bwHPC Course
Access: bwUniCluster, bwForCluster, ForHLR I

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Outline

- Intro
- Registration Processes
  - bwUniCluster
  - bwForCluster
  - ForHLR I
- First Steps
  - Login
  - File Transfer
- Questions

1. Intro

References

- bwHPC Wiki
  - http://www.bwhpc-c5.de/wiki
- Registration/Access
  - http://www.bwhpc-c5.de/wiki/index.php/Category:Access
  - http://www.bwhpc-c5.de/en/ZAS/zas_overview.php
- File Transfer
  - http://www.bwhpc-c5.de/wiki/index.php/BwFileStorage
- Slides
  - https://indico.scc.kit.edu/indico/event/132/
  - ab1234@bwunicluster:/opt/bwhpc/kit/workshop/

2. Registration

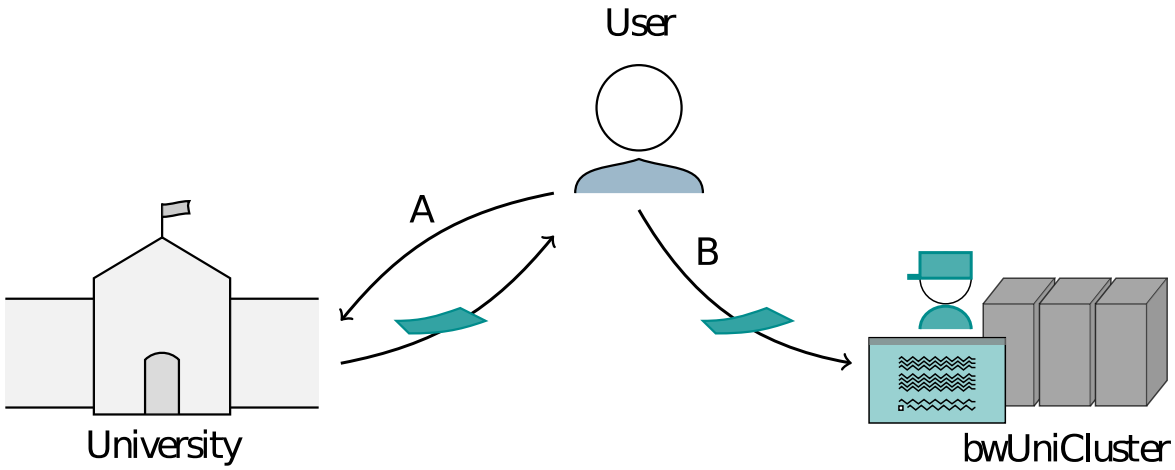
Registration

Different clusters → different registration processes

- bwUniCluster:
  - Tier 3 cluster for general purposes
  - Simple registration process
- bwForCluster:
  - Tier 3 research clusters
  - Architecture optimized for certain scientific communities
  - Access process ensures using the suitable cluster and enhances user support
- ForHLR 1:
  - Tier 2 cluster
  - Access process ensures that applications fulfill requirements of parallelization

Registration Process - bwUniCluster

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



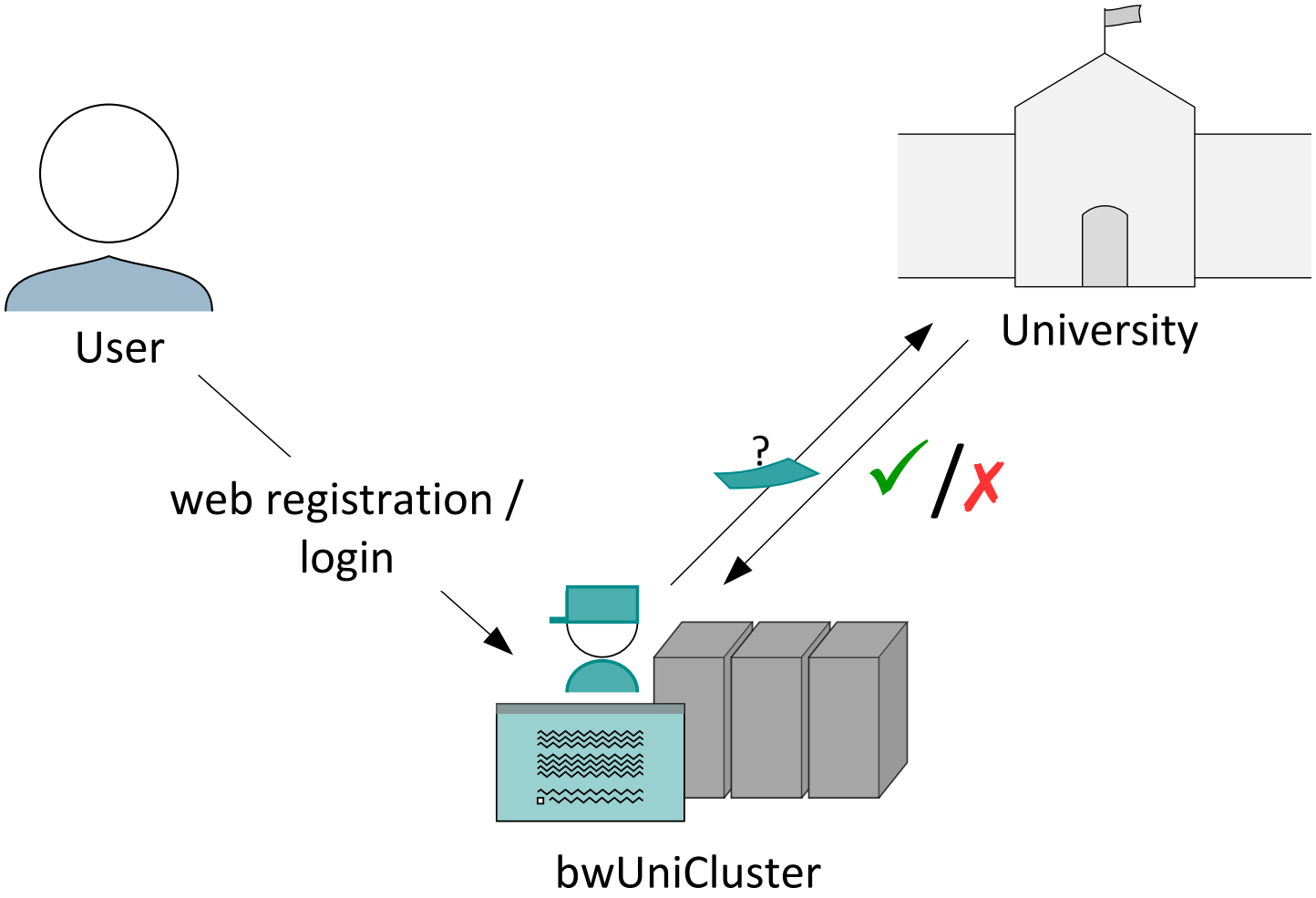
Step A: Obtainment of bwUniCluster entitlement

- Each university has its own entitlement granting policies!

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

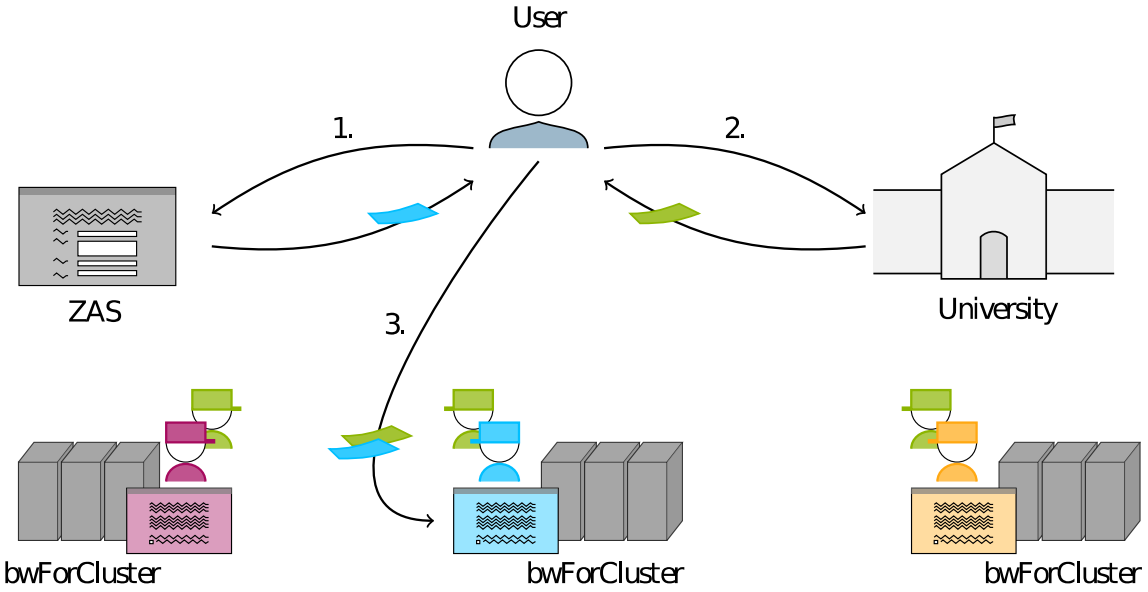
- Login via bwIDM with your account at university

Registration Process - bwUniCluster



Registration Process - bwForClusters

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



Step 1: Registration at „Zentrale Antragsseite (ZAS)“

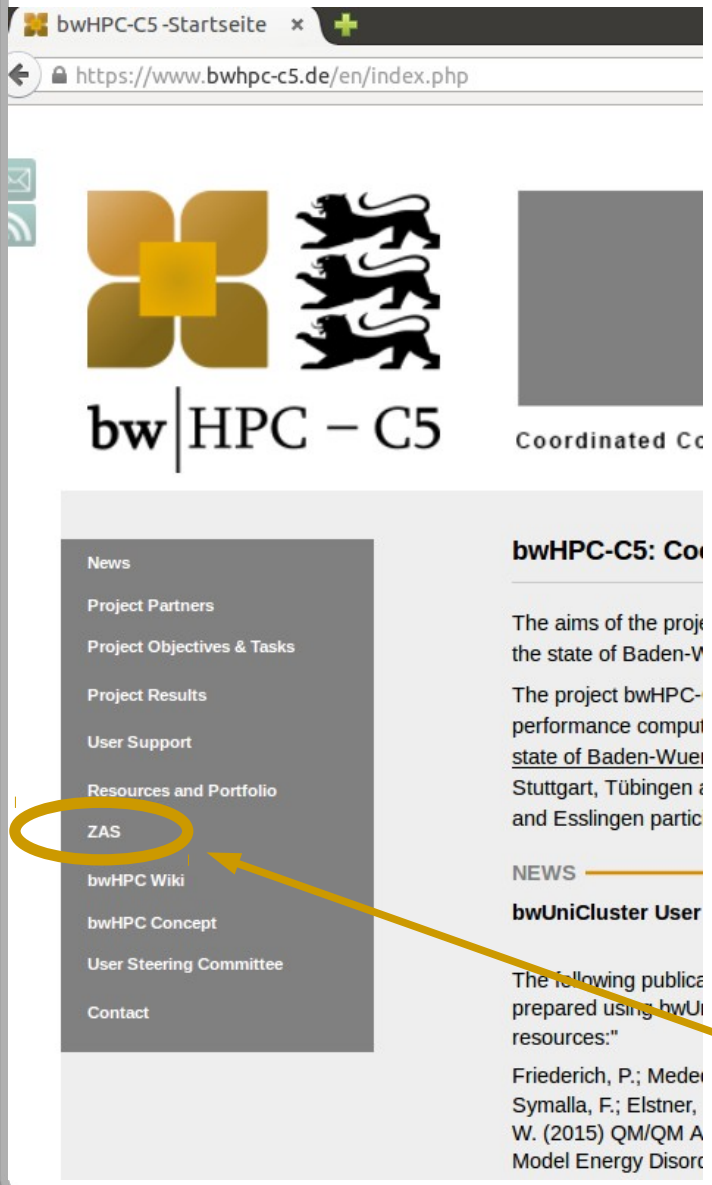
- Approval of Cluster Assignment Team (CAT)

Step 2: Obtainment of bwForCluster entitlement

Step 3: Web registration at bwForCluster operator

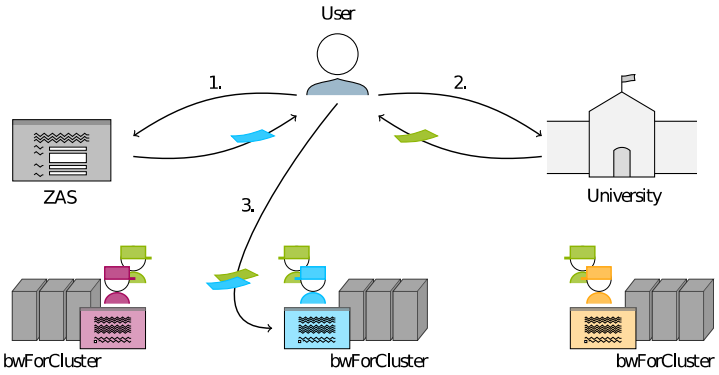
- e.g. http://bwidm.rz.uni-ulm.de/, bwForCluster JUSTUS (Computational Chemistry)

Registration Process – bwForClusters - ZAS



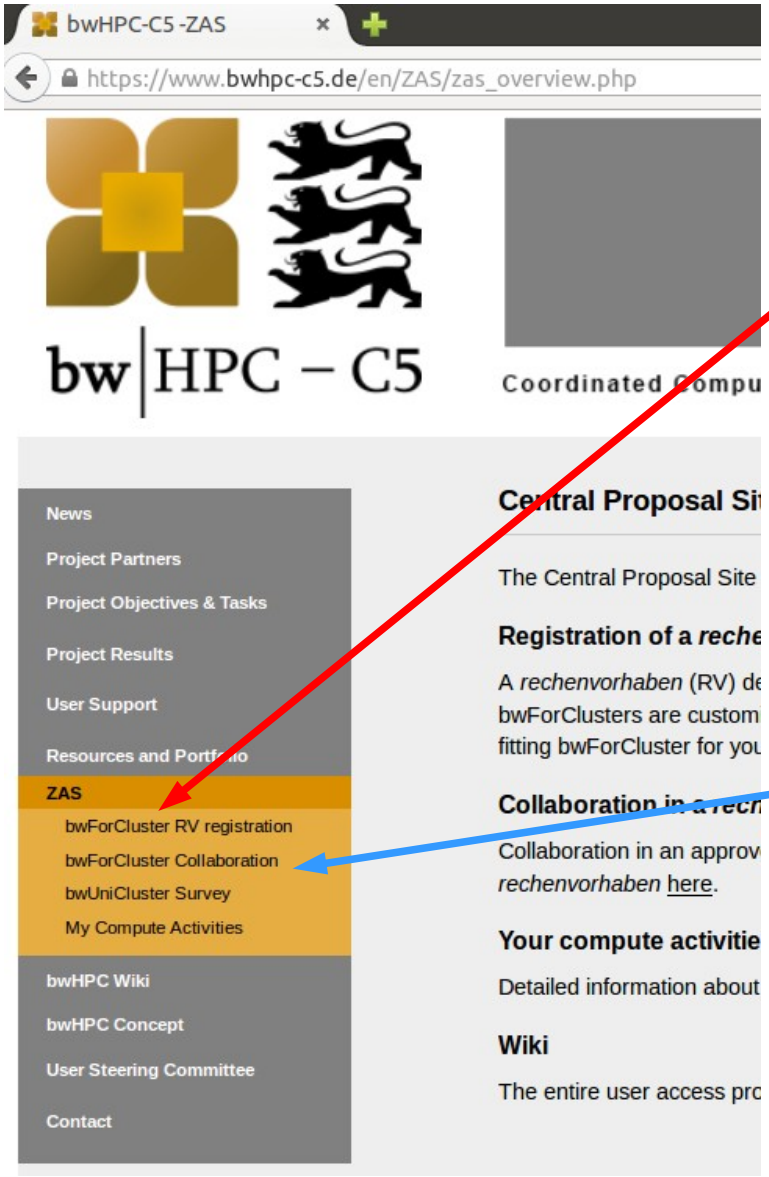
- Registration of compute activities for **A** bwForCluster

- Approval of the Cluster Assignment Team (CAT) is valid for **ONE** bwForCluster.



- *Zentrale Antragsseite* (ZAS) is located at http://www.bwhpc-c5.de/

Registration Process – bwForClusters - ZAS



***Rechenvorhaben* (RV)**

research objective,
used methods & software packages, ..

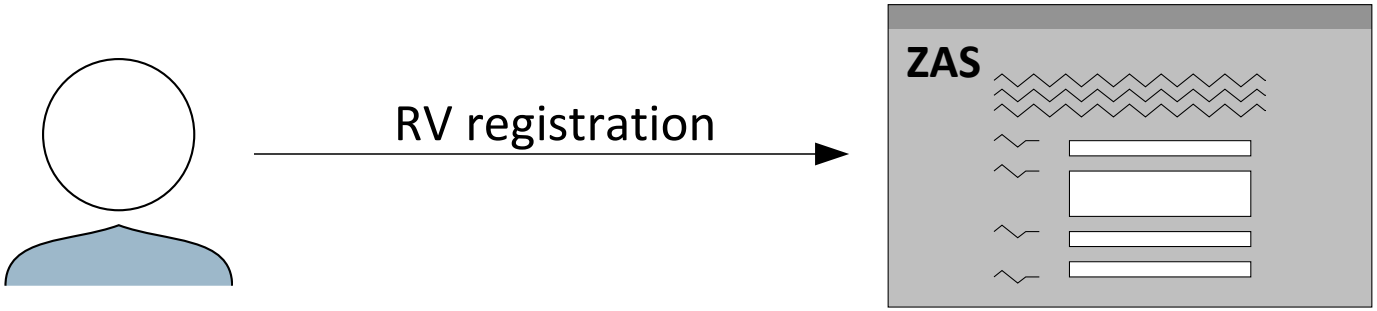
Resource requirements
CPU Hours, memory, disk space, ..

RV responsible
= applicant

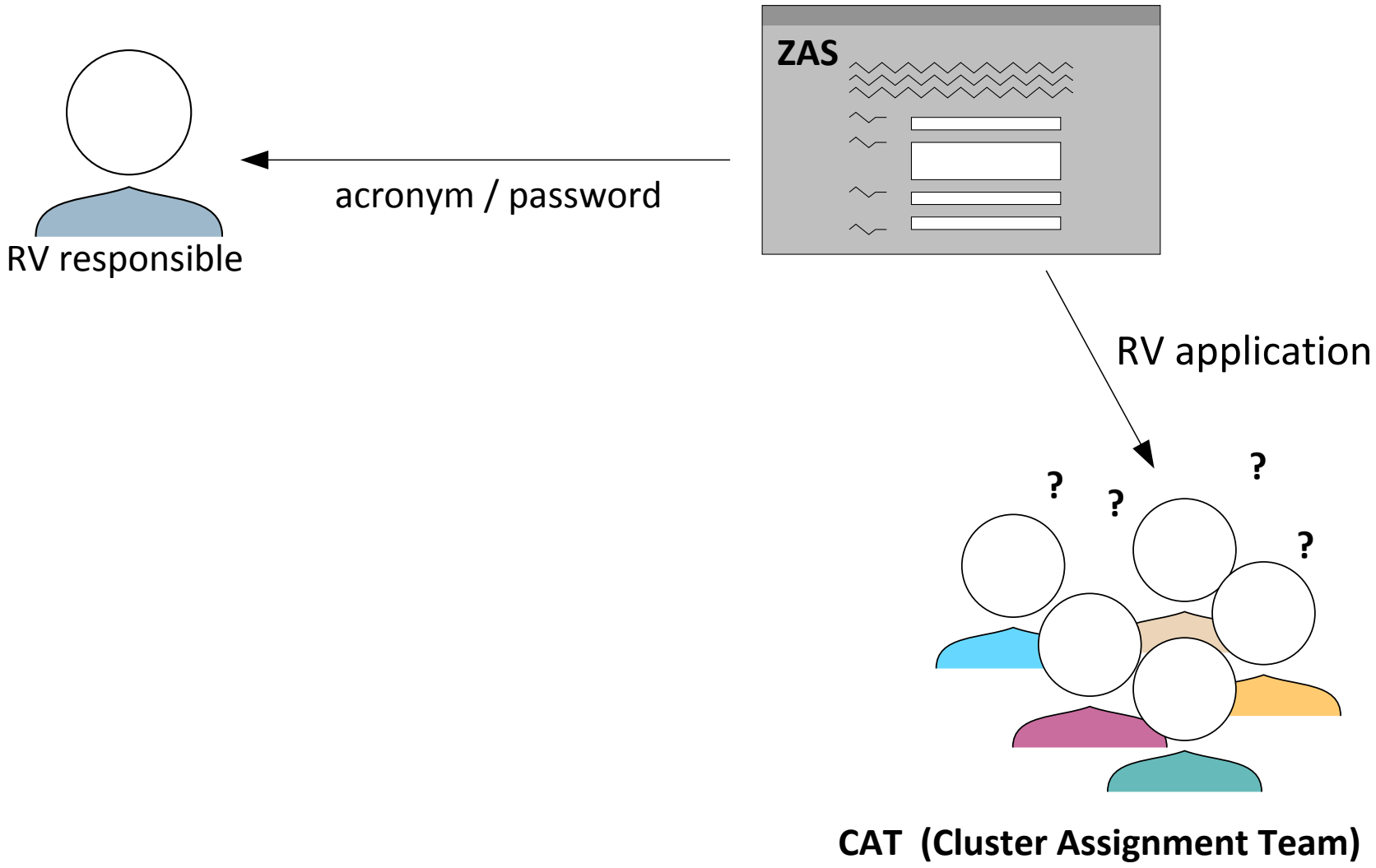
Team
managers, coworker

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

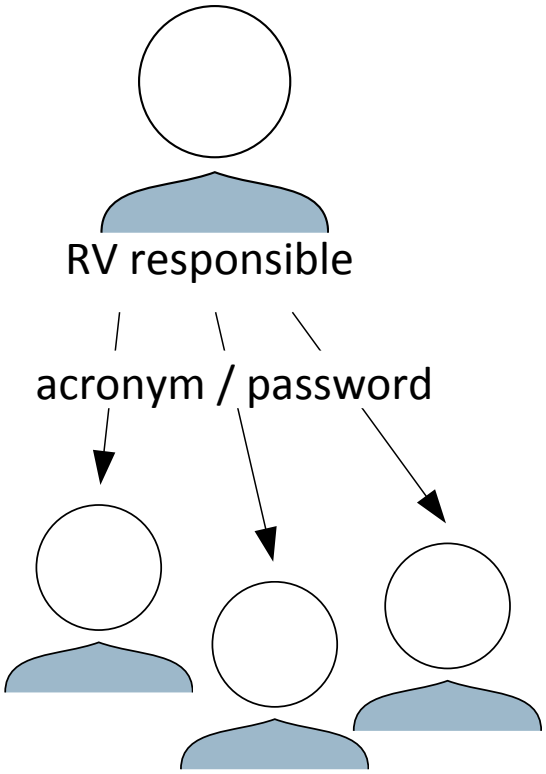
Registration Process – bwForClusters

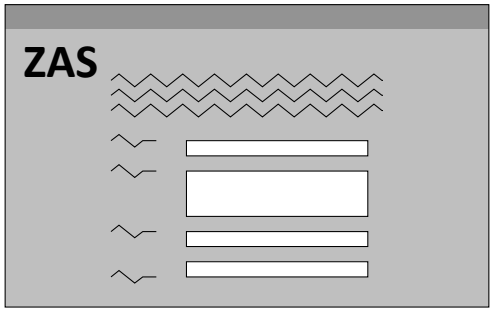


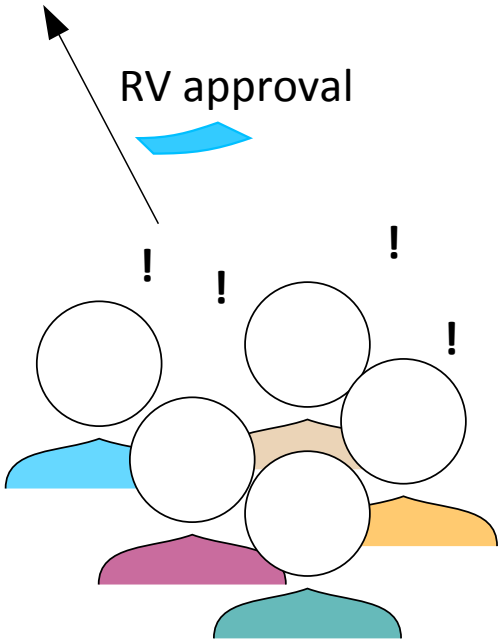
Registration Process – bwForClusters



Registration Process – bwForClusters

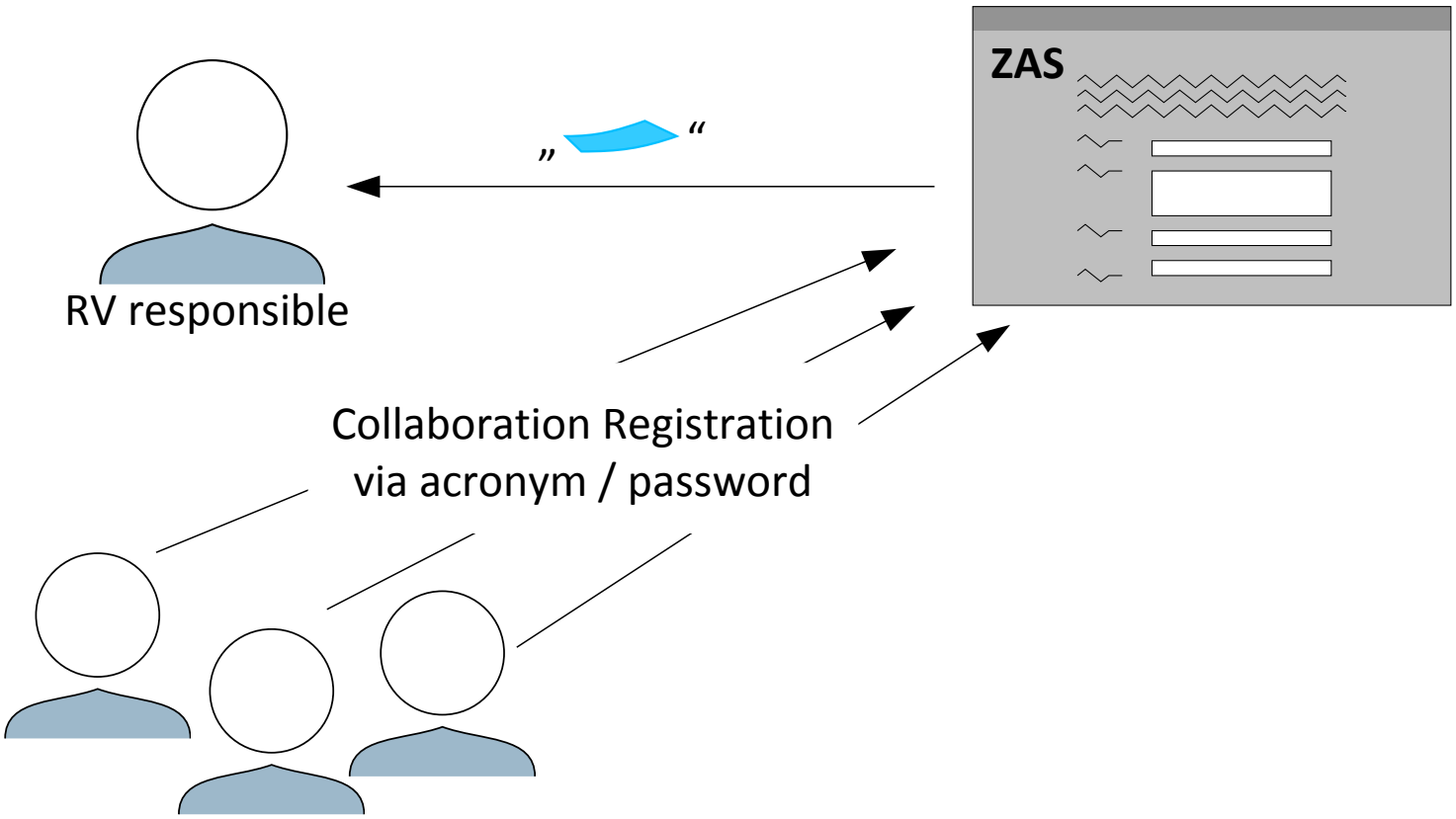




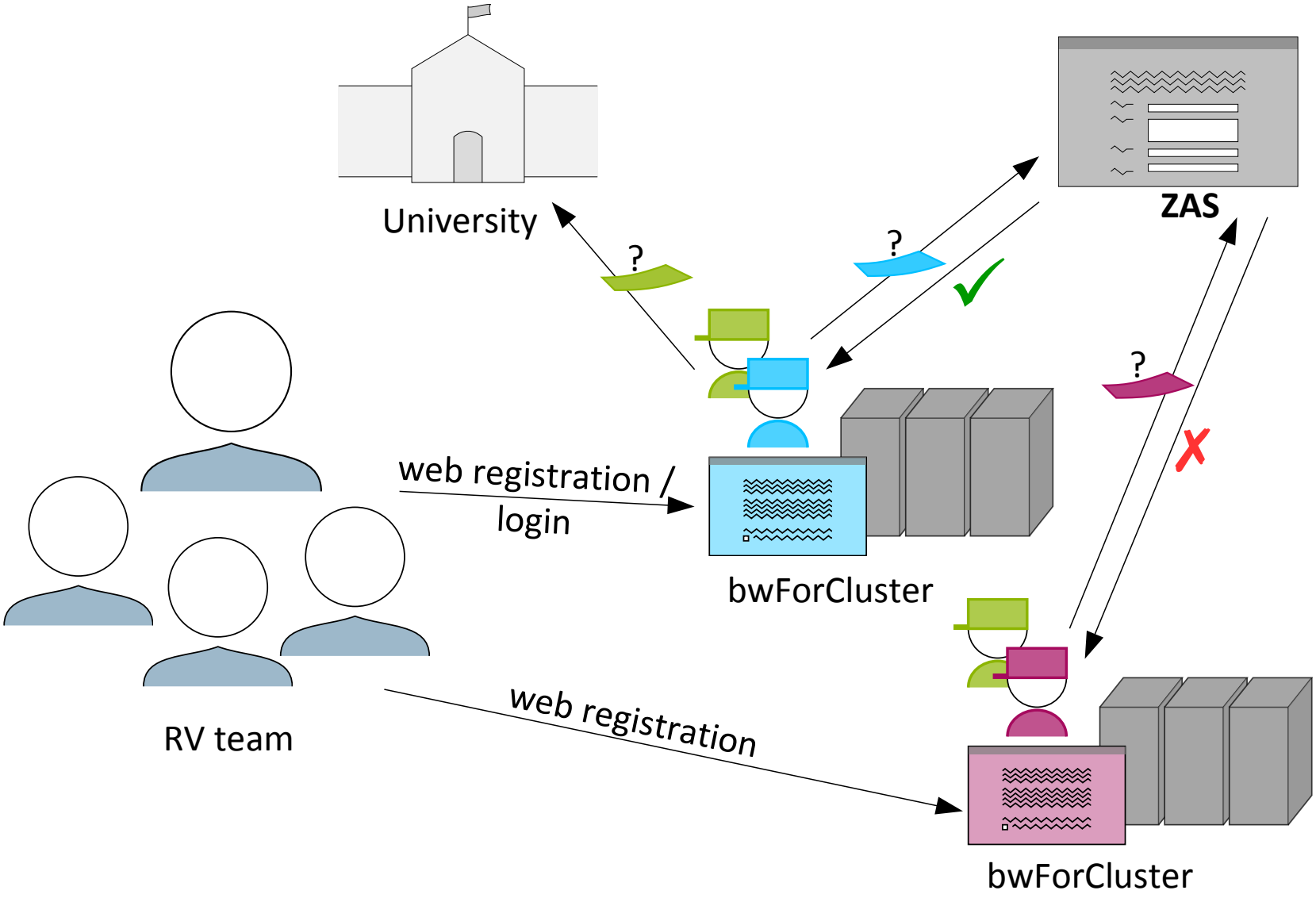


CAT (Cluster Assignment Team)

Registration Process – bwForClusters



Registration Process – bwForClusters

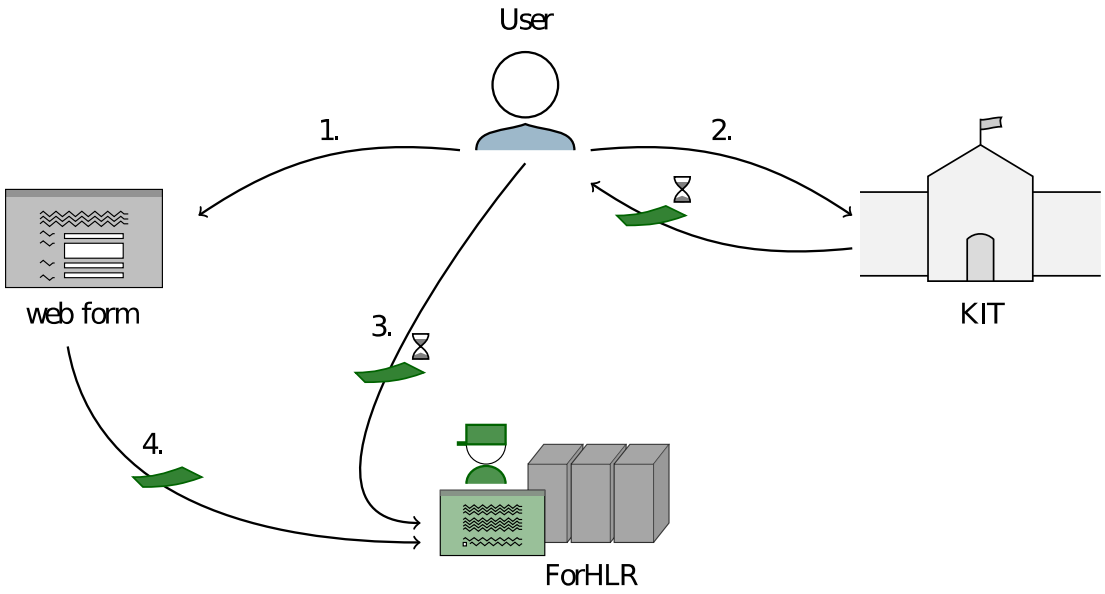


Registration Process – bwForClusters - ZAS

- RV responsible
  - Read details of RV description, resources, RV responsible, team and status
  - Change roles (manager/coworker) of team members
  - De-/Reactivate team members
  - Renew password
  - Apply further resources (if approved)
  - Access to bwForCluster (if approval is valid)

- Team members (managers, coworkers)
  - General rights (managers & coworkers)
    - Read details of RV description, resources, RV responsible and status
    - Access to bwForCluster (if approval is valid)
  - Additional manager rights
    - Read team details
    - De-/Reactivate coworkers

Registration Process – ForHLR 1



Step 1: Submission of a project proposal

- Reviewed by a scientific steering commitee

Step 2: Obtainment of **preliminary** ForHLR access via

http://www.scc.kit.edu/downloads/sdo/Antrag_Benutzernummer_ForHLR.pdf

Step 3: Web registration at http://bwidm.scc.kit.edu/

Step 4: Approval of the steering commitee confirms access

3. First Steps

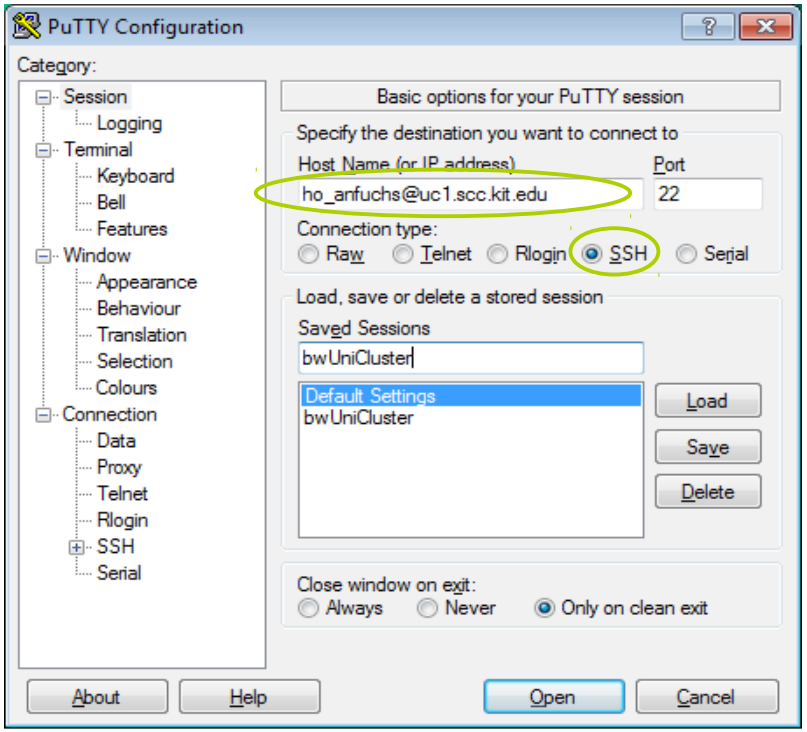
Login (1)

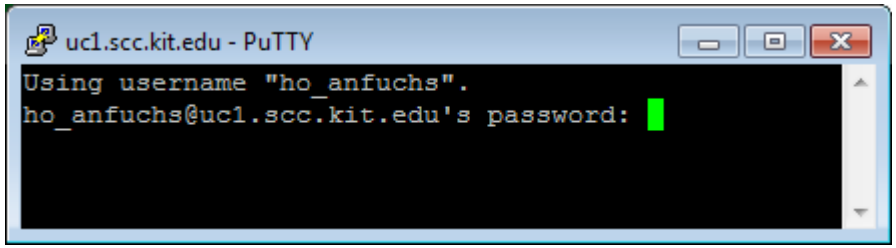
- General
  - Connection by **ssh**
  - Username
    [<prefix>_]<username>
    - **ab1234** (KIT)
    - **ho_anfuchs** (Hohenheim)
  - Host:
    - **uc1.scc.kit.edu**
    - **justus.uni-ulm.de**
    - **fh1.scc.kit.edu**

- Linux / Mac OS

```
$ ssh ab1234@uc1.scc.kit.edu
ab1234@uc1.scc.kit.edu's password:
```

- Windows (via PuTTY)





Login (2)

- Add host key

- .. and welcome!

Basic commands

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

File transfer (1)

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

- Example
  - `$ scp paket.tar ab1234@uc1.scc.kit.edu:dir/`

    `ab1234@uc1.scc.kit.edu's password:`
  - `$ sftp ab1234@uc1.scc.kit.edu:test`

    `ab1234@uc1.scc.kit.edu's password:`

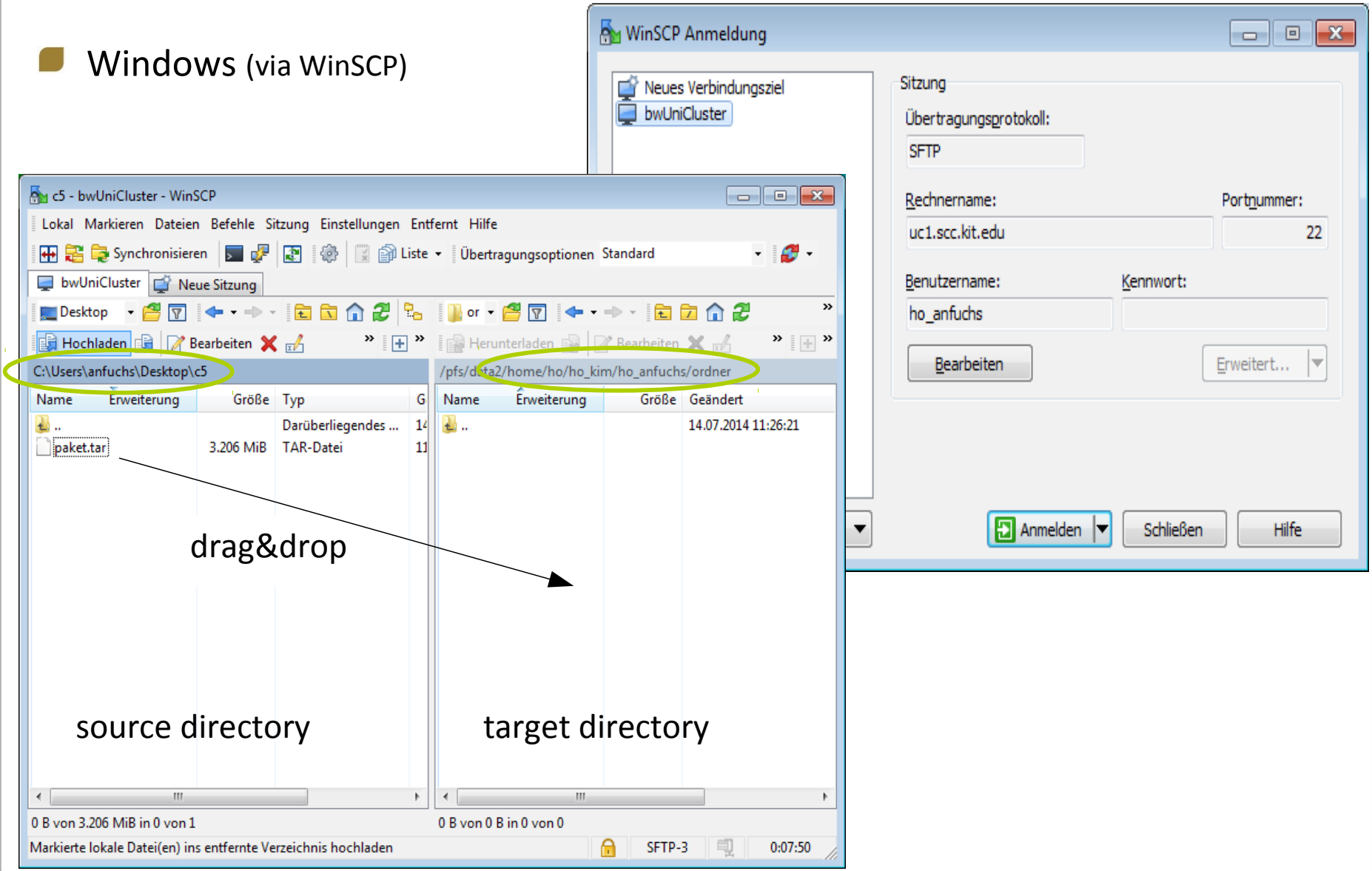
    `Connected to uc1.scc.kit.edu.`

    `Changing to: /pfs2/data2/home/kit/scc/ab1234/test`

    `sftp> put paket.tar`

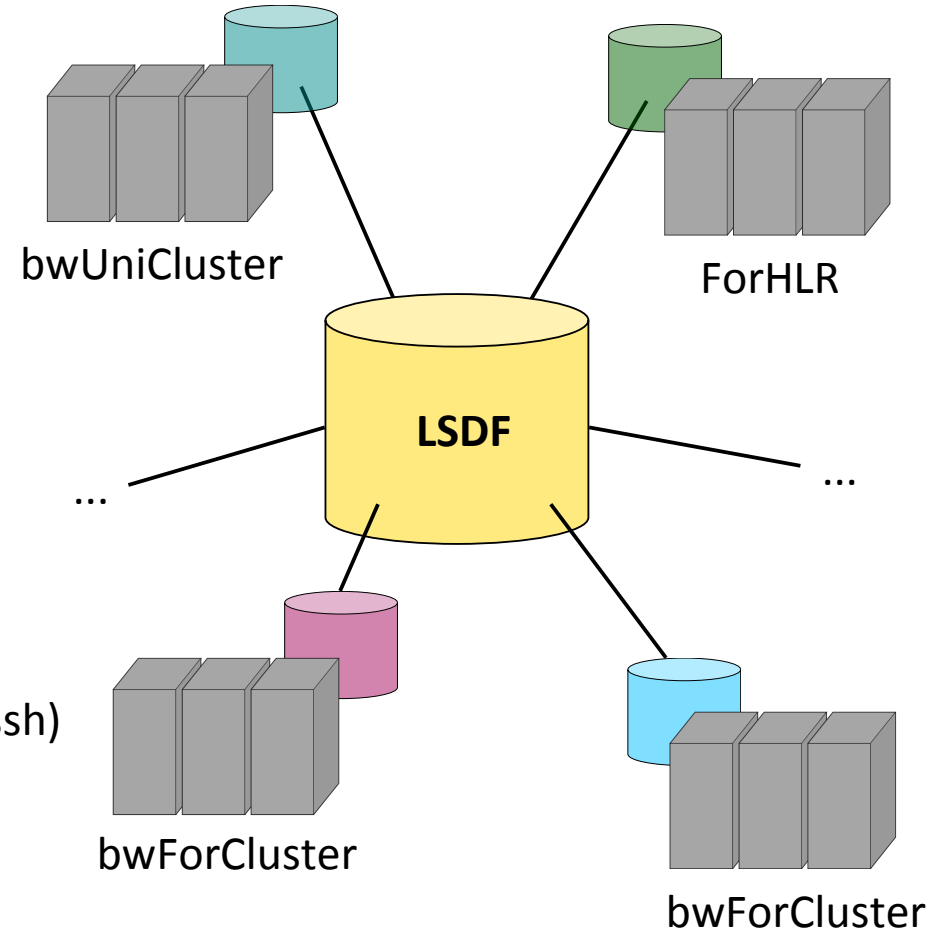
File transfer (2)

- Windows (via WinSCP)



bwFileStorage

- Access to Large-Scale Data Facility
  - Central storage located at KIT
  - 100GB disk space per user
- Requirements
  - bwFileStorage entitlement
  - web registration at https://bwidm.scc.kit.edu
- Hosts
  - bwfilestorage.lsdf.kit.edu
  - http://bwfilestorage.lsdf.kit.edu
  - bwfilestorage-login.lsdf.kit.edu (ssh)
- Transfer tools
  - `scp`, `sftp`, `https`, ..
  - `rdata` (bwUniCluster, ForHLR)



bwFileStorage: rdata

- file system operations on „data mover“ nodes
- supported commands:

  `cp, rm, ls, rsync, mv, mkdir, ...`
- Environment variables:
  - `$BWFILESTORAGE=/bwfilestorage/ka/ka_scc/ab1234/`
  - `$BWFS=/bwfilestorage/ka/ka_scc/ab1234/`
- Example:

```
$ scp file ka_ab1234@bwfilestorage.lsdf.kit.edu:
$ rdata cp file $BWFS
```

  - Performance with a file size of 20000 MB:
    - `scp`: 2min 24 s (139 MB/s)
    - `rdata cp`: 1 min 5 s (308 MB/s)

4. Questions