



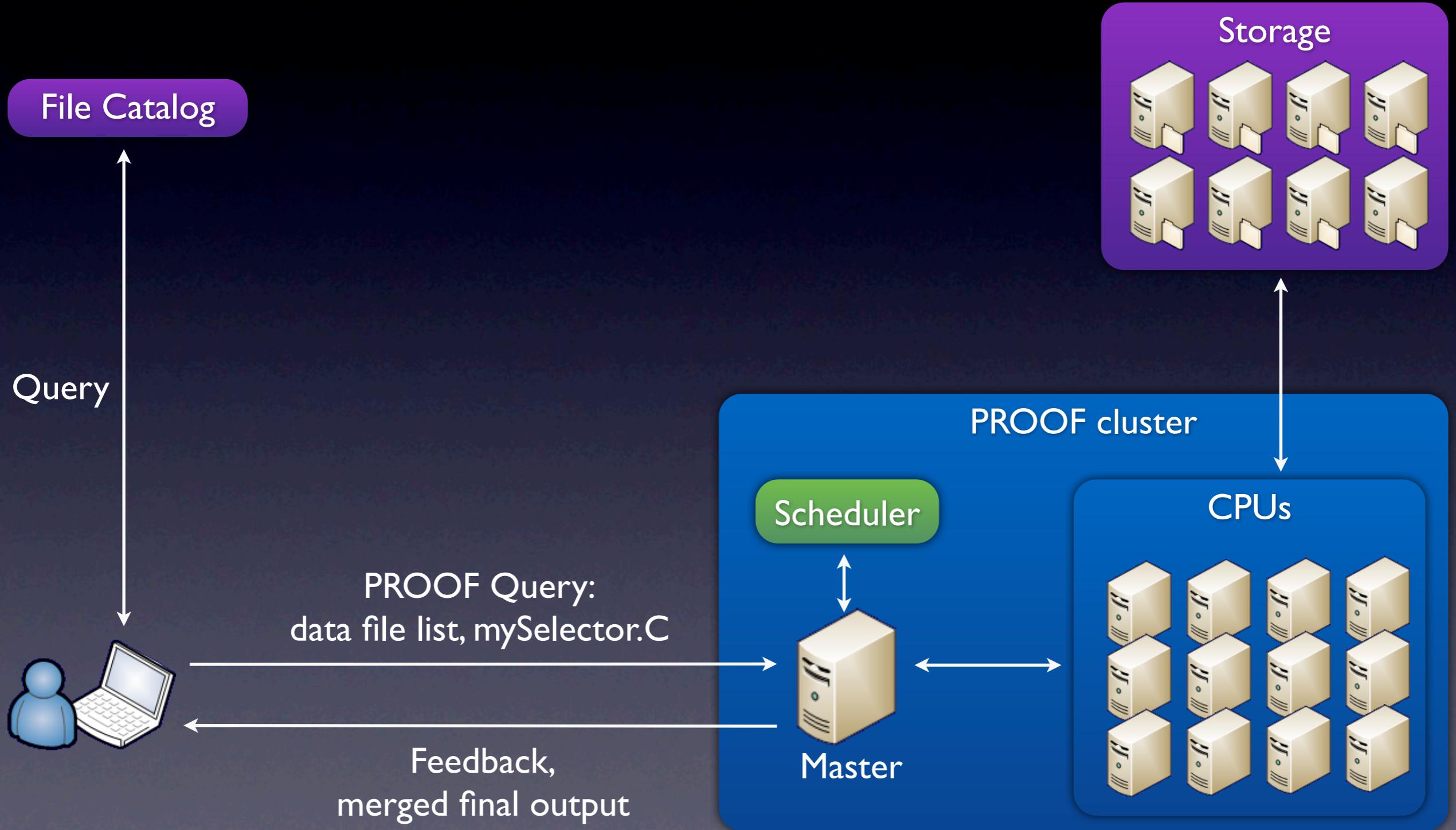
Anar Manafov, GSI Darmstadt

HEP Data Analysis



Typical HEP analysis needs a continuous algorithm refinement cycle

PROOF



Dynamic cluster

User

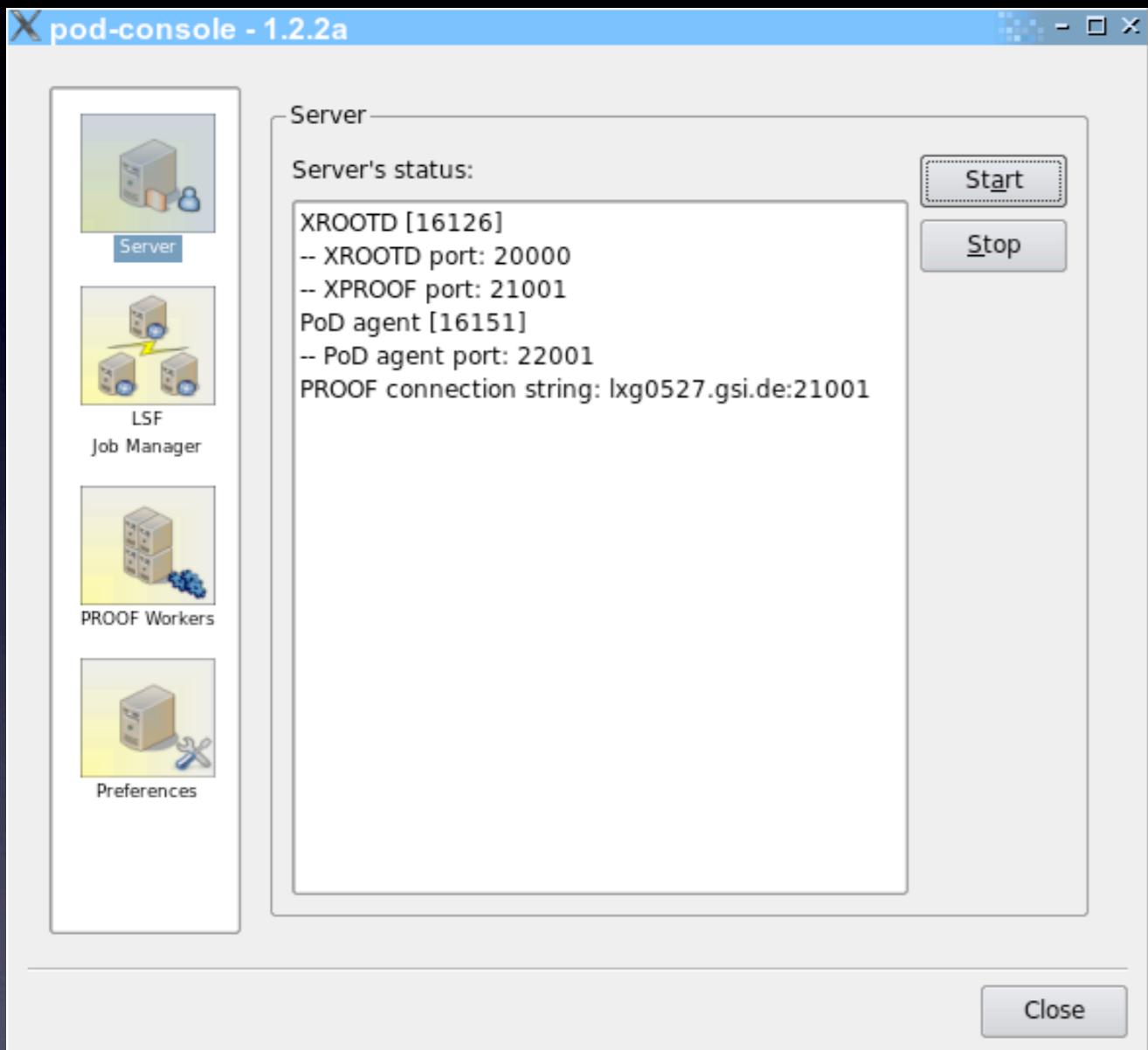
- can entirely control it,
- can setup and use it on demand,
- can reserve a desired amount of workers,
- can select a preferable master host,
- doesn't need admins to take an action,
- doesn't disturb other users.



developed at GSI by the Scientific Computing group

3 steps to set your private PROOF cluster up

PoD server

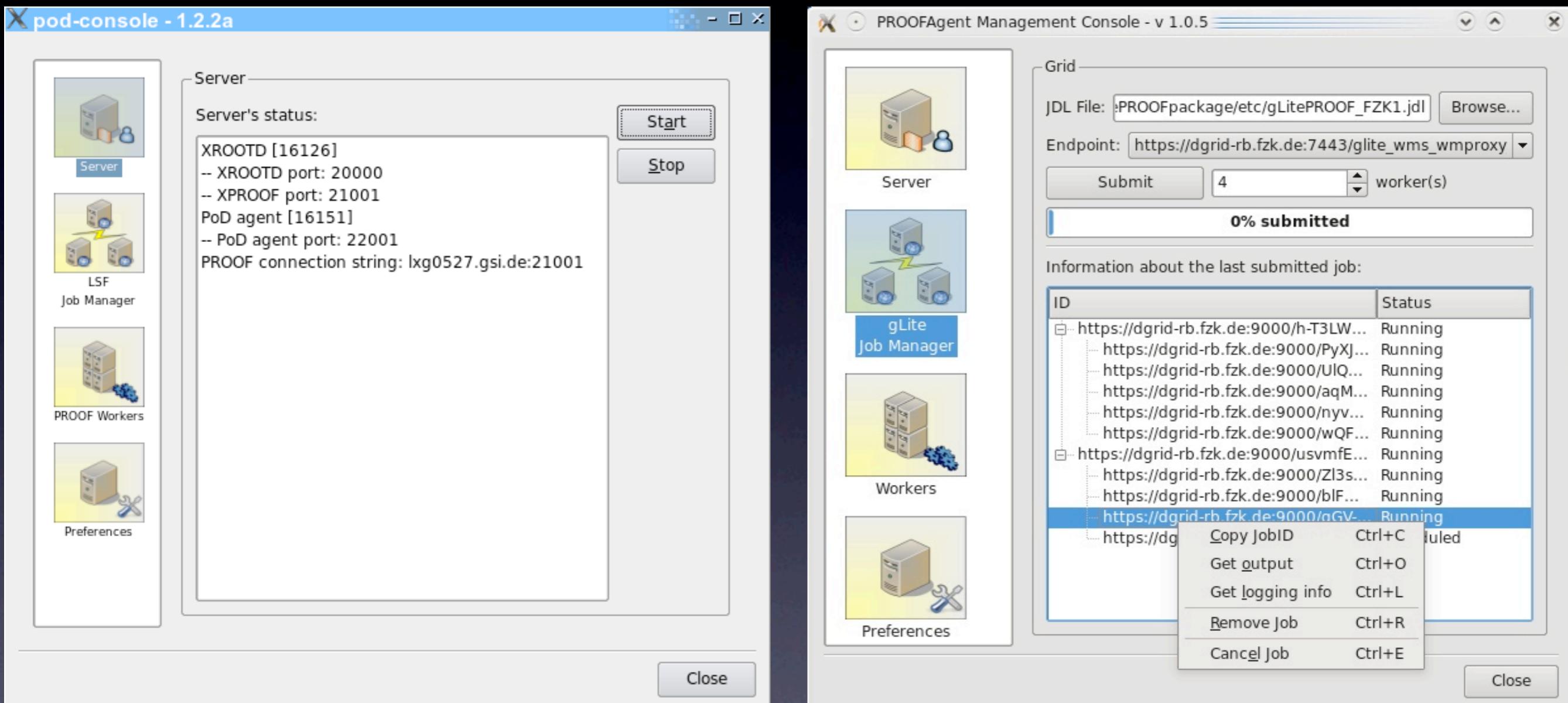


3 steps to set your private PROOF cluster up

PoD server

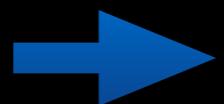


Job Manager (gLITE, PBS, LSF)

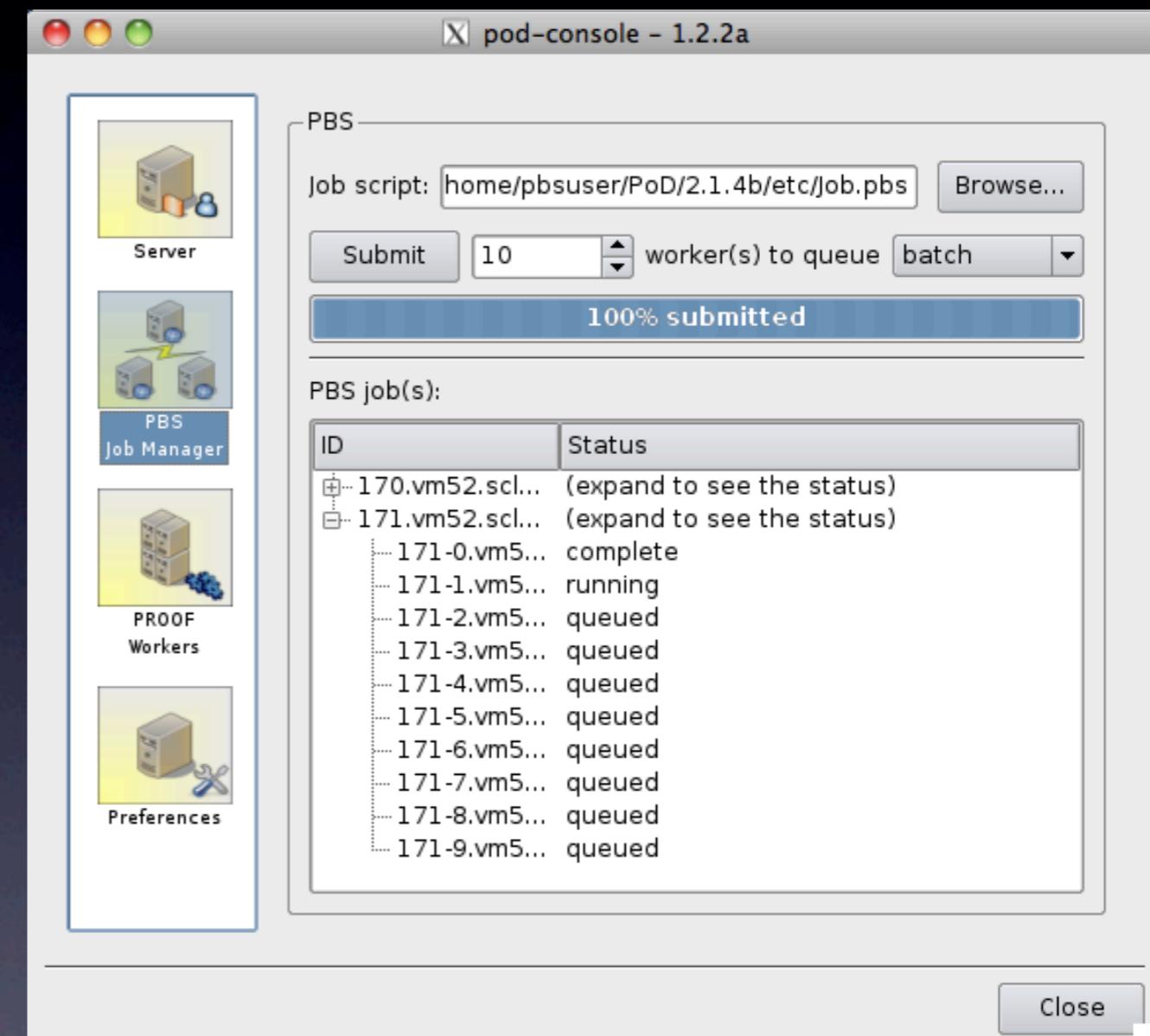
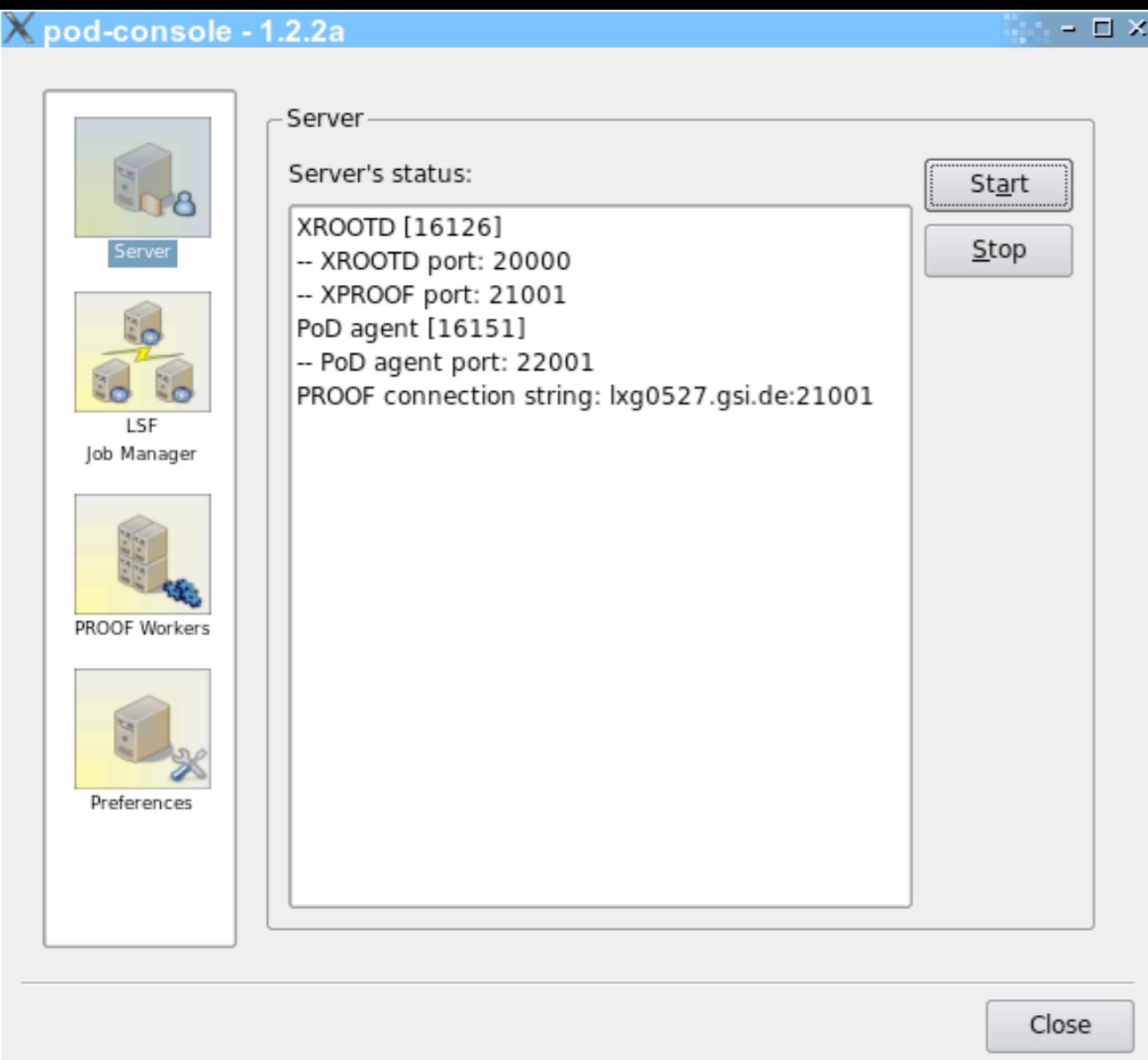


3 steps to set your private PROOF cluster up

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 displays two side-by-side windows of the **pod-console - 1.2.2a** application.

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 a configuration for 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 under ID 674279.

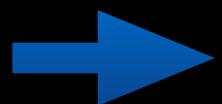
ID	Status
674279	run
674279[1]	run
674279[2]	run
674279[3]	run
674279[4]	run
674279[5]	run
674279[6]	run
674279[7]	run
674279[8]	run
674279[9]	run
674279[10]	run
674279[11]	run
674279[12]	run

3 steps to set your private PROOF cluster up

PoD server



Job Manager (gLITE, PBS, LSF)



your
PROOF
cluster

The screenshot shows the pod-console application interface across three windows:

- PoD server window:** Displays the Server's status:
 - XROOTD [16126]
 - XROOTD port: 20000
 - XPROOF port: 21001
 - PoD agent [16151]
 - PoD agent port: 22001

PROOF connection string:

 - Server
 - LSF Job Manager
 - PROOF Workers
 - Preferences

Buttons: Start, Stop.

Job Manager (gLITE, PBS, LSF) window:

 - LSF Batch script: /misc/manafav/PoD/2.1.4a/etc/job.lsf
 - Submit 120 worker(s) to queue proof

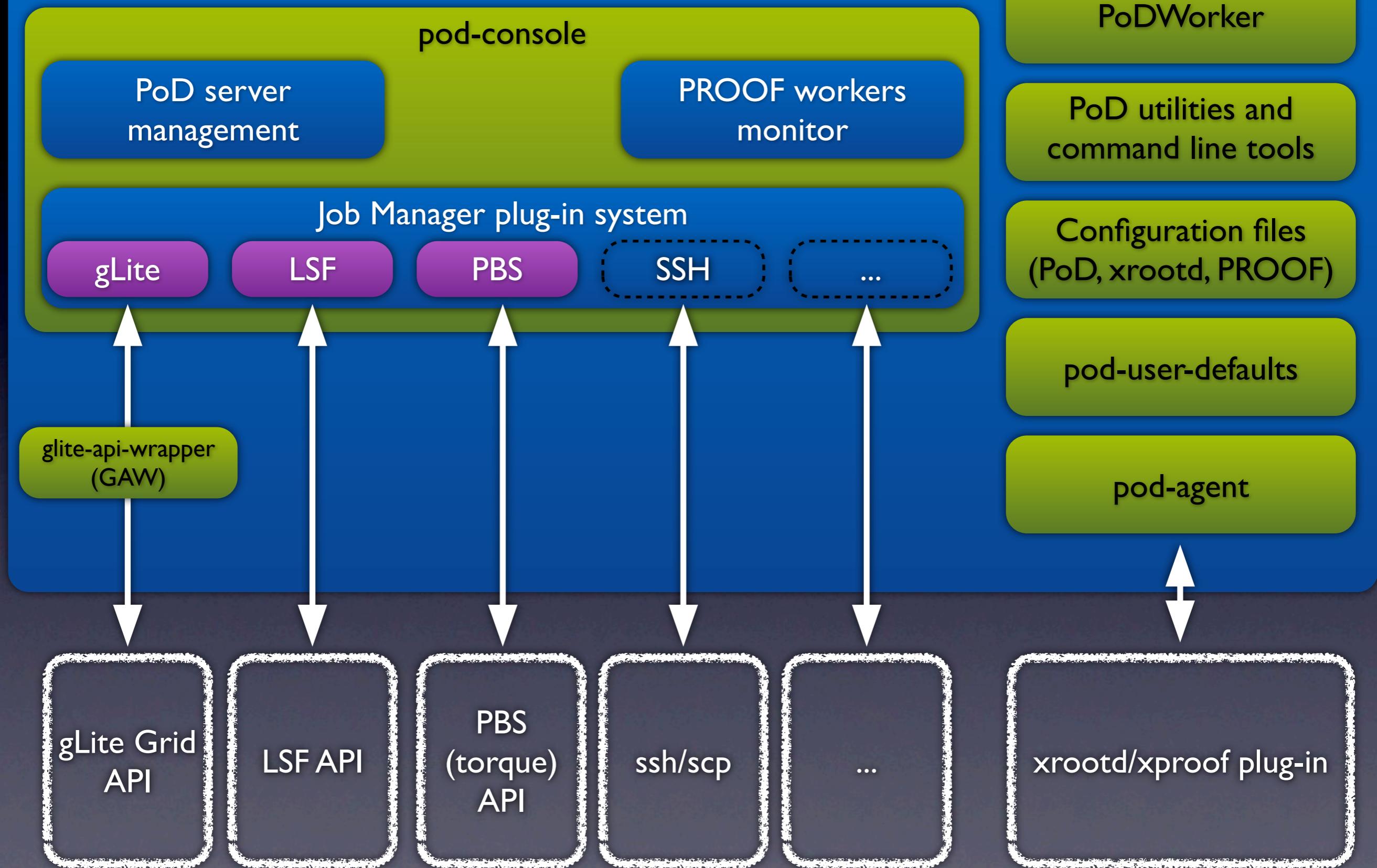
Status: 100% submitted

Worker(s) window:

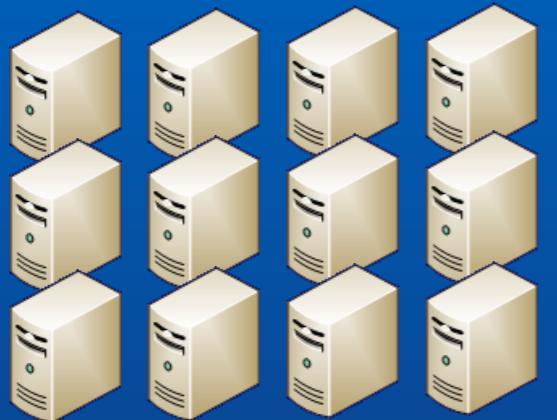
 - Available PROOF workers: 120 out of 120
 - master lxg0527.gsi.de
 - worker manafav@lx534.gsi.de:21002 (direct connection)
 - worker manafav@lx525.gsi.de:21002 (direct connection)
 - worker manafav@lx503.gsi.de:21002 (direct connection)
 - worker manafav@lx527.gsi.de:21002 (direct connection)
 - worker manafav@lx504.gsi.de:21002 (direct connection)
 - worker manafav@lx489.gsi.de:21002 (direct connection)
 - worker manafav@lx541.gsi.de:21002 (direct connection)
 - worker manafav@lx493.gsi.de:21002 (direct connection)
 - worker manafav@lx530.gsi.de:21002 (direct connection)
 - worker manafav@lx553.gsi.de:21002 (direct connection)
 - worker manafav@lx555.gsi.de:21002 (direct connection)
 - worker manafav@lx537.gsi.de:21002 (direct connection)
 - worker manafav@lx550.gsi.de:21002 (direct connection)
 - worker manafav@lx544.gsi.de:21002 (direct connection)
 - worker manafav@lx522.gsi.de:21002 (direct connection)
 - worker manafav@lx509.gsi.de:21002 (direct connection)
 - worker manafav@lx558.gsi.de:21002 (direct connection)
 - worker manafav@lx508.gsi.de:21002 (direct connection)
 - worker manafav@lx516.gsi.de:21002 (direct connection)
 - worker manafav@lx494.gsi.de:21002 (direct connection)
 - Status: run (repeated 120 times)

Buttons: Close

PoD v2.1.X



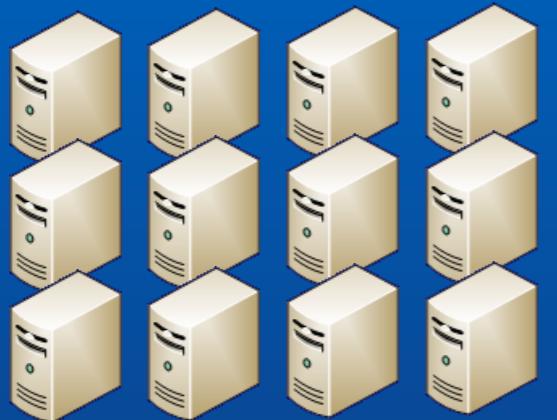
Resource management system



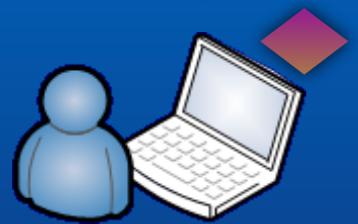
User workspace



Resource management system



User workspace

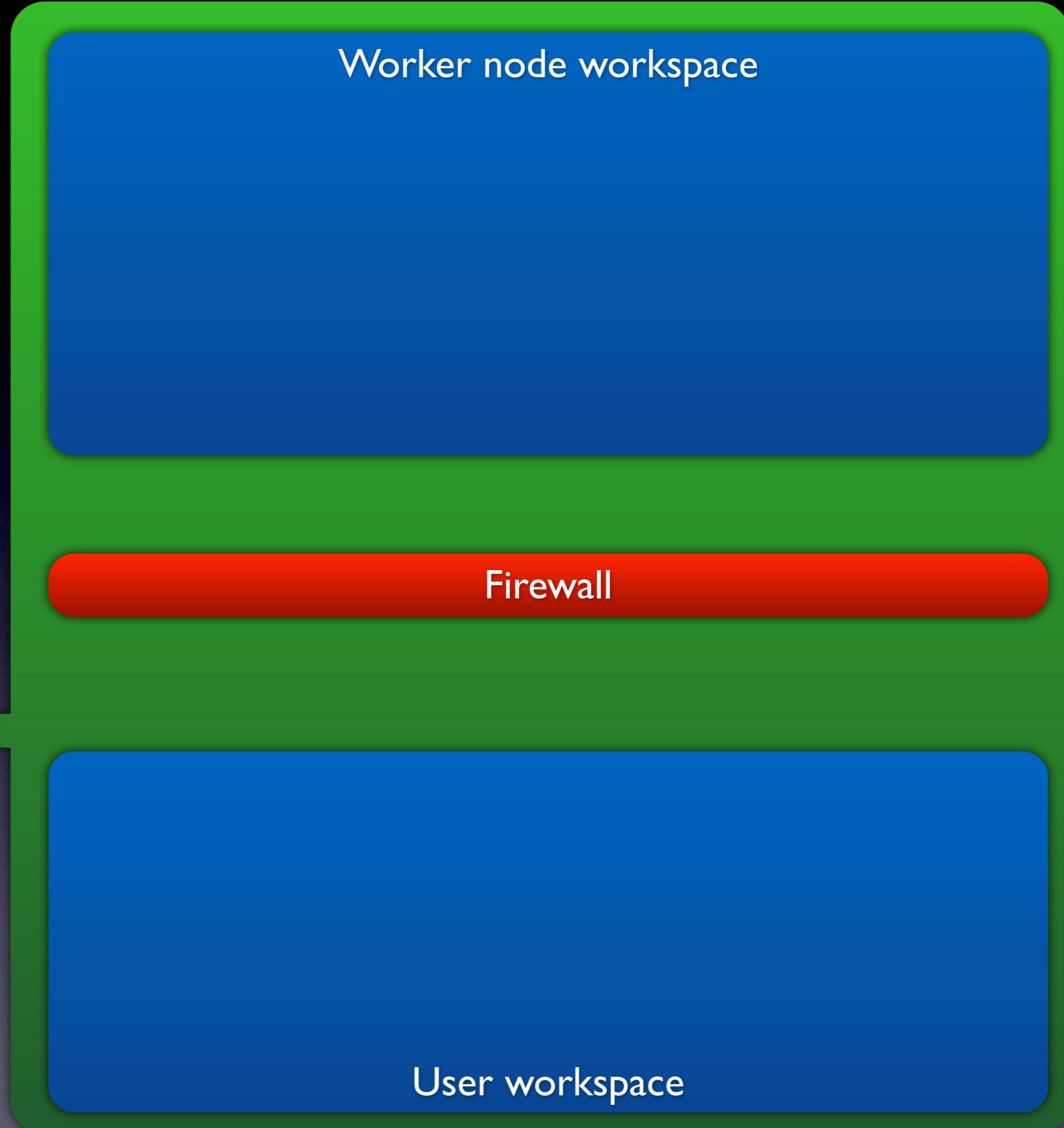
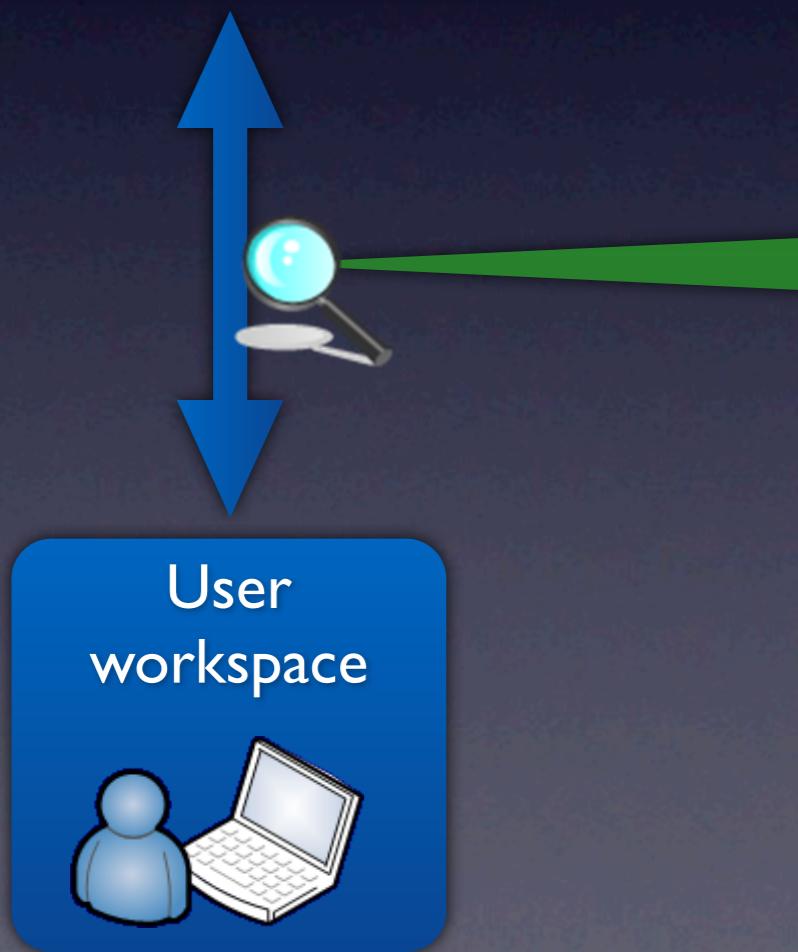


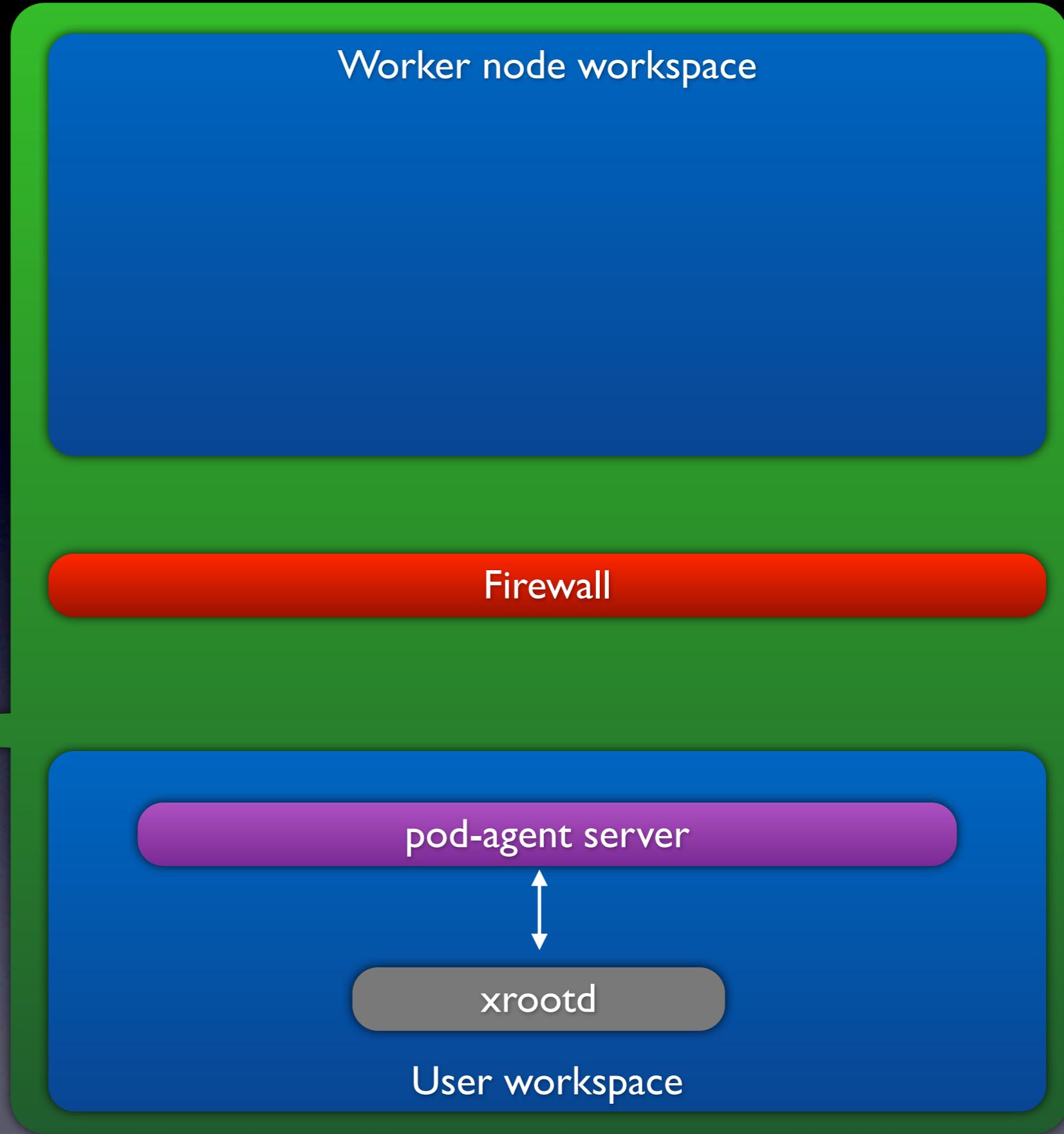
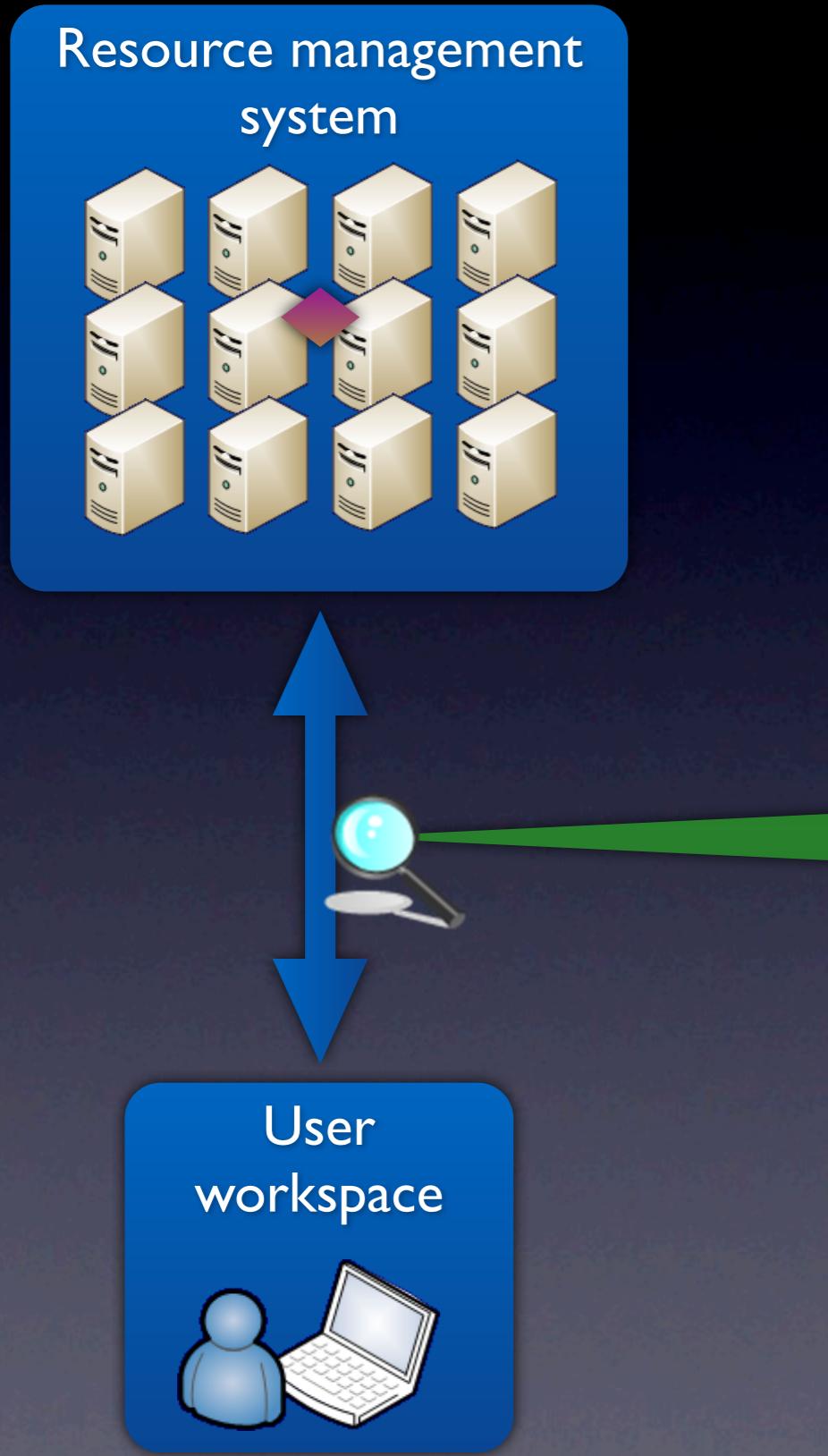
Resource management
system

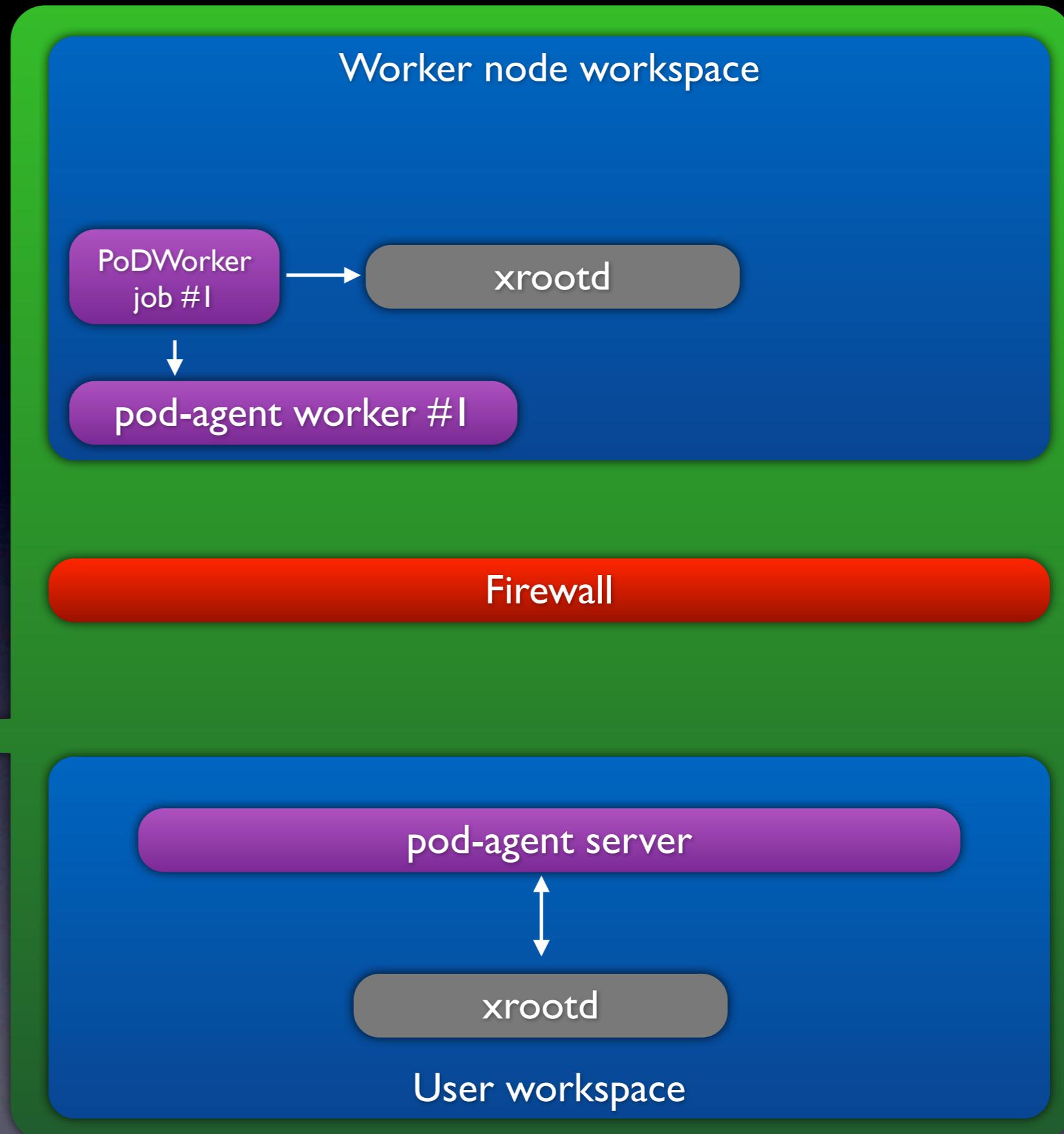
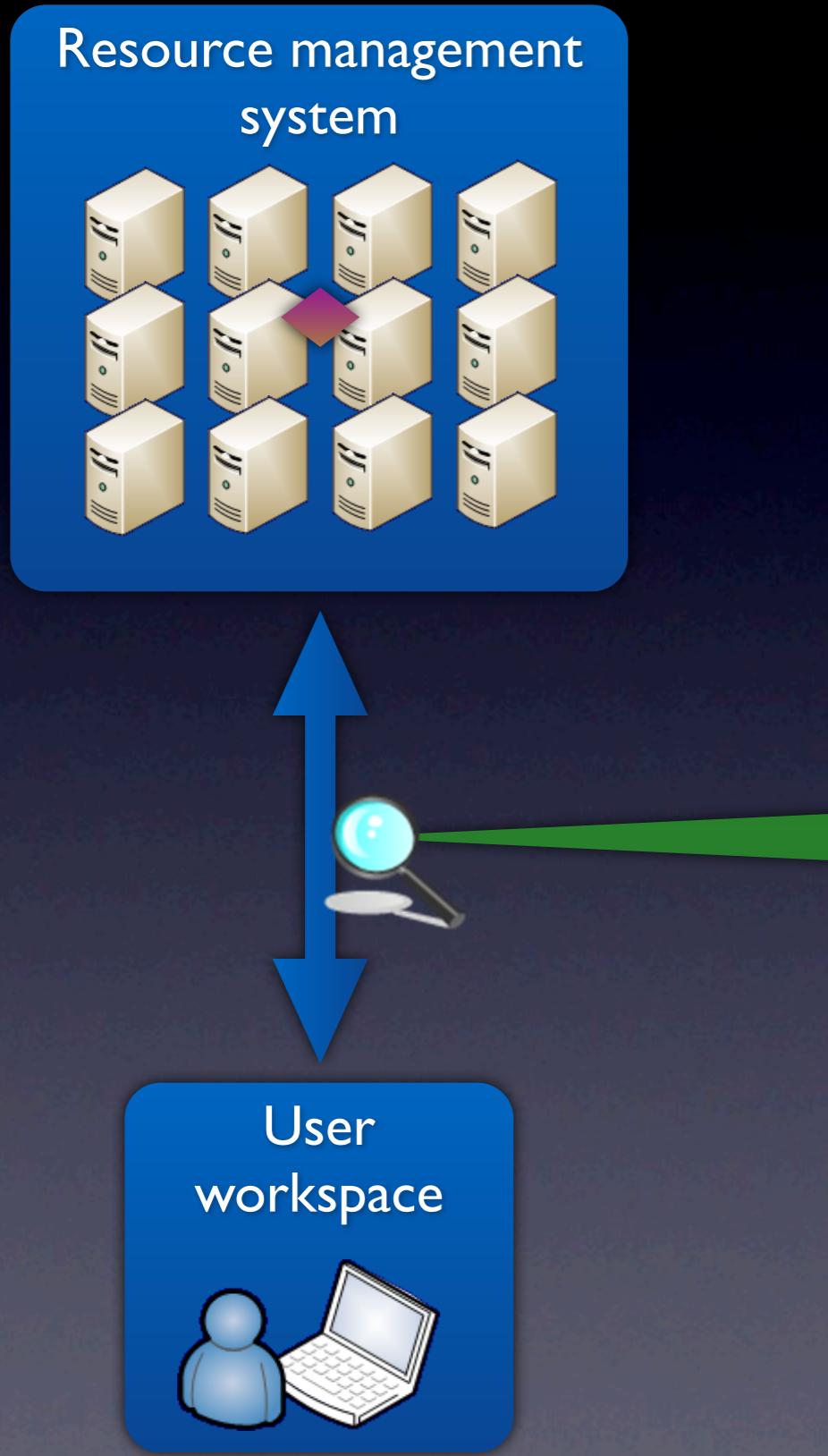


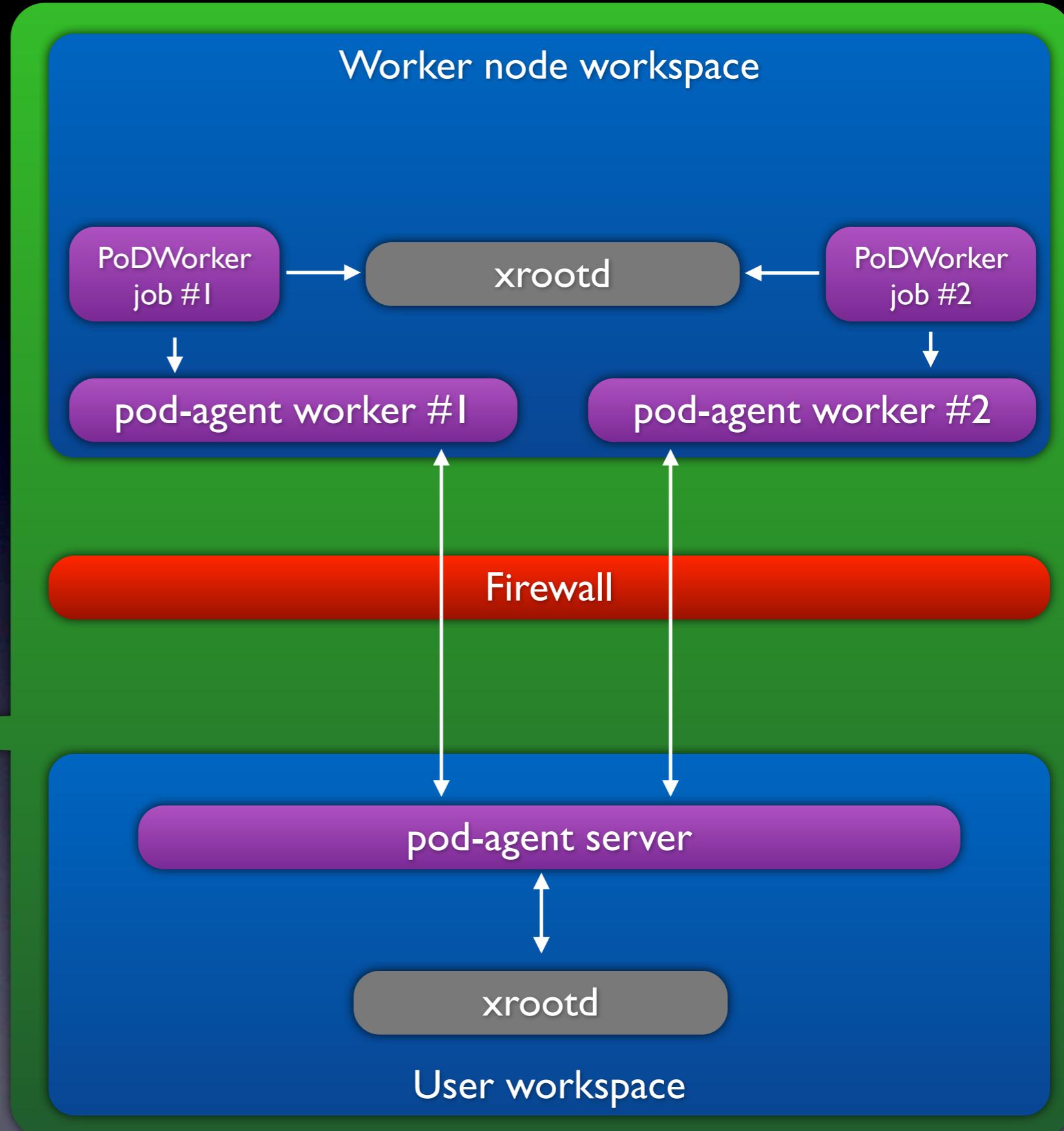
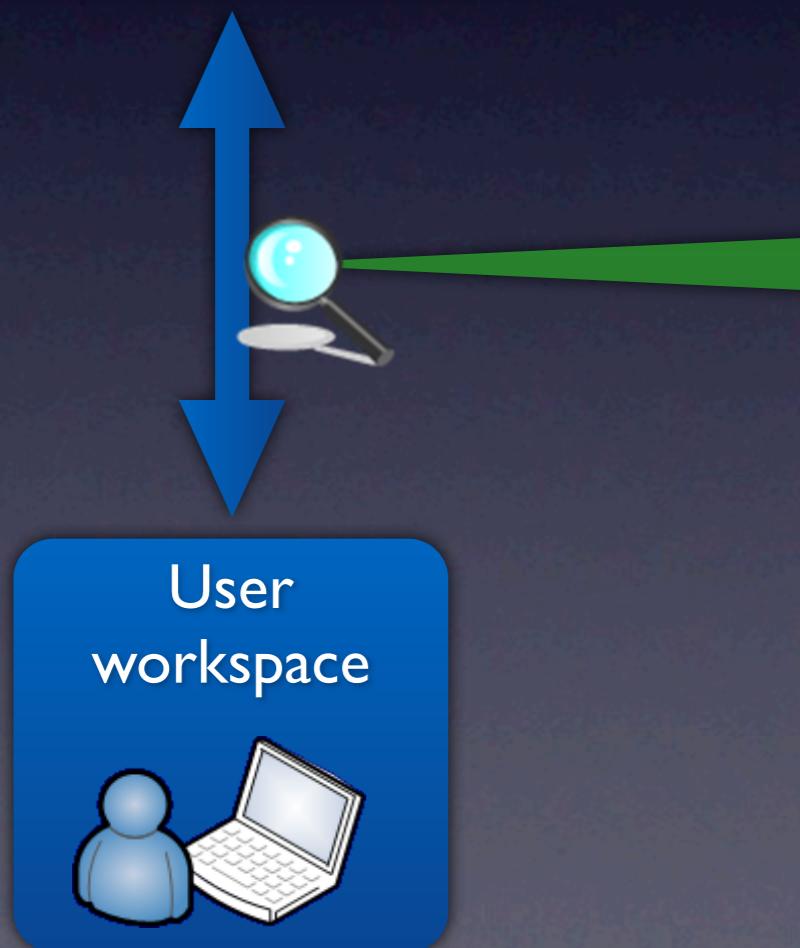
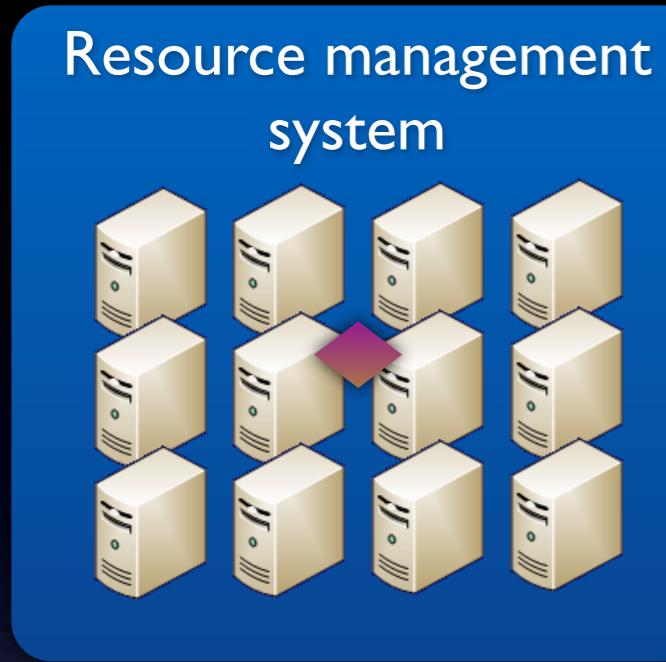
User
workspace

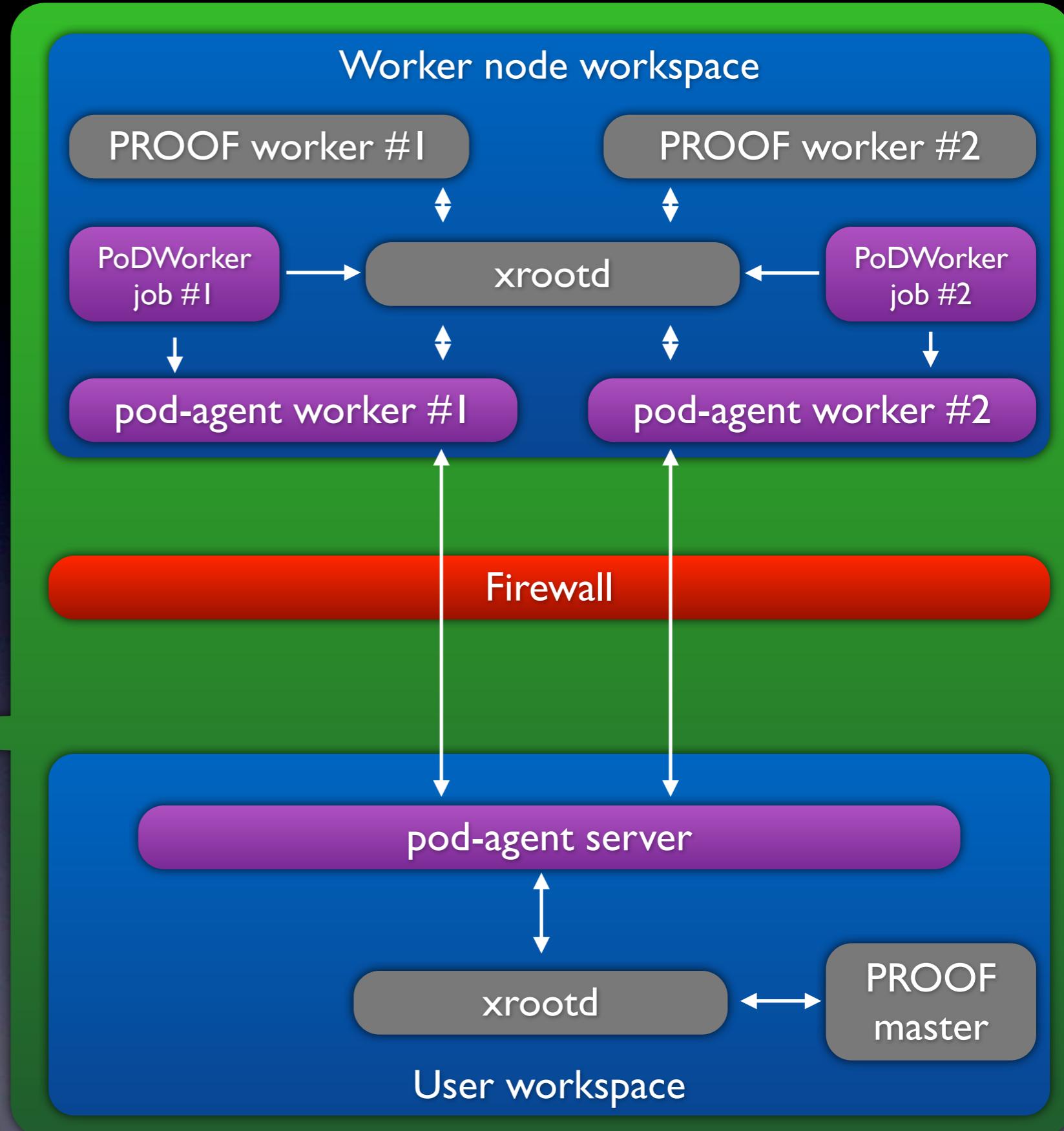
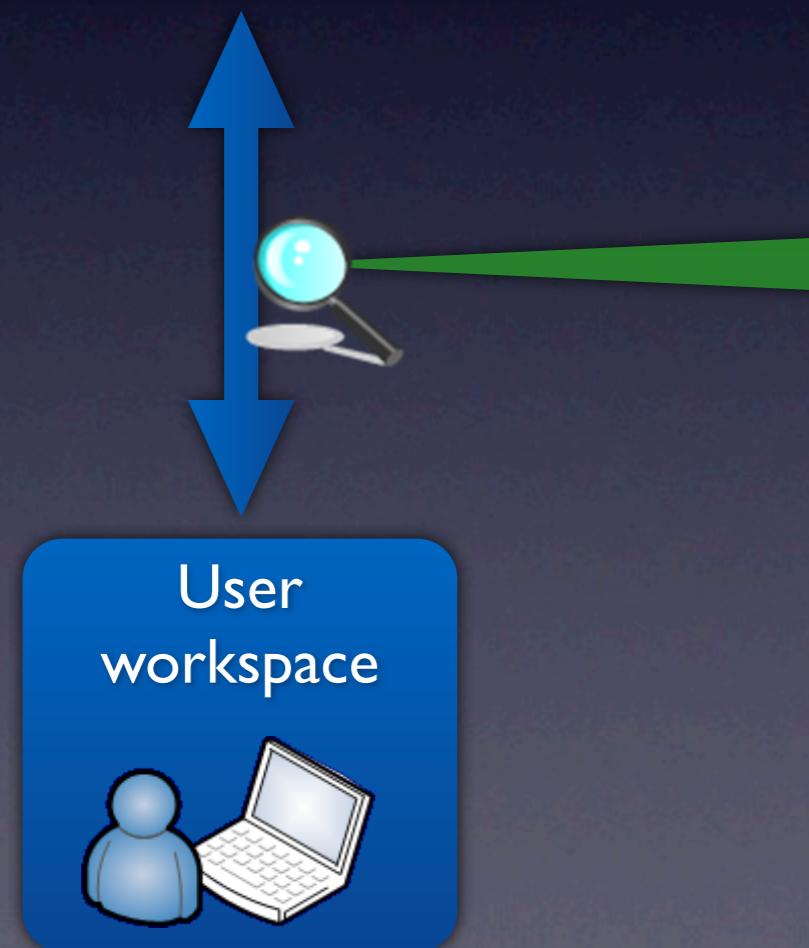


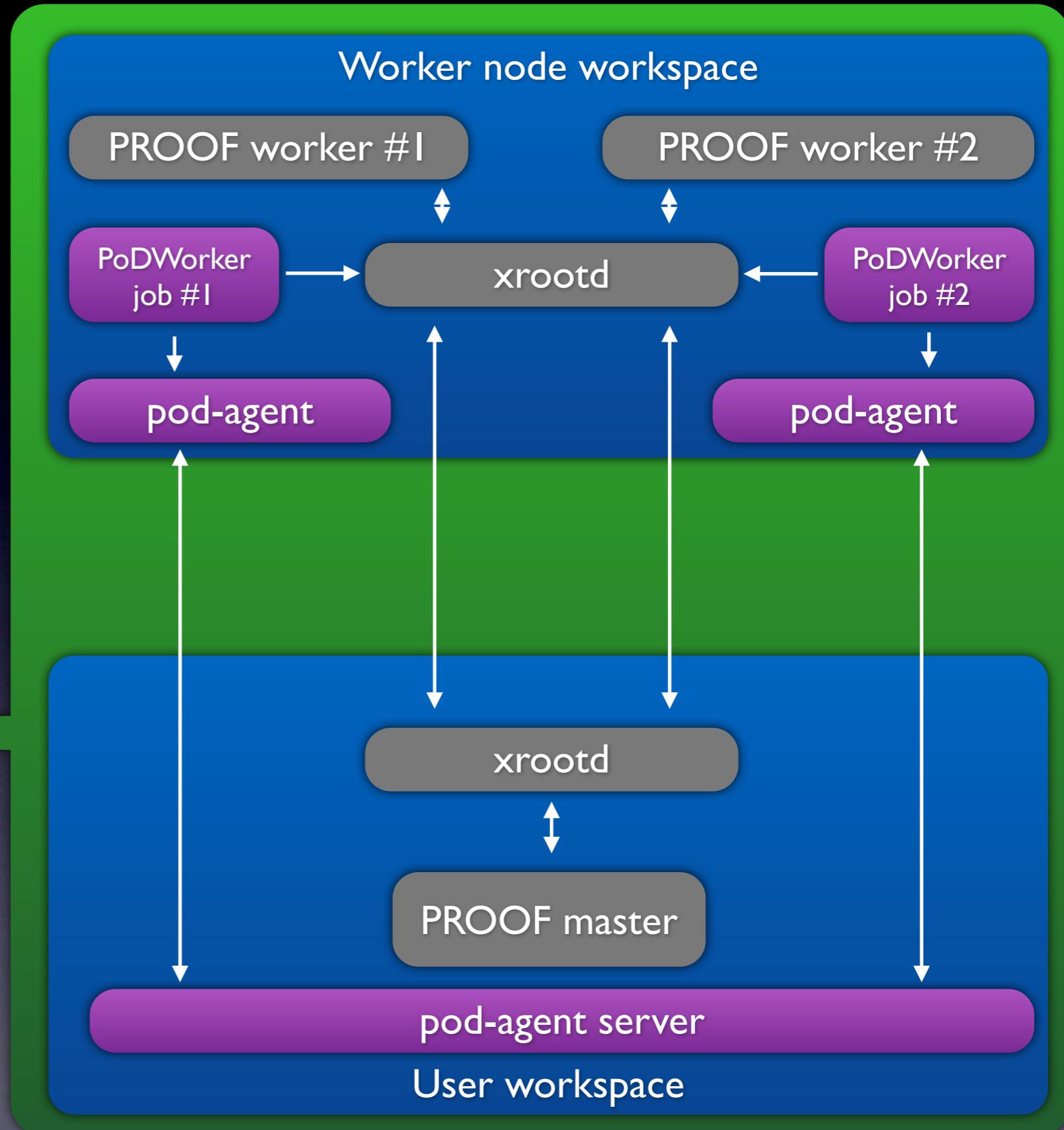
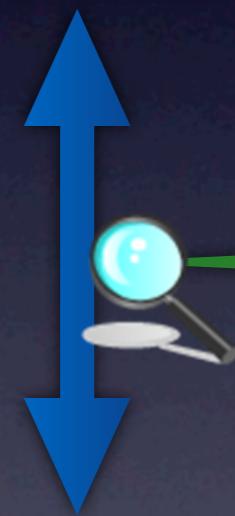












Key features

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

PoD at GSI

Dedicated LSF queue

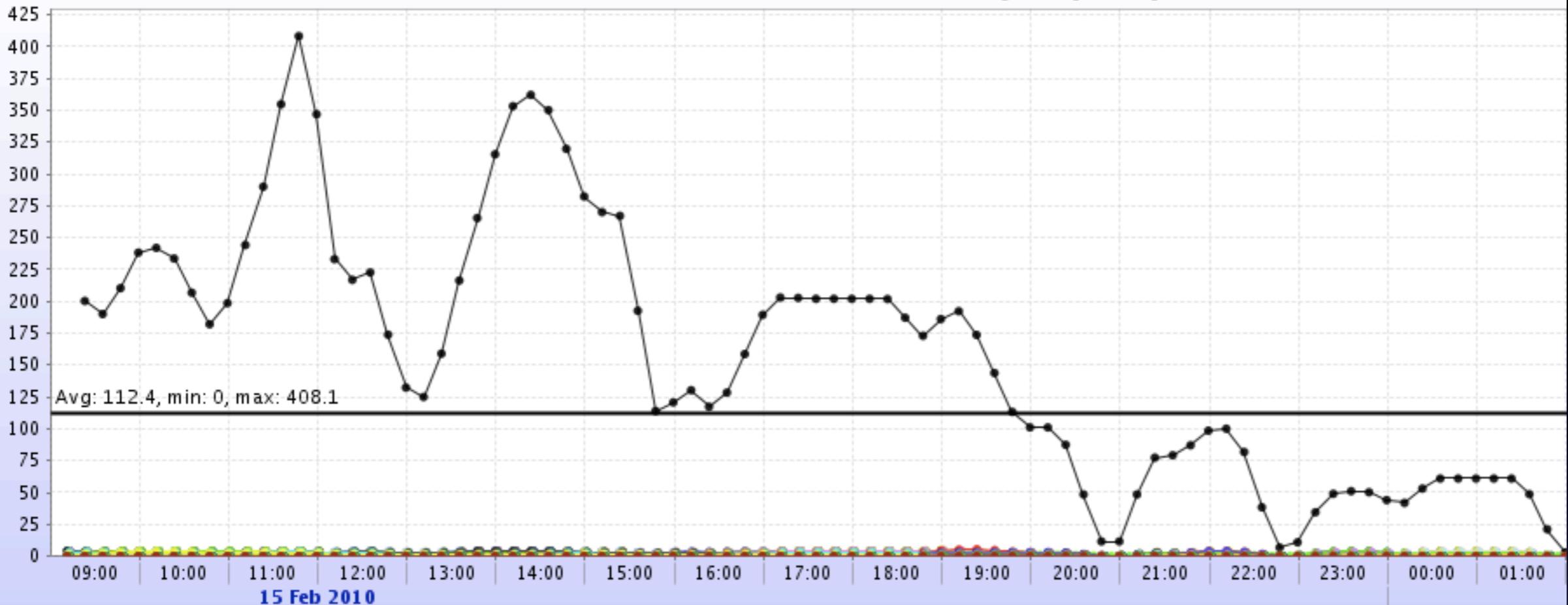
- preemptive, max. 120 jobs per user and max. 4 hours run-time per job.

Data located on the lustre FS.

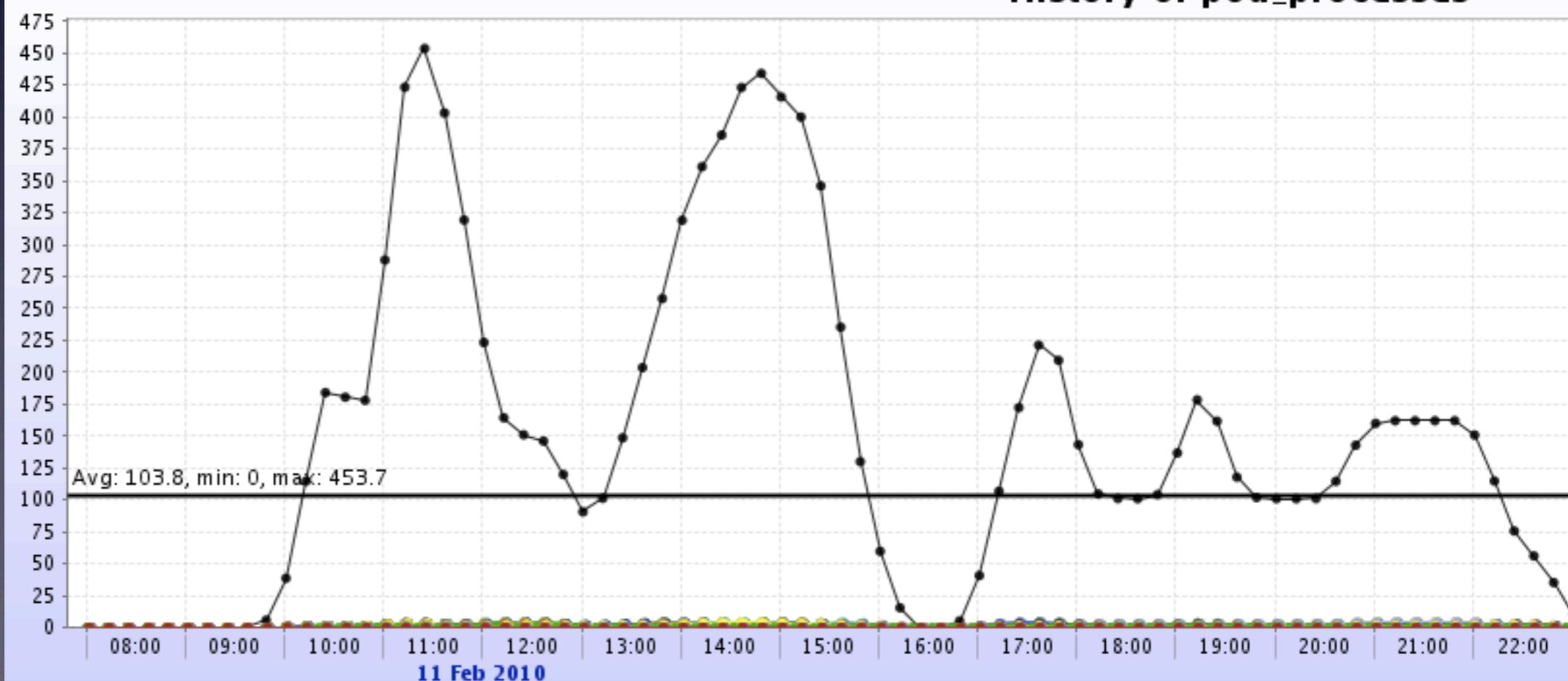
Mainly used by ALICE group (GSI, Heidelberg, Münster).

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

History of pod_processes



History of pod_processes

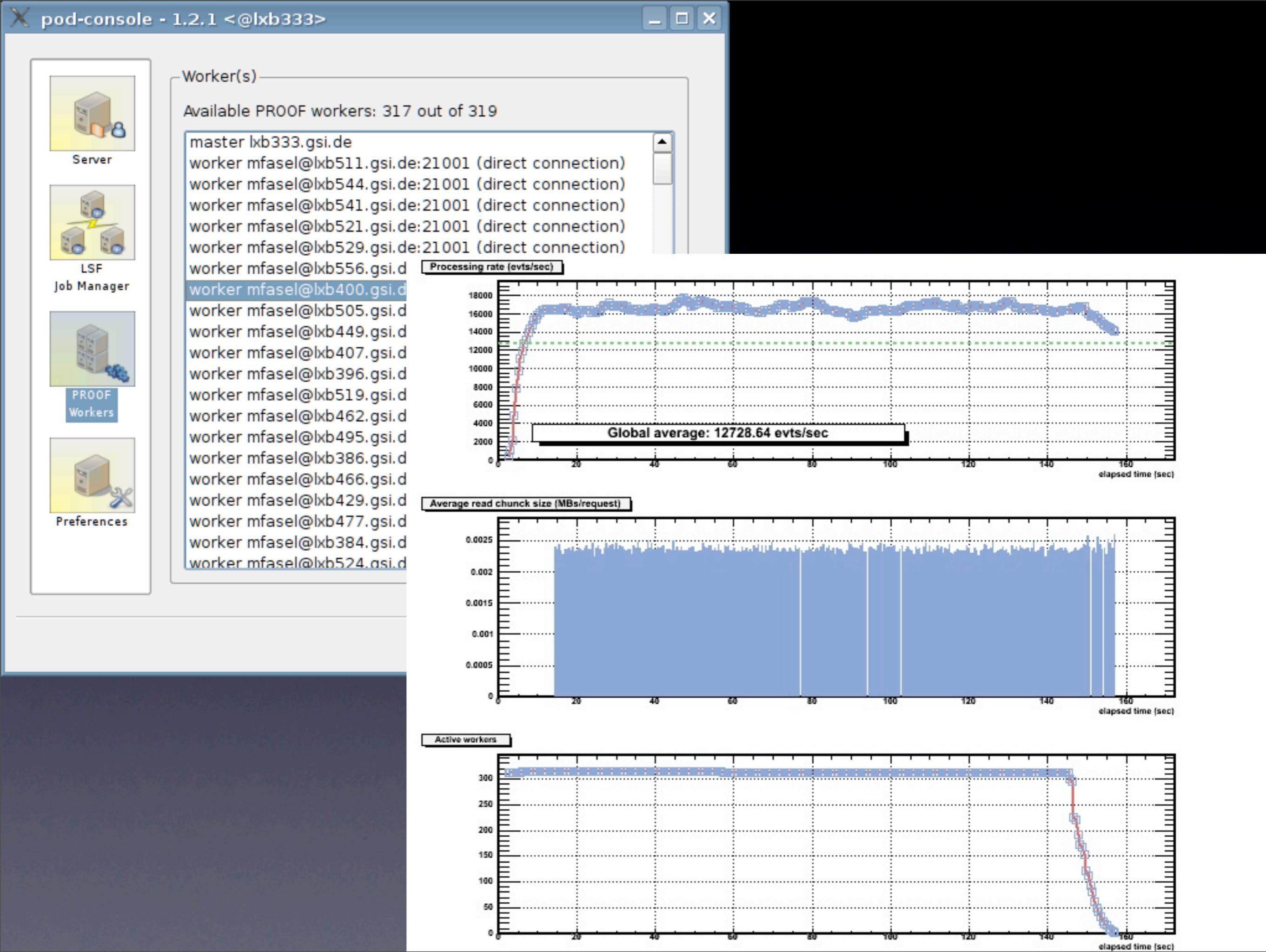


ToDo

- 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

