Operations in NDGF-T1 (and SE-SNIC-T2)

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NDGF & NeIC: Background

• Nordic DataGrid Facility (NDGF) was founded 2002 to coordinate the cooperation between Finland, Sweden, Norway and Denmark to create a Tier-1 for Atlas and ALICE.





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- Starting Last year, NDGF was reorganized into NeIC (Nordic e-Infrastructure Collaboration
 - Maintaining NDGF-T1 still biggest project within NeIC
 - But other projects are being created, e.g. bio-informatics, etc.





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 - Maintaining NDGF-T1 still biggest project within NeIC
 - But other projects are being created, e.g. bio-informatics, etc.
- We have mostly recovered from the reorganization now
 - We have a director again
 - We have a dCache developer/storage architect again
 - etc.





NDGF & NeIC: Background (cont.)

In addition to the NDGF-T1, there's a few T2:s in the Nordics

- FI-HIP-T2 for CMS
- NO-NORGRID-T2 for Atlas
- SE-SNIC-T2 for ALICE and Atlas
 - Sometimes hard to distinguish from NDGF-T1





ALICE sites in NDGF







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ALICE sites in NDGF



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- 37 % of swedish CPU hours contributed to NDGF-T1, 63 % contributed to SE-SNIC-T2.





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Sites: CSC

- Owned by Helsinki Institute of Physics (HIP), hosted by CSC
- Geographical location: Espoo (almost Helsinki), Finland
- Backend: SGE
- 768 cores
 - Shared with local ALICE users, and CMS
 - Number of ALICE jobs limited by batch queue system to $150 \Rightarrow$ underutilization of the cluster





Sites: SNIC

- National Supercomputer Center, Linköping, Sweden
- Backend: PBS / Torque
- 512 cores
 - Shared with Atlas and lots of other stuff
- Old, should have been replaced already.





Sites: LUNARC

- Center for scientific and technical computing for research at Lund University, Lund, Sweden
- Backend: PBS / Torque
- 512 cores
 - Shared with Atlas and lots of other stuff





Sites: DCSC/KU

- Danish Center for Scientific Computing / Københavns Universitet
- Geographical location: Copenhagen, Denmark
- Backend: ARC
- 5080 Cores in total

 $- \sim 800$ CPUs shared with Atlas.





Sites: UiB

- Universitet i Bergen
- Geographical location: Bergen, Norway
- Backend: PBS
- 372 Cores
- New hardware being delivered as we speak!





Job efficiencies

Average job efficiencies for May 2013, according to NDGF SGAS

UiB	0.93
SNIC	0.40
DCSC/KU	0.0009
LUNARC	0.89
CSC	0.95





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 according to Alimonitor: 0.96

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Don't trust job efficiency numbers for NDGF in EGI accounting - they are based on NDGF SGAS.





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 - OTOH, I promised that already one year ago ...





Storage: Past & present

- Many small sites looks like one big site
- dCache



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 - $-\ldots$ and with localization support



