Status of BEIJING-LCG2

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FCPPL Workshop

2009/03/22-24, WuHan

Core Services of BEIJING-LCG2 Site

-a full-functional site in China

- Core Servers:

- SRM-dcache/dpm, CE, TOP-BDII, RB, LFC, Myproxy, MON, VOBOX.

- IBM-X3650(totally 9):

- CPU intel 5130 X 2/2X4GB RAM/2X73G SAS 10k Disk Raid1/ 1Gb network.

- HP DL380 G5 (totally 10)

- CPU intel 5420 X 2/ 4X4GB RAM/2X146G SAS 10k Disk Raid1/Network (1G/10Gb)

Compute Node

- Worknodes(408 cores)

- Dell PowerEdge1000e Chasis(fans and power supply redundant) with 10Gb uplink to central switch
- M600 Blade server with CPU intel 5430X2, 4X4GB RAM, 1Gb network to built-in switch.

Chasis 1000e

BladeServer M600

DISK SPACE

- Storage Element(dcache)-CMS
  - 3 head nodes
  - 5 poolnodes(2x10 disk arrays/each poolndes)
  - total amount of space is 100TB
- Storage Element(DPM)-ATLAS
  - 2 head nodes
  - 5 poolnodes (2x10 disk arrays/poolnode)
  - total amount of space is 100TB

.

CMS SE:Dcache

SE-dcache architecture at IHEP

SRM
utilityDomain
infoProvider
Gridftp
Gsidcap
dcap
Xroot

Srm.ihep.ac.cn

pnfsManager
dirDomain

sepnfs.ihep.ac.cn

lmDomain
poolManager
adminDoor
httpDomain
gplazmaService

seadmin.ihep.ac.cn

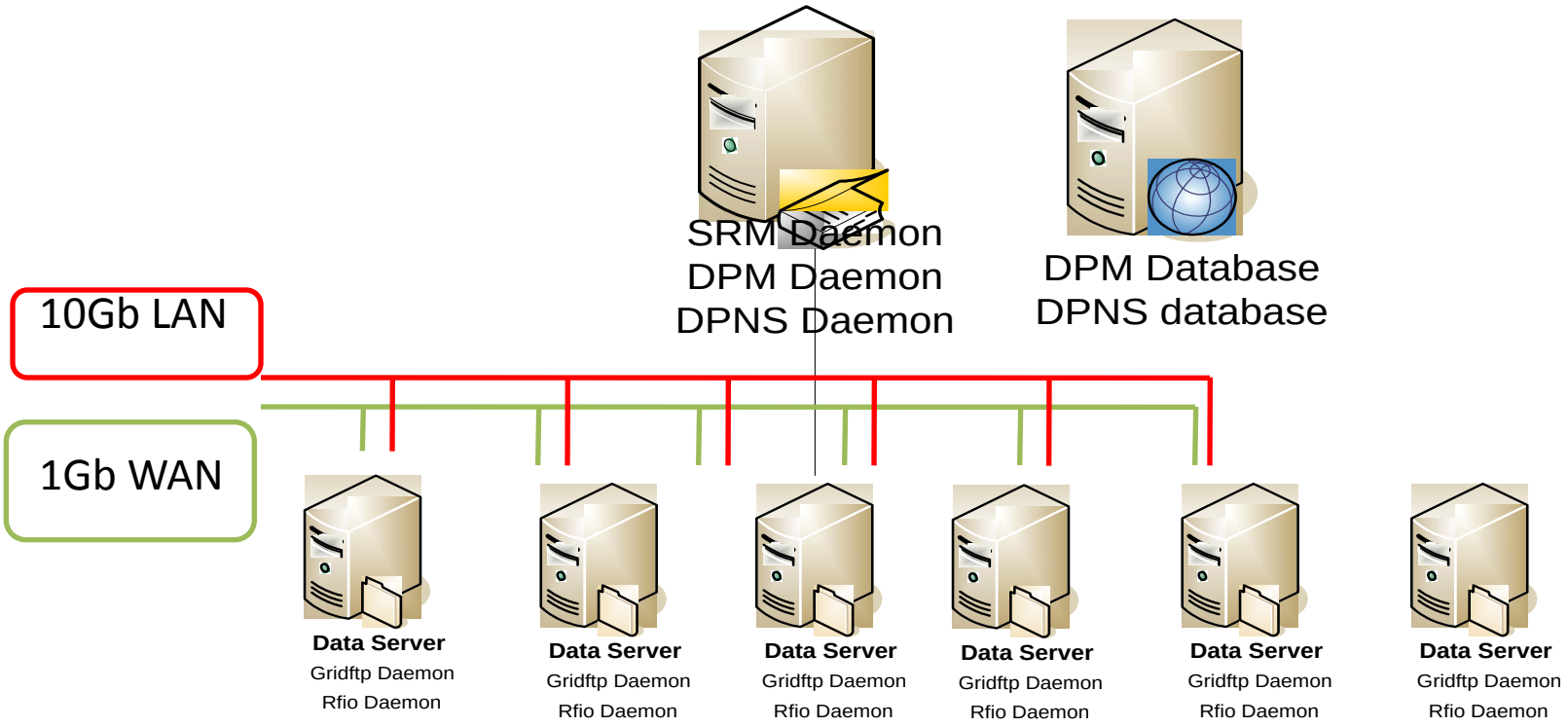
Disk array box:
1X12TB Raid 5 + Hot spare, xfs file system.
4GB FC HBA card
connected to poolnode

dcache-pools
Gridftp
Gsidcap
dcap

Poolnodes

ATLAS SE:DPM

DPM Architecture



ATLAS Upgrade

- Software:
  - Athena releases are fully supported in BEIJING-LCG2
- Storage:
  - dCache → DPM
  - Lots of problems is largely resolved in analysis jobs
  - 100T disk space for ATLAS
- Datasets:
  - Retransferred datasets to new SE (ccsrm.ihep.ac.cn)

Quattor

- LCG installation automation:

  - OSes

  - glite middleware.

  - service configurations in part of service node.

  - faster installation with less errors.

- Development of Quattor-based administration center: lots of templates will be compiled.

Jobs/year

BEIJING-LCG2 Total number of jobs by SITE and VO.

ALL VOs. April 2008 - March 2009.

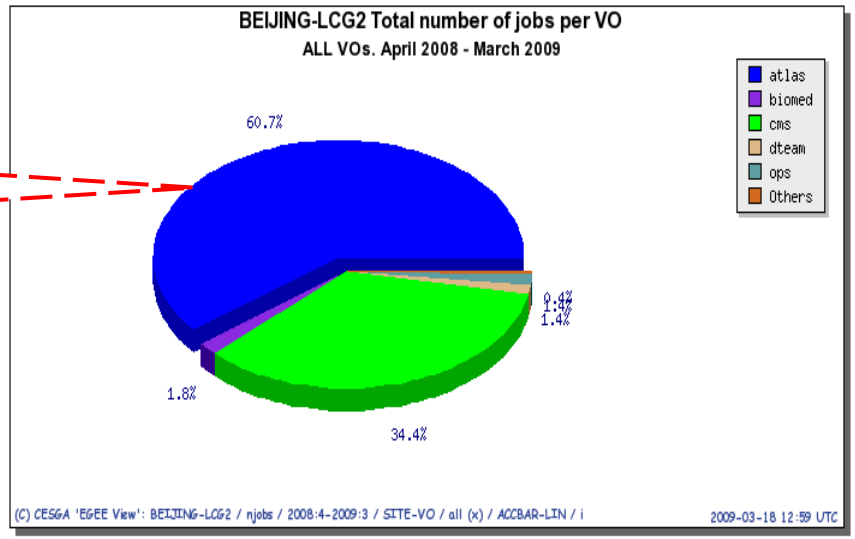
The following table shows the distribution of Total number of jobs grouped by SITE and VO.

Total number of jobs run by SITE and VO												
SITE	argo	atlas	bes	bio	biomed	cms	dteam	esr	euchina	ops	Total	%
BEIJING-LCG2	1,011	459,053	1,487	1	13,257	260,285	10,554	359	1	10,743	756,751	100.00%
Total	1,011	459,053	1,487	1	13,257	260,285	10,554	359	1	10,743	756,751	
Percentage	0.13%	60.66%	0.20%	0.00%	1.75%	34.40%	1.39%	0.05%	0.00%	1.42%		

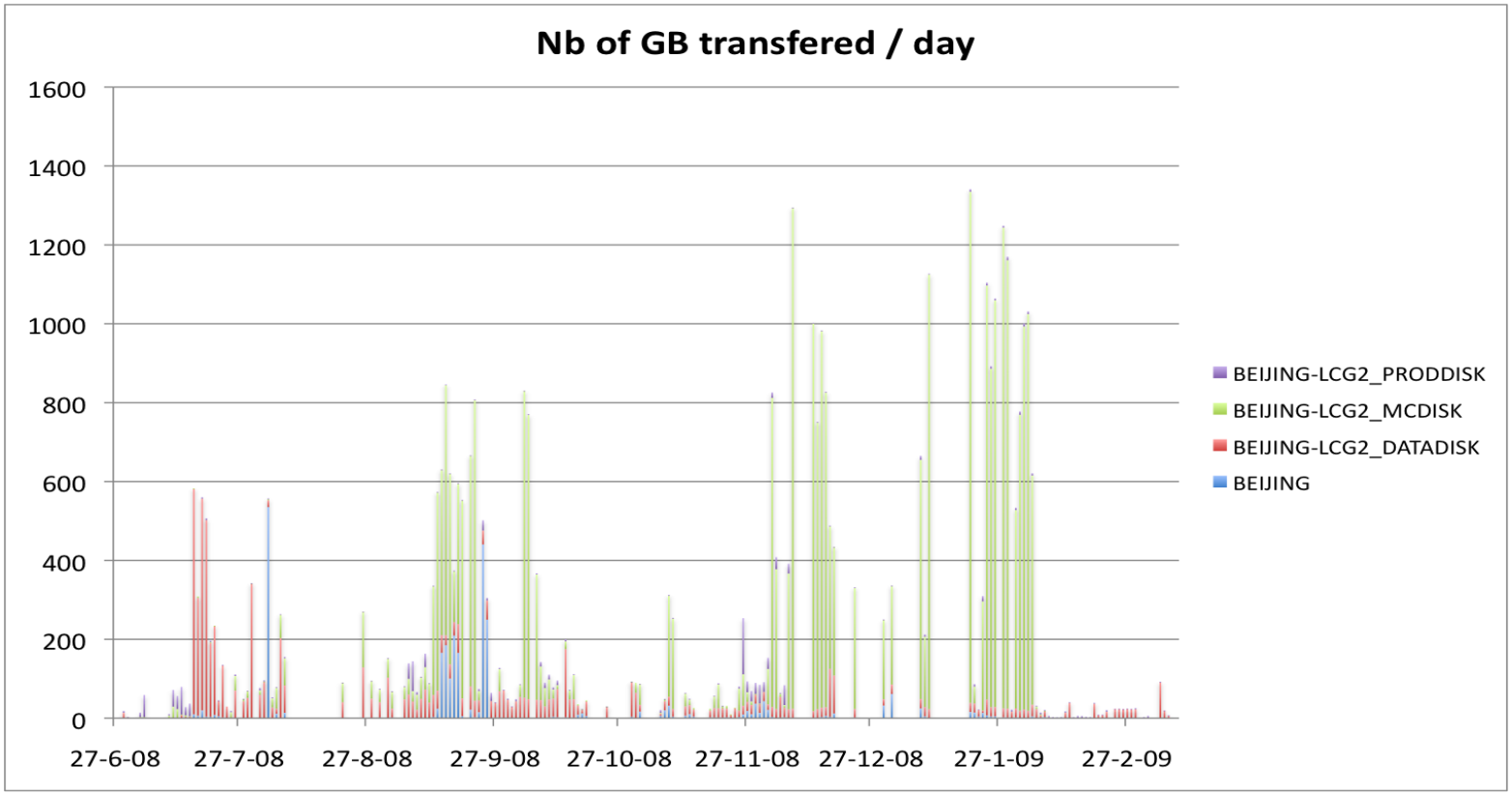
Click here for a csv dump of this table

Pie Chart showing the share in Total number of jobs per VO.

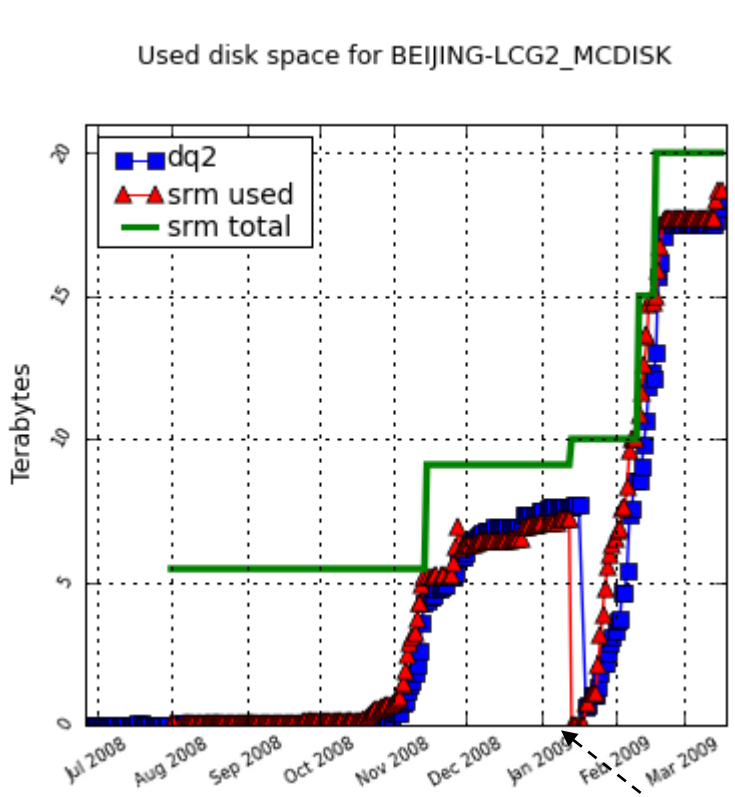
ATLAS
60.66%

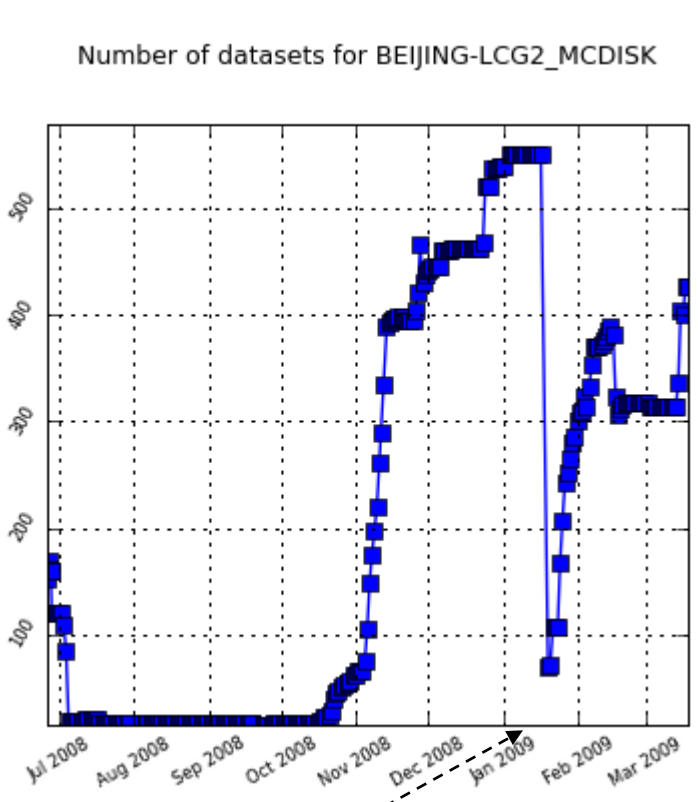


Data transfer to BEIJING-LCG2 in last 7 months



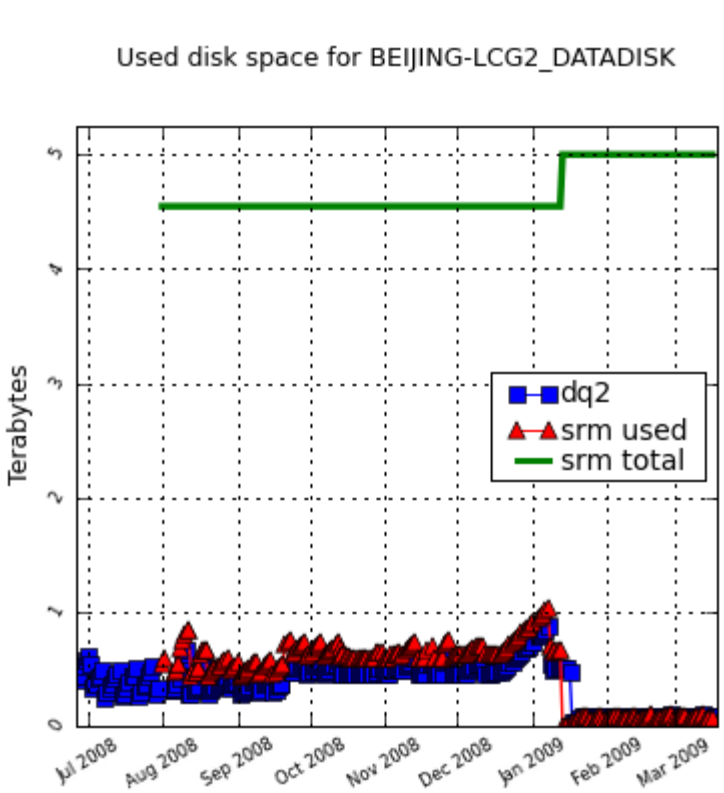
Disk Space Usage for MC

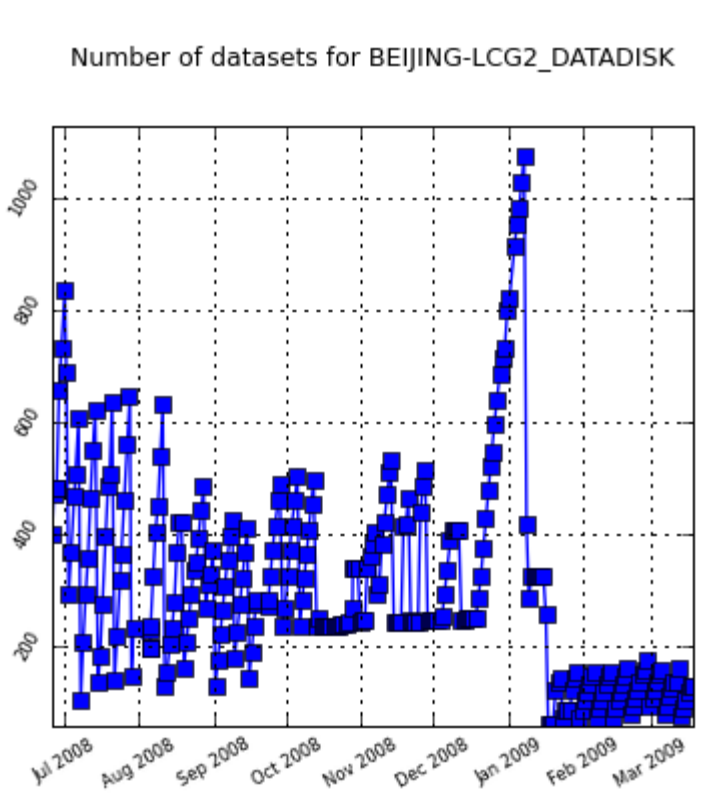




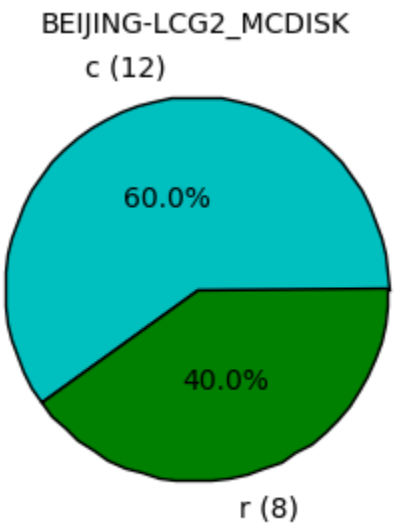
dCache → DPM

Disk Space Usage for data at IHEP

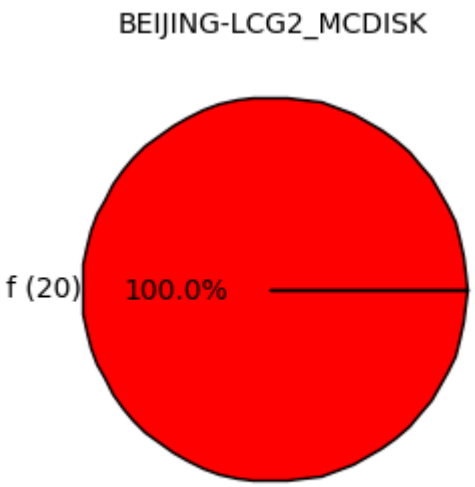




Stress tests



2008-11-30



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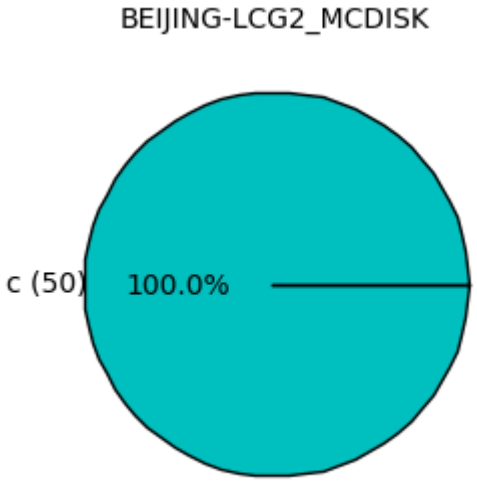

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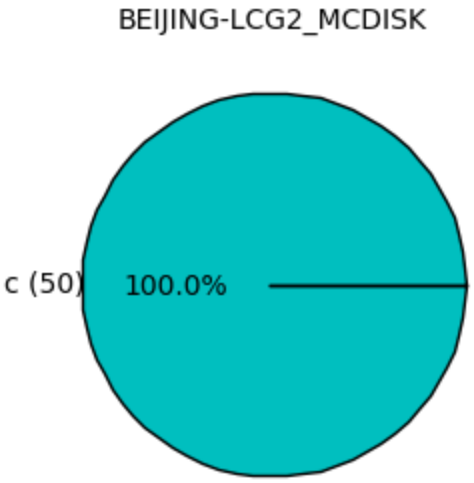

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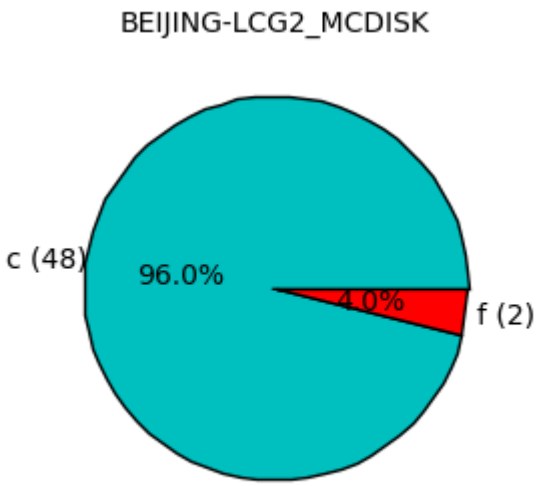

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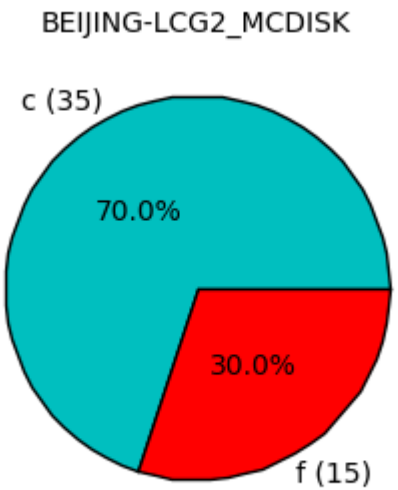


2009-03-19

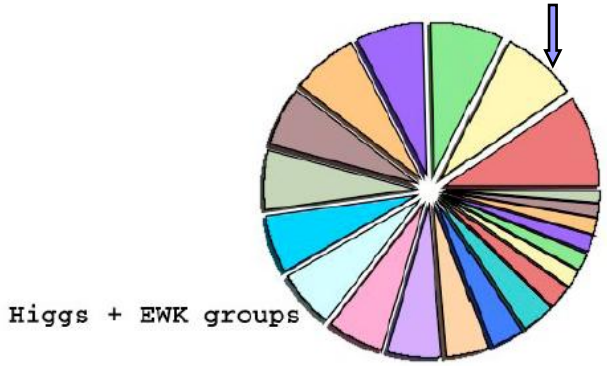
Grid Technology support in China

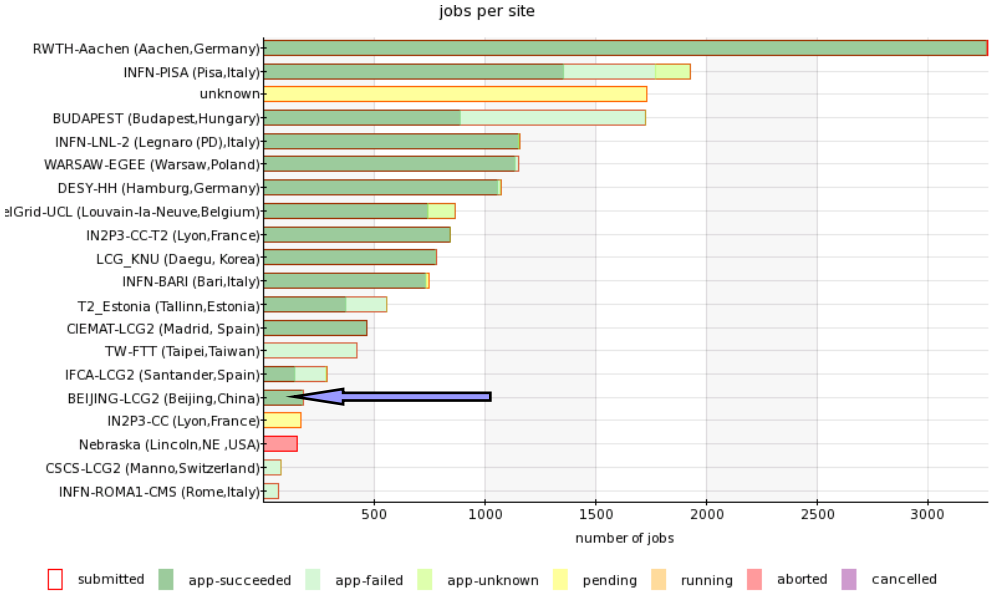
- We also help local ATLAS physicists to establish a T3(Local farm).
  - has 24Cores and 13T+ disk space initially.
  - Will be enlarged soon.

- We not only provide support for IHEP ATLAS group, but also support users from NJU、USTC and SDU.

T2_CN_Beijing in CCRC'08

- In 2008, the IHEP site(T2_CN_Beijing) joined the CCRC'08 tests, achieving good performance
  - CCRC'08 is to gain an overall understanding of performance and readiness of the CMS sites globally for CMS data analysis
  - In the tests to understand a site's performance characteristics:
    - Received more than 100 jobs for testing I/O intensive, CPU intensive(104 slots, 18 nodes) per day
    - Receive more than 6464 jobs in two weeks, 4664 jobs succeed, 78.92%
  - In exercises more closely the kind of workflows imagined by the physics groups
    - Join in Higgs group
    - Received 185 jobs, success rate ~100%

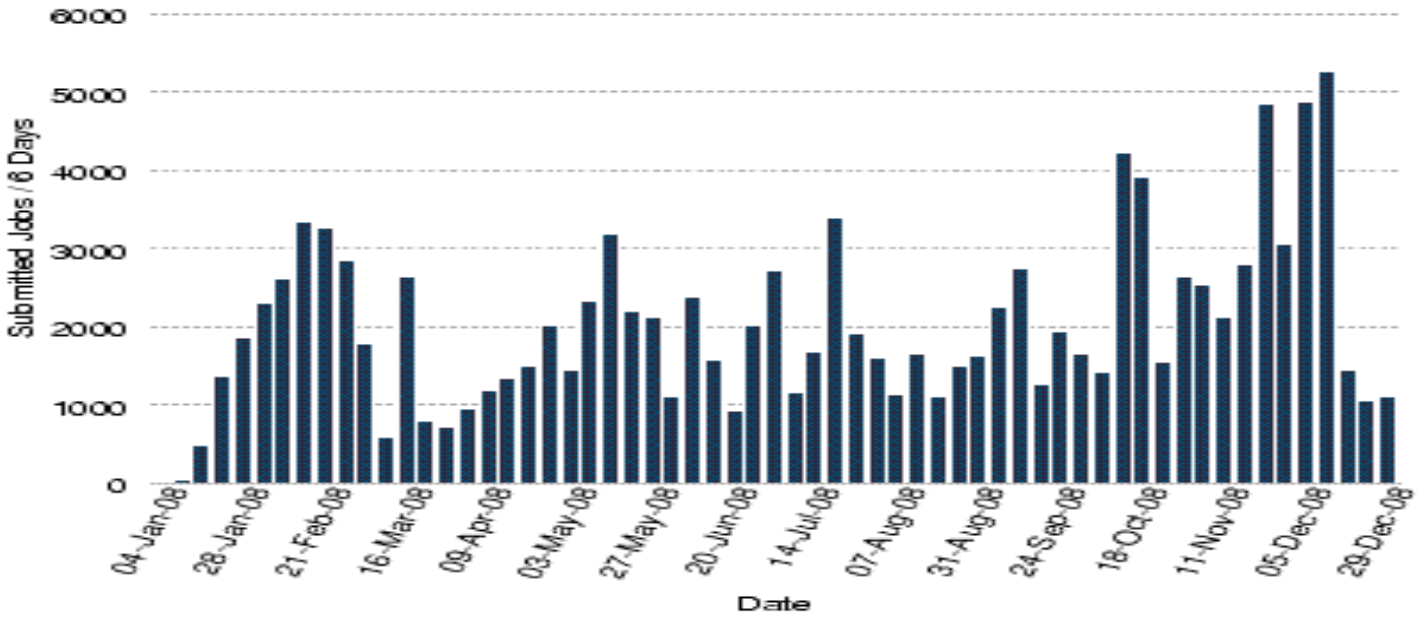




CMS job status

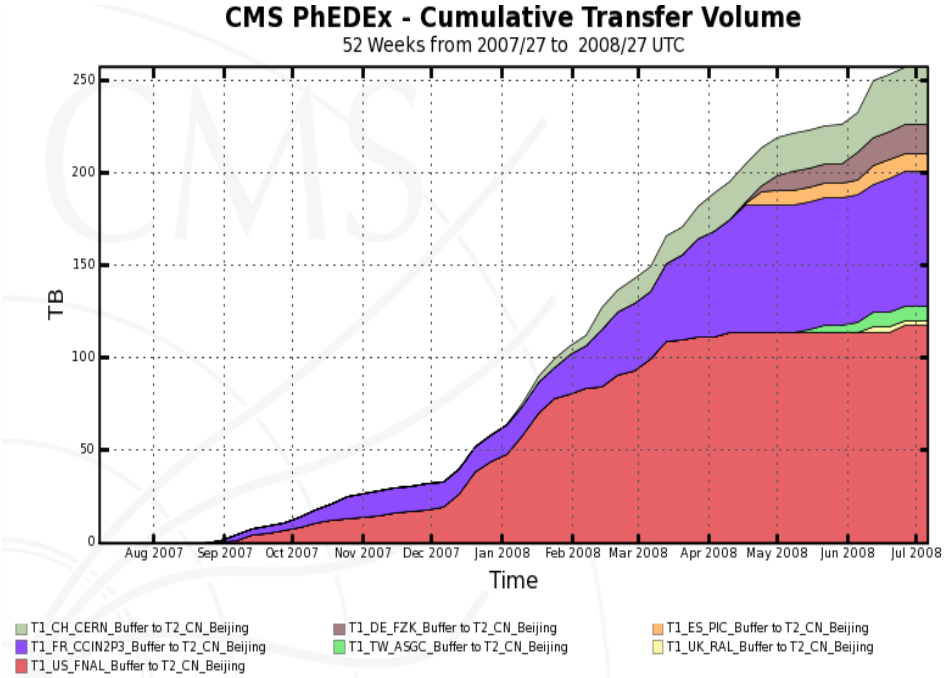
- About 240 thousands CMS jobs has been received and running in T2_CN_Beijing in 2008

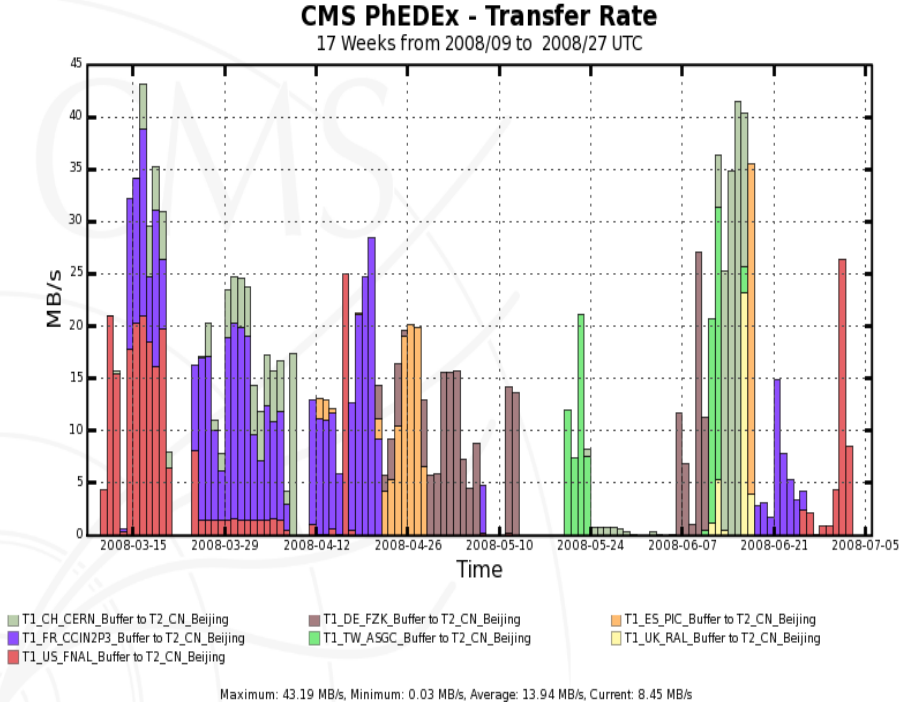
activity	Sub	Pend	Run	Term
CCRCPG	1197	0	0	1197
JobRobot	151716	0	0	151716
Reprocessing	5670	0	0	5670
SAMTests	7094	0	0	7094
SW_Installation	35	0	0	35
analysis	46560	0	0	46560
production	22985	1	0	22984
unknown	8376	0	0	8376
total: 8	*243633*	*1*	*0*	*243632*



CMS Data transferring in T2_CN_Beijing

- Establish transferring links with all the CMS T1(8 T1), and the maximum rate reaches 400Mb/s
- The total transferring volume has exceeded 250TB





Conclusion and Plan in 2009

-Conclusion:

- BEIJING-LCG2 is active involving the activities of CMS and Atlas, especially FR-Cloud activities.
- Running status is OK now.
- But we will face big challenges, when physical analysis really comes.

- Plan

- We got funded from CAS 15M RMB last year, it is very important for us to achieve our goal in CERN-China MOU.
- We will add more computing and storage resources to BEIJING-LCG2 in the middle of this year.

  - 200TB disk space.

  - 1200 cores.

- We would join the next tests and hope that IHEP CC can take more active role in the collaboration.

Thanks!