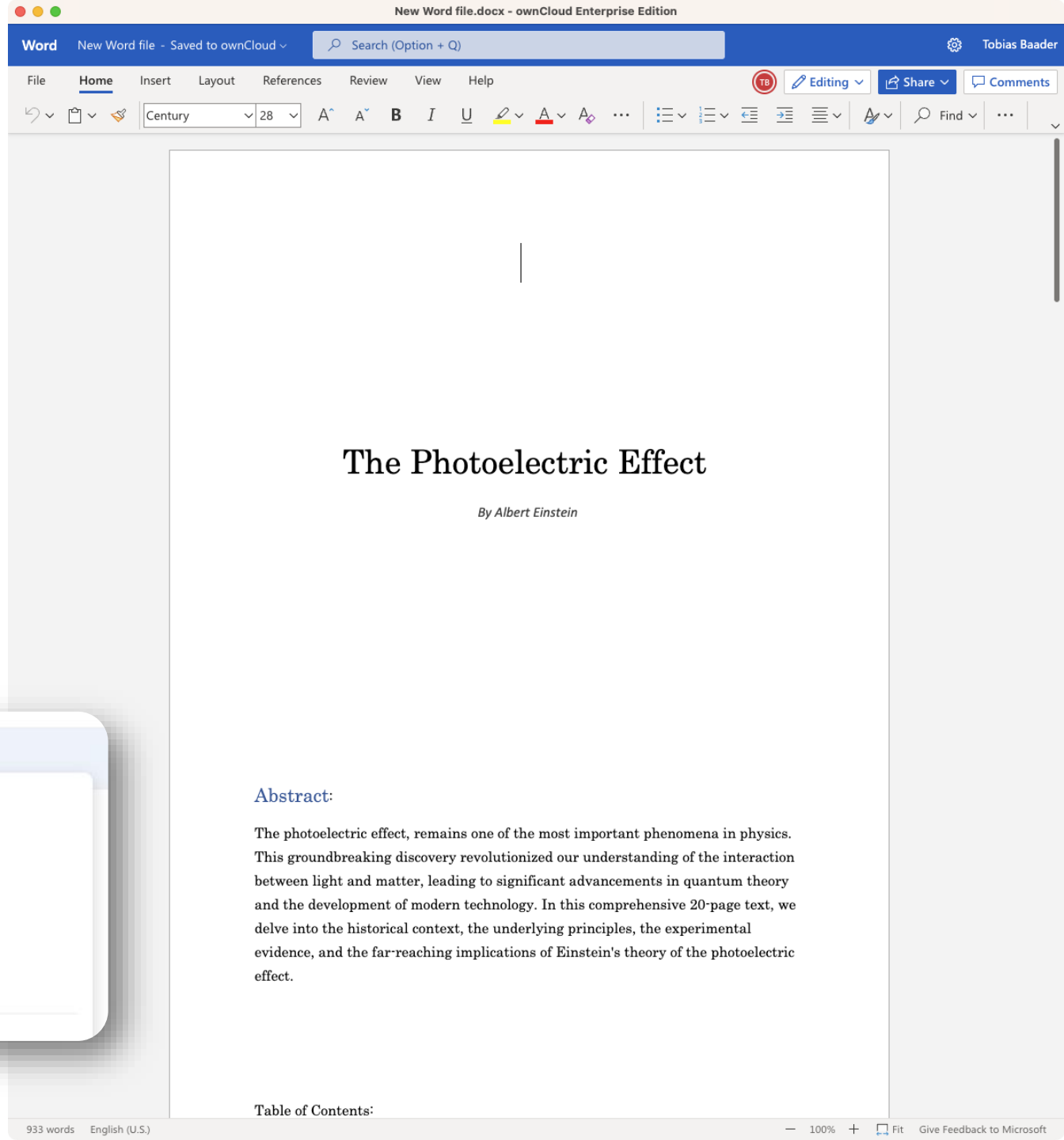
to simplify how you work

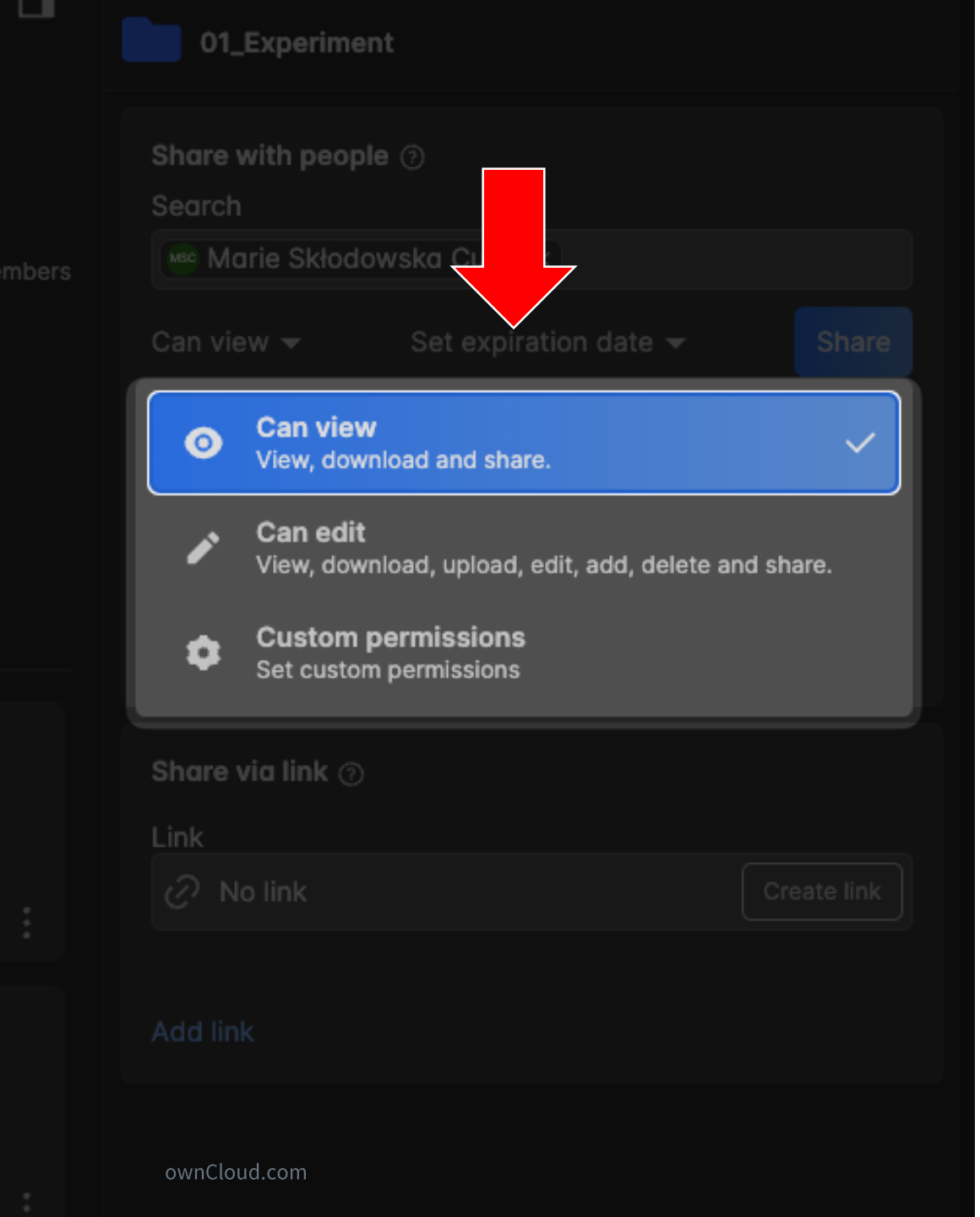
Web Office

Open Documents in

- Only Office
- Collabora
- Office 365



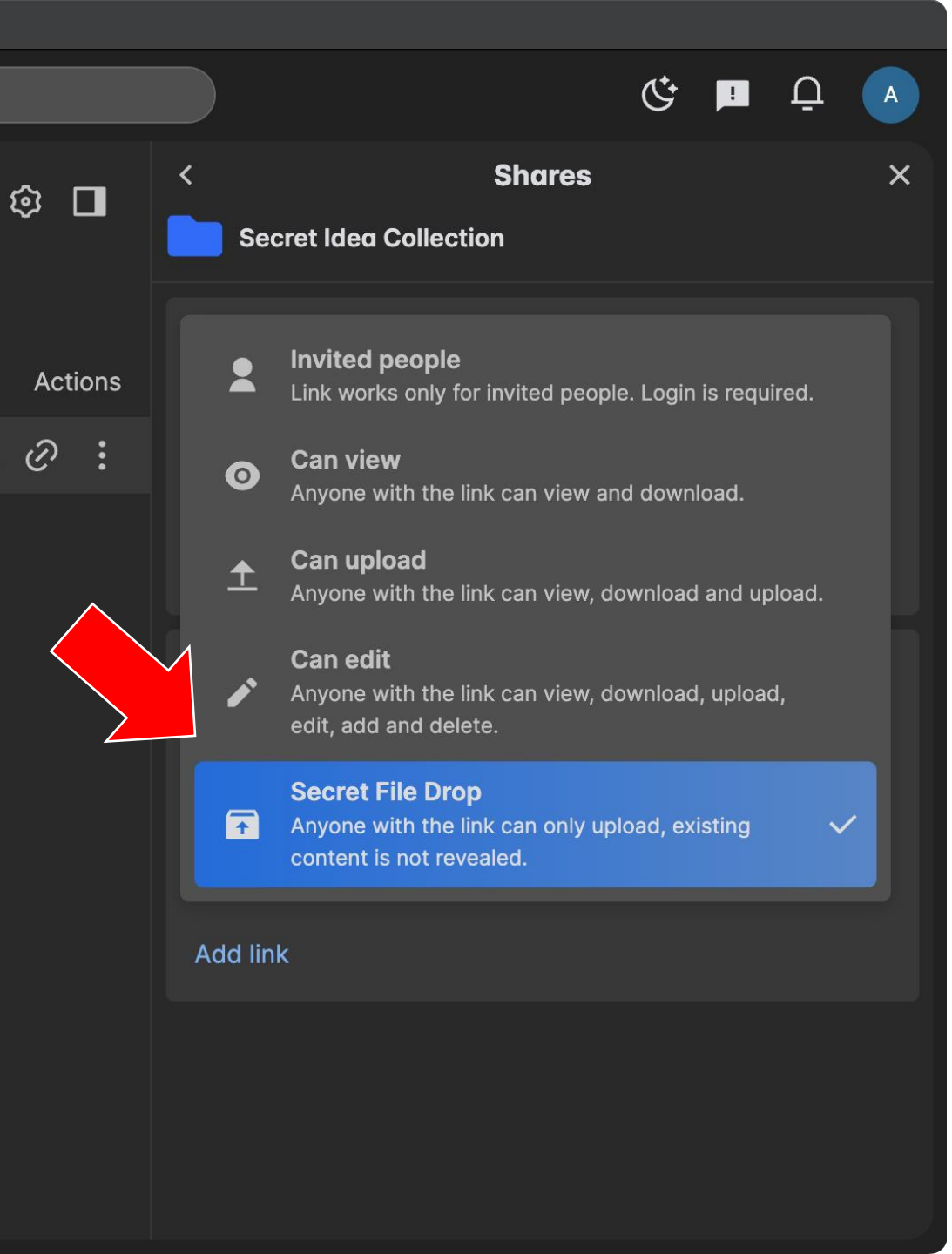




Sharing Roles

Increases security with sharing roles

- Simply select
  - Can view or
  - Can edit
- No need to pick single, fine-grained permissions
  view, download, upload, edit, add, delete, share
- Prevents human error by design and avoids data loss
- Ease of use for users
- Setting custom permissions is still possible



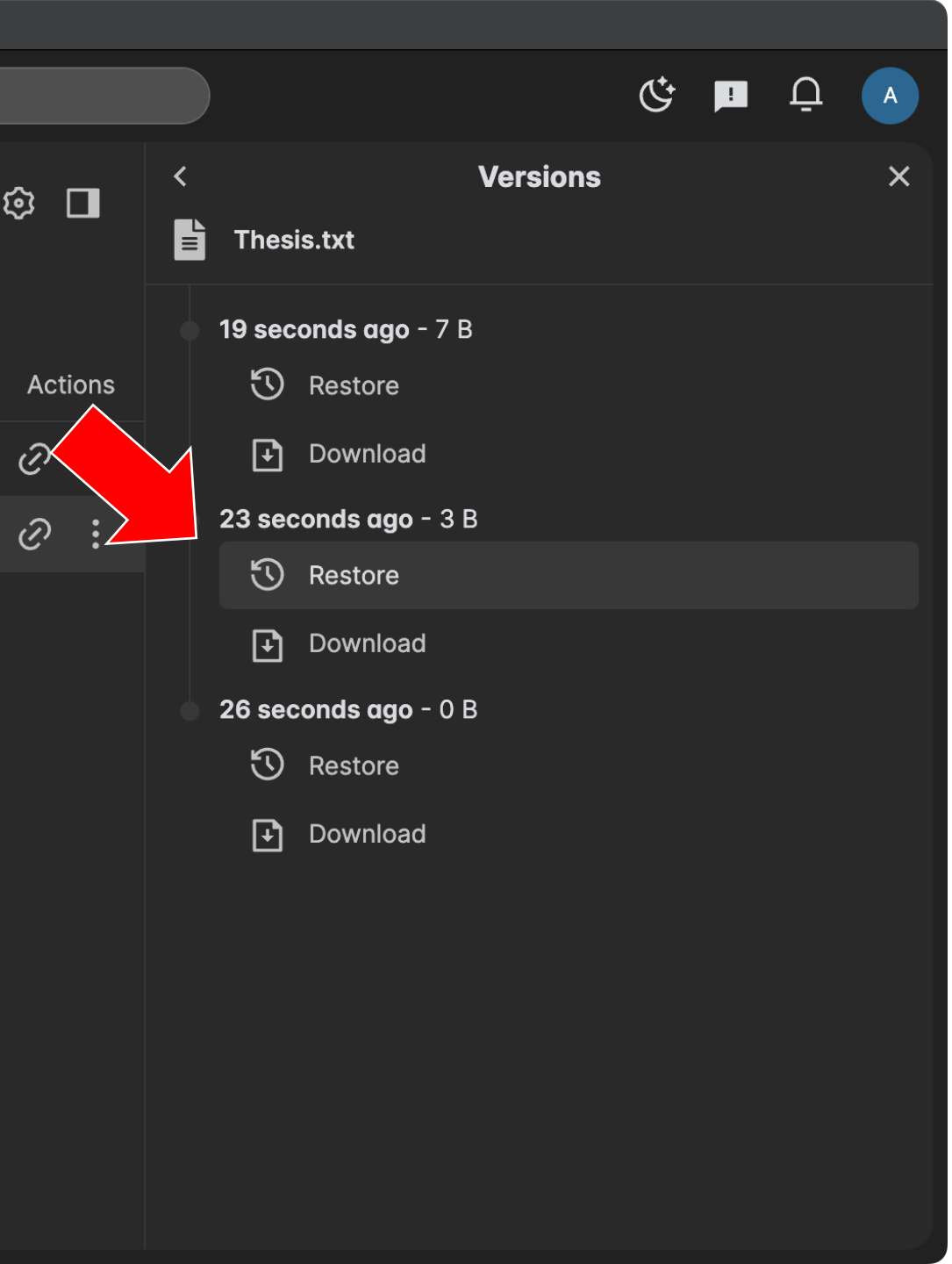
Secret File Drop

Collect files via link

- Anonymous & secret
- Existing content is not revealed
- Simple: No login required

Examples:

Collect homework, documents, photos



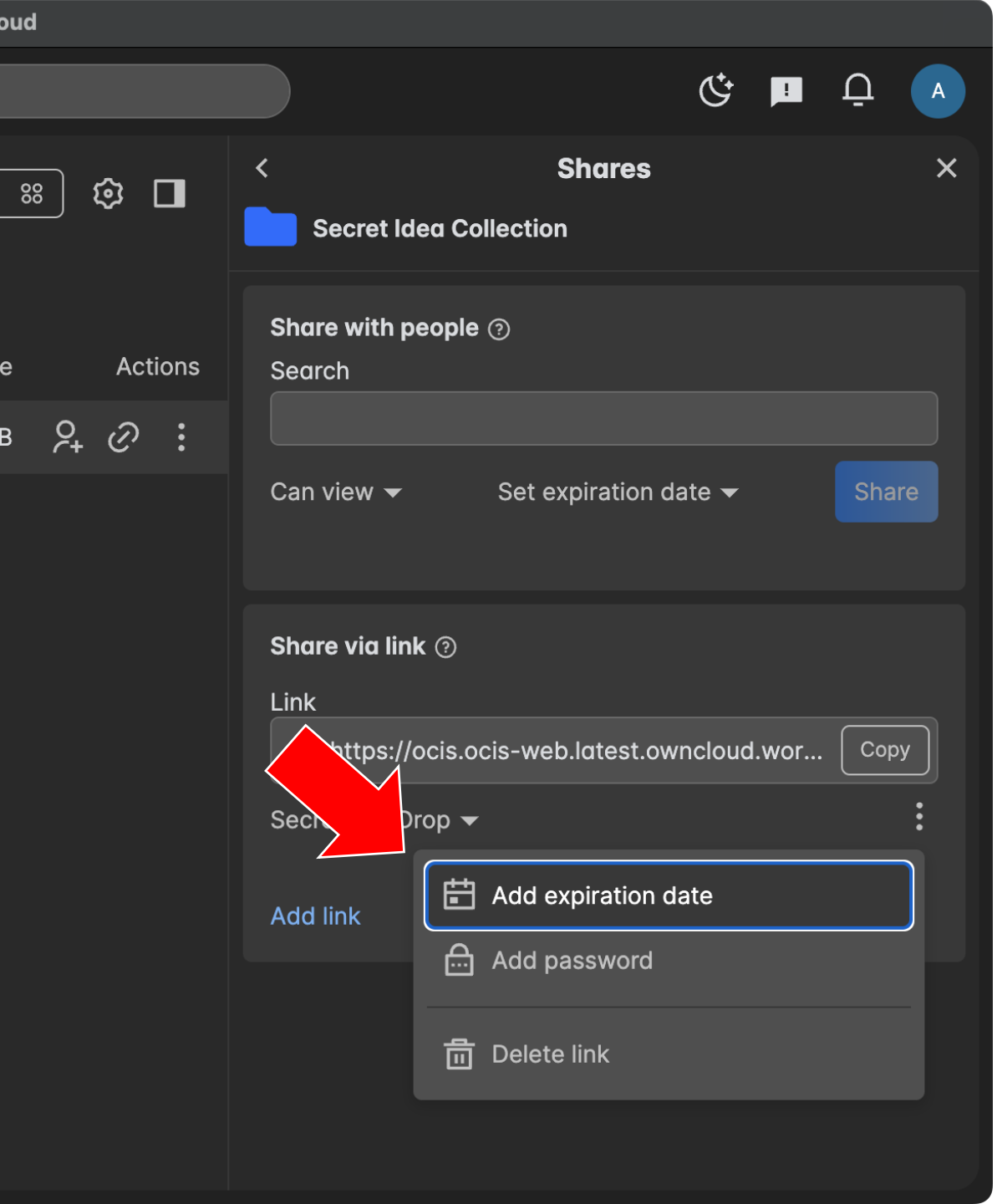
Editing without concerns

File version history - we got your back

- Track file versions
- Restore any version
- Easily recover from errors

Trash bin

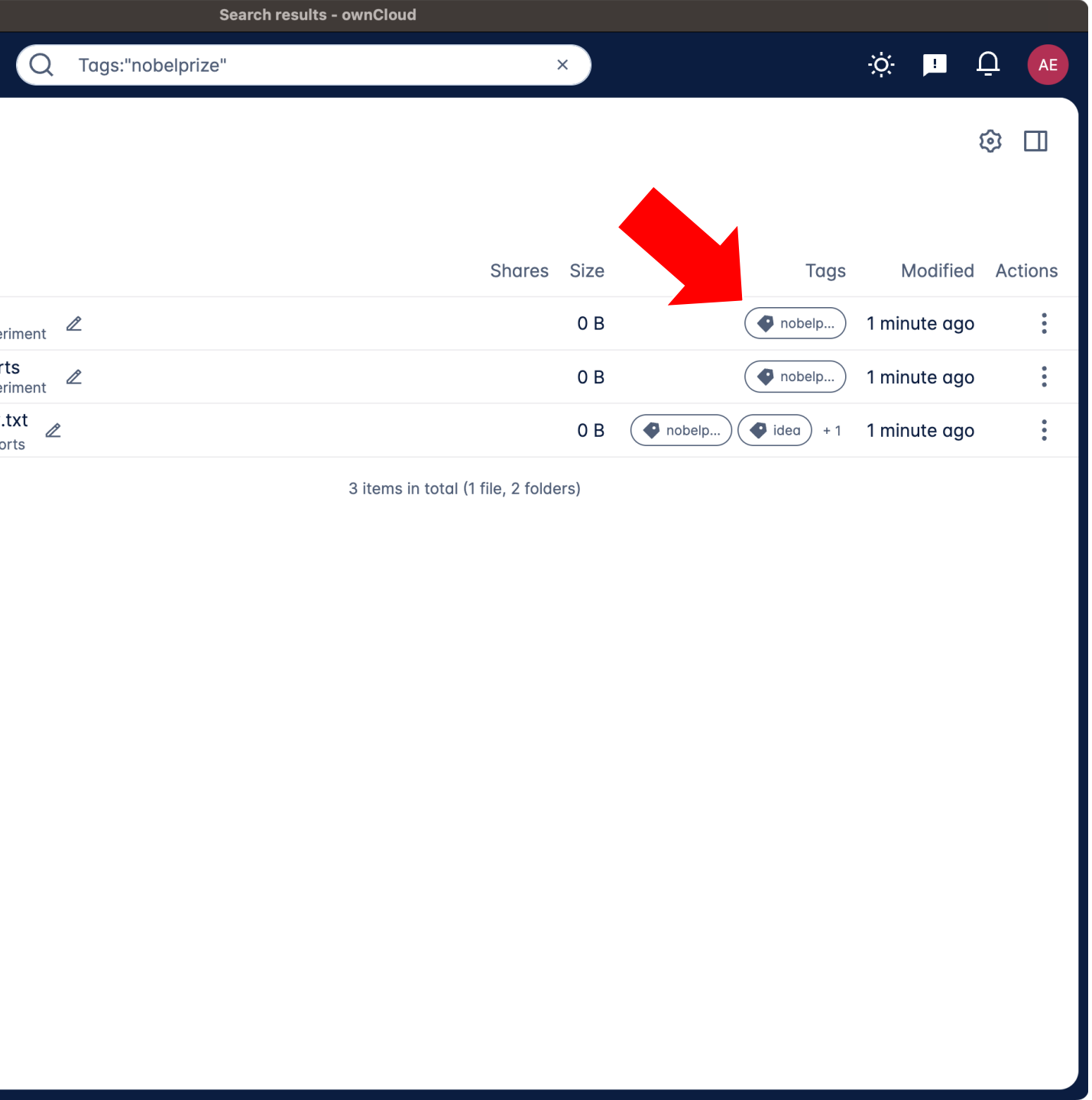
- Restore deleted files from trash bin
- Empty trash bin after 30 days



Powerful sharing links

Sharing links

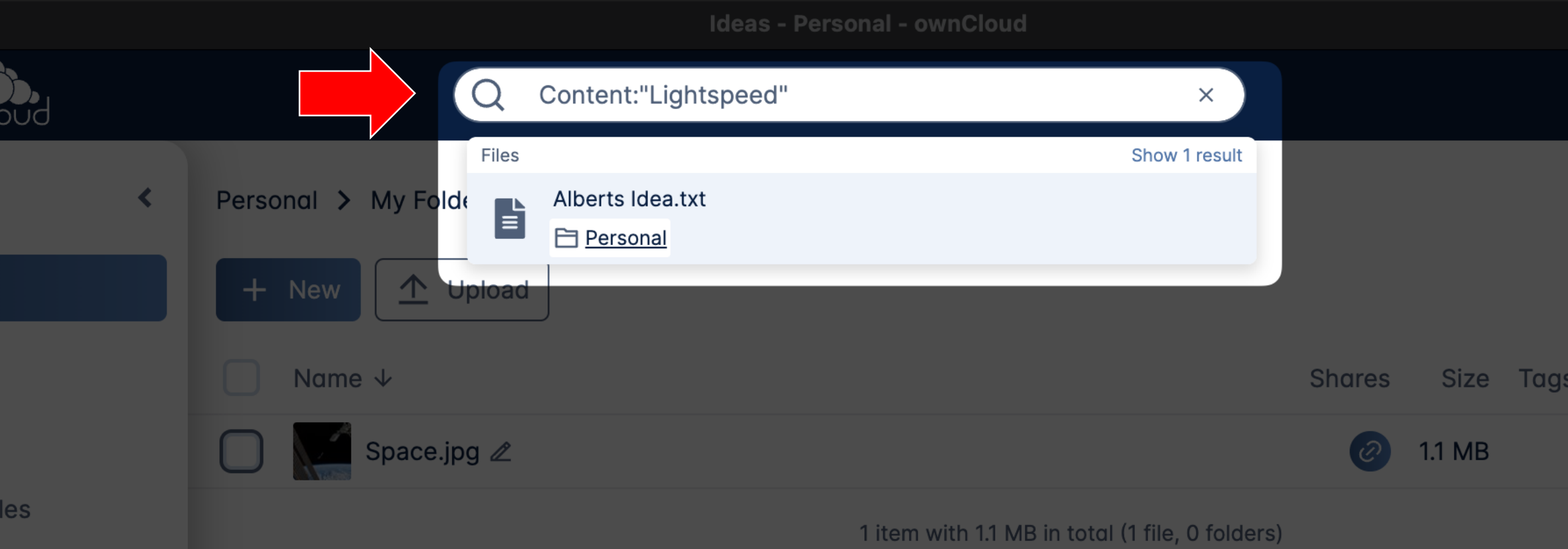
- Set a password
- Set an expiration date
- Create **many** links for a single file
- Revoke access at any time



Tags

Stay organized

- Set Tags on files and folders
- Find and organize items independent of folder structure or filenames



Fulltext search

Search the content of files within seconds

(Supported formats: PDF, DOCX, XLSX, PPTX, ODF, HTML, XML, EPUB, RTF, Tar, RAR, AR, CPIO, Zip, 7Zip, Gzip, BZip2 and many more ...)

Get started without the need for training

Use familiar concepts you already know from your Windows or Mac file explorer.

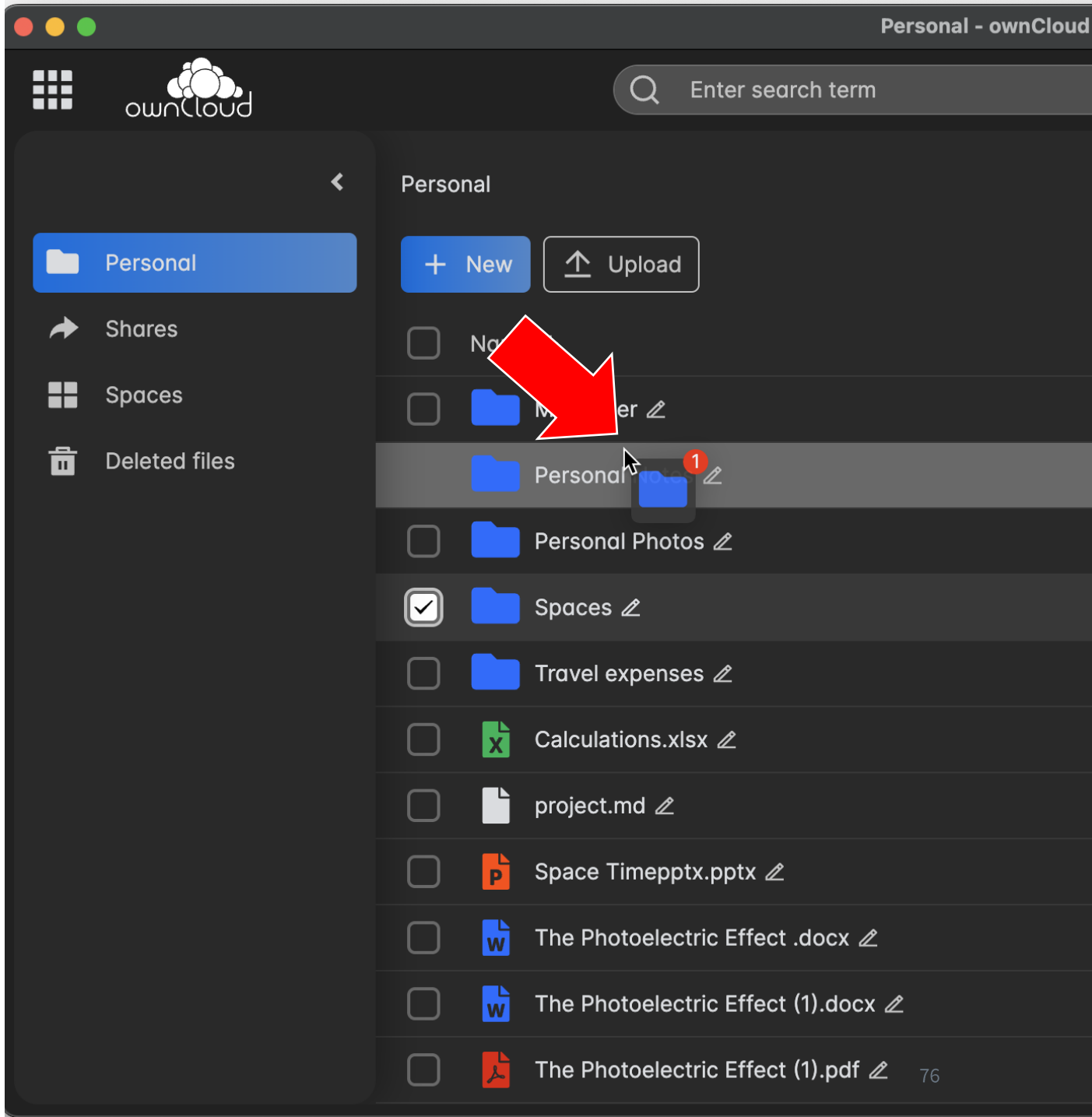
- Drag and drop
- Shortcuts

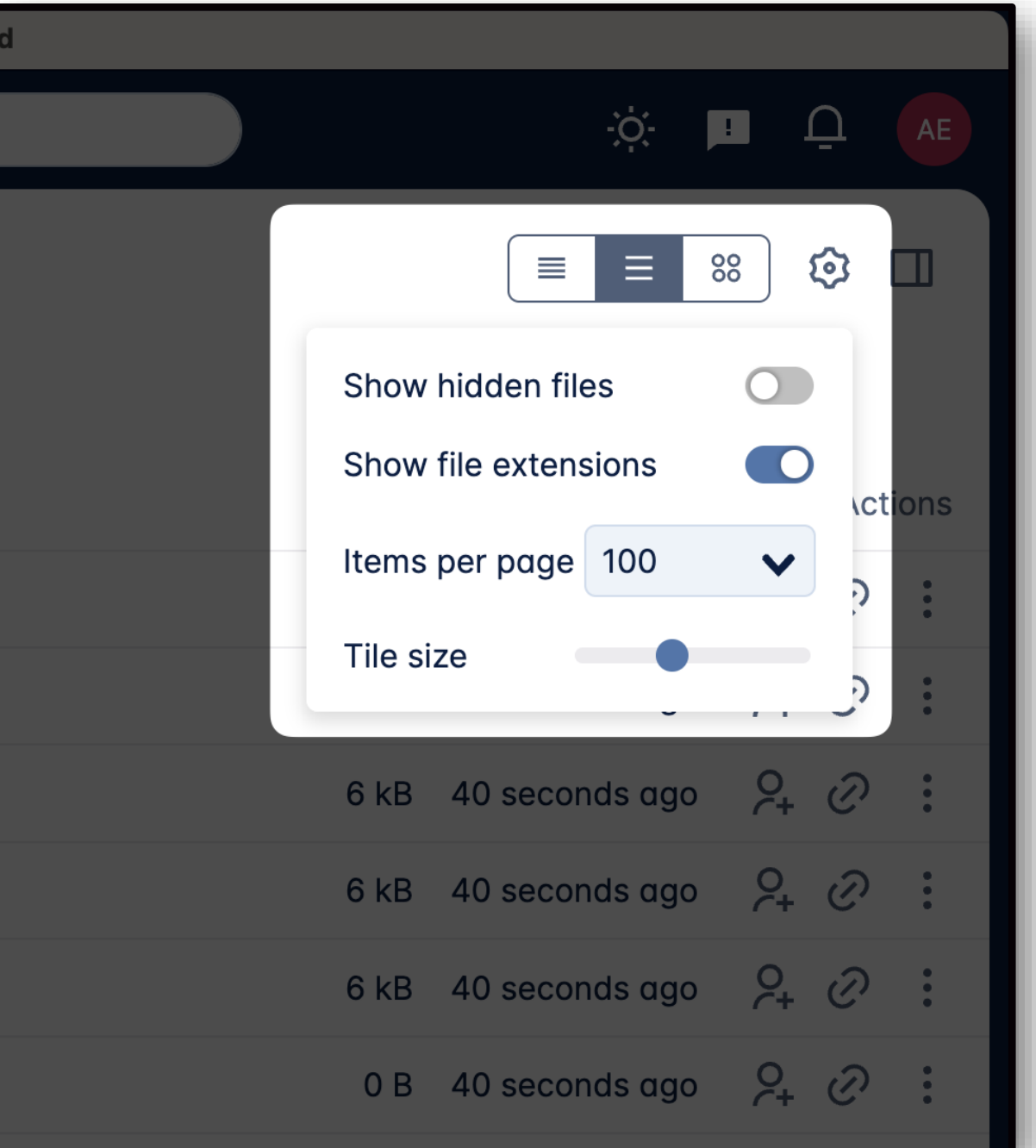
  ctrl + c

  ctrl + x

  ctrl + v

- Right-click context menu
- And many more…





View modes

Individual views that adapt to your needs

- Dark / light mode
- Compact view
- Regular view
- Tiles view
  with adjustable tile sizes

Personal Photos - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Personal Photos

+ New

Upload

Name	Shares	Size	Tags	Modified	Actions
0270_2016-10-20_11.42.jpg		44 kB		6 hours ago	
0272_2016-10-20_11.42.jpg		93 kB		6 hours ago	
0297_2016-10-20_12.43.jpg		79 kB		6 hours ago	
0366_2016-10-22_09.03.jpg		77 kB		6 hours ago	
0375_2016-10-22_09.04.jpg		98 kB		6 hours ago	
0504_2016-10-25_17.24.jpg		55 kB		6 hours ago	
0506_2016-10-25_17.25.jpg		61 kB		6 hours ago	
0691_2016-10-30_10.14.jpg		76 kB		6 hours ago	
0734_2016-10-30_10.43.jpg		82 kB		6 hours ago	
0922_2016-11-02_10.24.jpg		152 kB		6 hours ago	
1169_2016-11-11_12.16.jpg		44 kB		6 hours ago	
1202_2016-11-11_13.25.jpg		37 kB		6 hours ago	
2008_09_01 05_28_56_DSC_6032.jpg		28 kB		6 hours ago	

Personal Photos - Personal - ownCloud

ownCloud

Enter search term

AE

Personal
Shares
Spaces
Deleted files

Personal > Personal Photos

+ New
Upload

Name	Shares	Size	Tags	Modified	Actions
0270_2016-10-20_11.42.jpg		44 kB		6 hours ago	
0272_2016-10-20_11.42.jpg		93 kB		6 hours ago	
0297_2016-10-20_12.43.jpg		79 kB		6 hours ago	
0366_2016-10-22_09.03.jpg		77 kB		6 hours ago	
0375_2016-10-22_09.04.jpg		98 kB		6 hours ago	
0504_2016-10-25_17.24.jpg		55 kB		6 hours ago	
0506_2016-10-25_17.25.jpg		61 kB		6 hours ago	
0691_2016-10-30_10.14.jpg		76 kB		6 hours ago	
0734_2016-10-30_10.43.jpg		82 kB		6 hours ago	
0922_2016-11-02_10.24.jpg		152 kB		6 hours ago	
1169_2016-11-11_12.16.jpg		44 kB		6 hours ago	
1202_2016-11-11_13.25.jpg		37 kB		6 hours ago	
2008_09_01 05_28_56_DSC_6032.jpg		28 kB		6 hours ago	

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ownCloud

Enter search term

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Personal

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Spaces

Deleted files

Personal > Personal Photos

+ New

Upload

Name	Shares	Size	Tags	Modified	Actions
0216_2016-10-19_17.38.jpg		78 kB		6 hours ago	
0249_2016-10-20_10.44.jpg		68 kB		6 hours ago	
0270_2016-10-20_11.42.jpg		44 kB		6 hours ago	
0272_2016-10-20_11.42.jpg		93 kB		6 hours ago	
0297_2016-10-20_12.43.jpg		79 kB		6 hours ago	
0366_2016-10-22_09.03.jpg		77 kB		6 hours ago	
0375_2016-10-22_09.04.jpg		98 kB		6 hours ago	
0504_2016-10-25_17.24.jpg		55 kB		6 hours ago	
0506_2016-10-25_17.25.jpg		61 kB		6 hours ago	
0691_2016-10-30_10.14.jpg		76 kB		6 hours ago	
0734_2016-10-30_10.43.jpg		82 kB		6 hours ago	

Personal Photos - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Personal Photos

+ New

Upload

0375_201... .jpg

0504_201... .jpg

0506_201... .jpg

0691_201... .jpg

0734_201... .jpg

0922_201... .jpg

1169_2016... .jpg

1202_201... .jpg

2008_09_... .jpg

2008_09_... .jpg

2008_09_... .jpg

2008_09_... .jpg

2008.09.1... .jpg

2013-05-... .jpg

2014-05-1... .jpg

ownCloud.com

Personal Photos - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Personal Photos

+ New

Upload

Sort by: A-Z

0070_201... .jpg

0100_201... .jpg

0216_2016....jpg

0249_201... .jpg

0504_201... .jpg

0506_201... .jpg

0691_201... .jpg

0734_201... .jpg

0922_201... .jpg

1169_2016... .jpg

1202_201... .jpg

2008_09_... .jpg

2008_09_... .jpg

2008_09_... .jpg

2008_09_... .jpg

Personal Photos - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Personal Photos

+ New

Upload

Sort by: A-Z

Show hidden files

Show file extensions

Items per page 100

Tile size

0070_2016-10-18_13.30.jpg

0100_2016-10-18_14.02.jpg

0216_2016-10-19_17.38.jpg

0249_2016-10-20_10.44.jpg

0504_2016-10-25_17.24.jpg

0506_2016-10-25_17.25.jpg

ownCloud.com

Personal Photos - Personal - ownCloud

ownCloud

Enter search term

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Personal

Shares

Spaces

Deleted files

Personal > Personal Photos

+ New

Upload

Sort by: A-Z

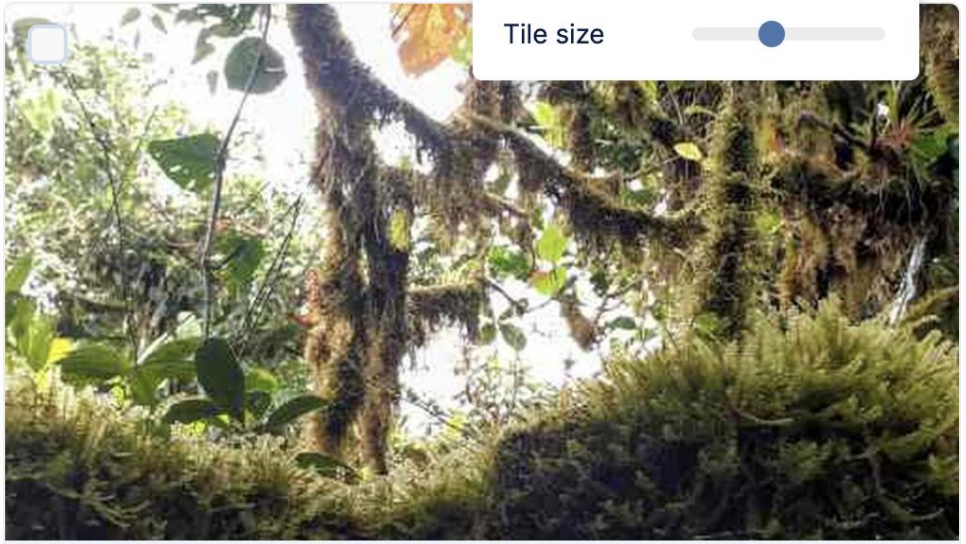
Show hidden files

Show file extensions

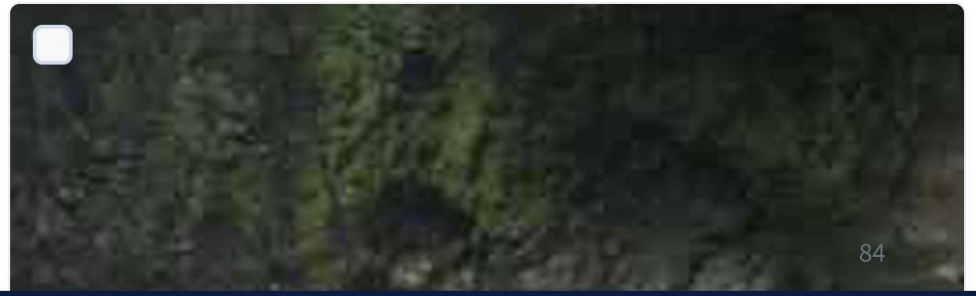
Items per page 100

Tile size

0070_2016-10-18_13.30.jpg



0100_2016-10-18_14.02.jpg



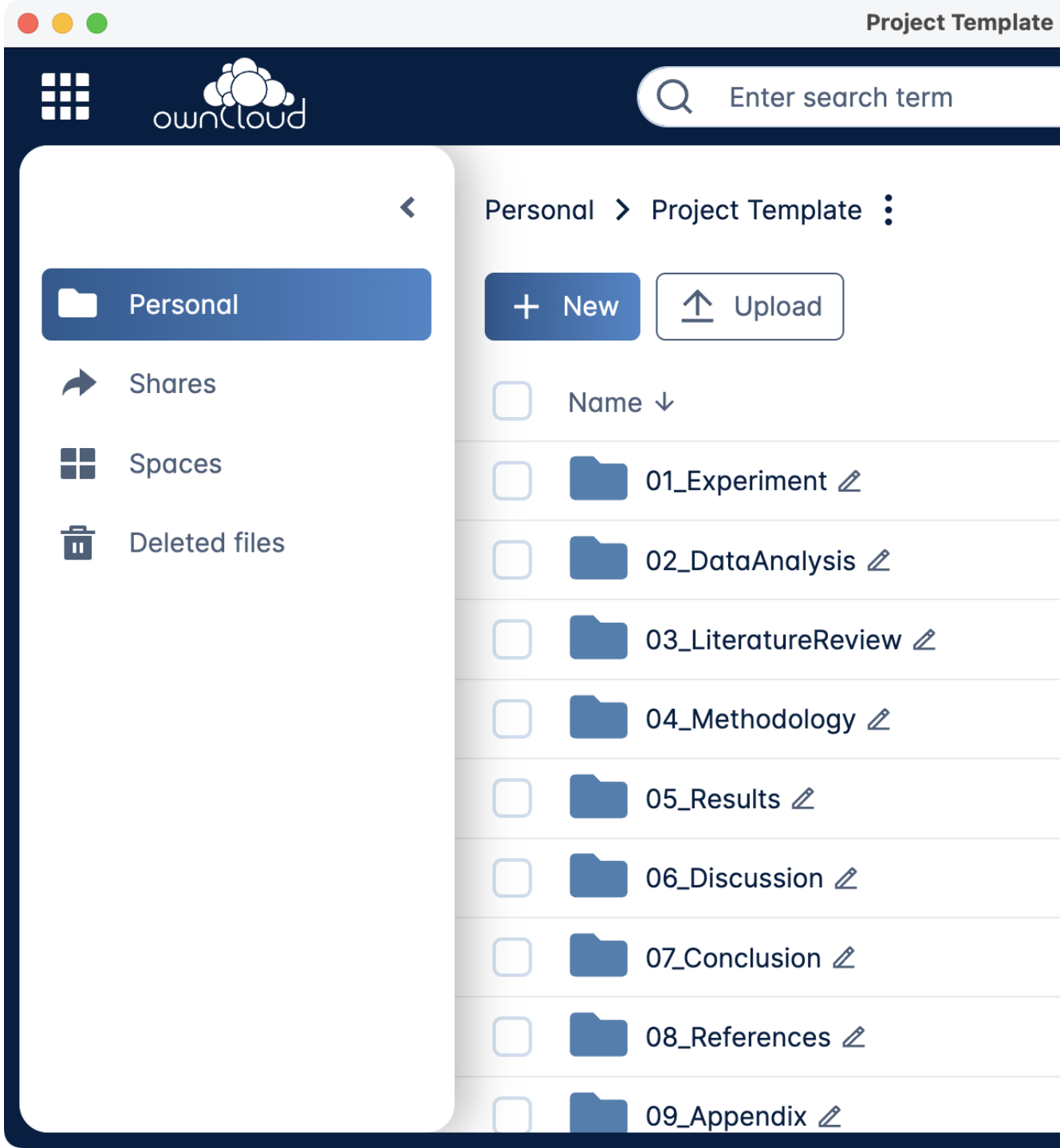
Space Templates

Bonus

Space Templates

Say bye bye to chaotic folder structures

and create unified folders in seconds!



Project Template - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Project Template

+ New

Upload

Name	Size	Modified	Actions
01_Experiment	6 kB	2 days ago	
02_DataAnalysis	0 B	2 days ago	
03_LiteratureReview	6 kB	2 days ago	
04_Methodology	6 kB	2 days ago	
05_Results	6 kB	2 days ago	
06_Discussion	0 B	2 days ago	
07_Conclusion	0 B	2 days ago	
08_References	0 B	2 days ago	
09_Appendix	0 B	2 days ago	

Project Template - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Project Template

+ New

Upload

Share

Copy link

Download

Delete

Cut ⌘ + X

Copy ⌘ + C

Rename

Create Space from selection

Add or edit tags

Details

Name	Size	Modified	Actions
01_Experiment	6 kB	2 days ago	
02_DataAnalysis	0 B	2 days ago	
03_LiteratureRevie	6 kB	2 days ago	
04_Methodology	6 kB	2 days ago	
05_Results	6 kB	2 days ago	
06_Discussion	0 B	2 days ago	
07_Conclusion	0 B	2 days ago	
08_References	0 B	2 days ago	
09_Appendix	0 B	2 days ago	

Project Template - Personal - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Personal > Project Template

New

Upload

Name	Size	Modified	Actions
	6 kB	2 days ago	
	0 B	2 days ago	
	6 kB	2 days ago	
	6 kB	2 days ago	
	6 kB	2 days ago	
06_Discussion	0 B	2 days ago	
07_Conclusion	0 B	2 days ago	
08_References	0 B	2 days ago	
09_Appendix	0 B	2 days ago	

Create Space from "Project Template"

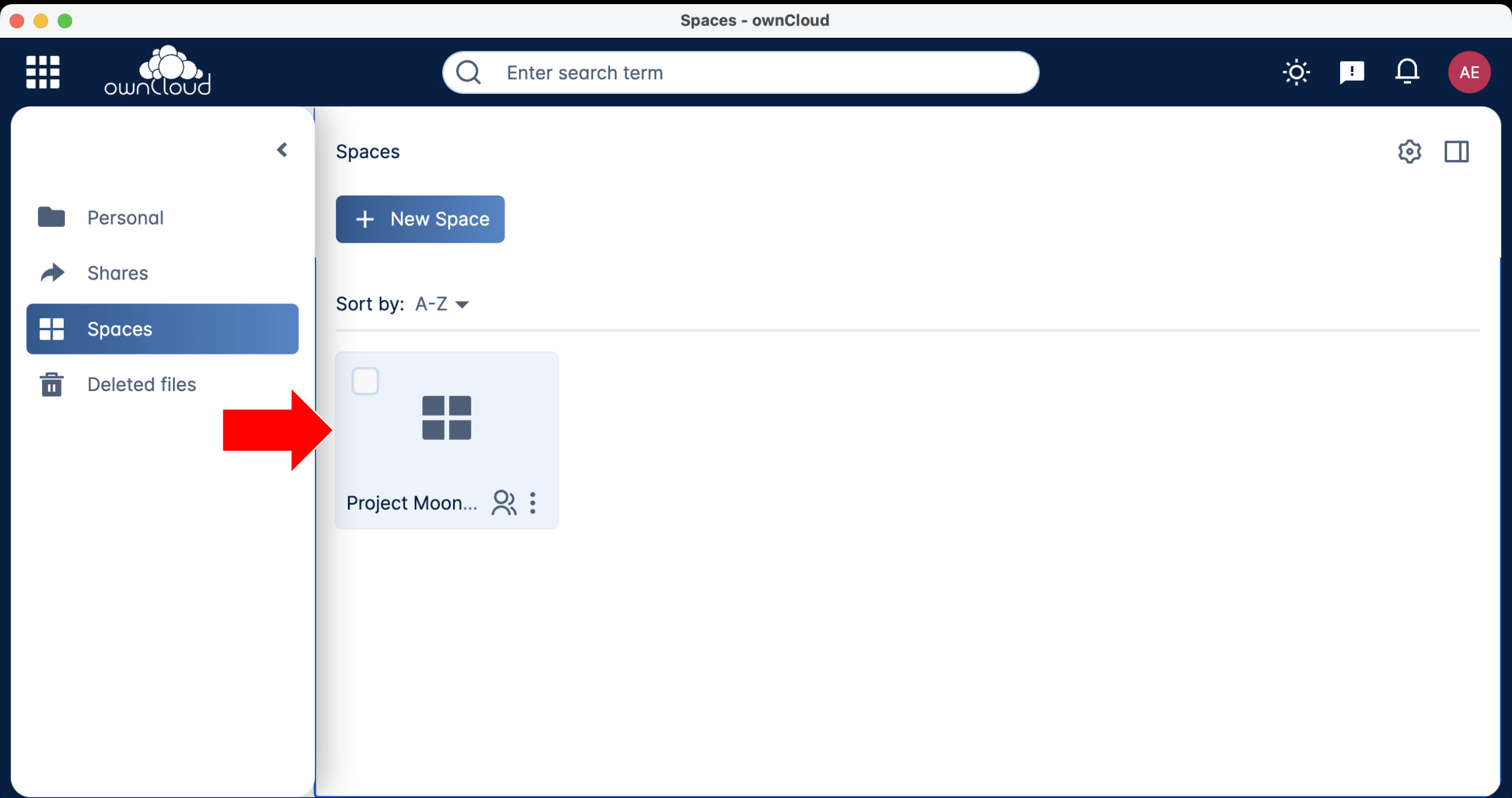
Create Space with the content of "Project Template".
The marked elements will be copied.

Space name

Project Moonshot

Cancel

Create


Spaces - ownCloud
ownCloud
Enter search term
AE
Personal
Shares
Spaces
Deleted files
Spaces
New Space
Sort by: A-Z
Project Moon...

Project Moonshot - ownCloud

ownCloud

Enter search term

AE

Personal

Shares

Spaces

Deleted files

Spaces > Project Moonshot

+ New

Upload

Project Moonshot

1 member

Here you can add a description for this Space.

Name ↓	Size	Modified	Actions
01_Experiment	6 kB	17 seconds ago	
02_DataAnalysis	0 B	17 seconds ago	
03_LiteratureReview	6 kB	17 seconds ago	
04_Methodology	6 kB	17 seconds ago	

Security and Compliance

for CISOs and Compliance Managers

Security and Compliance

Digital Sovereignty
Open and transparent

100% Control
Your data under your control

File Firewall
Block unwanted interactions

GDPR
Regulative Compliance

Spaces
Data owned by the organization, not individuals

Antivirus
Prevent malicious activities

Accessibility
Compliant with WCAG 2.1 AA / BITV 2.0

Non Discriminatory Language
Gender neutral & inclusive language

Audit Log
Keep track of all activities

Summary

Infinite Scale 3.0

- **Secure & Compliant**
- **Cloud Native**
- **Cost Effective**
- **User Friendly**

Thank you for your attention!

ownCloud

Splitbrain Problem

One can not live without the other

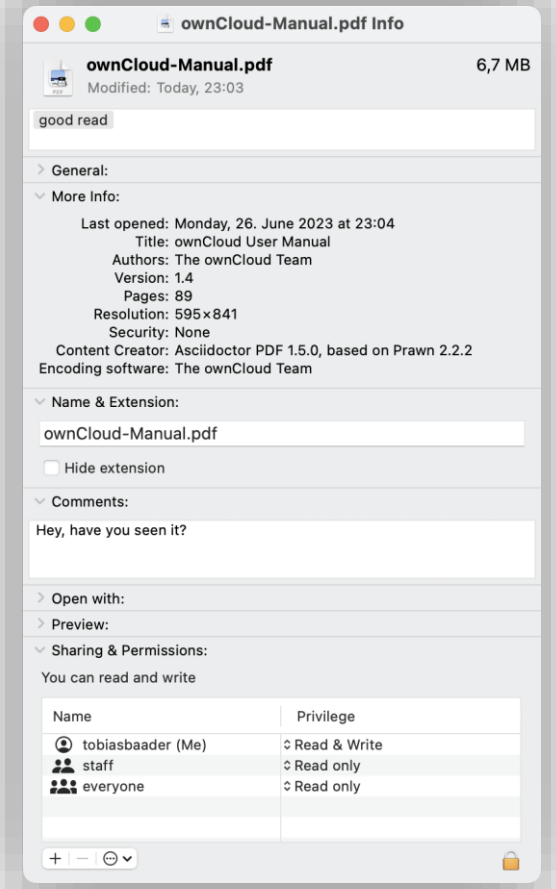
Splitbrain Problem

One can not live without the other

Database
(Metadata)

Storage
(file blob)

Splitbrain Problem



One can not live without the other

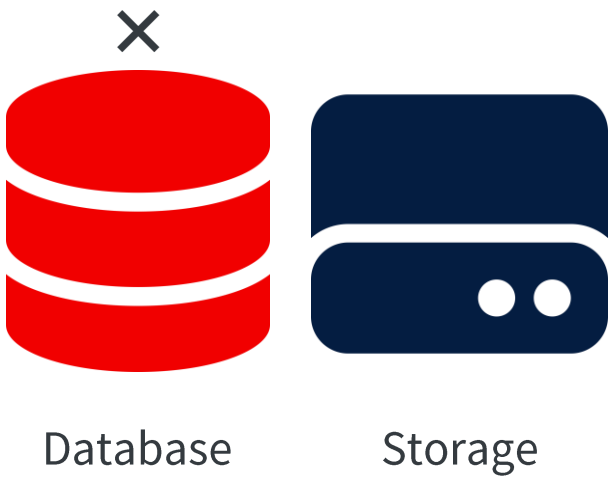
Database
(Metadata)

Storage
(file blob)

ownCloud-Manual.pdf

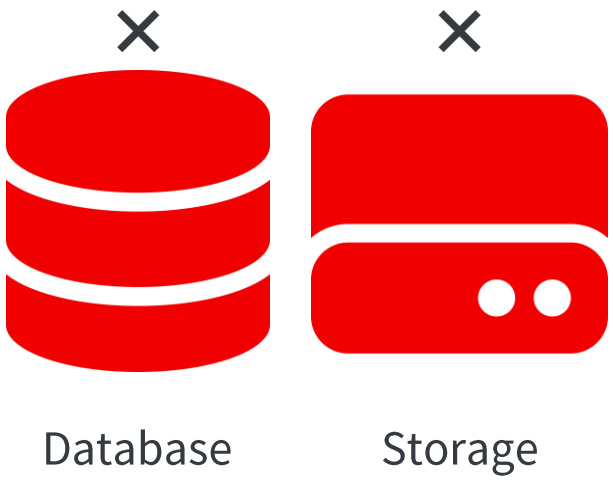
Splitbrain Problem

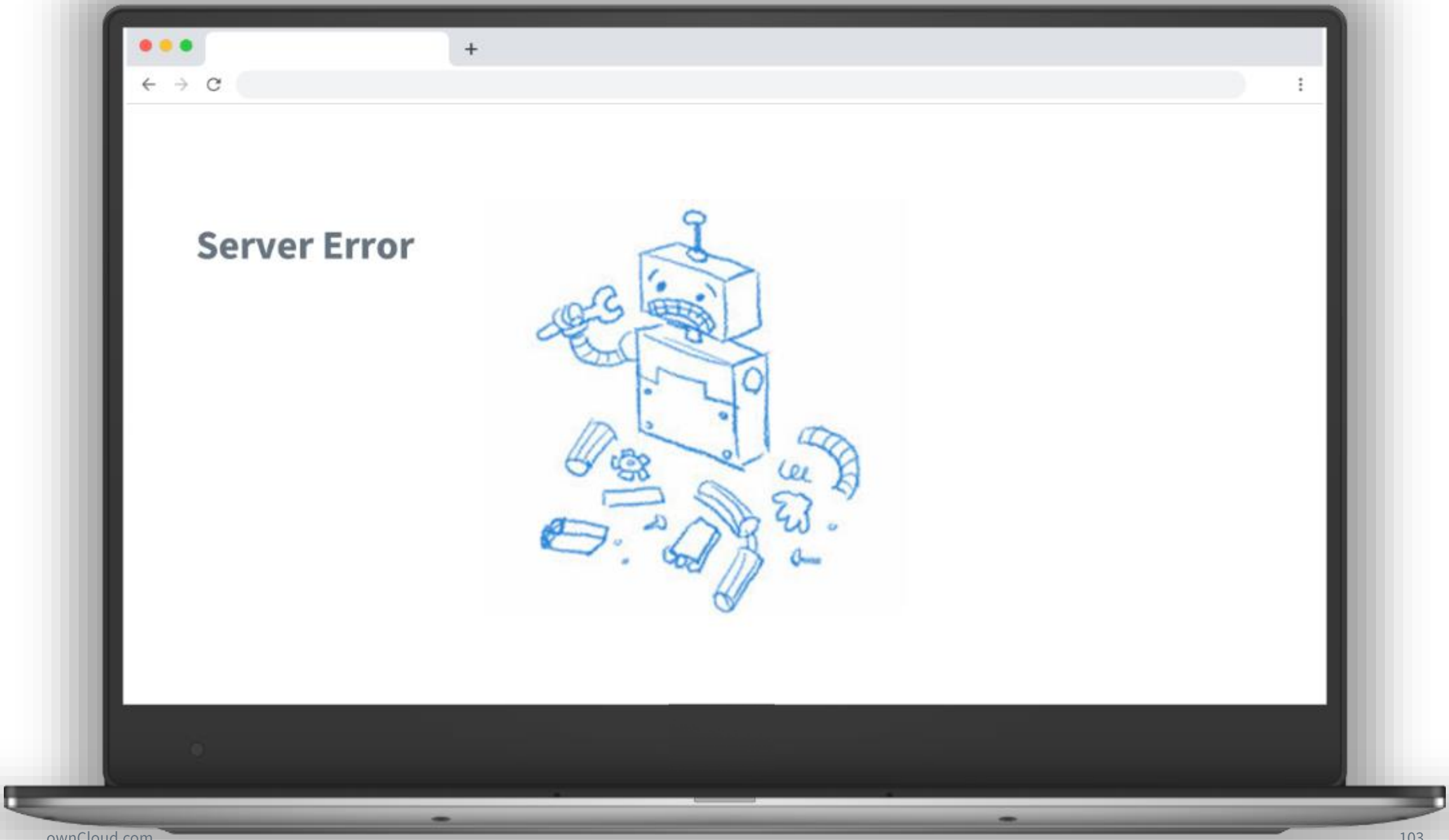
One can not live without the other



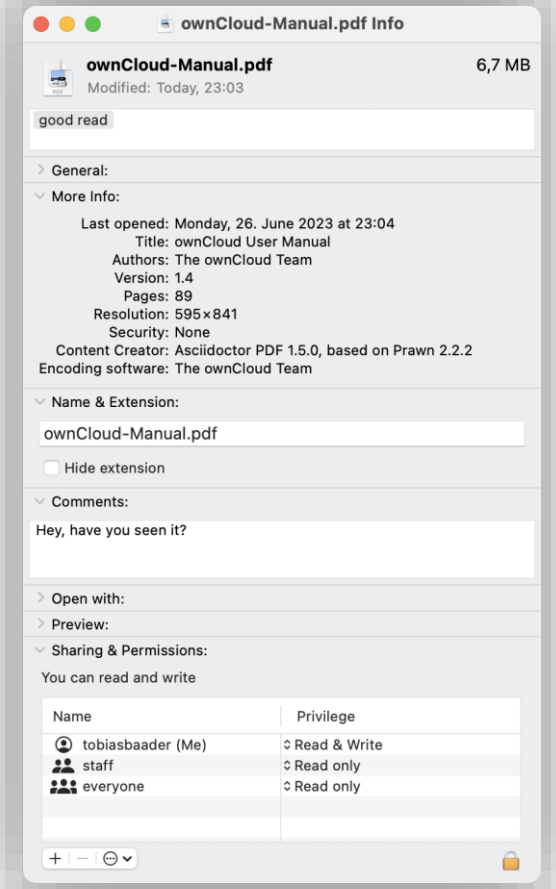
Splitbrain Problem

One can not live without the other




Server Error

Splitbrain Problem



One can not live without the other

Database
(Metadata)

Storage
(file blob)

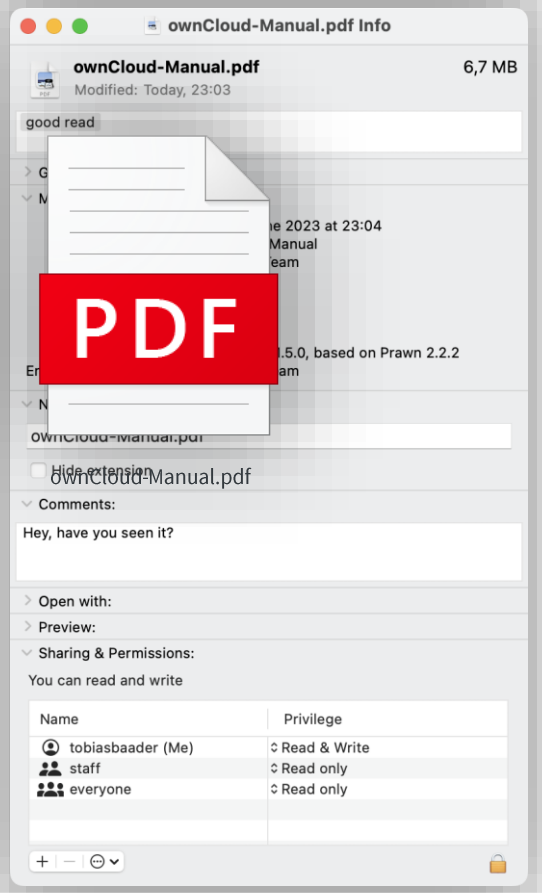
ownCloud-Manual.pdf

Splitbrain Problem

One can ~~not~~ live without the other

Database
(Metadata)

Storage
(file blob)



Splitbrain Problem

```
tobiasbaader@Tobiass-MacBook-Pro:~/myFolder                ⌥⌘1
➜  myFolder tree
.
├── ownCloud-Manual.mpk
└── ownCloud-Manual.pdf

1 directory, 2 files
➜  myFolder
```

Splitbrain

Filecache and storage diverge -> bigger storage, bigger filecache

Size of filecache is a problem; db is always hard to scale

Galera cluster, master slave setup, write in db needs locking.

FAQ drafts

1. What is an Enterprise File Sync and Share (EFSS) solution?

An Enterprise File Sync and Share (EFSS) solution is a software service that allows organizations to save, synchronize, and share files securely among employees, partners, and clients. This includes files such as documents, photos, videos, and more. The solution is often cloud-based but can also be on-premises and is designed to meet the requirements of businesses, specifically in terms of security and compliance.

2. How does EFSS improve collaboration in a team?

EFSS allows team members to share files and folders securely and in real-time, enhancing collaboration. Team members can access, edit, and update files simultaneously from anywhere, any device, improving productivity and speeding up project completion.

3. How secure is our data with an EFSS solution?

EFSS solutions are designed with enterprise-level security features including data encryption, multi-factor authentication, and audit trails. They also offer compliance with data privacy standards such as GDPR, HIPAA, etc. The level of security, however, can vary depending on the provider.

4. Can I access my files offline?