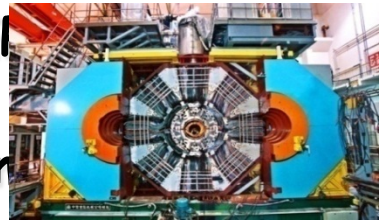
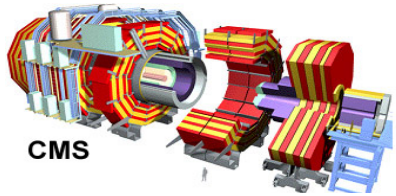
IHEP Computing Center Site Report

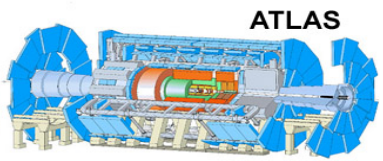
Shi, Jingyan (shi.jingyan@ihep.ac.cn)
Computing Center,
IHEP

IHEP Brief introduction

- The largest(~
  center in Chi
  - Particle Physi
  - Cosmic Ray/A
  - Theoretical P
  - …
- Scientific proje
  - BESIII experiment running on BE
  - ARGO-YBJ experiment
  - Daya Bay reactor neutrino experi
  - ATLAS, CMS experiment on LHC
  - AMS, HMXT …







CC-IHEP at a Glance

- The Computing Center was created in 1980's
  - Provided computing service to BES, the experiment on BEPC
- Rebuilt in 2005 for the new projects:
  - BES-III on BEPC-II
  - Tier-2 for ATLAS, CMS
  - Cosmic ray experiments
- 35 FTEs, half of them for computing facility

More than 8000 CPU cores

Outside data farms:
LHC, YBJ,DAYABAY

WAN

Login, monitoring, scheduling,AFS,backup…

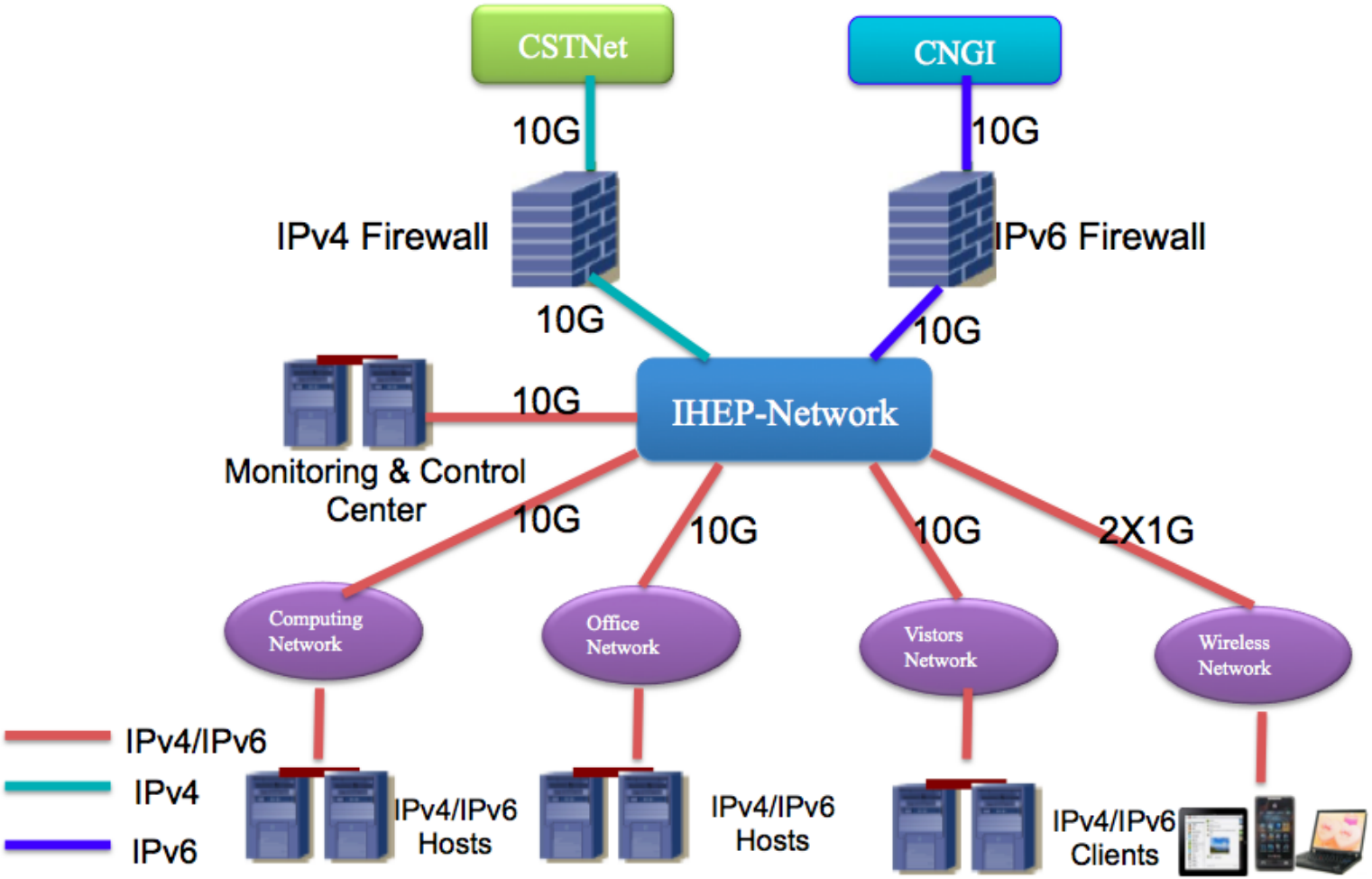
10Gbit Ethernet

3+ PB disk storage (Lustre ,dpm, dCache)

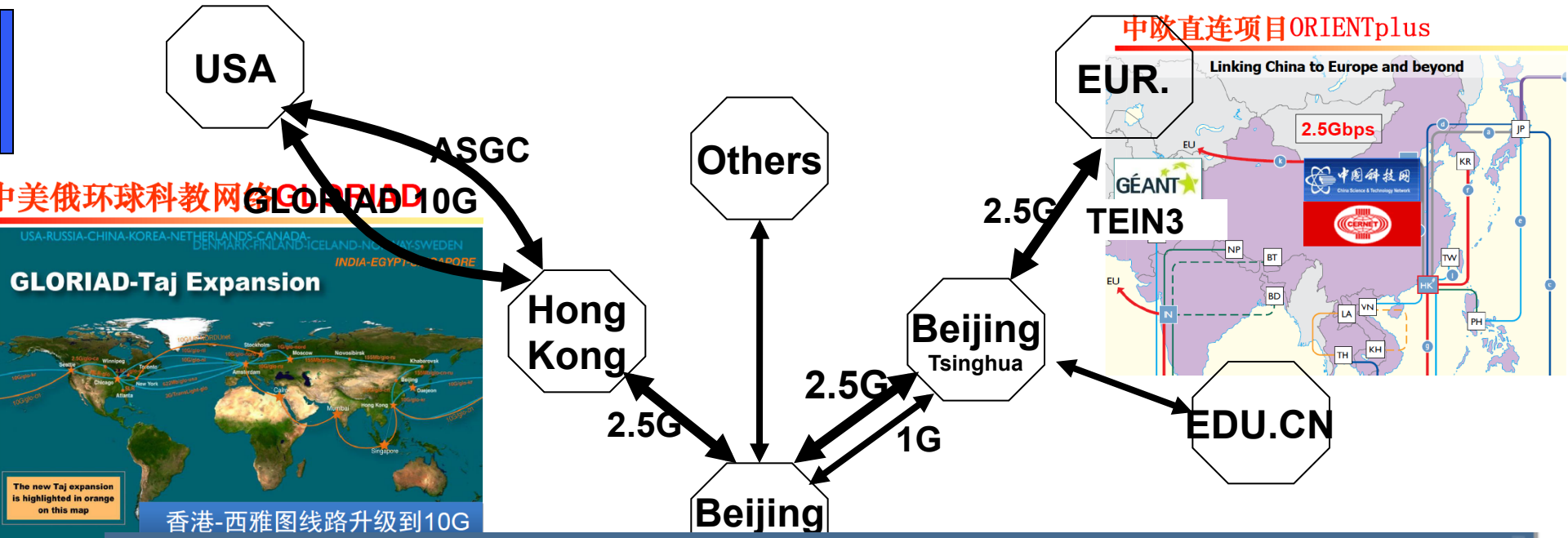
Local data farm

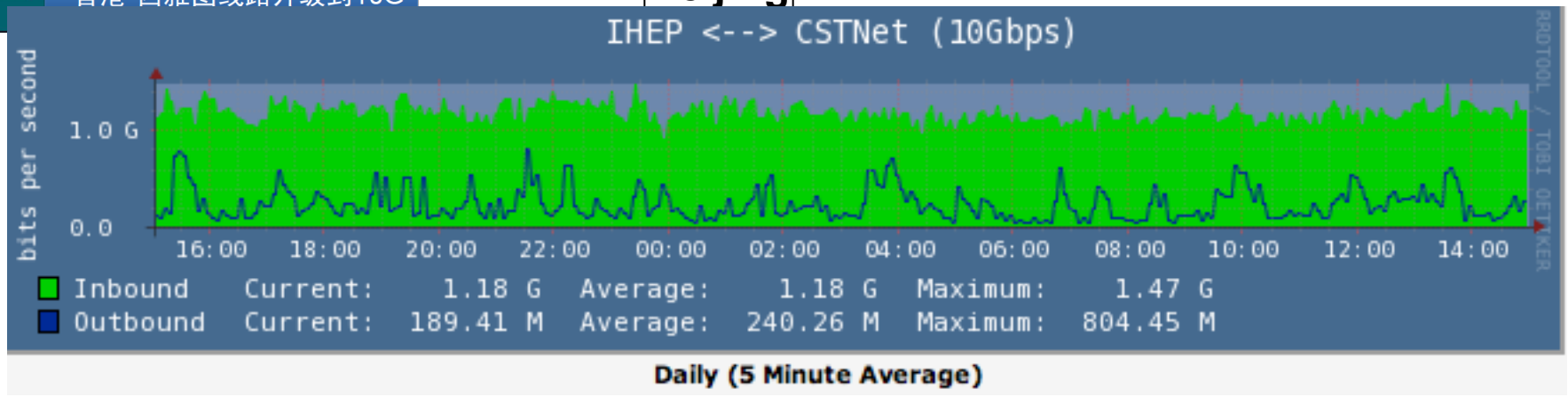
5PB tape storage

IHEP Campus Network



Network connection



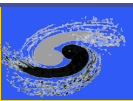


Computing Resources

- Local Cluster & Grid Site
- Cpu:
  - Work node: More than 8000 cpu/cores
- Storage:
  - 3+PB storage
    - Lustre for local cluster
    - dCache for CMS
    - DPM for ATLAS
  - 5PB Tape storage
- Scheduler
  - Cluster: PBS + Maui

File system - Lustre

- 4 MDSs, 39 OSSs, 376 OSTs, 800 client nodes, 135 million files
- Lustre Version: 1.8.5 (upgraded in July) and 1.8.6 (with a new mount point)
- Capacity: 2.8PB
- IHEP is considering binding Lustre with CASTOR 1.7 using the HSM function provided by Lustre 2.x, however, it seems that the HSM feature has not totally landed in stable version of Lustre



Disk Error

- More than 3000 pieces of disks are used for the storage and 2/3 have expired guarantee period
  - 1TB disks: 1972 pieces
  - 2TB disks: 752 pieces
  - 3TB disks: 432 pieces
- Disk hard error happened once 3-4 days in average
- Spare parts are limited, especially for 1TB disks
- Considering a way to upgrade those disks smoothly

IHEP - CA

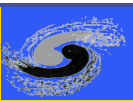
- Number of issued certificates

	User Certificate	Host Certificate	Service Certificate	Total
VALID	112	100	0	212
Revoked	254	241	1	496
EXPIRED	344	307	6	657

- Cooperation Organizations

IHEP	PKU	HKU	BUAA	NJNU	SEU	RSGS
CNIC	TSINGHUA	CCNU	SDU	NNU	NJU	USTC

Last update: Apr20 2012 UTC+8♪

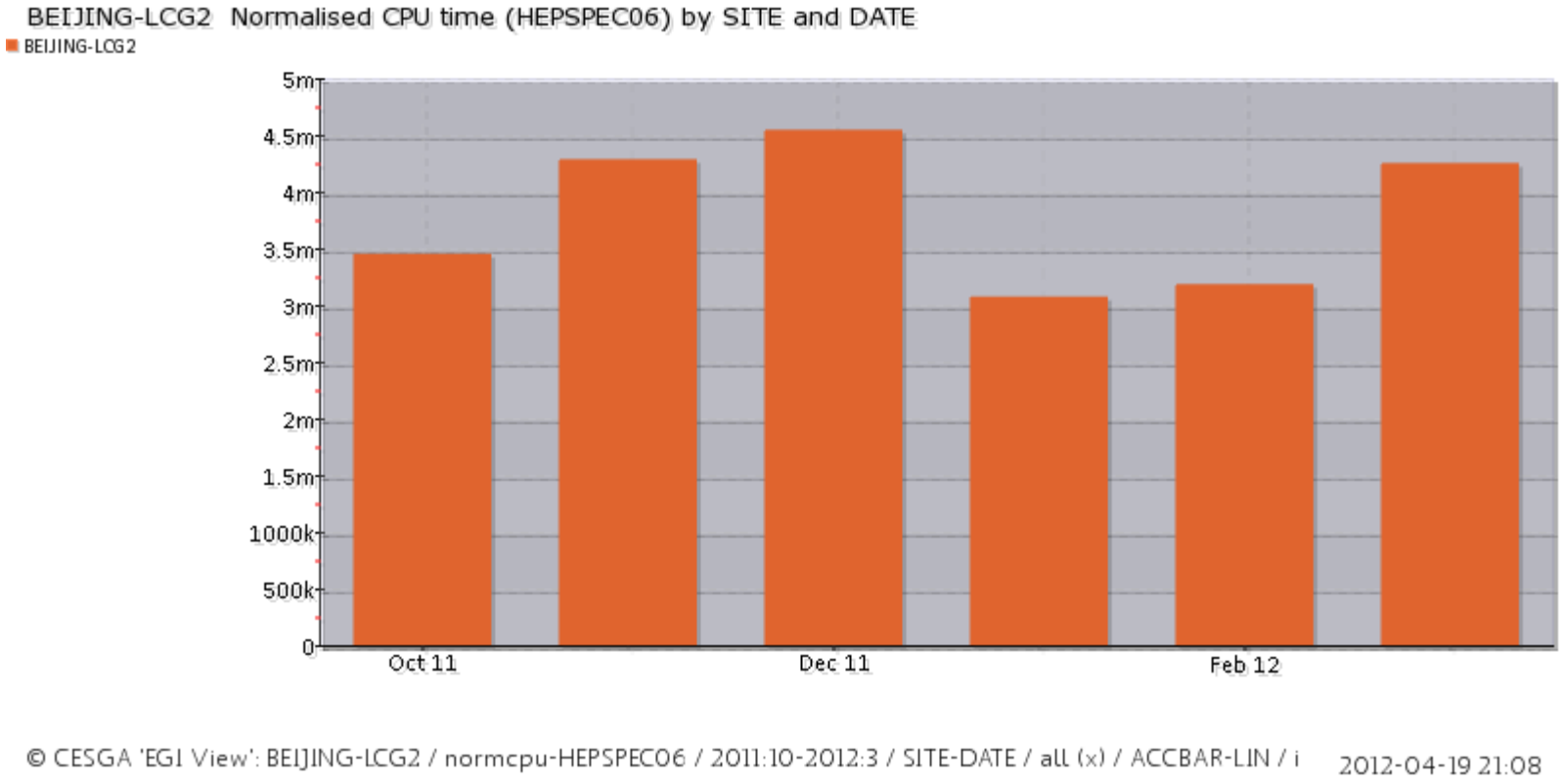


CA need to be upgraded

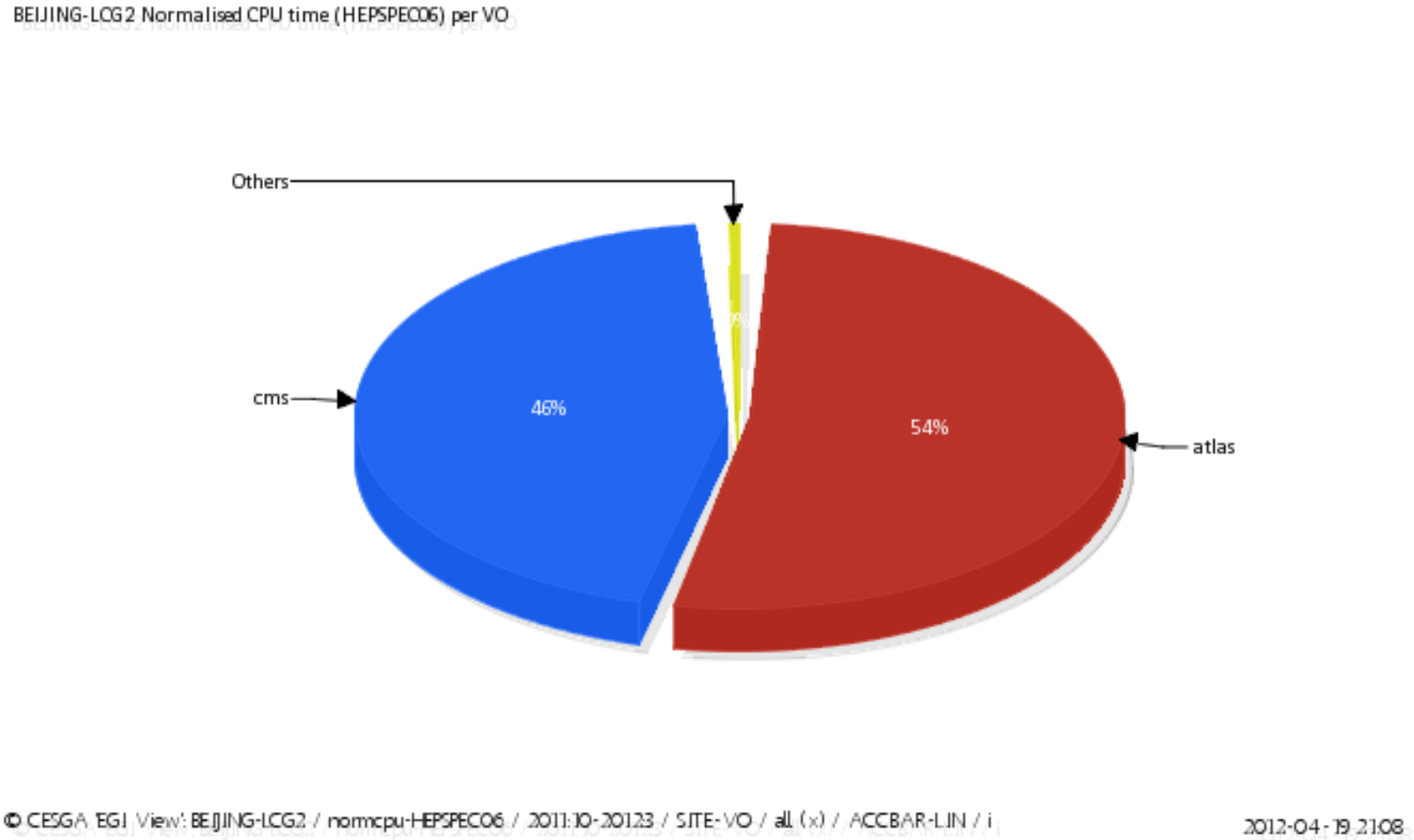
- According to the GFD.125, emailAddress (or Email) now MUST NOT be used in subject or issuer DNs.
- IHEP will follow the steps below to remove the emailAddress.

1. Modify the CP/CPS to comply with GFD.125
2. Generate a new key pair (new root CA cert) . Register it to the IGTF repository so that the new root CA cert and related files will be included in the IGTF CA distribution
3. Inform the relying parties that the subject DN of CA certs and EE certs would be changed. New root CA will issue new EE certs
4. Revoke the old CA certificate until all EE certificates issued by the old CA key will be expired

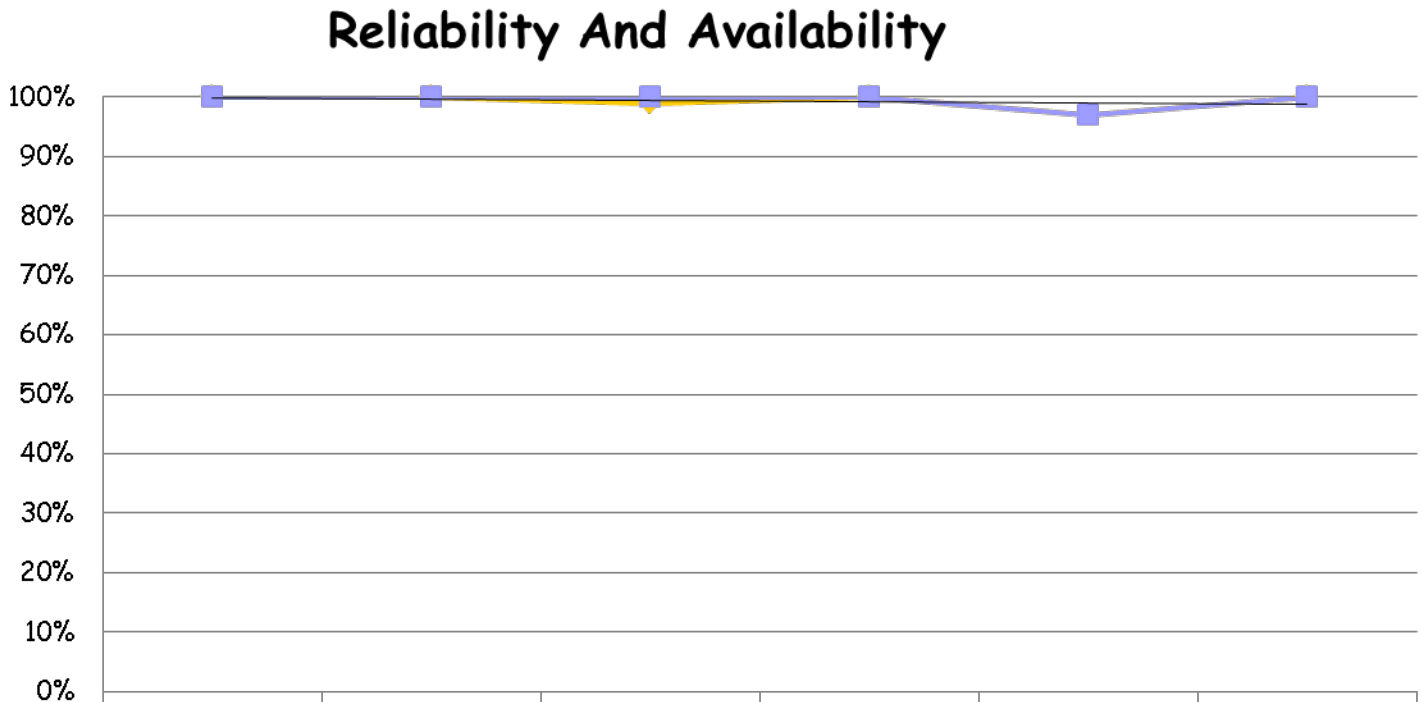
BEIJING-LCG2 Site report



BEIJING-LCG2 Site report



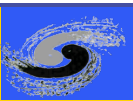
Reliability and Availability



	10/11	11/11	12/11	01/12	02/12	03/12
Avalability	100%	100%	99%	100%	97%	100%
Reliability	100%	100%	100%	100%	97%	100%

Site Operation

- Some new computing resources will be added
  - 16 old WN will be replaced with new blade before JUL. 2012
  - HEPSPEC 2006 will rise up from 8000 to 9600
- EGEE to EGI migration
  - Testing new system
  - Grid middleware upgrade
  - Keep eyes on other sites' migration.



Question & Thank You