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DESY

Tier 2 and NAF

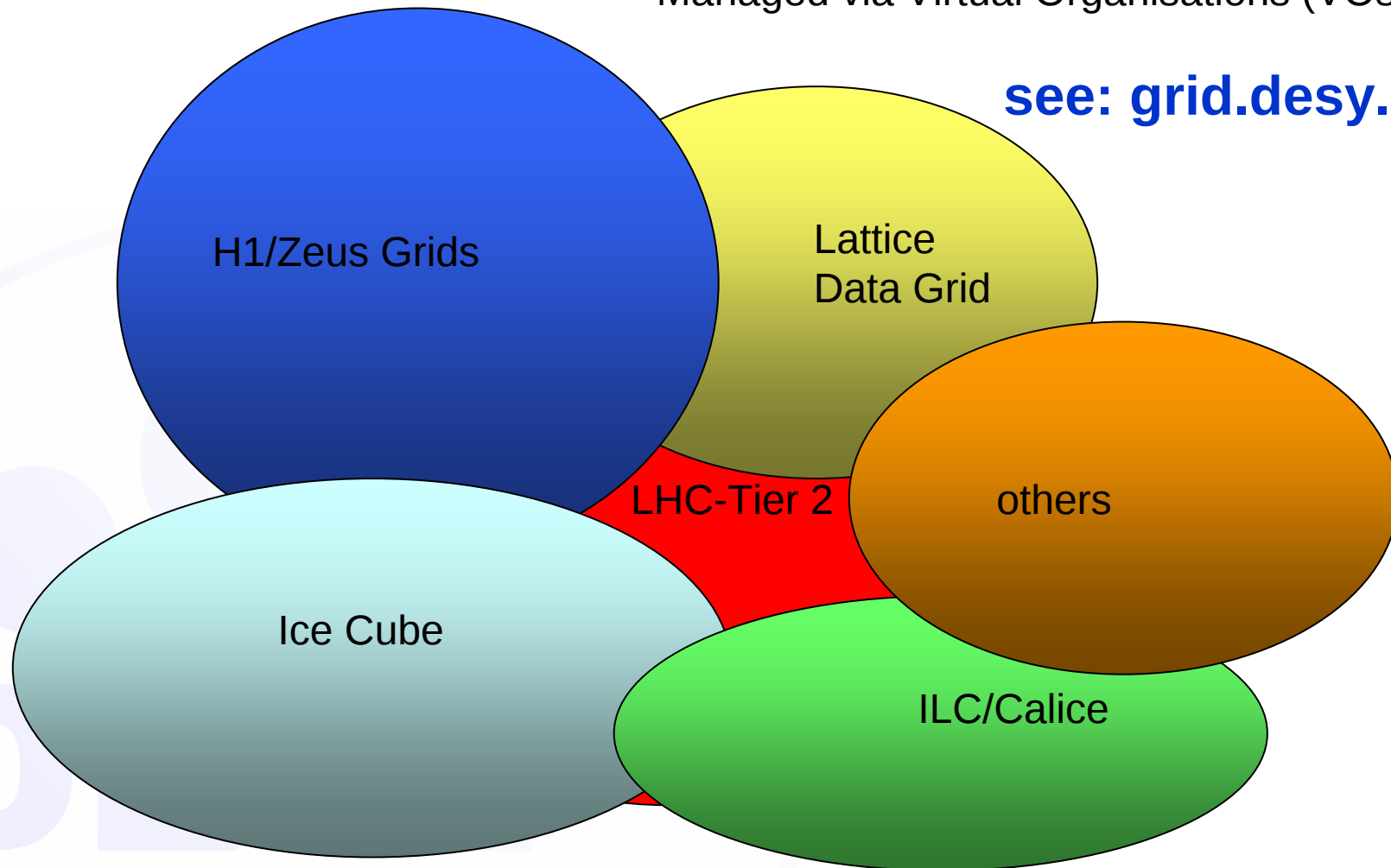
Peter Wegner, Birgit Lewendel
for DESY-IT/DV

Tier 2: Status and News
NAF: Status, Plans and Questions

The Tier 2 is part of larger Grid@DESY

Managed via Virtual Organisations (VOs)

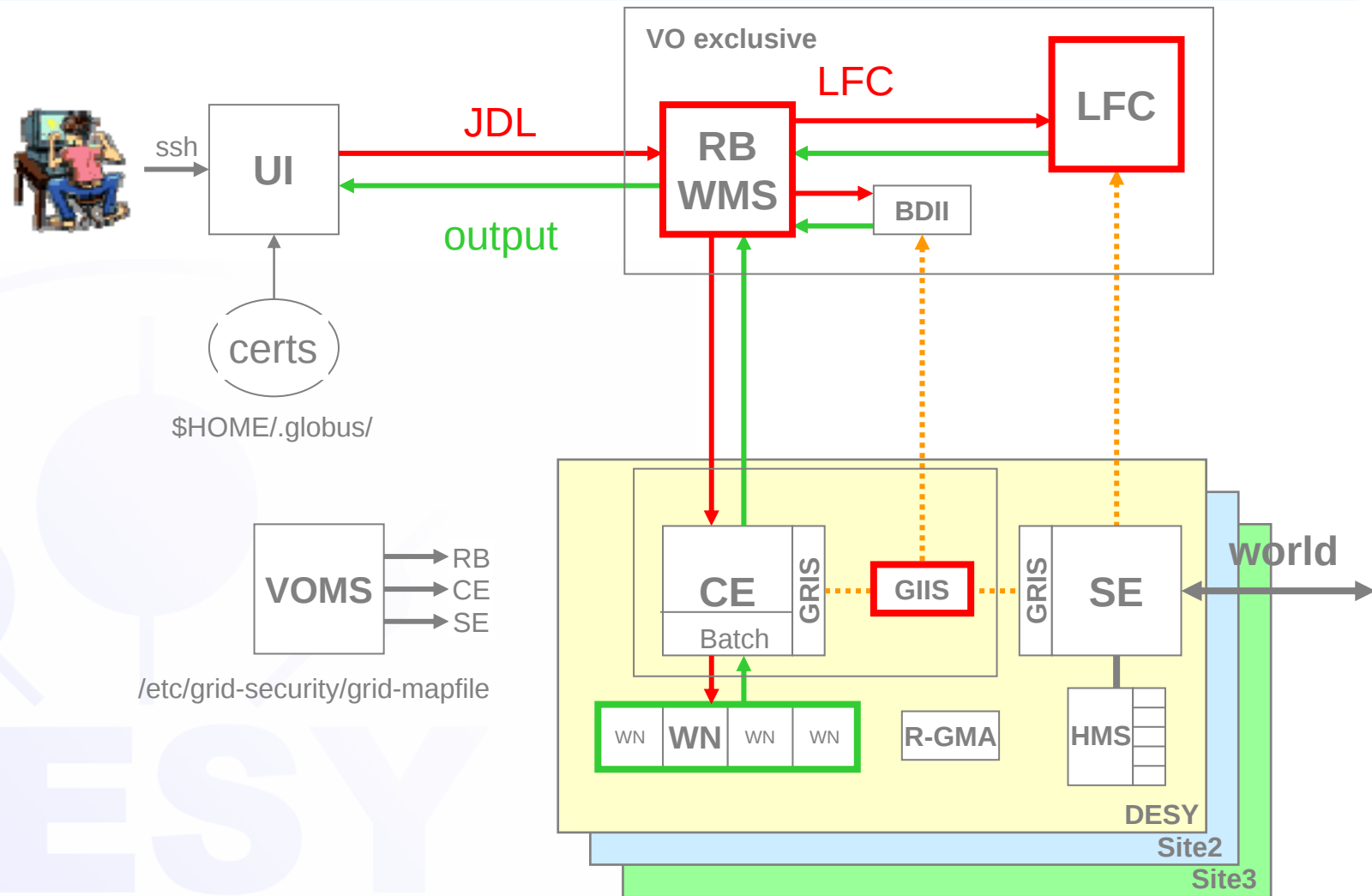
[see: grid.desy.de](http://grid.desy.de)



Grid Infrastructure and T2



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Counts, Developments, Limits



▪ **Grid@DESY/HH**

- ~580 CPU cores (~770kSpecInt), 900GB, ~250TB disk
- All cores on SL4, 32bit (grid-ce3, grid-batch3)
- Several dCache SE, 1 dedicated for CMS (default SE), 1 for Atlas
- ~30 boxes, core services - steering/management (RB(4), WMS, VOMS, LFC, ...)

▪ **Grid@DESY/ZN**

- 180 CPU cores (~280kSpecInt)
- 100 cores on SL3, 32bit, 80 cores on SL4, 64bit
- ~45TB disk dCache SE

Counts , Developments, Limits (2)



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- **networking - wide area**
 - 1 Gb/s connectivity to XWIN officially
 - 10 Gb/s in place (XWIN)
 - 10 Gb/s VPN to Zeuthen
- **pool accounts as deployed by yaim and EGEE**
- **2GB/core RAM, 5GB/job disk**
- **VO user support by CMS**

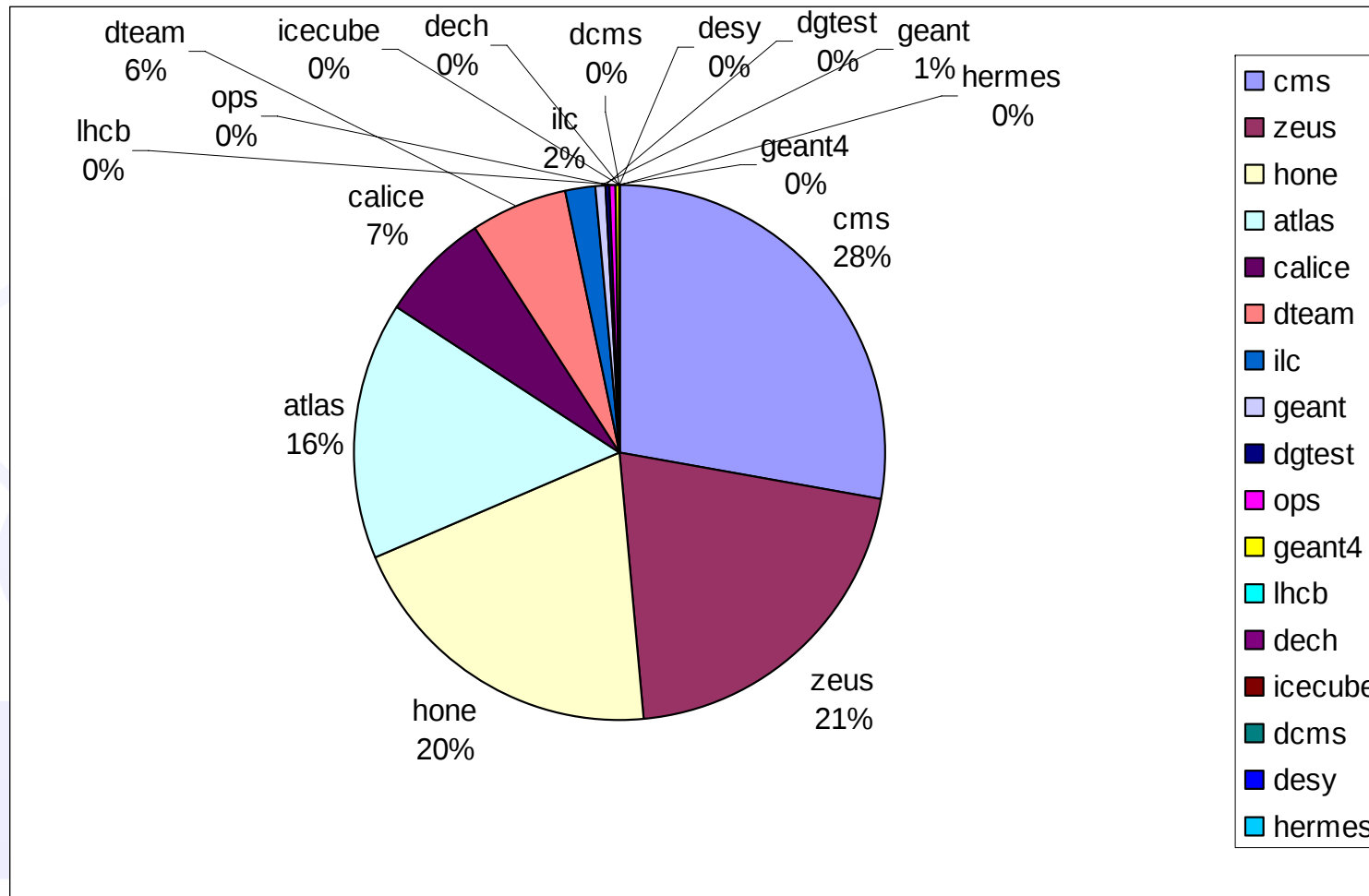
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DESY T2 Usage 2007



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Wallclock time HH+ZN

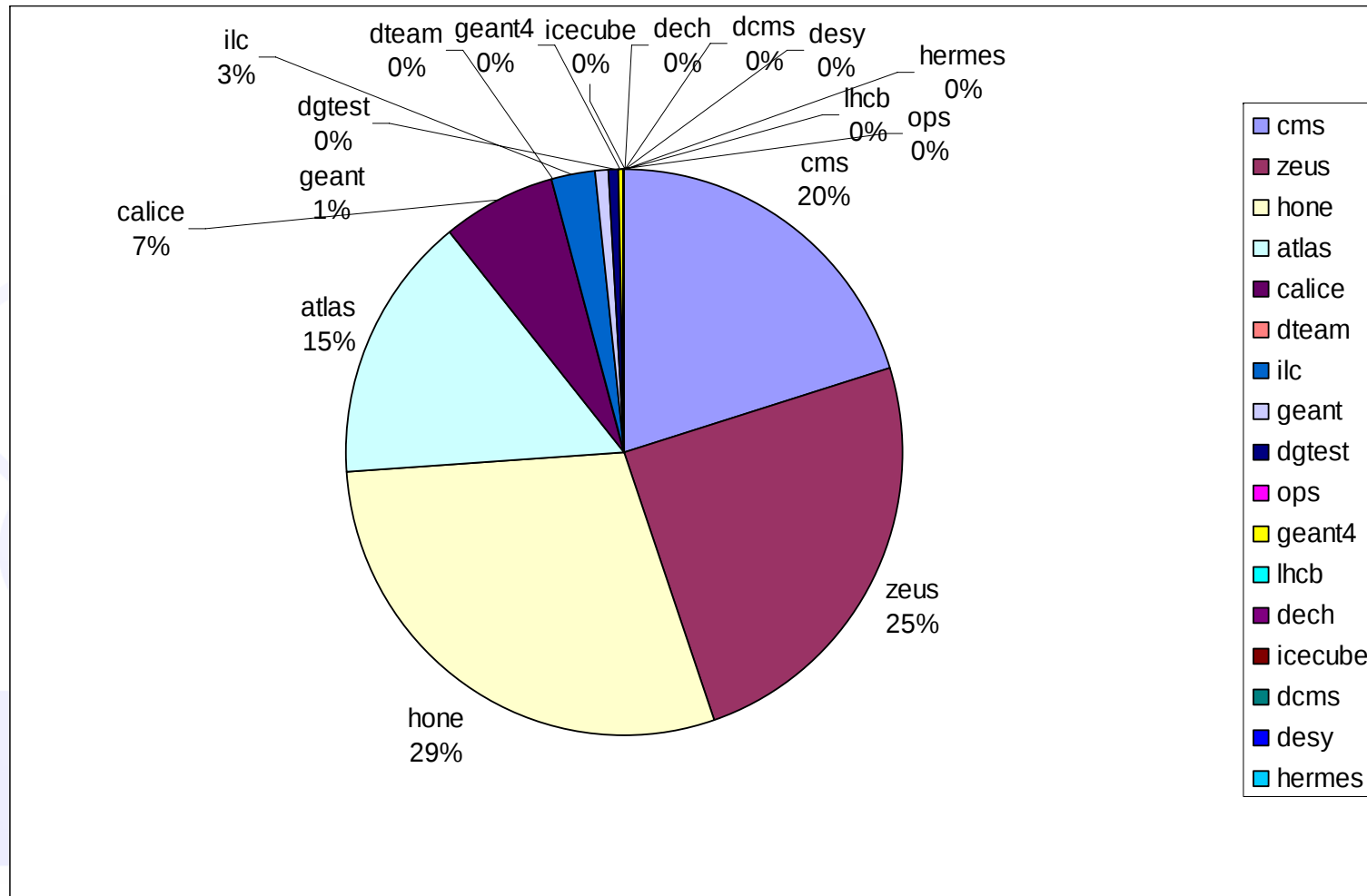


DESY T2 Usage 2007



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CPU time HH+ZN

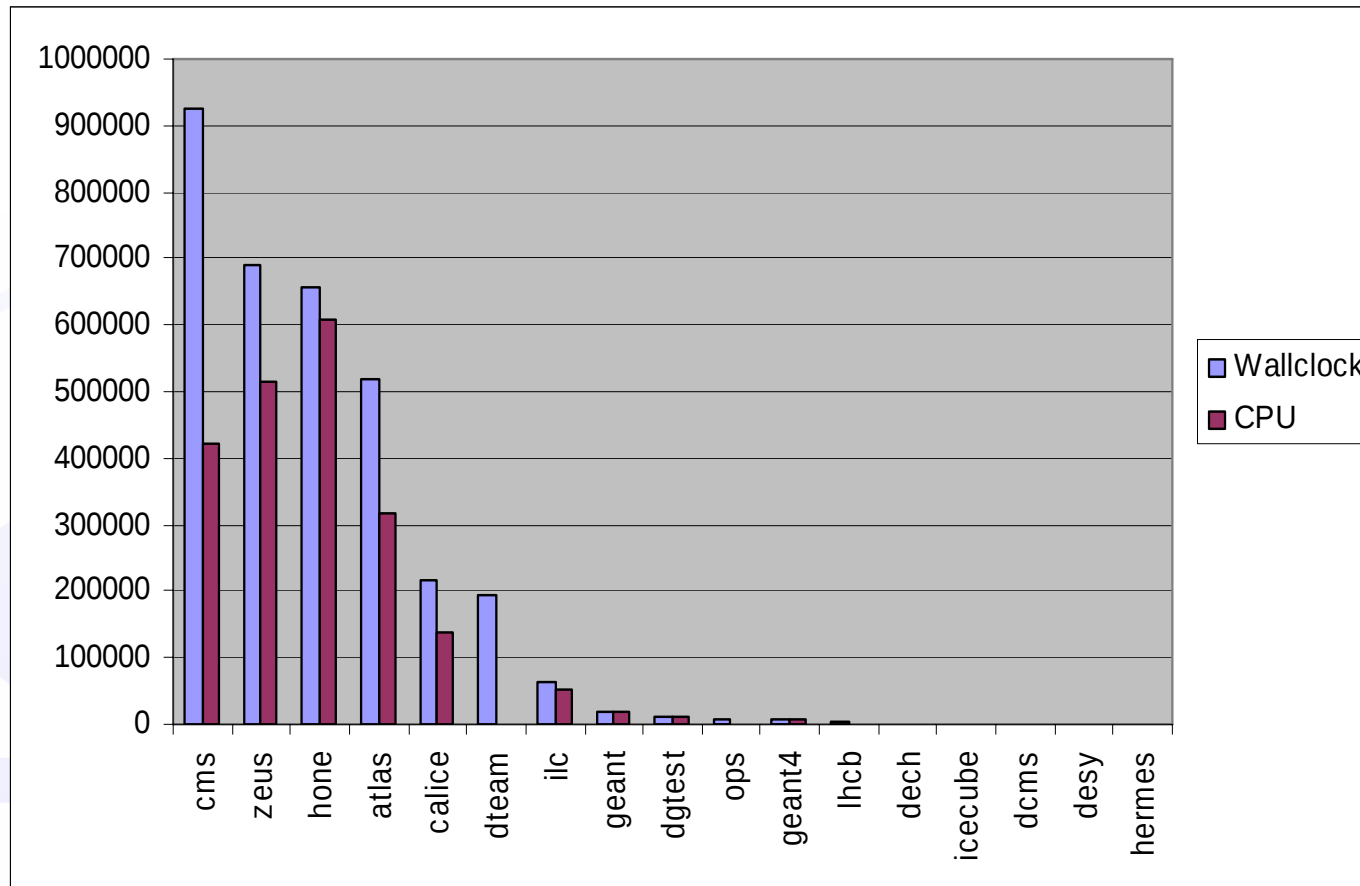


DESY T2 Usage 2007



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Wallclock/CPU time (h) HH+ZN



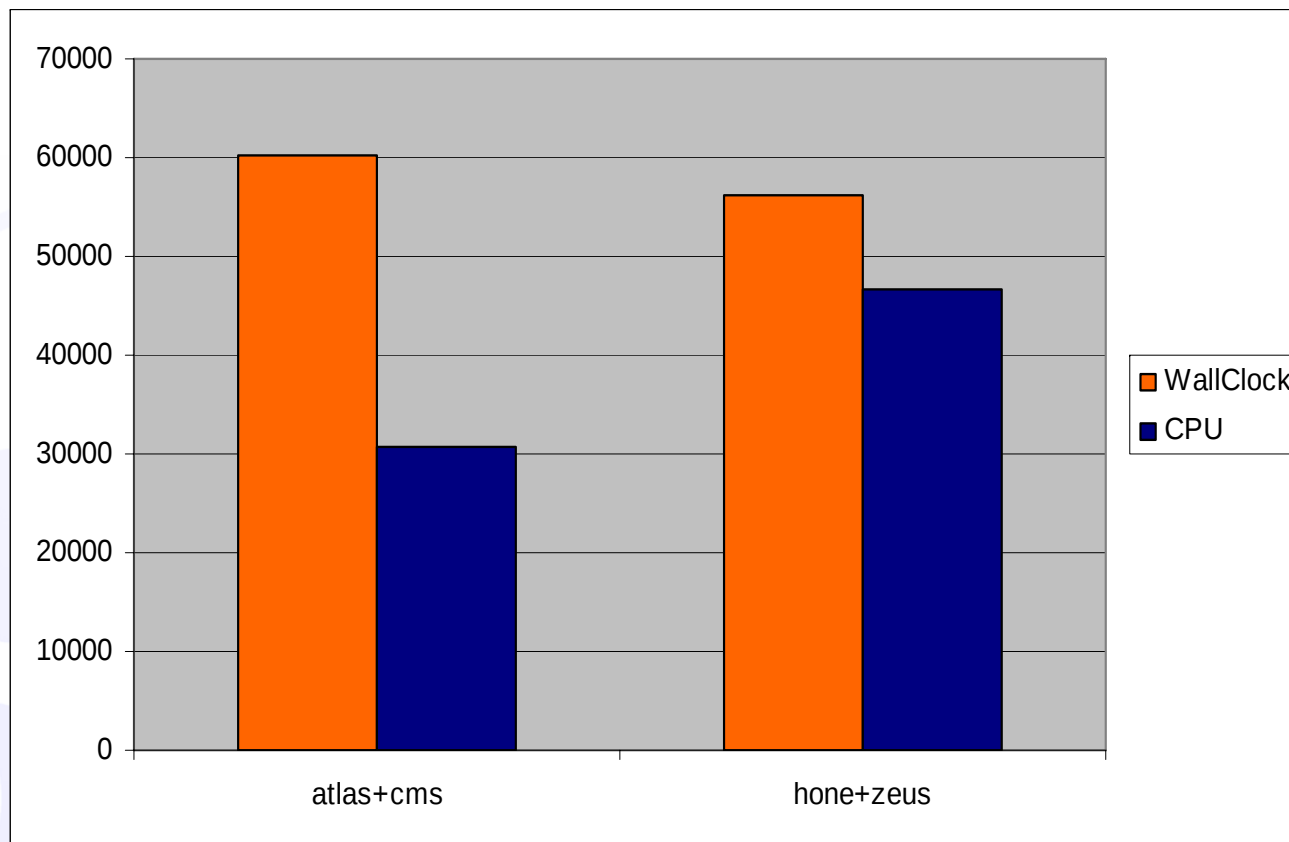
ATLAS/CMS: Relative high I/O fraction

DESY T2 Usage 2007



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Total Wallclock/CPU time (days) HERA vs LHC

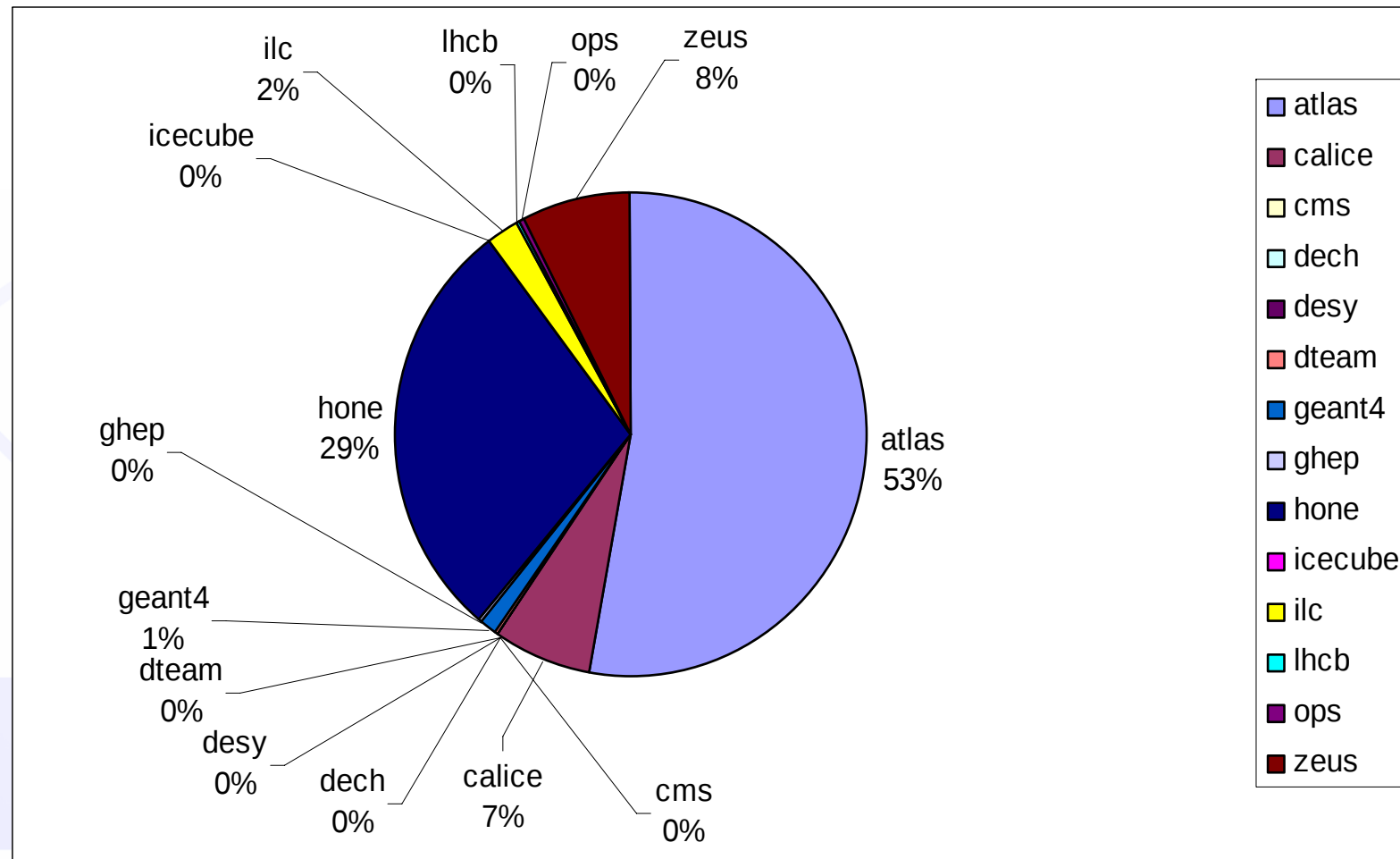


DESY T2 Usage 2007



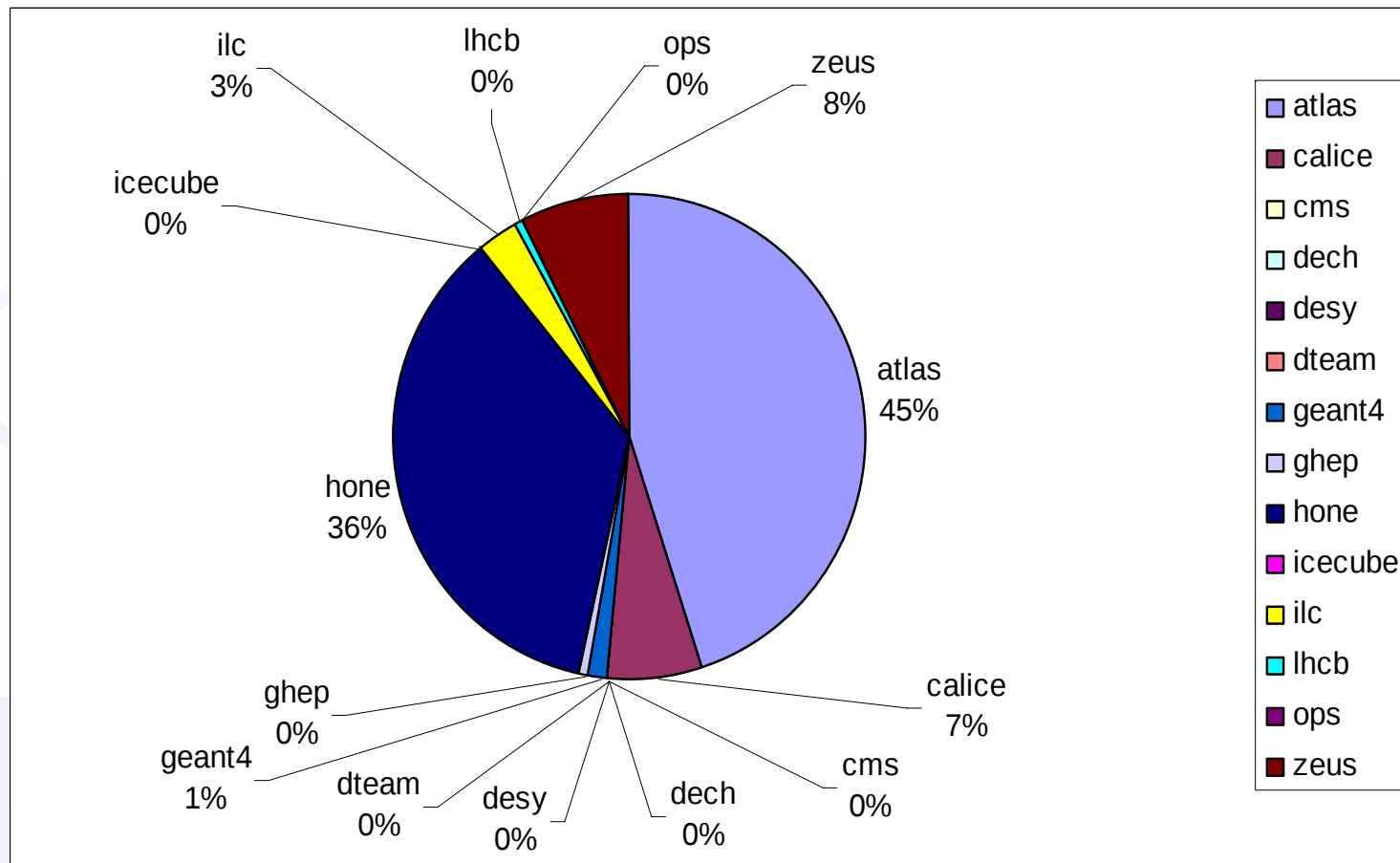
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Wallclock time ZN



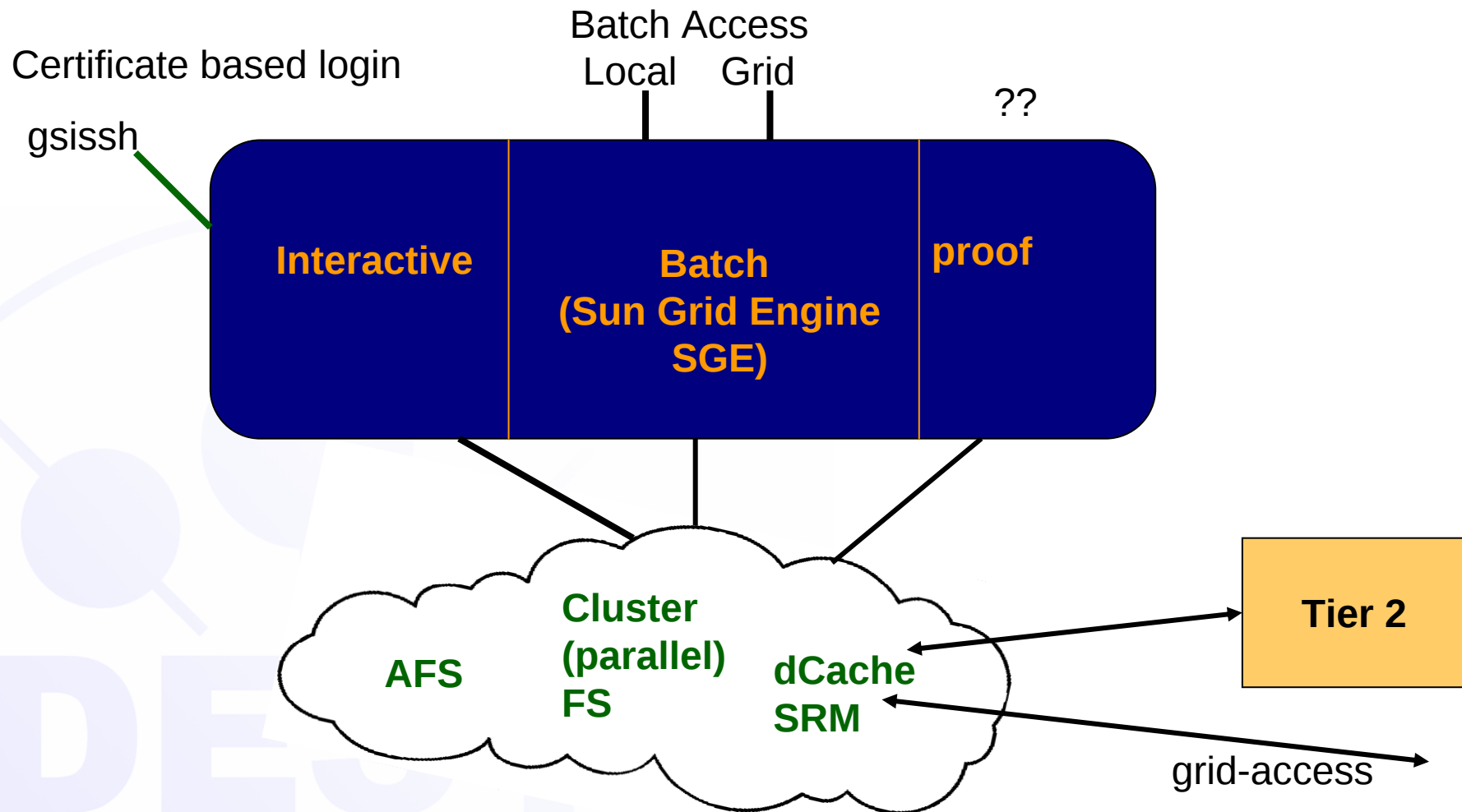
DESY T2 Usage 2007

CPU time ZN



CMS VO
Supported (!)

Overview National Analysis Facility (NAF) architecture (simplified)



Overview NAF (2)

Distributed at DESY Zeuthen and Hamburg for users from german institutes from CMS, Atlas, LHCb and ILC.

Hardware Computing:



same blades to keep number flexible

1. order: blades with several hundred cores, 2GB/core, 2*150GB disk/blade, Infiniband

Hardware

Storage: probably SUN thumpers (17.5TB/box at raid 6)
for dCache pools, for afs home and group space, high-performance I/O

Back-up: more user input needed

NAF Worker Node Architecture

CPUs – today Quad-Core Intel CPUs 5435 („Clovertown“),
if appropriate Dual-Core (5160 “Woodcrest”)

Per **core**

- 2 GB main memory
- 20 GB disk
- 20 MB/s bandwidth for I/O applications (PROOF - 100 MB/s ?)
- n(?) MB/s bandwidth for disk I/O

LO Management incl. digital KVM,
IPMI – at the minimum, service processor, interface for automatic upgrades,
diagnostics...

RedHat certified

redundant power supply (not clear whether necessary)

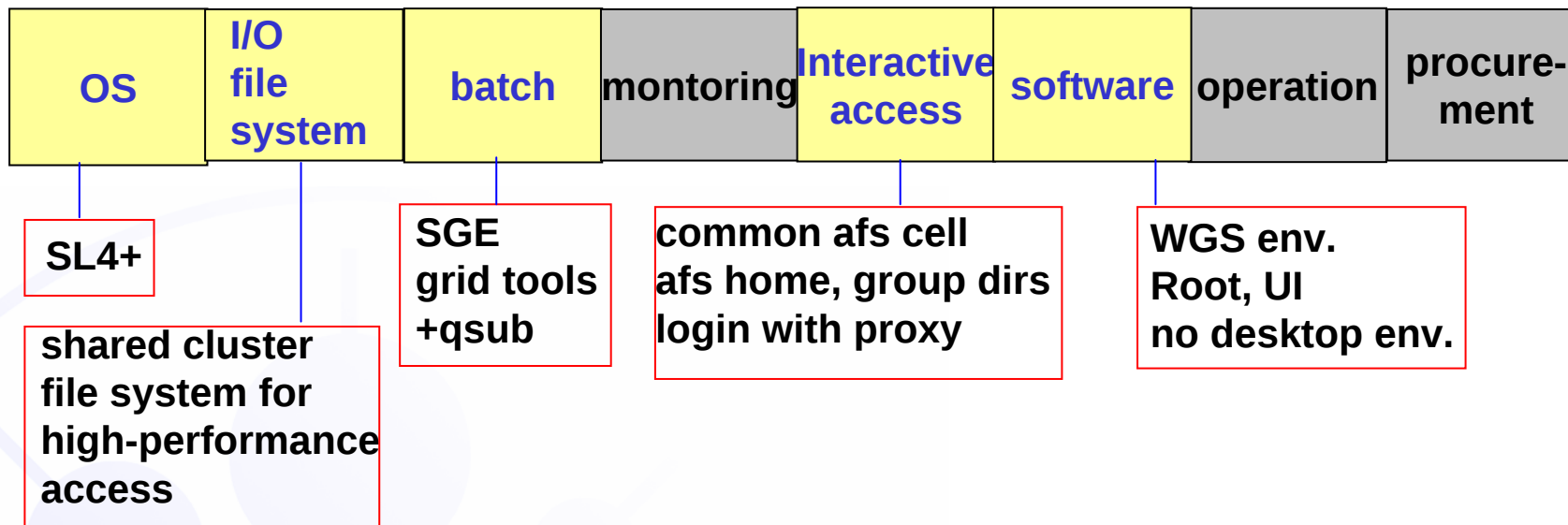
good **performance/Watt** ratio

Service Level: 3-years **On-side service** NBD

Format: **Blade**

NAF: Org., Plans, Schedule

Def. of work packages, each WP with 3-5 people and a convener (moderator)



Soon (October?) meeting with users from all groups to review the plans.

Pilot system should be ready to use end of November (Helmholtz Alliance kick-off meeting Dec 3rd-5th)

Finances: Helmholtz Alliance and DGrid Sonderinvestition

Summary

- Grid Infrastructure and T2
 - in good shape and ready for ramp up
 - heavily in use by several VOs
- National Analysis Facility in preparation
 - many open questions, items
 - user feedback meeting soon

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