



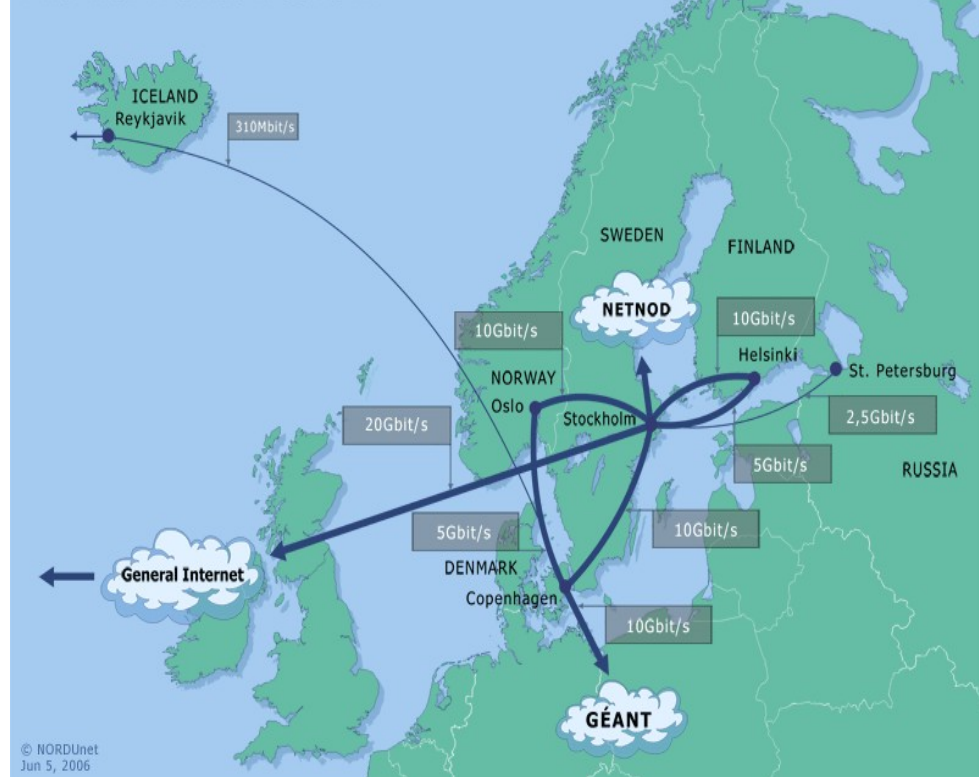
# **NDGF-EGEE Interoperation Status**

*Michael Grønager, PhD*  
*Technical Coordinator, NDGF*  
WLCG Collaboration Workshop  
Geneva, January the 26th, 2007

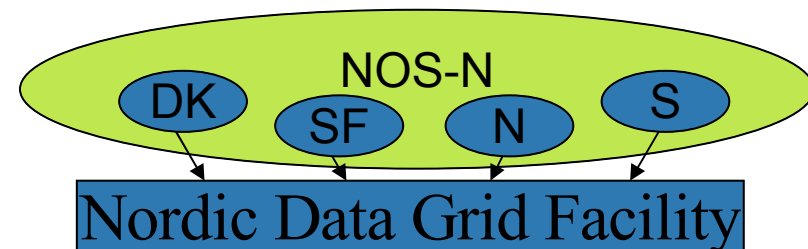
- NDGF Tier-1 Overview
- Interoperability:
  - General Interoperability ARC $\leftrightarrow$ gLite
  - ATLAS Specific
  - ALICE Specific
- Interoperation:
  - Monitoring
  - Accounting
  - Operation

- The Nordic Regional Research and Educational Network (RREN)
- Owned by the 5 Nordic National RRENS
- 25 Years of Nordic network collaboration
- Leverage National Initiatives
- Participates in major international efforts
- Represents Nordic NRENS internationally, gateway to the Nordic area

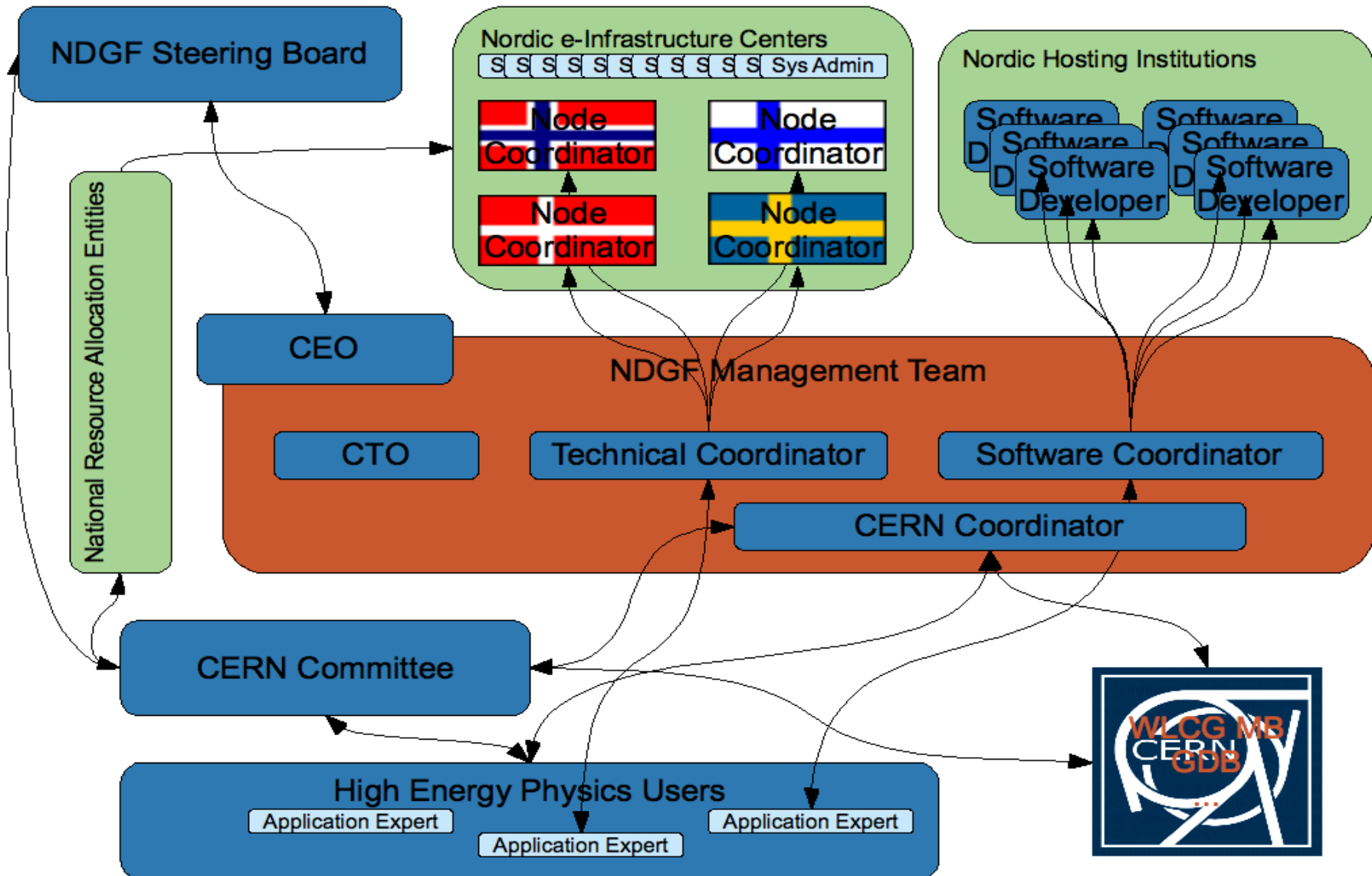
The NORDUnet Network



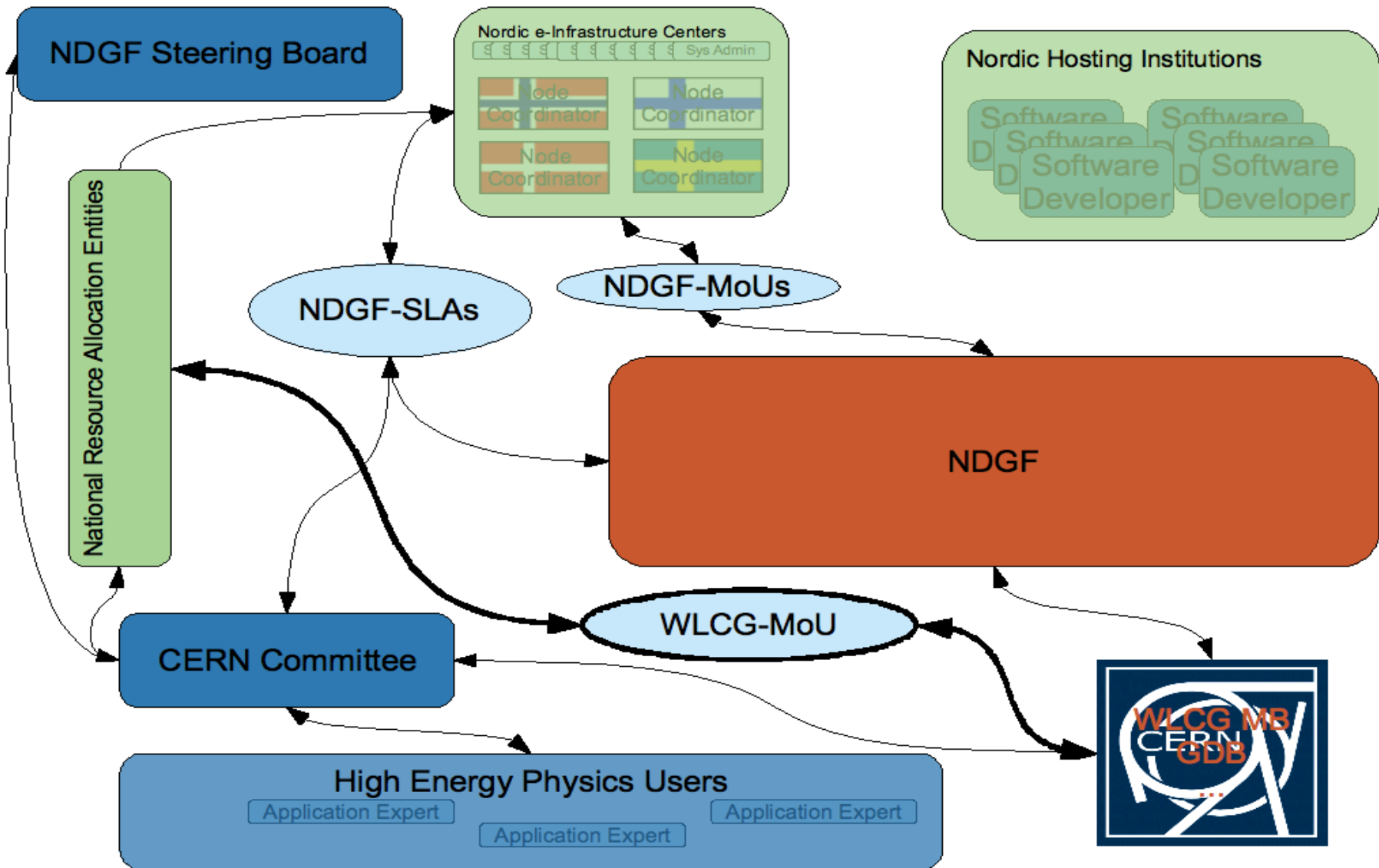
- A Co-operative Nordic Data and Computing Grid facility
  - Nordic production grid, leveraging national grid resources
  - Common policy framework for Nordic production grid
  - Joint Nordic planning and coordination
  - Operate Nordic storage facility for major projects
  - Co-ordinate & host major e-Science projects (i.e., Nordic WLCG Tier-1)
  - Develop grid middleware and services
- NDGF 2006-2010
  - Funded (2 M.EUR/year) by National Research Councils of the Nordic countries
  - Builds on a history of Nordic grid collaboration
  - Strategic planning ongoing.



# Organization – CERN related

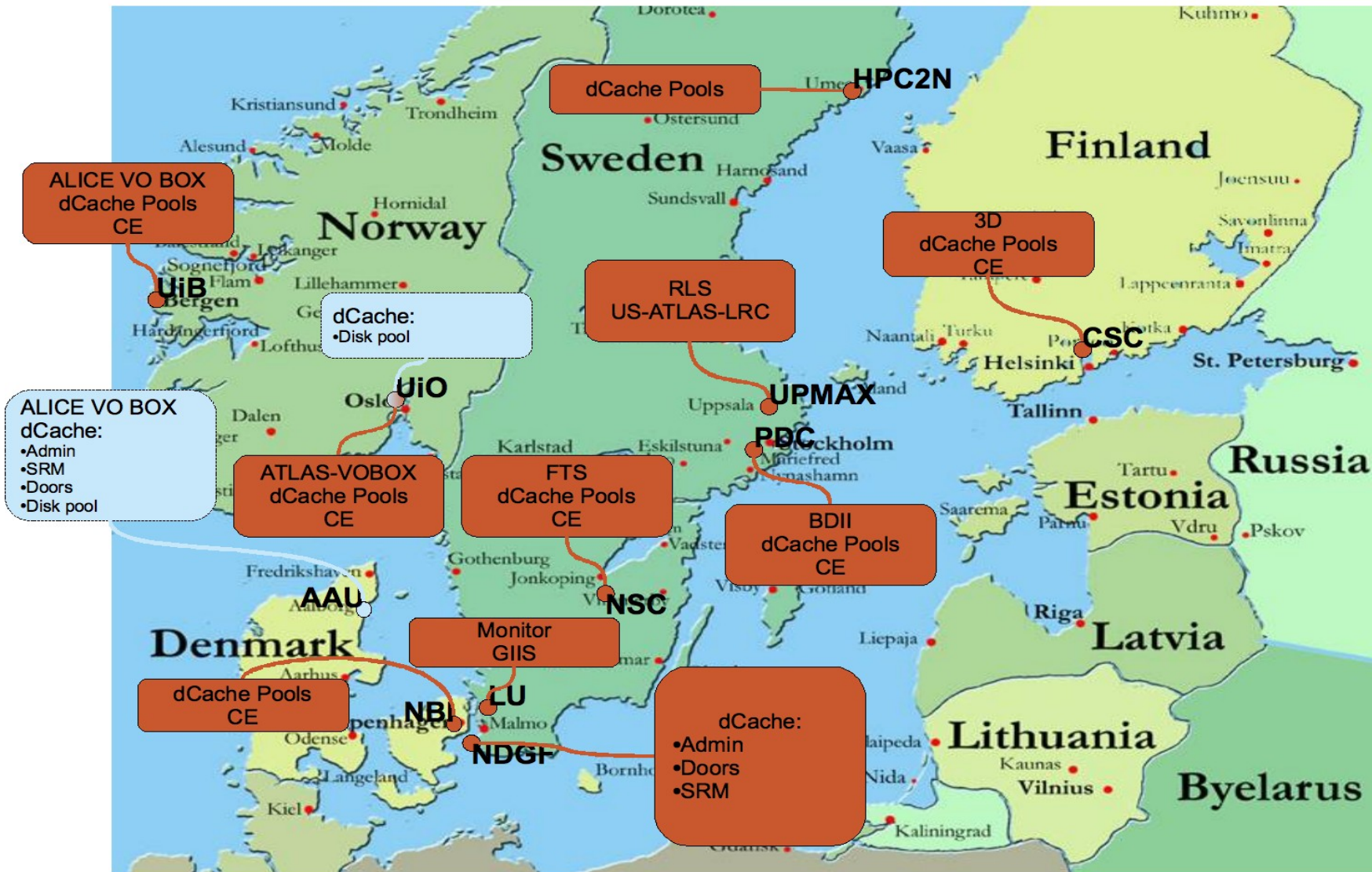


- CEO shared with NORDUnet A/S
- CTO shared with NORDUnet A/S
- NDGF Technical Coordinator
- NDGF Software Coordinator
- NDGF CERN Coordinator
- 4 National Node Coordinators
- 6-8 middleware developers
- Partnering with:
  - 2-6 Experiment Software Experts
  - 1-2 System administrators pr site (7-14)

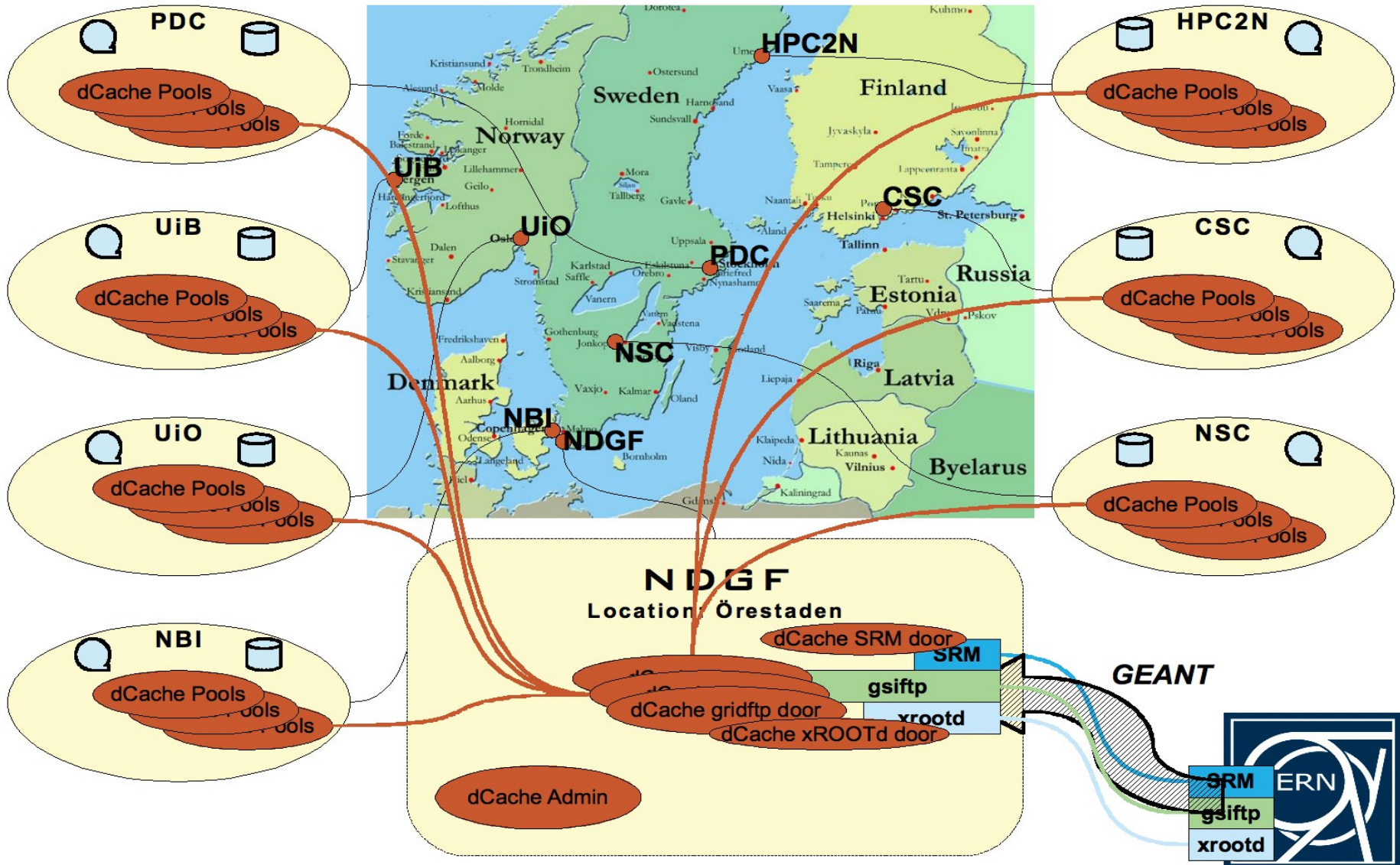


- Governance
  - NDGF-MoU between NDGF and National e-Infrastructure entities
    - Ensures that NDGF is the entity used for resource sharing by the National e-Is
  - NDGF-SLA between NDGF, CERN committee (grant holders) and National e-Infrastructure entities
    - Ensures the needed service level for the Tier-1 operation
  - WLCG-MoU between National funding bodies and CERN/WLCG
- Structure in place, but some formalities need to be finalized

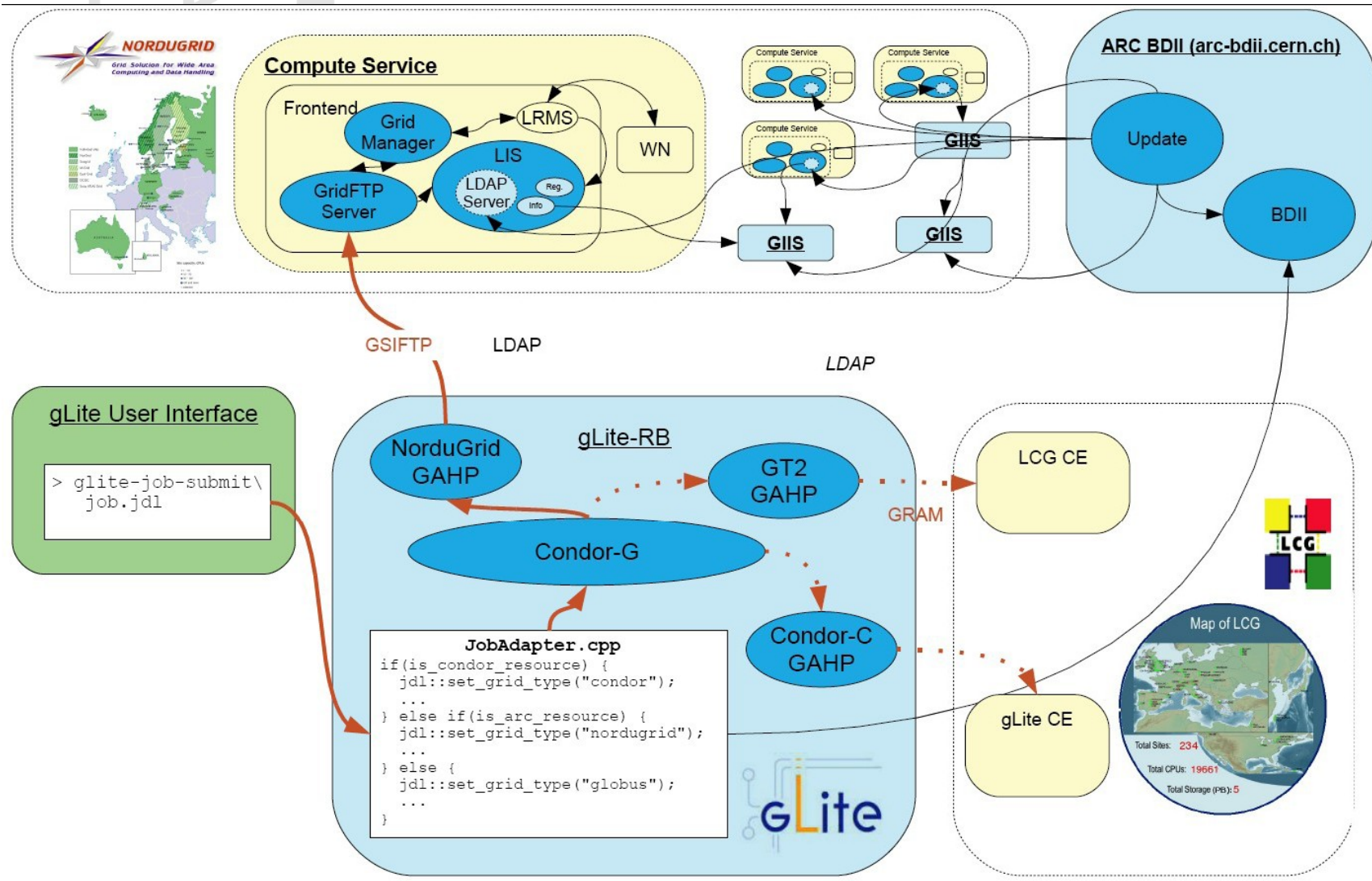
- NorduGrid
- KnowARC EU Project
  - Development
- EGEE-II/EGEE-III/EGI Projects
  - Operation
- dCache/DESY
  - Part of the development team
- GIN
  - General Interoperability (Info system etc...)



- Approximately 5000 CPUs
- 15 Countries
- 50 Sites
- NDGF Tier-1 resources (Jan/Feb 2007):
  - 700 kSI2k on 6 ARC CEs
  - One dCache Storage system with:
    - 200 TB Disk
    - 200 TB Tape



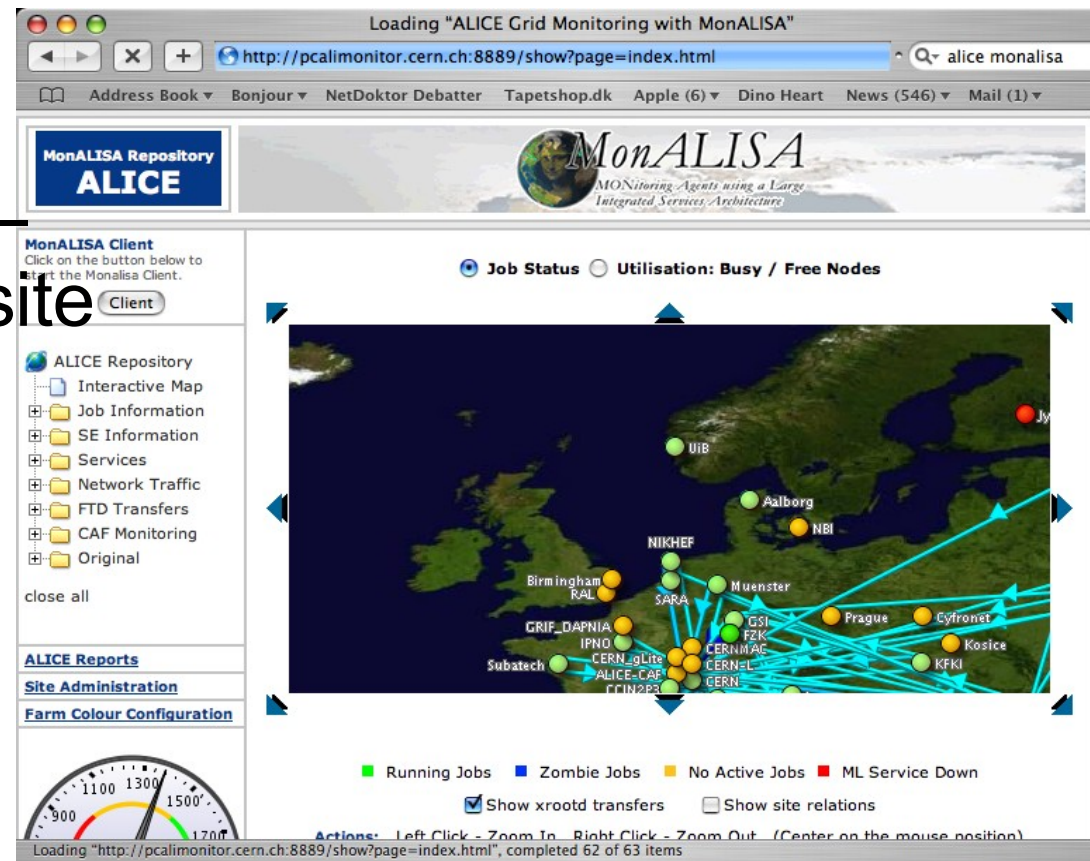
- Ongoing effort since Summer 2004
- EGEE-II - SA3:
  - ARC-Schema->Glue translator running (arc-bdii.cern.ch)
  - Modification of the gLite-WMS to submit to ARC-CE, Unicore and others - ongoing
- KnowARC:
  - ARC -> gLite jobsubmission – aims at the CREAM interface...



- Experiments have *many* specific needs
- ARC already tailored for ATLAS
- ALICE runs its own middleware (AliEn)
- More optimal to tailor jobs than to tailor grids ?
- General Interop. progressing slowly
- Put into VO-BOXes in WLCG

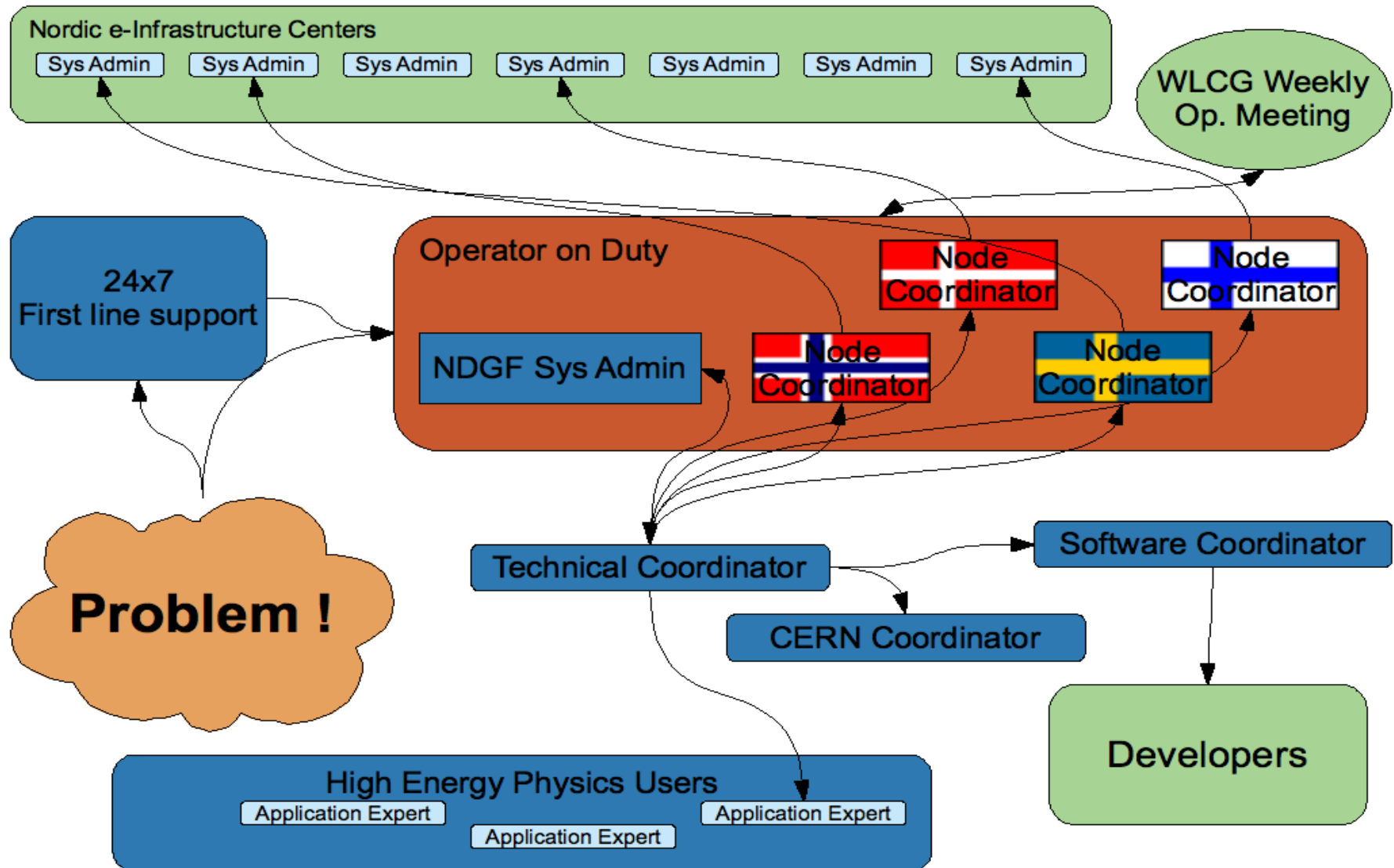
- Computation
  - Capability from the ATLAS executor to submit jobs to ARC
  - ATLAS Runtime Environments
- Storage
  - Up till now only old ARC SEs
  - The dCache solution is coming
- Catalog
  - Synchronized Globus RLS (needed by ARC) and US ATLAS LRC (interoperates with DQ2).

- Computation
  - ALICE to ARC submission interface
- Storage
  - xrootd at the dCache storage – one interface pr site



- NDGF addresses interoperability per experiment
  - Currently for ATLAS and ALICE
- ATLAS: In production
- ALICE: In production
- More tweaks needed for adaptation to the distributed MSS
- General Interoperability still relevant...

- NDGF-EGEE
- Operation
- Operational tools:
  - Monitoring / Site Availability
  - Accounting
  - User help / Ticketing



- SAM Tests:
  - ARC Sensors under development
  - Agree on appropriate mapping
  - Not always one-to-one

- NDGF Uses SGAS Accounting System
  - Pr. User Accounting
  - Pr. VO Accounting
- Needs translator to APEL
  - Development to start asap
- Storage accounting from dCache

- NorduGrid / NDGF users can submit tickets to GGUS
- Will be directed to the NE-ROC
- Forwarded to relevant sites
- However:
  - Users tend to use experiment and m/w lists for community help
  - Might change...

- Participation in the WLCG/EGEE/OSG Weekly Op. Meeting
- Interoperation more clear once administrative tools become ready
- Also, NDGF is not yet fully operational
  - FTS ready
  - Production dCache & 3D ready in February