

Status of ALICE T2 Sites in Japan

The 9th Asian Tier Center Forum

Center for Computational Sciences, University of Tsukuba, Japan

September 26, 2025

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Center for Nuclear Study, the University of Tokyo

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ALICE Japan Computing Group



ALICE Japan Computing Group

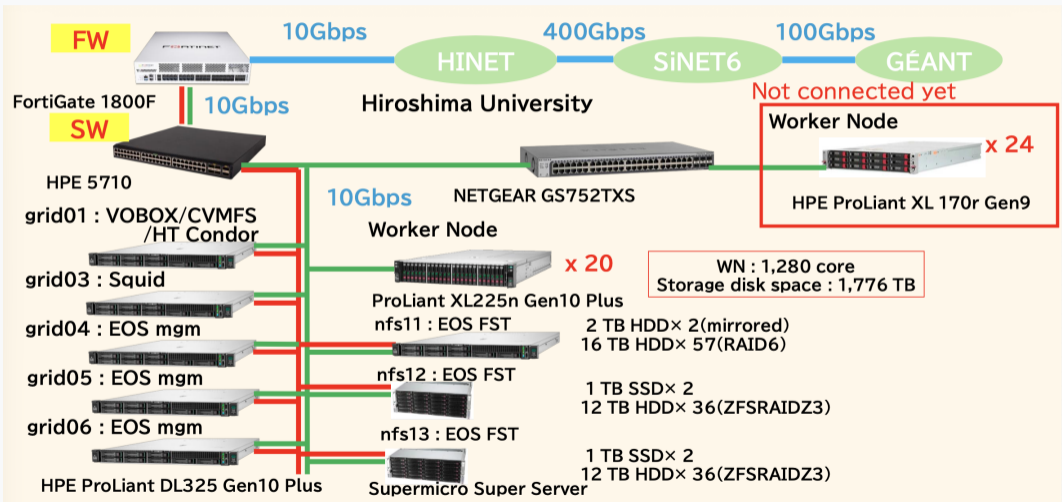
- Quark Physics Laboratory, Hiroshima University
 - Kenta Shigaki
 - Satoshi Yano
 - Takuma Matsumoto (Grad. Student)
- High Energy Nuclear Physics Group, University of Tsukuba
 - Tatsuya Chujo
 - Sumio Kato
- Group for Physics Measurement, Nagasaki Institute of Applied Science
 - Ken Oyama
 - Sho Miyamoto (Grad. Student)
 - Hiroki Osanai (Grad. Student)
- Quark Physics Group, Center for Nuclear Study, the University of Tokyo
 - Masanori Ogino (2021–2024: Hiroshima Univ.)

Hiroshima Site: Overview

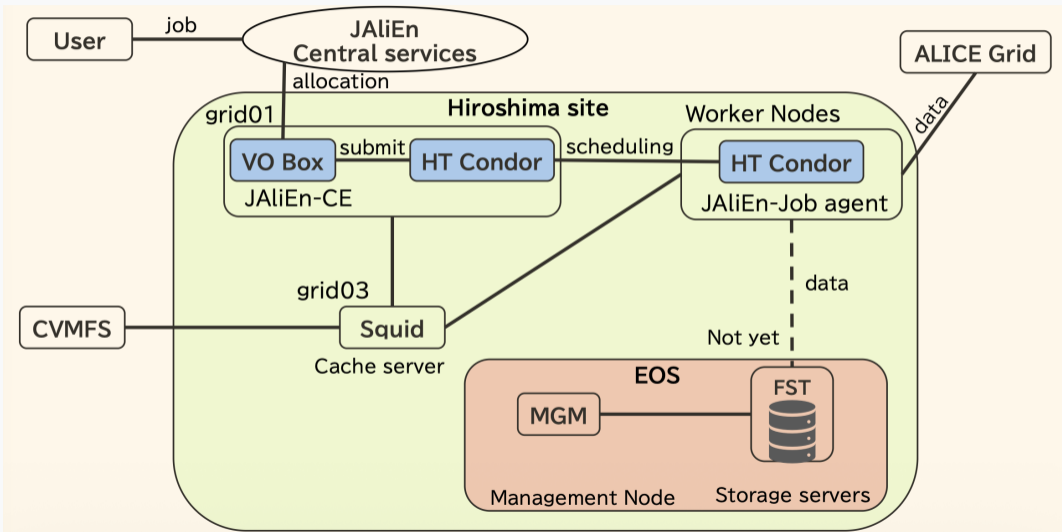
- In operation since 2008
- Monte Carlo (ALICE Tier 2)
- Both CE & SE installed
- 1,280 cores (x86-64)
- 1.44 PB
(under construction)
- AlmaLinux 9
- Modern software stack
(HTCondor, EOS, Grafana)



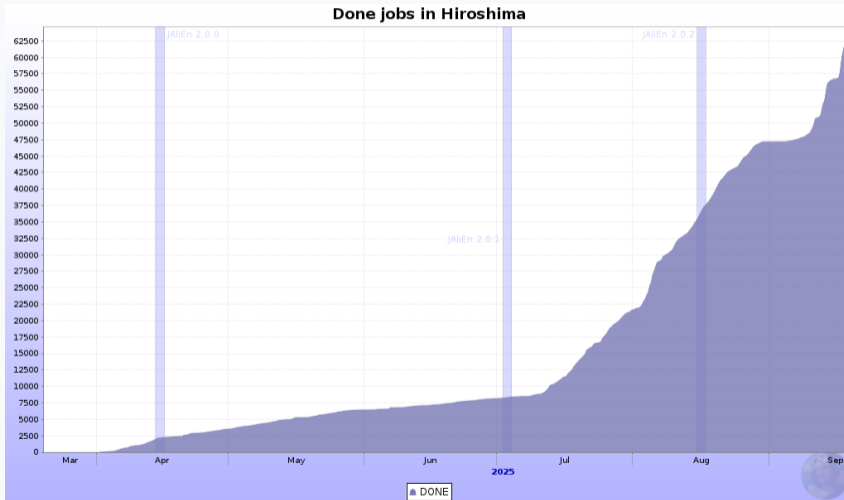
Hiroshima Site: Networking



Hiroshima Site: Software Architecture

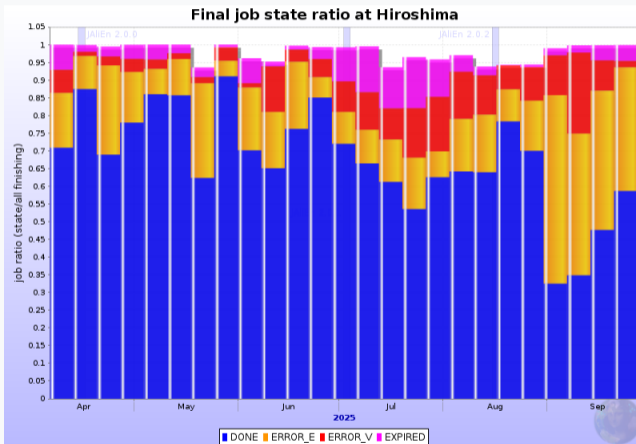


Hiroshima Site: Performance

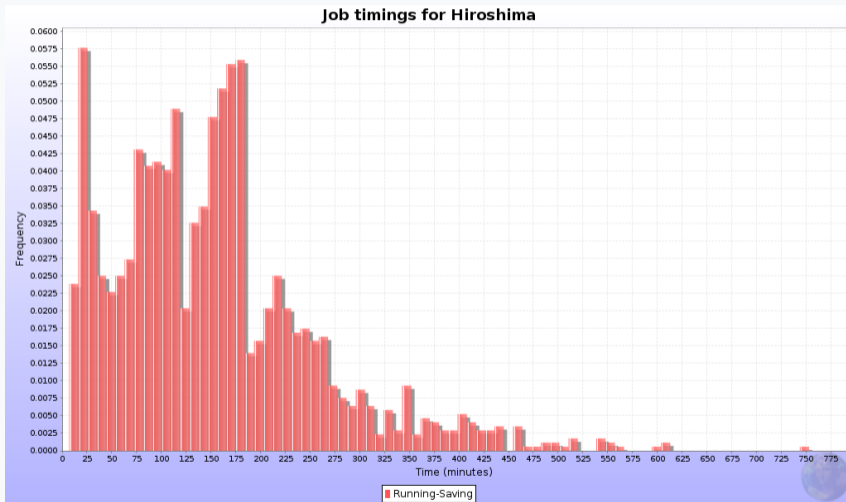


Hiroshima Site: Performance (cont.)

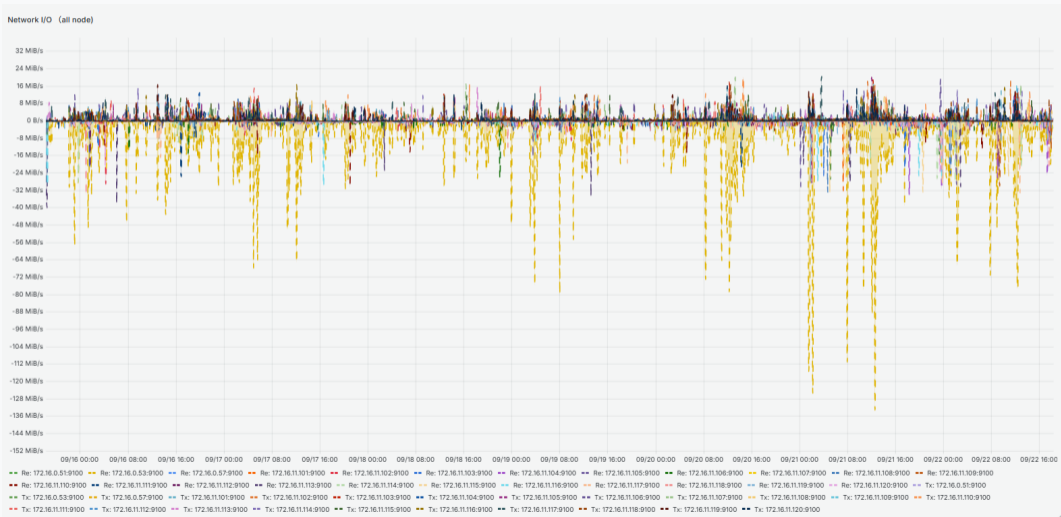
- Expired jobs around July: cleanup problems in JALiEn and HTCondor
- Errors around Sept: powercut
- ERROR_E (yellow bar) will decrease once EOS up and running
- 8-core production jobs (mostly)



Hiroshima Site: Performance (cont.)



Hiroshima Site: Monitoring



Status of Tsukuba Site

Starting up new activities!

- Initiated a discussion with Prof. Tatebe (and Prof. Fujita) in CCS: potential use of the Pegasus supercomputer for ALICE grid job processing?
 - See slides by Norihisa @ Day 1 and Latchezar @ Day 2 for details
- Considering to start up a small-scale traditional (non-HPC) grid site
 - Established an agreement with the university to connect SINET via campus network for ALICE
 - Dedicated network line with switch has been established

Status of Nagasaki Site

Soon-to-be ready for accepting grid jobs!

- Small-scale site without SE (may rely on Hiroshima and KISTI)
- 336 CPUs (with SMT, mostly AMD Ryzen and EPYC)
- VOBox and one WN in progress
- Uses VMs for VOBox & Squid, bare metal WNs

Future Plans

Hiroshima Site

- Activate 1.44 PB EOS instances
- Activate currently-offline 480 cores
- Migrate to IPv4 / IPv6 dual stack
- Prepare for hardware lease contract renewal in 2027

Tsukuba Site

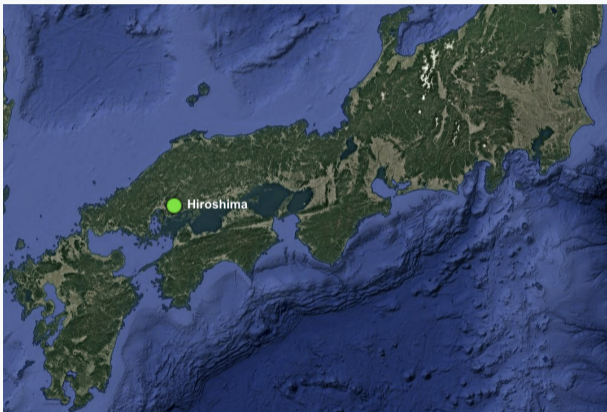
- Work on Pegasus-for-grid-jobs

Nagasaki Site

- Full production by October
- ~ 500 CPUs by the end of 2026
- 1 Gb/s → 10 Gb/s or 40 Gb/s in 2026

Summary

- Hiroshima CE serves well so far, SE in progress
- Preparing for computing resources in coming years
- Keen to deploy new technologies (containers, virtual machines, ...)
- We hope two more *green stars* shining in this map!



Thank you for your attention!