

# The Bern ATLAS T3



## The Bern ATLAS T3 Infrastructure

Cluster	WN Cores	Storage/TB	OS	Middleware
Bern ATLAS Cluster (T3)	36	10	SLC4/SuSE	ARC
Bern UBELIX Cluster (T3)	288 (shared) 506	-	Gentoo	ARC

- ◆ UBELIX now has 506 worker node cores :
- ◆ ARC's perl scripts were customized to suite SGE on Gentoo.
- ◆ Bern ATLAS Cluster has Torque and nfs (1GB RAM per core, now a problem).
- ◆ The storage element is ARC (can support gacl and srm).
- ◆ BAC will upgrade till ~22 TB Disk and 2GB RAM per core in 2007.
- ◆ BAC will hopefully upgrade till ~40 TB disk and ~50 cores in 2008.
- ◆ BAC has Ganglia : <http://lheppc25.unibe.ch/ganglia/>.
- ◆ See also [www.nordugrid.org/monitor/atlas](http://www.nordugrid.org/monitor/atlas).
  
- ◆ The administration takes more than we like ... now several cores down.
- ◆ ARC-Torque-nfs has scaling problems.
- ◆ Seldom we have both UBELIX and Phoenix working.
- ◆ How to integrate the ARC SE with ATLAS and Phoenix ?

## The Bern ATLAS T3 Usage

2006

Cluster	Production	ATLAS User Jobs	Total	Comment
Bern ATLAS Cluster (T3)	55000	5000	60000	
Bern UBELIX Cluster (T3)	8000	54000	62000	
Geneva (T3)	-	-	62000	Only Total available
Manno Phoenix (T2) via LCG	66000	-	66000	
Manno Phoenix (T2) via ARC	13000	-	13000	
Sum	142000	59000	263000	

```
[shaug@lheppc50] > python batPbsCheck.py 20070102 20070605 158
```

2007

User	#Jobs	Wall Time
nordugrid	201	698
swissgrid	1354	5532
production	15706	53127
	17261	59358

UBELIX (January - May):

nordugrid	15000
all	961000

# ATLAS Distributed Data Management (DDM)

<https://twiki.cern.ch/twiki/bin/view/Atlas/DistributedDataManagement>

- ◆ Single centralized system with all data set information and sites containing local replica information. There are catalogs, site services and a client.
- ◆ Unit of transfer, versioning, analysis etc is the data set. Users subscribes to data sets.

Expects 4000 data data sets per day. O(100) files per data set. O(1GB) per file. O(100) transfers per site at any moment. Implementation is Don Quijote 2 (DQ2) :

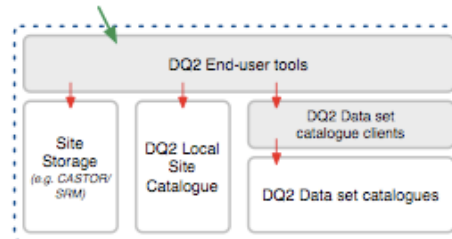
- ◆ Users register data sets, their location (srm endpoint) and lfn content with python scripts using curl (DQ2 client). Also subscriptions to data sets. The catalogs are central gsi enabled MySQL databases. Sets must first be physically located and registered in a site's file catalog (dq2\_ end user tools).
- ◆ DQ2 site services (python) are gents running as cron jobs at each site. They check the subscription catalog and issue FTS, srmcp or globus-url-copy.

Monitoring is provided on <http://lxarda08.cern.ch/dashboard/request.py/site>



# ATLAS DDM Overview

a) End-user tools interact with the various catalogues and directly with each storage at the site



b) Alternatively, by inserting a subscription, the user will request an asynchronous data set transfer to the site

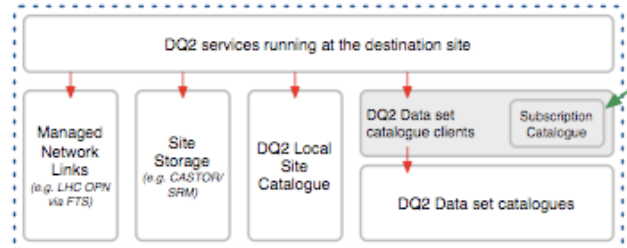


FIGURE 2: Overview of DDM components

Overview taken from the ATLAS DDM Design and Implementation (2006-11-16).

# TiersOfATLASCache.py

Contains the global information

```
'CSCS':  
{  
  'email': 'project-lcg-cscsgrid@cern.ch',  
  'domain': '.*projects.cscs.ch.*',  
  'toolAssigner': 'lcg',  
  'fts': FZKFTS,  
  # LCG tool toolAssigner attributes  
  'srm': 'srm://storage01-lcg.projects.cscs.ch/pnfs/projects.cscs.ch/atlas/',  
  # LCG executor attributes  
  'ce': [ 'ce01-lcg.projects.cscs.ch'],  
  'alternateName' : [ 'CSCS-LCG2' ],  
},
```

In the TiersOfATLAS under the FZK Tier1 CSCS has this entry (2007-06-08).

# ATLAS Transfer Rates

Needs to be completed.

Expected incoming:

- ◆ 10E7 data AOD events per year.
- ◆ Also a fraction of the ESDs.
- ◆ Simulation in addition.
- ◆ Some private movement in addition.

Observed incoming up to now :

- ◆ Need to take a look.

Does CSCS have the numbers ?



# ATLAS DDM at CSCS

...

- ◆ The DQ2 site services are run at FZK : [atlas-germany-computing@desy.de](mailto:atlas-germany-computing@desy.de).
- ◆ Means FZK has the file catalog (LFC) and issues FTS (**high dependency**).
- ◆ Transfers go to srm endpoint stored in TiersOfATLAS.py.
- ◆ At the moment **no known transfer and quota restrictions** for users (improvement needed ?).
- ◆ Would be nice to integrate **Bern and Geneva** (T3s). NDGF solution ?
- ◆ Subscriptions work at least now and then, sometimes data sets arrive a month after subscriptions. Reasons can be many.