

Site Report

BEIJING-LCG2

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2010/11/21

Outline

- Site overview
- ATLAS Tier2(data transfer & jobs)
- CMS Tier2 (data transfer & jobs)

Site Resources-Infrastructure

- BEIJING-LCG2 : ATLAS Tier2/Tier3 CMS Tier2/Tier3
- Support other VOs: BES, Biomed, esr...
- Hardware
 - 896 CPU cores (9KHS06, pledged is 8KHS06)
 - 640TB storage space(pledged is 600TB)
 - Resources shared equally by CMS and ATLAS
 - 142 nodes managed by QUATOR

Site Resources-Server Room

Server Room



Computer Nodes



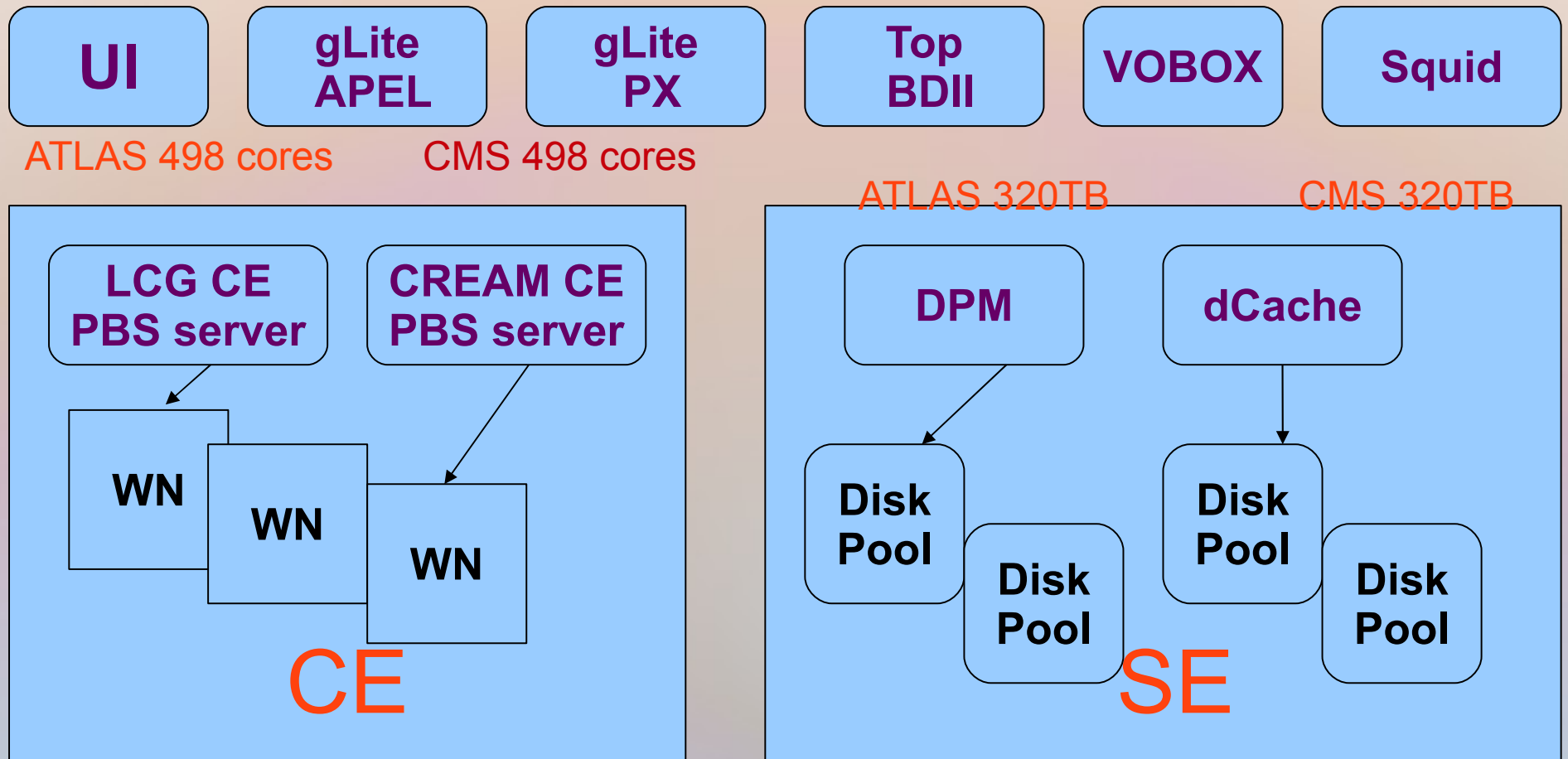
Shift Room



Storage Nodes

Site Resources-Grid Services

- Grid Services



CE & SE

- SE
 - DPM
 - 2 head nodes(1 with main services, 1 for database)
 - 8 pool nodes (GridFTP door+RFIO door)
 - 320 TB(ATLAS)
 - dCache
 - 3 head nodes(SRM, PNFS , other services)
 - 8 pool nodes(GridFTP+dCap)
 - 320TB(CMS)
- CE
 - LCG CE (ATLAS+CMS)
 - CREAM CE(ATLAS+CMS)
 - 1 PBS server
 - 112 work nodes (896 cores)

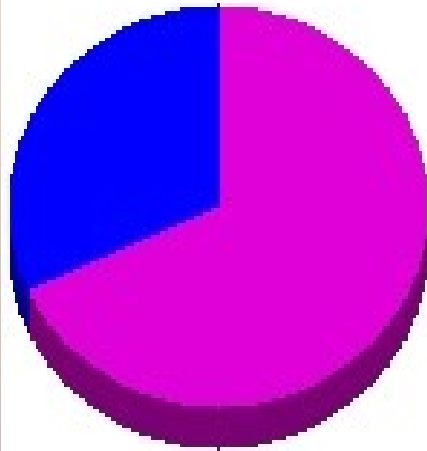
Hardware for servers

- Core Server(**SRM-dcache, CE, TOP-BDII, RB, LFC, Myproxy, MON, VOBOX**)
 - **IBM-X3650** (SRM-dcache, TOP-BDII, LFC, Myproxy, gLite-Apel, VOBOX,UI) (totally 9)
 - CPU intel 5130 X 2
 - 2X2GB RAM
 - 2X73G SAS 10k Disk Raid1
 - 1Gb network.
- **HP DL380 G5** (LCG-CE-Torque, CreamCE,WMSLB, DPM-SE, DPM-Disk,DPM-database,dCache-Pool) (totally 21)
 - CPU intel 5420 X 2
 - 4X4GB RAM
 - 2X146G SAS 10k Disk Raid1
 - 1Gb external network. 10Gb local network
- Worknodes(112 WNs)(**The cpus(cores) is 896 now**)
 - **Dell M600 Blasd server**
 - CPU intel 5430X2
 - 4X4GB RAM
 - 1GB network

SE Usage

DPM Disk Space 使用状况

67.9% Free 217.5TB
32.1% Used 102.8TB

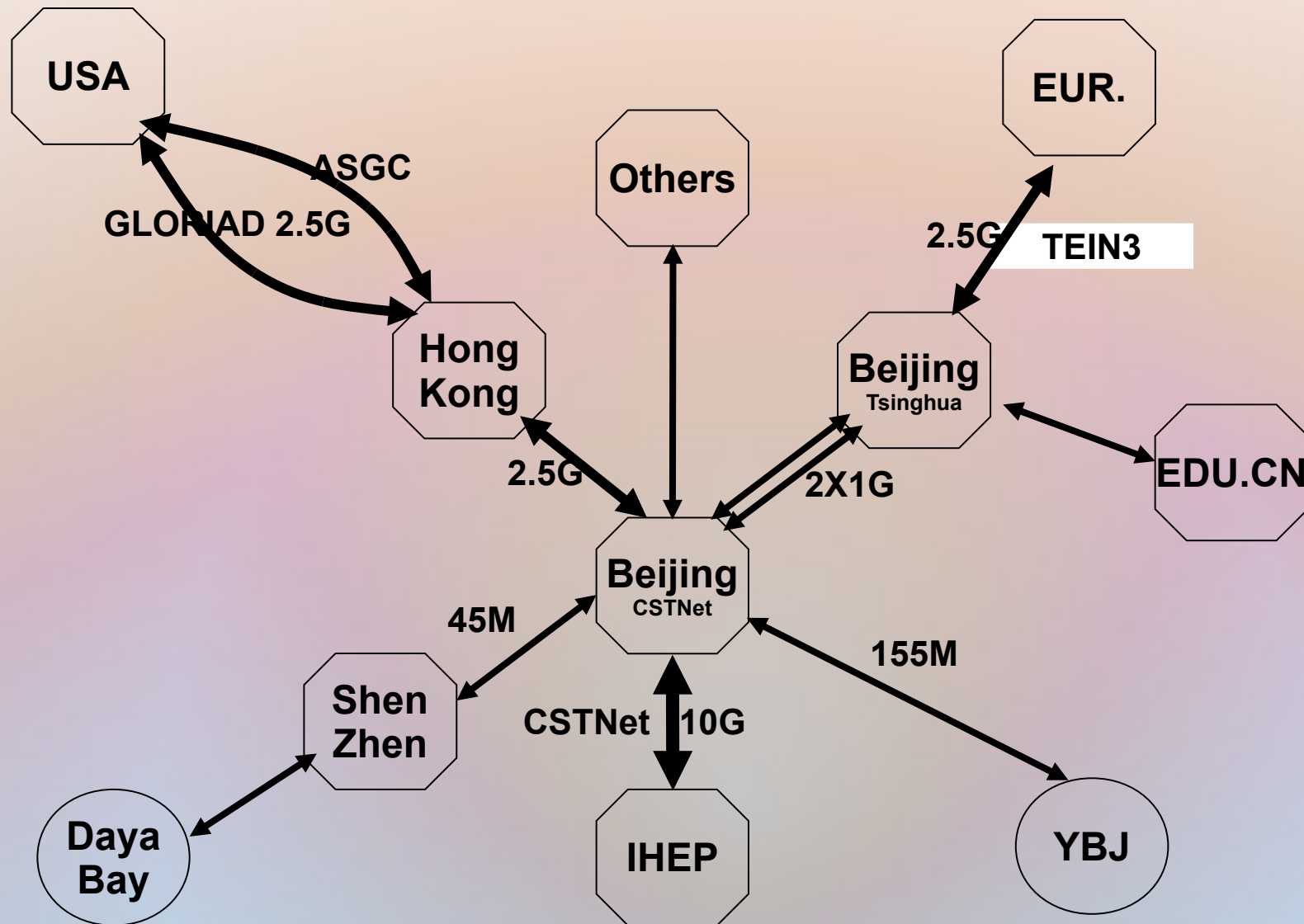


dCache Disk Space 使用状况

10.7% Free 32.1TB
89.3% Used 267.9TB



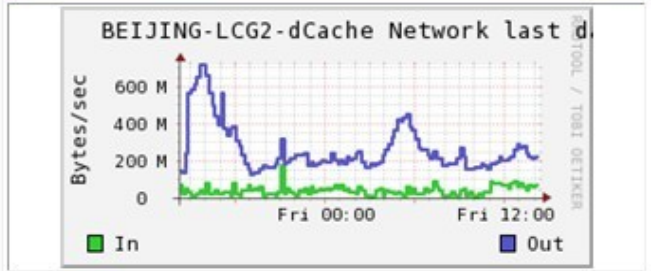
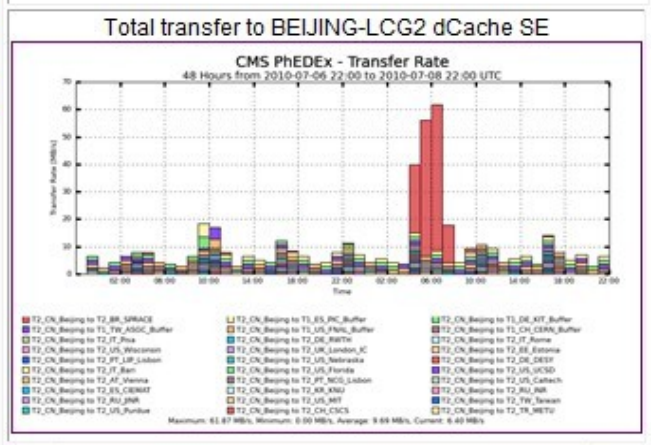
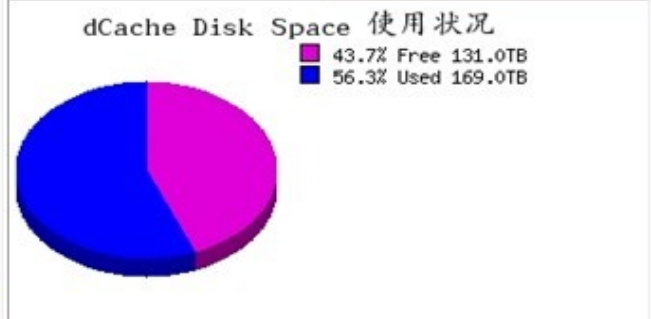
Site Resources-Network



Local Integrated Grid Services Monitoring

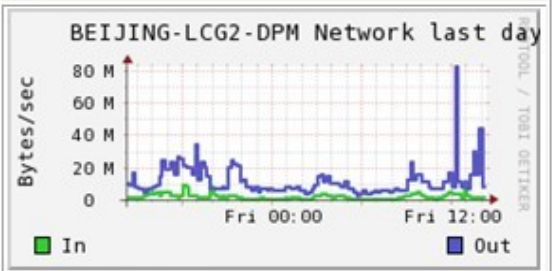
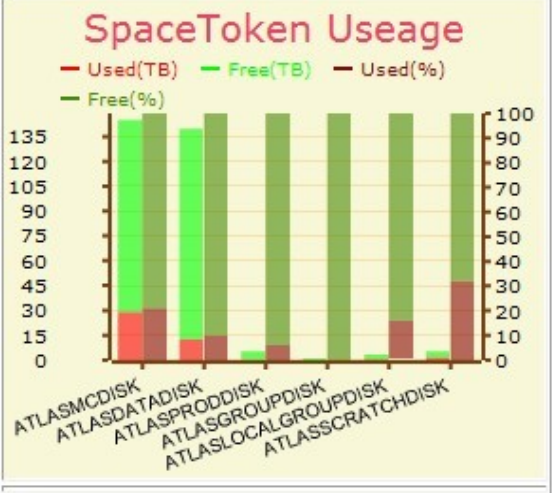
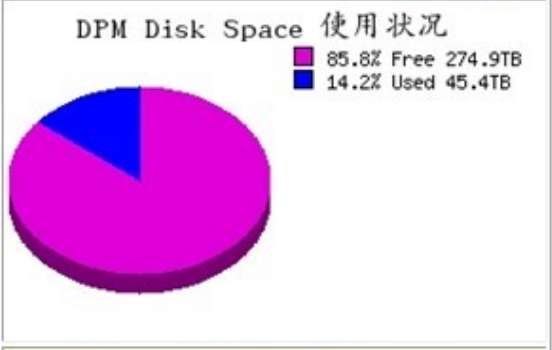
站点状态	SAM		GSTAT	
	OK		OK	
计算资源	CPUs		JOBS	
	1152		896	
存储资源	Total		Used	
	620.3TB		214.4TB	
网络服务	OK	Warning	Unknown	Critical
	62	0	0	0
网络主机	Up	Down	Unreach	Pending
	147	0	0	0
CE运行状态	[OK]			
SRM运行状态	[OK]			
BDII运行状态	[OK]			
WMS运行状态	[OK]			

dCache SAM状态	[OK]
dCache传输状态	[UNKNOWN]
Cell Service状态	[OK]

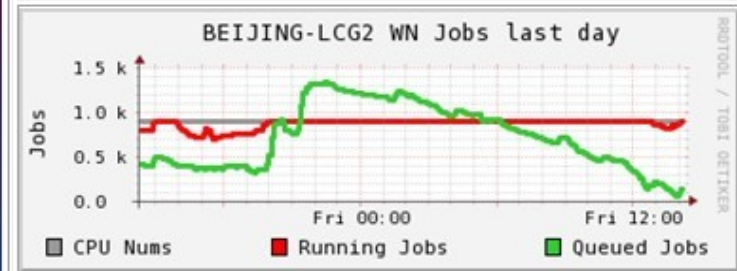


dCache SE 详细信息

DPM SAM状态	[OK]
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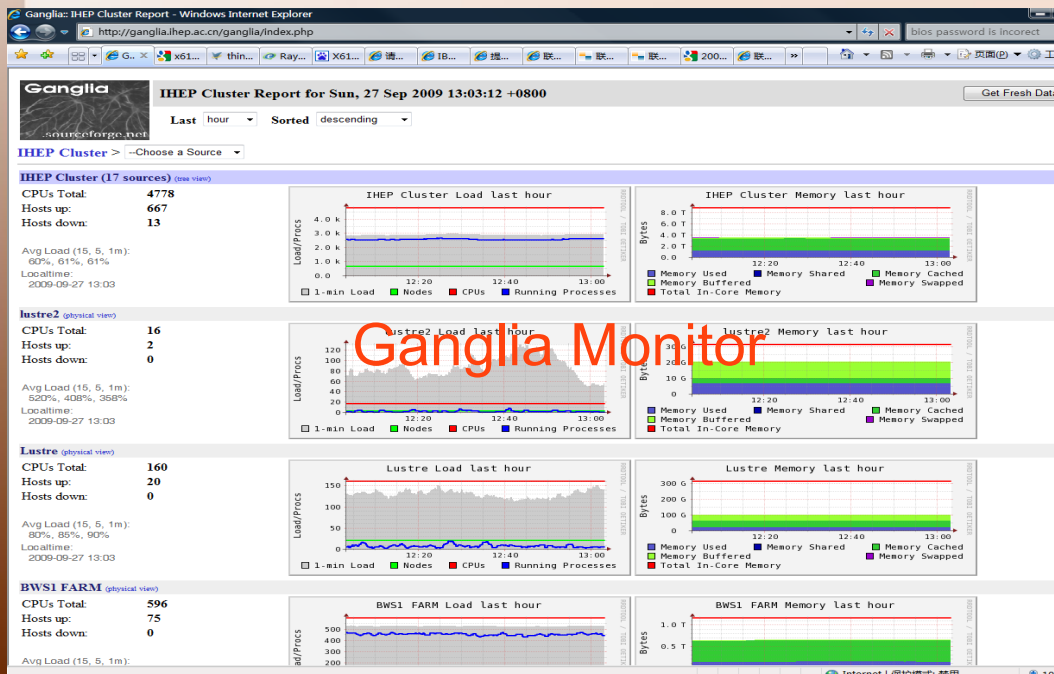


DPM SE 详细信息

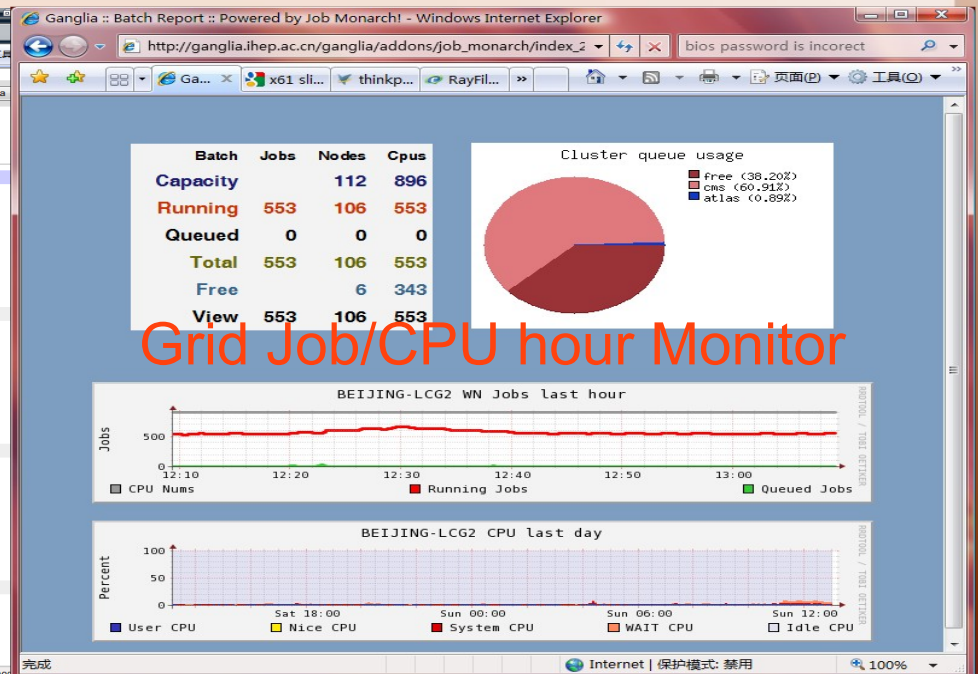


BEIJING-LCG2 站点作业统计信息

More Monitoring



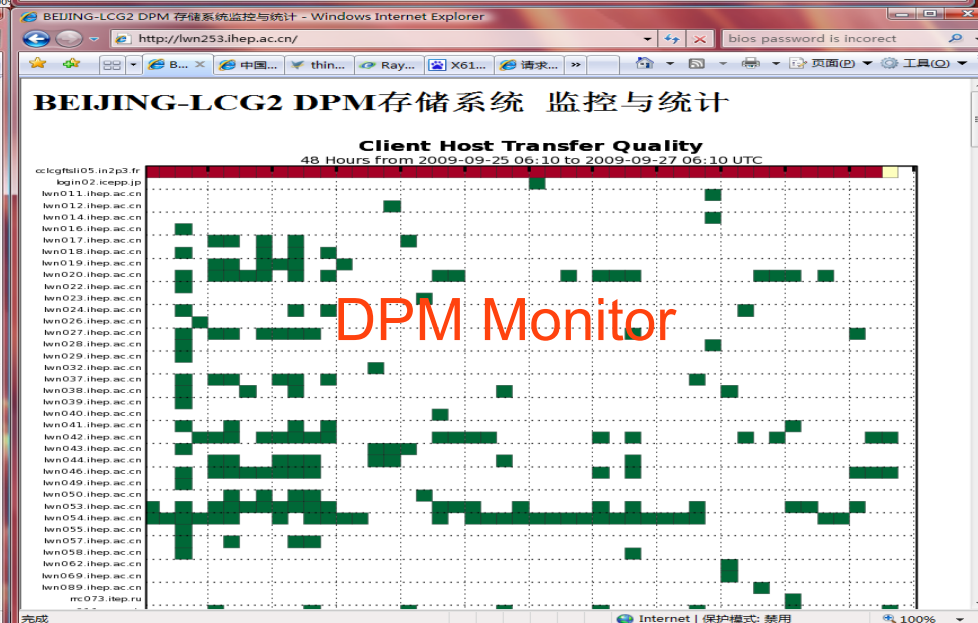
Ganglia Monitor



Grid Job/CPU hour Monitor



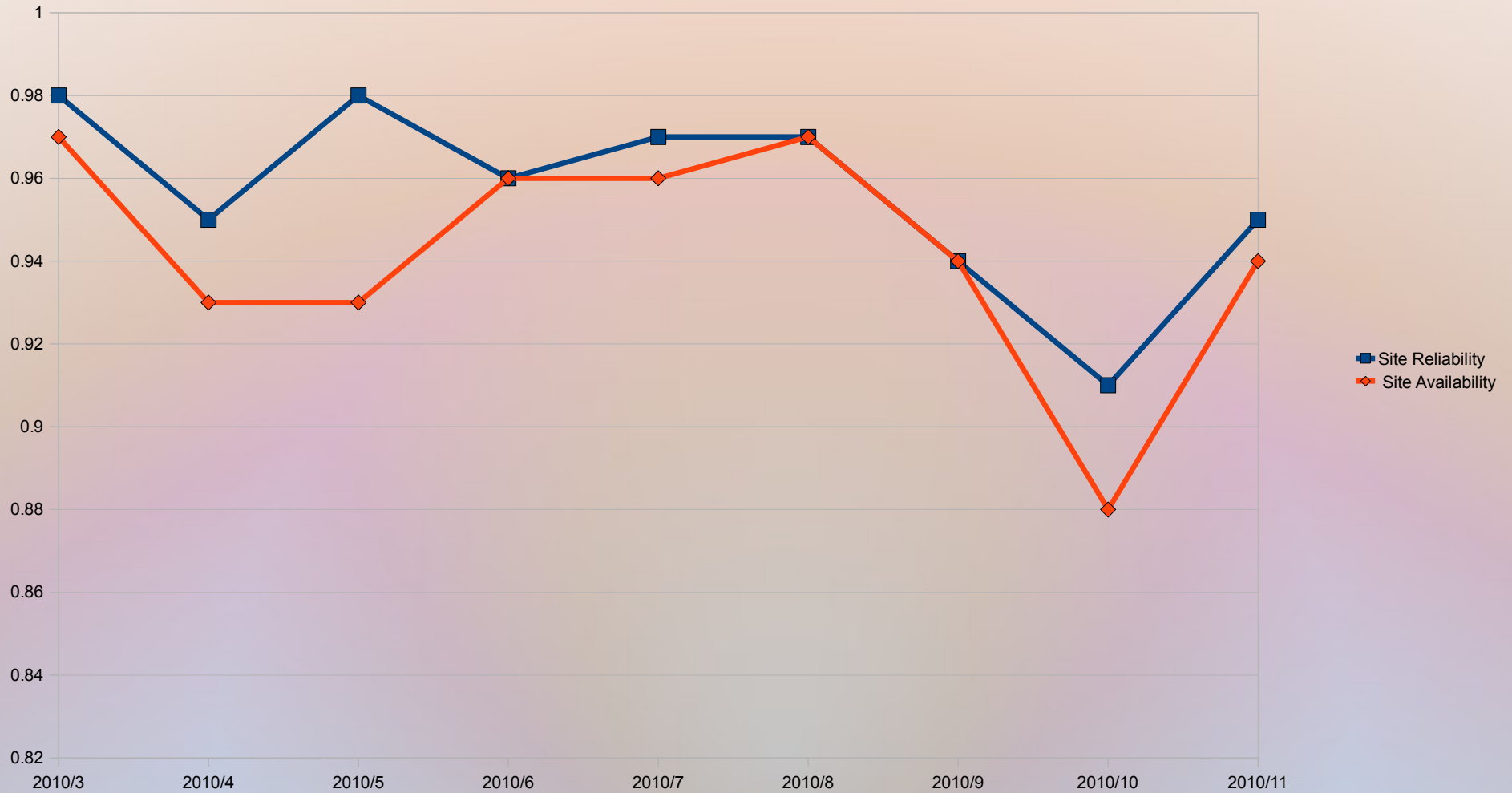
dCache Monitor



DPM Monitor

Site Reliability and Availability

provided by gridmap



ATLAS Tier2 : Data Transfer

Download 76TB data(2010/06-2010/11)

Statistics from DDM:

<http://dashb-atlas-data-test.cern.ch/dashboard/request.py/site>

Disk	Efficiency	Average Rate	Successful Files	Failed Files
MCDISK	97%	3MB/s	34554	958
DATADISK	30%	3MB/s	19203	45129
PRODDISK	86%	361KB/s	32449	5389
SRATCHDISK	98%	144KB/s	2558	44

ATLAS Tier2: Finished production jobs

(2010/6-2010/11) ranked by Efficiency

From PanDA production:

<http://dashb-atlas-prodsys-test.cern.ch/dashboard/request.py/overview>

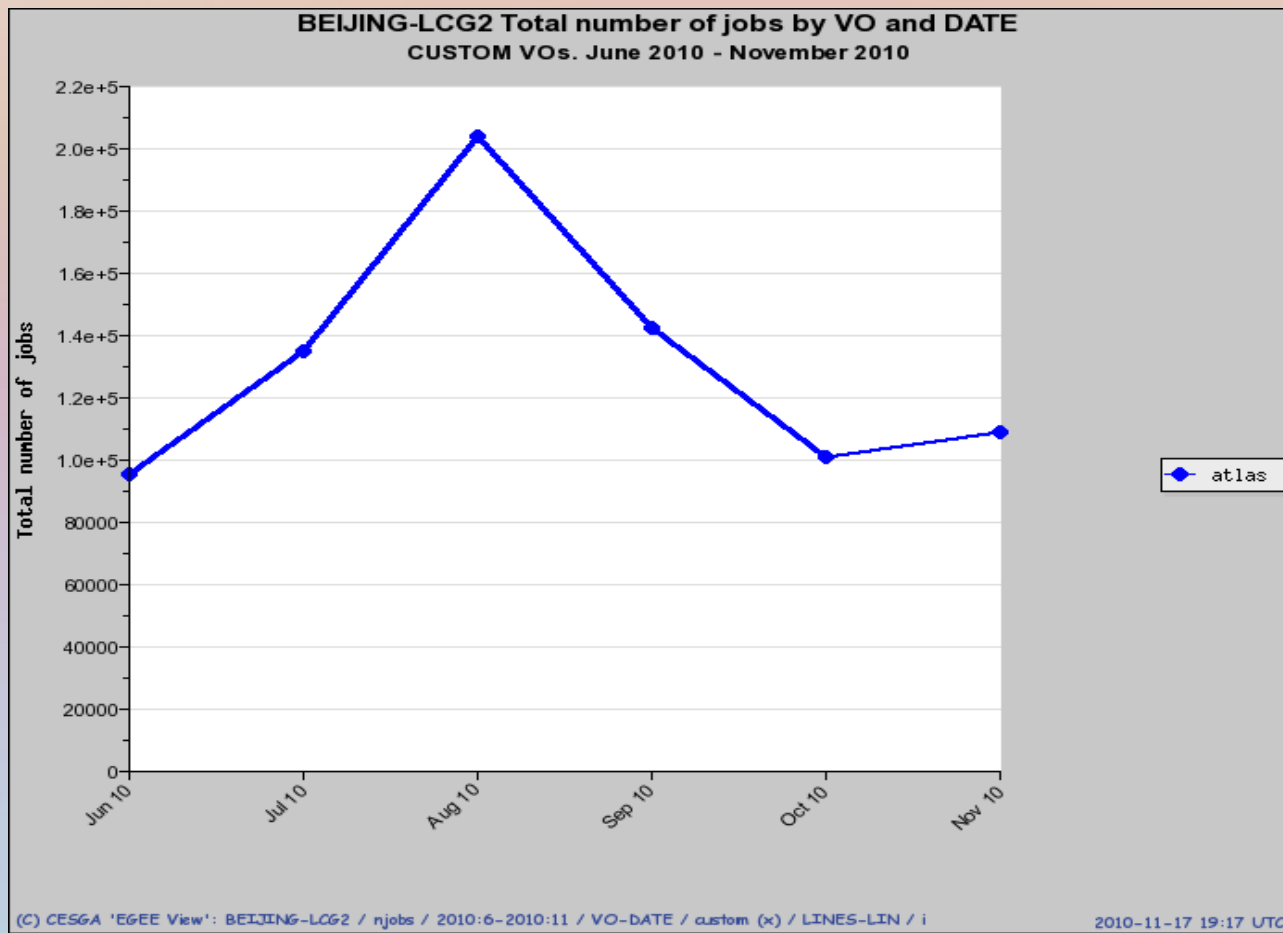
Site	Successful	Failed	Efficiency
TOKYO-LCG2	247699	6626	97.4%
BEIJING-LCG2	156500	5586	96.6%
IN2P3-LAPP	131018	4640	96.6%
IN2P3-LPC	101935	5488	94.9%
IN2P3-LPSC	63411	4017	94%
IN2P3-CPPM	146487	11174	92.9%
RO-07	79249	11287	87.5%
GRIF	264740	38468	87.3%

ATLAS Tier2: Finished Jobs

786,781 jobs finished (2010/06/10-2010/11/10)

Statistics from EGEE accounting :

http://www3.egee.cesga.es/gridsite/accounting/CESGA/egee_view.php

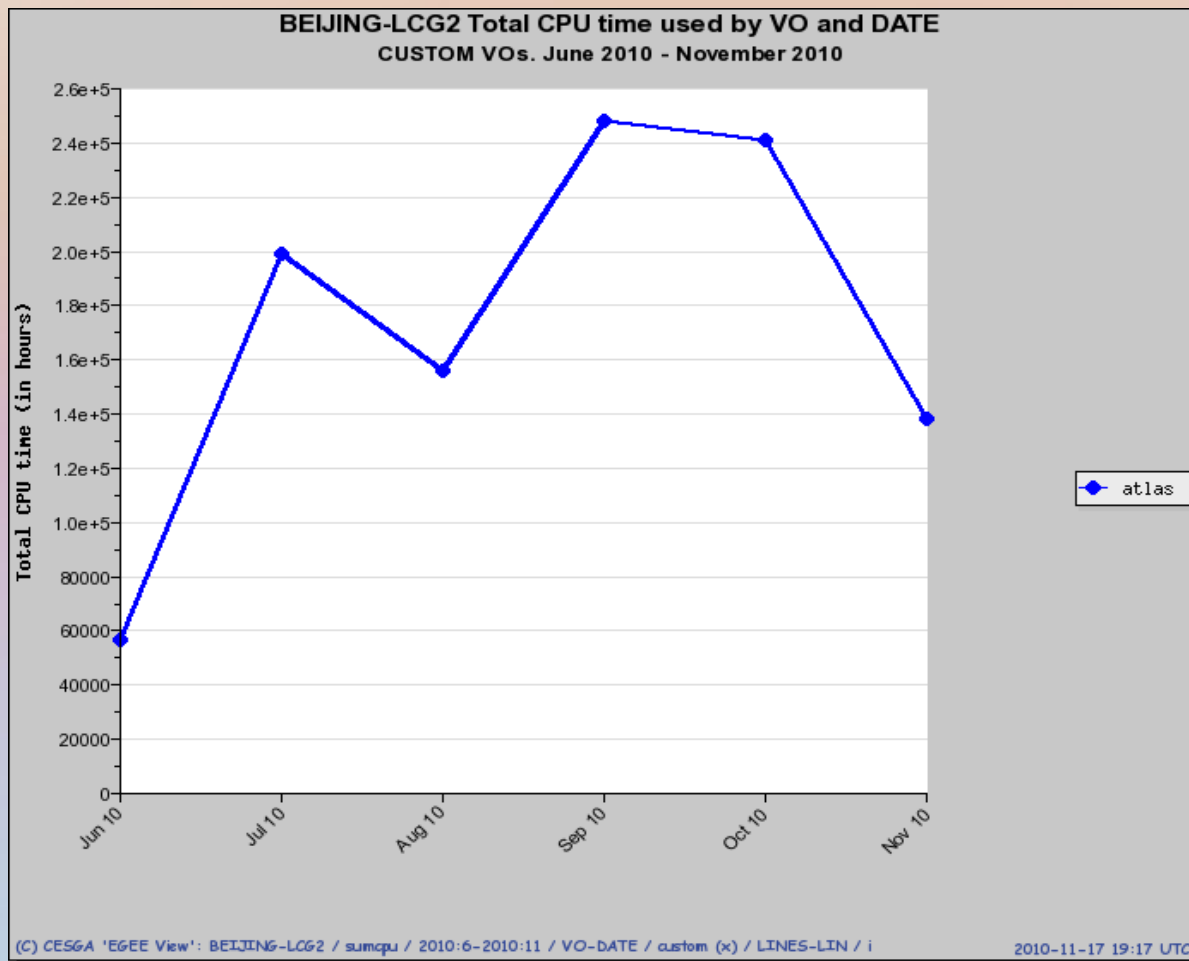


ATLAS Tier2: CPU Hours used

1,039,048 CPU hours used(2010/06/10-2010/11/10)

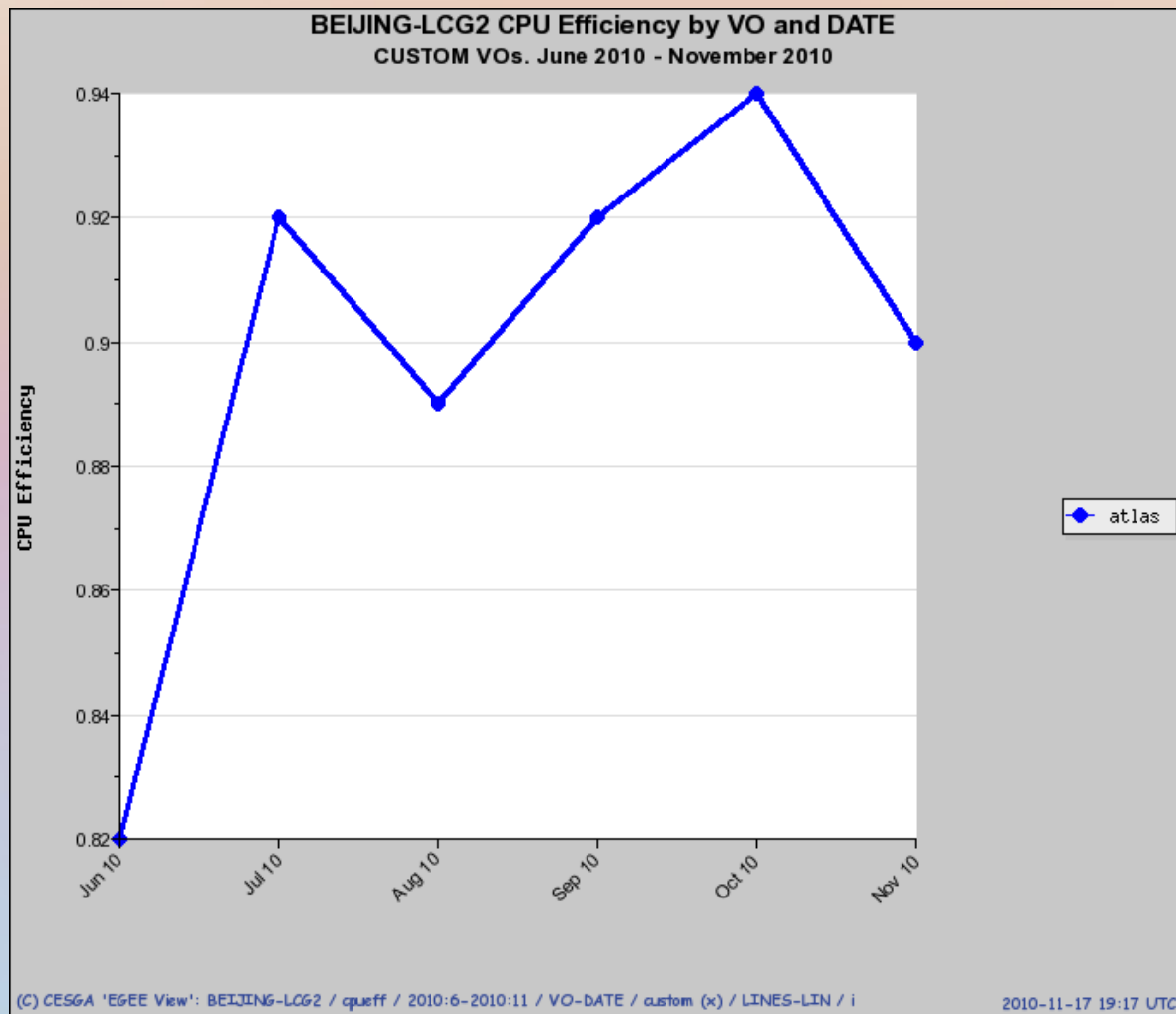
Available CPU hours for ATLAS is 357120 hours/month

CPU hours utilization is 48.4%(ATLAS), 33.3%(CMS)



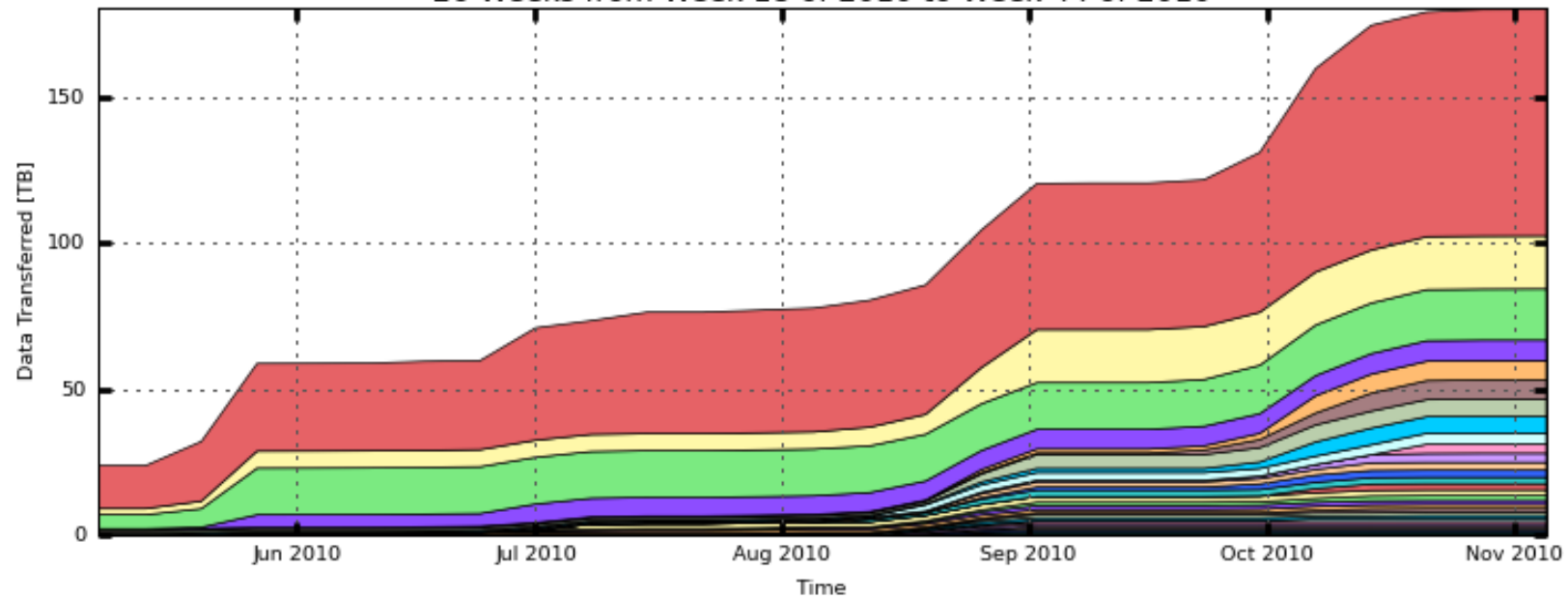
ATLAS Tier2: CPU Efficiency

Average CPU efficiency is 91.2%(2010/06/10-2010/11/10)



CMS Tier2: Download 180TB

CMS PhEDEx - Cumulative Transfer Volume
26 Weeks from Week 18 of 2010 to Week 44 of 2010

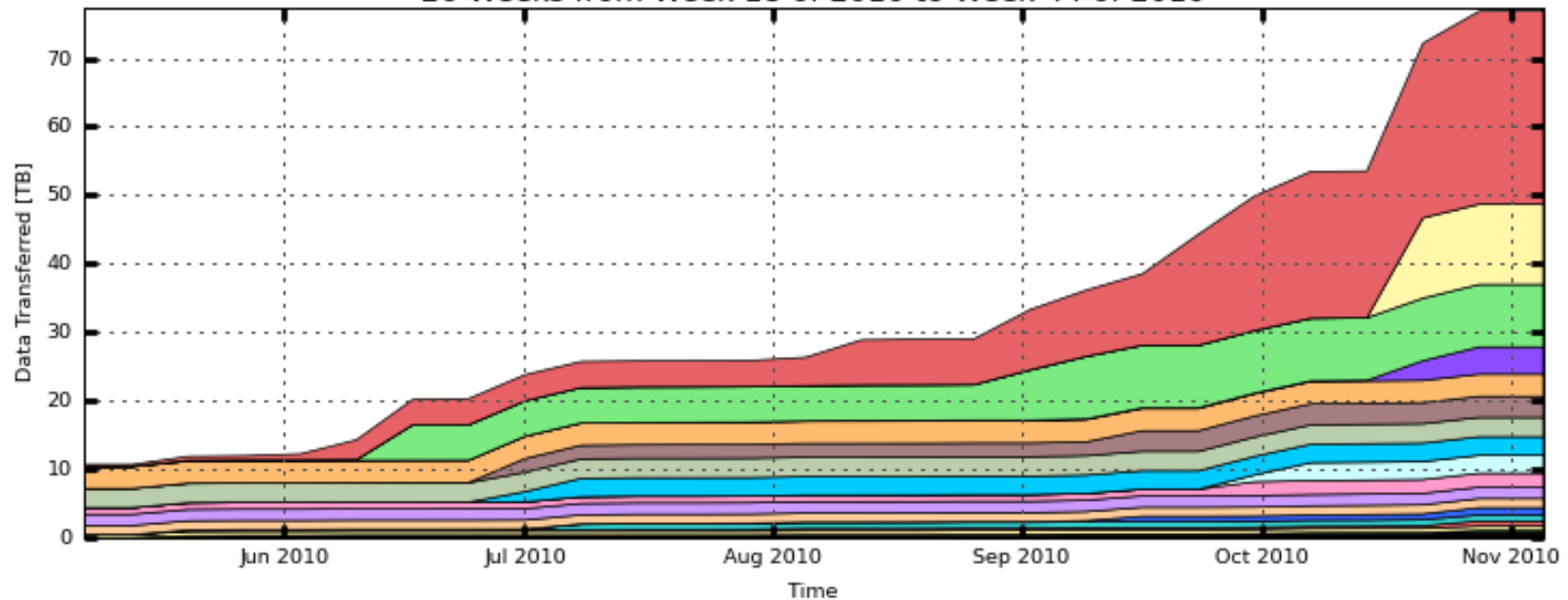


- | | | |
|--------------------------------------|---------------------------------------|---|
| ■ T1_US_FNAL_Buffer to T2_CN_Beijing | ■ T1_IT_CNAF_Buffer to T2_CN_Beijing | ■ T1_DE_KIT_Buffer to T2_CN_Beijing |
| ■ T2_CH_CSCS to T2_CN_Beijing | ■ T2_UK_London_IC to T2_CN_Beijing | ■ T1_FR_CCIN2P3_Buffer to T2_CN_Beijing |
| ■ T1_UK_RAL_Buffer to T2_CN_Beijing | ■ T2_US_MIT to T2_CN_Beijing | ■ T2_US_Wisconsin to T2_CN_Beijing |
| ■ T3_US_FNALLPC to T2_CN_Beijing | ■ T1_TW_AS GC_Buffer to T2_CN_Beijing | ■ T2_IT_Legnaro to T2_CN_Beijing |
| ■ T2_US_Nebraska to T2_CN_Beijing | ■ T2_IT_Pisa to T2_CN_Beijing | ■ T2_UK_London_Brunel to T2_CN_Beijing |
| ■ T2_US_Florida to T2_CN_Beijing | ■ T2_ES_CIEMAT to T2_CN_Beijing | ■ T2_DE_RWTH to T2_CN_Beijing |
| ■ T1_ES_PIC_Buffer to T2_CN_Beijing | ■ T2_FR_GRIF_IRFU to T2_CN_Beijing | ■ T2_US_UCSD to T2_CN_Beijing |
| ■ T2_ES_IFCA to T2_CN_Beijing | ■ T2_FR_HIP to T2_CN_Beijing | ■ T2_FR_IPHC to T2_CN_Beijing |
| ■ T2_DE_DESY to T2_CN_Beijing | ■ T2_FR_GRIF_LLR to T2_CN_Beijing | ■ T2_US_Purdue to T2_CN_Beijing |
| ■ T2_US_Caltech to T2_CN_Beijing | ■ T2_IT_Bari to T2_CN_Beijing | ■ ... plus 6 more |

Total: 180.39 TB, Average Rate: 0.00 TB/s

CMS Tier2 : Upload 77TB

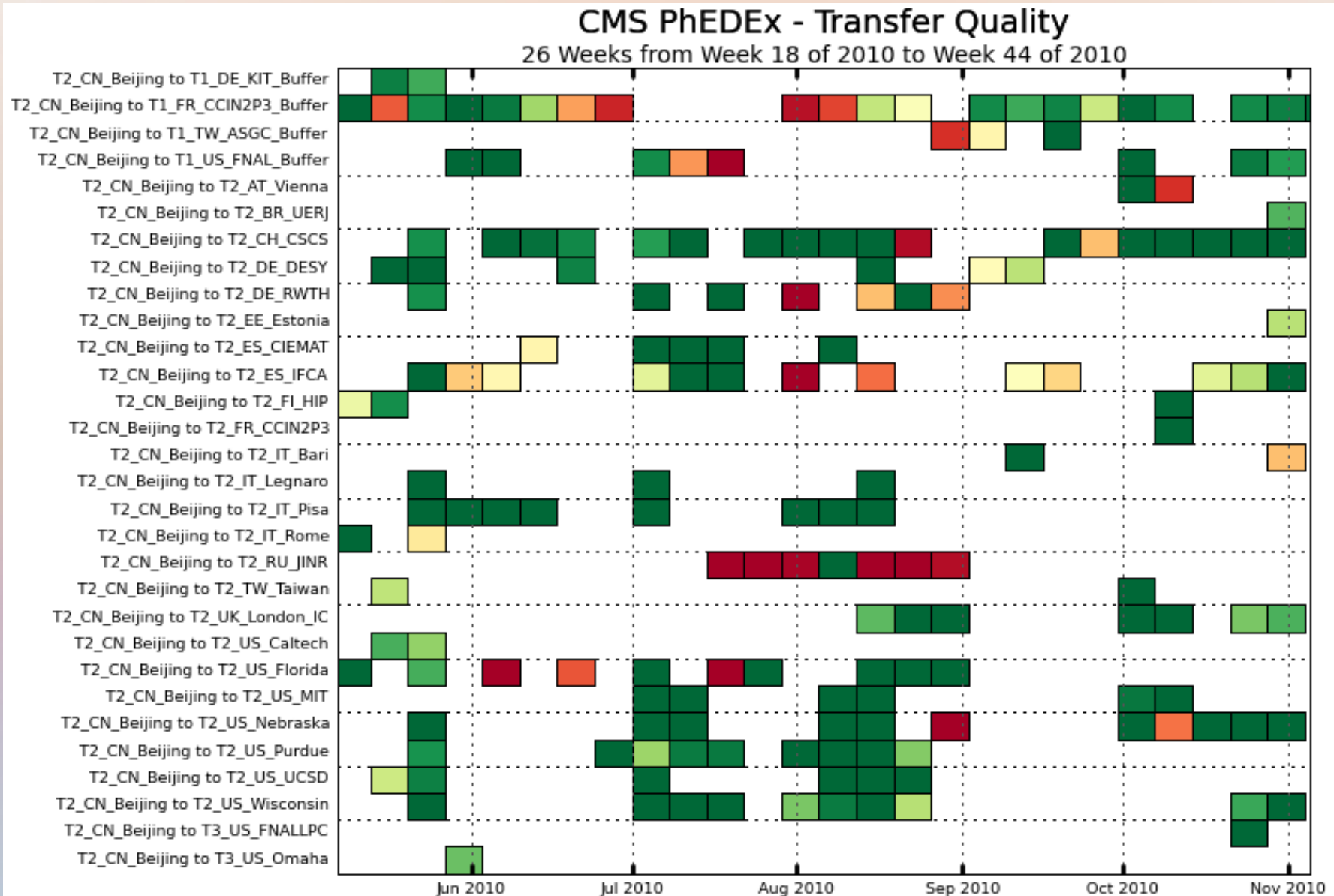
CMS PhEDEx - Cumulative Transfer Volume
26 Weeks from Week 18 of 2010 to Week 44 of 2010



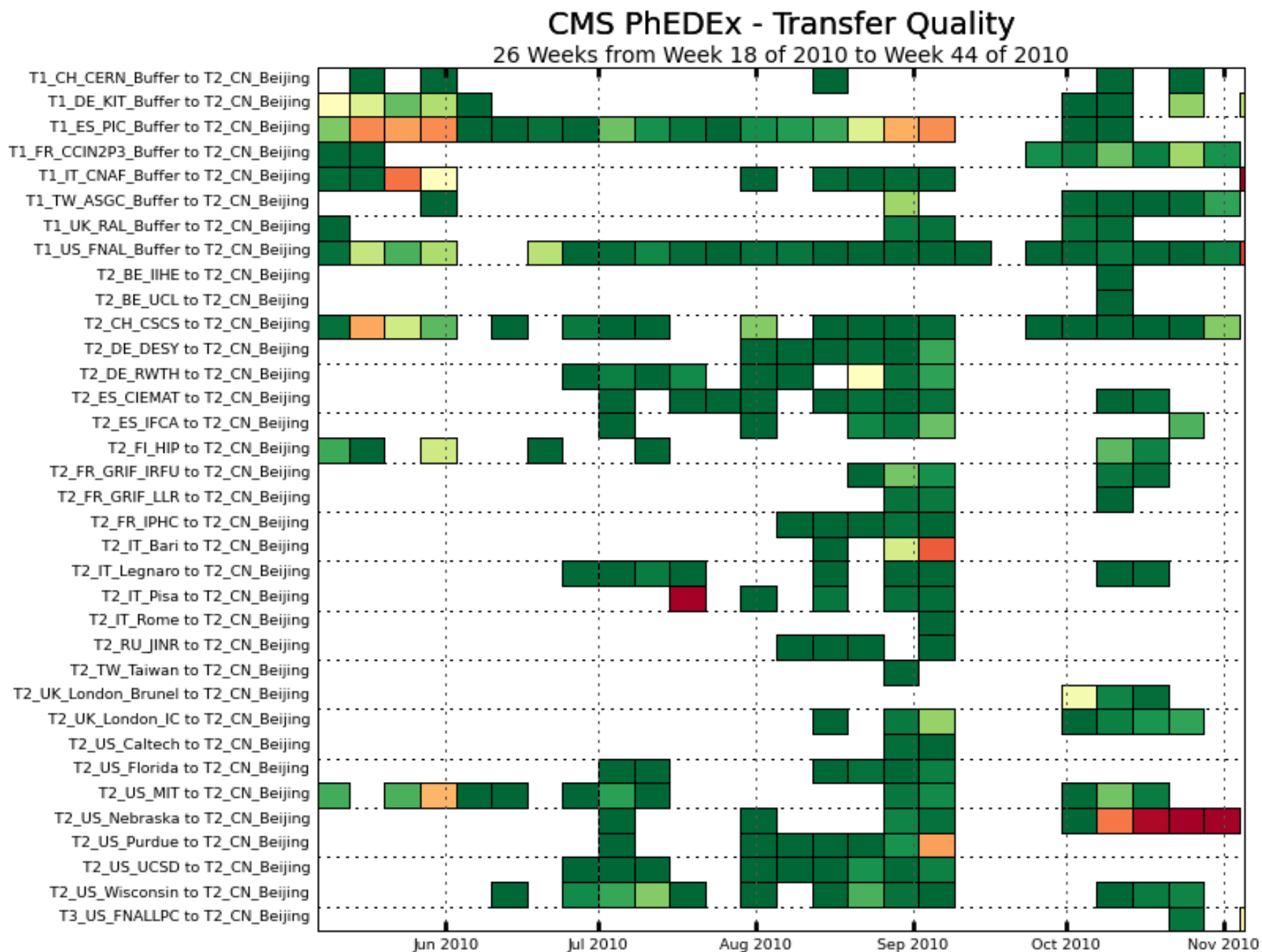
- | | | |
|---|--------------------------------------|------------------------------------|
| ■ T2_CN_Beijing to T1_FR_CCIN2P3_Buffer | ■ T2_CN_Beijing to T3_US_FNALLPC | ■ T2_CN_Beijing to T2_DE_DESY |
| ■ T2_CN_Beijing to T2_UK_London_IC | ■ T2_CN_Beijing to T2_US_UCSD | ■ T2_CN_Beijing to T2_CH_CSCS |
| ■ T2_CN_Beijing to T2_US_Caltech | ■ T2_CN_Beijing to T1_US_FNAL_Buffer | ■ T2_CN_Beijing to T2_US_MIT |
| ■ T2_CN_Beijing to T2_TW_Taiwan | ■ T2_CN_Beijing to T2_US_Florida | ■ T2_CN_Beijing to T2_FI_HIP |
| ■ T2_CN_Beijing to T2_ES_IFCA | ■ T2_CN_Beijing to T2_US_Purdue | ■ T2_CN_Beijing to T2_US_Wisconsin |
| ■ T2_CN_Beijing to T1_DE_KIT_Buffer | ■ T2_CN_Beijing to T2_US_Nebraska | ■ T2_CN_Beijing to T2_EE_Estonia |
| ■ T2_CN_Beijing to T2_IT_Pisa | ■ T2_CN_Beijing to T2_IT_Bari | ■ T2_CN_Beijing to T2_ES_CIEMAT |
| ■ T2_CN_Beijing to T2_AT_Vienna | ■ T2_CN_Beijing to T2_BR_UERJ | ■ T2_CN_Beijing to T2_RU_JINR |
| ■ T2_CN_Beijing to T2_IT_Rome | ■ T2_CN_Beijing to T3_US_Omaha | ■ T2_CN_Beijing to T2_DE_RWTH |
| ■ T2_CN_Beijing to T2_IT_Legnaro | ■ T2_CN_Beijing to T1_TW_ASGC_Buffer | ■ T2_CN_Beijing to T2_FR_CCIN2P3 |

Total: 76.87 TB, Average Rate: 0.00 TB/s

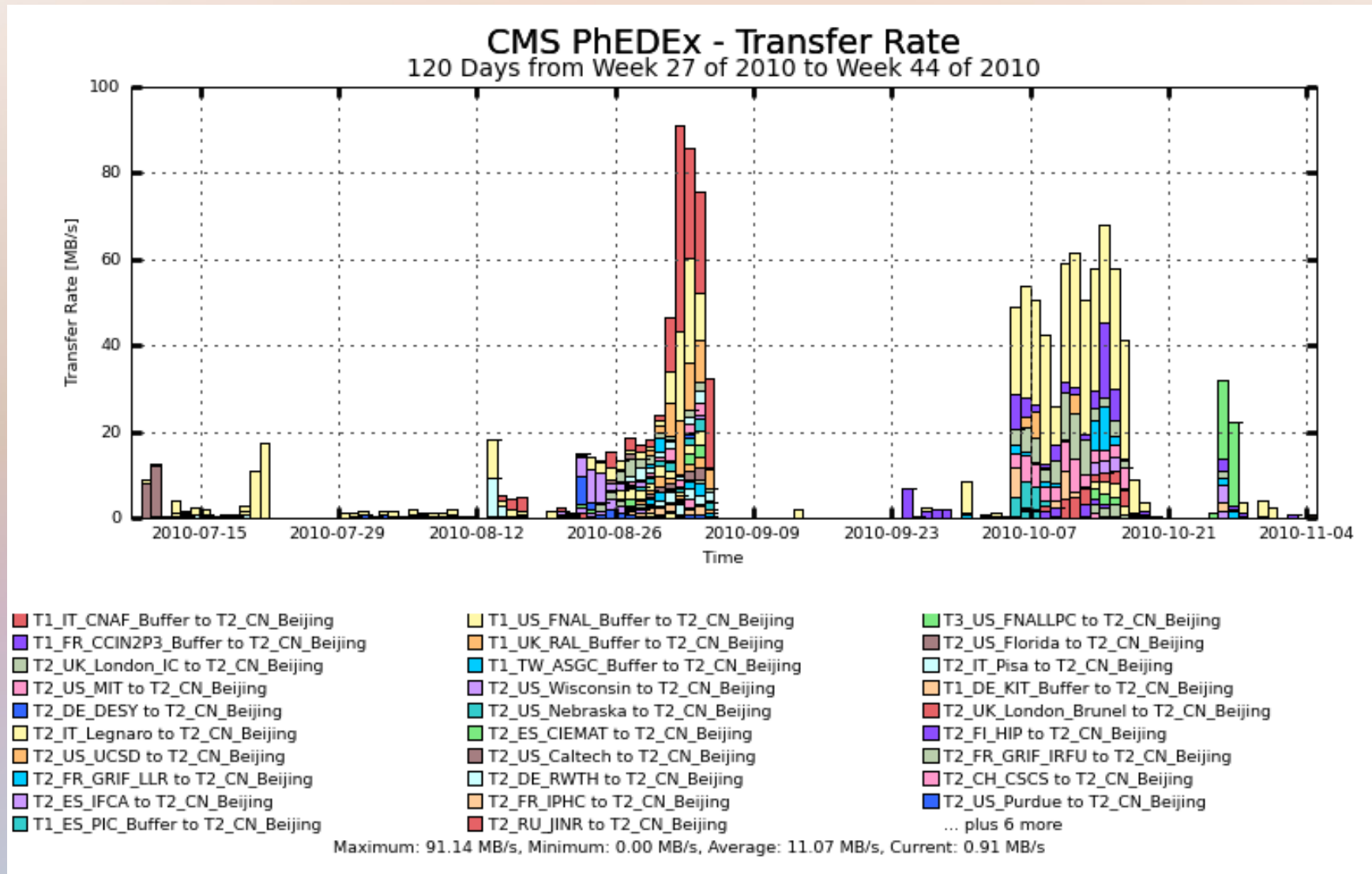
CMS Tier2 : Download Quality



CMS Tier2 : Upload Quality

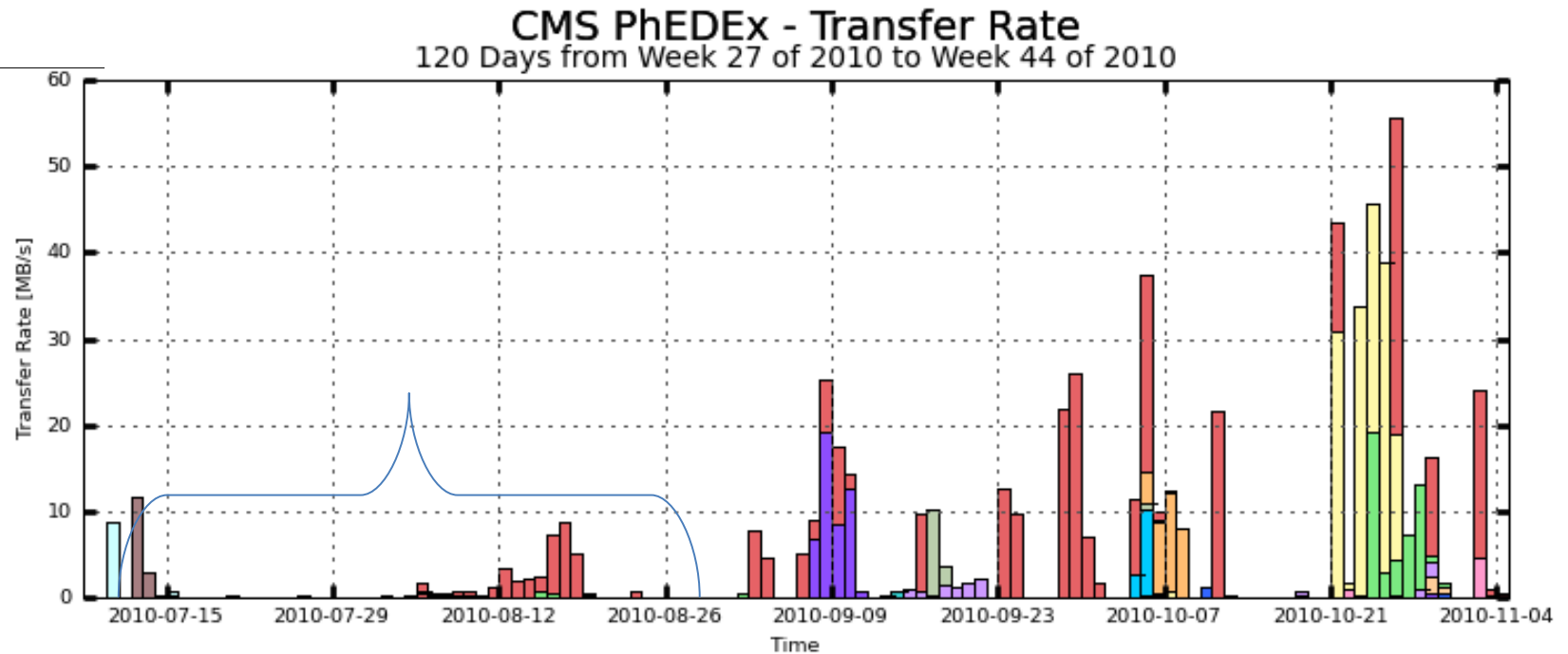


CMS Tier2 : max download rate 91MB/s



Max upload rate 55MB/s

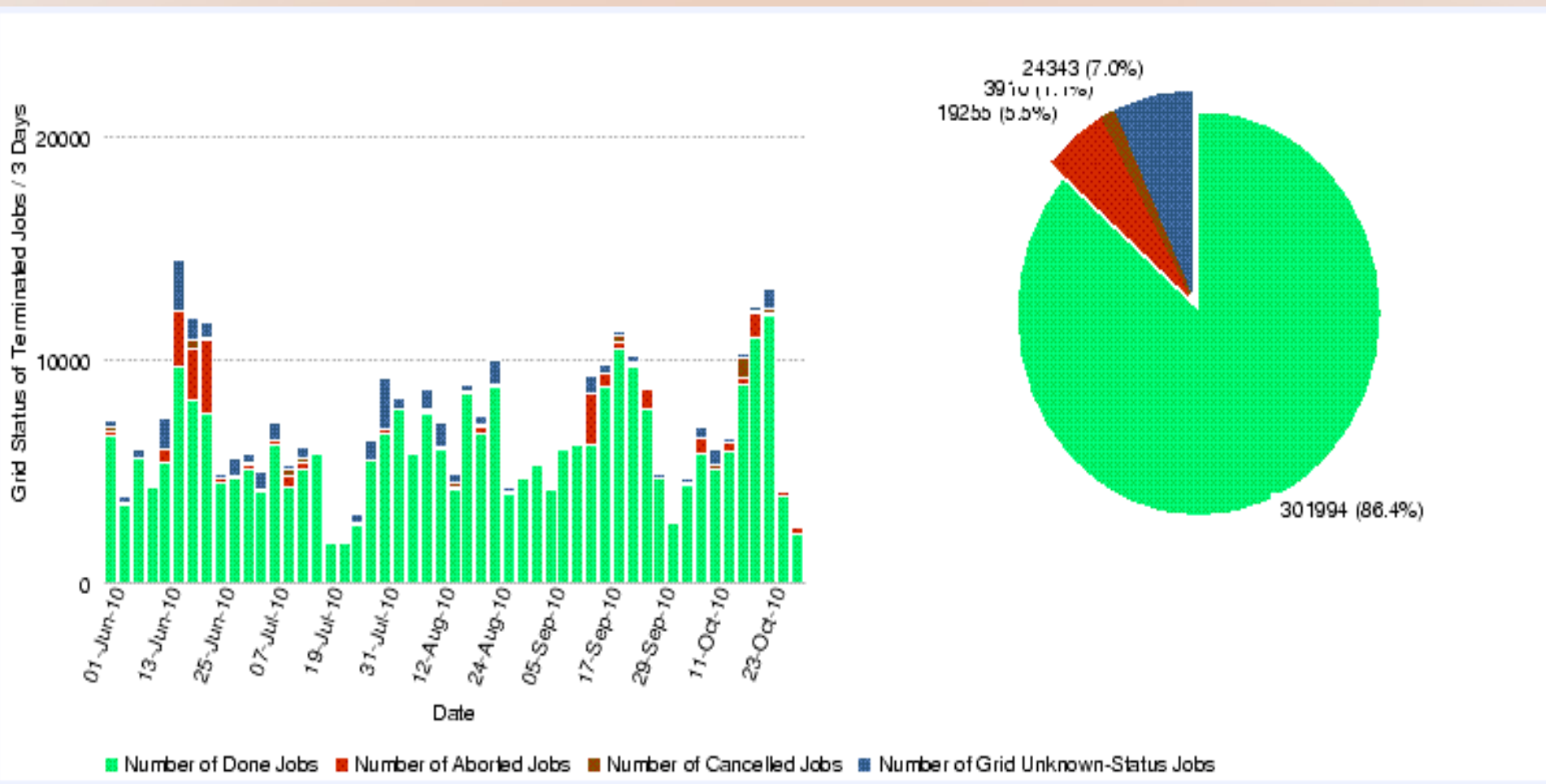
network problem from Beijing to IN2P3 from July to September



- | | | |
|---|--------------------------------------|--------------------------------------|
| ■ T2_CN_Beijing to T1_FR_CCIN2P3_Buffer | ■ T2_CN_Beijing to T3_US_FNALLPC | ■ T2_CN_Beijing to T2_UK_London_IC |
| ■ T2_CN_Beijing to T2_DE_DESY | ■ T2_CN_Beijing to T2_US_MIT | ■ T2_CN_Beijing to T1_US_FNAL_Buffer |
| ■ T2_CN_Beijing to T2_CH_CSCS | ■ T2_CN_Beijing to T2_TW_Taiwan | ■ T2_CN_Beijing to T2_US_Purdue |
| ■ T2_CN_Beijing to T2_US_Wisconsin | ■ T2_CN_Beijing to T2_ES_IFCA | ■ T2_CN_Beijing to T2_EE_Estonia |
| ■ T2_CN_Beijing to T2_US_Nebraska | ■ T2_CN_Beijing to T2_IT_Bari | ■ T2_CN_Beijing to T2_ES_CIEMAT |
| ■ T2_CN_Beijing to T2_AT_Vienna | ■ T2_CN_Beijing to T2_RU_JINR | ■ T2_CN_Beijing to T2_BR_UERJ |
| ■ T2_CN_Beijing to T2_FI_HIP | ■ T2_CN_Beijing to T1_TW_ASGC_Buffer | ■ T2_CN_Beijing to T2_US_Florida |
| ■ T2_CN_Beijing to T2_US_UCSD | ■ T2_CN_Beijing to T2_FR_CCIN2P3 | ■ T2_CN_Beijing to T2_IT_Pisa |
| ■ T2_CN_Beijing to T2_DE_RWTH | ■ T2_CN_Beijing to T2_IT_Legnaro | |

Maximum: 55.72 MB/s, Minimum: 0.00 MB/s, Average: 5.37 MB/s, Current: 0.41 MB/s

CMS Tier2: Finish 301,994 jobs



Site Future Plans

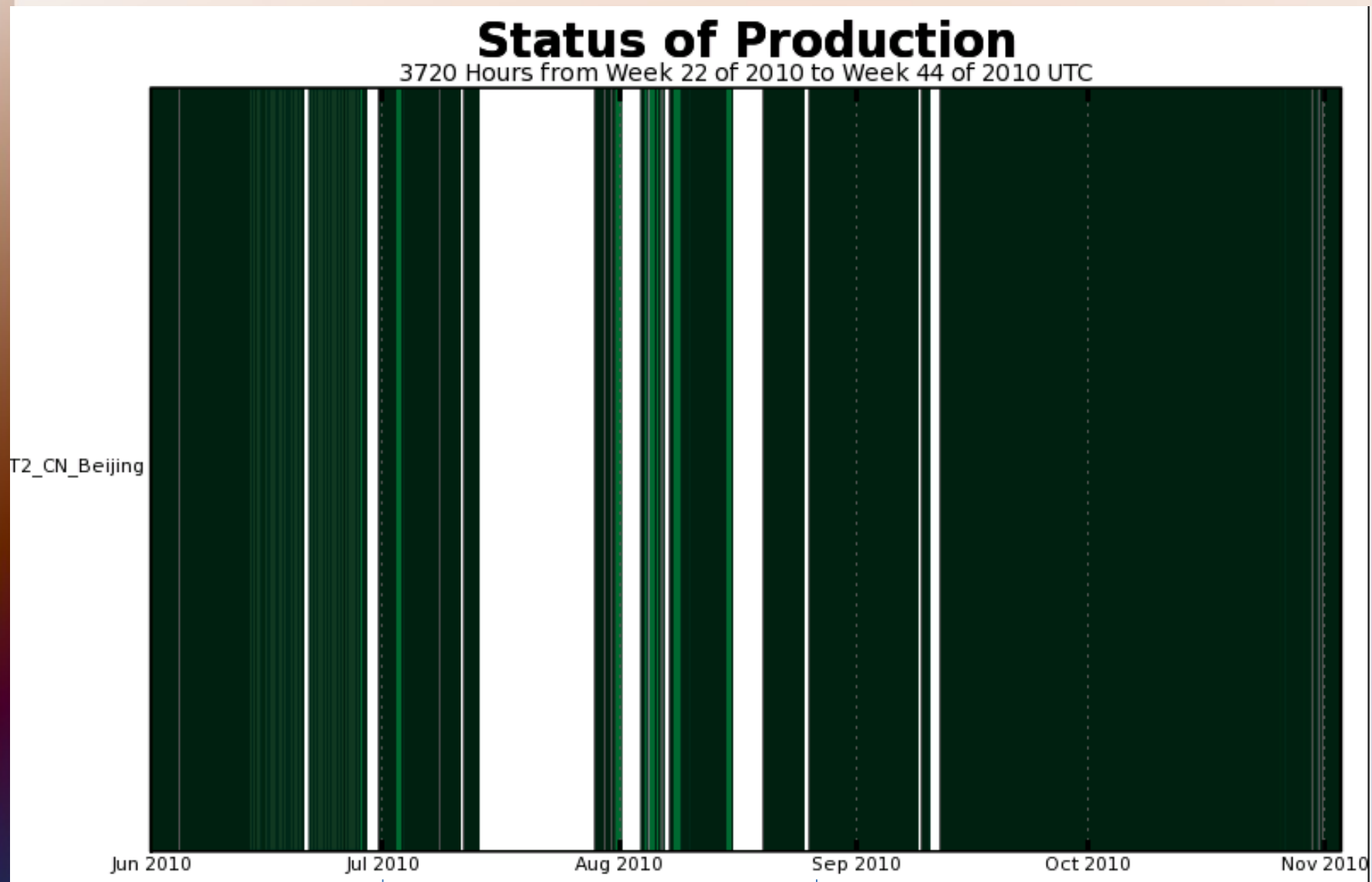
Software distribution by CVMFS(CernVM)

athena

cmssw

Virtualization of computer nodes via CernVM
technology

Production status is good



The End!

Thanks