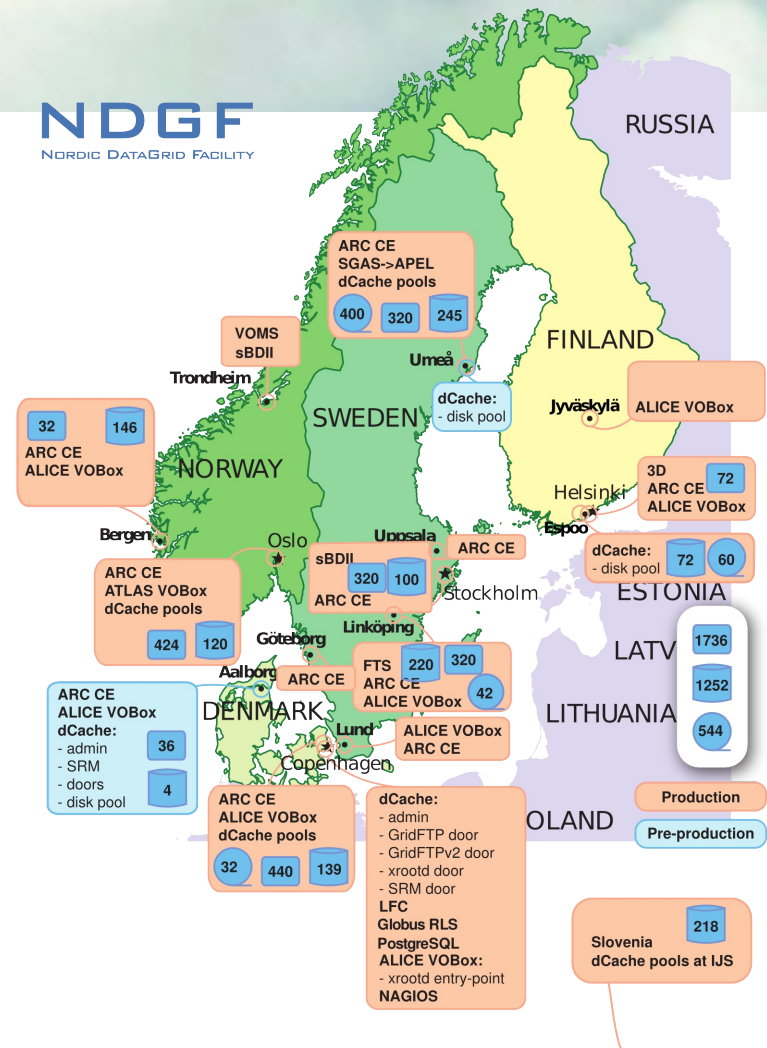


A decorative graphic on the left side of the slide, consisting of several white lines of varying thicknesses that form a vertical, abstract shape resembling a stylized letter 'N' or a series of connected loops.

# **NDGF Site Report**

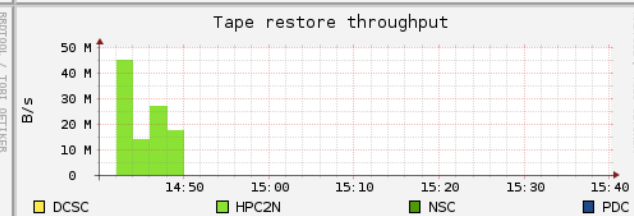
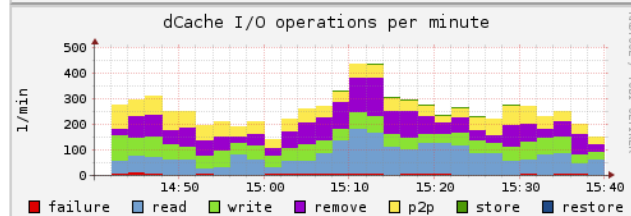
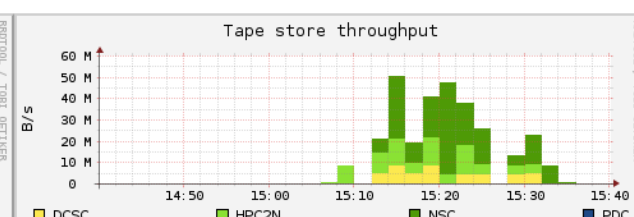
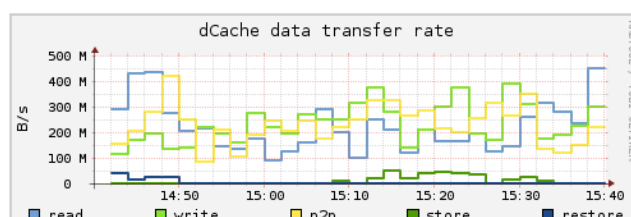
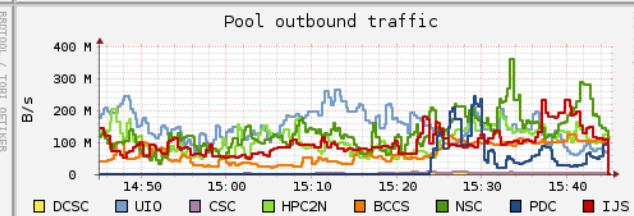
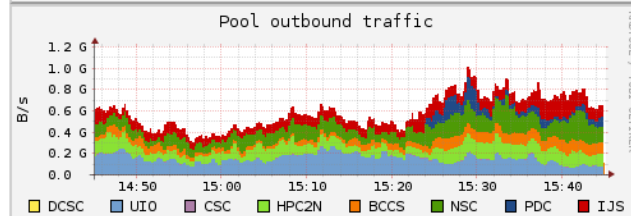
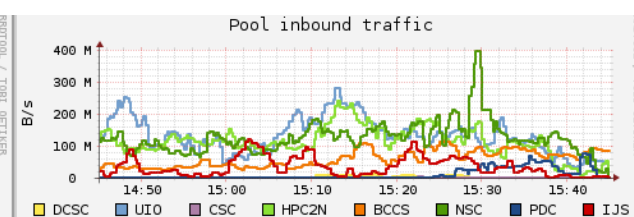
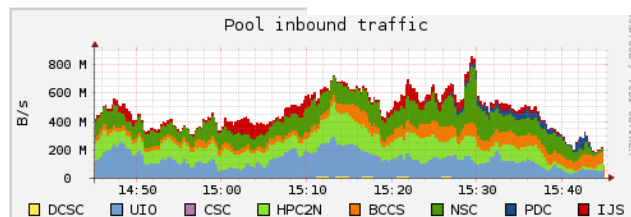
Mattias Wadenstein  
Hepix 2010 Fall Meeting  
2010-11-01, Cornell

- 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)
<a href="#">alice_disk</a>	269086391	80899602	54236	
<a href="#">alice_tape_read</a>	4096000	4095999	0	
<a href="#">alice_tape_srm</a>	4096000	4095999	0	
<a href="#">alice_tape_xrootd</a>	4096000	4096000	0	
<a href="#">atlas_disk</a>	1566389093	146392448	1709851	
<a href="#">atlas_disk_cache</a>	468793026	49052	0	
<a href="#">atlas_disk_dk</a>	20582400	4574099	0	
<a href="#">atlas_tape_read</a>	17752776	5612	0	
<a href="#">atlas_tape_write</a>	5705728	3168	0	
<a href="#">biogrid_disk</a>	4198400	3813524	40502	
<a href="#">default</a>	2442637224	356929407	454274	
<a href="#">ops_disk</a>	60346368	6405281	11068	
<a href="#">ops_tape_read</a>	7168000	7163867	0	
<a href="#">ops_tape_write</a>	2539520	2539520	0	
<a href="#">unassigned</a>	227328000	84276729	0	



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

2010-11-01 CET 15:46:52



Processes: ■ Grid ■ Local



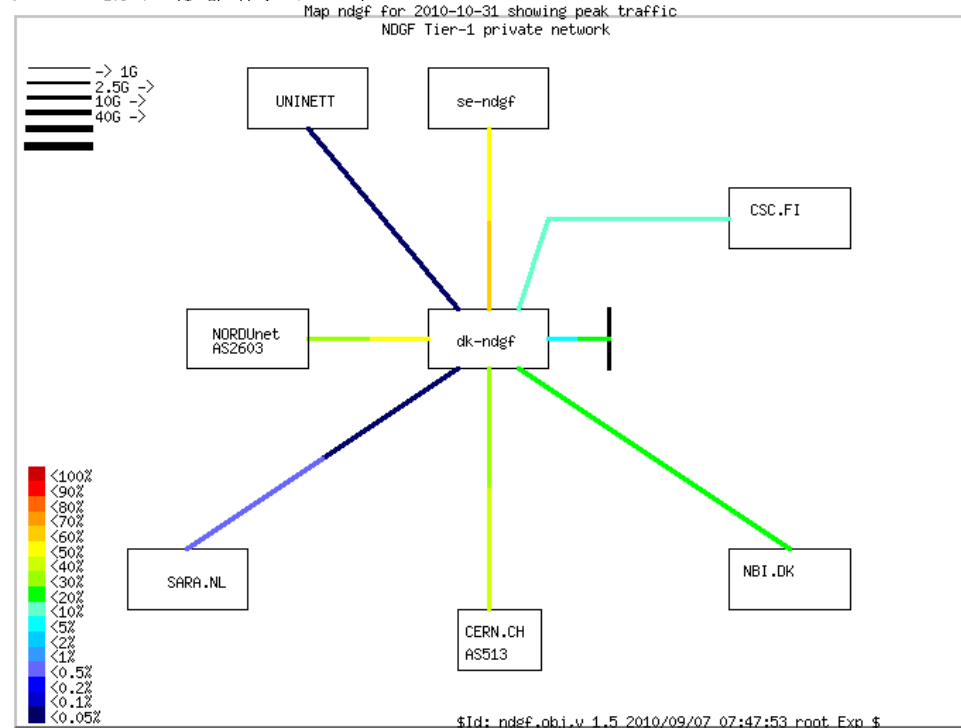
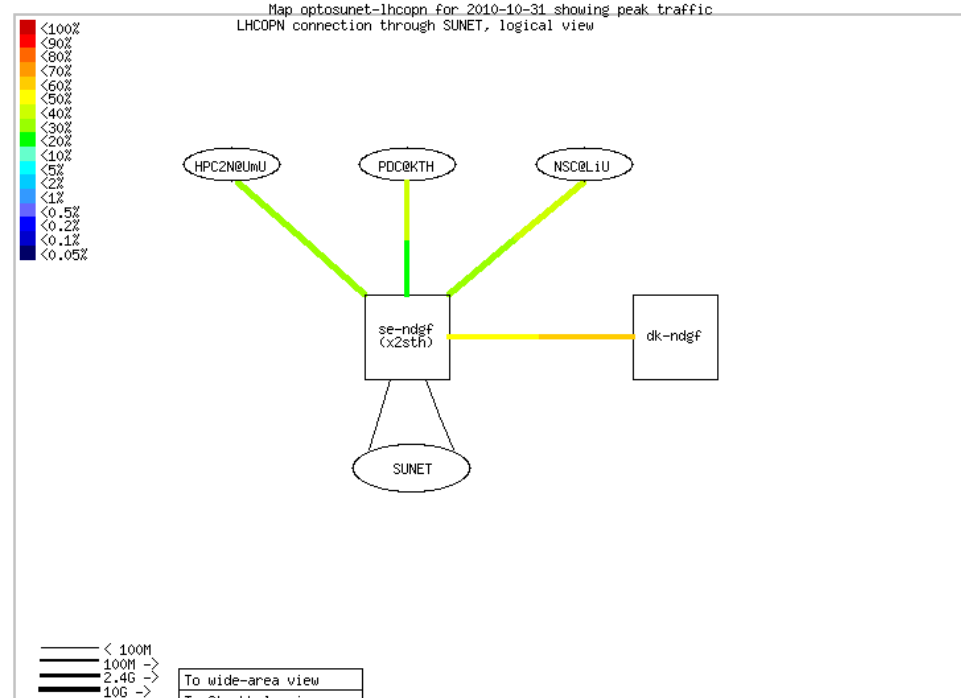
Country	Site	CPUs	Load (processes: Grid+local)	Queueing
Denmark	Steno (DCSC/KU)	3304	<span style="color:red">736</span> +1967	439+0
Norway	EPF (UiO/FI)	20	0+9	0+0
	Tier1 (BCCS/UiB)	360	<span style="color:red">284</span> +321	226+41
	Titan A (UiO/USIT)	4636	<span style="color:red">471</span> +2929	299+1734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

- Renumbering

- From 193.10.122.0/23
- To 109.105.124.0/22

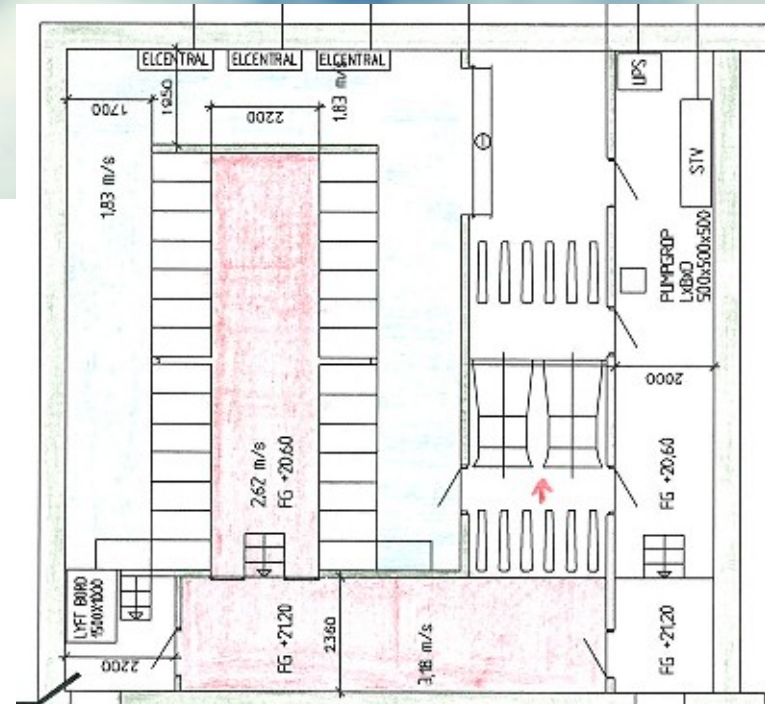
- Status

- 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  $>20\text{kW}/\text{rack}$
- 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





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



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





# Questions?