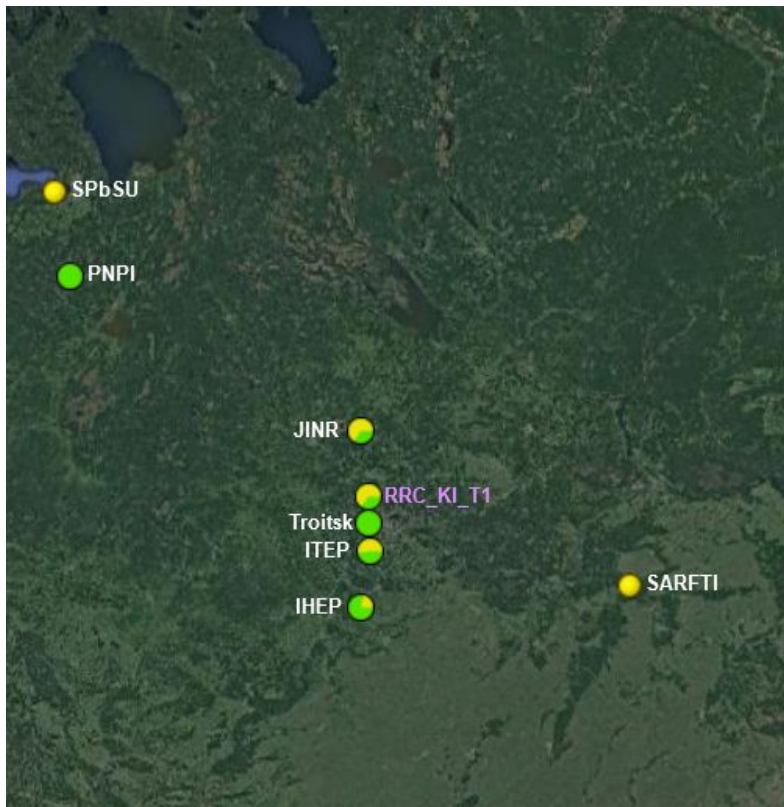


**Update of ALICE Russian GRID sites in 2022-2023 for
future High Luminosity (HL) LHC mode**

Andrey Zarochentsev, SPbSU

Russian sites for Alice data processing



T1:

- RRC-KI-T1

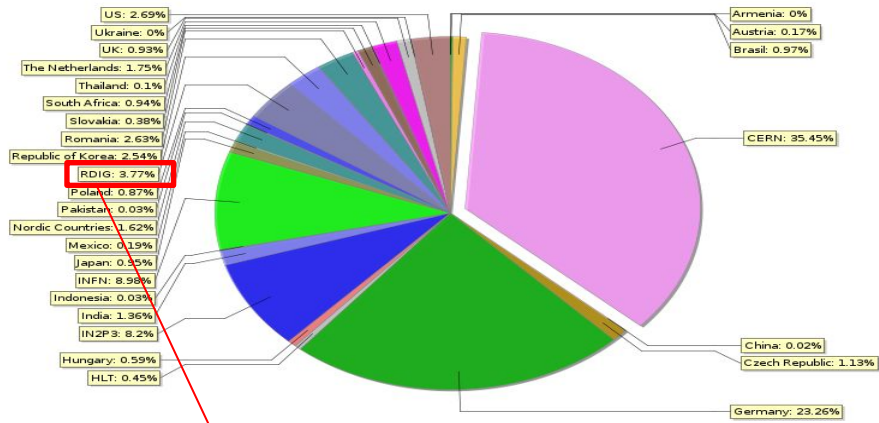
T2

- JINR
- IHEP
- ITEP
- PNPI
- SPbSU
- Troitsk
- Sarov

RDIG production in the last 3 years vs 2018

GRID 2021

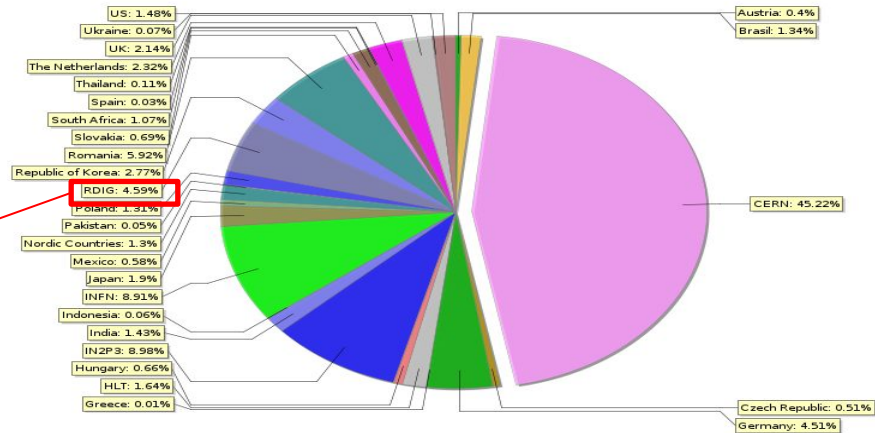
Total CPU hours for ALICE jobs



2018-2021

RDIG 3,77 vs 4,59% in 2018

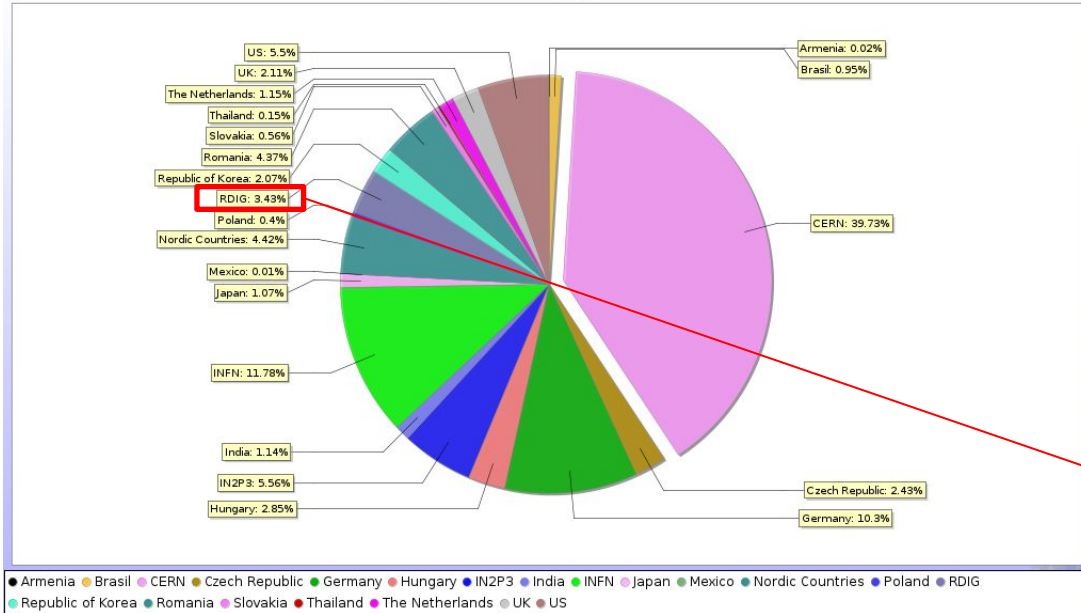
Total CPU hours for ALICE jobs



2017-2018

RDIG production in the last 1 year

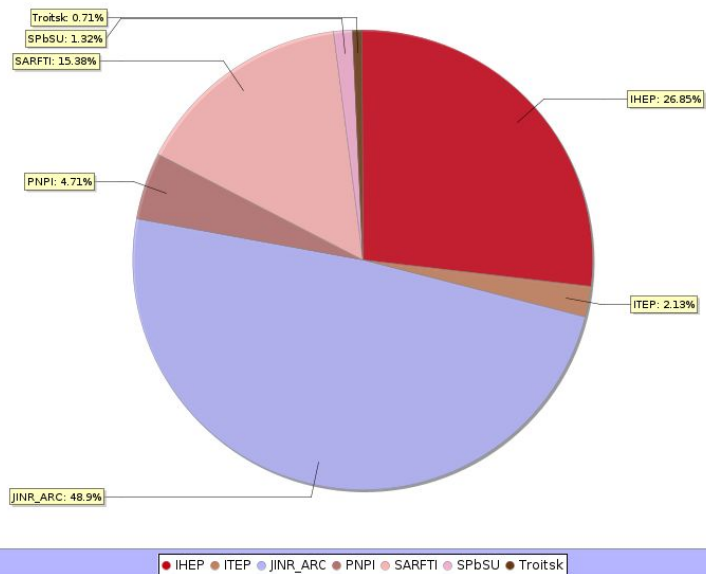
Total CPU hours for ALICE jobs



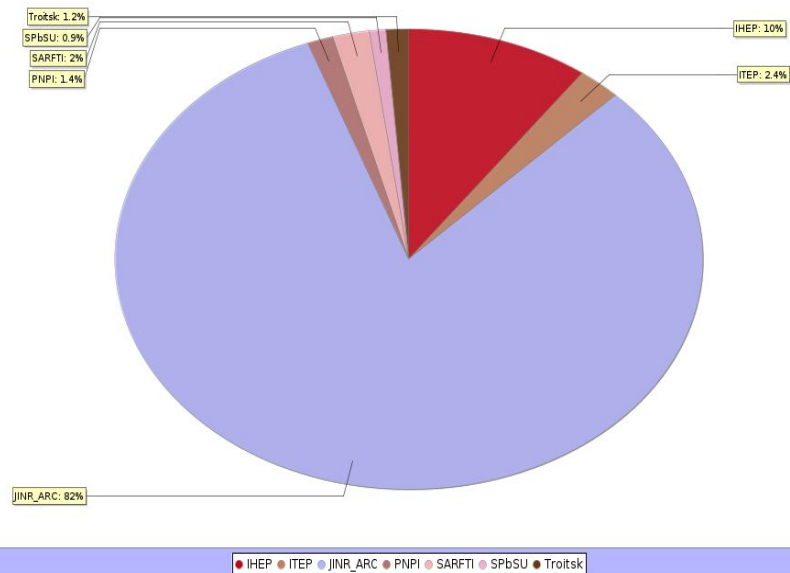
RDIG 3,43% vs 3,77%
in 2021

Resource usage by site for the last year

Total CPU time for ALICE jobs [hours]

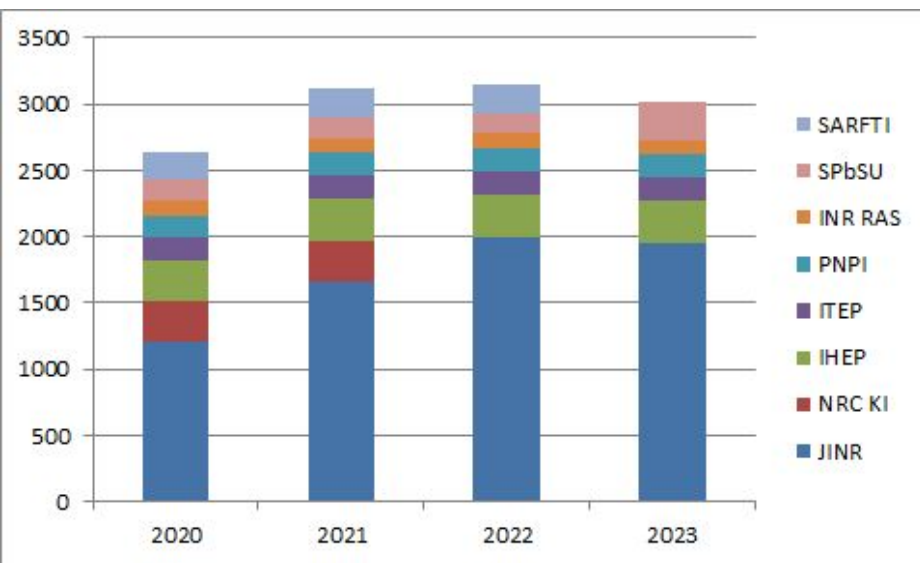


Done jobs statistics

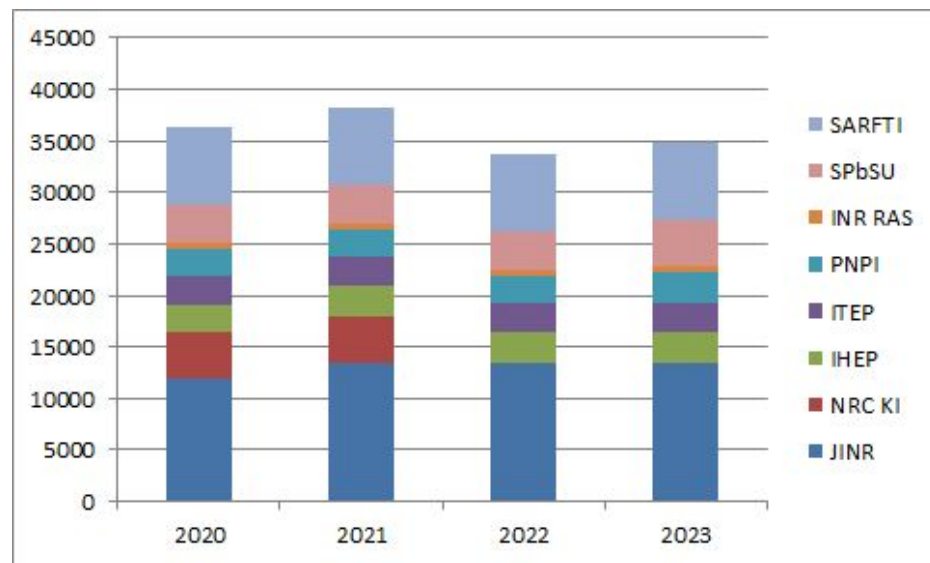


RDIG T2 resources

Disk Russian T2 (TB)



CPU Russian T2 (HEPSPEC06)

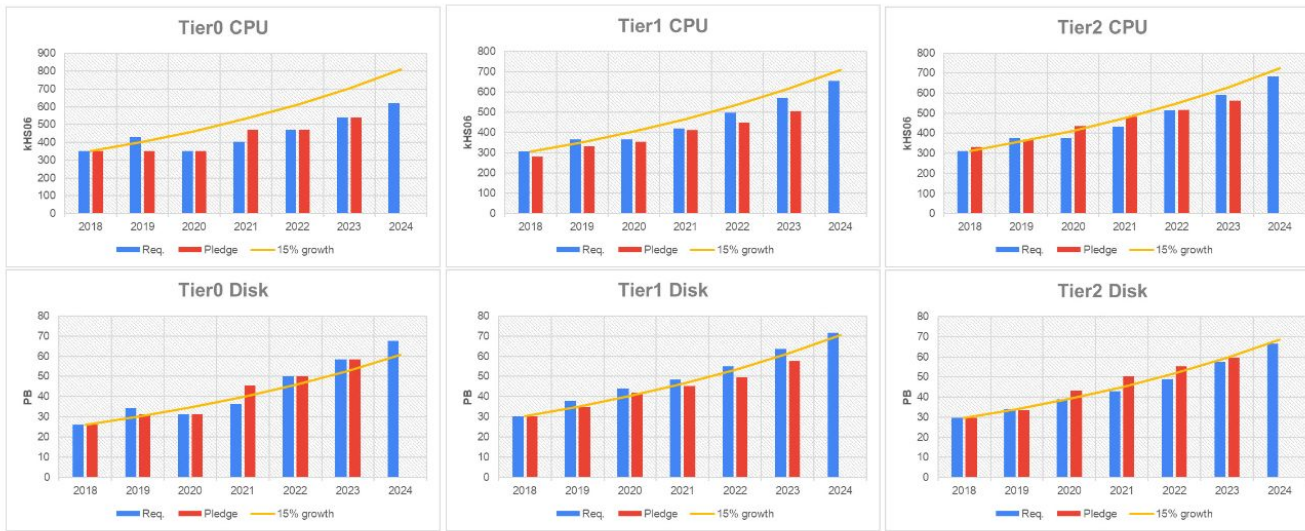


ALICE T1/T2 Workshop - Stefano Piano - ALICE computing resources

A Large Ion Collider Experiment



Expected growth of CPU and disk space in 2022-2024



----- 15% growth: annually compounded rate from 2018 along LS2

Technical upgrade goals for ALICE sites:

- Sites need to support 8-core job slots
 - Configuration depends on the setup of the site
 - ARC CE and HTCondor CE forward requests to their batch system
 - Batch systems may need 8-core queues and/or fragmentation tuning
- Transition from X509 + VOMS to WLCG tokens during Run 3
 - Works for HTCondor CE
 - Doesn't work for ARC6 (jobs submitted by REST interface work only with token+x509 proxy)

Transition from X509 + VOMS to WLCG tokens

Now works with HTCondor only

All Russian sites work with ARC (for ALICE)

ARC7 promises full token support

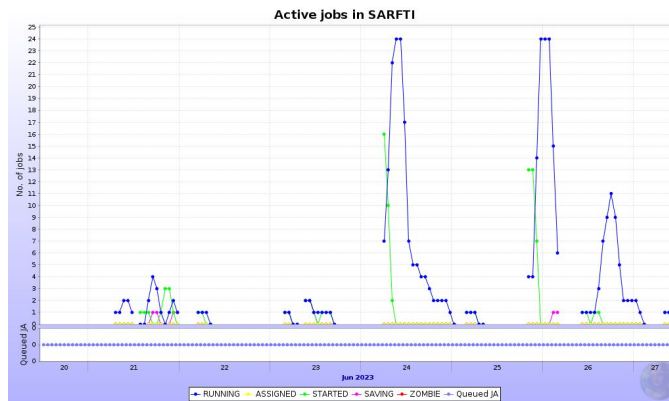
<https://www.nordugrid.org/arc/arc7/overview/arc-ce-components.html>

Resume: we can test ARC7 for ALICE jobs.

Steps of ARC7 tests

- March - tests on virtual testbed. End of March - job submission tests with tokens only.
- April - installation on real site SARFTI. OPS errors and ALICE errors
 - https://ggus.eu/index.php?mode=ticket_info&ticket_id=161830
 - https://bugzilla.nordugrid.org/show_bug.cgi?id=4118
- May - submit errors resolved, jAliEn updated for ARC7
- June - start alice jobs with tokens on SARFTI

Resume: Sites on ARC7 can work for ALICE, but ARC7 is not ready for production.
Main problem - transition from glue1 to glue2.



Resume

Performance of the Russian sites does not increase, but stable.

Most russian sites support multi-core jobs

Russian sites can hope to continue use ARC in the future.

Thanks for attention.

"This work is supported by the SPbSU grant ID: 94031112"