



bw | HPC – C5

Access: bwUniCluster, bwForCluster, ForHLR

Shamna Shamsudeen, SCC, KIT



UNIVERSITÄT
HEIDELBERG
ZUKUNFT
SEIT 1386

Hochschule
für Technik
Stuttgart



Hochschule Esslingen
University of Applied Sciences

Universität
Konstanz



UNIVERSITÄT
MANNHEIM



Universität Stuttgart

EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN



KIT
Karlsruher Institut für Technologie



ulm university universität
uulm



Outline

- Introduction
- Registration Processes
 - bwUniCluster
 - bwForCluster
 - ForHLR Phase I & II
- First Steps
 - Login
 - File Transfer
- Questions

1. Introduction

Introduction

- **bwUniCluster**
 - Tier 3, Baden-Württemberg (BW) cluster for general purposes
 - Simple registration process

- **bwForCluster** (JUSTUS, MLS&WISO, NEMO, BinAC)
 - 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**
 - Tier 2, national research cluster
 - Access process ensures that applications fulfill requirements of parallelization

2. Registration




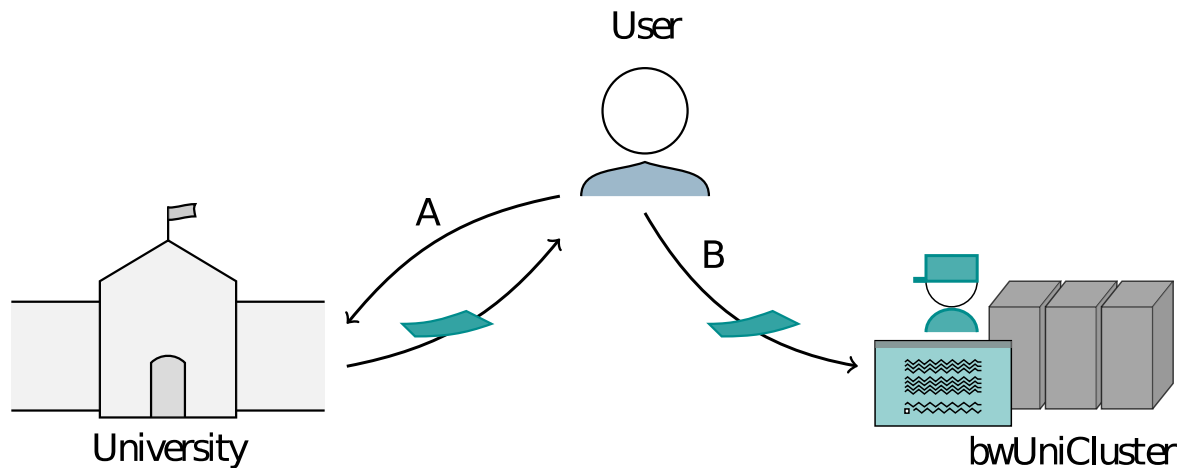
Registration

Different clusters → different registration processes

- bwUniCluster
- bwForCluster
- ForHLR Phase I & II

Registration Process - bwUniCluster

- Access only for members of shareholder universities.
- Authentication with usual university account via bwIDM.
- Authorization via bwUniCluster entitlement  issued by the universities.



Step A: Obtainment of bwUniCluster entitlement

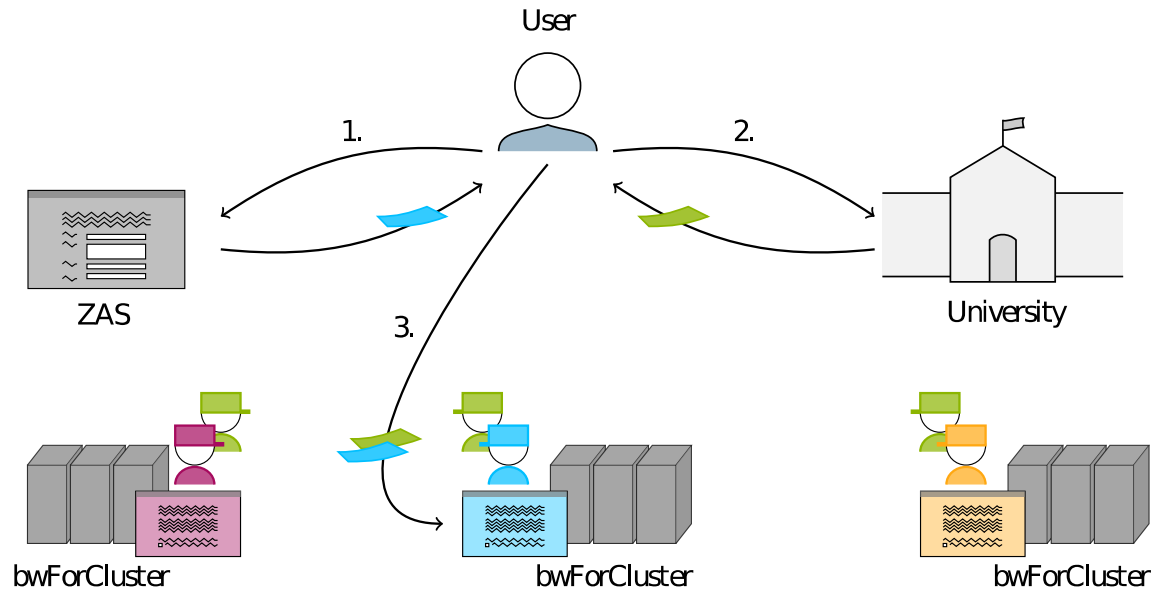
- Each university has its own entitlement granting policies!

Step B: Web registration at <https://bwidm.scc.kit.edu/>

- Login via bwIDM with your account at university

Registration Process - bwForClusters

- Access for members of Baden-Württemberg's universities.



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

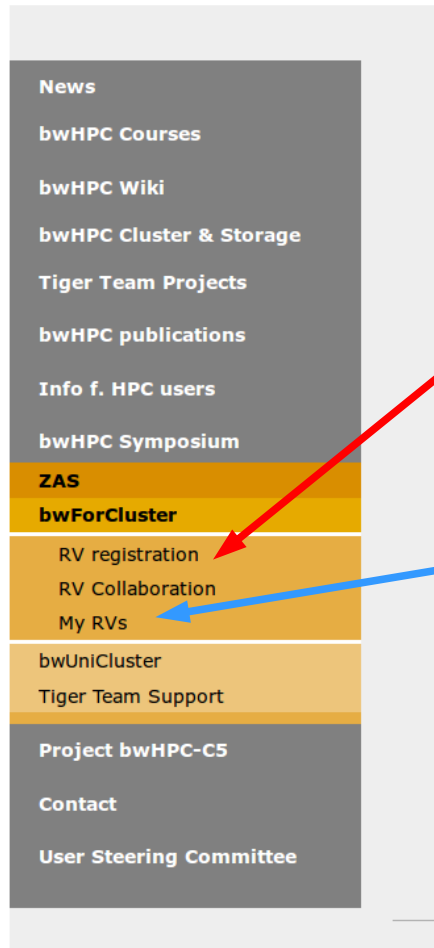
- Approval  of Cluster Assignment Team (CAT)

Step 2: Obtainment of bwForCluster entitlement 

Step 3: Web registration at bwForCluster site

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

Registration Process: bwForClusters – Step 1



Rechenvorhaben (RV)

RV = planned compute activities

research objective,
used methods & software packages, ..

Resource requirements

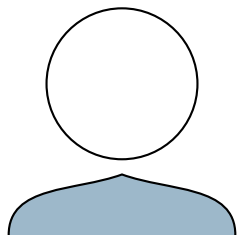
CPU Hours, memory,
disk space, ..

RV responsible
= applicant

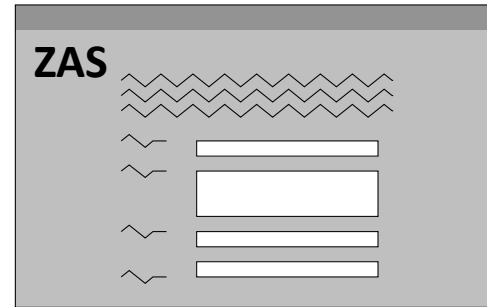
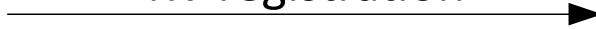
Team
managers, coworker

- An RV approval is valid for
 - **one** certain bwForCluster
 - **all team members**
 - a period of **one year** after the approval

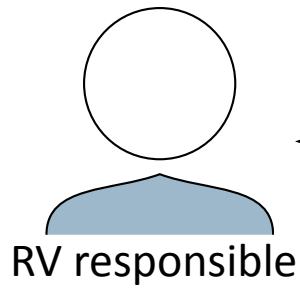
Registration Process: bwForCluster – Step 1a



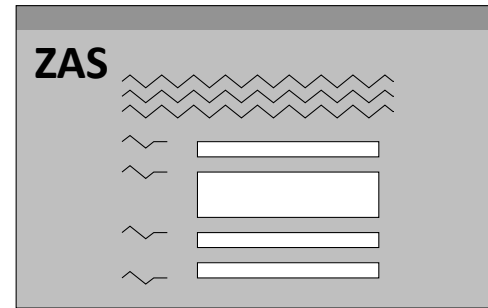
RV registration



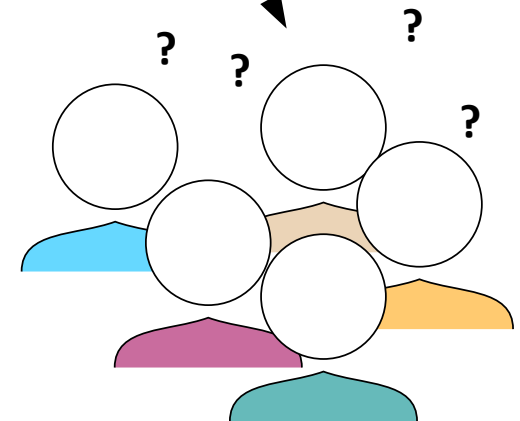
Registration Process: bwForClusters – Step 1b



← acronym / password

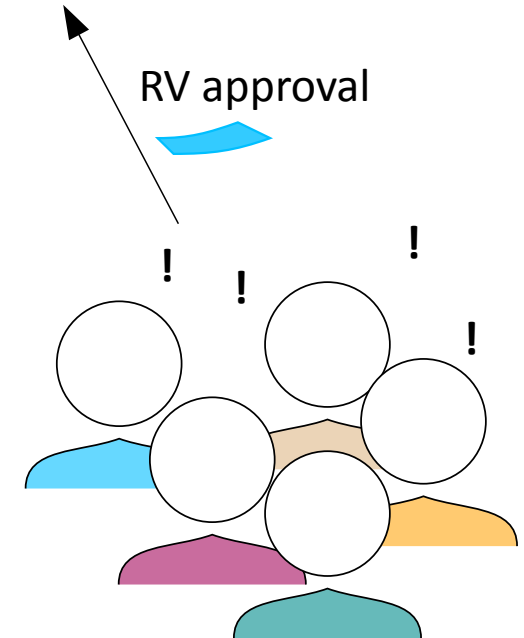
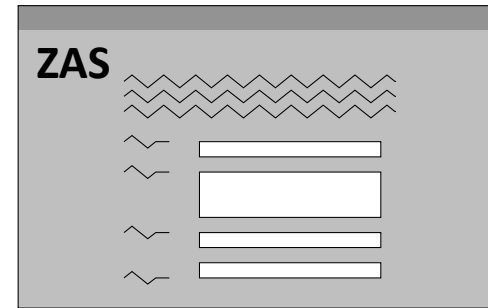
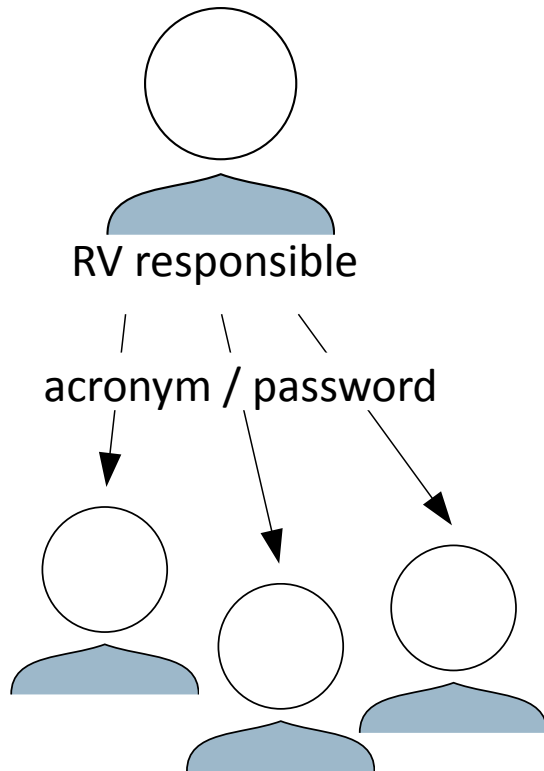


RV application



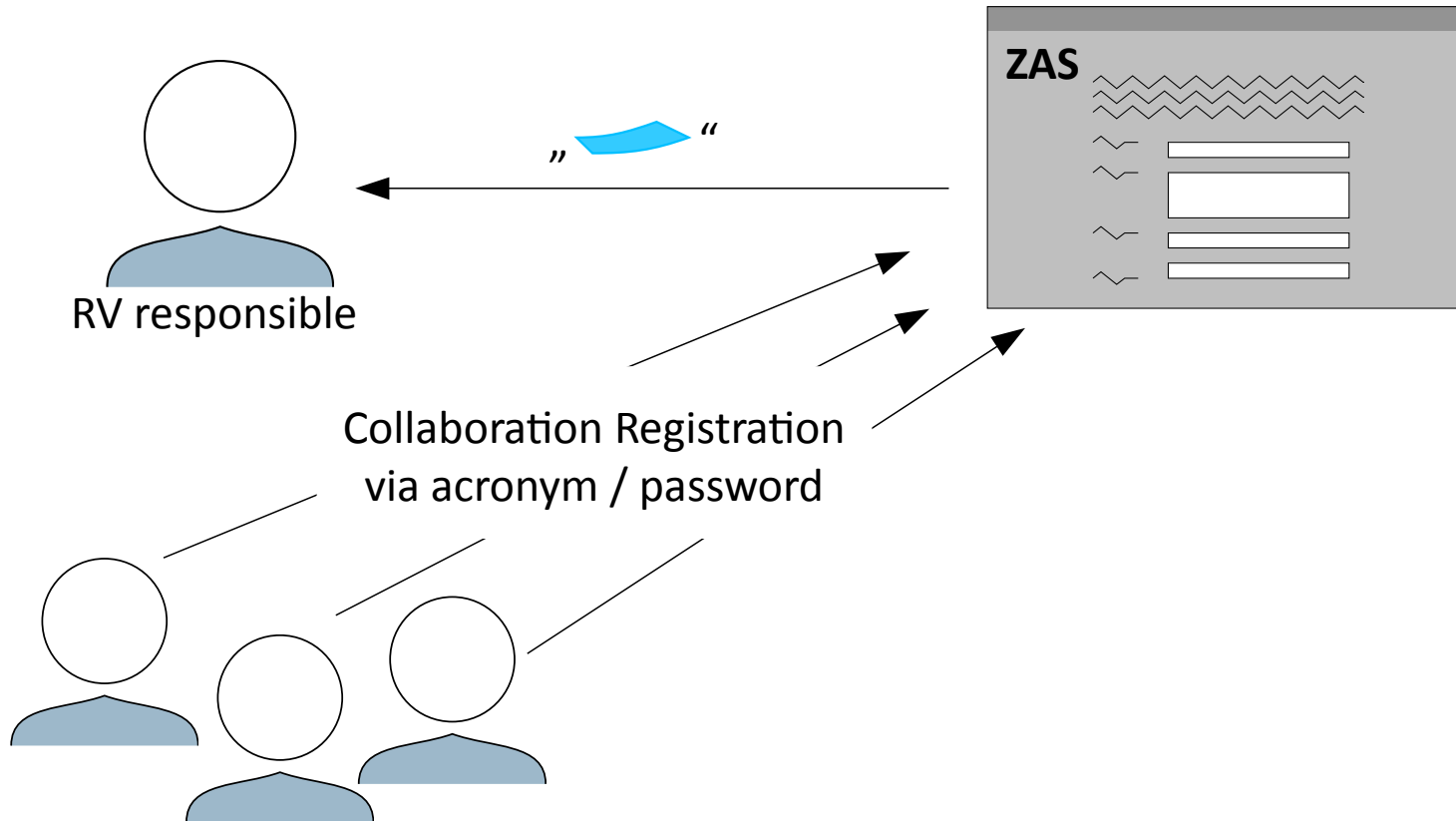
CAT (Cluster Assignment Team)

Registration Process: bwForClusters Step 1c

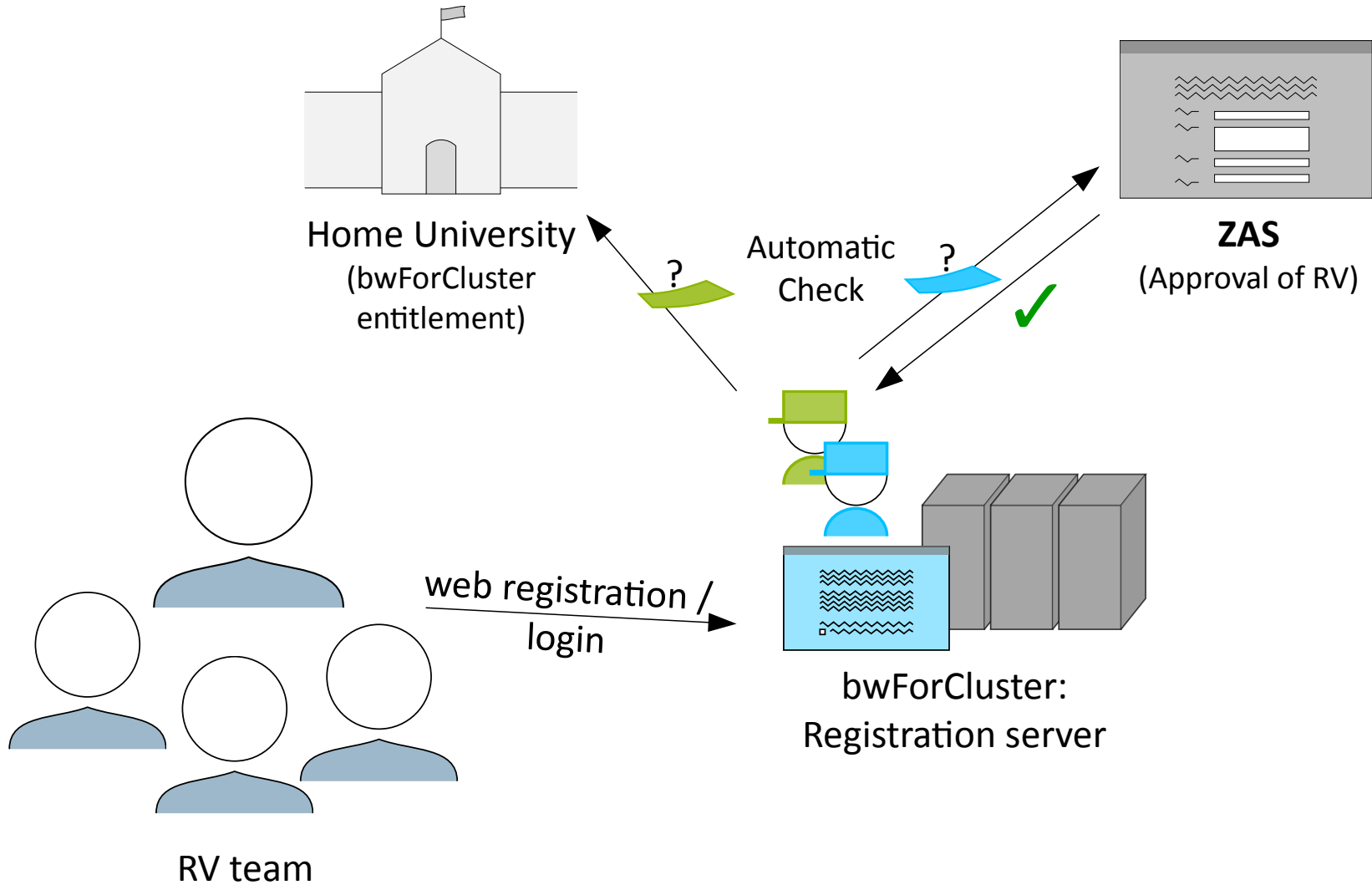


CAT (Cluster Assignment Team)

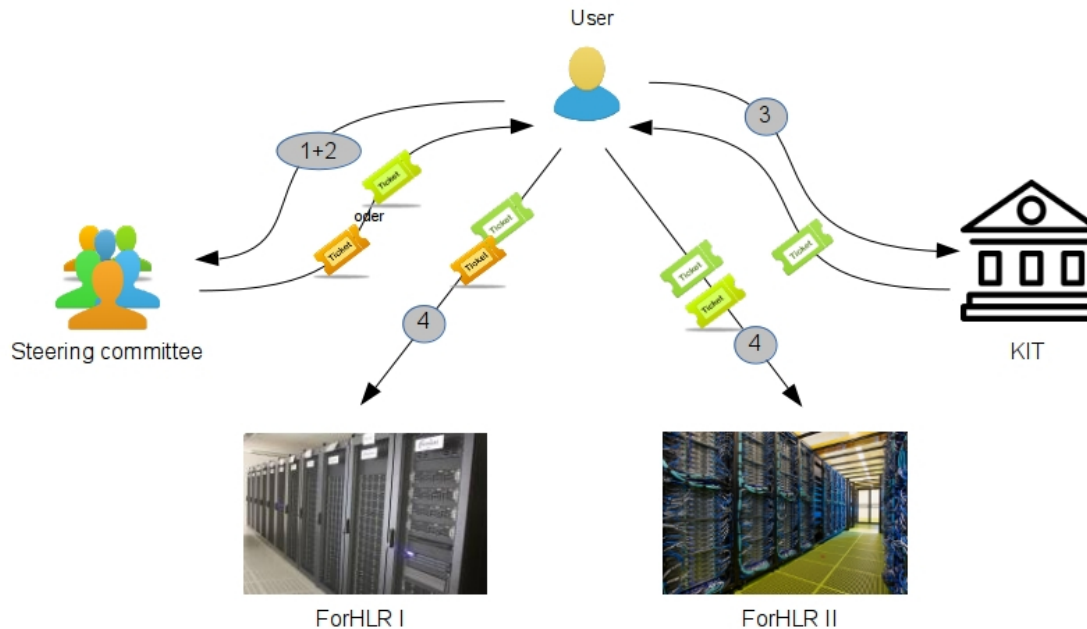
Registration Process: bwForClusters – Step 1a



Registration Process: bwForClusters – Step 3



Registration Process – ForHLR I & II



Step 1: Completion of the „Online Proposal Form“. (<http://www.scc.kit.edu/forschung/4971.php>)

(Resources to be granted are CPU-time and permanent disk space)

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

Step 3: Fill out of the [ForHLR entitlement 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 (1)

General

- Connection by **ssh**

Username

[<prefix>_]<username>

- ab1234** (KIT)
- ho_anfuchs** (Hohenheim)

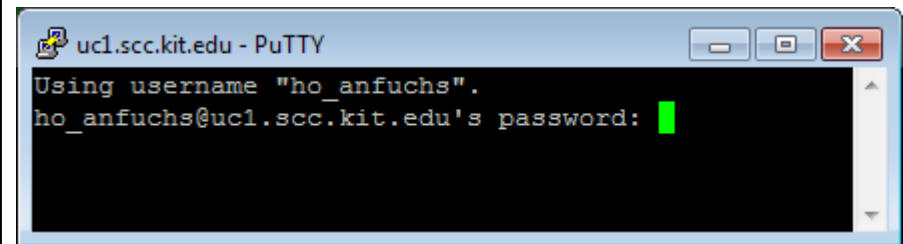
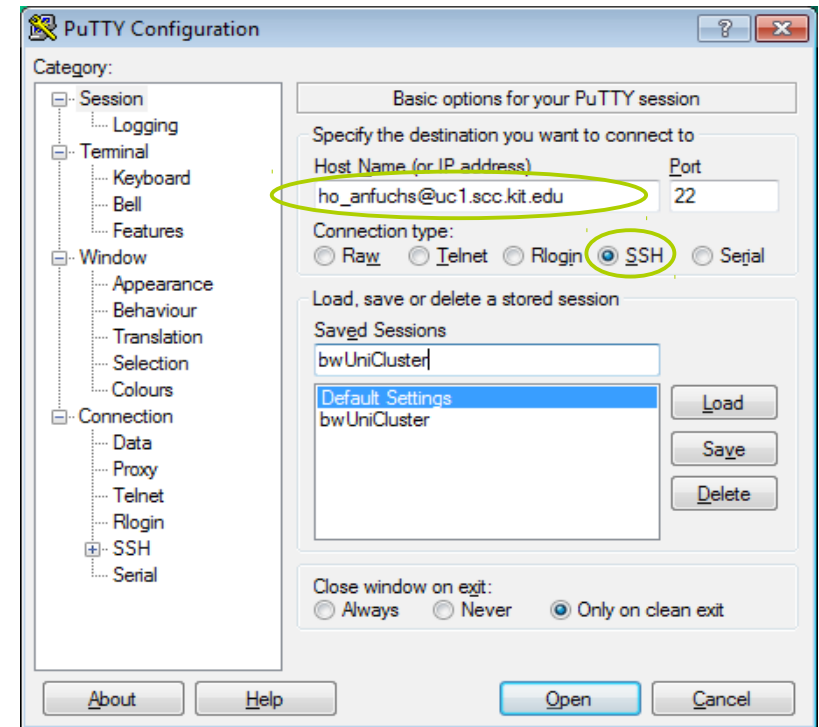
Host:

- ucl.scc.kit.edu**
- justus.uni-ulm.de**
- fh1.scc.kit.edu**

Linux / Mac OS

```
$ ssh ab1234@ucl.scc.kit.edu
ab1234@ucl.scc.kit.edu's password:
```

Windows (via PuTTY)



Basic commands

| | |
|--|--------------------------------|
| <code>\$ pwd</code> | show path of working directory |
| <code>\$ mkdir <dirname></code> | make directory |
| <code>\$ ls -l</code> | list directory contents |
| <code>\$ cd</code> | change directory |
| <code>\$ cp <sourcefile> <targetfile></code> | copy file |
| <code>\$ mv <sourcefile> <targetfile></code> | move file |
| <code>\$ rm <filename></code> | remove file |
| <code>\$ man <command></code> | show command's manual |
| <code>\$ vi</code> | standard unix editor |

File transfer

File transfer - Linux

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

■ Example

■

```
$ scp paket.tar ab1234@ucl.scc.kit.edu:dir/  
ab1234@ucl.scc.kit.edu's password:
```

■

```
$ sftp ab1234@ucl.scc.kit.edu:dir  
ab1234@ucl.scc.kit.edu's password:  
Connected to ucl.scc.kit.edu.  
Changing to: ${HOME}/dir  
sftp> put paket.tar
```

File transfer - Windows

Windows (via WinSCP)

The screenshot displays the WinSCP interface with two panes. The left pane shows the local file system at `C:\Users\anfuchs\Desktop\c5`, containing a file named `paket.tar`. The right pane shows the remote file system at `/afs/d...ta2/home/ho/ho_kim/ho_anfuchs/ordner`. A yellow oval highlights the local path, and another yellow oval highlights the remote path. A black arrow labeled "drag&drop" points from the local file to the remote directory. The status bar at the bottom indicates "0 B von 3.206 MiB in 0 von 1" for the local side and "0 B von 0 B in 0 von 0" for the remote side. The status bar also shows "SFTP-3" and a timer at "0:07:50".

WinSCP Anmeldung

Neues Verbindungsziel
bwUniCluster

Sitzung

Übertragungsprotokoll:
SFTP

Rechnername:
uc1.scc.kit.edu

Portnummer:
22

Benutzername:
ho_anfuchs

Kennwort:

Bearbeiten

Erweitert...

Anmelden

Schließen

Hilfe

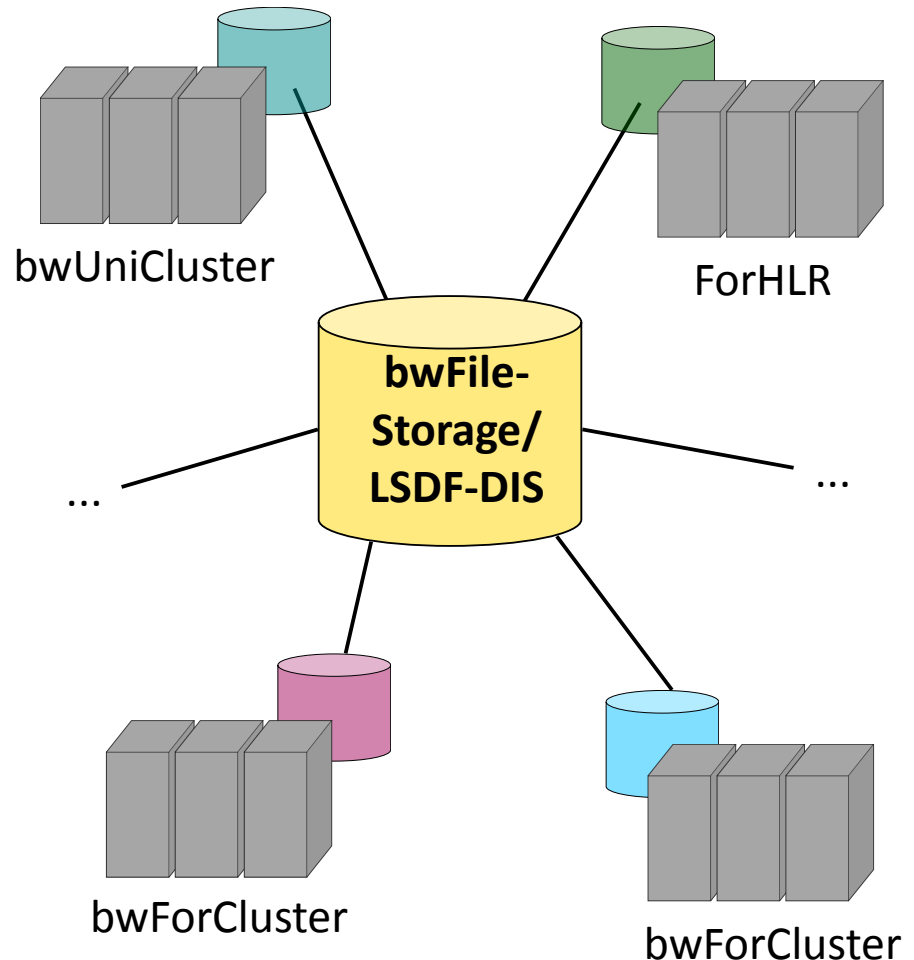
source directory

target directory

bwFileStorage

bwFileStorage/LSDF-DIS

- Central storage located at KIT
- 100GB disk space per user
- Requirements
 - bwFileStorage entitlement
 - web registration at <https://bwidm.scc.kit.edu>
- Hosts
 - Via web: <https://bwfilestorage.lsd.f.kit.edu>
 - Via ssh: bwfilestorage-login.lsd.f.kit.edu
- Transfer tools
 - [scp](#), [sftp](#), [rsync](#), [https](#),
 - [rdata](#) @ bwUniCluster, ForHLR



bwFileStorage: rdata

- File system operations on „data mover“ nodes
- Supported commands:
`cp, rm, ls, rsync, mv, mkdir, ...`
- Environment variables:
 - `$BWFS=/bwfilestorage/ka/ka_scc/ab1234/`
- Example:
`$ scp file ka_ab1234@bwfilestorage.lsf.kit.edu:`
`$ rdata cp file $BWFS`
 - 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
 - e.g. bwUniCluster → <https://bwidm.scc.kit.edu>

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.
- Errors may look like:

Requirements

You don't meet all the necessary requirements for this service. Please contact the servicedesk of your home organisation.

- ❌ **Error** ZAS-permission (www.bwhpc-c5.de - ZAS) to access the cluster missing.
- ❌ **Error** The bwForCluster Entitlement is not provided by your home organization. Please perform step 2 in the registration procedure: https://www.bwhpc-c5.de/wiki/index.php/BwForCluster_User_Access

4. Questions