



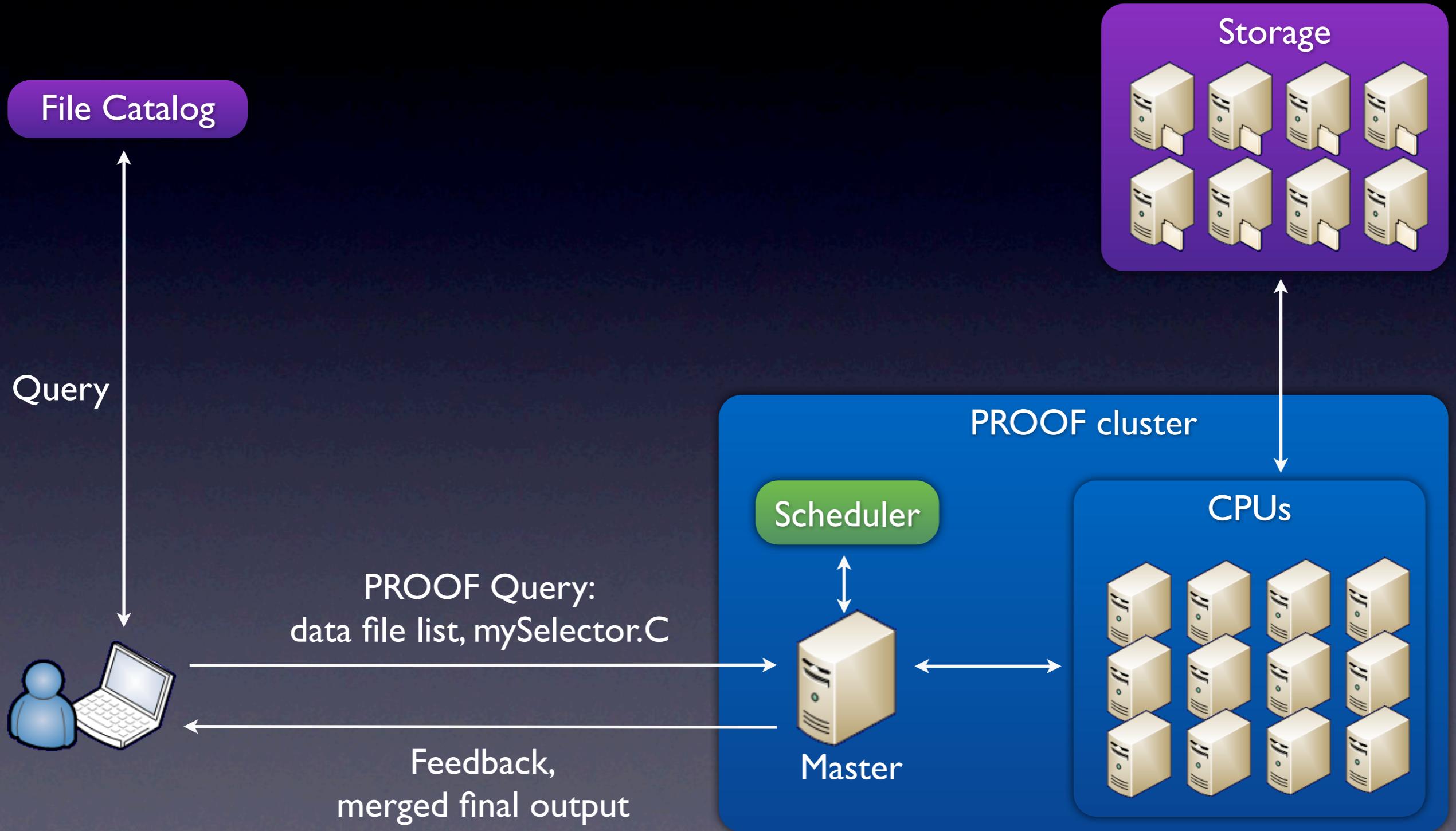
Anar Manafov, GSI Darmstadt

HEP Data Analysis



Typical HEP analysis needs a continuous algorithm refinement cycle

PROOF



PROOF

- PROOF cluster as extension of a local PC,
- same macro and syntax as in local ROOT session,
- more dynamic use of resources,
- real-time feedback,
- automatic splitting and merging.

Dynamic cluster

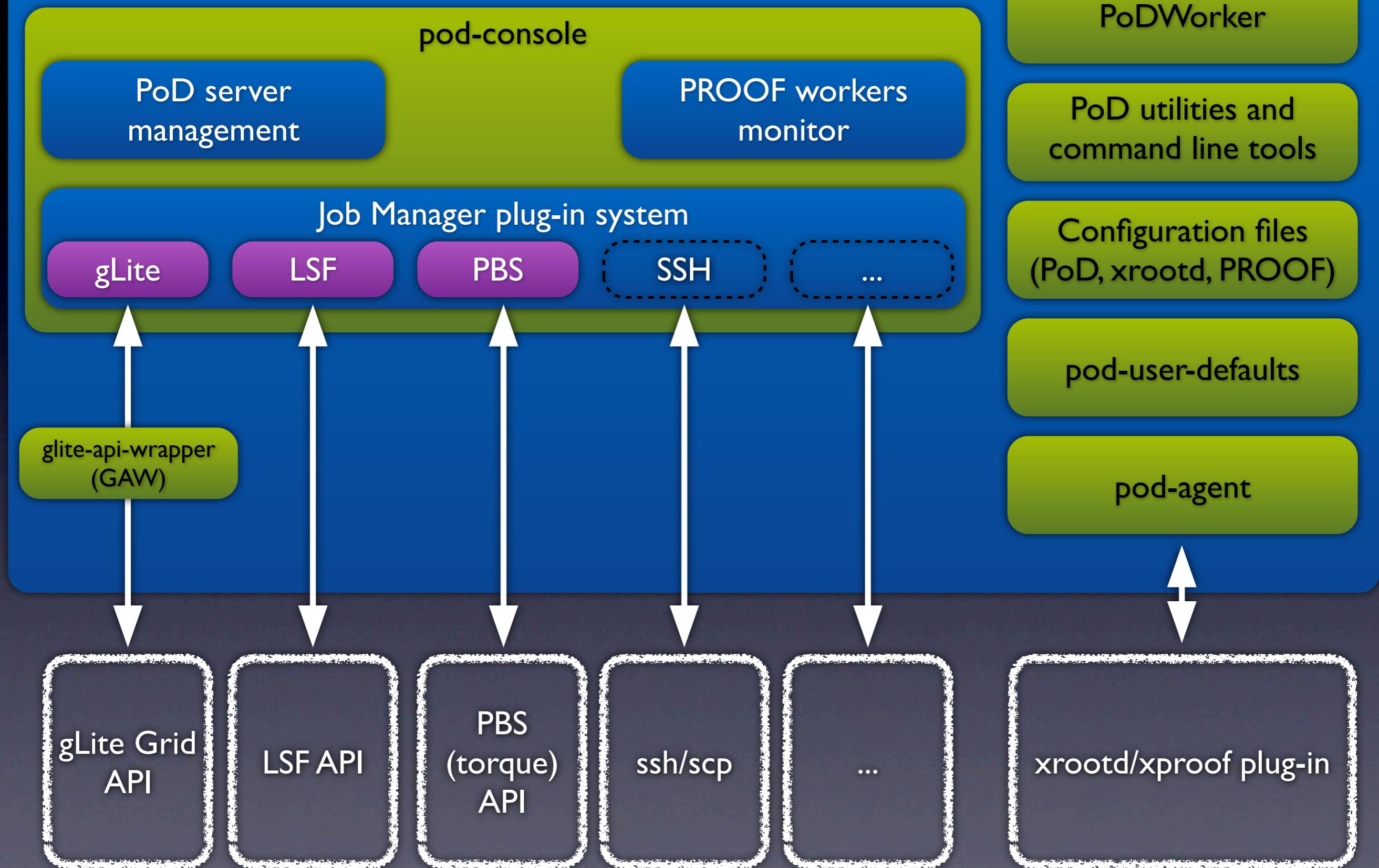
User

- can entirely control it,
- can setup and use it on demand,
- can reserve a desired amount of workers,
- can select a preferable master host,
- doesn't need admins to take an action,
- doesn't disturb other users.

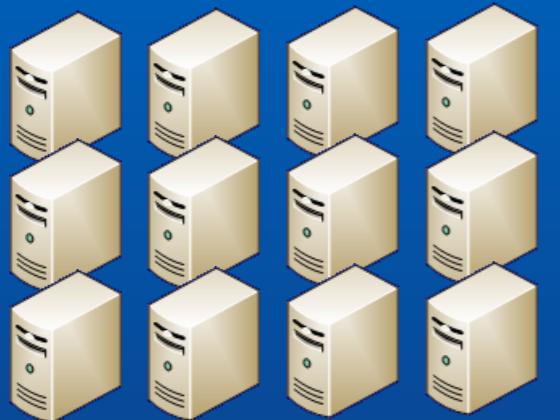


developed at GSI by the Scientific Computing group

PoD v2.1.X



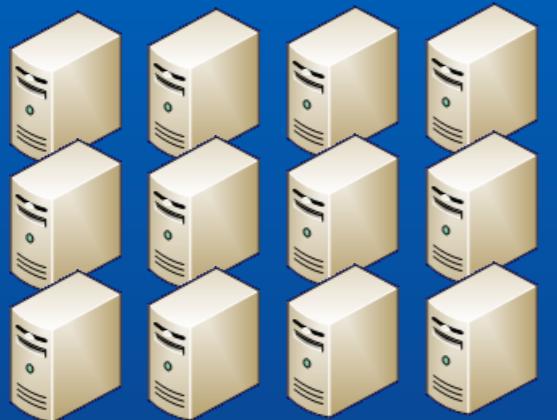
Resource management system



User workspace



Resource management system



User workspace

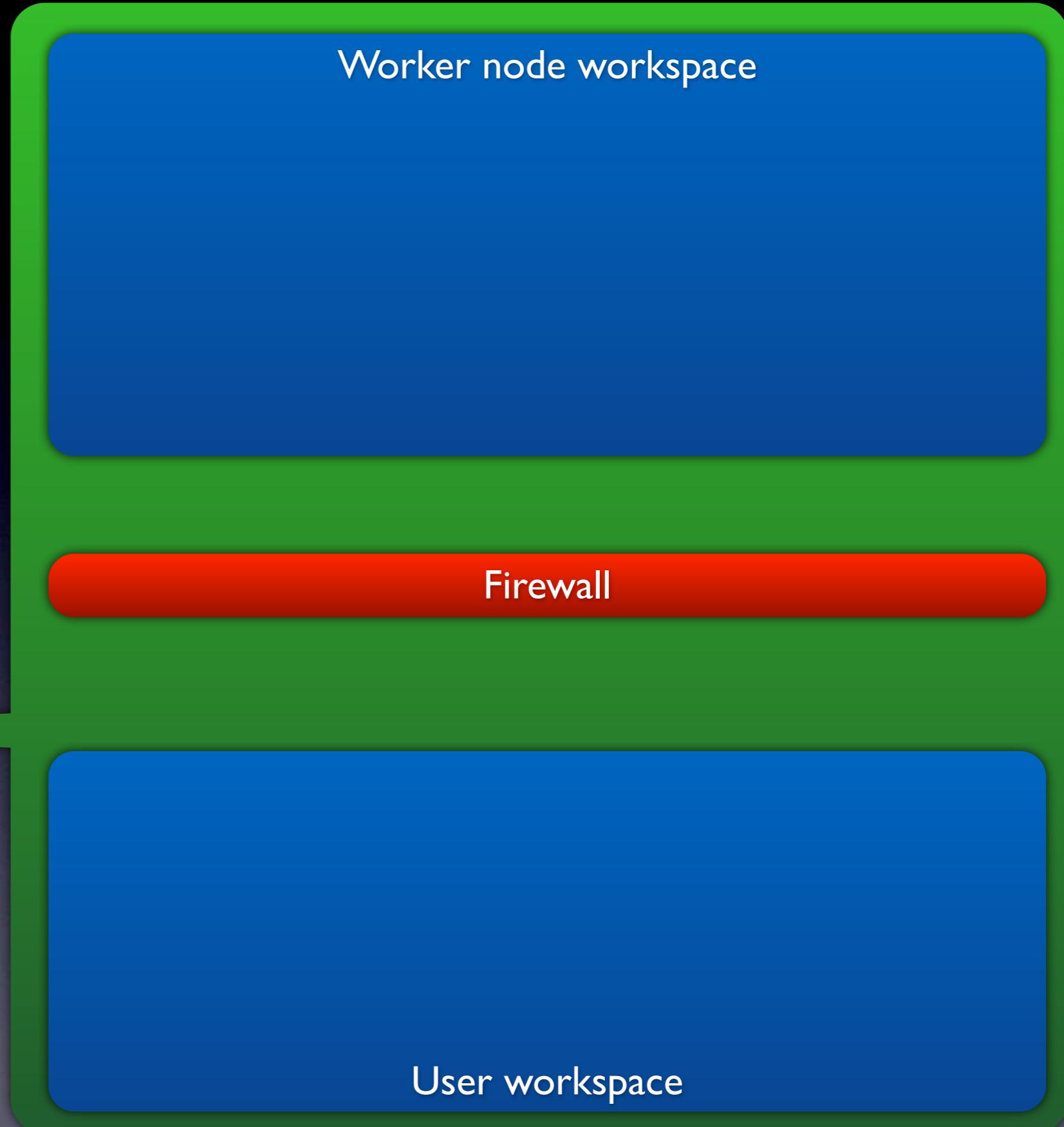
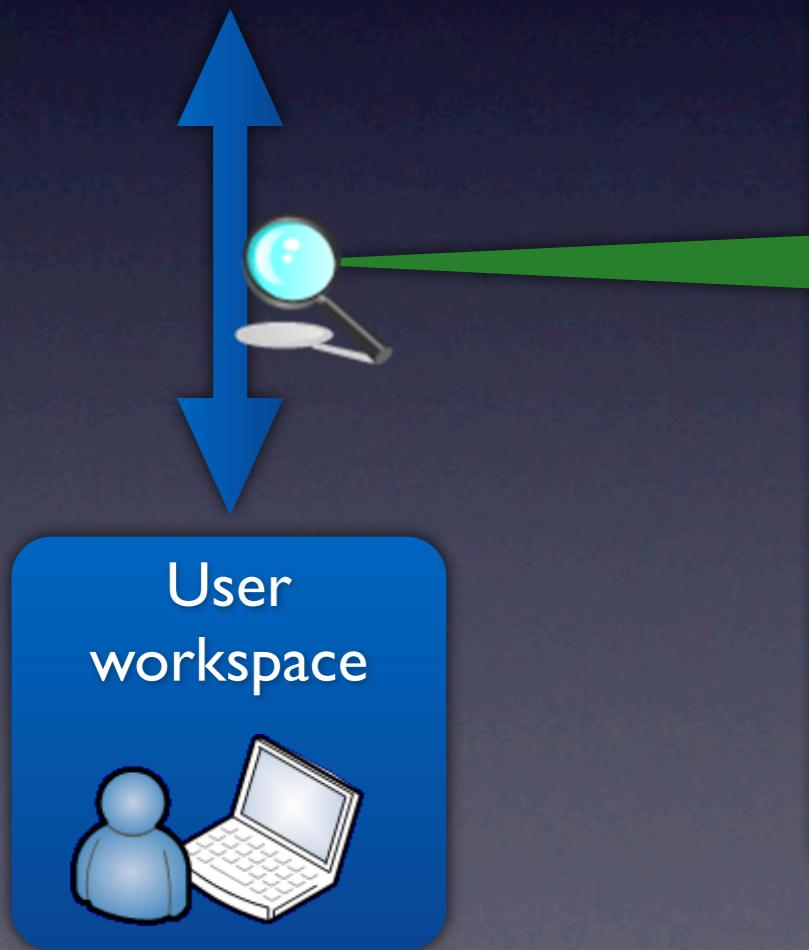
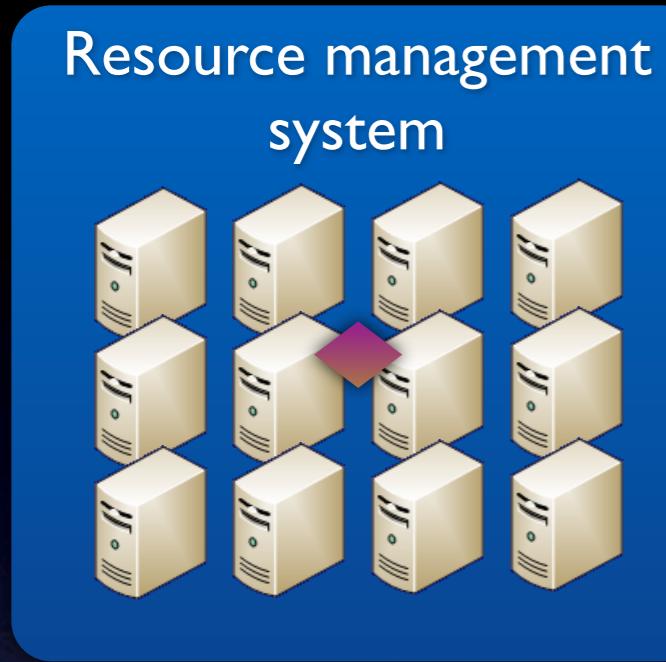


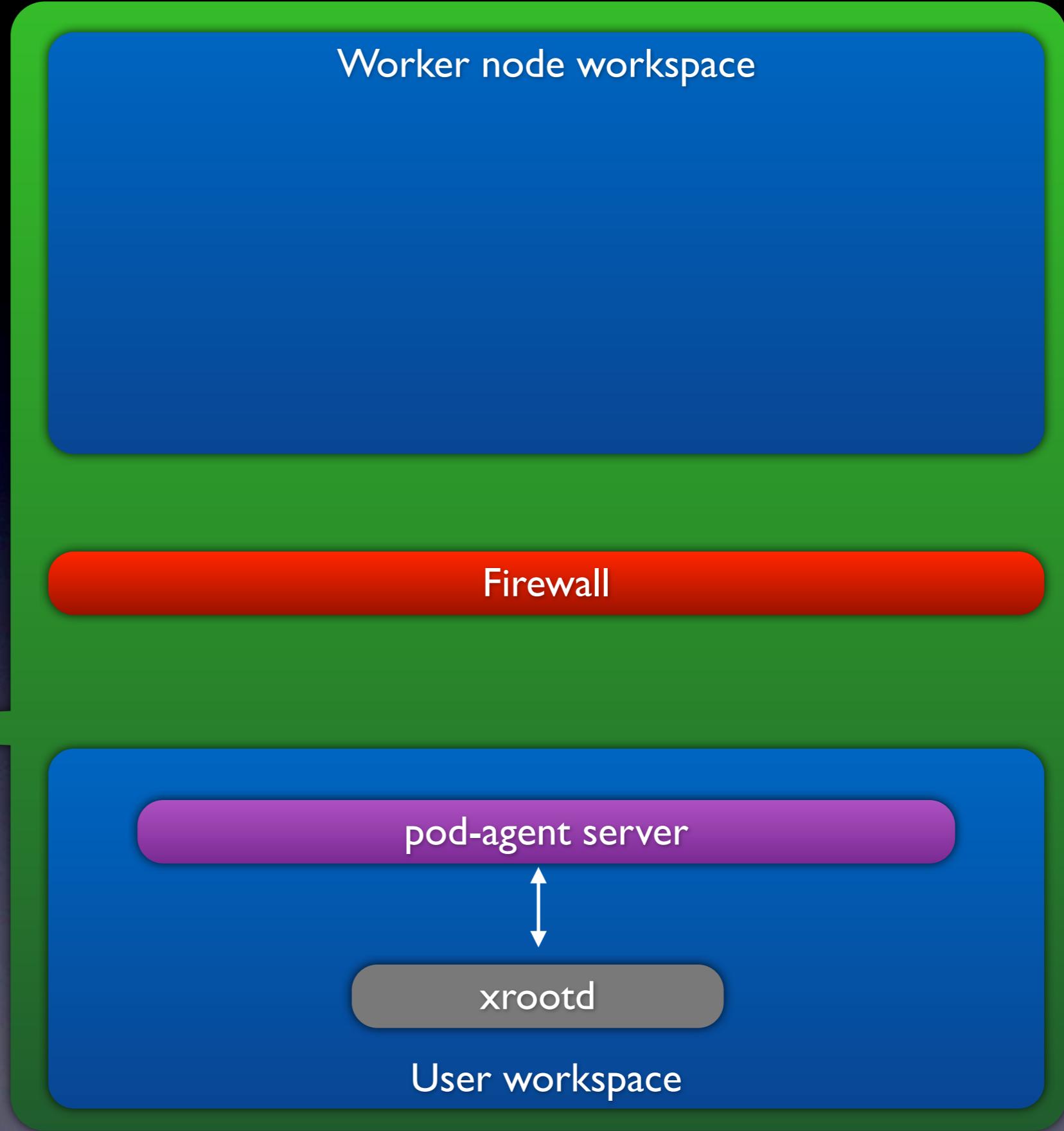
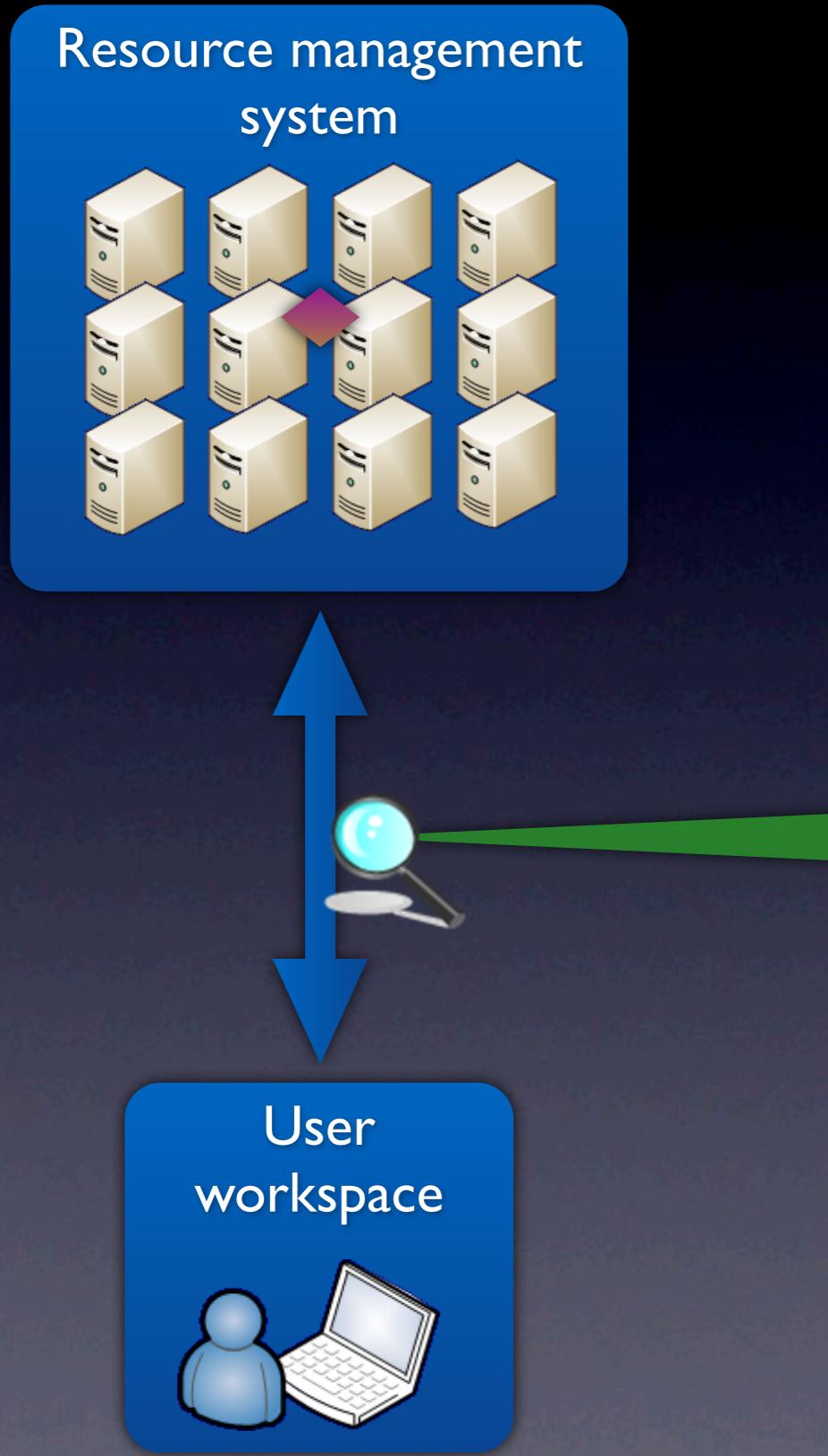
Resource management
system

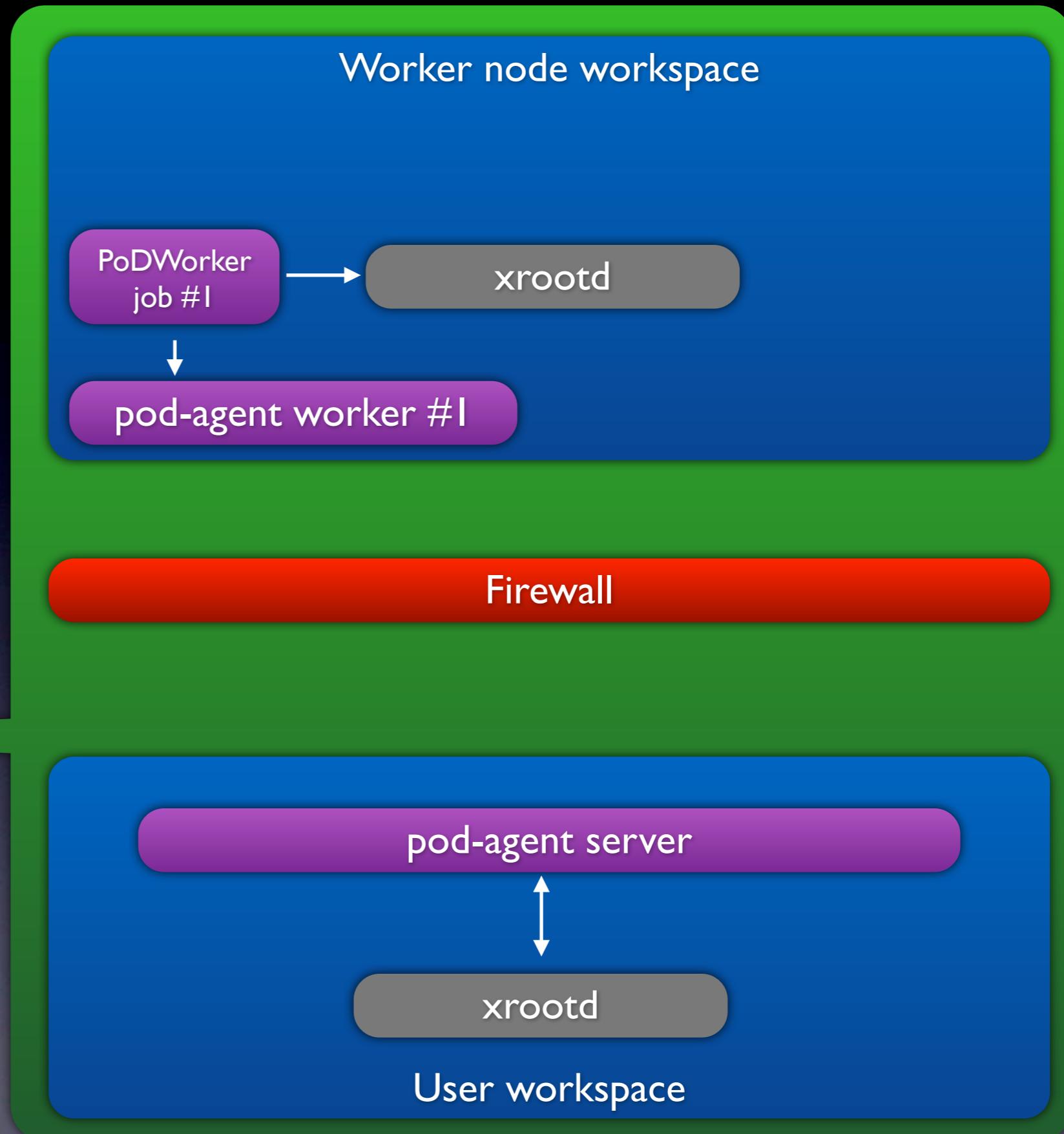
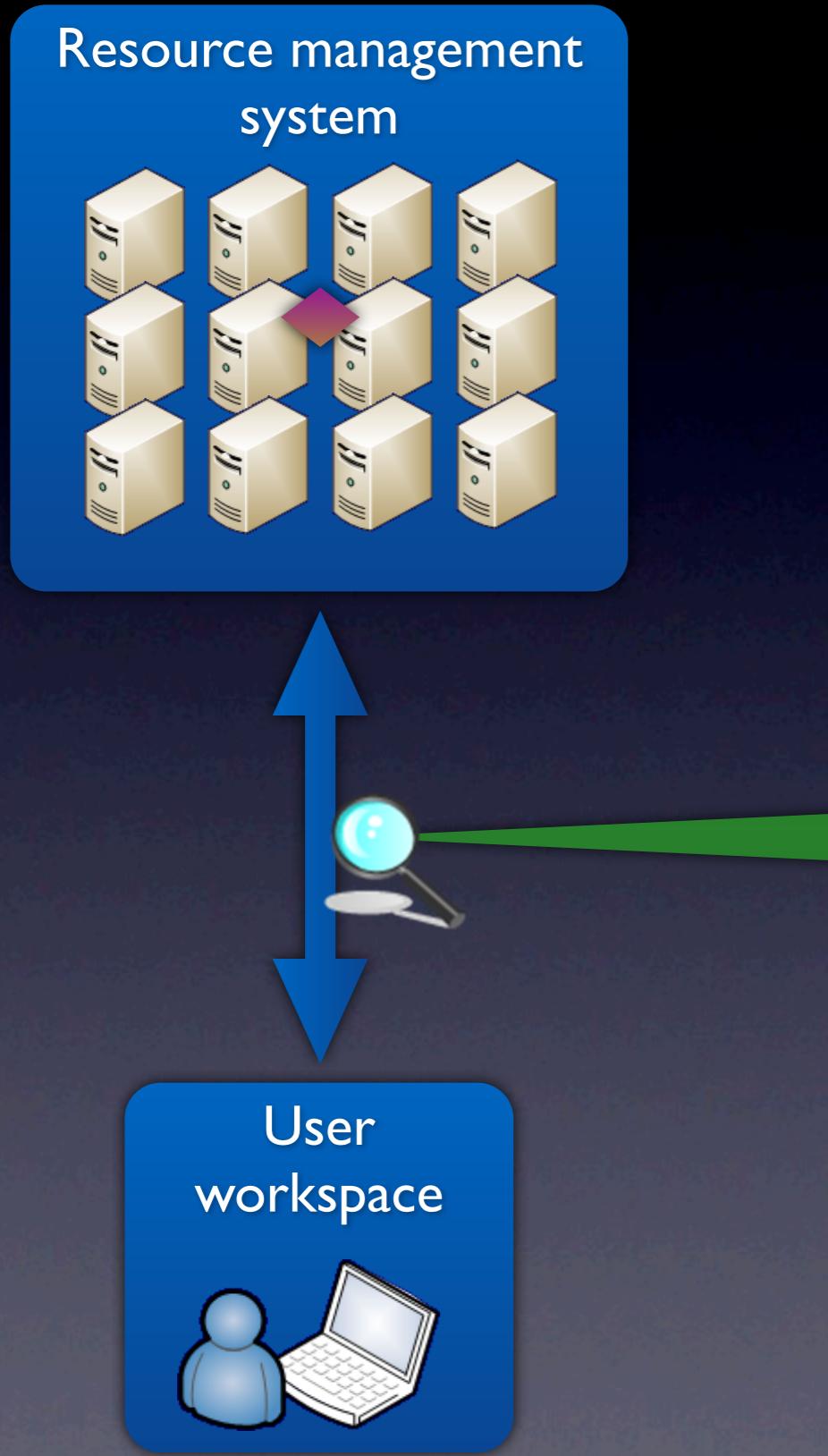


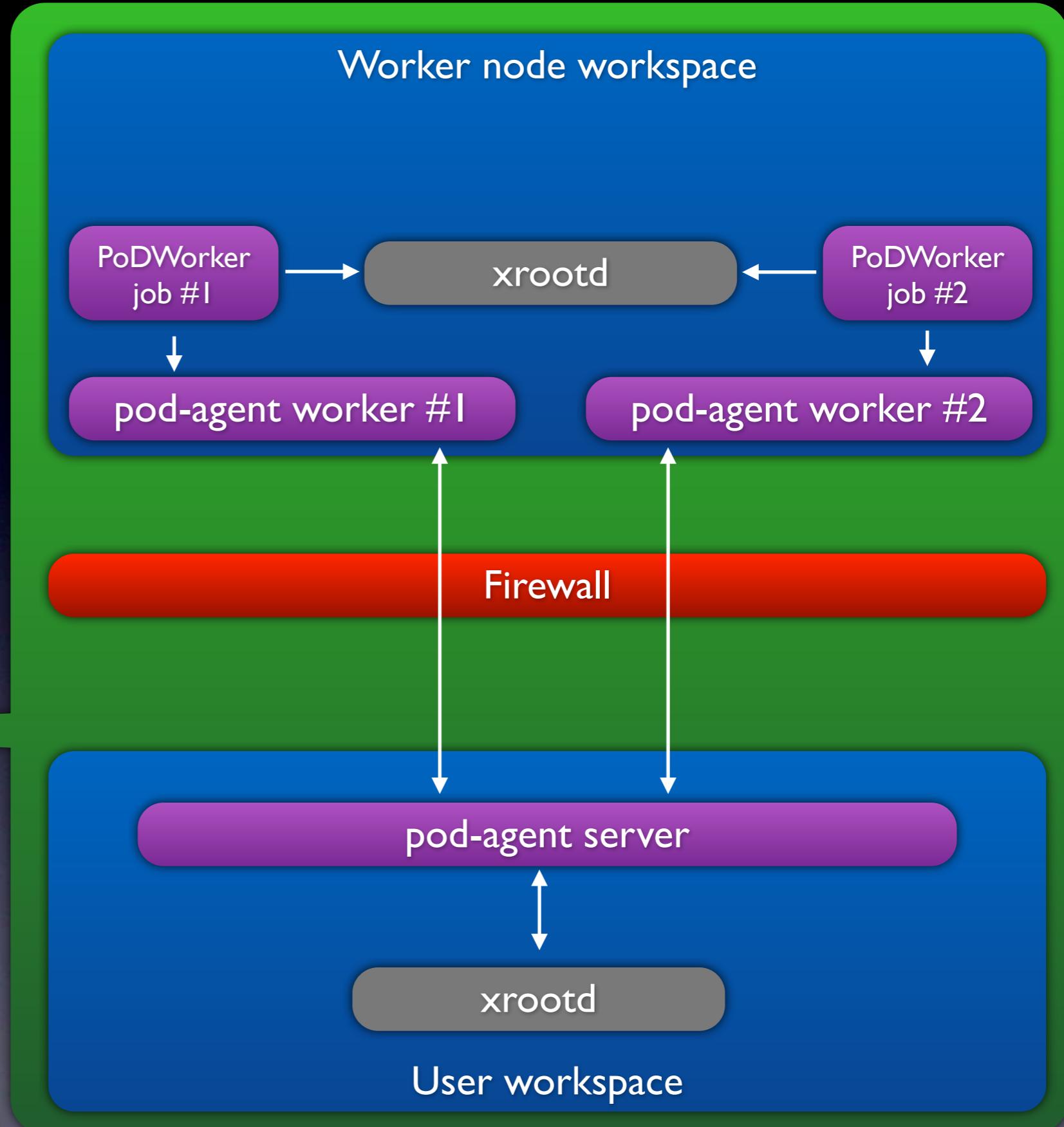
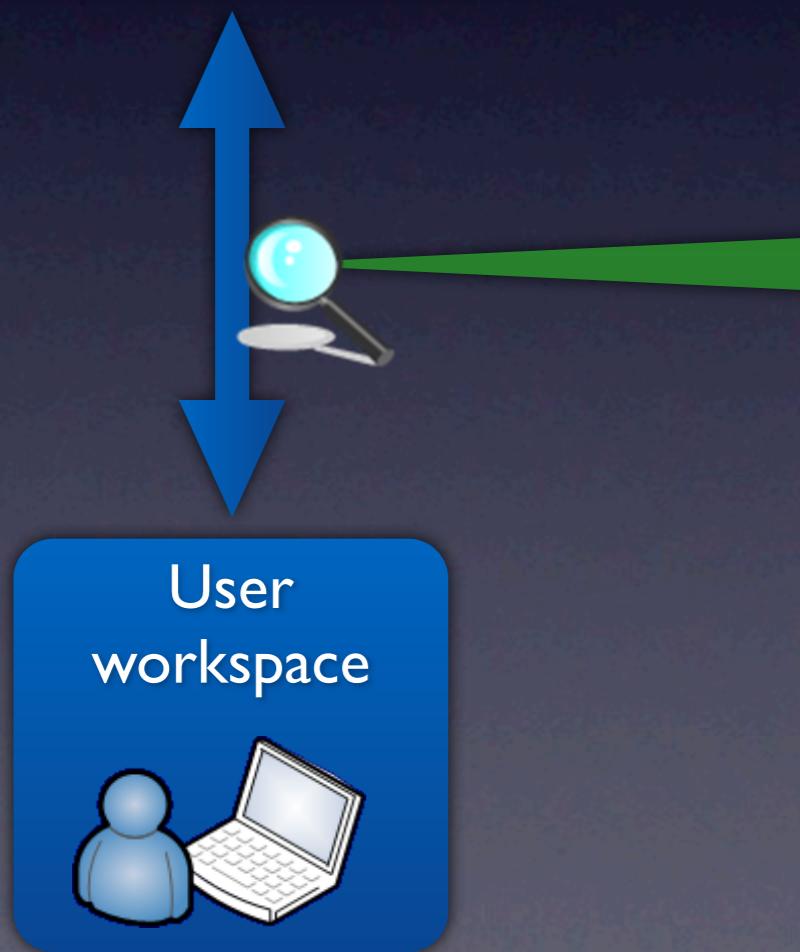
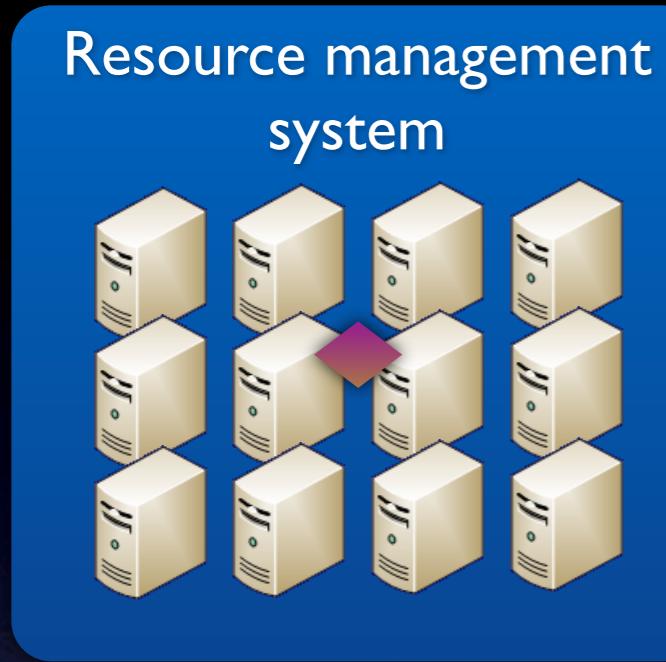
User
workspace

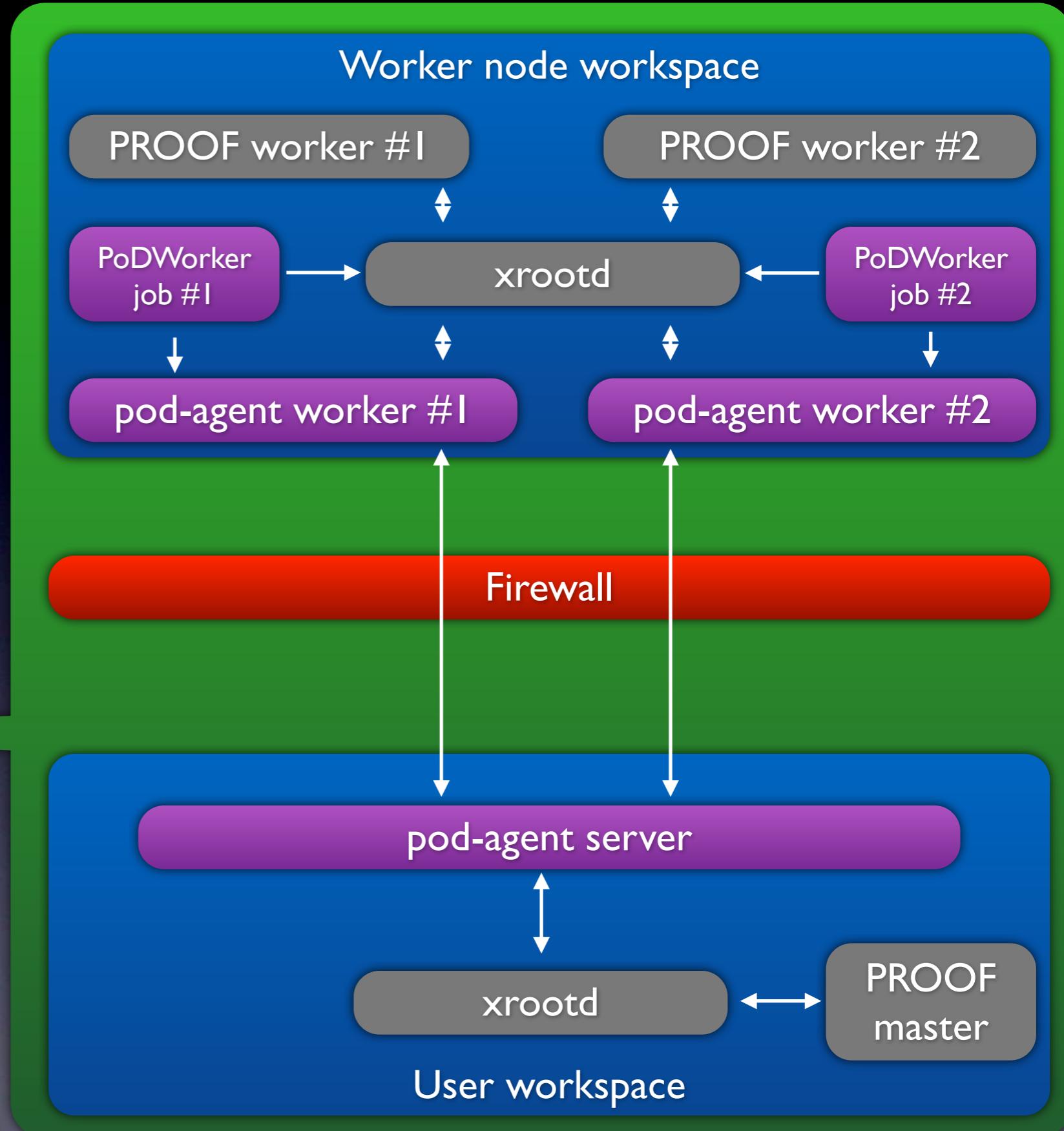
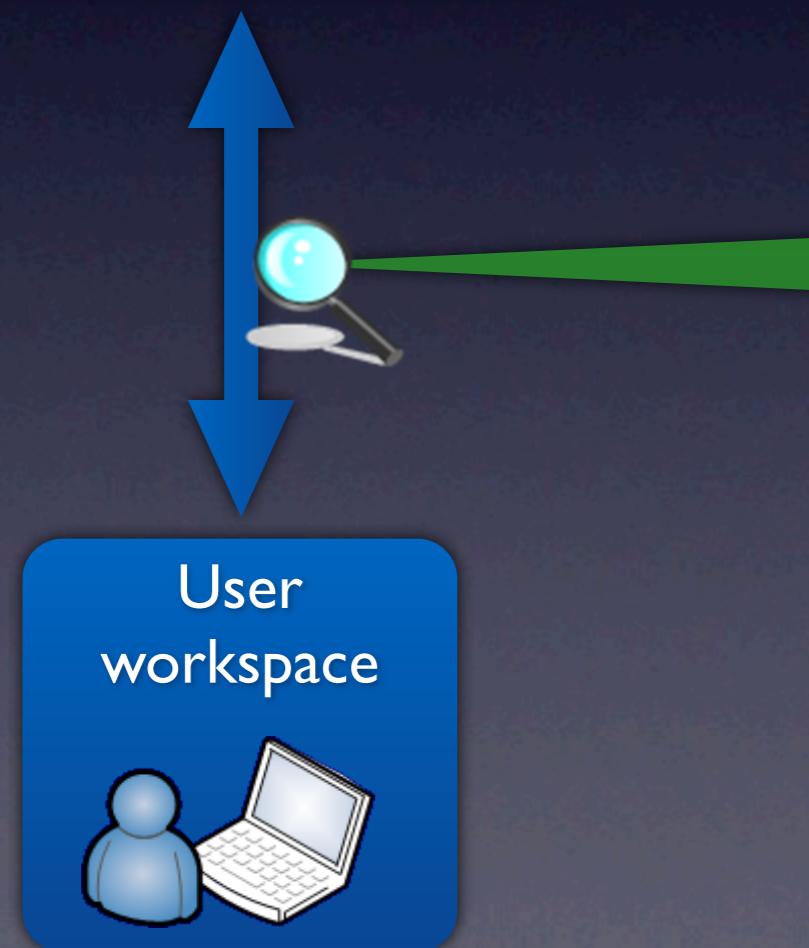
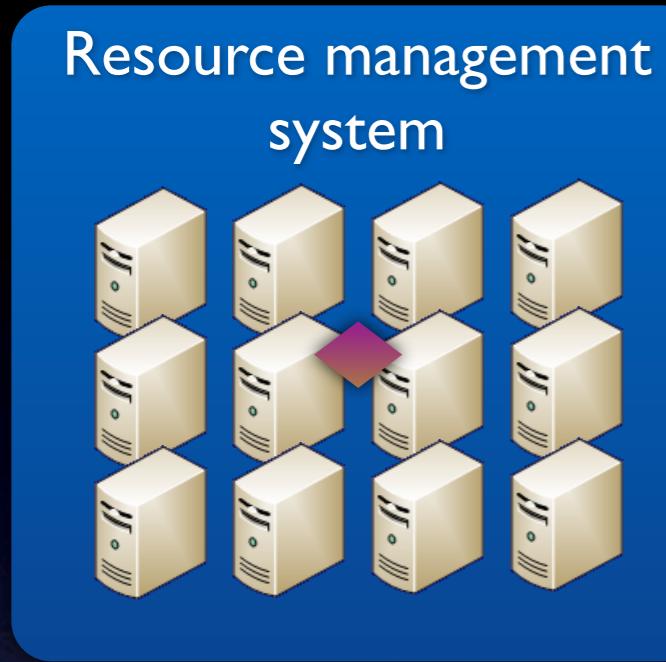


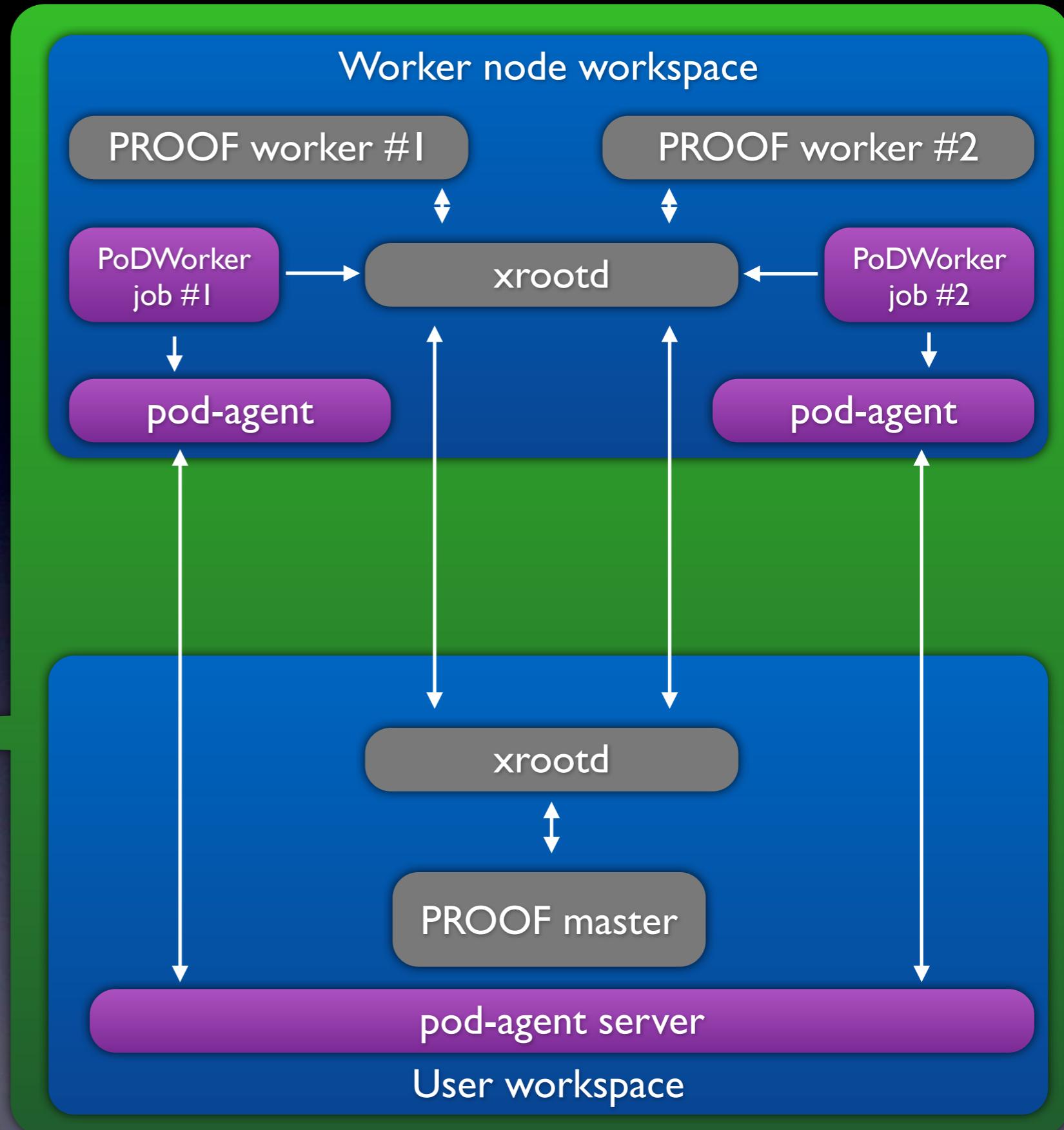
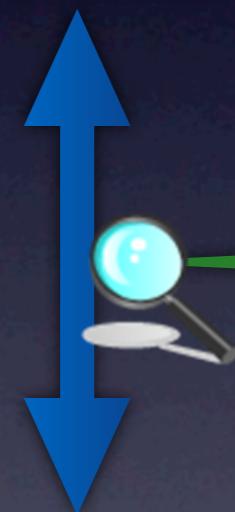










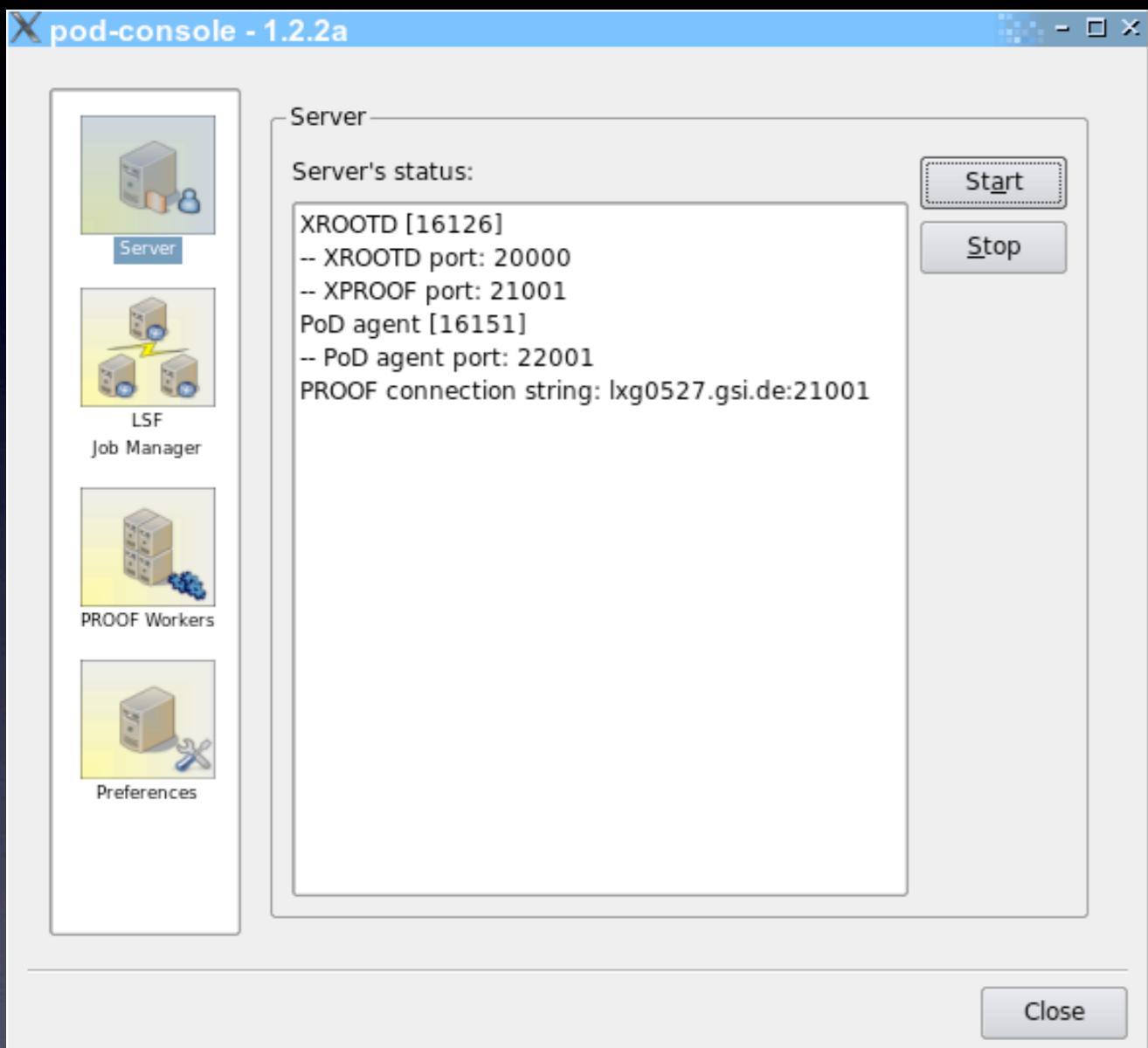


Key features

- Easy to use
- GUI & Command-line
- Different job managers
- Multiuser/-core environment
- Native PROOF connections
- Packet-forwarding
- User defaults - configuration

3 steps to set your private PROOF cluster up

PoD server

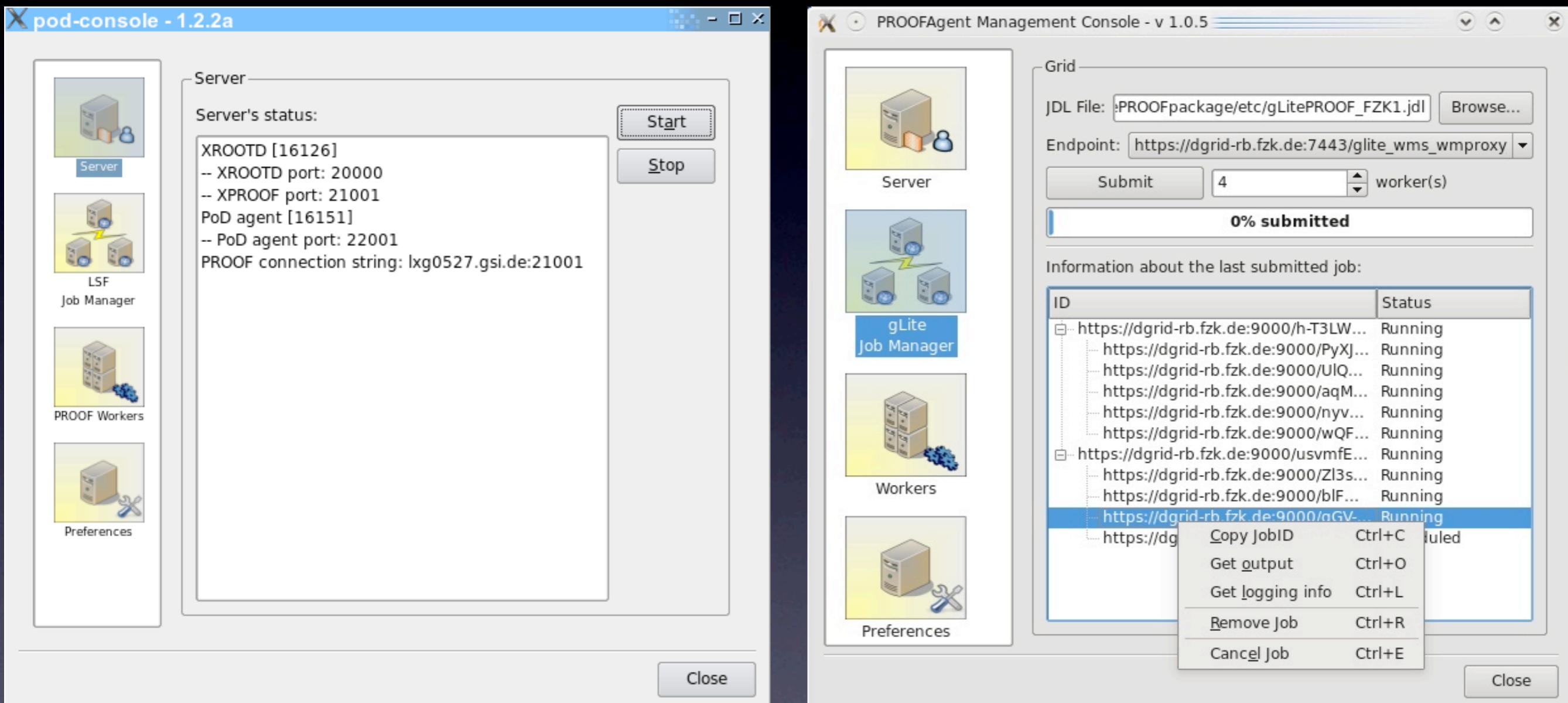


3 steps to set your private PROOF cluster up

PoD server

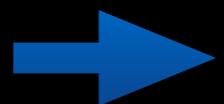


Job Manager (gLITE, PBS, LSF)

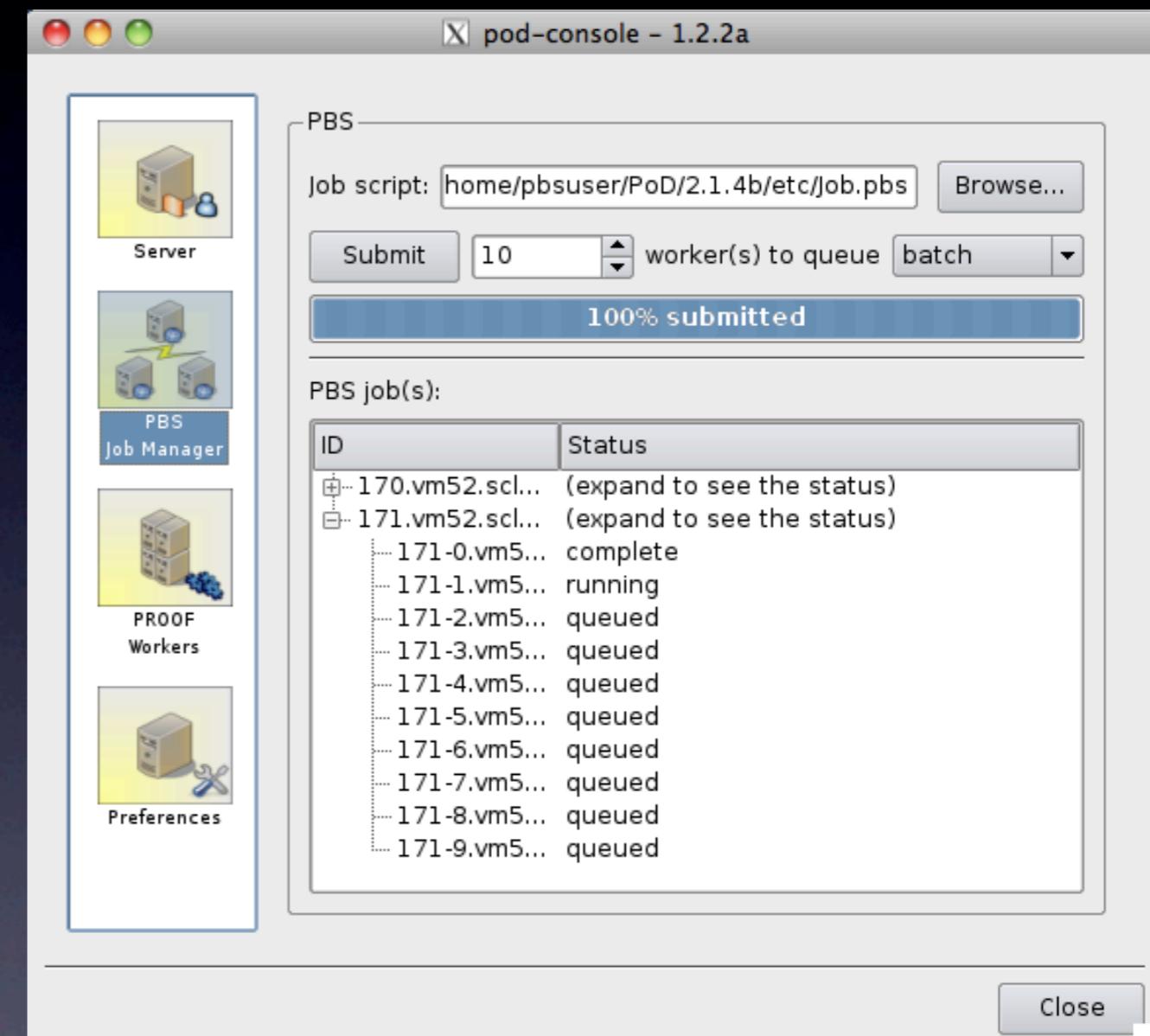
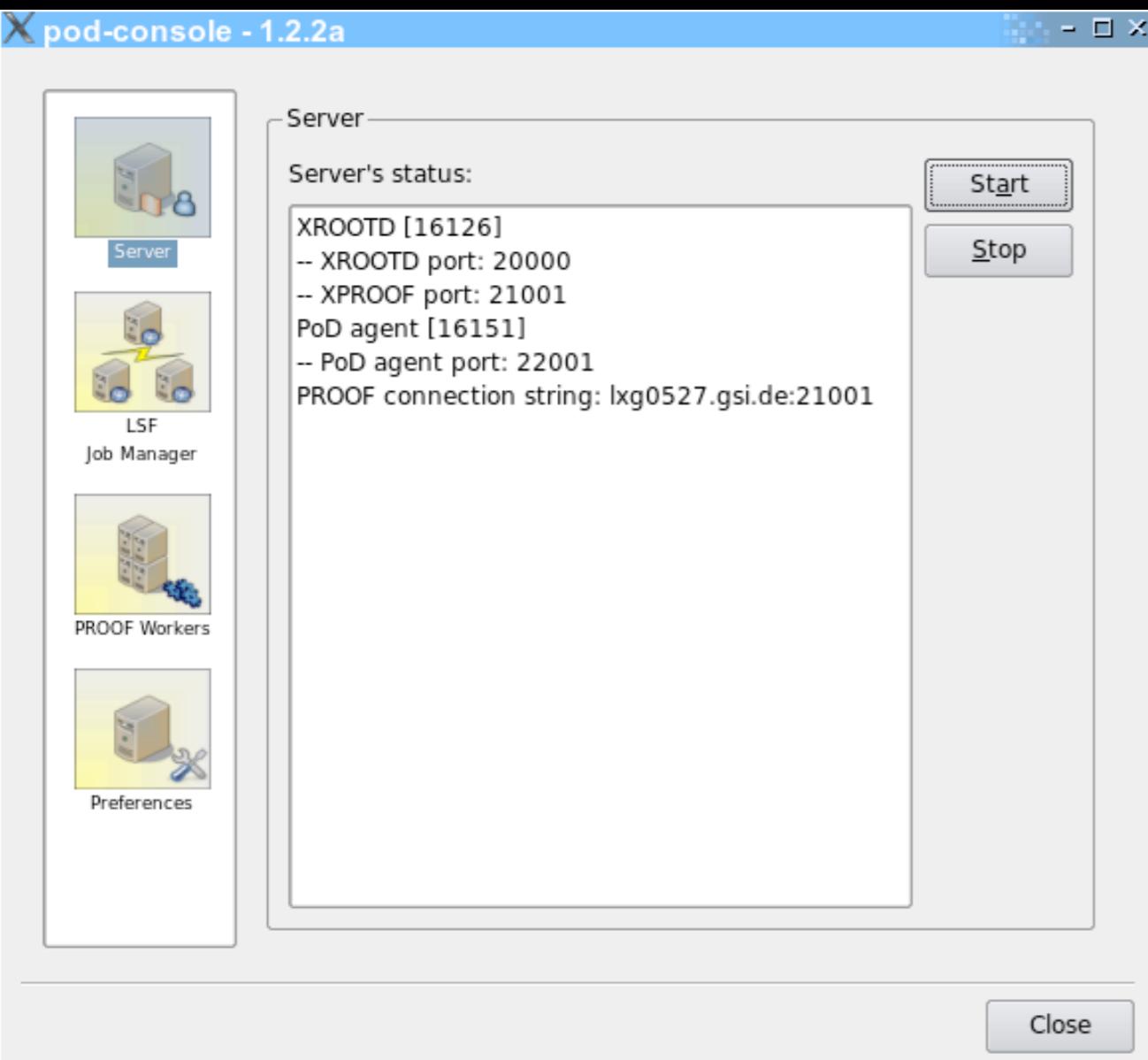


3 steps to set your private PROOF cluster up

PoD server



Job Manager (gLITE, PBS, LSF)



3 steps to set your private PROOF cluster up

PoD server



Job Manager (gLITE, PBS, LSF)

The image shows two windows of the **pod-console - 1.2.2a** application side-by-side, illustrating the setup process for a private PROOF cluster.

Left Window (PoD server):

- Server:** Shows the status of XROOTD [16126] and PoD agent [16151].
 - XROOTD port: 20000
 - XPROOF port: 21001
- PROOF connection string:** lsg0527.gsi.de:21001
- Buttons:** Start and Stop.

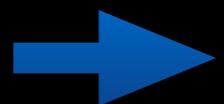
Right Window (Job Manager):

- LSF:** Shows the submission of a batch script.
 - Batch script: /misc/manafov/PoD/2.1.4a/etc/job.lsf
 - Submit button
 - 120 worker(s) to queue proof
 - Status: 100% submitted
- LSF job(s):** A table showing the status of 12 jobs.

ID	Status
674279	run
674279[1]	run
674279[2]	run
674279[3]	run
674279[4]	run
674279[5]	run
674279[6]	run
674279[7]	run
674279[8]	run
674279[9]	run
674279[10]	run
674279[11]	run
674279[12]	run

3 steps to set your private PROOF cluster up

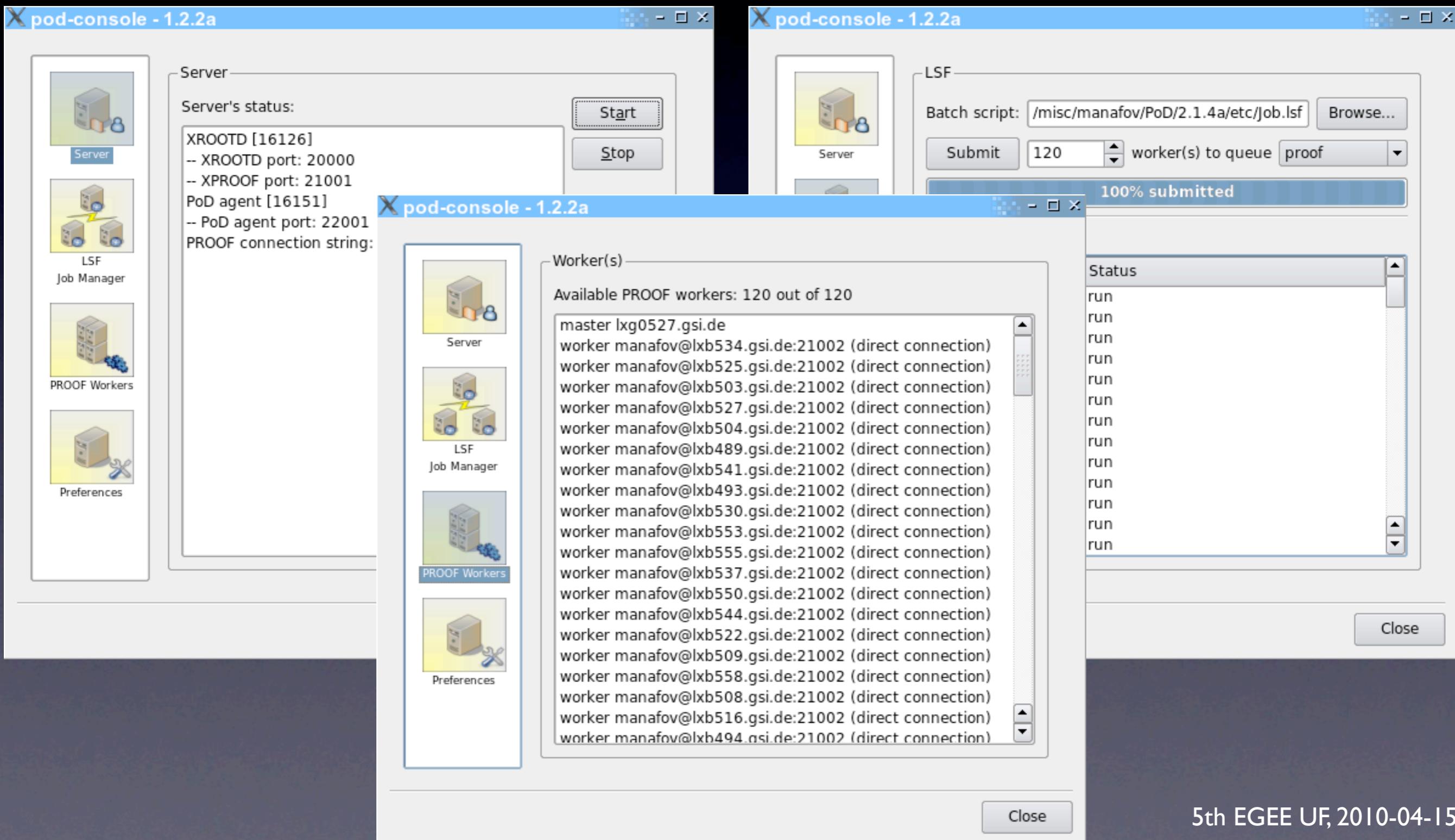
PoD server



Job Manager (gLITE, PBS, LSF)



your
PROOF
cluster



PoD at GSI

Dedicated LSF queue

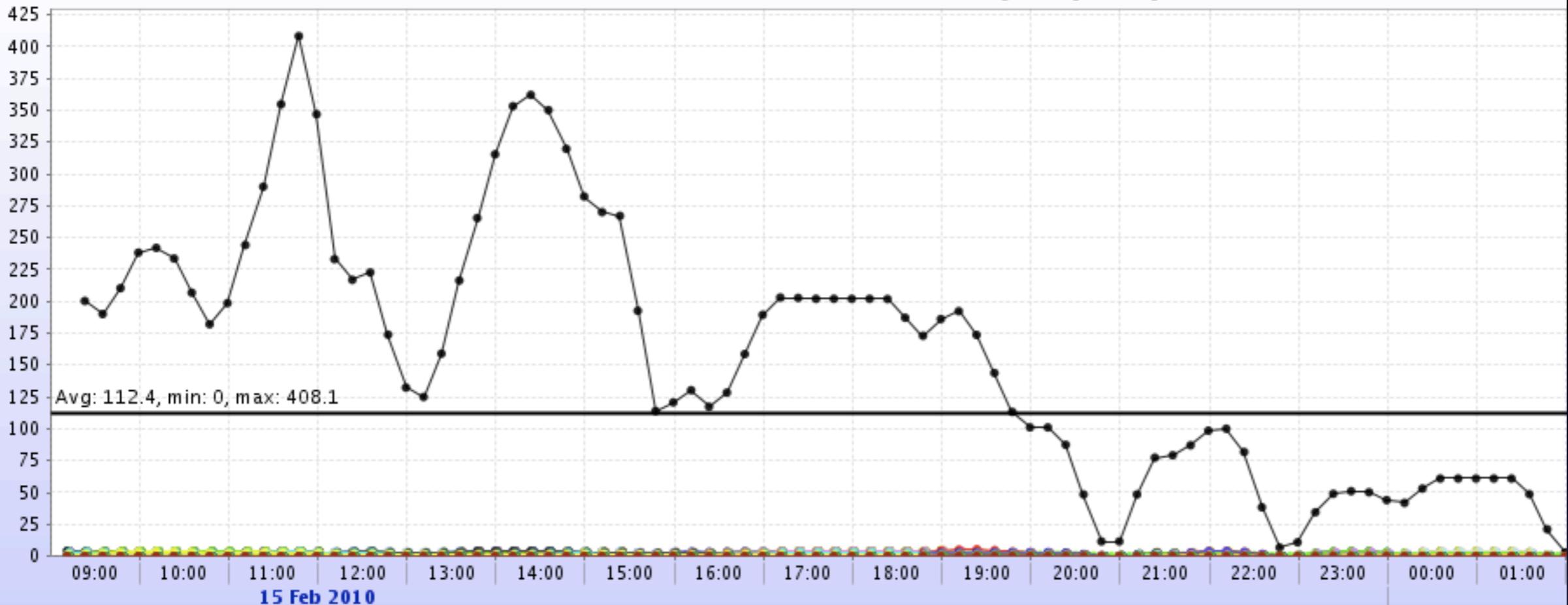
- preemptive, max. 120 jobs per user and max. 4 hours run-time per job.

Data located on the lustre FS.

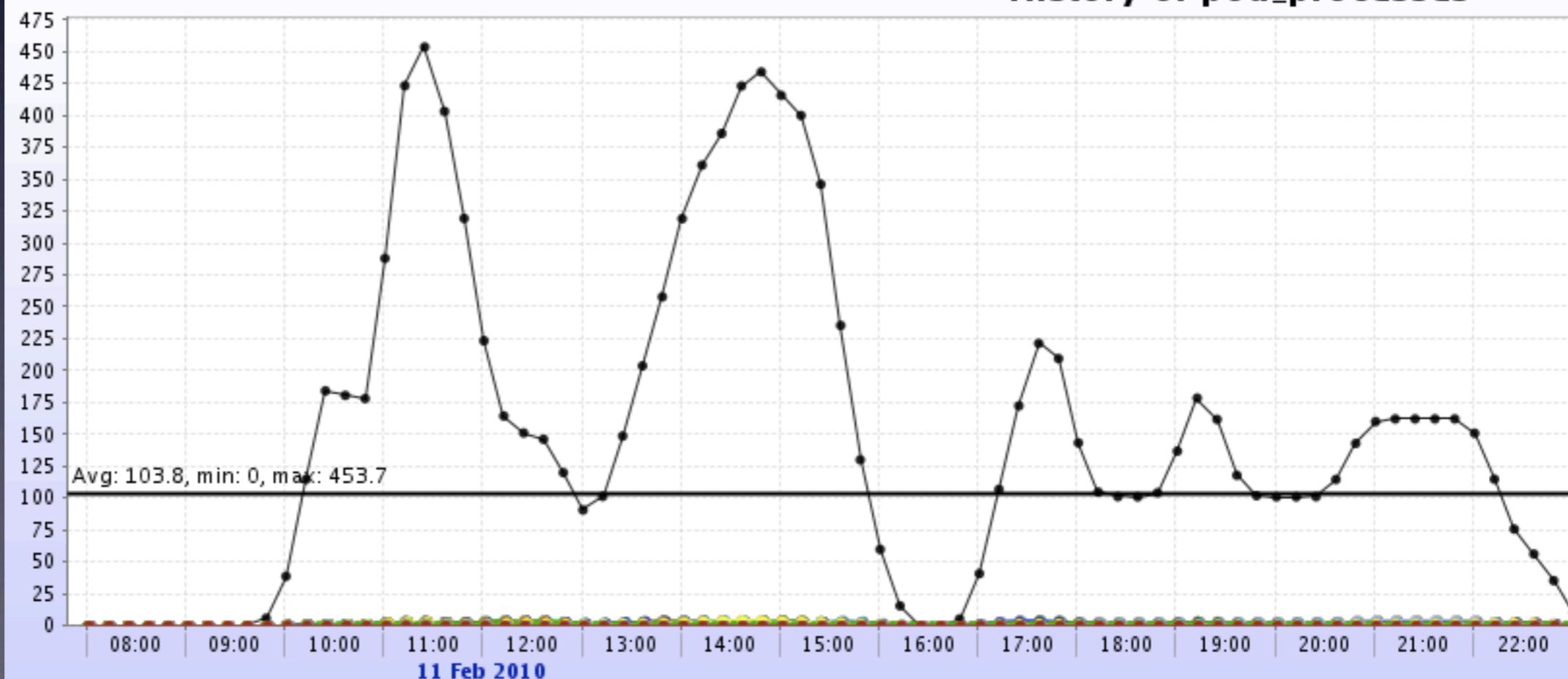
Mainly used by ALICE group (GSI, Heidelberg, Münster).

In average we have 2-5 concurrent users with 20-120 workers each.

History of pod_processes



History of pod_processes

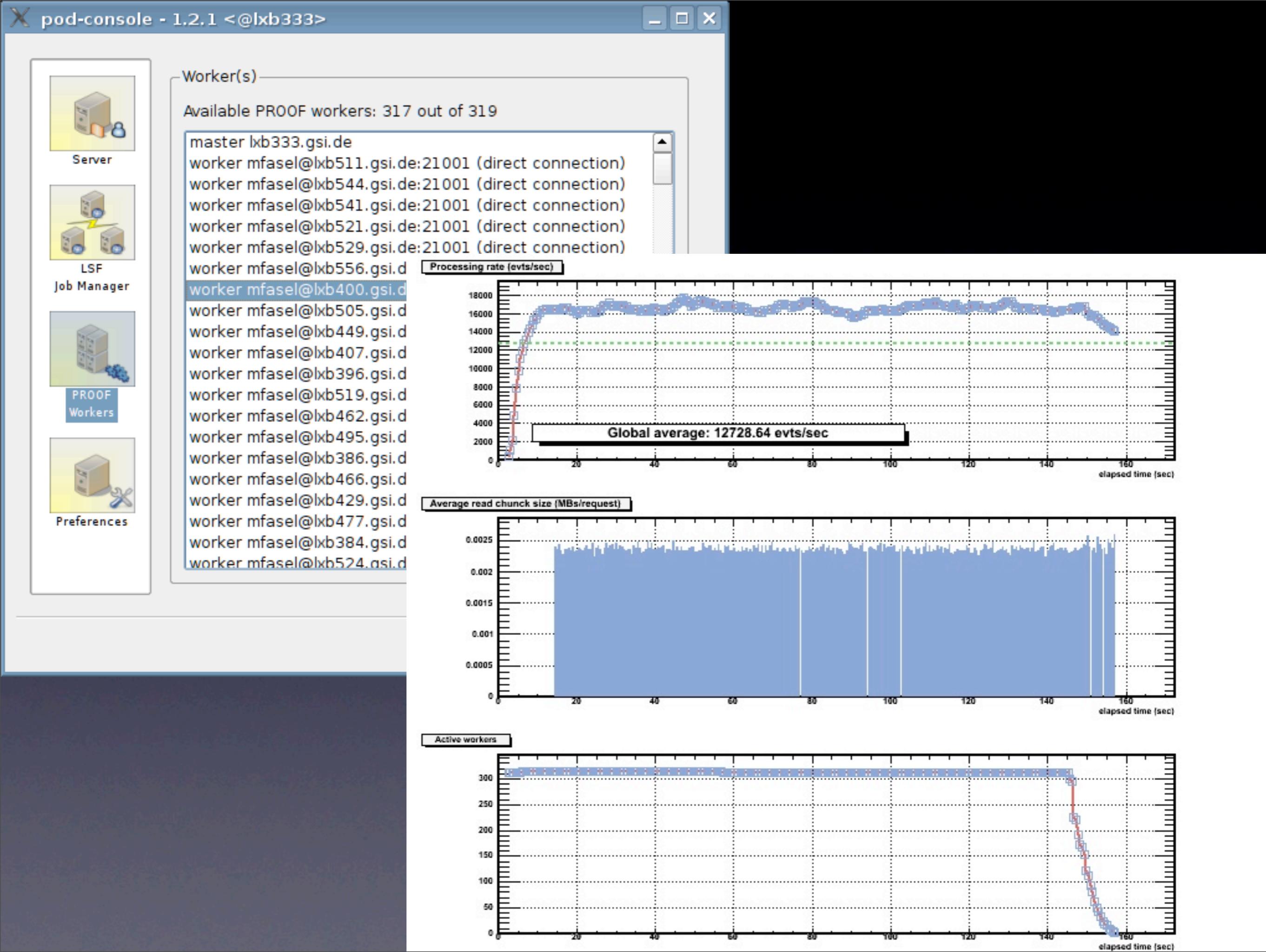


ToDo

- an SSH plug-in,
- “out of server” UI,
- a native Mac OS X implementation of UI,
- an AliEn plug-in.

<http://pod.gsi.de>

BackUp slides



User experience PoD & gLite

T-3 for ATLAS,
the gLite site is IN2P3-CPPM
DPM + xrootd

