Introduction

Status and plans

Relation to Nordic Data Grid Facility

 Relation to LHC (Atlas)
NorduGrid: yesterday, today, tomorrow

From ... Nordic Council of ministers (Nordunet 2 program)

Natural Science Research Councils (NOS-N)

Nordic HEP institutes+

NDGF prototype

To

May 01 Oct 02 Apr 03 Dec 04

NDGF?
# NorduGrid Documents

www.nordugrid.org

<table>
<thead>
<tr>
<th>MANUALS</th>
<th>PAPERS</th>
<th>SLIDES</th>
<th>OUTREACH</th>
</tr>
</thead>
<tbody>
<tr>
<td>User</td>
<td>Published</td>
<td>International conferences</td>
<td>Tutorials</td>
</tr>
<tr>
<td>Administrator</td>
<td>Unpublished</td>
<td>Various meetings</td>
<td>The</td>
</tr>
<tr>
<td>Tutorials</td>
<td>Internal</td>
<td>Internal workshops</td>
<td>brochure</td>
</tr>
</tbody>
</table>

## Manuals

### User manuals
- "The NorduGrid User Manual"
- "NorduGrid client installation instructions". B.Kónya
- "Grid Certificate Mini How-to". B.Kónya
- "Extended Resource Specification Language". O.Smirnova
- "Replica Catalog Cheatsheet". O.Smirnova
- "The Grid Monitor; Usage Manual". O.Smirnova

### Administrator manuals
- "NorduGrid server installation instructions". B.Kónya
- "The NorduGrid Grid Manager and GridFTP Server; Description And Administrator's Manual". A.Konstantinov
- "The NorduGrid Information System". B.Kónya
- "The HTTP(5g) And SOAP Framework" (Draft). A.Konstantinov

## Papers

### Published papers
- "Grid Technology". O. Smirnova, Nordic States journal, summer 2003 issue, PSCA International publishing house.
NorduGrid status/plans

* A Globus-based Grid middleware solution available 24/7
  - routinely used by researchers since summer 2002
* Covers job-submission, brokering, storage-element, replica-catalog, etc
* Distributions for RedHat, Slackware, Mandrake, Debian etc.
* Other components currently in development:
  – Accounting software -- especially for computer centres joining
  – General grid-webservice framework for logging-service, clever storage-element etc.
* Software freely available
* Project in development and open for participation
NorduGrid Task flow
“We are also grateful to the NorduGrid project, for inviting us test their facilities. Many of our results were obtained with grid computing”

“Monte Carlo calculations were in part carried out using NorduGrid” Olav F. Syljuasen, Directed Loop Updates for Quantum Lattice Models, Phys. Rev. E. 67, 046701 (2003)


Part of LEP Combined SUY Higgs search, Alex Read, Oslo. Analysis in progress ...

76 registered users in the “NorduGrid VO” + “alien Vos” and local user lists

38 people run at least one job on the Grid in the last month

Core users: the ATLAS HEP Group and 5-10 heavy users
## NorduGrid Contribution:

<table>
<thead>
<tr>
<th>Phase</th>
<th>% CPU</th>
<th>Jobs</th>
<th>Input</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>1.9</td>
<td>1300</td>
<td>177 GB</td>
<td>690 GB</td>
</tr>
<tr>
<td>Phase 2</td>
<td>2.5</td>
<td>1300</td>
<td>690 GB</td>
<td>1060 GB</td>
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<tr>
<td>Phase 3</td>
<td>15.1</td>
<td>4450</td>
<td>5 TB</td>
<td></td>
</tr>
</tbody>
</table>

* In total 5600 NCPU-days used on NorduGrid
* 4.7 % of total DC1 production worldwide (CPU)
... a Production Grid, not a "DEMO Grid" nor a Testbed ...

\[ \geq 1000 \text{ cpu's} \]

\[ \rightarrow 10 \text{ TB storage} \]
1. Create the basis for a common Nordic Data Grid Facility

2. Coordinate Nordic Grid Activities

Core Group
- Project Director
- 4 Post Doc.s

Steering Group
- 3 members per country
- 1 R.C. Civil Servant
- 2 Scientists

Total budget 1M € for two years
Development of a Nordic Data Grid Facility

- International Evaluation Recommendations
- Competition for location of Nordic Grid Facility
- Nordic Commitment
- Nordic Steering Committee
- National Grid Prototypes
- NorduGrid
- National Funding
- Moderate Nordic Funding

Capacity Building
- Storage, processors, networks
- ca 15 M€
NorduGrid collaboration:
- develops Grid Middleware
- open to contributions from outside (other sciences, institutes, countries, ..)

Nordic Data Grid Facility (NDGF)
- organises resources and addresses Authentication, Authorisation, Accounting issues
- deploys middleware
- operates the prototype facility

Contributions to ATLAS (+ later CMS & ALICE?) DCs through NDGF/NorduGrid (interfaced by Nordic LHC physics groups)
DMS

Production Database

Supervisor

NorduGrid executor

LCG executor

Chimera executor

NorduGrid/NDGF resources

LCG resources

US-Grid resources

>15%?