

# The cloud storage service bwSync&Share at KIT

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STEINBUCH CENTRE FOR COMPUTING - SCC

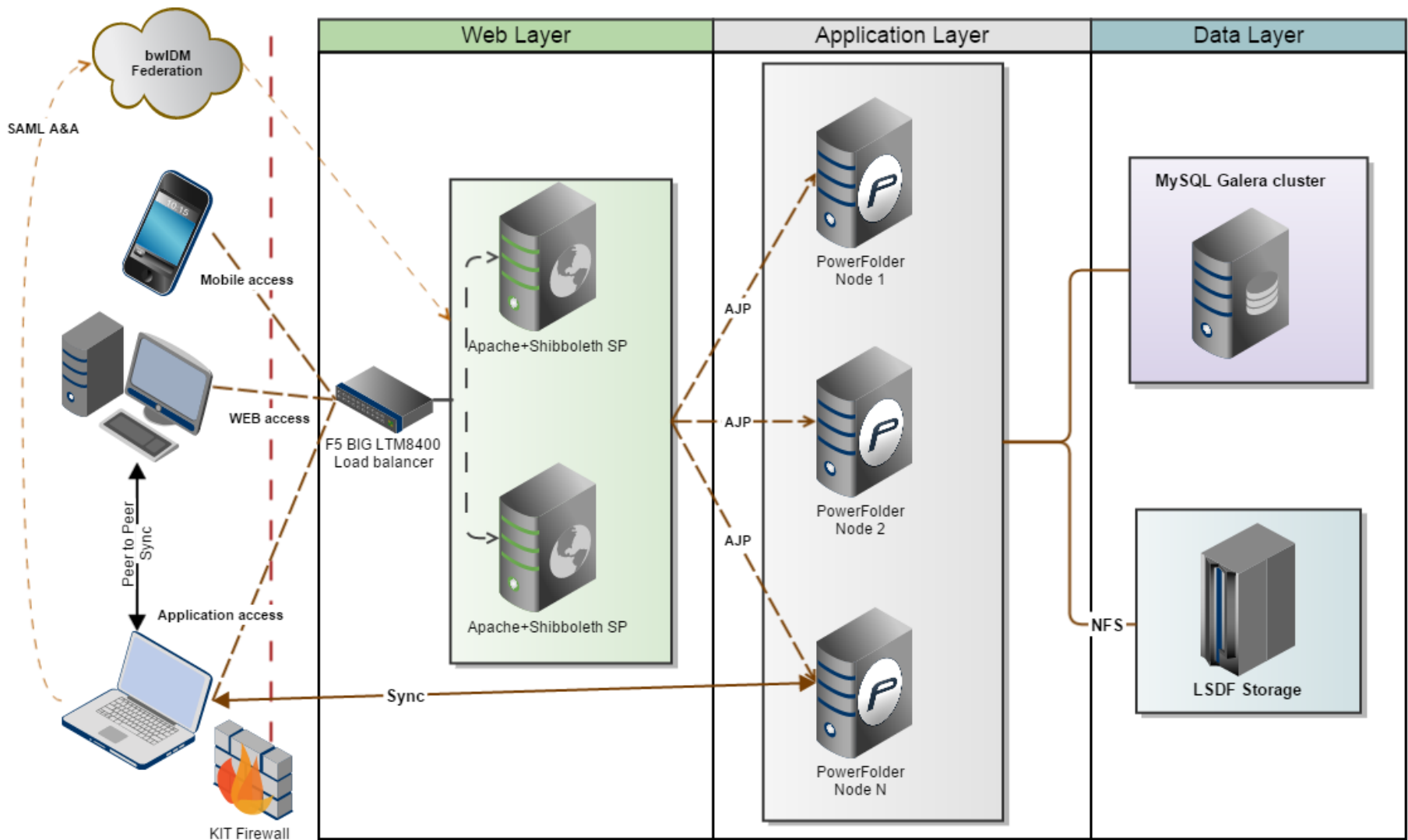


- The bwSync&Share is a sync and share solution installed and operated at KIT
- It is a on-premiss alternative to existing public cloud services
- Available for students and scientist in the state of Baden-Württemberg, Germany
- Authentication and authorization of users is based on SAML 2
- The service is running on PowerFolder software
  - Windows, Linux, MacOS, Android, iOS, WEB versions are available

# What we have done

- Evaluation of available software solutions (2012-2013)
  - Running multiple test installations to get user feedback and operations experience
  - Candidates: Druva InSync, Grau Data, OwnCloud, PowerFolder, TeamDrive
  
- Decision criteria:
  - Software functions (shibboleth...)
  - Operation factors (scalability, sustainability, support)
  - User feedback
  - Experience from the test installation
  - Operation, license, support costs
  
- Start as official service at 01.01.2014 using PowerFolder 9

# Service architecture



# Service architecture

- Web layer:
  - 1 failover/load balancer F5 BIG LTM8400
  - 2x online, 1x standby
    - VM: 4GB RAM, 4 cores Xeon CPU X5650@2.67GHz
    - OS:Debian, SW: Apache(proxy balancer,ajp), Shibboleth SP
- Application layer:
  - 3x online
    - VM: 24GB RAM, 4 cores Xeon CPU X5650@2.67GHz
    - OS:Debian, SW: PowerFolder server v. 9
- Data layer
  - MySQL Galera cluster
    - 3x online
  - LSDF Storage
    - IBM SONAS

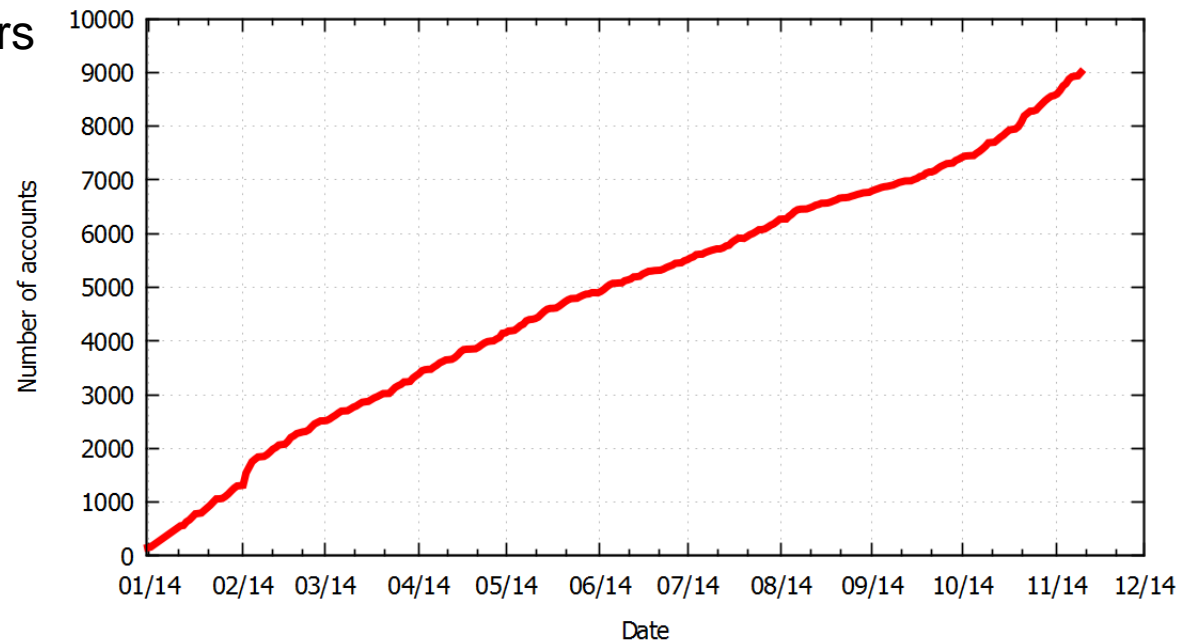
# Authentication & Authorization

- Defined two kinds of accounts:
  - Members of universities/colleges (shibboleth)
  - Invited external people (external)
- Ways to create an account:
  - Invitation to a folder by an existing user (shibboleth, external)
  - Self registration (only shibboleth)
- Authentication & Authorization via Shibboleth (DFN-AAI)
  - Initial registration always via Web registration of bwIDM
  - AA by WebSSO in Web-interface
  - AA by ECP profile in desktop/mobile application
- Authentication & Authorization via Database
  - Initial registration always via Web registration of bwIDM
  - AA by local email/password

# Service usage (Accounts)

- 9123 accounts (12.11.14)
  
- Potential:
  - 450 000 eligible users
    - 9 universities
    - >50 colleges
  - 55 000 expected users

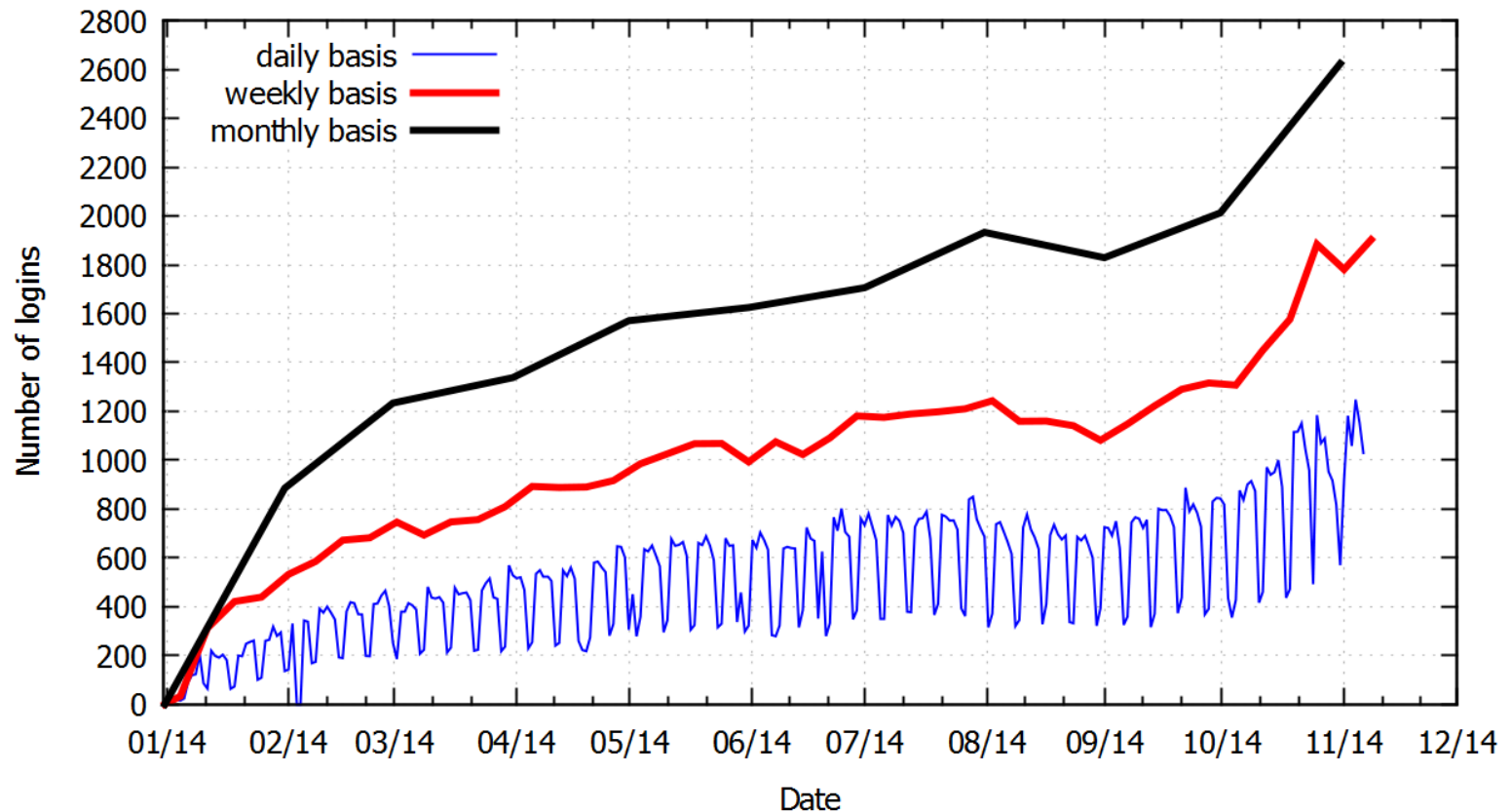
bwSync&Share. Number of accounts over the year 2014.



# Service usage (Logins)

- 1153 unique logins per day (6.11.14)
- 2624 unique logins in October

bwSync&Share. Unique logins.

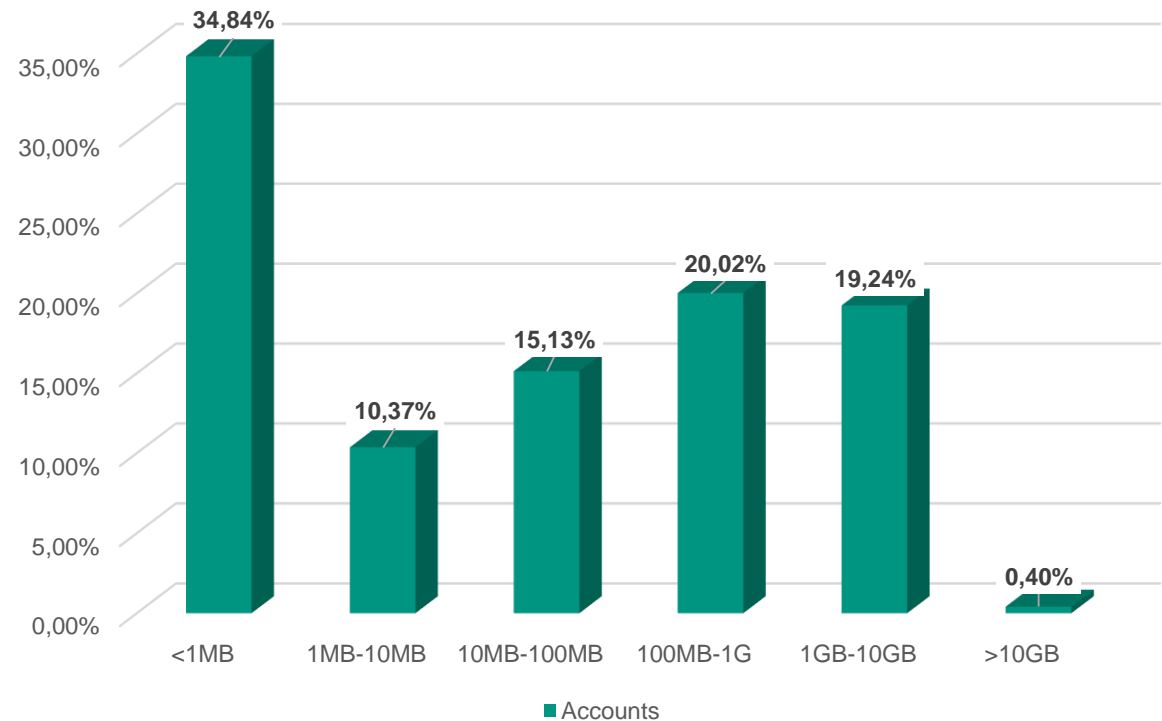




# Service usage (Quotas)

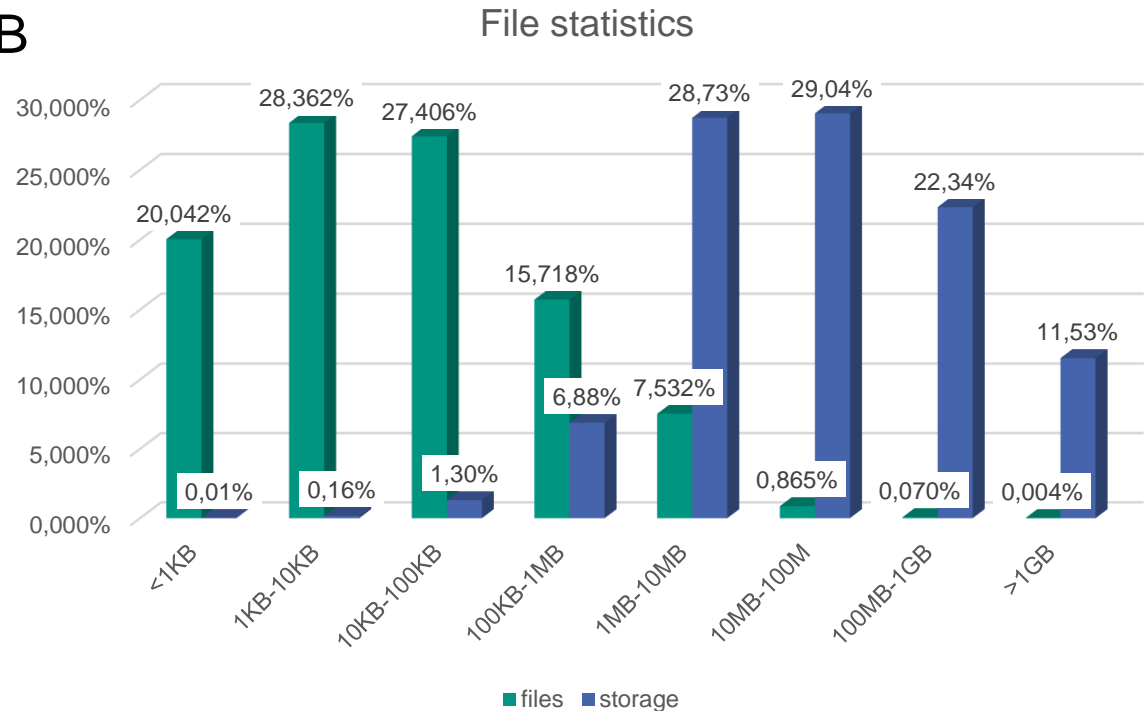
- Default shibboleth user quota: 10 GB
  - Can be extended by user request
- Default external user quota: 0 GB

Quota usage statistics



# Service usage (Files)

- ~4.8 TB total data (snapshots, metadata, archive)
- ~2.7 TB of users' data
- ~3.7 M of users' files
  
- 99.86% files < 58.75MB



# Outlook

- Feature integration
  - Account merging
  - Online editing
  - Download center improvements by adding Linux client repository
  
- Enlargement of the service usage
  - Service advertising
  - Integration of remaining colleges in BW
  - Integration of new educational institutions through the new DFN Cloud initiative across Germany
  
- Thinking about
  - End-to-End user data encryption

# Service summary

Status:	Prod
Number of users (current, target):	9123, 55 000
Default and Maximum quota:	Default:10GB, Maximum: 100GB
Linux/Mac/Win user ratio:	Unknown
Desktop clients/Mobile Clients/Web access ratio:	Unknown
Technology:	PowerFolder, Galera DB, F5 solution, SAML
Target communities:	Baden-Württemberg students and scientists
Integration in your current environment (examples):	LSDF storage, bwIDM, DFN-AAI Federation, VMWare ESX, MySQL Cluster
Risk factors:	No single point of failure
Most important functionality:	Syncing, sharing
Missing functionality (if any):	online editing (coming soon)

# User feedback

- What additional functionality would you like to see?
  - “...Sharing not only for users in the state, but also beyond, ie by entering any email address...”
  - “...Lock files during editing for other users...”
  - “Viewing Excel and Word in the browser”
  - “Anonymous links publishing and sharing folders”
  - “Full text search”
  - “Encryption“

Thanks for attention!  
Questions?

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