

Access: bwUniCluster, bwForClusters, ForHLR

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Outline

- Introduction
- Registration Processes
 - bwUniCluster
 - bwForCluster
 - ForHLR I & II
- Login Steps
 - How to login on different clusters
- File Transfer & File storage
- Questions

1. Introduction

Introduction

■ bwUniCluster

- At tier (level) 3, Baden-Württemberg (BW) cluster for general purposes
- Simple registration process

■ bwForCluster (JUSTUS, MLS&WISO, NEMO, BinAC)

- Also at tier 3, BW research clusters
- Architecture optimized for certain scientific communities
- Access process ensures using the suitable cluster and enhances user support

■ ForHLR I & II

- At tier 2, national research cluster
- Access process ensures that applications fulfill requirements of parallelization

2. Registration

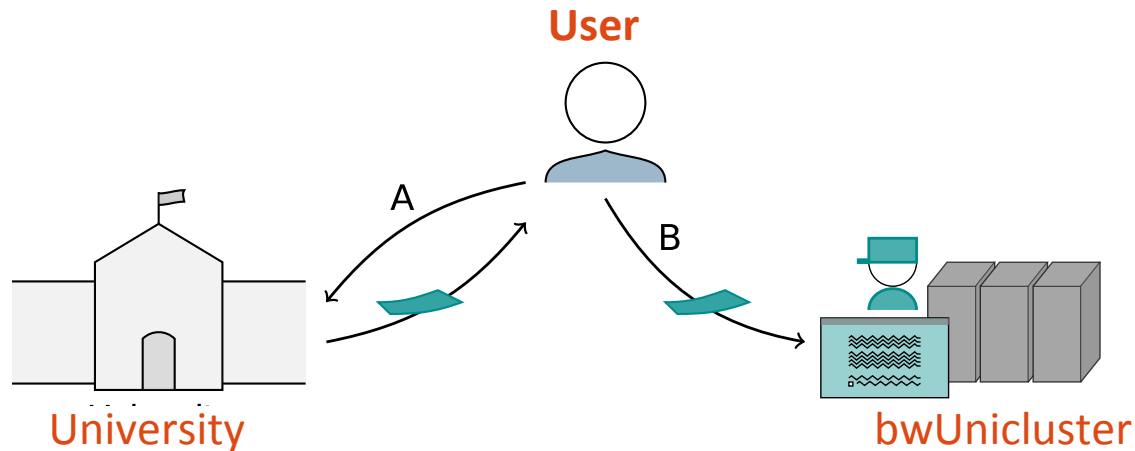
Registration

Different clusters → different registration processes

- bwUniCluster
- bwForCluster
- ForHLR Phase I & II

Registration Process – bwUniCluster & extension

- Access only for members of shareholder universities.
- More Details: http://www.bwhpc-c5.de/wiki/index.php/BwUniCluster_User_Access



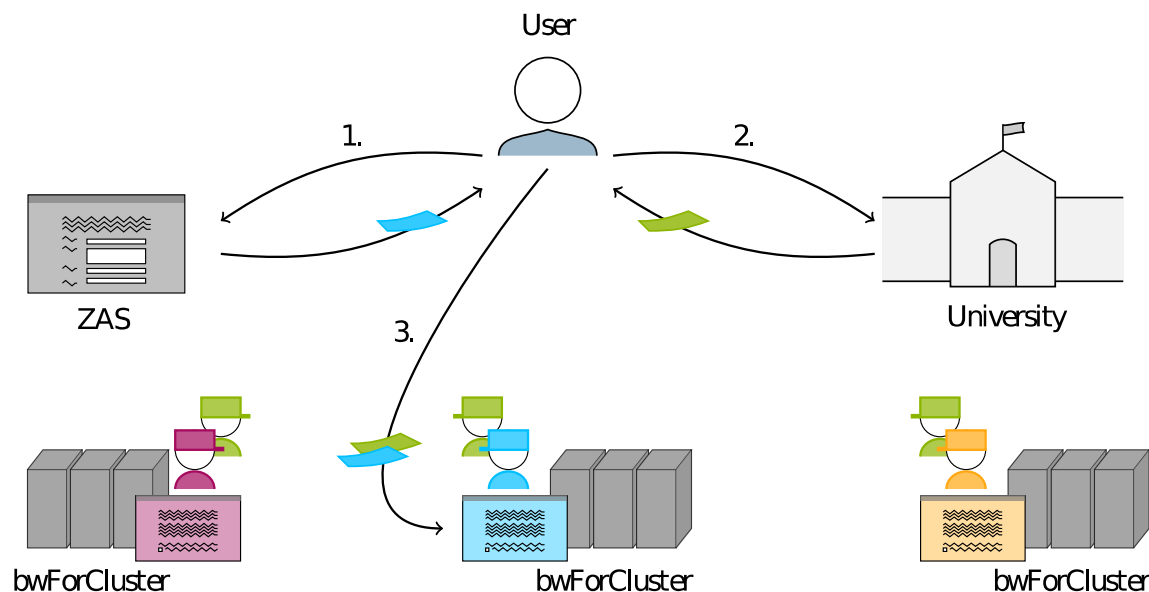
Step A: Obtainment of **bwUniCluster** entitlement

- Each university has its own entitlement granting policies!

Step B: Web registration at <https://bwidm.scc.kit.edu/> + questionnaire (https://www.bwhpc-c5.de/en/ZAS/bwunicluster_survey.php)

- Login via bwIDM with your university account

Registration Process - bwForClusters



Step 1: Registration at „Central Application Site (ZAS)“

■ Approval  of Cluster Assignment Team (CAT)

Step 2: Get bwForCluster entitlement  by own university

Step 3: Web registration at designated bwForCluster site

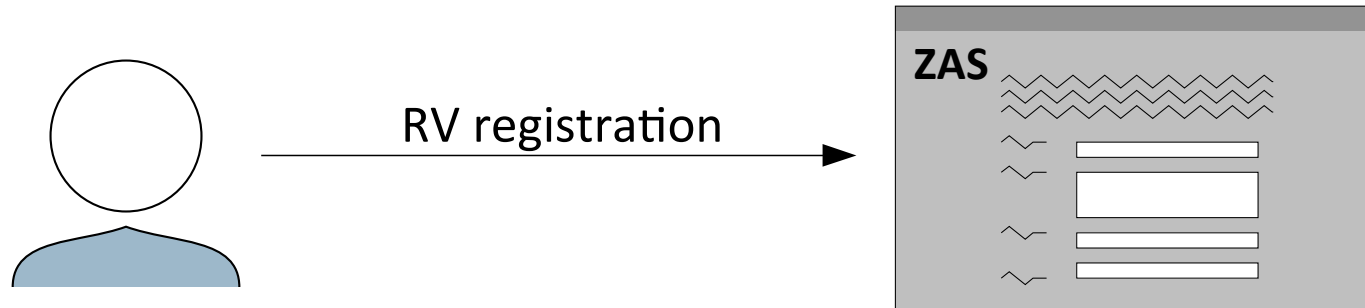
■ e.g. <http://bwidm.rz.uni-ulm.de/>, bwForCluster JUSTUS (Computational Chemistry)

What is ZAS

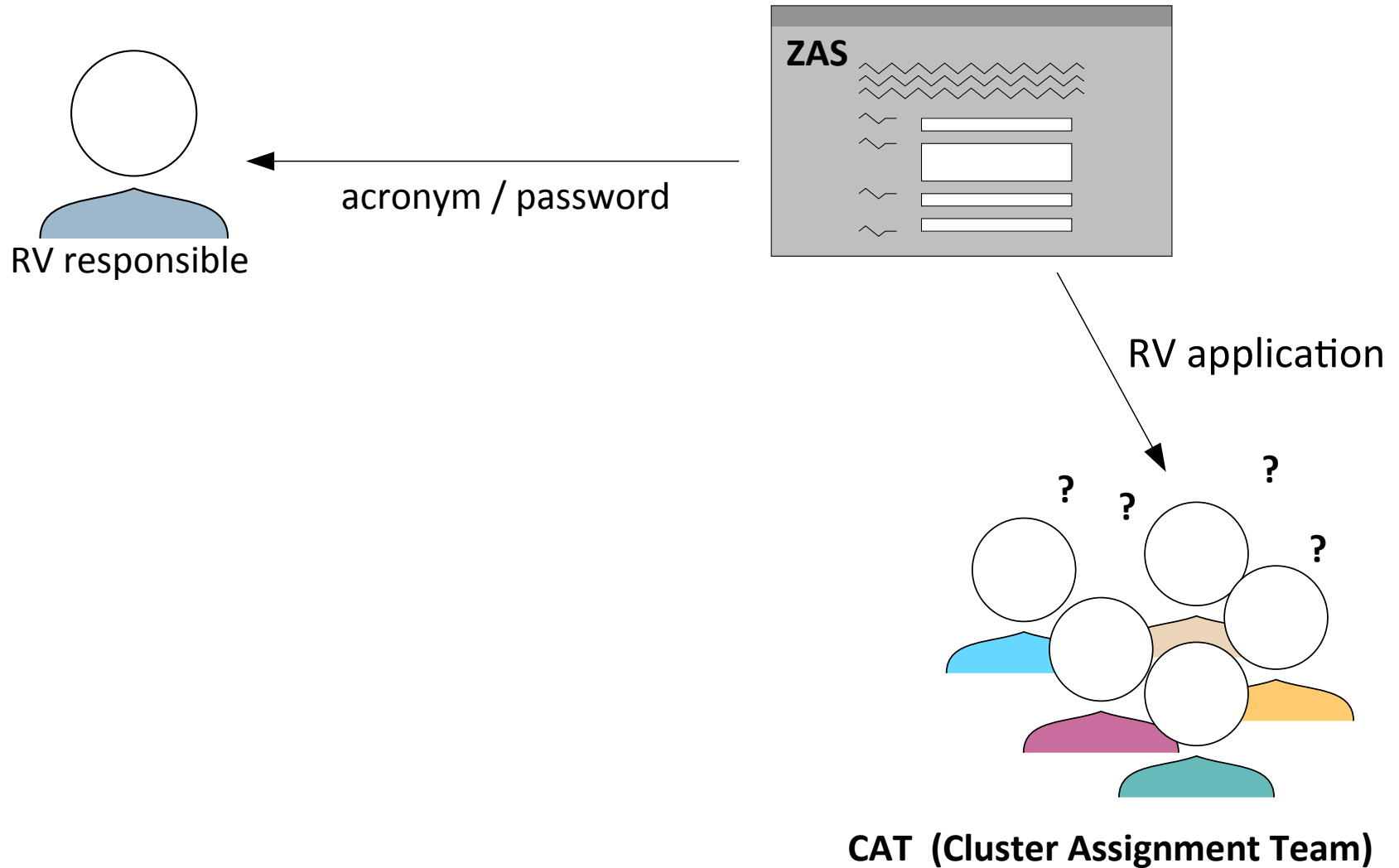


- Web interface of HPC clusters (in the state BW) to handle the user compute activities.
- Nomenclature:
 - RV = Planned compute activities (Rechenvorhaben).
 - RV Responsible: The person who does the registration of of the RV (applicant)
 - Cluster Assignment Team: aka CAT; assigns the exact cluster according to the RV requirement.
 - RV collaboration = The team (managers and coworkers)
- An RV approval is valid
 - Only on one bwForcluster for a period of one year after the approval
 - For all team members

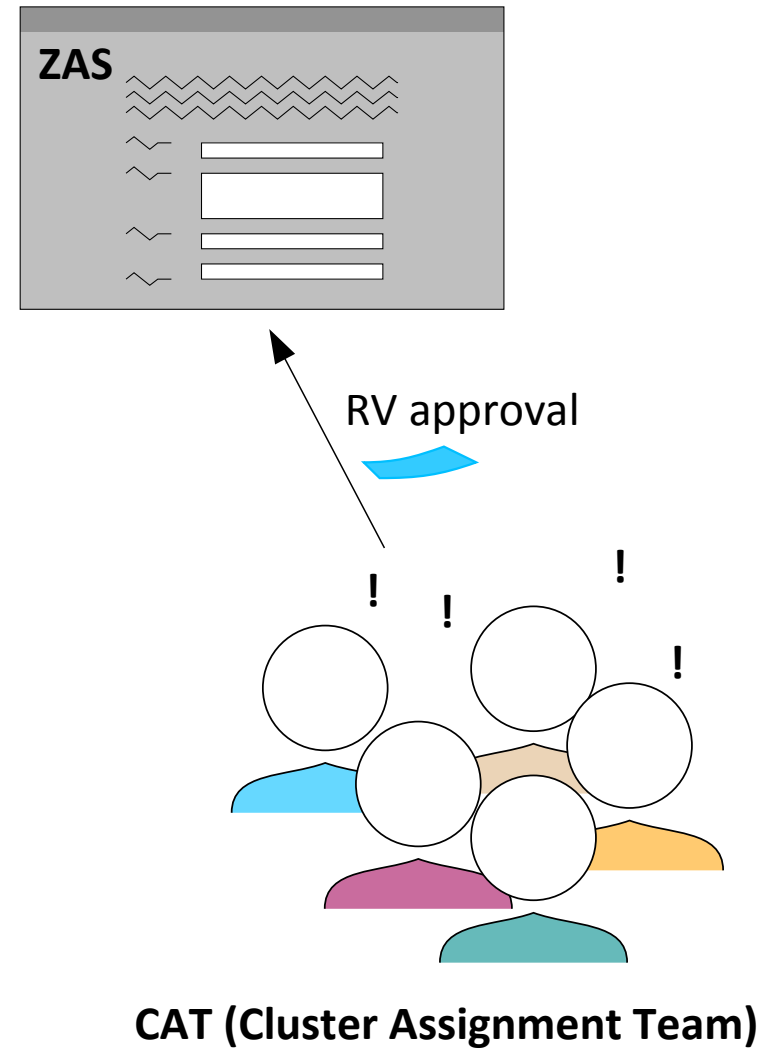
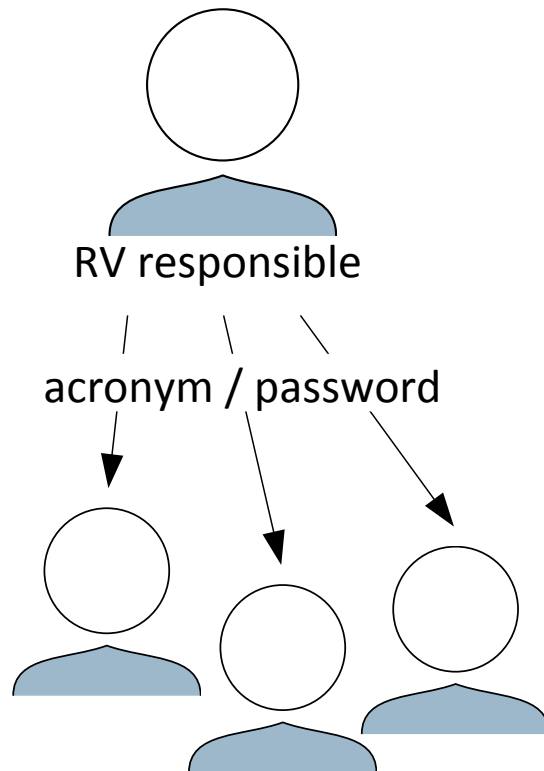
Registration Process: bwForCluster – Step 1a



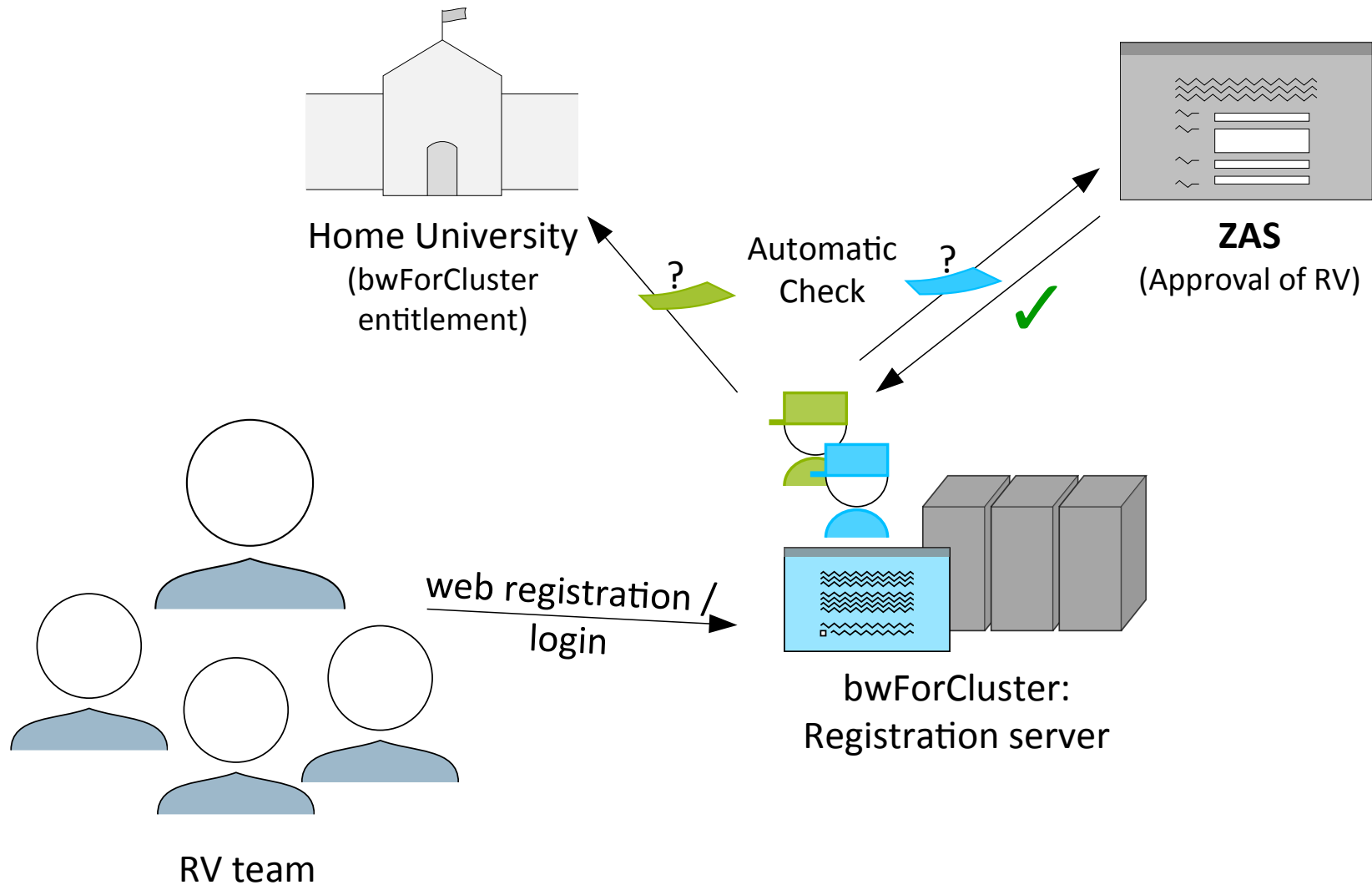
Registration Process: bwForClusters – Step 1b



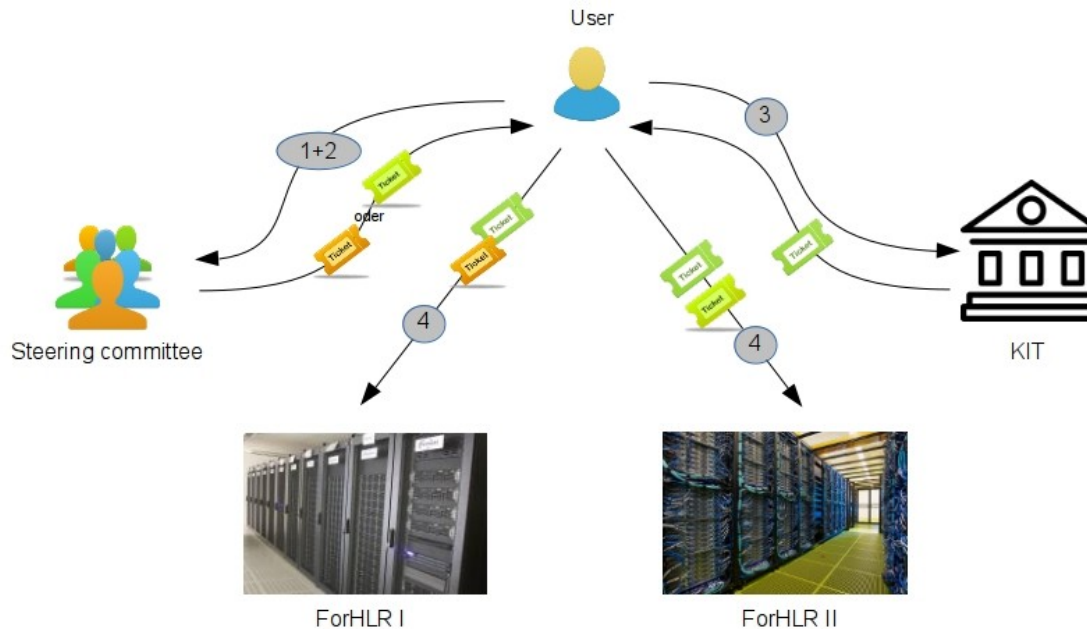
Registration Process: bwForClusters Step 1c



Registration Process: bwForClusters – Step 3



Registration Process – ForHLR I & II



Step 1: „Online Proposal Form“. (<http://www.scc.kit.edu/forschung/4971.php>)
(granting preliminary access)

Step 2: Peer-reviewed extended project description (3-5 pages).
PDF-file must be send to forhlr-projects@lists.kit.edu

Step 3: Fill out of the **ForHLR access form** for each project collaborator.
Form must be send to SCC-Service desk or scanned to haefner@kit.edu

Step 4: Personal registration for ForHLR I & II on website <https://bwidm.scc.kit.edu>

3. First Steps - Login

Login

MS Windows

■ **GUI:** MobaXterm, PuTTY

■ Connection via **ssh**

UserID: [**<prefix>_**]**<username>**

Host, e.g. bwUniCluster:

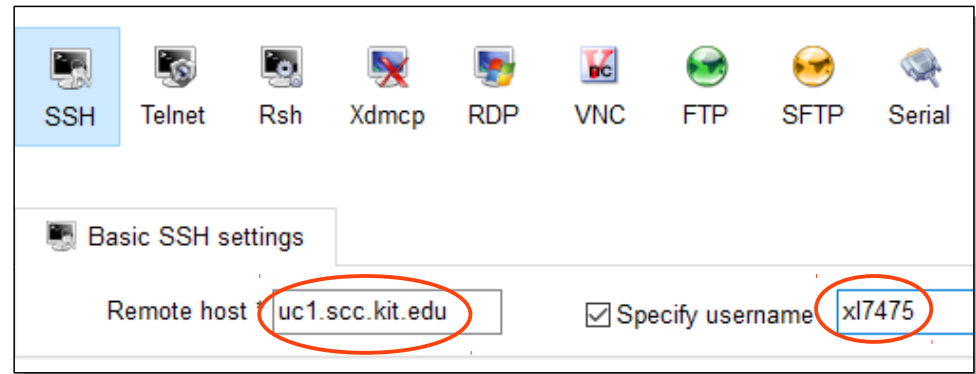
bwunicluster.scc.kit.edu

or

uc1.scc.kit.edu

or

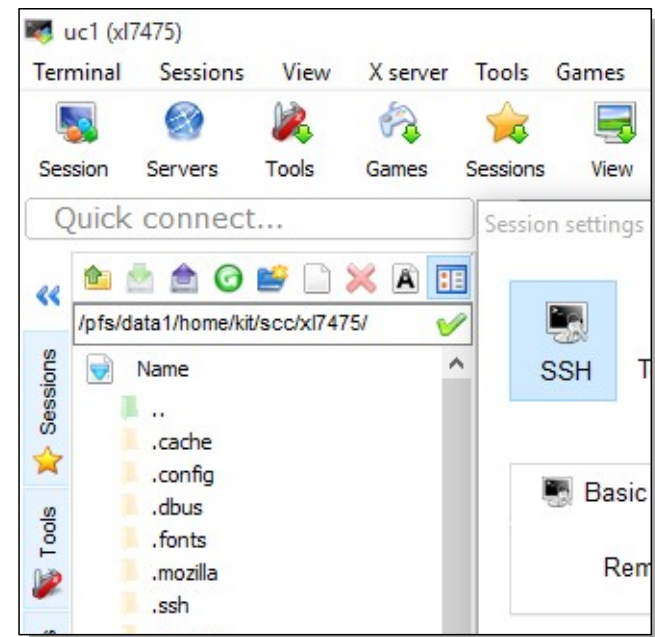
uc1e.scc.kit.edu



Linux / macOS

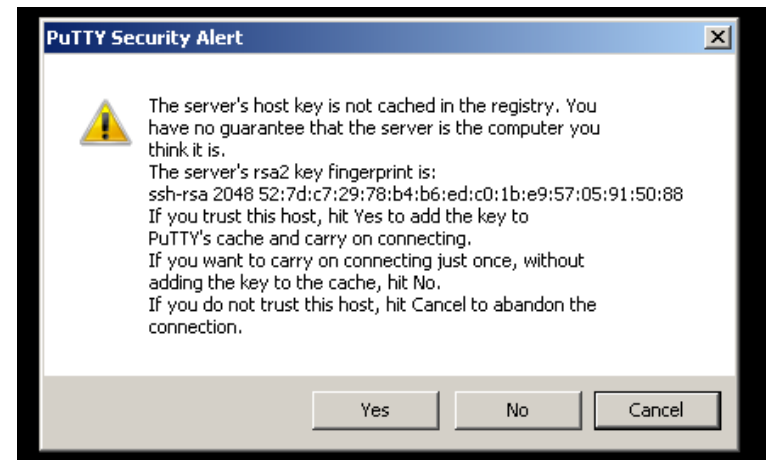
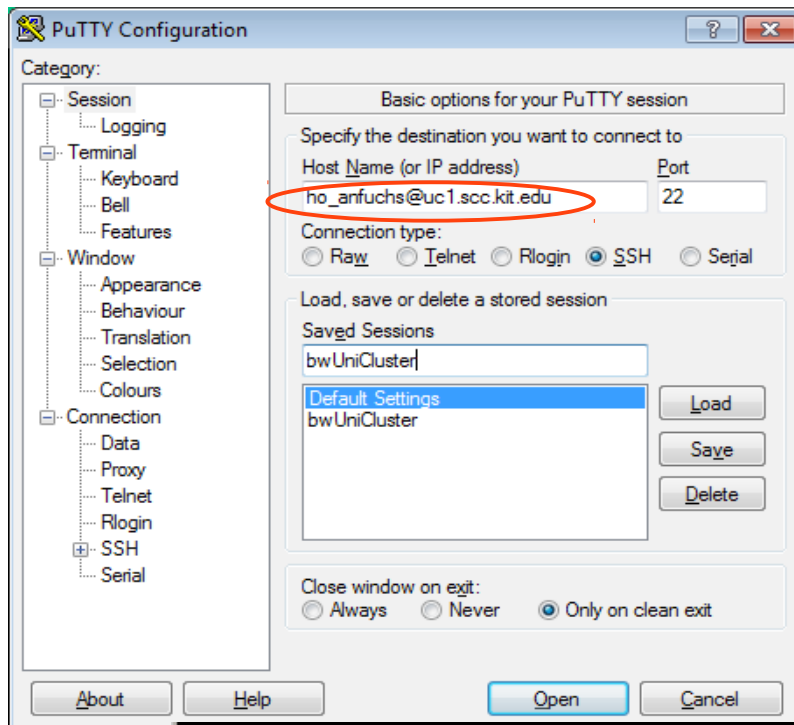
■ Command line interface (CLI)

```
$ ssh -X xy_ab1234@uc1.scc.kit.edu
```



Login via PuTTY: depreciated

- Because: does NOT provide means to display natively GUI, use MobaXterm instead



```
*****
*
* KIT News:
* 2014-02-06:
* - seminar about bwHPC/bwUniCluster (+ hands-on) on February 19th 2014
*   http://indico.scc.kit.edu/indico/event/Info-Veranst_2014-02_bwUniCluster
*
*****
[Feb-16 10:12] yc8563@uc1n996:~$
```

X11 Tunneling

- Run programs at the cluster, display the GUI at home.
- Linux / macOS

```
$ ssh -X xy_ab1234@uc1.scc.kit.edu
```

enables X11 forwarding

```
$ ssh -Y xy_ab1234@uc1.scc.kit.edu
```

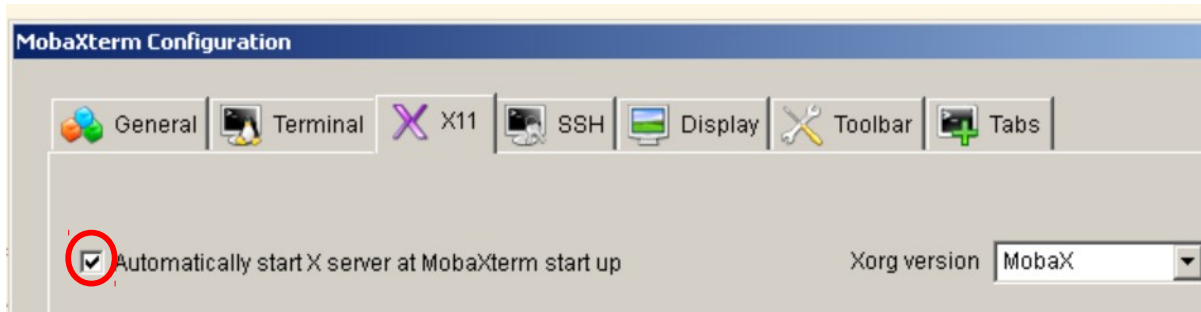
enables trusted X11 forwarding

```
$ ssh -X -C xy_ab1234@uc1.scc.kit.edu
```

adds compression to improve slow connections

■ MS Windows

- MobaXterm automatically starts X server



- PuTTY needs Xming (commercial)
- Other alternative: Cygwin/X

File transfer

File transfer - Linux

<code>\$ scp <sourcefile> <targetfile></code>	secure copy (remote file copy program)
<code>\$ scp -r <sourcedir> <targetdir></code>	recursively copy entire directories
<code>\$ sftp <targetdir></code> <code>\$ put get <sourcefile></code>	secure file transfer program upload/download file

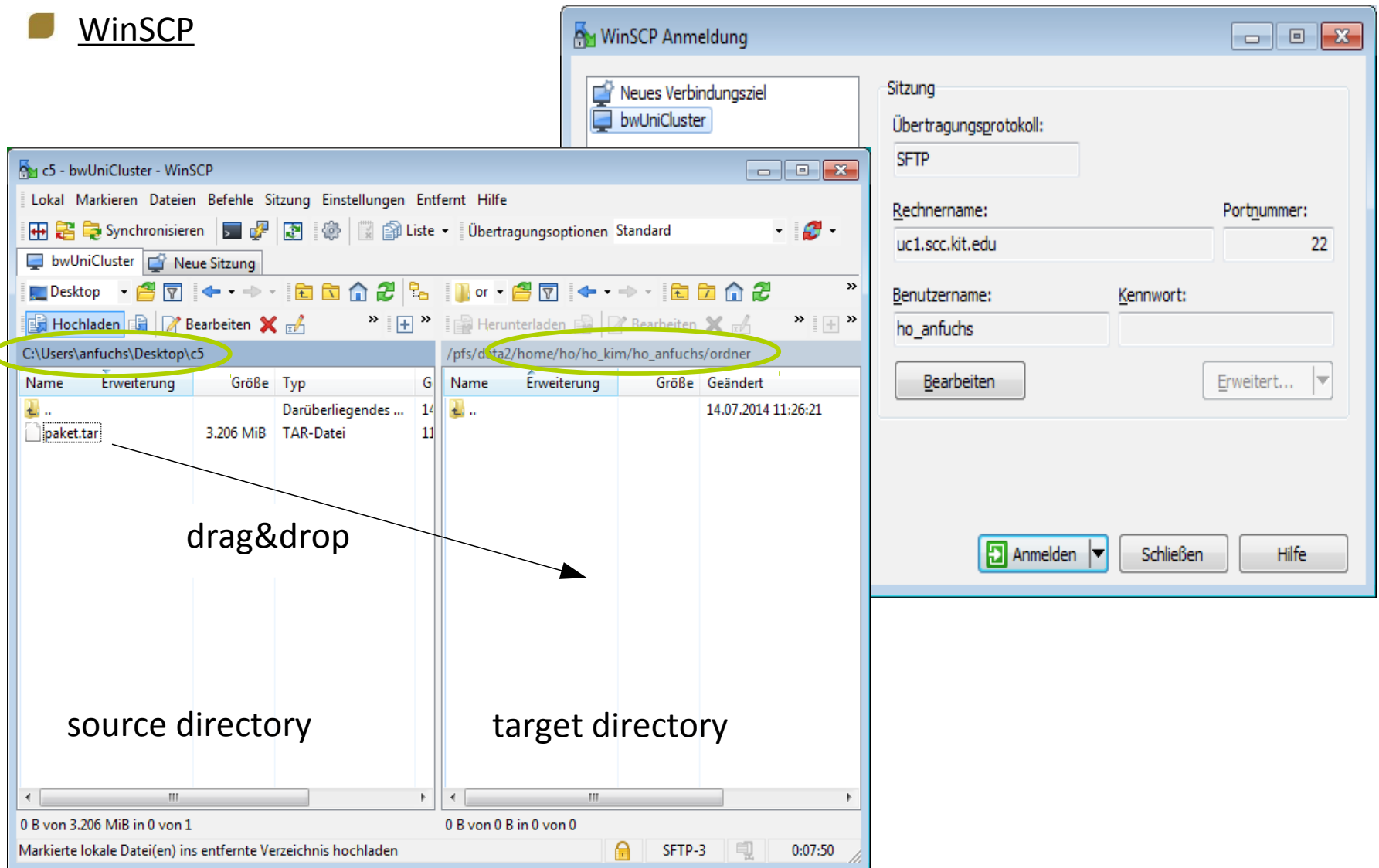
■ Example: Transfer `paket.tar` from local to bwUniCluster

■ **scp:** `$ scp paket.tar xy_ab1234@uc1.scc.kit.edu:dir/`
`xy_ab1234@uc1.scc.kit.edu's password:`

■ **sftp:** `$ sftp: xy_ab1234@uc1.scc.kit.edu:dir`
`xy_ab1234@uc1.scc.kit.edu's password:`
`Connected to uc1.scc.kit.edu.`
`Changing to: ${HOME}/dir`
`sftp> put paket.tar`

File transfer – MS Windows (1)

 WinSCP



The image shows the WinSCP application window with two panes. The left pane, labeled 'source directory', shows the local path 'C:\Users\anfuchs\Desktop\c5'. The right pane, labeled 'target directory', shows the remote path '/pfs/data2/home/ho/ho_kim/ho_anfuchs/ordner'. A file named 'paket.tar' is being dragged from the source directory to the target directory. The status bar at the bottom indicates '0 B von 3.206 MiB in 0 von 1' and 'Markierte lokale Datei(en) ins entfernte Verzeichnis hochladen'.

WinSCP Anmeldung

Neues Verbindungsziel
bwUniCluster

Sitzung

Übertragungsprotokoll:
SFTP

Rechnername: uc1.scc.kit.edu Portnummer: 22

Benutzername: ho_anfuchs Kennwort:

Bearbeiten Erweitert...

Anmelden Schließen Hilfe

drag&drop

source directory

target directory

Name	Erweiterung	Größe	Typ	G
..			Darüberliegendes ...	14
paket.tar		3.206 MiB	TAR-Datei	11

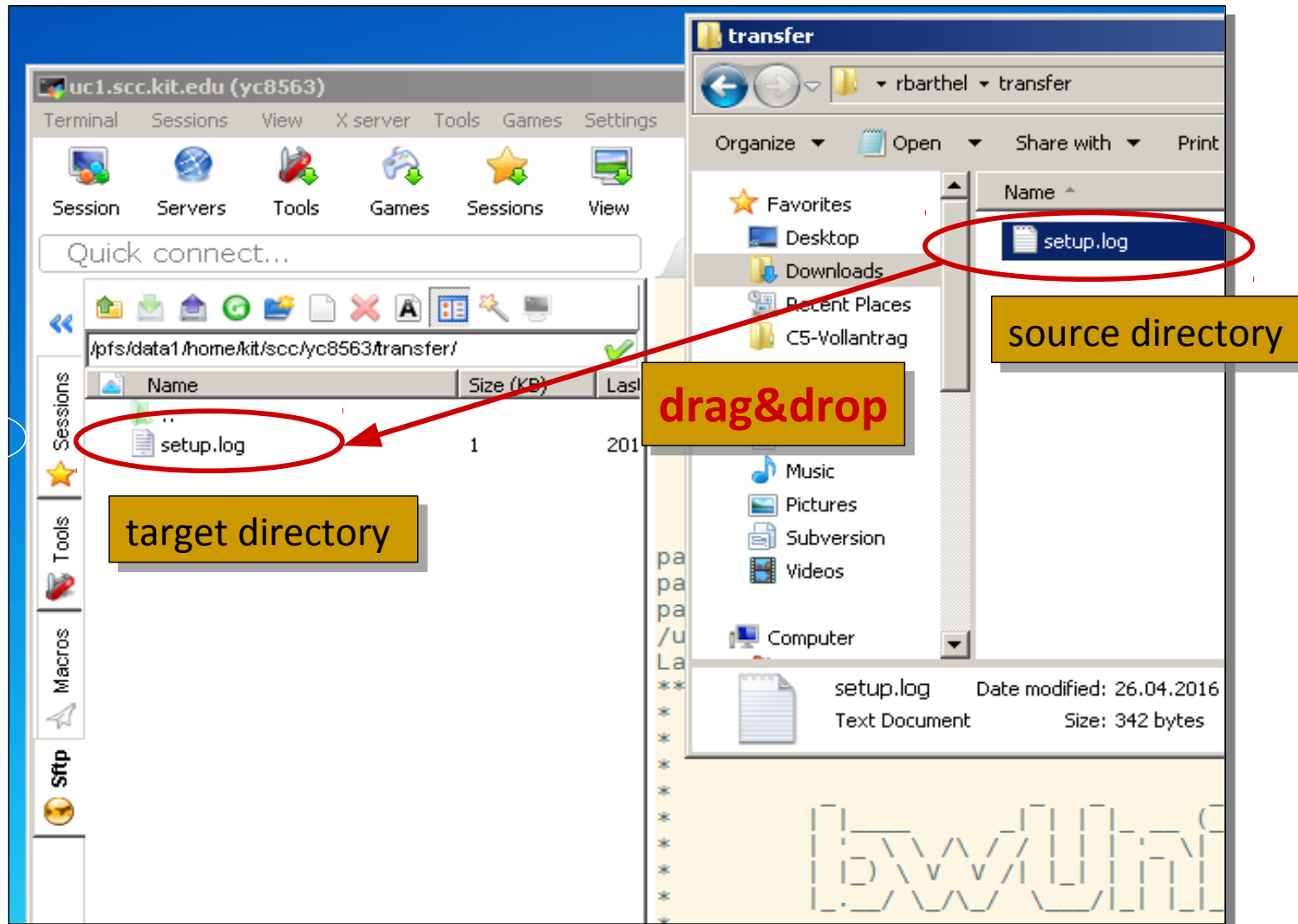
Name	Erweiterung	Größe	Geändert
..			14.07.2014 11:26:21

0 B von 3.206 MiB in 0 von 1
Markierte lokale Datei(en) ins entfernte Verzeichnis hochladen

0 B von 0 B in 0 von 0
SFTP-3 0:07:50

File transfer – MS Windows (2)

■ MobaXterm + MS Windows Explorer

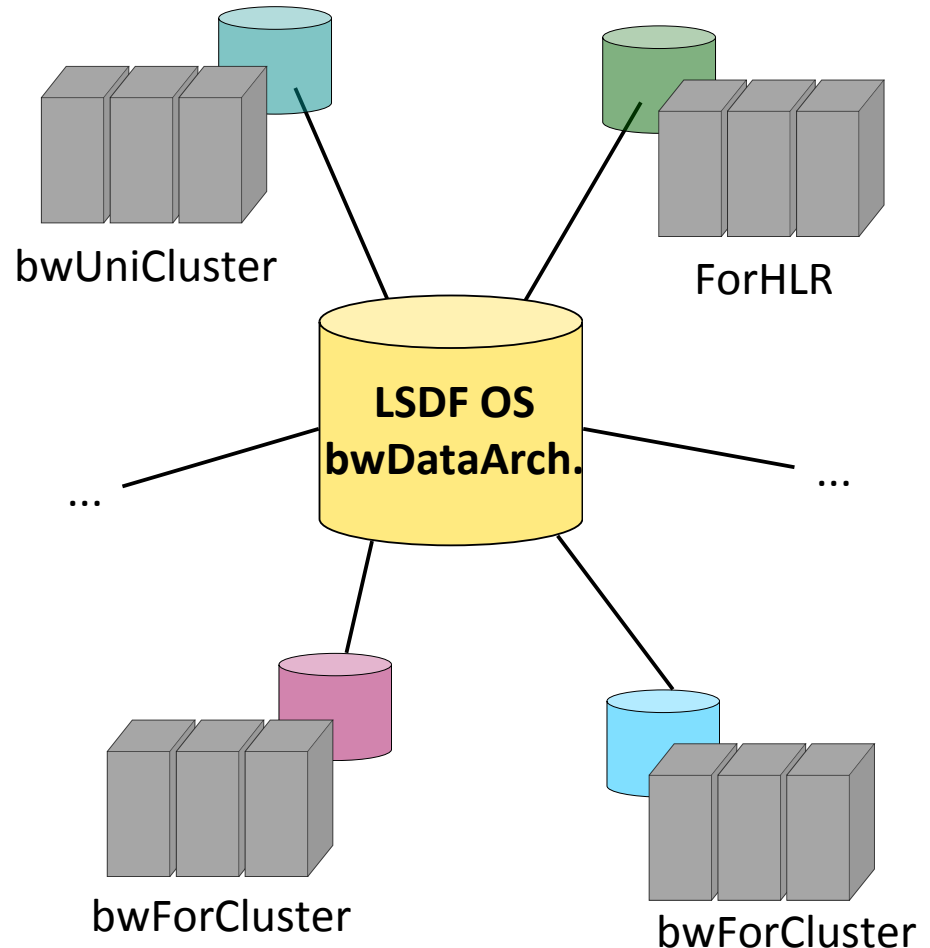


LSDF Online Storage (KIT) bwDataArchive

LSDF Online Storage/bwDataArchive/SDS@hd

LSDF

- Central storage located at KIT
- 100GB Soft Limit/400 GB Hard Limit disk space per user
- Requirements
 - LSDF OS entitlement
 - web registration at <https://bwidm.scc.kit.edu>
- Hosts
 - Via NFS/CIFS:
os.lsd.f.kit.edu
 - Via SSH/SCP/STFP:
os-login.lsd.f.kit.edu
- Transfer tools
 - scp, sftp, rsync, https,
 - rdata @ bwUnicluster, ForHLR



LSDF: rdata

- File system operations on „data mover“ nodes
- Supported commands:
`cp, rm, ls, rsync, mv, mkdir, ...`
- Environment variables:
 - `$LSDF=/lsdf ; $LSDFHOME=/lsdf/kit/<institute>/<userid>`
`$LSDFPROJECTS=/lsdf/kit/<institute>/<project>`
- Example:
`$ scp file ab1234@os-login.lsdf.kit.edu:`
`$ rdata cp file $LSDFHOME`
 - Performance with a file size of 20000 MB:
 - `scp` : 2min 24s (139 MB/s)
 - `rdata cp` : 1min 5s (308 MB/s)

FAQ

■ “I cannot login”, why?

■ Login at registration server of your cluster

- Within e.g. bwUniCluster box → <https://bwidm.scc.kit.edu>

📄 Service description

> Register

■ If you are already registered:

bwUniCluster
Der am Steinbuch Centre for Computing (SCC) des Karlsruher Institut für Technologie (KIT) betriebene bwUniCluster ist eines von mehreren zentralen Systemen für eine flächendeckende Grundversorgung der baden-württembergischen Universitäten und Hochschulen mit Hochleistungsrechnerkapazität.
📄 Servicedescription
🔑 Registry Info
🔒 Set Password

User
🏠 Index
★ User Properties

Check info given at: Registry Info, Index, User Properties

- @ bwUniCluster: Check if you’ve done the questionnaire within 14 days after the registration.

4. Questions