
sciebo – The Academic NRW Cloud Storage Service

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sciebo

- Sync and share service for universities and universities of applied sciences in North Rhine Westphalia
- sciebo is the brand name, short for “science box”
- Up to 500,000 users in NRW (if all 30 universities and applied universities participate)
- Organized as a consortium of all participants with the University of Münster as the head
Scenario and Software

- Started in February 2015 with 12 institutions; 26 at the moment
- 30 GB/user with the possibility for the employees to increase the quota up to 500 GB
- Project boxes for groups (30 GB - 2 TB)
- Guest accounts
- ownCloud 9.0.4 Enterprise
- RedHat 6/7
- Galera cluster with MariaDB
- Snapshots of Spectrum Scale enabled for disaster recovery
Three Sites

- One ownCloud installation per institution
- (At the moment) No replication of user data between the sites
- Sharing between institutions via the server to server sharing or federated cloud sharing

Reasons for multiple sites:
- Lower room requirements per computing center
- More aggregated network bandwidth
- Servers are closer to users
- Scaling the service becomes easier
> Hardware

- Storage: 5 PB at three sites (3 PB in Muenster, 1 PB in Essen and 1 PB in Bonn)
- Sizing of server hardware bases on POC of IBM and ownCloud
- File system: IBM Spectrum Scale with declustered RAID and triple parity
- Application servers: 16 IBM servers (16 cores, 128 GB RAM) for ownCloud per site
- Database: 4 IBM servers (20 cores, 256 GB RAM, 6 800 GB SSD [RAID 10]) per site
- Load balancers: 2 Linux machines per site (LVS with keepalive)
- Management: 1 server per site
Security of Data

- (Usually) local copy of data via ownCloud desktop client
- ownCloud versioning and trashbin
- Spectrum Scale snapshots
- Data copied to other site via rsync every night
- (Planned) Backup of data of employees of RWTH Aachen in their TSM

⇒ There are plenty of copies of your data :)
Recent Changes

- Most instances upgraded to version 9.0.4 New features: comments, trust relationship
- Desktop client: Sharing, Announcements, correct handling of word-file locking: https://dragotin.wordpress.com/2016/06/24/owncloud-client-2-2-x/
- Operating system upgrades
> Registered users

The graph shows the growth in the number of registered users over time, with a steady increase from 01.01 to 01.11.
Registered users
Actual users

The diagram shows the total daily unique users, Muenster, Duisburg-Essen, and Bonn over a period of days. The y-axis represents the number of users, while the x-axis represents the days from 01.01 to 01.11.
> Amount of data
Amount of data II

The diagram shows the amount of data stored over time for different institutions.

- hs-niederrhein
- HS Ruhr West
- RFH Koeln
- TH Koeln
- Westfälische Hochschule

The x-axis represents time (from 01.11 to 01.10), and the y-axis represents GB (gigabytes). The data trends are indicated by different colors for each institution.
> Amount of data III

![Graph showing the amount of data over time for different institutions.](image_url)
> Number of Shares I
Number of Shares II
Number of Shares III
> Usage vs Time
> Outlook

- Server: Virtualization of more components
- Backup of data of employees from Aachen in their TSM
- ownCloud roadmap: Improved login mechanism (2 factor, list of devices used), new chunking algorithm, bundling
- Mobile client: Activity, Notifications, Interactive Design
- Integration in other tools: Implementation of OAuth by students in project seminar to use sciebo as Moodle backend
Thank you for your attention!
Distribution of Services

- Internet
  - keepalived
  - LVS
  - balancer01-02
    - 10 GBit
      - Apache
      - ownCloud
      - MaxScale
      - LDAP
      - owncloud01-16
      - owncloud17-23

- Spectrum Scale
  - Infiniband
    - 10 GBit
      - MariaDB
      - Galera
      - dbserver1
      - dbserver2
      - dbserver3
      - dbserver4
      - Galera-Replication

- www.sciebo.de
  - LDAP-Master
  - Registration
  - Nagios
  - Piwfc
  - OTRS
  - Staging
> User Management

- Users register at www.sciebo.de via DFN-AAI for the service
- An account is created in a central LDAP server
- A separate password is set
- The LDAP is replicated to every ownCloud application server
- After six months, the user will be asked to re-register
- After 12 months, the account will be locked
- After 15 months, the account will be deleted

⇒ A user is able to access the service at least six months after leaving university.
Capabilities:

- Show information about account
- Increase quota for employees
- Delete account
- Request project box and guest accounts
Support concept

- First level support by each institution
- Second level support by sciebo team
- Third level support by ownCloud/IBM
- Documentation at www.sciebo.de

Did you register for sciebo at www.sciebo.de?
For instructions on how to register, please click here.

Yes.

No.

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