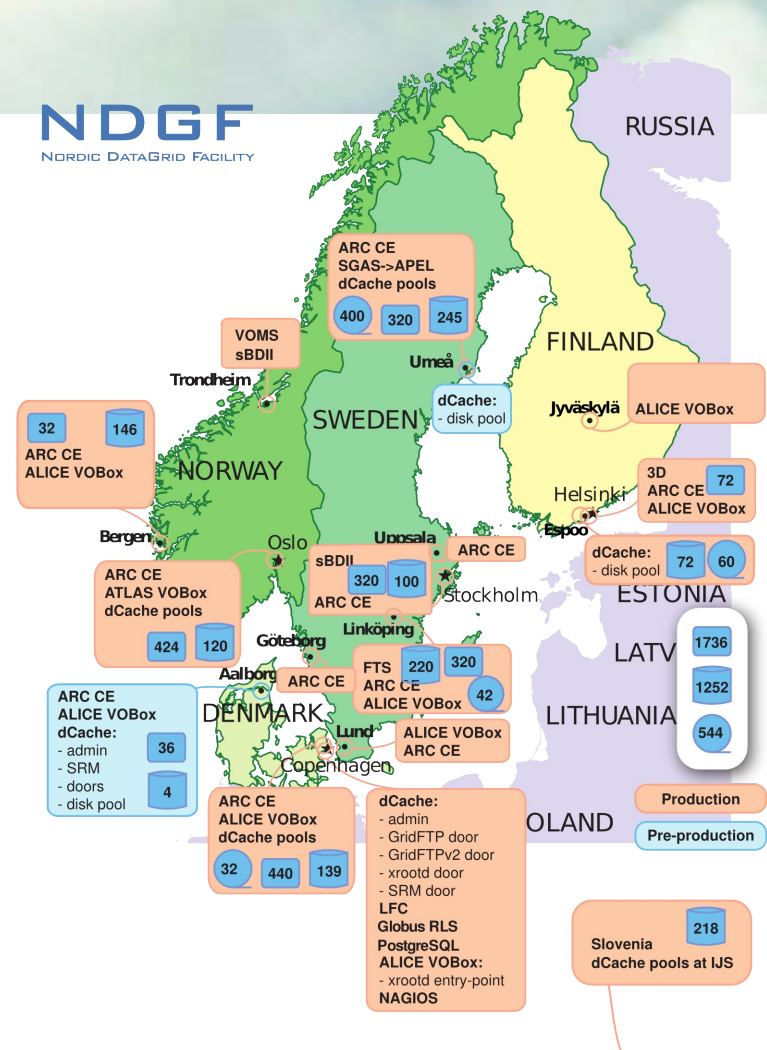


A decorative graphic on the left side of the slide, consisting of several white lines of varying thicknesses that form a vertical, abstract shape resembling a stylized letter 'N' or a series of connected loops.

NDGF Site Report

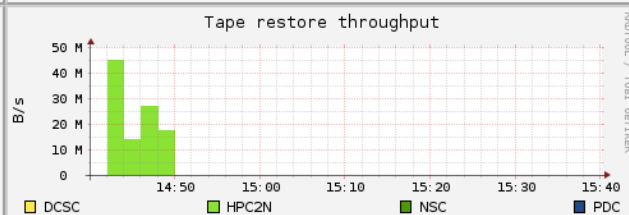
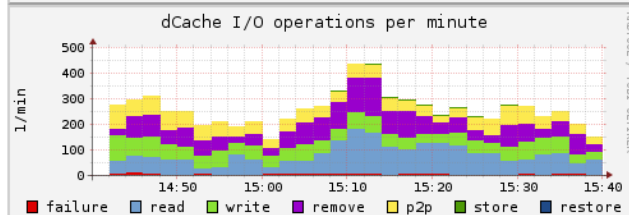
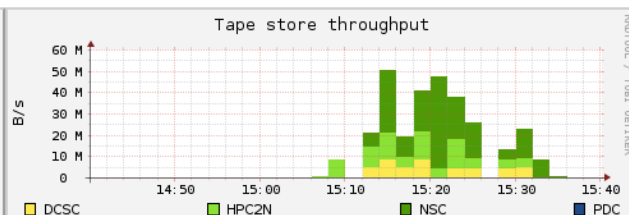
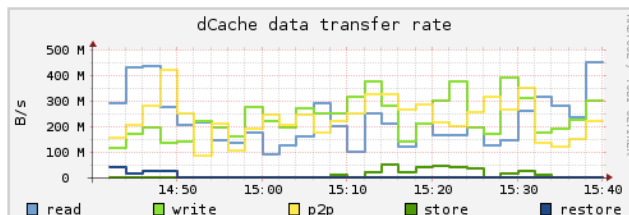
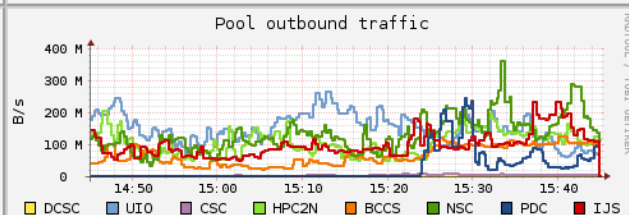
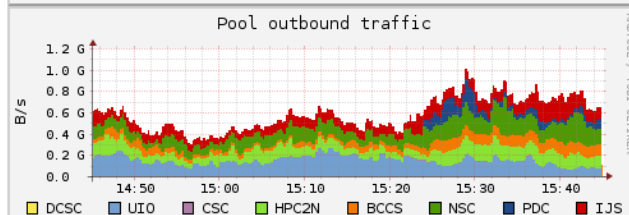
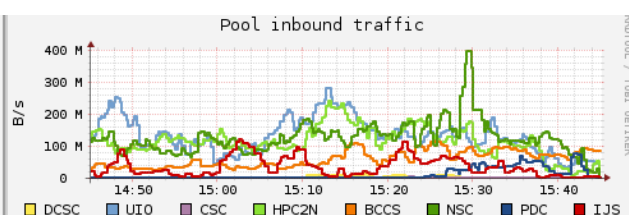
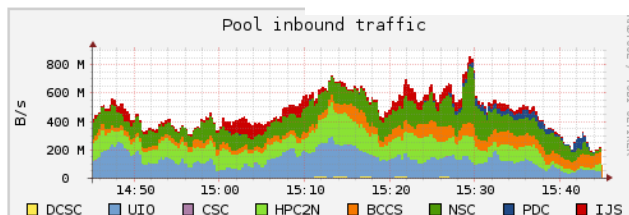
Mattias Wadenstein
Hepix 2010 Fall Meeting
2010-11-01, Cornell

- NDGF is a distributed site
- Most of the big HPC centers in Norway, Sweden, Finland and Denmark
- Tier1 storage at 7
 - Plus IJS in Slovenia
- Old Numbers



- Distributed dCache
- Central nodes
 - Admin
 - Doors
 - etc
- Storage:
 - 8 colours
 - Atlas
 - Alice
 - Both

| PoolGroup | Total Space/MB | Free Space/MB | Precious Space/MB | Layout (precious/used/free) |
|-----------------------------------|----------------|---------------|-------------------|-----------------------------|
| alice_disk | 269086391 | 80899602 | 54236 | |
| alice_tape_read | 4096000 | 4095999 | 0 | |
| alice_tape_srm | 4096000 | 4095999 | 0 | |
| alice_tape_xrootd | 4096000 | 4096000 | 0 | |
| atlas_disk | 1566389093 | 146392448 | 1709851 | |
| atlas_disk_cache | 468793026 | 49052 | 0 | |
| atlas_disk_dk | 20582400 | 4574099 | 0 | |
| atlas_tape_read | 17752776 | 5612 | 0 | |
| atlas_tape_write | 5705728 | 3168 | 0 | |
| biogrid_disk | 4198400 | 3813524 | 40502 | |
| default | 2442637224 | 356929407 | 454274 | |
| ops_disk | 60346368 | 6405281 | 11068 | |
| ops_tape_read | 7168000 | 7163867 | 0 | |
| ops_tape_write | 2539520 | 2539520 | 0 | |
| unassigned | 227328000 | 84276729 | 0 | |



- Using the NorduGrid ARC middleware
 - Screenshot of the ATLAS ND cloud

2010-11-01 CET 15:46:52



Processes: ■ Grid ■ Local



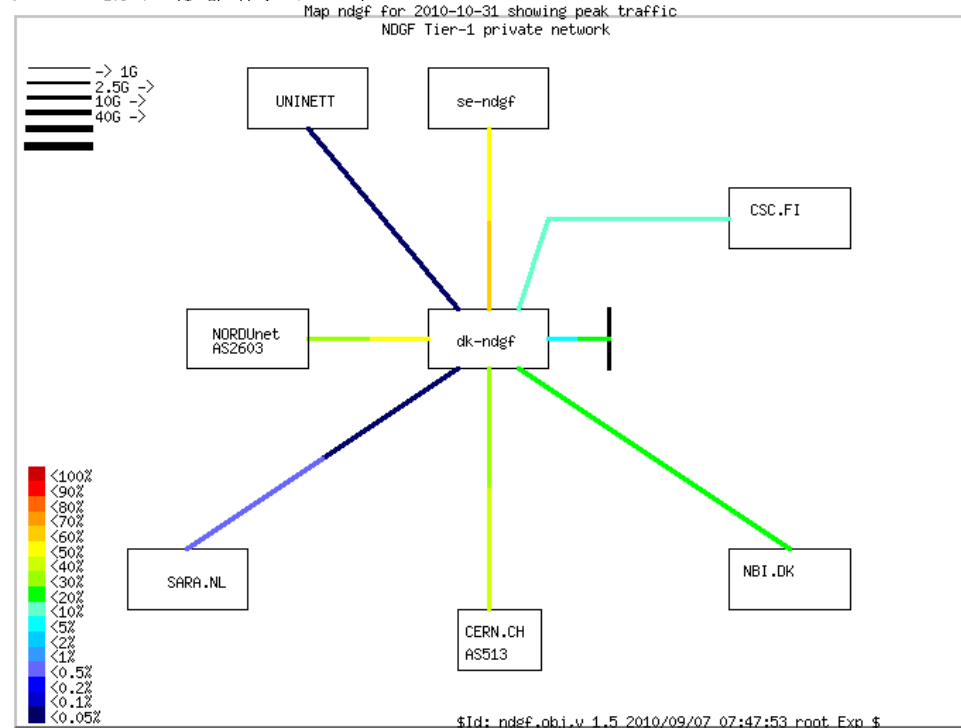
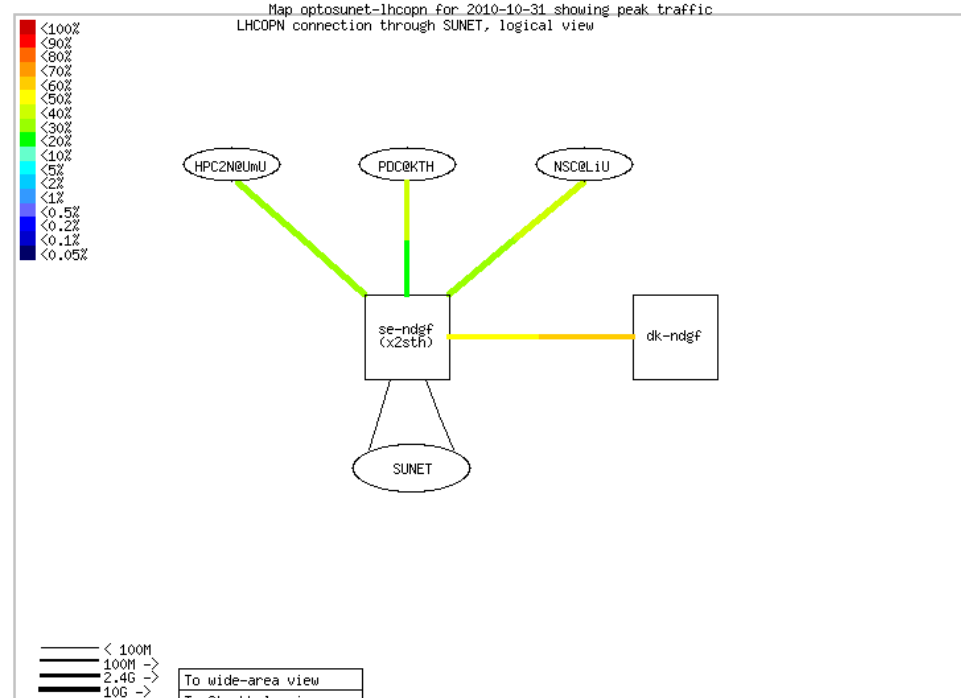
| Country | Site | CPUs | Load (processes: Grid+local) | Queueing |
|--------------|-------------------------|--------------|---|--------------------|
| Denmark | Steno (DCSC/KU) | 3304 | ■ 736+1967 ■ | 439+0 |
| | EPF (UiO/FI) | 20 | ■ 0+9 | 0+0 |
| Norway | Tier1 (BCCS/UiB) | 360 | ■ 284+321 ■ | 226+41 |
| | Titan A (UiO/USIT) | 4636 | ■ 471+2929 ■ | 299+1734 |
| Slovenia | Arnes | 252 | ■ 252+0 | 236+0 |
| | SiNET | 1150 | ■ 316+9 ■ | 498+0 |
| Sweden | Grad (SweGrid, Uppmax) | 512 | ■ 437+4 ■ | 1696+34 |
| | Ritsem (SweGrid, HPC2>) | 544 | ■ 218+1 ■ | 1765+0 |
| | Siri (SweGrid, Lunarc) | 496 | ■ 389+105 ■ | 1612+50 |
| | Smokerings (NSC) | 512 | ■ 256+248 ■ | 1480+0 |
| Switzerland | Bern ATLAS T3 | 212 | ■ 152+0 ■ | 53+0 |
| | Bern UBELIX T3 Cluster | 1072 | ■ 180+346 ■ | 1+3 |
| | Geneva ATLAS T3 | 222 | ■ 25+1 ■ | 17+0 |
| | Manno PHOENIX T2 | 1520 | ■ 256+418 ■ | 115+116 |
| | Manno PHOENIX T2 | 1520 | ■ 274+847 ■ | 121+129 |
| TOTAL | 15 sites | 16332 | 4166 + 7205 | 8558 + 2107 |

- Renumbering

- From 193.10.122.0/23
- To 109.105.124.0/22

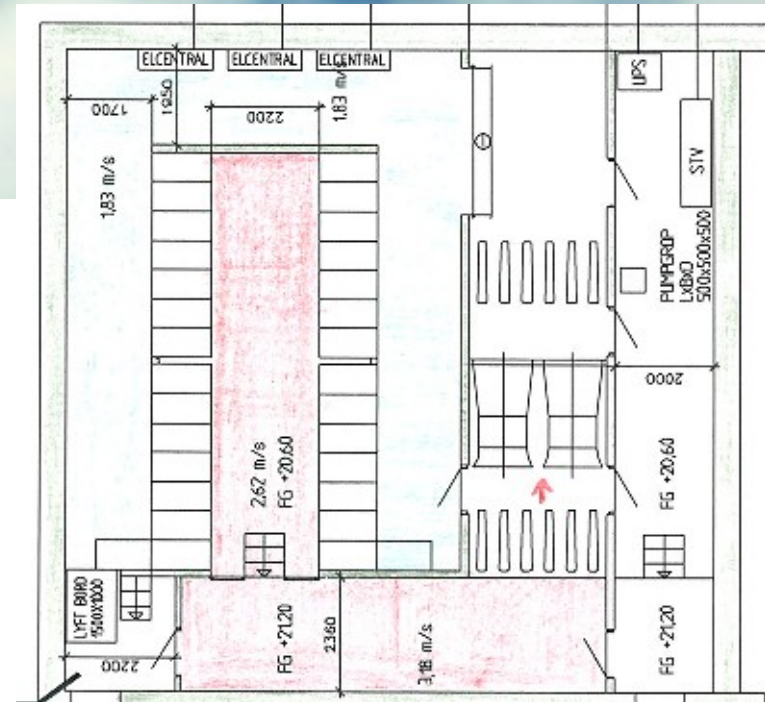
- Status

- Sweden and Finland in for years
- New: Denmark in
- Norwegian part also coming along
- IJS over general IP temporarily



- HPC2N machine room update
- HPC2N new storage servers
- New cluster at NSC
- LTO5 upgrades
 - Purchasing phase

- “As seen on HEPiX”
- New cluster means more power needed
 - Expecting >20kW/rack
- Upgrading the feed power from 400kW to 700kW
 - Cables in the ground as of ~now
- Cooling should be sufficient



- Similar servers also bought at other Swedish sites
- HP dl180s g6 with p812 and 12 x 2TB
- Linux servers instead of ZFS due to Sun buyout
 - Had to re-tender due to Oracle pricing and policies



New NSC clusters

- General academic use – not for WLCG
- 880 nodes (HP DL2x170h and SL2x170z)
- 7040 cores (E5520) and 32 TiB RAM
- 63 TFlops Rmax



New NSC clusters

- Water cooled using HPC MCS racks
- 4:1 or 8:1 oversubscribed QDR infiniband
- Slurm as both batch system and scheduler





Questions?